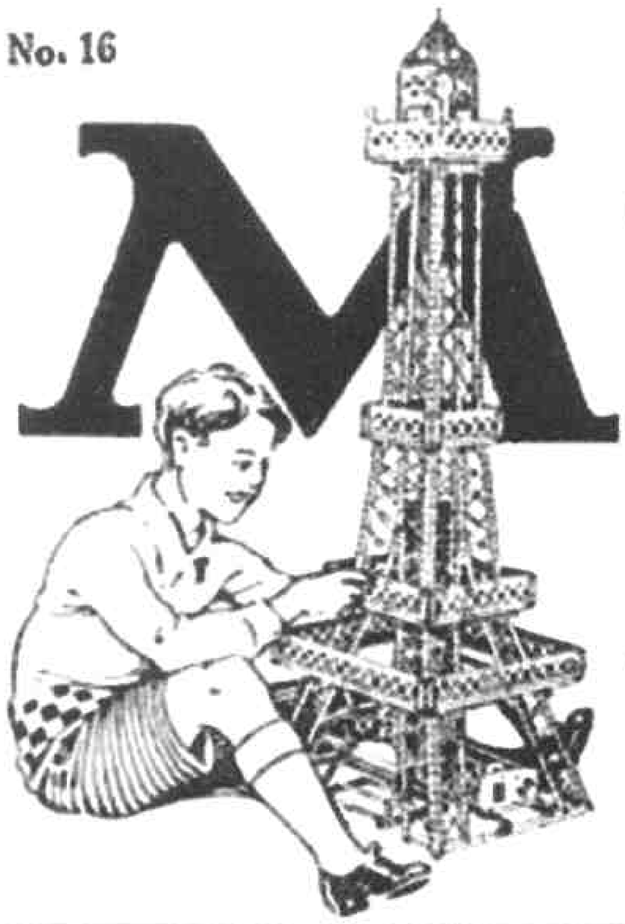
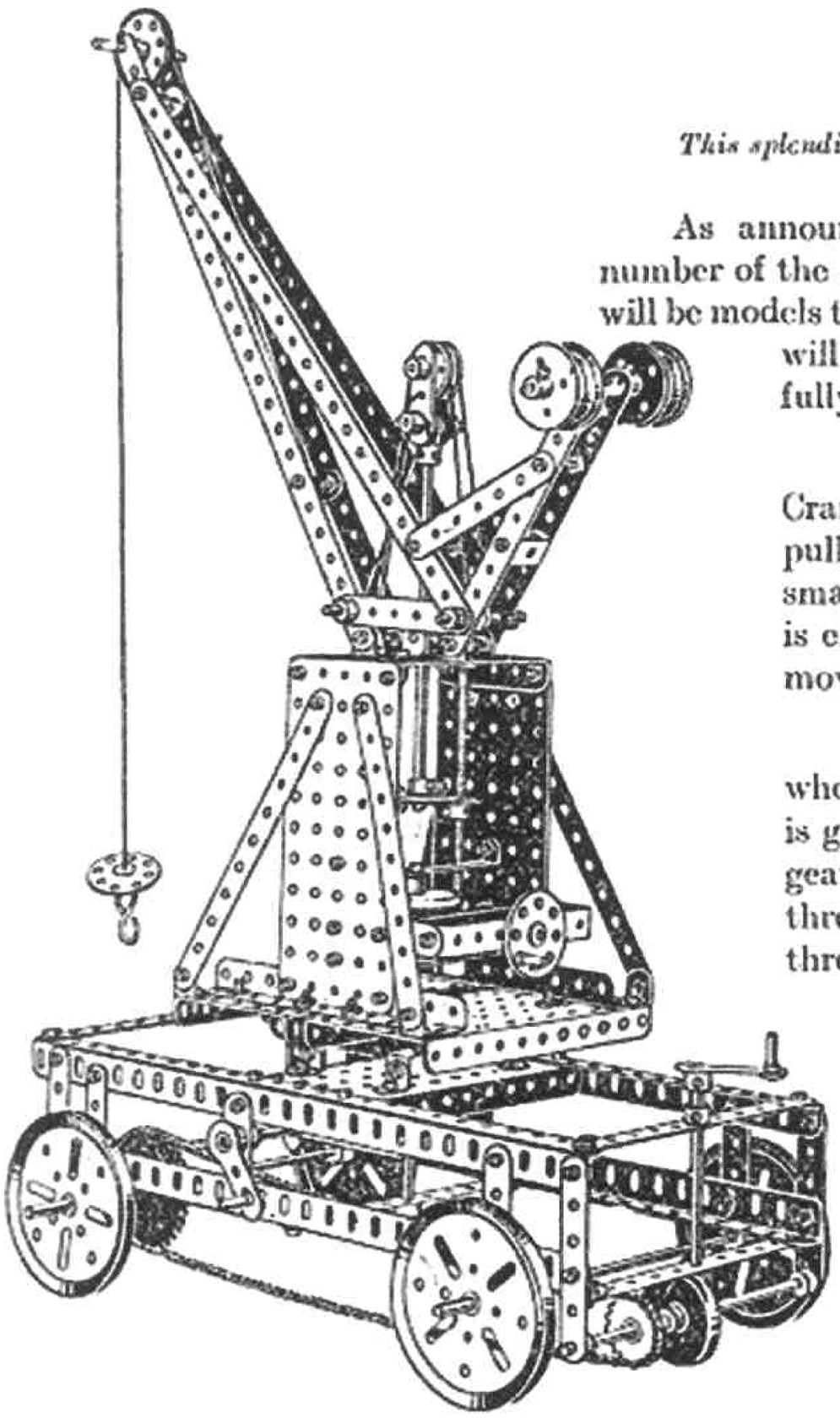
No. 16 JANUARY-FEBRUARY 1921.



MECCANO MAGAZINE

PRICE 1d

TO HELP MECCANO BOYS TO HAVE MORE FUN THAN OTHER BOYS



Hydraulic Crane

This splendid model was awarded a valuable prize in our 1919-20 £200 Prize Competition.

As announced in our last issue, it is our intention to illustrate in each number of the *Meccano Magazine* an entirely new Meccano model. Many of them will be models that have won prizes in our recent Competitions. In due course they will appear in new editions of the *Meccano Manuals*, and will be fully illustrated and described.

This model is designed to illustrate the operation of a Hydraulic Crane, in which great power is utilised to force two or more sets of pulley wheels apart, chains passing round the pulley wheels so that by a small movement of the operating power a great movement of the load is effected. In the model, instead of water power, screws are used to move the chain or cord pulleys.

In this crane the weight is raised or lowered by operating the handwheel facing the rear of the Crane truck. The spindle of this handwheel is geared to the crown wheel which may be seen in the illustration: a gear wheel on the crown wheel axle engaging pinions on two vertical threaded rods, one only of which is shown in the illustration. Two threaded cranks engage the threaded rods and move up or down as the rods are rotated. A length of rod is connected to the threaded cranks and carries small pulleys as shown at the top round which the operating cord passes, being led also round other small pulleys at the base of the jib, the free end of the cord passing over the pulley at the top of the jib. The jib is swivelled by the crank handle at the side of the truck, and the whole Crane is caused to move on the four travelling wheels by the crank handle at the near end.

EDITORIAL.

Good Wishes.

Let me offer my warmest thanks to the hundreds of my readers who have sent me Christmas greetings and good wishes. My office is decorated with photographs and cards from Meccano boys and I feel myself surrounded by kind thoughts. I send to all my readers my sincere wishes for the year which we have now entered.

Hornby Trains.

I know that these wonderful trains would be well received, but I was hardly prepared for the avalanche of orders which descended upon us from every toy dealer in the country. My congratulations go to those boys who were fortunate enough to secure one in time for Christmas, and to the disappointed ones, I would say, that their patience will be rewarded in a very short time as our factory output increases.

More New Meccano Lines.

The Hornby train is only the first of a series of good things. In a little while we shall be able to announce new types of engines, carriages, trucks, signals, etc., each one of which may be relied upon to be better than anything hitherto introduced. I shall be able to give more information regarding these new lines in future issues.

Photographs Wanted.

I receive many photographs from my readers of themselves, their models, local engineering structures, and others of interest, and I propose publishing a number of these in the *Meccano Magazine*. I shall be glad to receive interesting photographs from any of my readers who possess a camera, and to pay 2s. 6d. for each one used.

Meccano in Schools.

Almost every day boys and teachers write to tell me that as a result of Essay and Model-building Competitions held in their schools, they have discovered that more than half the pupils possess Meccano outfits. I am anxious to find out what percentage of schoolboys

throughout the country use Meccano, and shall be glad to hear from any of my readers who can give me information regarding their own classes or schools.

A Warning.

In our No. 14 issue I warned my readers against begging letters received from abroad. The principal culprits appear to be boys on the West Coast of Africa who write to Meccano boys asking them to send fountain pens, writing paper, handkerchiefs, etc. I hope all my readers will ignore all communications of this type. If doubtful correspondence is received by any Meccano boy, he should at once write to me.

Insufficient Postage.

A number of letters have recently reached me insufficiently stamped, and as the rejection of these by our Receiving Department causes disappointment to the senders, I am asking all my correspondents to see that sufficient stamps are attached to their envelopes. If two or more friends are writing to me at the same time, all their letters can be enclosed in the same envelope.

Our £250 Competition.

The entries in our big Competition are coming along in good shape, and the new conditions which govern this contest are proving very acceptable to Meccano boys. Let me warn intending Competitors that the closing date is April 15th. This Contest promises to be a record one.

The Editor

The New Meccano Catalogue.

This beautiful new catalogue should be in the hands of every Meccano boy.

Besides illustrating and describing each outfit and explaining the simplicity and beauty of the Meccano system, it gives full particulars of the new Electrical Accessory Outfits, Meccano Clockwork and Electric Motors, the Hornby Clockwork Train System which is making such a deep impression throughout the country; the Tin Printed Clockwork Trains and Vertical Steam Engines. It also contains two full pages of illustrations of Prize-winning Models in the Big Meccano Competitions, and a fully illustrated list of the entire range of Meccano parts, including the new and valuable ones which have been recently added.

The demand for "Meccano Products" following the announcement in our last issue has been very heavy indeed, but there are still thousands of Magazine readers who have not taken advantage of this splendid offer.

We wish every reader of the *Meccano Magazine* to possess one of these beautiful booklets. A copy will be sent FREE on receipt of your postcard. Write to-day.

Suggestions by Meccano Boys.

There could be no better evidence of the keenness of our readers for the Meccano hobby and their powers of observation and invention than the stream of suggestions which continues to come in from Meccano boys for new accessory parts, new movements, etc., and it seems to us that it would be of considerable interest to all our readers if as many of these suggestions as possible were dealt with in these columns.

We therefore propose devoting a portion of our space in each issue to these suggestions.

Very many of the suggestions made are for parts which have only one function, and whilst in some cases it is necessary to introduce one function parts such as shuttles, healds, weights, Meccanograph tables, etc., it must not be forgotten that the underlying principle of the Meccano system is the variety of uses to which each part may be applied. The most valuable parts of the Meccano system are those which serve the greatest variety of purposes, and we naturally value the suggestions most which are on these lines.

In almost every issue of the *Meccano Magazine* new accessory parts are announced which greatly strengthen the Meccano system, and we are always on the look-out for new ideas. Any suggestions sent in by Meccano users are very welcome, and most carefully considered, and we see that any special merit or inventiveness shewn is recognised and properly rewarded.

Below we deal with a few suggestions which have recently been received:—

W.E.T., Southampton, sends us a suggestion for the introduction of a single bucket or chain of buckets to the Meccano system. We already have this in hand and hope to introduce one very shortly.

Sydney B., Tottenham, writes to say that an eccentric piece would be extremely useful to all Meccano boys. There are several ways of making an eccentric with existing parts; for example, the crank secured to the rod with a bolt lock nutted to the shank to carry a perforated strip; or a bush wheel or face plate may be used in a similar manner. If S.B. will kindly let us know for what purpose he requires the crank we may be able to help him over his difficulty.

Douglas B., London, S.E., suggests more illustrations in the Manual so that the construction of some of the models may be more easily understood. We have had two difficulties to contend with in the past, either to reduce the number of models in the Manuals and provide more detailed instructions, or increase the size of the Manual. Owing to the great cost of paper, however, we have been compelled to keep the Manual as it is, but later on we shall select the more difficult models and elaborate the instructions.

B.I.M., Walworth. A crane drum may be made with existing Meccano parts by the use of a wood roller with a bush wheel butted up against it at each end, secured to the rod with the set screws.

Stanley, D., Birmingham. Points will be ready shortly to be used in connection with the lines for Hornby trains. The keys for winding the trains are now being made with a guage at one end to test the accuracy of the lines.

M.S., Templecombs. We announce in this issue a new type of pawl which is arranged to engage in either a half inch or three-quarter pinion wheel. This is capable of controlling a crane handle. Two of these fastened to the same rod in opposite directions may also serve as a pallet for regulating a clock.

Meccano and Electricity.

Different Kinds of Electricity.

There are two kinds of Electricity, a fact which any boy will understand by carrying out one or two simple experiments. If a glass rod is rubbed with a piece of dry silk it becomes charged with electricity, and when placed in contact with some small pieces of tissue paper or other light substance it will be found, first of all, to attract the particles and then after a short time to repel them.

An amber rod or a rod of sealing wax rubbed with dry flannel or fur acts in just the same way; but if, after rubbing, the amber rod is placed close to the particles which were repelled by the glass rod, it will be found that they adhere to it and are not repelled.

Rubbing the rod charges it with electricity which is passed on to the tiny particles; immediately these become charged they no longer adhere to the rod, and it is obvious from this that two bodies charged with the same kind of electricity repel each other.

We noticed, however, that the amber rod attracted and held the particles cast off by the glass rod, and we come to the conclusion that the Electricity in these particles must be different from the electricity in the rod.

As a matter of fact, the glass rod when rubbed, becomes charged with what is known as "positive" electricity, whilst the amber rod becomes charged with "negative" electricity.

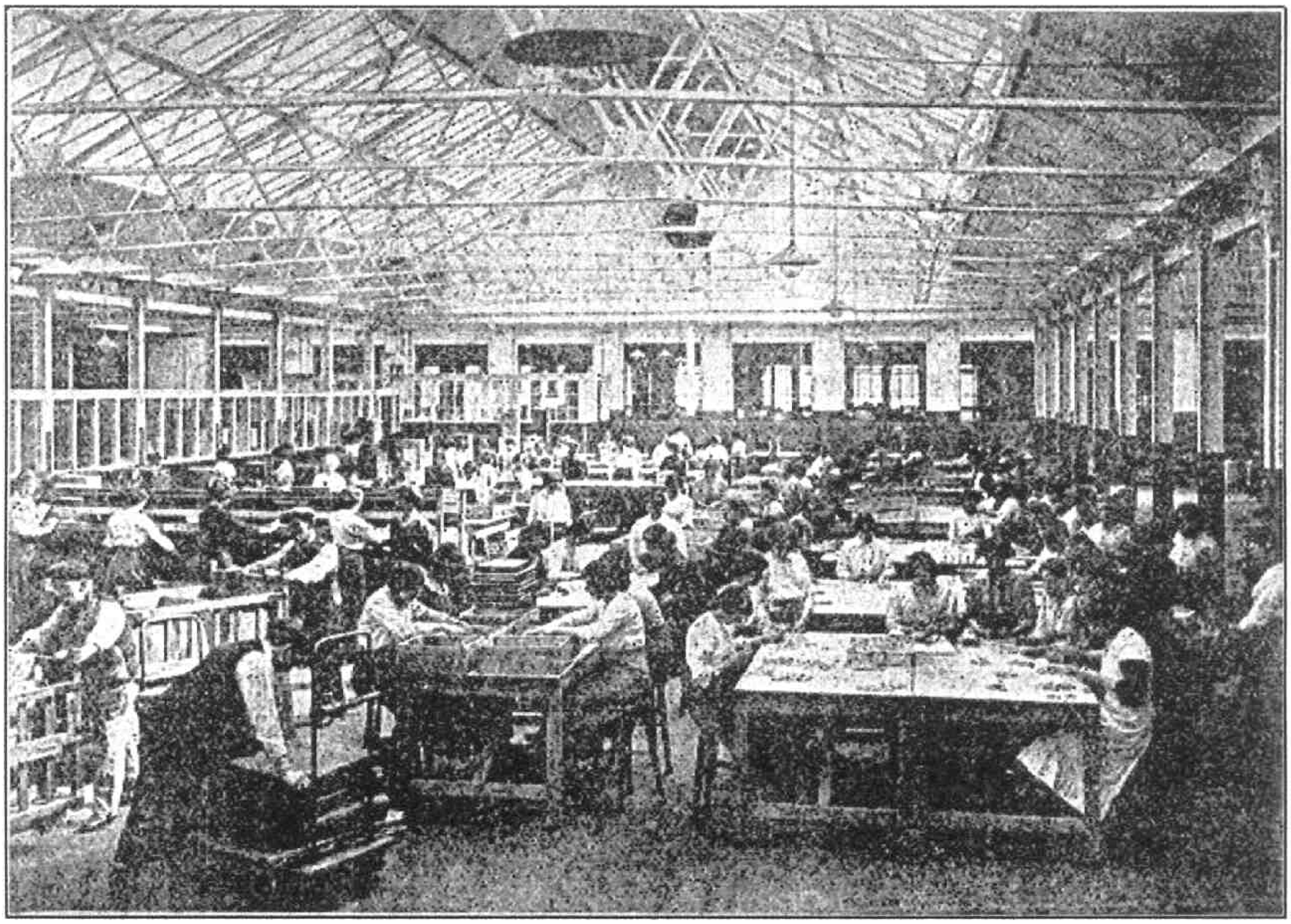
It will be well to remember this, and also that two "positives" and two "negatives" repel each other, whilst a "positive" and a "negative" attract each other. Electricity thus acts very much like that mysterious force, magnetism, and we shall deal more fully with this later.

The electricity generated by rubbing is known as "Frictional Electricity" and comes under the heading of "Electrostatics." It is of very little practical use, as no power worth mentioning can be derived from it.

The Electricity with which most of us are now familiar is that which lights our lamps, drives trams and trains, operates machinery, telephones, telegraphs, etc., and is fast becoming the most important source of "power" in the world. It has very much the same properties as frictional electricity, except that ever so much more power can be generated from it.

How to get the Meccano Magazine regularly.

The Meccano Magazine is now sold by most of the regular Meccano dealers, but in order to prevent disappointment you should place an order with your dealer for a copy of each issue to be reserved for you. The price of each issue is 1d. If you experience difficulty we will mail you a copy regularly on receipt of 6d. for the next six issues, or 1/- for the next twelve.



A Section of the Meccano Packing Department.

Life Story of Meccano

By Frank Hornby.
(Continued.)

A department of very great interest in our factory is our Packing Department, and I am able in this issue to include a photograph of a portion of this Department. The floor space of the room is 24,000 square feet, and it is one of the finest in our entire factory. It is to this room that the finished Meccano parts are finally transferred to be made up into bundles of the required quantities, ready to go into outfits. Perforated strips, Angle Brackets, Rods, Girders, etc. are brought to the tables, where girls wrap them up in twos, threes, sixes, tens, etc. for the various sized outfits. At other tables nuts and bolts are counted into boxes, while at others girls are busily at work placing the various wheels, pinions, etc. on cards. This work goes on all the year round, and these particular tables are busiest in the summer months preparing the stock for shipment throughout the country, and throughout the world, during the autumn and winter months.

In our factory, throughout the year we use 1,500 tons of metal, and as the whole of the finished parts come finally into our Packing Department to be placed in the outfits, you will see that these girls handle about 5 tons of Meccano parts a day throughout the working year. One side of this large room is devoted entirely to the packing of finished outfits, separate tables being devoted to regular and accessory outfits. In the centre of each table are the parts to be used, ready bundled and carded, and there are about ten girls at each table. The empty cartons are placed at one end of the table and are passed along to the girls, who rapidly fill them and transfer them to the other end of the table, where the Manual of Instructions is placed in each one, along with other literature.

You will have noticed that in each of our outfits a little slip is placed bearing several numbers. These numbers indicate to us the date each outfit was packed and the head worker who had charge of the table at which it was made up. In the event of a shortage or defect being discovered after the outfit has left our hands, we are always able to trace it right back by means of this slip and thus remedy any defects.

The next and final operation is the wrapping of the outfit in our well-known kraft wrapping paper, and placing the label at the end. This work is rapidly done by expert girls at other tables.

A very interesting feature of this room is the Labelling Machine; this is a great labour and time-saving device, which we have had in use for many years. The labels are placed on a table in a pile, and are fed one by one into the machine, which gums the entire back of the label, and conveys it along on a horizontal running linen band, about 18 feet long, which passes between a number of tables where girls are waiting for them. These girls take the labels from the running band, and rapidly and accurately place them on the lids of the cartons. The machine is operated by electricity, and it makes the work of labelling both expeditious and clean.

There is a great amount of organisation necessary in the running of a room of this kind, in which not only Meccano outfits for British boys are packed, but also for boys in our Colonies, in France, Spain, Portugal, Denmark, Sweden, Italy, Holland, China, etc., each requiring special labels, Manuals of Instructions, and other literature. You can easily imagine the large number of Manuals in various languages we need to have on hand at all times, and the number of cartons of various sizes. With proper organisation, however, the whole of this work goes on with marvellous smoothness, and complaints of faulty packing, shortages, etc. are very rare indeed.

(To be continued.)

The Meccano Guild

Member's Badge

A Fellowship of Meccano Boys

Leader's Badge

The objects of the Meccano Guild are:

(a) To make every boy's life brighter and happier.

(b) To foster clean mindedness; truthfulness, ambition, and initiative in boys.

(c) To encourage boys in the pursuit of their studies and hobbies, and especially in the development of their knowledge of mechanical and engineering principles.

The Meccano Guild of Boys is now firmly established, and is becoming stronger each day. We wish every boy who buys or has given to him a Meccano Outfit to understand that besides having secured the finest and most pleasurable toy in the world, he has also secured the privilege of associating himself with more than a million other boys who are working and playing just in the same way as himself, and endeavouring to get as much joy out of life as possible.

Each new Meccano boy should immediately join the Guild as an individual member, and, as soon as possible, attach himself to an existing Meccano Club, or combine with other Meccano boys to form a Club in his own district. You have only to read the reports of the activities of the Meccano Clubs in this issue to appreciate what this movement can mean to you. There are many thousands of boys in this country who meet together regularly once a week to have good times.

To join as an individual member it is only necessary for you to fill in a Guild application form, and post it to the Guild Secretary, along with 7d. in stamps, for your official badge, which every Meccano boy is proud to wear. Along with this badge you will be furnished with a certificate of membership, on which are set out the things for which the Guild stands. If you intend to form a Meccano Club, the Guild Secretary will provide you with all the help and information you need, and we can promise that when once you get your Club established, you will have the jolliest times you have ever had.

We cannot publish in this issue all the rules and regulations of the Meccano Guild, and the benefits which it confers on its members, but the Secretary of the Guild will be glad to send you all this information if you will apply to him.

Guild Notes.

By the Secretary.

If new Meccano Boys could read the correspondence which comes to me every day from Guild Members, Club Secretaries, and Club Leaders, and see with what enthusiasm and enjoyment every member is working, not one of them would wish to remain outside the Guild for a single moment.

The Meccano Guild is now firmly established, and the list of affiliated Clubs is growing rapidly and strongly. I am happy to say that letters now reach me from prospective Club Leaders of the right kind—men who take a deep interest in the welfare of boys, and who realise the excellent work that can be done through the Guild. Prominent men throughout the kingdom also recognise the wonderful work that we are doing, and are identifying themselves closely with the work of the various Clubs. I have learned from long experience that when intelligent boys work together for common enjoyment and good, there are always forthcoming the right kind of men to encourage and help them in every way possible.

I am especially glad to note from the various Club reports, that both Club Leaders and members are showing considerable initiative in introducing new subjects and new activities into the Club syllabus. Any Club official who is in doubt as to his own syllabus has only to read the reports of other Clubs to provide himself with any number of interesting subjects. I am always happy to help in this work and to assist in the preparation of plans for the session's syllabus.

Let me remind you again of the Guild Recruiting Campaign, which has been enthusiastically taken up by large numbers of Guild members. I am again illustrating the handsome medallion which is offered to members who secure three new recruits for the Guild. As a special award, the boy who obtains the largest number of recruits between September 1st, 1920, and March 1st, 1921, will receive an exact duplicate of the medallion in solid gold, with his name engraved on it, and to the boy who recruits the next largest number, a silver medallion, similarly engraved will be awarded. A large number of medallions have already been awarded, and much delay and trouble will be saved if every member sees that his own name and address appears on the back of the forms used by his recruits.

I shall be very pleased to send full particulars of the Campaign to any new members wishing to take part in it.

The Guild Correspondence Club is now in full operation, and its benefits are being enjoyed by a large number of boys. Lack of space prevents me from publishing the rules in this issue of the Magazine, but any member who would like to get into correspondence with another Meccano boy in this or any other country will be supplied with rules and full particulars on application.

Many Clubs are actively entering the Competition for which special Club prizes are offered. The Club which designs the best model during the Winter session will receive a cash prize of £5, and the Club which designs the next best model will receive £3. Each model must be the joint work of the Club members, and must be started and finished at the Club meetings. I have started this Competition in order to help the financial position of those Clubs who do the best work, and from passages in the various reports of those taking part, I anticipate some excellent entries.

I am very pleased to acknowledge the many letters of thanks and good wishes which have reached me from Club Leaders and members, and in doing so, I want to offer my very sincere thanks for the splendid way in which they have co-operated with me to establish the Guild on such successful lines.

Club Notes.

ASCENSION MECCANO CLUB.—A very successful session. Club is fortunate in having hall, games and lighting, etc., free, but nevertheless owes much to the organising ability of the Club Leader. Mr. Young advocates variety—Competitions, Exhibitions, Lantern Lectures, games, visits to engineering shops, etc. L. Bicknell gained 1st Prize in Club Competition with "Puffing Billy."

THE CIRENCESTER GRAMMAR SCHOOL MECCANO CLUB.—First session short but very successful. Average attendance, 15, and finance sound. Model Building, Lectures by Master Legg and the Secretary, and an impromptu concert in which everybody did his best to amuse everybody else, are chief items of note.

CLAYGATE MECCANO CLUB.—Has made rapid strides, largely due to Mr. Haynes arousing the active interest of local gentlemen—Mr. Britnell, Mr. Hudson, Mr. Nightingale, Mr. Randall and Mr. Tipler. Boys now have expert advice and assistance in Engineering subjects and Carpentry, and in addition to usual Club pursuits they are building their own benches, etc. During Christmas week, Club earned over £6 singing Carols—this was handed to Local Hospital.

On New Year's Day members of Committee and their wives gave boys a splendid tea, many gifts being received from parents and friends. 15 boys were present and whilst at tea they were visited by their President, Sir Francis Barker and his wife, Lady Barker. After inspecting the models, Sir Francis spoke to the boys and told them how pleased he was with the work he had seen.

The boys sang a Carol for Lady Barker, and after staying over an hour the distinguished visitors were given three hearty cheers on leaving.

After tea, friends and relations came in and a very enjoyable evening was spent with Singing, Recitations, Dialogues, Piano and Violin Solos, etc.

HOLY TRINITY MECCANO CLUB.—The high standard of excellence reached by the Club, well maintained during the last session. Members have entered for the Club Model Competition with great zest, and interesting Lantern Lectures were given by the Leader, Mr. S. H. Wilson, on "A Romance of the Cotton Industry" and "Ants and their Ways." Club subscription has been increased, and the *Meccano Magazine* and Club Magazine are supplied free in consequence. "Question Night" and "Improvement Night" two new features in the Syllabus. On the former, questions are put to Leader and Secretary, then fully discussed; on the latter, certain models are built one evening, and at the following Club meeting new parts substituted where suitable. More books have been added to Club Library: Savings Bank has been busier than ever, and Mr. Wilson has a good balance in hand for next session.

JUNIOR ENGINEERS MECCANO CLUB.—Making good headway. Mr. Yeats believes strongly in Competitions and visits to engineering works.

KENYON HALL COLLEGE MECCANO CLUB.—By kind permission of the Headmaster, Dr. J. Mastin, D.Sc., etc., a Club has been established for the boys under his personal leadership. Dr. Mastin finds that Meccano interests boys in mechanics better than anything else, and this, together with the enthusiasm of the members, augurs well for the future of the Club.

KNOCKHOLT MECCANO CLUB.—Newly affiliated; has had very successful first session. Boys look forward to, and enjoy the Club night, when they build models, read up engineering subjects, discuss the mechanism of models, and enjoy short lectures given by members and the Club Leader.

LEAMINGTON MECCANO CLUB.—Club more vigorous than ever; members by regular attendance and enthusiasm at meetings back up the excellent work of Mr. F. W. Bull, and his capable and energetic Secretary, Master G. Hare. Membership increasing so rapidly, that Mr. Bull has invited co-operation of Juvenile Organisation Committee. Lt.-General Sir John Kier kindly consented to become the President of the Club, and writes:—

Dear Mr. Bull,

Thank you for your letter and for the honour you have conferred on me in so kindly inviting me to accept the Presidency of your Meccano Club.

I accept with great pleasure and am glad to hear that the Club is joining the I.O.C. Union. I should like to be present at one of your meetings, so as to see the boys at work. A Club like this cannot but be for good, and we are indeed fortunate and lucky to have it in such capable hands.

Yours truly,

J. L. KIER.

Mr. Bull also hopes to welcome the Mayor of Leamington and Members of the Town and County Education Committees at a Club meeting.

Success of the Club is very largely due to the variety of interests introduced by the Club Leader—Lectures, Model Building, Discussions, Games, Competitions (with prizes), Exhibitions, Entertainments (to which members bring friends), visits to works, etc.

PORTSMOUTH GRAMMAR SCHOOL MECCANO CLUB.—Mr. Burnham having removed to London, the Club is temporarily without a Leader—we hope a gentleman will soon be found to fill Mr. Burnham's place.

PRINCE'S PARK (Liverpool).—A promising start has been made largely due to the initiative of Master B. Strawley.

RIPON MECCANO CLUB.—Mr. Pinchbeck reports excellent progress. Members get keener with each meeting. They are having a Cinema Show early in the New Year.

ST. THOMAS' (Exeter).—Master Falk's excellently arranged report reflects great credit on him as Secretary. Mr. Whitmin resigned early in the session, succeeded by Mr. Pelly, and Club report shows considerable increase in membership, whilst there is a balance in hand to carry over to next session. Enjoyable meetings have been held, the buzzing of as many as five motors at a time adding to the note of busy activity; discussions, Lectures (one on "Pyramids," by Master J. Hoskins being particularly interesting), and a final social evening on December 18th, at which every member present thoroughly enjoyed himself. All kinds of games indulged in, and Mr. Pelly kindly extended the time. The new session commences January 8th.

SECONDARY SCHOOL MECCANO CLUB (West Hartlepool).—Mr. A. T. Prentice kindly consented to become Club Leader in response to requests of boys attending Municipal Technical College. Membership should soon reach 50. Mr. Prentice finds it an excellent plan to set five boys to work each building a model. On Club night, the models are brought along: each boy in turn explains principles, mechanism and working. Afterwards members discuss and criticize.

SMALL HEATH MECCANO CLUB shows continued and excellent progress, and sound financial position. By exhibiting cards in Meccano Dealers' Windows, membership has been considerably increased. Meccano Stall at Pedlar's Fair handed over 5s. towards Church Expenses. Mr. Edge not only develops the games and instructive side, but also encourages members to live up to the ideals for which the Guild stands. Savings Club has been started to enable boys to purchase additional Outfits and parts.

SOUTHVILLE MECCANO CLUB.—Mr. Stickler reports members have risen to the occasion in making Club a big success. Meetings well attended, lively discussions and instructive lectures. Members enjoy the half hour of each meeting devoted to games. Several boys have applied for membership for next session.

STANLEY ROAD (Worcester) MECCANO CLUB.—At end of a useful session, Concert and Exhibition of models was held. The Prize-winners were:—1st, S. Harris, 2nd, L. Brewer, 3rd, F. Toombs.

STRADBROKE ROAD MECCANO CLUB.—Successful session—Exhibition on Empire Day, visitors surprised and delighted with number and variety of models shown and ingenuity of builders. Social side being cultivated—discussions encouraged, membership increasing and Meccano enthusiasm spreading.

THORNTON HEATH HIGH SCHOOL MECCANO CLUB.—Hope to have new Club room for new session—Club Pierrot Troupe gave an excellent Concert and will repeat the performance on January 15th at a Sunday School Treat. Croydon Public Library kindly loaned slides for Lantern Lectures.

TONBRIDGE MECCANO CLUB.—Although only established on October 6th with 7 members, Club has made wonderful progress, largely owing to the energy and kindness of Mr. T. J. Wickham, the Club Leader. Small Exhibition has been held, but Mr. Wickham hopes to organise one on a big scale, in conjunction with other Meccano Clubs in the district, towards the end of next session.

WATERFOOT MECCANO CLUB.—Mr. Teasdale, the Club Leader, reports model-building evenings very popular: the first and last meeting of each session takes the form of a social. Lectures on Mechanical subjects always interest members, and books recommended in "Suggestions for Club Secretaries" been found very useful. One member's father kindly gave a lecture on "Photography." Competitions and Exhibitions most effective in sustaining interest and difficulty of one boy not being able to build a model, have it discussed, criticized, and then dismantled in one evening, has been overcome by setting two or three boys to work together.

WICKLOW MECCANO CLUB is making very good progress. Boys very keen on Lectures given by Club Leader. Subject is voted for, and lecture given in two or three instalments, each lasting 15 to 20 minutes. Club has its own band which consists of 1 Portable Organ, 1 Violin, 1 Old Tea Tray, 1 Tambourcen, and 6 Kazoos, from which the members get plenty of fun. A successful Concert and Exhibition, held on December 17th, at which a Recitation, "The Meccano Boys," was given by members of the Club.

YARDHEADS MECCANO CLUB.—Recruiting Campaign has improved membership considerably. Average attendance at time of report being 20, as against 8 previously.

The President's Message to Meccano Boys.

I want to wish my Meccano boy friends all over the world a very happy New Year. I hope you will all enjoy pleasurable and jolly times right throughout the year. I thank the hundreds of boys who have written to me at Christmas and the New Year sending me their good wishes, and I only wish I could thank each one personally. 1920 has been another big Meccano year, and never has the enthusiasm for the hobby been so great. Many, many thousands of new Meccano boys have joined up with the Meccano family, which very soon will be the largest family in the world.

The Meccano Guild has made amazing progress, and each issue of the *Meccano Magazine* is received with increasing enthusiasm. The success of the Guild has been very gratifying indeed. Its members throughout the country have been most successful in forming Clubs; they have obtained rooms in the face of great difficulties, and have enlisted the sympathies, support and valuable assistance of capable men, who as Club Leaders and Patrons help them in the work which they have undertaken.

There are many thousands of Meccano Club members who meet regularly each week to enjoy themselves as only Meccano boys can, and to these, and to the men who are acting as their Leaders, I should like to send a special message of good will. I read the reports of the various Meccano Club functions with the greatest interest and care, and I see in them the promise of even better days to come. Many good things are in preparation for Meccano Guild members, and I look forward to the time when this will be the most powerful organisation for boys in the world.

F. Hornby

New Essay Competition.

The subject for this Competition, "How I would run the *Meccano Magazine* if I were Editor," is evidently very popular among our readers to judge by the large number of entries already received. Many excellent attempts have been sent in, several boys even submitting their efforts in verse.

There is no need to wait until the close of the Competition before sending in your Essay. Write it now and send it along, taking careful note of the following conditions.

The subject of the Competition is "How I would run the *Meccano Magazine* if I were Editor."

The Competition is open to all readers of the *Meccano Magazine*.

An Inventor's Outfit "B" will be awarded for the best essay, with other awards for Essays showing special merit.

The closing date is February 10th, and the result will be announced in the March-April issue of the Magazine.

Write on one side of the paper only, not more than 500 words. Give your name and address and age on the back of each sheet, and address the envelope "MECCANO, LTD., Essay Competition, Binns Road, Liverpool."

Change of Address.

Subscribers should immediately notify the Editor of any change of address. Send a postcard *giving the old and new address*, so that records may be kept up-to-date.

List of Newly Affiliated Meccano Clubs.

KNOCKHOLT BEECHES M.C.
Leader—Mr. H. A. Rost, School House, Knockholt, Nr. Sevenoaks.
Secretary—Master C. Tapsell, School House, Knockholt, Nr. Sevenoaks.

STATIONER'S M.C.
Leader—Mr. L. L. D. Robinson, 8, Landcroft Road, Crouch End, London, N.8.
Secretary—Master R. G. I. Scott, 42, Berkeley Road, Crouch End, London, N.8.

JUNIOR ENGINEERS (LONGSIGHT) M.C.
Leader—Mr. J. Yeats, 75, Birch Lane, Longsight, Manchester.
Secretary—Master Trenlow Booth.
Treasurer—Dr. L. L. Booth.

THE CITY OF NORWICH SCHOOL M.C.
President—Mr. Cauham.
Leader—Mr. G. Kingaby, Post Office, Hingham, Attleborough.
Secretary—Master J. Long, 19, Newmarket Road, Norwich.

HILDENBOROUGH M.C.
Leader—Mr. F. Burton, Roughetts, Hildenborough, Kent.
Secretary—Master W. Bassett, Laburnum Cottage, Hildenborough, Kent.

PRINCES' PARK M.C.
Leader—Mr. W. Ashton, 52, Geraint Street, Liverpool.
Secretary—Master B. Strawley, 13, Beaconsfield Street, Liverpool.

COWLEY ROAD SUNDAY SCHOOL M.C.
Leaders—Rev. L. Hibbs, D.B., 32, Divinity Road, Oxford; Mr. F. W. Poynter.
Secretary—Mr. Arthur Martin.

TONBRIDGE M.C.
Leader—Mr. T. J. Wickham, 1, Railway Approach, Tonbridge.

SECONDARY SCHOOL M.C.
Leader—Mr. A. T. Prentice, Municipal Technical College, West Hartlepool.
Secretary—Master H. Edmundson, 39, Collingwood Road, West Hartlepool.

NEW MALDEN M.C.
Leader—Mr. V. Hammond, 11, Penrith Road, New Malden.
Secretary—Master S. B. Evans, 22, Howard Road, New Malden.

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Leader—Dr. J. Mastin, D.Sc., Ph.D., Litt. D., Kenyon Hall College, Kenyon.
Secretary—Master J. W. Mayhew, Kenyon Hall College, Kenyon, Nr. Manchester.

RADCLIFFE COLLEGE M.C.
Leader—Rev. A. J. Baxter, Ratcliffe College, Leicester.
Secretary—Master L. Valkering, Ratcliffe College, Leicester.

ST. ANNE'S (LEICESTER) M.C.
Leader—Mr. K. W. Smith, 8, Sunnycroft Road, Leicester.
Secretary—Master R. H. Smith, 8, Sunnycroft Road, Leicester.

WORDSWORTH ROAD M.C.
Leader—Mr. Newman, Wordsworth Road School, Stoke Newington, London, N.16.
Secretary—Master E. Marsh, Wordsworth Road School, Stoke Newington, London, N.16.

Local Meccano Competitions.

During the last few months, many Meccano Dealers have held local competitions, with very gratifying results. Valuable prizes have been offered for the best models, and boys have responded remarkably well, the models submitted for competition reaching a very high standard.

MR. J. J. BROUGHTON, WIGAN.

Mr. Broughton has held a very successful competition, over 60 boys sending in entries. The competition was run on the same lines at the Big Meccano £250 Prize Competition, and the Prize List, which totalled over £10, included a Suit Case, a Meccano Outfit and Motor, a Steam Engine, a Tennis Racquet, a Football and many other useful awards.

Pressure on space will not permit us to publish the full list of winners, but we have pleasure in giving the names of the first in each section.

Class 1. over 14 years. Edmund Grundy—Working Model Colliery.
Class 2. 10 to 14 years. C. Wolstenholme—Motor Tip Wagon.
Class 3. under 10 „ G. Heaton—Wool Winder.

MESSRS. SHEARD, BINNINGTON & CO., DONCASTER.

Another very successful Competition has been held for Doncaster boys under the direction of Mr. Binnington, and here again great interest and enthusiasm were aroused. Over £5 was offered in prizes and some thirty models were sent in for adjudication. The principal prize winners were:—

First prize - Ernest J. Tricklebank.
Second „ - Ronald Thirlwall.
Third „ - Lester G. Morehouse.

In both this and the Wigan Competition, a representative of Messrs. Meccano Ltd. judged the models so that absolute fairness was ensured. The winning models were afterwards exhibited in the shop windows of the dealers conberned, where they attracted much attention.

MESSRS. POLLOCK & CO., GLASGOW.

In this Competition, which closes on February 28th, Glasgow boys who purchase an outfit from Messrs. Pollock & Co. are given the opportunity of winning a Vest Pocket Kodak, an Ensign Camera, and many other valuable prizes. The total value of Prizes offered is £20, and models will be judged by a prominent Glasgow Engineer.

The results of other local Meccano Competitions will be announced in future issues.

A Simple Explanation of Pulleys.

We saw in our last article under this heading that by using two pulleys, the effort required to lift a heavy body was only half the effort that would have been required to lift it direct.

Proceeding a little further with our investigations, we find that there are three systems of pulleys. The case we have just considered belongs to the first system, and in order to further reduce the power required to lift a heavy weight, we must introduce further pulleys, as shown in the accompanying sketch. Fig. 1.

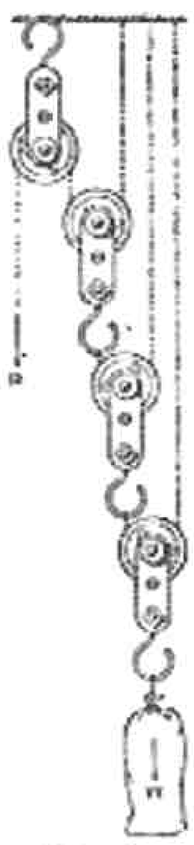


Fig. 1.

Apart from the case we have dealt with, however, this system is not extensively used, as it cannot be easily handled.

The second system of pulleys is far more widely used than the other two, on account of its compactness, and the facility with which it can be used, and a splendid example occurs in the Meccano Derrick Crane, part of which is shown in Fig. 2.

The tackle consists of a rope and two blocks, the upper one containing two pulleys, and the lower one, three. The block which is fixed, is called the "Standing" block, and the one that moves the load, the "Movable" block. The wheels in each block are called "Sheaves," and the rope passing over these pulleys is known as the "Fall." The end of the fall fastened to one of the blocks is the "Standing" end, whilst the end at which the power is applied is called the "Running" end. These names are very important, and any boy with a fondness for tackles or machines, should learn them off by heart, for they will prove very useful in practical work later on.

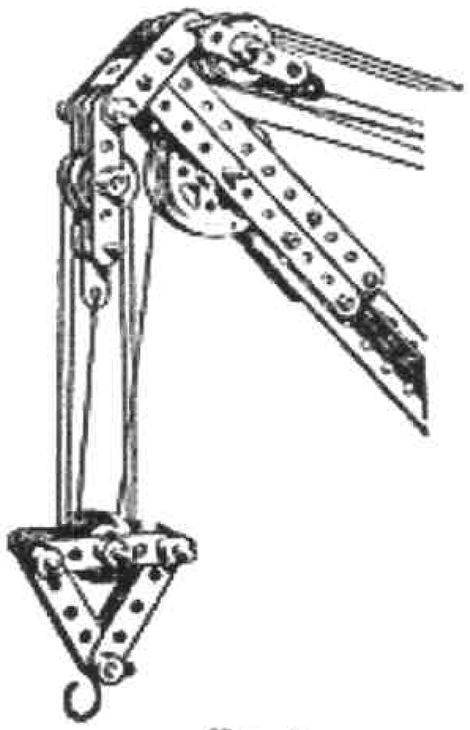


Fig. 2.

We shall now consider the advantages to be derived from using this tackle, and in order to demonstrate more clearly the pulleys are shown separately in the illustration; they act just the same, however, in this way as when shown side by side. The tension on the rope will be the same right throughout the fall, and it will be seen that as there are six cords running from the lower block, and this bears the full weight of the load, six times the tension will be equal to this weight. Thus, if the weight is 60lbs. the tension will only be 10lbs.

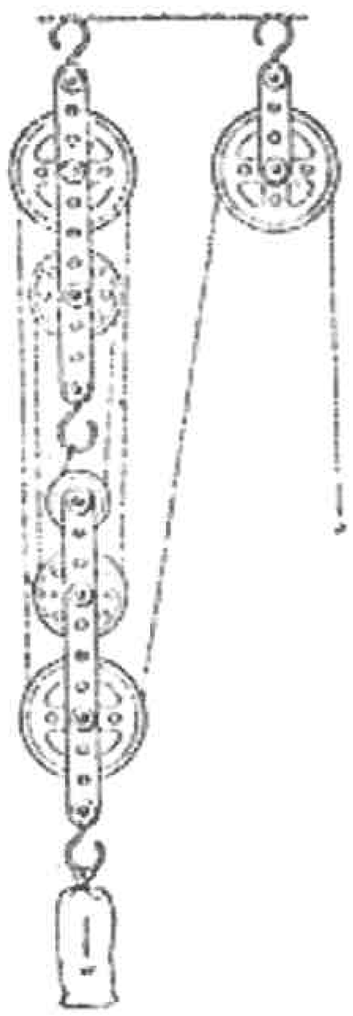


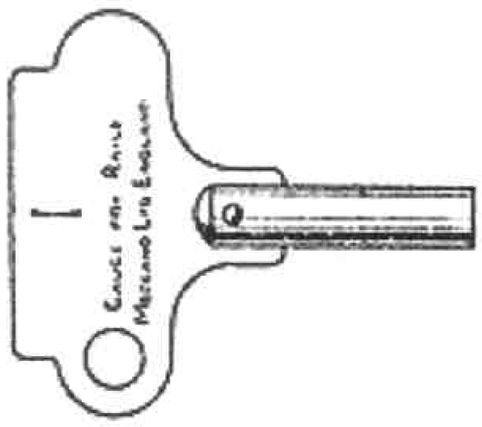
Fig. 3.

As one of these cords is the running end, we see that the weight must be 6 times the power required to lift it. The mechanical advantage is 6, but the load will now only rise very slowly indeed.

Inventor's Accessory Outfit "B."

Contains a splendid assortment of the latest Meccano accessory parts. Bevel gears, 1in. gear wheels, flat plates (four sizes), double angle strips (four sizes), octagonal and strip couplings, threaded cranks, triangular plates, screwed rods, curved strips, architraves, face plates, rack strips, girder frames, hinges, buffers, and train couplings. Price 25s.

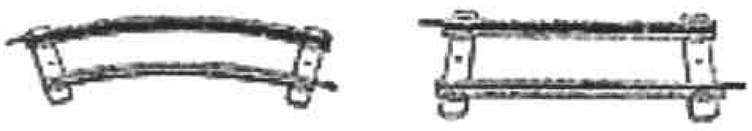
Winding Key.



Above is an illustration of the new winding key which accompanies each Hornby Clockwork Train. It will be noticed that it is of special design, the top forming a gauge for the lines. When restoring lines which have been accidently bent, the correct distance between the rails can be found by using this gauge.

Price . . 6d. each.

¼ and ½ Rails.

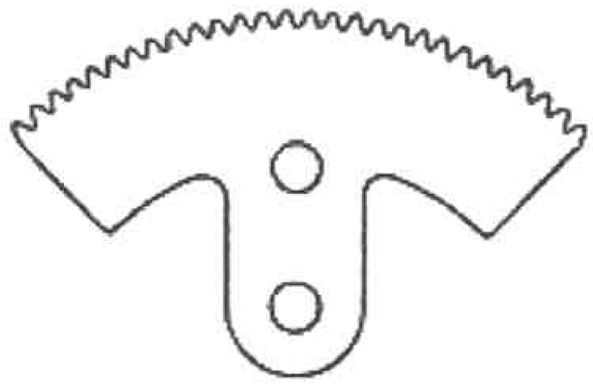


Price for straight or curved rail:

½ rail..... each 5d.

¼ „ ..... „ 4d.

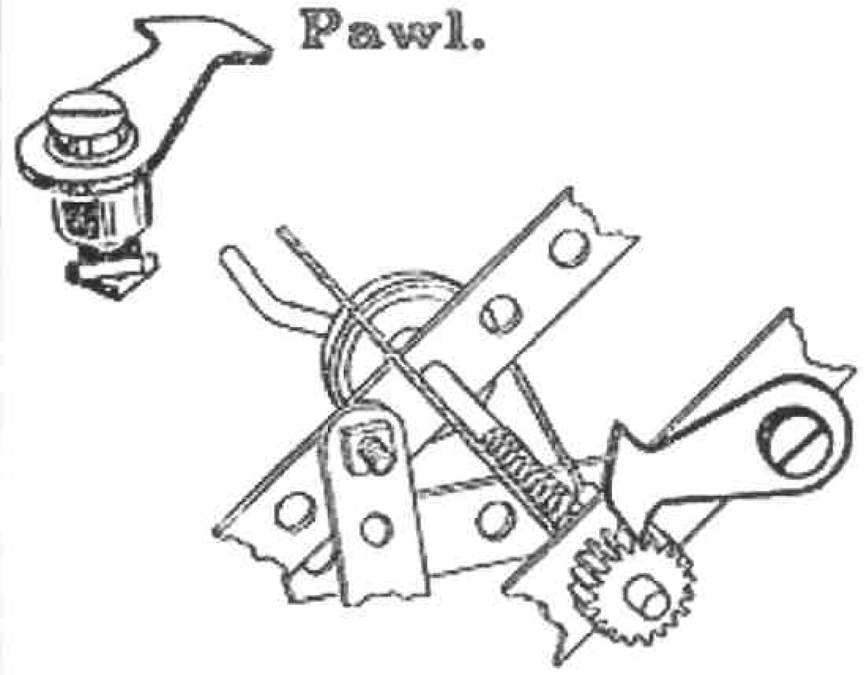
A New Curved Rack.



This is a new and extremely useful part. It can be used to build up a large gear wheel by bolting four of the parts on to a face plate, two bolts securing each part. A large built-up gear wheel of this kind could be used for driving a Big Wheel, or by bolting two of the curved racks, or only one to a face plate, a partial geared wheel is obtained which could be used in connection with a one inch pinion to produce a to-and-fro rotary movement if pinion is reversed. The curved rack may also be used in several other types of model, for instance in a letter-balance, the weight of the letter partly rotating the rack, which engages a pinion, the rotation of the pinion causing an indicator pointer to show the weight of the letter on a graduated scale. This part may only be used to gear with a one inch pinion. It may, however, be arranged to be used to gear with a half inch pinion or worm by an adjustment outside the Meccano Standard.

Price .. 6d. each.

The New Meccano Pawl.



The above is an illustration of the new Meccano Pawl, and an example of its use. This replaces the present pawl, No. 33. It is shown connected to the side strip of a Crane to hold the load while suspended in the air. This pawl moves freely on a pivot bolt secured by lock nutting to the side strip.

The pivot bolt will be sold as a separate part as it may be used for other forms of pivots such as a pivot for the boss of a crank, intermediate gear wheel or loose pulley.

Pawl, complete - each 5d.

Pivot Bolt with two nuts 2d.

A New Grand Meccano Prize Competition £250 in prizes

A new big Meccano Model Building Contest has started, and we want every Meccano boy to know all about it. There will be hundreds of prizes awarded, including nine prizes in cash to the value of £100, and Meccano Outfits to the value of not less than £150. This time the Competition will be divided into three sections.

1. For boys under 10 years of age.
2. For boys between 10 and 14 years of age.
3. For boys over 14 years of age.

In addition to these prizes the Meccano Guild is offering three awards of £5 each in cash to the member of the Guild who gains the best prize in his Section. Forms of entry may be obtained either from your dealer or from us.

There are no restrictions or entrance fees. Any Meccano boy can enter, and the competitor sending in a simple model made with a No. 0 stands just as good a chance of winning a prize as one sending in a complicated model made from a No. 6 Outfit. This Competition will close on April 15th, 1921.

MECCANO

OUR MAIL BAG

The Editor has a little talk in this column with his Meccano boys. Whether he has space to reply to them all here or not, he is always glad to hear from them. He receives hundreds of letters each day and only those which deal with matters which are likely to interest other Meccano boys can be dealt with here.

Correspondents will help the Editor if they will write on one side of the paper only.

Eric G. Randall, Christchurch.—Your suggestion that there should be a Meccano Cyclists' Union is not a bad one, and we will keep it in mind.

F. C. Osorio (Maida Vale).—"A boy at school was starting a rival Meccano Club to mine, but he has now joined me and the only thing we are rivals in now is to see who can get most new members." This is the right Guild spirit, and we are glad that your combined efforts are producing such good results.

A. C. Wilson (Glasgow).—

There was a young lad who lived on a hill,
And one year at this time he took very ill.
Up came the doctor saying, "What can I do?
Oh, a good rest in bed and Meccano for you."

This is a regular doctor's prescription nowadays Alec, and it always effects a cure.

H. Simpson (Wavertree).—For a Meccano boy of three years' standing you have certainly been negligent in not writing to us before now. We read your letter with much interest and pleasure, and we are glad to hear of your excellent progress at school. Your prediction that the Meccano Guild is bound to be a great success can only be completely fulfilled when every Meccano boy, including yourself, has joined it. If you have time to fill in the Guild Application Form and send it in you have all the time necessary to join as an individual member.

L. Hunt (Newark).—Your little article "The Meccano Maniac," is interesting and shows imagination. It is hardly suitable for publication in our pages, but you will certainly do creditable work if you persevere.

C. Gozzett (Rockford).—Thanks for your suggestion that we start a Meccano Savings Club. We are afraid this is hardly practicable at present.

V. Watt (Axbridge).—We are glad to consider contributions to the *Meccano Magazine* by Meccano boys at any time, and to pay for and use them, if suitable. We are glad to know that the hobby gives such pleasure to all your family.

J. Drinkwater (Sale).—"I am striving with might and main to induce my father to become leader of our Meccano Club." This course has been taken by many other Guild members with success, and we hope your earnestness and persuasive powers will prevail.

Alan Matthews (Gateshead-on-Tyne).—We were very interested in reading the history of the Meccano side of your life. You should join the Guild as an individual member first and later on no doubt a Meccano Club will be formed in your district.

Guy Manning (Bream).—"My Meccano Certificate is hung up in our schoolroom, so that all the boys can see it. We have Meccano handwork for an hour every Thursday afternoon." It pleases us to know that your school chums take such an interest in Meccano and that your teacher gives you so much encouragement. Why not form a Meccano Club with your teacher as leader?

Harry Onion (Bradford).—"Both myself and my boy agree that Meccano is the best thing we have ever struck, and we shall soon build our outfit into a No. 6." We are always glad to have letters from parents who are thoughtful and wise enough to interest themselves in their boys' hobbies. You can get the *Meccano Magazine* either from your dealer or direct from us.

J. Bridgeman (Dublin) furnishes the sequel to the verse of poetry which he contributed to our last issue.

When his chums saw the things he could do,
Said they must have Meccano too,
And very soon every lad
Was escorting his dad
To the shops with Meccano on view.

V. G. Willcox (West Hartlepool).—There is no objection whatever to yourself or any other Guild member putting the letters M.M.G. after your name when writing to us.

Headmaster (Yorks.)—"I have 200 boys in my school and at Xmas Term Exams. the English essay related to what the boys wanted most of all for Christmas. I was astounded to note in marking the papers quite 75% of my boys wanted Meccano, and the good things they told me of the wonders of the Toy were certainly the finest testimonials I have ever read." The popularity of Meccano amongst British schoolboys is one of the most remarkable features of boy life in this country at the present time. You will see that in another part of this issue we are endeavouring to obtain definite statistics on this interesting subject.

H. L. Hurst.—With your brother as Leader, Secretary, Treasurer, President, etc., and yourself as Engineer, Labourer, etc., we feel sure you have fine times in your Meccano Club for two. But why not invite other Meccano enthusiasts to share the fun? We will send you the names of a few if you like.

Eric Smith, Toronto.—We are delighted to learn that you have done such good work building models for Mr. Clarke's window display. He has done a wise thing in letting people see exactly what a clever Meccano boy can do. By undertaking to keep up the traditions of the Guild in Canada, you show the right spirit, and we hope more and more Canadian boys will join you.

A. V. Hooley, Southampton.—Thanks for the cutting from the *Southern Daily Echo*—"A little Freemantle boy dropped the following modest appeal to Father Christmas, 'Dear Father Christmas, Oh! I should like a Meccano if you have one to spare. I don't mind if it is one you had from last year, as I want one so much. With best love.' And he put a 1½d. stamp on his letter too, so Father Christmas only had a penny to pay."

Kenneth Roberts, Stretford.

A CHRISTMAS GREETING.

"A present from mother, and a Happy New Year;
Awake little brother, Meccano is here!
Let's open it quick and see the bright parts,
That are polished so spick to please many hearts.
Who when he finds Meccano at the foot of his bed,

Will sing in soprano and stand on his head.

It looks a difficult feat Kenneth, but nothing is impossible to a Meccano boy.

Charles Whittaker, Ulverston.—Your opinion that the Correspondence Club is one of the best things thought of, is shared by thousands of Meccano boys.

"When short of cash
We feel rather rash,
And would like to raid
The place where Meccano is made."

We shall have to look to our locks, bolts and bars, Charles, or there will be nothing left for those who are not short of cash.

[*A large number of replies have been unavoidably held over.*—ED.]

Meccano Manuals of Instructions

There are two Meccano Manuals of Instructions, and no Meccano boy is properly equipped unless he has them both. Book No. 1 is the regular manual which goes with the main Meccano outfits. It contains illustrations and full instructions for making 323 fine models; some of the models have been designed by our own staff of experts, and others are prize-winning models contributed by Meccano boys, from every country in the world. Price 2s. 6d. (postage 3d. extra)

Meccano Manual, Book No. 2, has only recently been published, and it contains illustrations and instructions for building 100 entirely new models, very many of them prize winners. It contains Tanks, Guns, Submarines, Searchlights, and other warlike models; also a new series of simple and intensely-interesting scientific experiments which any boy can make and which impart a lot of useful knowledge. Price 1s. 3d (postage 2½d. extra).

Prices of Meccano

No.			
0	Outfit with full instructions for building		6/-
1	do.	do.	10/-
2	do.	do.	20/-
3	do.	do.	30/-
4	do.	do.	50/-
5	do.	do. (Carton)	70/-
*5	do.	do. (Wood)	100/-
*6	do.	do. (,,)	180/-

*In well-finished cabinet with lock and key.

Accessory Outfits

No.						
0a	converting a No.	0	into a No.	1	..	5/-
1a	do.	do.	1	do.	2	.. 11/-
2a	do.	do.	2	do.	3	.. 12/-
3a	do.	do.	3	do.	4	.. 22/-
4a	do.	do.	4	do.	5	.. 17/6
5a	do.	do.	5	do.	6 Car.	65/-
5a	do.	do.	5	do.	6 Wood	95/-
Inventor's Outfit "A"				..	..	10/-
Inventor's Outfit "B"				..	..	25/-
Meccano Clockwork Motor				..	..	12/6

Each Meccano outfit is complete with all parts and tools necessary for building models. Full instructions are included, and the youngest boy can commence to build at once without study. An accessory outfit may be purchased at any time, enabling bigger and more interesting models to be built. Additional parts may also be purchased separately, at prices given in our published lists.

Remember that though boys play with Meccano for pleasure, and though they get more genuine fun from it than from any other toy, it also gives them a sound knowledge of engineering. Through playing with Meccano, many a bright boy has been started on a prosperous career in one of the most important and profitable professions—engineering and mechanics.

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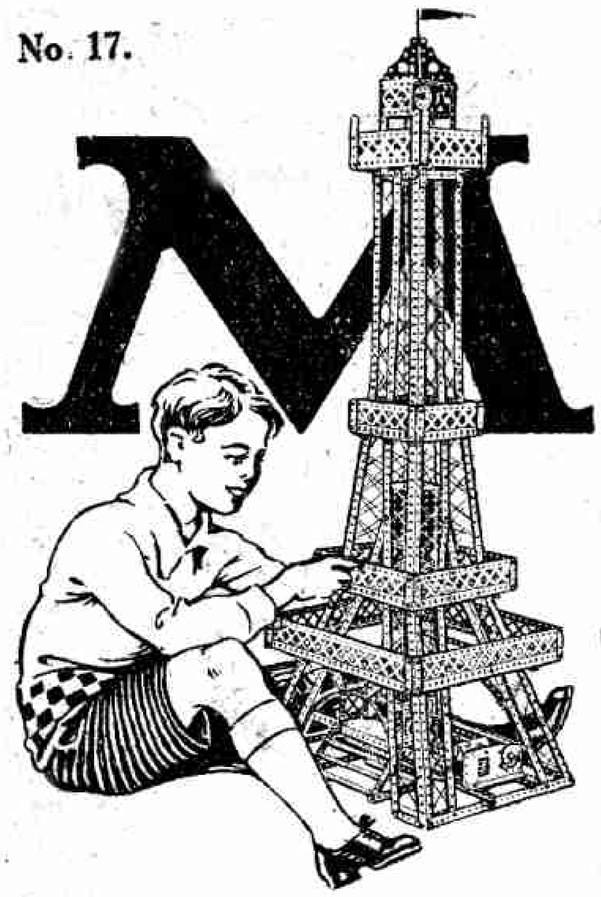
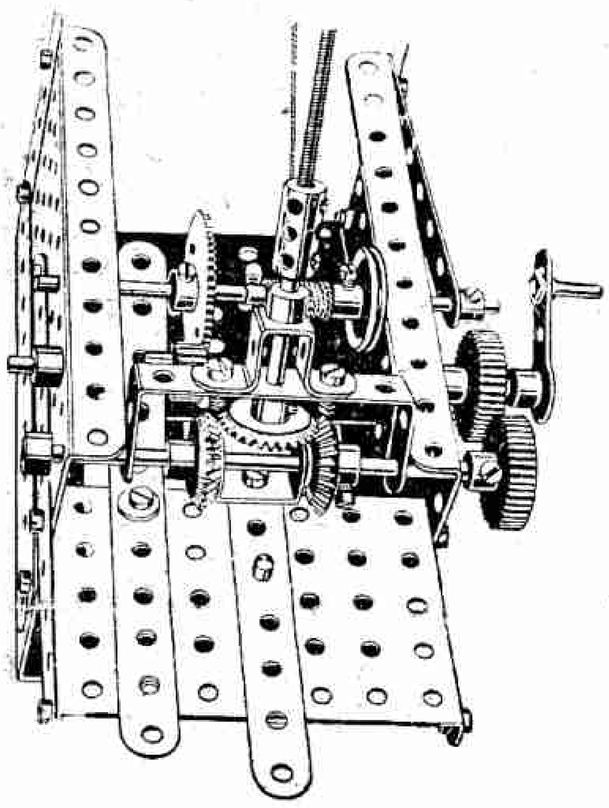
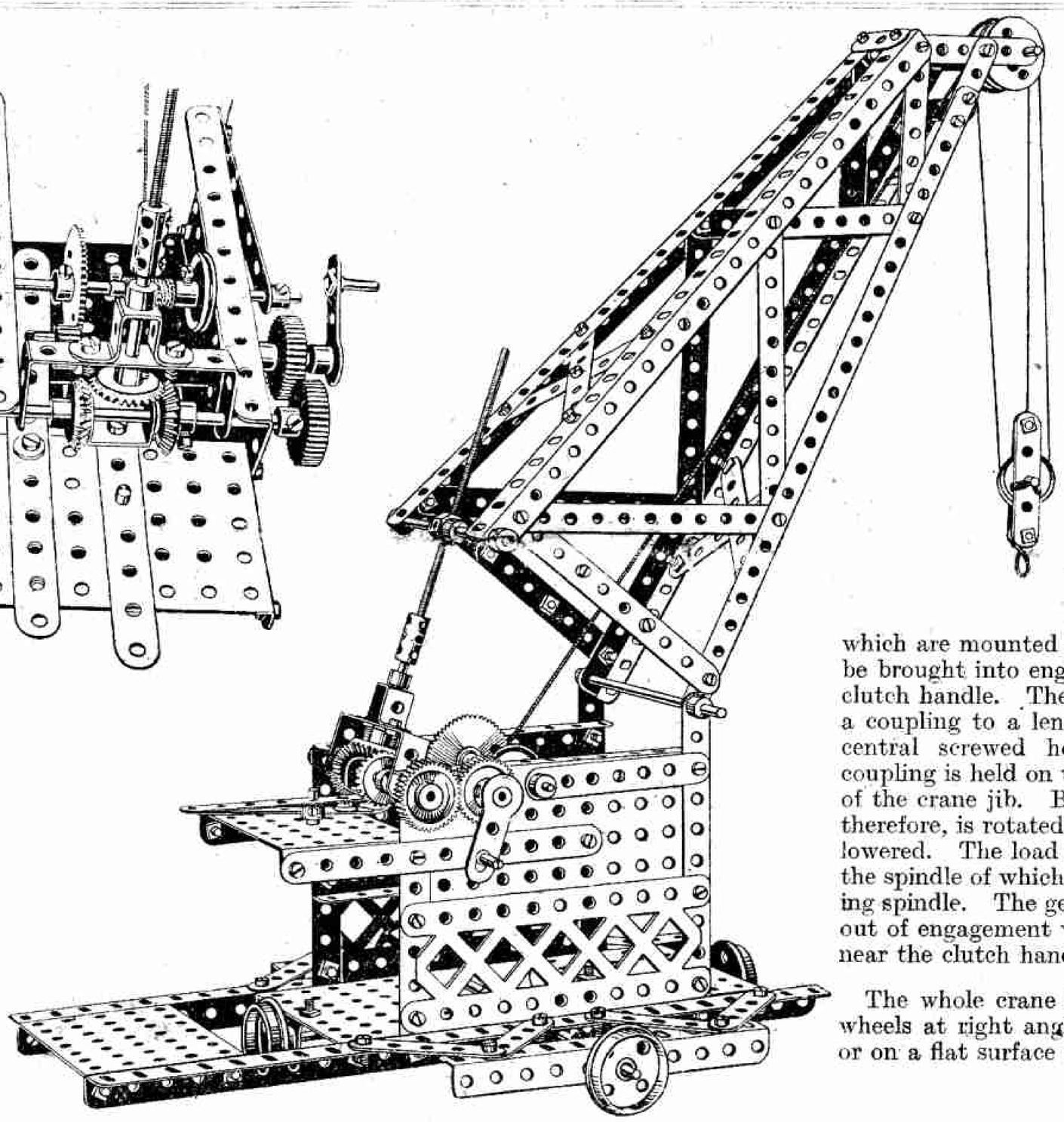


MECCANO MAGAZINE

PRICE 1d

TO HELP MECCANO BOYS TO HAVE MORE FUN THAN OTHER BOYS





A New Meccano Crane.

This splendid model was awarded a valuable prize in one of our £200 Prize Competitions.

This is a very fine model and in order to assist our readers to construct it we have included a sectional drawing. In due course this model will appear in a new edition of the Meccano Manual where it will be illustrated and very fully described.

The raising or lowering of the jib is obtained by pivoting the jib at its lower end on a short axle rod, the movement about the pivot being obtained by turning the handle at the side which drives through the two large gear wheels the clutch rod on which are mounted two bevel pinions. Each of these pinions can be brought into engagement with an upper pinion by moving the clutch handle. The axle rod of the upper pinion is connected by a coupling to a length of screwed rod which passes through the central screwed hole in an octagon coupling. The octagon coupling is held on two short lengths of rod in the other lower end of the crane jib. By moving the clutch handle the upper pinion, therefore, is rotated in one or other direction and the jib raised or lowered. The load is raised or lowered from the same handle, on the spindle of which is a pinion engaging a gear wheel on the winding spindle. The gear wheel on this spindle may be moved into or out of engagement with the pinion by operating the other handle near the clutch handle.

The whole crane is mounted on a platform supported on four wheels at right angles to each other, and they may run on rails or on a flat surface to turn the crane round.

Editorial.

£250 Competition.

Let me remind all Meccano boys that the closing date for the big best Model Competition is April 15th. Entries are pouring in and the competition is already an assured success. I know that nearly every boy who plays with Meccano invents some new model or movement which does not appear in the Meccano manuals, and we want all these models and improvements so that we may make them known to other Meccano boys. The prizes in this big contest are both generous and numerous.

New Meccano Parts for Old.

In our No. 15 issue I announced that if obsolete, damaged, or rusty parts were returned to Meccano Limited, entirely new and up-to-date parts would be supplied for them on payment of half list prices. Already large numbers of my readers have taken advantage of this concession, and I hope that all who possess any deteriorated or damaged parts will have their outfits freshened up in this way. I find it necessary, however, to make it clear that Meccano parts only will be dealt with, and that no parts will be exchanged which have not been manufactured by Meccano Limited.

Our Suggestion Column.

This new feature of the *M.M.* is proving wonderfully successful, and I am quite sure that both the Meccano boys, and the Meccano hobby, will benefit greatly from it. I advise all my readers to read this column very carefully, and to make use of it when they experience difficulty in building any model which they have invented, and consider that a new accessory part would help them.

Increasing Editorial Correspondence.

My mail bag grows bigger and bigger every week, and nothing pleases me better than to read through the interesting letters which Meccano boys send to me. They come from every part of the world, and I am especially glad to note the increasing number which I get from Meccano enthusiasts in our colonies. The one which I am printing in another column is quite typical, and I am sure you will all be as interested in reading it as I have been.

New Models Coming.

Next autumn will see the addition of a goodly number of new and particularly attractive models to the Meccano system. Much ingenuity and thought have been spent on them, and they will undoubtedly give great pleasure and add much to the enjoyment of all Meccano boys. They will be illustrated in the new edition of the full Meccano Manual of Instructions which is now in preparation.

New Hornby Clockwork Trains.

This successful clockwork train system is being very rapidly developed. Bigger engines, passenger coaches, new trucks, larger radius lines, crossings, switches, etc., are all designed and decided upon, and are already in the hands of skilled men in the Meccano works. Nothing could exceed the charming finish and beauty of these goods, and there is no doubt that they will create a sensation in the world of toys next winter.

The Editor

The New Meccano Catalogue.

This beautiful new catalogue should be in the hands of every Meccano boy.

Besides illustrating and describing each outfit and explaining the simplicity and beauty of the Meccano system, it gives full particulars of the new Electrical Accessory Outfits, Meccano Clockwork and Electric Motors, the Hornby Clockwork Train System which is making such a deep impression throughout the country: the Tin Printed Clockwork Trains and Vertical Steam Engines. It also contains two full pages of illustrations of Prize-winning Models in the Big Meccano Competitions, and a fully illustrated list of the entire range of Meccano parts, including the new and valuable ones which have been recently added.

The demand for "Meccano Products" following the announcement in our last issue has been very heavy indeed, but there are still thousands of Magazine readers who have not taken advantage of this splendid offer.

We wish every reader of the *Meccano Magazine* to possess one of these beautiful booklets. A copy will be sent FREE on receipt of your postcard. Write to-day.

Change of Address.

Subscribers should immediately notify the Editor of any change of address. Send a postcard *giving the old and new address*, so that records may be kept up to date.

Suggestions by Meccano Boys.

In our last issue we reserved a special column for dealing with suggestions for new models, new parts and new features, intended to improve the Meccano system and add to its attractiveness. We dealt with a number of suggestions already received from Meccano boys and added that any further suggestions sent in by Meccano users would be very welcome and would be most carefully considered.

Since the appearance of our last issue we have received a large amount of correspondence from Meccano users, many of whom have made most interesting and useful suggestions. We are dealing with a large number of these in this column, and we have no doubt that our notes will be found of great interest to every Meccano user. Many other correspondents have been replied to direct as we have not sufficient space to deal with them all here. We are always very pleased indeed to hear from any Meccano boy who has an idea which he considers will be useful to the Meccano system.

W.W., Bellahouston, suggests that we introduce a Meccano part to correspond with two angle brackets bolted together. We have already added to our list of parts a ½″ reversed bracket which will be more rigid in its application to the construction of models than two angle brackets bolted together.

N.H., Shepherds Well, sends us a suggestion for an eccentric wheel and connection for use with a model of a steam engine. This part would be very limited in its application at present, but later on we hope to introduce one or two other parts in connection with steam engines when we shall take the eccentric into consideration.

A.V.L., Forest Gate, London. We shall shortly issue an improved system of lines for the Hornby clockwork trains, which may also be used in connection with Meccano model wagons, etc. They will be made so that a third rail may be fastened to the sleepers for running electrical models.

Rev. W.S.K., M.A., Hull. Your suggestion to make the Hornby trains to run on the free wheel principle would be impracticable on the present design. The only solution to this would be to introduce a pull along train without clockwork, which we may do later.

H.E.W., Tunbridge Wells. We are not clear with regard to your suggestion for a bent strip with eleven holes. If it is for a 5½″ strip to be bent at right angles, there should be no difficulty in your doing this, but if it is intended to be a flat angle piece for making a rigid connection with two strips at right angles, we would say that we have in contemplation the introduction of a part similar to this but with fewer holes.

I.T., Coddington, Oxford. We announced in the last issue of the M.M. a new type of pawl, which may be used in conjunction with the one inch gear wheel already in our list of parts, and which will effect the purpose of forming a ratchet and pawl.

H.A., Ilford. Your suggestion for a fly wheel of about 3″ or 4″ diameter is one which we have had under consideration, and we propose introducing one at the earliest opportunity.

A.E.B., Redditch. An adjustable handle to obtain greater speed may be made by attaching a coupling to the end of a rod, and inserting, say, a 3½″ rod at right angles. To the other end of the 3½″ rod should be attached another coupling with a shorter rod for the handle. The handle may be made shorter or longer by sliding the 3½″ rod up or down the first coupling.

W.T.T., Southampton. We illustrate in our Electrical Manual how to make a radiator with Meccano parts and Electrical parts contained in the Electrical Accessory Outfit.

W.D., Mansfield. Most of your suggestions are very practical having in mind the interchangeability of the parts. We have, however, already included in our list a number of parts which are very similar to those you suggest, such as curved rack segment, triangular plate but without collar and set screw, winding drum formed by butting two bush wheels against a wood roller, and very shortly we shall issue a right angle piece with a collar and set screw at the angle. The other parts you illustrate will have consideration later.

R.T., Lincoln. The part which you include with your letter is called a Trunnion, and we already have a similar piece in process of manufacture.

L. Perry, Maidstone. Your suggestion to place a rubber ring around a pulley wheel when used for a car or similar purpose is a good one, but we have not thought fit to include it in our system as suitable rings can easily be obtained from any dealer in rubber goods.

W.D., Dudley. We note your suggestion of a grooved rod with a threaded set pin to permit of a gear or other wheel being moved along a rod, but we do not think this would be practical with our present rods on account of the smallness of the diameter.

E.I.N., Chester-le-Street. We shall very shortly issue a 4½″ perforated strip, but so far as the 4″ and 6″ strips are concerned, we do not think these sizes would be as useful as strips with an odd number of holes, giving a centre hole. We already provide 2½″, 3½″, 5½″ and 12½″ braced girders and up to the present these appear to have met all requirements.

D.S.H., Sheffield. We cannot see the purpose of your suggestion for a T coupling. Our present coupling permits of a rod being secured at each end and one passed through the centre hole if required.

C.F., Duckerfield. We are interested in the photograph of a rope drive, and also the sketch for a combination of pulleys which you have sent us. We are not sure whether there would be much advantage in introducing such a part in the Meccano list, as our present pulleys may be used for the same purpose. For example, two pulleys could be secured on the rods or shaft with the flat sides of the pulleys butted together and the pummels outside.

N.P.M., Hammersmith. We do not consider that strips, angle girders or braced girders of 8″ length would be a convenient size. If an 8″ is necessary to complete your model, you could overlap a 5½″ and 3½″ strip which would give you the desired length. We have not had a call for rods longer than our present 11½″. We are sorry to hear of your infirmities, and send you our sincerest sympathy.

Life Story of Meccano.

By Frank Hornby.

(*Continued.*)

I think one of the most fascinating departments in our entire works, both to myself and to all Meccano boys, is the room where we build our models. Every day we have boys who come to make a tour of our works, and although they are very interested in seeing the various parts made and finished, and the many wonderful machines in operation, it is always the model room which they like to linger in longest.

It is a big part of our business to provide models for various dealers throughout the country to put into their windows to demonstrate the wonderful possibilities of Meccano. Very many of these models have electric motors fitted into them so that they may form a complete working demonstration, and at certain times of the year we have a big staff of model makers who are busily engaged in erecting towers, bridges, cranes, etc., carefully adjusting the electrical fittings and testing them thoroughly before they are despatched to their destinations. Many of these beautiful models are fitted up with electric lights, and when the parts are new and bright, and the models working perfectly, it is certainly a very beautiful sight. I have often thought that it would be a good plan, if it could be arranged, to have expert Meccano boys come along to our model room to help to build these models. I know the joy it would give to them, and that they would be most careful and thorough. Some day, perhaps, this thought may bear fruit, and if it ever becomes possible I know that there would be no dearth of keen volunteers

In the same room we have expert model builders who are designing entirely new models, and this is a side of the big Meccano business which we pay very careful and serious attention to. We not only design new models here, but we improve and perfect the many excellent models which are sent in to us in connection with our annual £250 Best Model Competition. There is always an abundance of new material for us to work upon, and this department is never idle. As all my readers well know, new Meccano engineering parts are being added to the system almost every day, and each new part makes possible new models, new movements, and many important improvements in older models. This is all experimental work and necessarily slow, but it provides us with a steady stream of new models for the Meccano Manuals of Instruction and an abundance of matter for the Meccano Magazine. In the future you boys will see much more of the activities of this department, and it gives me a good deal of pleasure to know that its work will be the means of setting busy hands and brains to work in every corner of the world.

In the earliest days of Meccano, and in fact for many years after it was first put on the market, I personally designed, built and photographed every Meccano model which appeared in the Meccano Manual of Instructions, and even now all this work of model designing is done under my close supervision, as I do not wish any models to be associated with our system which are not designed and built on sound and correct engineering principles. I attach the utmost importance to the value of imparting correct engineering knowledge to boys, and I devote a good deal of my time to the perfecting of models and to seeing that they are properly illustrated and correctly and lucidly described in our Manuals.

A specially laid out section of this Department is devoted to experiments in connection with the development of the electrical side of Meccano. Electricity is going to play a very big part in the future of Meccano, and you boys will shortly have an opportunity of seeing what excellent work has been done by our electrical staff. We already issue one electrical accessory outfit which enables a boy to make a series of very interesting electrical experiments, and this outfit will be added to and developed just in the same way as Meccano was added to and developed in its early days.

Electricity is a wonderful force, and I feel that it is the duty of every boy in this country to get acquainted, as far as he can, with the nature of this force, the various ways in which it operates, and its tremendous influence on modern life. Apart from the undoubted value of this knowledge to all boys, I know of no more delightful and fascinating study. I think I am correct in saying that most mechanical or engineering movements known, are, or can be, operated by electricity, and all Meccano models, which are vivid representations of those movements, can, in a simple fashion, without any complications, be similarly operated.

In the greatest and most important inventions of this age electricity is the only force employed, and in Meccano and electricity combined we have a means of reproducing in a simple and satisfactory way a great majority of these marvellous feats. Electricity to most boys means mystery, intricacy, and difficulty; but this is quite a misconception. There are a few important elementary things to be learned and grasped at the first, and this can be done with practically no study, and after these first principles are understood any boy with an average intelligence, and most certainly every keen Meccano boy, can ensure for himself many very happy and enjoyable hours in a delightful world of electrical wonders.

(*To be continued.*)

Result of Meccano Essay Competition.

"How I would run the *Meccano Magazine* if I were the Editor."

This has been a splendid competition, the Meccano boys vying with each other in suggesting ways of making the *M.M.* more and more attractive. There have been many hundreds of entries, and the task of selecting the best was not easy. Many boys have written in to say that the *Magazine* could not possibly be run on better lines than it is at present. We need hardly say that we do not agree with this, but shall go on adding more and more improvements as time goes by. A noticeable feature of the competition has been the keenness of boys for more articles dealing with Mechanics and Electricity, and we shall certainly keep this in mind. Other boys have suggested fiction stories, Poetical competitions, a Puzzles Jokes and Games column, a Girls' corner, articles on the Lives of Engineers, etc., etc., and we shall give all these suggestions very careful consideration.

With rare exceptions all competitors have said that the *M.M.* should appear oftener, and should consist of more pages. We quite agree with this, but there are many difficulties in the way just now which it would be rather difficult to explain here. As soon as we can see our way clear, however, we intend to issue the *M.M.* oftener, and possibly to make it bigger, as we feel that it is only by doing this that we can do proper justice to the inexhaustible Meccano topics.

The First Prize, an Inventor's "B" Outfit, has been awarded to Master A. B. Miskin, 37, Worley Road, St. Albans, age 17, who has written a very careful and thoughtful essay.

Other boys who sent in excellent essays are :—

Master Tom Griffiths, Rose Cottage, Ynysforgan, Morriston, near Swansea, age 16.

Master L. Brown, Chase Cliffe, Whatstand Well, near Matlock, age 14.

Master H. G. Knight, Deverill House, Marlborough, Wilts., age 14.

Besides submitting thoughtful essays, each of these boys has shown constructive and literary ability in his work. We have posted an Inventor's "A" Outfit to each of these boys.

Winning Essay.

The aim of the *Meccano Magazine* is to help Meccano boys to have more fun than other boys and, as editor, I should always bear this in mind when selecting material for publication.

The subject matter for this paper may roughly be divided into four classes., The first division contains all general information, the Editorial, price list and the "Mail Bag." The next two classes represent the Competitions and Guild Notes respectively, while the last and most important one includes articles and hints for model-builders.

Every magazine must have its editorial column and I would not have mine be an exception to this rule. General notices, prices of outfits, concessions—these are essential, but they must not crowd out the Correspondence. In selecting letters and replies for publication I should include rather less poetry and substitute more letters containing hints and reports of progress. It is true that the engineer or higher mathematician is a poet, but one can be so without writing verse. Above all, I would print more letters from other parts of the world and thus enable the reader to appreciate the true universality of Meccano.

It is said that competition is the soul of industry and so I would leave the arrangements in this respect practically the same as they are at present. They leave little to be desired. The prizes would be almost entirely Meccano sets or parts as then the keen would become keener and those out to collect "pots" or cash would not be so ready to enter. However I would particularly encourage writers of short essays (or articles) on original ways of using the standard parts—especially the newest ones—besides suggestions for improving models described in the Manual.

I should cut down the amount of Guild Notes in the Magazine, or, for preference, increase the size of the whole. The present tendency is to devote too much space to Guild matters and not enough to Meccano itself. It is a pity, for while the Guild is an excellent institution Meccano must come first and something has got to be shortened.

As editor of the *Meccano Magazine* I would publish those articles which would be most helpful and interesting to the actual builders of Meccano models, taking care to include descriptions of new models, spare parts and ways of using them. There would also have to be something lighter such as a humorous or other article, e.g., The Life Story of Meccano. Again, among the articles intended to help model makers, there would be those on elementary mechanics and science generally. These would give boys more insight into "Meccano," and later civil engineering.

In conclusion I must say that I would help the boys to build up character and directness of thought, so that they may be able to crystallize their ideas. They see a vision of a possible model. Help them by practical notes to see it, first as a whole, then by your teaching (of course unconscious to them), help them to analyse their ideas. Then they may be able to build up that model, bit by bit, from their imagination.

For only thus are engineers made, and all will have a better chance of solving the problems of life itself.

How to get the Meccano Magazine regularly.

The Meccano Magazine is now sold by most of the regular Meccano dealers, but in order to prevent disappointment you should place an order with your dealer for a copy of each issue to be reserved for you. The price of each issue is 1d. If you experience difficulty we will mail you a copy regularly on receipt of 6d. for the next six issues, or 1/- for the next twelve.

The Meccano Guild

Member's Badge

Leader's Badge

A Fellowship of Meccano Boys

The objects of the Meccano Guild are:

(*a*) To make every boy's life brighter and happier.

(*b*) To foster clean-mindedness, truthfulness, ambition, and initiative in boys.

(*c*) To encourage boys in the pursuit of their studies and hobbies, and especially in the development of their knowledge of mechanical and engineering principles.

We are again able to report substantial progress of the Meccano Guild. Applications for membership are coming in daily from all parts of the world. If our readers will study the "Club Notes" on the next page they will fully realise what fine fun Meccano boys are having.

To join the Meccano Guild it is only necessary to apply to the Guild Secretary for an application form, to fill it in and return it to him. Each member is supplied with a badge and a Guild Certificate.

There are many privileges attached to Guild membership, and the Secretary will be glad to send you full particulars of them on application. The main privilege, however, is that when joining the Meccano Guild, you are associating yourself with more than a million other boys who are working and playing just in the same way as yourself. Any boy who joins the Guild can never feel lonely or friendless.

Guild Notes.

By the SECRETARY.

It is very gratifying to me to note the continued and increasing success of the Meccano Guild movement. My space for "Club Notes" is very limited, and I feel sure I could fill the whole issue of the *Meccano Magazine* with reports of the doings of successful Meccano Clubs throughout the country.

I am also pleased to note the extension of the activities of some of the Clubs. Exhibition Nights and Social Evenings are always successful: Ambulance Classes have been formed in some instances, half-an-hour of each meeting being devoted to them: Reading Nights have been introduced, and the exchange of books among members.

The second Winter Session is going merrily along, and all the Clubs are doing great work in providing Meccano boys with enjoyable and happy times.

So far as I can see there are no idle Meccano boys; they are all industrious, enthusiastic, full of fun, and the best fellows in the world: I am proud to be associated with them.

The Guild Recruiting Campaign has been a very great success, and large numbers of members are now the proud possessors of the beautiful Medallion which I was able to offer. The Gold and Silver Medallions were keenly competed for, and as I write, the work of collecting and recording the recruits secured by each contestant is proceeding. In a few days the Gold and Silver Medallions will be despatched, and I shall be able to announce the winners in the next issue of the *Meccano Magazine*.

In response to a very large number of requests, I propose continuing this Recruiting Campaign until December 31st, 1921, for the special benefit of those members who have only recently joined. For their guidance I may say that each member who secures three new recruits for the Guild is awarded a very handsome Medallion. Recruiting Forms may be had on application, and each member who secures a recruit should write his own name and address on the back of the form used.

I have been asked for a Membership Card suitable for distribution among Club members, in which a syllabus for the Winter Session could be printed, together with the Club rules. I consider this a very good idea, and should welcome any further suggestions from Club Leaders, Secretaries and others interested in Club work. It is too late to do anything this winter, but I propose issuing a suitable card for the 1921 Winter Session.

In the No. 14 issue of the Magazine, I announced that special Club prizes would be awarded for new models which were the combined work of the Club members. I have been gratified by the response to this and now have pleasure in announcing the results for the first Session.

The 1st Prize of £5 in cash has been awarded to the "Claygate Meccano Club" for a very fine model of a Floating Dock, which comprises Workshops, Messrooms and a Lighthouse.

The 2nd Prize of £3 in cash has been awarded to the "Holy Trinity Meccano Club" for a fine model Warehouse; Elevators, Travelling Crane, Motor Lorries, Offices, Bridge, etc., all complete and lighted by electricity.

Both models are very excellent, and Mr. Hornby found some difficulty in judging between them.

Amongst the other good entries was a Tram Depot submitted by the "New Malden Meccano Club," an Airship Mooring Mast, by the "Norwich Enterprise Meccano Club," a Recording Telegraph, by the "Meccanock Meccano Club," a Workshop by the "Leamington Meccano Club," an Aeroplane by the "King Street Meccano Club," and a fine Bridge by the "All Souls' Meccano Club" (Liverpool).

I would remind Club Leaders and Secretaries that this Competition will be continued during the second session, and further Cash Awards of £5 and £3 will be made to the Clubs which send in the best models. The closing date is May 15th, 1921.

In the No. 14 *Meccano Magazine*, I announced the awarding of special Medallions for meritorious Club work, and I have great pleasure in illustrating these herewith. During the first Winter Session, a number of Club members have competed for these Medallions, and the following awards have been made:—

LECTURES.

C. L. Bowyer, "St. Thomas (Exeter) Meccano Club."
W. Edge, "Small Heath Meccano Club."
J. Dickens, "Gedling Meccano Club."

CLUB WORK.

L. Palk, 64, Cowick Street, Exeter.
G. Hare, 36, Willes Road, Leamington.
J. H. Roberts, 170, Dryden Street, Liverpool.
E. A. Atkins, "Strawberry Cottages," 46, Mill Lane, Carshalton.

Each of these boys has served his Club well, and richly deserves the award. I am a little disappointed with the number of entries, and would very strongly urge on Club Leaders and Secretaries the desirability of encouraging and helping Club members to gain these Medallions. Each Club is allotted two Medallions, one for each Winter Session, and are given to boys who read the best papers at their Club meetings. These papers may be upon any subject of interest, "Engineering," "Electricity," "Woodwork," "Stamp Collecting," etc. Boys may get help from parents, Club Leaders, or any other responsible person, and their papers may be illustrated by Lantern Slides, Drawings, Models, or in any other way. When they have been read at the Club meetings, the papers should be sent along to me with any comments by the Secretary or Club Leader, and the adjudication will be made at the end of the session. The Medallions themselves are exceedingly beautiful and have been specially struck for the Guild by Messrs. Elkington & Co., Ltd., of Liverpool, and each one is engraved with the name of the recipient.

I propose extending the distribution of these Medallions to those members, who in the opinion of the Club Leader have done special service in any capacity to the Club to which they belong. I trust each Leader and Secretary will do all he can to assist members now competing for these special awards. The second distribution will take place at the end of the second Winter Session.

Our Correspondence Club is in a flourishing state and I am daily putting members in touch with other Meccano boys who desire to enter into friendly correspondence. I shall be glad to send full particulars and rules of the Guild Correspondence Club to any member interested.

I have received many hundreds of suggestions for a suitable motto for the Meccano Guild, and I am still open to receive further mottoes and suggestions from members. In an early issue I shall publish a list of the best mottoes submitted, and I propose that the final selection shall be decided by the vote of the whole of the members of the Guild.

Club Notes.

CARLISLE M.C.—There are many good things in store for members of this Club—A Club Magazine and a Playlet based on the Meccanoland booklet, being two features, full of excellent possibilities. The Club Secretary is to be congratulated on his progressive ideas. *Secretary:* Master W. McVitie, 13, Sheffield Street, Carlisle.

ALL SOULS M.C. (Liverpool).—The energetic Secretary, has held one successful Exhibition and a Concert. Tea to celebrate the Club's Anniversary is fixed for April 14th.—*Secretary:* Master J. H. Roberts, 170, Dryden Street, Liverpool.

CARDIFF Y.M.C.A. M.C.—A big Club Outfit is being got together, and as most of the preliminary work in founding the Club has now been completed, boys are in for jolly times.—*Secretary:* Mr. N. Craven-Whitehead, Central Y.M.C.A., Cardiff.

ELLERSLIE M.C.—Mr. E. Wiggett-Thompson reports excellent work done at Club meetings. Boys have had several interesting and instructive Lectures on "Aviation" (Club Leader), "Steam Threshing Machine" (J. P. T. Pimm), "Manufacture of Leather" (Chairman), "Pumping" (J. C. B. Thompson), "Electricity and Wireless Telegraphy" (Club Leader). Many fine models have been constructed throughout the session, and meetings thoroughly enjoyed.—*Leader:* Mr. E. W. Thompson, 2, Green Lane, Eltham, London, S.E.9.

CHURCH OF CHRIST (Oldham) M.C.—Mr. Lindsay, the Club Leader, himself an inventor, has started a very promising Club. Members are keen and enthusiastic and the Club work has already aroused the interest and support of parents and friends.—*Leader:* Mr. J. Lindsay, 24, Pitt Street East, Oldham.

DUDLEY M.C.—This Club has been in existence since September last year, but has only recently become affiliated. Mr. Lewis, the Club Leader, sees great possibilities in the Meccano Guild movement for the good of its members, and he is ably supported by the members generally.—*Secretary:* Master F. W. Whitehouse, 16, New Rowley Road, Dudley, Worcester.

CHELTENHAM GRAMMAR SCHOOL M.C.—The Headmaster has kindly granted boys the use of a room, and already several successful meetings have been held. Mr. L. V. Belcher, one of the Masters, is the Club Leader.—*Secretary:* Master N. Trafford, 3, Hambrook Terrace, Charlton Kings, Cheltenham.

JUNIOR ENGINEERS M.C.—Excellent work has been done during the past session and membership is steadily increasing. A model building competition is being held this session, six prizes from 5s. to 2s. 6d. offered, and judges are well-known Manchester engineers. From members' subscriptions and outside donations, a fund for the purchase of Club Parts, Motors, etc., is making good headway.—*Secretary:* Master T. Booth, 96, Birch Lane, Longsight, Manchester.

HILDENBOROUGH M.C.—In his report for last session, Mr. Burton shows himself an earnest Club Leader, with the welfare of the boys very much at heart. The older boys are encouraged to take a real interest in their Club, whilst everything is made as simple as possible for the younger ones. Mr. Burton attaches great importance to the value of Lectures, providing they are not too long and quite elementary, and on several occasions he has given a short talk (about 15 or 20 minutes) on Meccano Parts and their uses, illustrating the various mechanical principles in a practical manner. A very successful Exhibition of Models has already been made and at their own suggestion the boys are busy building "Meccano Town" with river, docks, railways, bridges, warehouses, etc., for the final Exhibition on April 4th.—*Secretary:* Master W. Bassett, Laburnum Cottage, Hildenborough, Kent.

GREAT YARMOUTH M.C.—Enthusiasm for the Club runs right through from the Club Leader to the youngest members, and the result is excellent work at meetings, and a rapidly increasing membership. The Club has set itself the task of becoming the biggest and strongest Club in the Guild, and although it was only affiliated in January, the membership now stands at 103.—*Leader and Secretary:* Mr. H. Linford, 81, Middle Market Road, Great Yarmouth.

LEAMINGTON M.C. (Extract from newspaper cutting)—"'It's enthusiasm that runs the show.' The words were uttered by Mr. F. W. Bull, Leader of the Meccano Club which for the past year has been established at the Urquhart Hall, and a visit which we paid to the Club last Friday evening furnished us with ample proof that Mr. Bull is right. Thirty boys are members of the Club, and by their regular attendance and keenness have acquired a quite surprising knowledge of mechanical and engineering principles. Hydraulic cranes, aeroplanes, and a structure which suggested an armoured car were some of the models which we saw last Friday, leaving no doubt in our minds as to the practical bent of the youngsters, most of whom devise their own designs. Being members of a Club, they enjoy the additional benefits of assistance and criticism from their comrades, and lectures by Mr. G. V. Bolton, Dr. Crowther, and the Club Leader have been arranged for their instruction during the next few Friday evenings. The summer will bring with it cycle rides, picnics, and visits to engineering works, which in their turn will provide plenty of material for next autumn. Lieut.-General Sir John Kier, the President of the Club, was a visitor to the Urquhart Hall last Friday, and he heartily congratulated Mr. F. W. Bull and the Club members on what he saw during his inspection."—*Secretary:* Master G. Hare, 36, Willes Road, Leamington.

NONNINGTON M.C.—Report for last session indicates enjoyable meetings. Besides model building, etc., games are played—draughts, chess, rings, and the like—and part of a meeting is sometimes devoted to lectures, stories or riddles. There is a very interesting programme for the present session.—*Secretary:* Master G. K. Leppard, Holt Street, Nonnington, near Dover.

NORWICH ENTERPRIZE M.C. is making good progress. Boys who joined the Savings Club have now got outfits, and the fine programme for the present session should be productive of useful work.—*Secretary:* Rev. A. B. Grosvenor, 118, Vincent Road, Norwich.

KING STREET (Luton) M.C.—Mr. Burgoyne reports a very satisfactory session. Two energetic members, Masters H. J. and A. O. Squires, gave a series of Lectures on the Automobile, which were greatly appreciated. Model Building and discussions on different models have occupied other meetings. Members are keen on electrical side of Meccano. Membership 31, is being increased by advertising in local papers. A fine Christmas Social ended the year 1920.—*Secretary:* Master W. Humby, 34, Adelaide Street, Luton, Beds.

NEW MALDEN M.C. (Extract from Newspaper Report).—"A Meccano Exhibition and Concert was held in Elm Road Boys' School, New Malden, on Tuesday evening, when working models made by the boys were exhibited in the two classrooms, and very creditable was the handiwork displayed. Ingenuity and attention to detail appeared to be the prominent features of the majority of the models, which varied from an aeroplane to a swinging derrick. In the course of a short address, Mr. W. J. Cole, the late headmaster, paid a deserving tribute to Mr. V. Hammond, a teacher of the School, and the enthusiastic Leader of the Club. At the time of the formation of the Club, no other of its kind existed in New Malden. The idea of having such an organisation originated among the boys themselves, and Mr. Hammond was asked if he would be Leader. Variety was lent to the Exhibition by a musical programme." *Secretary:* Master S. B. Evans, 22, Howard Road, New Malden, Surrey.

MIRFIELD (Doncaster) M.C. is making steady, useful progress. New members are joining and interesting meetings are held.—*Leader and Secretary:* Mr. H. Leng, Red Triangle Boys Club, 10, Waterdale, Doncaster.

NORTHFIELD M.C., recently affiliated, has already held ten meetings at which model building has been the chief feature. Meetings, Monday evenings. Exhibition of Models will be held in March.—*Secretary:* Master Willets, "Elstree," Steel Road, Northfield.

ST. JOHN'S (OXFORD) M.C.—During the past session this Club has made splendid progress. Mr. Read, the Club Leader, now has two gentlemen who assist in the organisation and running of the Club. Mr. W. Bunce, takes an interest in the model building and gives suitable lectures, whilst a Scoutmaster gives half-hourly lectures each meeting on First Aid. This excellent feature of the Club work is very popular with the members.—*Leader and Secretary:* Mr. W. A. Read, 62, East Avenue, Oxford.

SPARKBROOK M.C.—Thanks to the leadership of Mr. D. Pipes, the Club is forging ahead and the last session has been thoroughly enjoyed by everyone. In addition to Model building, interesting lectures on "Electricity" and "How the Armistice was Received at the Front" were much appreciated. A discussion on "Football," a "Reading Night" (when each boy took a book which he exchanged for another belonging to another member), "Games" evenings and Concerts provide ample variety. The Club Magazine, "Nuts and Bolts," edited by Master W. A. Clements, is a very bright, up-to-date little publication, and well worth reading.—*Secretary:* Master F. Hubball, 71, Turner Street, Sparkbrook, Birmingham.

RUABON M.C.—Miss M. P. Bradley-Jones, the President of the Club, writes: "The Meccano Club recently formed here is progressing satisfactorily. The members are very enthusiastic and keen, and make good use of their time. They have a nice warm room and everything to make their evenings pleasant and happy. The Club bids fair to be a great asset to the parish."—*Leader and Secretary:* Mr. A. H. Squire, "Bryn End," Ruabon.

ST. MARY WITH ST. GABRIEL M.C. has made rapid progress under the enthusiastic leadership of Mr. G. Treves. Members have increased to such an extent that Mr. Treves has had to hold two meetings a week.—*Secretary:* Master H. Bullock, 213, Newington Butts, London, S.E.11.

ST. MARGARET'S (Liverpool) M.C.—Mr. Pearson has started the Club on very sound lines and the response from the boys promises well for the future.—*Leader:* Mr. V. A. Pearson, 126, Hill Street, Liverpool.

A Meccano Story Competition.

In one of the entries in our last Essay Competition a boy competitor has made the suggestion that we publish short stories, the Meccano hobby being the central idea in each one. He also suggests that many Meccano boys themselves would be able to write little stories of this kind, and this suggestion has interested us very much. We have proved over and over again in our Essay Competitions that Meccano boys can write intelligently and can express their ideas clearly, and that they possess vivid imaginations. We should like as many of our readers as possible to endeavour to write a little story round the Meccano hobby and send it in for this competition. It can either be a story of actual fact, a fairy story, a story dealing with engineering, or in fact, any kind of a story with Meccano as the main idea of interest in it.

Read the following conditions carefully before sending your entry in.

The story should be about 500 words in length.

The competition is open to all readers of the *Meccano Magazine.*

A Hornby Clockwork train outfit will be awarded for the best story, with other awards for stories showing special merit.

The closing date will be July 1st, and the result will be announced in the July-August issue of the *Magazine.*

Write on one side of the paper only. Give your name and address on the back of each sheet, and address the envelope "Meccano Limited, Story Competition, Binns Road, Liverpool."

From a New Zealand Meccano Boy.

Dear Mr. Editor,—I have decided to settle down to-night and tell you some of the news of our little world.

I am sure the Meccano Guild will be a great success as so many boys don't know what to do during their spare evenings. I enclose 7d. for badge, and 6d. for some Magazines. I might just as well have them though I am half the distance round the world from you.

I left school last March and went out rabbiting with Dad. I liked it all right, but when prices went down we came home. It's a hang of a rough life but its very healthy. One gets away out in the back block miles and miles away from nowhere, where the stores come once a week, and then on pack horses. Have you ever had your grocer forget to send you your milk or sugar for a whole week, when you have been out of it? I have. Have you ever had bread and poison carried together, and had to throw away the bread for fear some poison had got on it? I have. One week we had neither bread, milk nor sugar. You have no idea how rotten it is living on pure tea, meat and potatoes, unless you try it.

It's all in rabbiting though. As you don't go in for rabbiting in England, I might as well tell you what it's like. One gets up at 5 o'clock in the morning, goes round traps set the day before, takes out and skins rabbits till six, comes back to breakfast till 6.30, then collects traps and reset till two. Come home for dinner, and I may as well say if you are four or five miles from camp, its mighty late before dinner is ready. Then the skins are put on stretching wires and put in the sun to dry. At six one goes out round the traps and takes out all the silly rabbits that go in till about ten, then back home to bed.

You can disbelieve it if you like, but I'll bet I never was more than five minutes getting off to sleep. Sometimes we used to get up at 4.30 and have breakfast before we went out, but it was terribly early

When we came home I fooled around a bit at odd jobs till I got the offer of a job in the garage here. I have always had a turn for mechanics, and I did not let the offer slip. I started in the second week of last June, and in September my first boss sold out to a mechanic at Fairlee.

List of Newly Affiliated Clubs.

WEST MELTON M.C.
Leader—Mr. F. Riley, 6, Co-operative Street, West Melton.
Secretary—Master Jack Dickinson, 2, Clarence Street, West Melton.

MIRFIELD M.C.
Leader—Mr. H. Leng, 10, Waterdale, Doncaster.
Secretary—Master H. Marshall, 4, Exchange Street, Cemetery Road, Doncaster.

GREAT YARMOUTH M.C.
Leader—Mr. H. Linford, 81, Middle Market Road, Great Yarmouth.

RUABON M.C.,
President—Miss E. Bradley Jones, High Street, Ruabon.
Leader—Master Arthur H. Squire, Bryn End, Ruabon.

WESTERTON M.C.
Leader—Mr. F. H. Ireland, "Oakenhurst," Westerton, by Drumchapel, Glasgow.
Secretary—Master J. Ireland, "Oakenhurst," Westerton, by Drumchapel, Glasgow.

ST. MARY WITH ST. GABRIEL M.C.
Leader—Mr. G. Treves, 207, Newington Butts, London, S.E.11.
Secretary—Master T. L. Bullock, 213, Newington Butts, London, S.E.11.

BUTT LANE COUNCIL SCHOOL M.C.
Leader—Mr. A. J. Ray, 147, Congleton Road, Talke, Stoke-on-Trent.
Secretary—Master Thos. Lethbridge, Old Butt Lane, Talke, Stoke-on-Trent.

ST. MARGARET'S M.C.
Leader & Secretary—Mr. V. A. Pearson, 126, Hill Street, Liverpool.
Club Address—St. Margaret's Schools, Upper Hamptson Street, off Princes Road, Liverpool.

NORTHFIELD M.C.
Leader—Mr. Porritt, Forest Dene, Hawkesley Mill Lane, Northfield, Birmingham.
Secretary—W. Willetts, "Elstree," Steal Road, Northfield, Birmingham.

CHURCH OF CHRIST SUNDAY SCHOOL M.C.
Leader—Mr. James Lindsay, 24, Pitt Street East, Oldham.

ST. CEDDS M.C.
Leader—Mr. A. H. New, St. Cedds Garth, Becton Road, Canning Town, E.16.
Secretary—Master Freddie Dutton.

PONTYPOOL ROAD M.C.
Leader—Mr. W. B. Sale, "Springfield," Pontypool Road, Mon.
Secretary—Master Sale, "Springfield," Pontypool Road, Mon.

CHELTENHAM GRAMMAR SCHOOL M.C.
Leader—Mr. L. V. Belcher, 63, Leighton Road, Cheltenham.
Secretary—Master Norman Trafford, 3, Hambrook Terrace, Charlton Kings, Cheltenham.

DUDLEY M.C.
Leader—Mr. L. Lewis, 2, Thornley Street, Wolverhampton.
Secretary—Master F. W. Whitehouse, 16, New Rowley Road, Dudley.
Club Address—Wesleyan Church, Dixon's Green, Dudley.

The new bosses are regular decent coves. There are two of them, one the clerk, one the mechanic. There is one chauffeur and two apprentices, of which I am one. Both are bound until July, 1925, so we ought to know the job by then, oughtn't we? I can do everything in the overhauling line except magnetos, and they are not the most important by a long shot.

What do you think of the cost of living? Mighty hot, isn't it? Sugar here is 6½d. per lb., and until six months ago it was 2½d., but things are starting to drop. There is no sale whatever for wool, and sheep owners don't care a hang whether they shear or not. Potatoes, too, have no sale. Different ones round here are tipping last season's crop out on to the river bed.

We had such a stunner flood here a couple of months ago, and the river, always most obstinate, broke away and came down the main road. Probably got sick of the one place and went out visiting. It didn't see much though. P.P. is the slowest, quietest village I reckon there is in South Canterbury. It consists of 1,200 people. But we have a cricket club, 63 in it altogether. It's only been in existence three weeks, and last week we played the crack South Canterbury team. I need not tell you how we came off. Six of their men were in and each retired, the rest thought they would let us have another innings. In the first we got 49 runs, and in the second 32.

I don't think I'll bother you with any more just now.

I saw the Prince when he was here in Timaru. He is not a bad looking chap either; I bet he enjoyed himself, too.

Good-bye just now.

Pleasant Point, S. Canterbury, New Zealand.

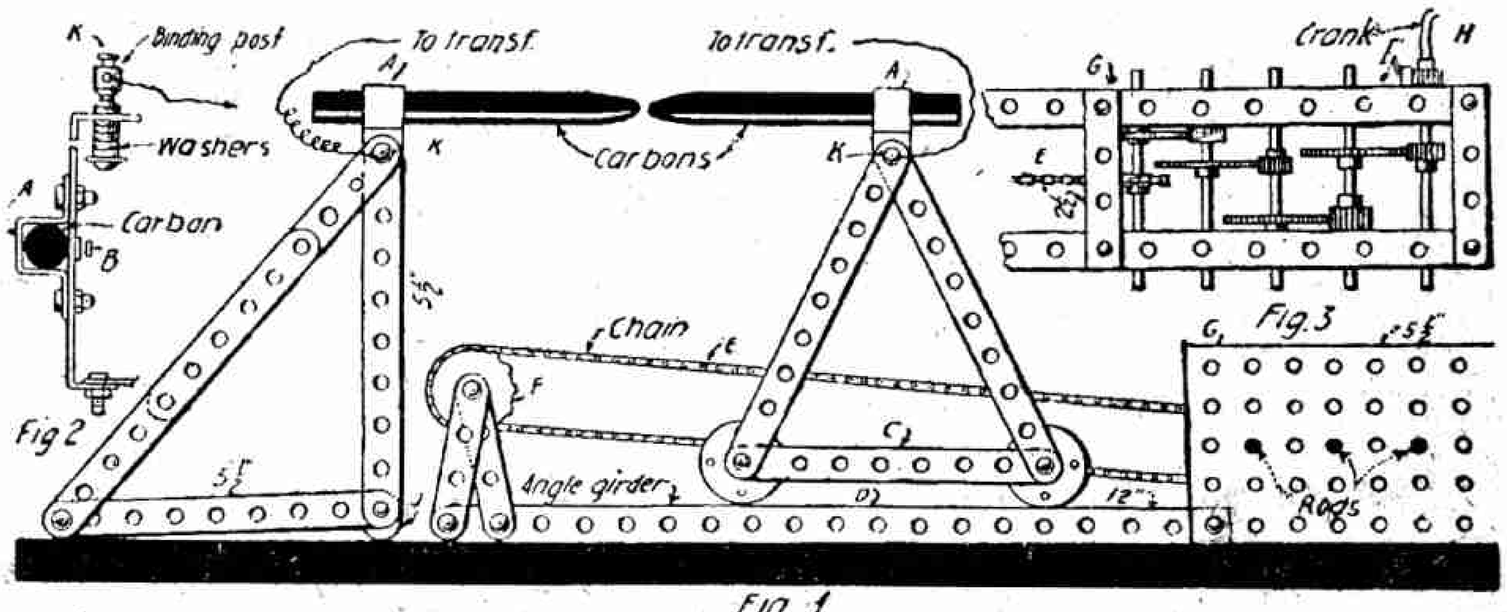
I remain, yours sincerely,
(Mr.) SYDNEY GRAY.

INTERESTING PHOTOGRAPHS.

Master RALPH SHIRE, 25, Derwent Road, Anerley, S.E. 20, has been awarded 2/6 for sending us this photograph.

A prize of 2/6 is offered to any Meccano Boy sending an interesting photograph which is published in the *M.M.*

Experimental Arc-Light.



I herewith present a description and drawing of an experimental arc-light which I have constructed with my Meccano outfit. It is very simple and works nicely.

The carbons are held in place by double-bent strips (A) and nuts and bolts (B). The movable carbon is on a car or carriage (C) which runs on a track (D) 2½ inches wide and 12½ inches long. It is moved by chain (E) which passes over wheel (F) and back to gear box (G) and is moved by crank handle (H). By moving the handle the carbon is moved slowly and enables you to keep the light steady. On the crank-handle is a brake or pawl (1).

The drawing shows the gears clearly.

The stationary carbon is raised to the level of the movable carbon by angle-bracket (J). The wires are connected to the frames by binding posts (K) and are separated by space (L).

I have had good success with this light and run it on my toy transformer, at twenty-six volts. When finished I screwed it on a board. I am a subscriber to your magazine, which I like very much, and trust you will publish it in your magazine for the benefit of other interested electrical experimenters.

I will send you a photograph of my model as soon as I get it printed and developed.

Contributed by EDGAR KROEHLE.

Some Distance after Longfellow.

The shades of night were falling fast,
As through an English city passed
A youth who bore upon his breast,
A button, with this strange behest—
Meccano!

His brow was glad, his eye beneath
Flashed like a falchion from its sheath,
And ever as he sped along,
His voice broke out in joyful song—
Meccano!

In happy homes he saw the light
Of household fires gleam warm and bright,
But all these things he heeded not,
He must keep on until he'd got
Meccano!

"Run not so fast," the old man said,
"Young boys like you should be in bed,"
And thus to stop the youth he tried,
In vain, for still the voice replied:
Meccano!

"O stay!" the maiden said, "And rest
Thy weary head upon this breast."
The boy looked round as on he sped,
But this one word was all he said:
Meccano!

"Beware the traffic slow and fast!
Beware the motors rushing past!"
This was the policeman's warning word
Again the clarion voice was heard—
Meccano!

A tradesman just about to close
His shop, and take his sweet repose,
Beheld a youth with hurried stride,
Said he; "What now?" the boy replied:
Meccano!

His journey with success was crowned,
And soon in bed this youth was found.
When to his room his parents creep,
They hear him murmur in his sleep—
Meccano!

ALFRED CLITTY

A New Grand

Meccano Prize Competition

£250 in prizes

A new big Meccano Model Building Contest has started, and we want every Meccano boy to know all about it. There will be hundreds of prizes awarded, including nine prizes in cash to the value of £100, and Meccano Outfits to the value of not less than £150. This time the Competition will be divided into three sections.

1. For boys under 10 years of age.
2. For boys between 10 and 14 years of age.
3. For boys over 14 years of age.

In addition to these prizes the Meccano Guild is offering three awards of £5 each in cash to the member of the Guild who gains the best prize in his Section. Forms of entry may be obtained either from your dealer or from us.

There are no restrictions or entrance fees. Any Meccano boy can enter, and the competitor sending in a simple model made with a No. 0 stands just as good a chance of winning a prize as one sending in a complicated model made from a No. 6 Outfit. **This Competition will close on April 15th, 1921.**

Notes and News.

As a young man, Thomas Alva Edison, the great inventor, who is seventy-four years of age, worked on an average twenty hours a day for fifteen years. He commenced his business life as a newsboy on the Grand Trunk Railway, and was discharged from his job because he had set up an experimental chemical laboratory in a compartment of one of the company's trains. This was a serious matter for young Edison, because the irate conductor, who objected to the fumes of escaping sulphuric acid, gave the ardent scientist a box on the ear, which resulted in the deafness from which he has suffered ever since.

Edison states that one of the revolutions which he expects to see effected ere long is the substitution of nickel for paper in books and periodicals. He estimates that a sheet of nickel one-twenty-thousandth of an inch thick would be cheaper, tougher, and more flexible than an ordinary sheet of notepaper, and that a nickel book two inches thick would contain 40,000 pages, would weigh only one pound, and cost only a few shillings.

During 1920 1,325 aeroplanes have arrived in England from Europe bringing passengers and goods. Of these 1,097 were British, 236 French, 9 Belgian, and 1 Swiss. One can fly from London to Paris in less than 3 hours. By rail and steamer it takes all day to make the journey.

The longest railway tunnel through the Alps—the Simplon—is twelve and a half miles in length, but a tunnel nearly six miles longer than that has just been constructed in America to convey New York's water supply. It is 11ft. 6in. in height and 10ft. 3in. wide, and is egg-shaped in section, as is usual in sewers and other built-up underground water-conduits. A huge Venturi water-meter is to be installed at each end of the tunnel, and the normal flow is expected to be about 250,000,000 gallons a day.

George Stephenson, the man who invented the railway engine, had to encounter all kinds of ridicule when he was building his famous Rocket. Men of importance said that the engines would burst and blow the trains to pieces, and that they would set fire to the country side as they passed. They also said that the smoke would poison all the farm animals, pigs, cows and hens and that birds would drop dead, killed by the fumes. The "Rocket" won the prize of £500 offered to the man who made the best engine, and it drew a load of 13 tons at as high a speed as 29 miles an hour. A wonderful achievement at that time.

Students of wireless telephony are aware of the fact that messages are sometimes carried for tremendous distances through what is known as a freak transmission—communication over an abnormal range for a given power of transmitter. The latest which has come to our notice is the case of two American amateurs of New Jersey who, while experimenting with a 100 watt installation, played a song of Harry Lauder's into the transmitter, after stating their names and addresses. Some time afterwards they were surprised by a letter from Aberdeenshire, in which the writer informed them that he had picked up their message, and had listened to the song. The distance was over 3,000 miles.

When Commander Peary discovered the North Pole in 1909, he planted a flag to denote the spot. Capt. Handsen, of the Amundsen Auxiliary Expedition, reports that the flag still floats proudly over the ice field in which it was erected but 400 miles away from its original position. The ice field has thus moved 400 miles since 1909.

Our Mail Bag.

The Editor has a little talk in this column with his Meccano boys. Whether he has space to reply to them all here or not, he is always glad to hear from them. He receives hundreds of letters each day and only those which deal with matters which are likely to interest other Meccano boys can be dealt with here

Correspondents will help the Editor if they will write on one side of the paper only.

E. H. Gorton, Murton.—"The *M.M.* is just the thing for Meccano boys, being a considerable help and inspiration to them. I shall make it known by every means in my power." Thanks for your tribute and help. We shall endeavour to live up to your good opinion.

Teddy Drew, Birmingham.—

"Distance lends enchantment,
Fear lends you wings.
Hours full of happiness
Good old Meccano brings."

The first two lines don't seem to have much bearing on the last two, but we know just what you mean Teddy, and we love you for all the nice things you say in your letter.

E. Edwards, Hull.—We are glad to hear of your son's Meccano doings. He is an earnest, enthusiastic boy, and we feel sure he will do well in life.

A. H. Savage, New Cross.—"I have put a notice up in my form room at school, telling boys about the Meccano Guild, and many of them are joining. Tell other boys who are helping the Guild to try this plan." This is an excellent plan which we hope other Guild members will adopt. It could hardly fail to be successful.

H. D. Jennings, Sydenham.—

"Meccano is a beautiful toy,
And a good present for every boy.
Now those who've not got it, get it at once,
And if you don't—well I think you're a dunce."

Rather abrupt, but we quite understand your annoyance with non-Meccano boys. All editors are not stern hard men, Howard. This one is full of affection for the thousands of fine boys who write to him.

R. Croall, Leith.—"I hope the Sinn Feiners do not blow up the Meccano works, or kill Mr. Hornby, for the boys of all nationalities would suffer." Thanks for your kindly solicitude Robert, we trust no such calamity will happen.

J. B. Harris, Edinburgh.—"It would take Hercules and a couple of Meccano cranes to lift the wreath of laurels that should adorn Mr. Hornby's head." It would never do to honour Mr. Hornby in this way John. Just think of his plight whilst Hercules was preparing for the great lift.

Leslie Lovatt, Whitwell. "I am an underground pony driver in a coal mine, and I feel the happiest boy alive. I won a prize in your 1920-21 Competition, and I have a No. 6 Outfit. My father says I shall grow up to be a good man if I work hard at Meccano." You will help to make the world better some day Leslie, if we are any judge. We are proud to number you amongst our friends.

A. W. Russell, Wylde Green.—"We had a Hornby Train on Christmas Day, and it runs simply beautifully. It is the first clockwork motor I have seen which keeps its track." We have had hundreds of tributes to the excellence of these trains. The bigger models you ask for will be ready soon.

T. M. Edgington, Llanfair.—"I feel I can never be thankful enough to the person who gave my boy his first Meccano Outfit. It teaches many more things than mechanics, and is a distinct and very valuable education to any child. I regret that all children are not compulsorily educated in it." We read your letter with great pleasure, and we are very interested in hearing of your boy's aptitude for Meccano model building, and of his inventive talent. We hope to see more of his work in the big £250 Competition.

W. Malcomson, Belfast.—"I have to-day had delivered to me two Hornby Trains, and I wish to say that I have never seen such splendid goods at any price. They are just magnificent, and they knock all the Continental rubbish into a cocked hat. I feel so delighted with them because they are British made." We are glad to receive such an enthusiastic tribute. Passenger coaches, points and crossings are all well in hand in the Meccano factories and will shortly be ready.

H. S. Haslam.—"Do you know my friend, Ernest Bodon? He has got a Meccano badge, and his sister has got the mumps." Ernest seems to have got the best of the bargain, doesn't he Hubert? We hope the badge will act as a charm to protect Ernest from the mumps and that his sister will soon be well again.

F. Foster Penge.—"I am the happy possessor of a No. 3 Outfit and a clockwork motor. I am always making something, and I feel quite an engineer. I used to find my spare time rather hard to fill up, but that difficulty has been got over, for I have no spare time with Meccano." Your letter shows us that you are a very industrious boy and the knowledge you are gaining now will certainly be very useful to you when you commence real engineering studies.

A. W. Earland, Mortlake.—"I suggest that you publish a sequel to the Meccanoland book dealing with Dick and his father's journey through the Meccano works. It would be interesting to hear about all the different things they saw there. I also suggest that you include a tame squirrel in the Meccano outfits to pick up the nuts." We have often had your first suggestion made to us, and we may bring out the book you want a little later. Dick and his father are very popular with Meccano boys. Your second suggestion is quite another matter. We certainly know of some parents who would be glad to see it adopted. Anyhow, there are not sufficient squirrels in the world to provide one for each outfit, so your suggestion will have to be dropped.

G. W. Latus, Hull.—If you will turn to another page in this issue you will see that we have started a column to deal with suggestions for new parts and new ideas of all kinds. Send yours along to me.

H. Underwood, Geneva.—"It may interest other Meccano boys to know that the rubber bands which are used on the Singer sewing machines can be used as tyres on 1" pulleys. They can be bought at any Singer store." A useful hint for other Meccano boys.

Meccano Manuals of Instructions.

There are two **Meccano** Manuals of Instructions, and no **Meccano** boy is properly equipped unless he has them both. Book No. 1 is the regular manual which goes with the main Meccano outfits. It contains illustrations and full instructions for making 323 fine models; some of the models have been designed by our own staff of experts, and others are prize-winning models contributed by Meccano boys, from every country in the world. Price 2s. 6d. (postage 3d. extra).

Meccano Manual, Book No. 2, has only recently been published, and it contains illustrations and instructions for building 100 entirely new models, very many of them prize winners. It contains Tanks, Guns, Submarines, Searchlights, and other warlike models; also a new series of simple and intensely-interesting scientific experiments which any boy can make and which impart a lot of useful knowledge. Price 1s. 3d. (postage 2½d. extra).

Prices of Meccano.

No.			
0	Outfit with full instructions for building		**6/-**
1	do.	do.	**10/-**
2	do.	do.	**20/-**
3	do	do.	**30/-**
4	do.	do.	**50/-**
5	do.	do. (Carton)	**70/-**
***5**	do.	do. (Wood)	**100/-**
***6**	do.	do. (,,)	**180/-**

*In well-finished cabinet with lock and key

Accessory Outfits.

No.						
0a	Converting a **No.**	**0**	into a **No.**	**1**	..	**5/-**
1a	do.	do. **1**	do.	**2**	..	**11/-**
2a	do.	do. **2**	do.	**3**	..	**12/-**
3a	do.	do. **3**	do.	**4**	..	**22/-**
4a	do.	do. **4**	do.	**5**	..	**17/6**
5a	do.	do. **5**	do.	**6**	Car.	**65/-**
5a	do.	do. **5**	do	**6**	Wood	**95/-**
Inventor's Outfit "A"				..	..	**10/-**
Inventor's Outfit "B"				..	..	**25/-**
Meccano Clockwork Motor				..	..	**12/6**

Each Meccano outfit is complete with all parts and tools necessary for building models. Full instructions are included, and the youngest boy can commence to build at once without study. An accessory outfit may be purchased at any time, enabling bigger and more interesting models to be built. Additional parts may also be purchased separately, at prices given in our published lists.

Remember that though boys play with Meccano for pleasure, and though they get more genuine fun from it than from any other toy, it also gives them a sound knowledge of engineering. Through playing with Meccano, many a bright boy has been started on a prosperous career in one of the most important and profitable professions—engineering and mechanics.

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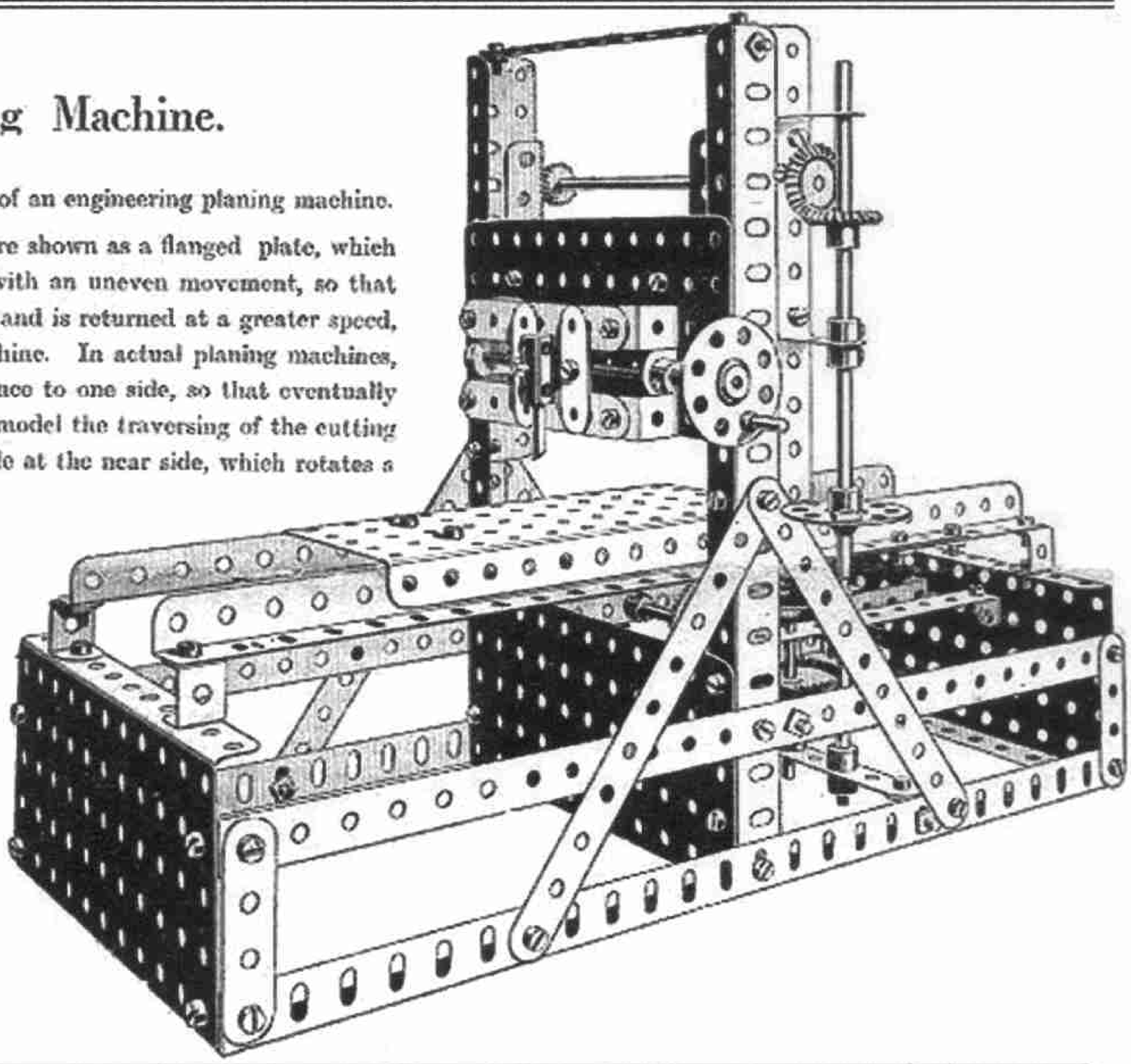
No. 18 MAY-JUNE, 1921

MECCANO MAGAZINE

PRICE 1d

TO HELP MECCANO BOYS TO HAVE MORE FUN THAN OTHER BOYS

A Meccano Planing Machine.



The illustration shows a very interesting model of an engineering planing machine.

The work to be planed is secured on a table, here shown as a flanged plate, which is caused to reciprocate beneath a cutting tool, with an uneven movement, so that during the cutting stroke the work moves slowly, and is returned at a greater speed, thus economising time in the running of the machine. In actual planing machines, after each cut the tool is traversed a slight distance to one side, so that eventually the whole surface of the work is planed. In our model the traversing of the cutting tool is obtained by turning the bush-wheel handle at the near side, which rotates a threaded rod, engaging a threaded bush secured at the back of the cutting tool. In order to bring the cutting tool down on to the work, the mechanism shown at the side is provided, consisting of a vertical rod at the lower end of which is a bush-wheel handle, the upper end carrying a bevel gear, engaging another bevel gear on a rod carrying two pinions, which engage two racks, secured to the rear of the perforated plate, from which the cutting tool is carried. Consequently by rotating the handle, the pinions cause the racks to rise or fall, and bring the cutting tool down on to the work, or raise it therefrom.

Editorial.

Big Competition closed.

Our £250 Competition closed on April 15th so far as British entries were concerned, and the examination and adjudication of the models is proceeding as rapidly as possible. I hope to print a full list of the awards in our next issue.

Our Story Competition.

I am more than gratified at the response to this Competition. Stories from boys of all ages are coming in daily, and it is quite evident that this is going to be one of the most popular competitions we have ever started. The more stories the merrier, boys! Send yours in, and if it is a good one you will not only receive a good prize, but will also see it published in these pages.

Our New Train Factory.

Since our last issue the new Meccano Factory, for manufacturing Clockwork Trains in, has been completed and will be in full working order shortly. New Trains, Coaches, Trucks, Rails, Signals, Stations, etc., will come from this factory in great variety, and you boys should look out for the wonderful Hornby Train system during next winter. It is certainly the most efficient and attractive system yet produced.

The Meccano Guild.

The Secretary of the Guild has had a very busy winter attending to the wants of the many prosperous Meccano Clubs all over the country. The growth of this fine movement has been nothing short of remarkable, and many thousands of Meccano boys are meeting regularly each week and having good times. The movement is even extending to the Continent and to the Colonies, where Meccano boys are forming Clubs in the big centres. It is a pleasure to read the letters which come from members of these Clubs.

Meccano Boys as Editors.

I am sure it would surprise my readers if they knew the number of boys' Magazines which are being produced in connection with Meccano Clubs. They all contain much interesting matter, and many of them are well produced, mostly with the aid of some form of duplicating machine. The boy Editors and contributors get much pleasure from writing and making up these Magazines, and I am firmly convinced that the experience and knowledge which they are gaining in this way will prove most useful to them later.

Better Photographs wanted.

Let me remind my readers that I am always glad to receive photographs possessing

Meccano interest, and to pay 2/6 for any which I may use. The photographs may be of themselves, their models, local engineering structures which might form the basis of new Meccano models, or in fact anything of interest to readers of the *M.M.* I have already received a goodly number, some of which I shall use; but many of the photographs are poor in quality, indistinct, and not suitable for reproduction. The photographs must be clear and sharp, otherwise I am not able to use them.

The Editor.

The New Meccano Catalogue.

This beautiful new catalogue should be in the hands of every Meccano boy.

Besides illustrating and describing each outfit and explaining the simplicity and beauty of the Meccano system, it gives full particulars of the new Electrical Accessory Outfit, Meccano Clockwork and Electric Motors, the Hornby Clockwork Train System, which is making such a deep impression throughout the country; the Tin Printed Clockwork Trains and Vertical Steam Engines. It also contains two full pages of illustrations of Prize-winning Models in the Big Meccano Competitions, and a fully illustrated list of the entire range of Meccano parts, including the new and valuable ones which have been recently added.

The demand for "Meccano Products" following the announcement in our previous issues has been very heavy indeed, but there are still thousands of Magazine readers who have not taken advantage of this splendid offer.

We wish every reader of the "Meccano Magazine" to possess one of these beautiful booklets. A copy will be sent FREE on receipt of your postcard. Write to-day.

How to get the Meccano Magazine regularly.

The Meccano Magazine is now sold by most of the regular Meccano dealers but in order to prevent disappointment you should place an order with your dealer for a copy of each issue to be reserved for you. The price of each issue is 1d. If you experience difficulty we will mail you a copy regularly on receipt of 6d. for the next six issues, or 1/- for the next twelve.

Life Story of Meccano.

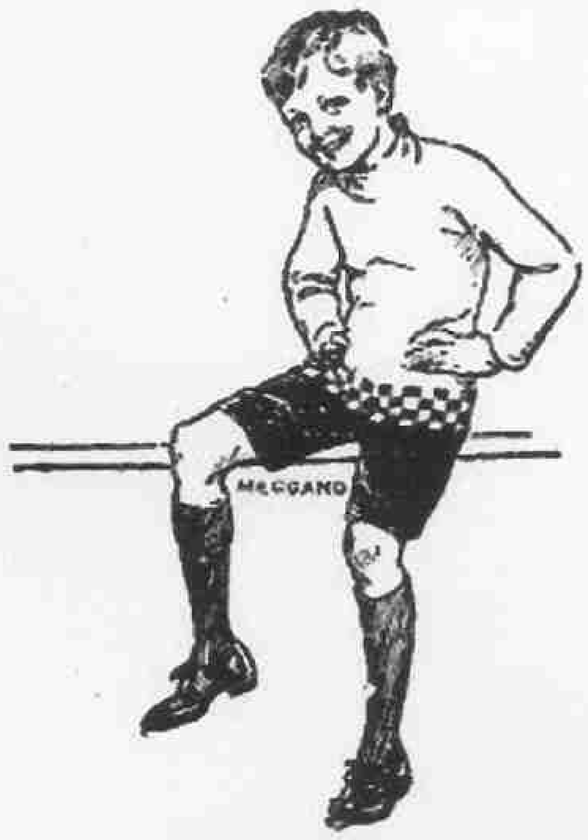
By Frank Hornby.

(Continued.)

A portion of our Model Room is fitted up as a photographic studio with all the necessary backgrounds, screens, reflectors, etc. I think some of you boys would be very much surprised if you saw the number of photographs taken in our studios in the course of a year. As each newly-invented model is finally completed it is first photographed in its complete state, and after that, the necessary sectional views of any intricate pieces of mechanism in the model are also taken. Photographing Meccano models is quite an intricate business at times, and a considerable amount of experience and judgment are necessary in deciding on the best view point, and the correct exposure. The great majority of the illustrations in the Meccano Books of Instructions, in our big range of literature, and in our advertisements, are from photographs taken in our own studios. Our Photographic Department is always busy, and in order to expedite its work we have a fully-equipped Dark Room, for developing plates, and making prints from the negatives in various processes. All our photos are taken with Anastigmat lenses, and mostly on 12 × 10 plates. The original photographs taken are always much bigger than the final illustrations in our Books of Instructions and in the "Meccano Magazine," as this enables us to get finer and clearer results. The process of preparing a block from one of our negatives is not altogether mechanical, a good deal being left to the skill and judgment of clever artists. A good print is first taken on gaslight paper from the negative and mounted on a strong board. An experienced artist then draws the lines on the actual photograph itself, as they will appear in the finished illustration, emphasising certain portions of the mechanism in order to clearly show the method of construction and giving light and shade to the model where necessary. The artist uses a special kind of ink for this work, and when he has finished his work the whole of the photographic portion of the print is bleached out by a special chemical process, leaving nothing but the artist's work on the print. The block for making the illustrations for our Manuals or other literature is then made from the final work of the artist.

The mention of blocks and other illustrations brings me to a Department whose work you are all familiar with, namely, our Advertising Department. One of the main reasons why Meccano has been so successful is that we have made its merits known, emphasised them, and insisted upon them largely through the medium of the public press in this and all civilised countries, for the past twenty years.

Advertising is a very wonderful power, and it is very largely through this power that we have been able to bring to the knowledge of so many of you boys, and your parents, the wonderful pleasures and merits of the Meccano hobby. Now advertising can be done well or it can be done badly, and I pride myself on the fact that no advertising in modern times has been more successful than our own. We have made it our business to bring home the merits of the Meccano hobby to every boy in this country, and I think I can safely claim that we have done this. Our advertising has always been characterised by simplicity and great clearness in demonstrating the fun, pleasure and instructions to be obtained from Meccano model building.



The Meccano Boy.

Many years ago we created a Meccano boy—a sturdy, happy-faced young man with joy and fun oozing from every feature and limb. He has always been dressed in the same way in the characteristic Meccano check jersey, and he is always enjoying himself. I am sure that any of you boys would recognise his merry face anywhere, and that you will agree that our advertisements would now seem incomplete without him. I can assure you that he was not created without a great deal of thought, and a good many sketches and drawings were made before we could decide upon how old we ought to make him, how we should dress him, and even how his hair should be parted. Finally, a very clever young lady artist was able to understand just what we wanted and drew for us the Meccano boy as you now know him. She has since drawn him in black and white and in colours, in all kinds of poses, building and playing with Meccano models, and always with the same happy face, and wearing his characteristic jersey. We have sent him abroad to every civilised country in the world, where his bright eager figure is now appearing in the best magazines and newspapers, stimulating boys of every nationality to taste the joys of Meccanoland. The reason for his great success is that he is just a typical boy, a straight, sturdy fellow whom every other boy would like to have for a chum.

Like Peter Pan, and like Meccano itself, he will never grow up, but will always remain young, happy and healthy, always pointing the way to new fun and happier hours.

(To be continued.)

How to join Meccano Sprocket Chain.

We have often been asked by boys to suggest the best method of joining or separating the Meccano Sprocket Chain, and for their benefit we are illustrating the best type of pliers to use for this work. No difficulty should be experienced if these sharp pointed pliers are used, and they may be obtained at any good ironmonger's establishment.

Suggestions by Meccano Boys.

This column is reserved for dealing with suggestions sent in by Meccano users for new parts, new models, and new ways of making Meccano model-building attractive. We are always glad to hear from any Meccano boy who has an idea which he considers will be useful to the Meccano system. Many correspondents have been replied to direct as we have not sufficient space to deal with them all here.

S. E. Sadler, South Shields. We do not see what advantage there would be in making a hole in the centre of the sleepers to connect. The lines for the Hornby trains are now being fitted with a locking device, and there would therefore be no advantage in making a hole in the centre of the sleepers to connect the lines as you suggest.

E. Wall, Wimbledon. We hope, later on, to introduce a flanged disc which we think will suit your requirements. When this is ready it will be announced in the "Meccano Magazine."

E. H. Pitman. We have had in mind for some little time the introduction of thin spring Meccano strips, which, after being bent, would resume their natural straightness, but up to the present we have not found it expedient to include them in the Meccano parts. We have not, however, abandoned the idea.

F. G. Wilton Few, Westminster. A tank engine is now under consideration, and it will be duly announced when ready.

F. N. Hamilton, Whitstable. We do not think it would be desirable to introduce strips specially bent for definite models as this would, to some extent, detract from their interchangeability. We have, however, in mind the introduction of a simple device for bending strips and straightening them again.

There are several ways of securing a cord to the winding handle of a crane; one is by passing the end of the cord two or three times around the centre of the crank handle, and then tying it tightly. Another is to use a collar and set screw, and tie the end of the cord to the head of the screw. The crank handle is weakened by boring a hole through it.

Jas. Spencer, Leith. We are at present engaged on an eccentric, and when this is ready it will be announced in these columns. It is doubtful whether the other parts you suggest would have sufficient interchangeable value.

A. M. Watson, Hampstead. Your suggestion to introduce special parts for motors is not consistent with the Meccano principle of interchangeability. We already have a working model of a motor chassis made with Meccano parts, particulars of which will be published shortly.

We shall consider later the introduction of a larger bevel wheel giving a ratio of 2 to 1.

G. Raahange, Hull. We illustrate a variable resistance in our Electric Manual to be used in connection with our 4-volt motor.

Ralph Perry, Ramsgate. Sends us a very interesting suggestion for propelling small models by the use of twisted elastic, but we regret that this is not an article we could include with Meccano.

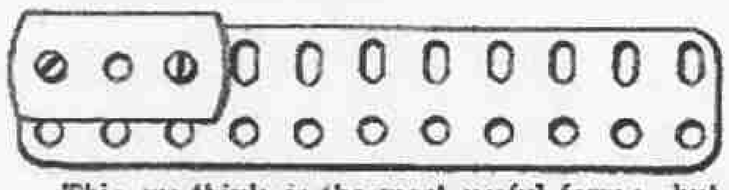
Norman Gobey, Clovelly. We sell rails in 1" and 2" radius. It would not be practicable to have other sizes at present.

Ian Macnab, Seaforth. Your suggestion to issue a small manual containing a selection of models to be used in connection with the Hornby train outfits is an interesting one, but we doubt whether it would be expedient to issue such a manual at present. There are several models in our existing manuals which could be used for this purpose.

John McLaren, Dundee. We have no doubt that your suggestion of a 1" flat angle strip would have many uses, and it will receive consideration.

C. West, South Bermondsey. We have decided to issue an eccentric to our list of parts, and when this is ready it will be announced in the "Meccano Magazine."

Ashton, Pendlebury. We consider your suggestion of the use of old safety-razor blades attached to Meccano strips for paper cutting and cardboard modelling a very practical one. We have already had an example of this submitted to us, which we illustrate.



This, we think, is the most useful form; but if any of our readers have better suggestions to make we shall be glad to hear from them.

A. K. French, Streatham Hill. The use of spring fasteners for securing strips together has already had our consideration, but after careful thought we have come to the conclusion that they would not be suitable for model building.

E. Dudley Reeves, Birkenhead. We have some doubt regarding the utility of the crank you suggest, formed of a piece of Meccano rod, as we do not see that anything but a strip could be used as a crank arm in connection with it. If you could give us some examples of its use we would be glad to give the matter further consideration.

P. Baynes, Finsbury Park. We do not think there would be any advantage over our existing girder strips for the use you suggest. We think your purpose would be better served by using ordinary railway lines.

Frank Smith, Blacker Hill. Your idea for making a Dynamo with Meccano parts is very ingenious, but we doubt whether the result would be satisfactory. If you succeed we shall be very glad to hear from you.

L. A. Hollis, Wallington. We thank you for pointing out the irregularity in our leaflet, which we shall put right. Outfits from one to three only, contain a manual which illustrates the models which may be made by those outfits, but 3A and the following complete outfits contain a full manual. If you obtain a No. 4 Outfit, a full manual will be included with it.

We propose very shortly to issue special instructions for making the motor chassis, and when this is ready it will be announced in the "Meccano Magazine." We have recently made the double bracket narrower, as we have found from experience that this is the more useful size. For example, in making a universal joint, the fit is much better. We shall be glad to explain the reversing mechanism if you will kindly let us know the model you saw working. Your suggestion for a Meccano Exhibition to be held in London is very complimentary, but we endeavour to do this through the dealers who handle our goods, and the medium of our Magazine.

E. I. F. Betts, Weston-super-Mare. We have just included in the Meccano parts a curved-rack segment, four of which bolted to a face plate form a 3-inch gear wheel such as you require, and capable of engaging a 1" pinion.

H. Matthews Shaftesbury. We are doubtful whether the helical or twisted gears you suggest could be usefully employed in Meccano models. However, we shall keep your suggestion before us for further consideration.

Walter Southworth, New Brighton. You are anticipating us, Walter, in suggesting an additional Inventor's Outfit to contain all the new parts recently introduced. We propose doing this very shortly, and its introduction will be notified in the "Meccano Magazine." The new manual you refer to is now actively in course of preparation, and will be issued as soon as possible.

Clifford Hill, Twickenham. See answer to H. Matthews.

I. Norman Nichols, Wantage. We propose to introduce a flanged disc shortly which may be used for tractors. For the present we would suggest that you use girder strips similar to the illustration.

H. Bradley, Acomb. The boiler which we use for the Hornby engines is adaptable to the Meccano standard holes—probably one of these might suit your purpose.

I. N. C. Eggleton, Newcastle-on-Tyne. We have carefully examined the frame plates and flat sector plate, and would like you to write us again suggesting some of the uses for these.

H. Brand, East Ham. Our clockwork motor is designed to be used in a variety of ways, and we think in reducing it to the dimensions you suggest it would impair its application.

Horace W. Daniels, Worcester. We have not thought it necessary to introduce a compression spring as our present tension spring may be drawn out and cut to any length which may be required.

David H. Wilkins, Bourton-on-the-Water. We already have in hand T and right-angle flat strips, and they will be available shortly. We think you will find our face plate will serve the purpose of your suggested hexagonal centre piece.

I. T. Whitehead, Bedford. We appreciate your suggestion for a coupling to take a threaded rod at one end and a plain rod at the other to preserve alignment and avoid damage to the thread of the rod, and we may be able to adopt this later on.

V. & B. Sadler, Adelaide, S. Australia. We must compliment you both on the thought and care you have exercised in your suggestions, which are mainly of a geometrical nature. Our chief object is to introduce parts which have an interchangeable purpose for the construction of Meccano models. We have already introduced Curved Angle Strips, and later on we shall introduce discs, but we must be sure they have a definite purpose and be able to explain their application.

A. E. Marsh, St. Ives. We already illustrate how to make an Electric Loco in our Electrical Manual. Later on we may introduce one on the lines of our Clockwork Trains, but of the correct pattern.

Jack Shaw, Manchester. We cannot explain how to make a wheel 28" diameter with a flat rim without the heads of bolts protruding, as it is essential to fasten the rim with nuts and bolts to the side strips. Spring Cord is used for transmission drives from one pulley wheel to another. We have in preparation a leaflet giving instructions how to make the new Meccano Chassis and this will be ready shortly.

C. E. Wetworth. We don't quite understand your suggestion for an axle-guard. We have already introduced a trunnion which may be used as a bearing for an axle, and perhaps this would help you out of your difficulty.

W. A. Fraser, Hanay Oakney. A 1" Pinion is already included in our list and we propose shortly to include a 3" fly wheel.

W. Furnston, Manchester. We intend to introduce a flanged disc later and this will be announced when ready.

Dumford P. Smith, P.Q., Canada. We already have bevel wheels in our list and if you cannot get them from your dealer let us know.

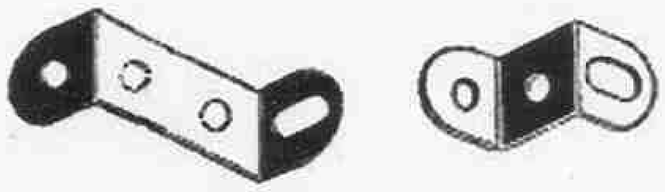
A. K. Woodland, Bristol. Springs for Motor Chassis may be made by slightly curving and super-imposing and bolting together 5½", 3½ and 2½" Strips.

L. G. W. Hirst. Your suggestion for a Rectangular Plate with a flange on one side only is having our consideration.

L. Oates. We think a steam turbine such as you suggest would be dangerous. We hope to give consideration to this matter later.

B. Lionel Day, Heywood. We should be glad to know whether the turbine which you suggest is intended to be driven by water. Perhaps you will send us the turbine you have made so that we may inspect it.

New Meccano Parts.



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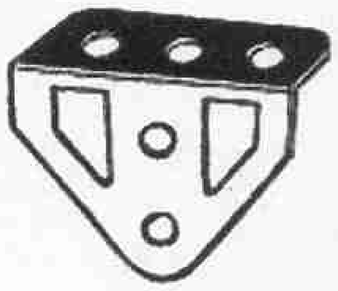
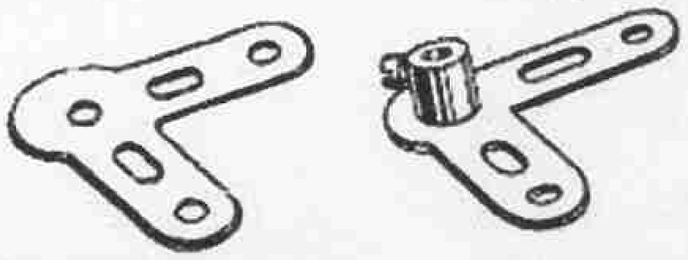
124.	Reversed Angle Brackets, 1"	... ½ doz.	0 10
125.	" " " ½"	... "	0 7



126.	Trunnions	... ... each	0 6



127.	Simple Bell Cranks	... ... each	0 3
128.	Boss Bell Cranks	... ... "	0 6

The Meccano Guild

Member's Badge

Leader's Badge

A Fellowship of Meccano Boys

The objects of the Meccano Guild are:

(*a*) To make every boy's life brighter and happier.

(*b*) To foster clean-mindedness, truthfulness, ambition, and initiative in boys.

(*c*) To encourage boys in the pursuit of their studies and hobbies, and especially in the development of their knowledge of mechanical and engineering principles.

The Meccano Guild has been formed to bring Meccano boys more closely together, and to make them feel that they are all members of a great brotherhood of boys, trying to help each other and themselves to get the very best out of life.

Every Meccano boy can join the Guild as an individual member, and so share in the privileges of membership. As soon as possible he should attach himself to a local Meccano Club, or if there is not one already in existence, he should take steps to form one with the assistance of his Meccano boy friends.

The Secretary of the Guild is always very glad to help with the formation of new Meccano Clubs, and to provide literature which will give all the necessary information.

Every new Meccano boy should immediately get to know all about the Guild in order that he may get the full pleasure from Meccano model-building, and the companionship and friendship of hundreds of thousands other boys who are glad to welcome him as a friend.

Forms of application and all other information will be furnished by The Secretary, Meccano Guild Headquarters, Old Swan, Liverpool. Each member on joining is furnished with the official member's badge, and a beautiful Certificate of membership ready for framing.

Guild Notes.

BY the SECRETARY.

We have now come to the end of a very excellent Winter Session, and I want to first put on record my appreciation and admiration for the capable and enthusiastic way in which Meccano Club Leaders, Secretaries, and other officials have conducted their Club work. It has been a pleasure to me to read the Club reports and to note the maintained enthusiasm of the members, and the success which has crowned the efforts of all those who have assisted in arranging pleasurable evenings, Exhibitions, Concerts, Competitions, etc.

It is unfortunate that I have not sufficient space at my disposal to enable me to publish the Club Leaders' and Secretaries' reports in full, for I am perfectly sure that they would be a great inspiration and guidance to the newer Clubs.

It is also very gratifying to find that the great majority of the Clubs are self-supporting, and in fact many of them finished up the Session with a handsome balance on the right side.

Although the summer is now upon us the activities of Meccano Clubs have by no means ceased. Camera Clubs, Cricket Clubs, Rambling Clubs, etc., have been formed, and outings have been arranged right through the summer. There is a wonderful amount of enjoyment in this form of Club work, and of course it goes without saying that it need not be expensive. It also keeps the Club spirit alive, and I strongly urge all Leaders and Secretaries to take as keen an interest in the Summer, as in the Winter Syllabus.

Several Meccano Clubs now run their own Club Magazine, which they issue about once a month. I have been very interested in reading them, and each number proves to be better than the last. They are inexpensively produced by some form of duplicating machine, and a limited number is printed and circulated amongst the members. In some instances a sample copy only is printed, and each member reads it in turn.

I hope to see more of these Magazines in the future, and shall be pleased to give every assistance I can to Clubs wishing to start one.

Our Correspondence Club continues to be much appreciated, and has been the means of starting many close friendships. Any member who is interested in corresponding with another Meccano boy should write to me for full particulars of the Guild Correspondence Club.

I have been very glad indeed to see a very notable increase in the number of aspirants for the Guild Medallions, for meritorious Club work, during the last session, and I now give a list of those which have been awarded. All the lectures mentioned have been sent to me, and I consider them of great excellence. They could not have been compiled without much research and thought, and that they proved acceptable to the Clubs before whom they were read is certain.

From the Club Reports it appears that a large number of boys have prepared and given lectures to their fellow-members, but as these have not been submitted to Headquarters, no awards can be made for them.

I believe this to be one of the most valuable, interesting and helpful sides to the activities of Meccano Clubs, and I shall do everything in my power to encourage it further in the Winter Sessions to come.

LECTURES.

S. A. G. Bone (omitted last session), "Holy Trinity M.C."
Lecture: "Walks to the North of London."

W. Stretton, "Holy Trinity M.C."
Lecture: "Ships and Sea-faring."

C. Jones, "Small Heath M.C."
Lecture: "Steam and Steam Engines."

L. Molland, "St. Thomas (Exeter) M.C."
Lecture: "Modern Methods of Salvage."

J. Dawson, "Gedling M.C."
Lecture: "Railways."

J. Paynton, "St. Mary with St. Gabriel M.C."
Lantern Demonstration.

J. Williams, "South Kirkby M.C."
Lecture: "Steamships."

SPECIALLY GOOD WORK.

L. Valkering, "Leicester M.C."
D. E. Stretton, "Holy Trinity M.C."
Roy Power, "Cardiff Y.M.C.A. M.C."
F. Ibbotson, "Mexboro' M.C."
W. A. Bassett, "Hildenborough M.C."
N. Strickland, "Hough Green M.C."
F. W. Whitehouse, "Dudley M.C."
F. Stoneman, "St. Thomas (Exeter) M.C."
H. Manning, "Ruabon M.C."
J. Dalton, "Newtown M.C."
G. Holme, "Thornton Heath."
J. Morrison, "Leith M.C."
— Browning, "Mirfield M.C."
J. Hughes, "Church of Christ S.S. M.C."
A. Hale, "St. Cedd's M.C."

The Recruiting Campaign which ran through the last two Winter Sessions was remarkably successful, and has been the means of adding many thousands of new recruits to the Meccano Guild. To those who have worked so hard in the interests of the Guild I tender my best thanks, and I offer my congratulations to those fortunate ones who were the recipients of the Recruiting Medallions. The Special Gold Medallion has been awarded to Master G. E. Smith, 5, Kilmartin Avenue, Norbury, London, S.W.16, who secured the largest number of recruits, and a Silver Medallion has been awarded to Master John Lawson, 57, Regent Street, Hetton-le-Hole, who secured the second largest number.

Let me remind you that the Recruiting Campaign is being continued until December 31st next, and that each member who secures three new recruits will receive a handsome Medallion. Recruiting Forms may be had on application, and each member who secures a recruit should write his own name and address on the back of the form used.

Club Notes.

ALL SOULS (Liverpool) M.C.—Closed successful session with enjoyable Tea and Social, which also celebrated the Club's First Anniversary. Picnic planned for August Bank Holiday. *Secretary:* Master T. J. Roberts, 170, Dryden Street, Liverpool.

ST. THOMAS (Exeter) M.C.—Very full and interesting report again submitted by Master L. Palk. Members enjoyed novel "Speed together with Accurate Model Building Competition," two sections. No. 1 Section: 1st, Master A. Coates; No. 0 Section: 1st, Master G. Quick. Very excellent lectures given by Masters Bowyer and Molland on "Locomotives" and "Modern Methods of Salvage." Club's first public attempt to raise funds, Tea and Social very successful—further effort on bigger scale to be made next year. First number of Club Magazine ready shortly. *Secretary:* Master L. Palk, 74, Cowick Street, Exeter.

CHELTENHAM GRAMMAR SCHOOL M.C.—Enjoyable programme for session included Model Building, interesting Lectures by members, and Visit to Gloucestershire Aircraft Co.'s factory. Model Building Competition postponed owing to end-of-term school work and sports. Prizes offered next term for best Essay on visit to Aircraft Factory and the best Lecture. Summer programme—entirely outdoor meetings, cycle rides, rambles, etc. Mr. Belcher remarks on the exceptional keenness and enthusiasm of members. *Secretary:* Master N. Trafford, 3, Hambrook Terrace, Charlton Kings, Cheltenham.

RUABON M.C.—Club's first Winter Session has witnessed great strides. Paragraphs in local newspaper notices have done the Club much good. While Mr. Squire, the Leader, has hearty support from ladies and gentlemen interested in the Club. Jolly Summer Session is assured, and with Savings Bank going strong, and good balance in hand, the future prospects are bright. *Leader and Secretary:* Mr. A. H. Squire, Bryn End, Ruabon.

HOLY TRINITY M.C.—Report presented by Mr. Wilson shows Club maintaining its high position in the Guild. Members have been more than ordinarily busy. Club Stall at Church Annual Sale of Work made profit of £3 for fund. Savings Bank, Library (with about 200 volumes) and Club Magazine all flourishing. Five excellent lectures given by members. Treasurer has now £6 to carry forward to next session. *Secretary:* Master D. E. Stretton, 25, Thornhill Houses, Thornhill Road, Barnsbury, London, N.1.

ST. MARY WITH ST. GABRIEL M.C.—Fine progress made for so young a Club. Several Competitions held, and fine Lantern Lecture given by Master J. Payton. Three chief mechanics appointed—Masters Lee, Hole and Millwood to help Leader. Members working hard for forthcoming Exhibition. *Secretary:* Master T. L. Bullock, 213, Newington Butts, London, S.E.11.

THORNTON HEATH HIGH SCHOOL M.C.—With increasing membership, Club enters on Summer Session, May 6th. Weekly meetings discontinued, and Camera Club formed. Rambling Club will tour Surrey Hills, and a Cricket Club is also being formed. Pierrot Troupe, which has been very active, has given seven performances. Giving Comic Cricket Match to raise funds. A Lieutenant in R.N.A.S. gave interesting lecture on Aeroplane Fighting, illustrated with models, and has promised Lantern Lecture. Mr. Cox, of *Builder and Architect*, will give a fascinating Lecture, "London in the Time of Henry VIII," early in Winter Session. *Secretary:* Master G. Holme, 61, Lodge Road, Croydon.

NEWTOWN M.C.—New Club. Members have had a good time during last few weeks. Arrangements made to keep together during summer, and vote Wednesday (Club Night) the best in the week. *Secretary:* Master G. Beevers.

SPARKBROOK M.C.—Mr. Parsons has "carried on" during illness of Mr. Pipes, Club Leader, and meetings have been thoroughly enjoyed. Concert of May 19th great success, making financial position very sound. On most evenings full complement of thirty members present. *Secretary:* Master James Weake, 138, Kyrwicks Lane, Sparkbrook, Birmingham.

ST. CEDD'S M.C.—Thanks to Rev. V. Varney, a fine room is available free for meetings. Concert and Exhibition being arranged for end of session, and boys forming a Minstrel Troupe. Sports Club for the summer is being enthusiastically taken up. *Secretary:* Master S. F. Elliott, 142, Beckton Road, Canning Town, London, E.16.

MEXBORO' M.C.—Has made fine progress under energetic leadership of Mr. H. May. Membership increased from 8 to 27 under two months. Club funds over £1 in hand, and Bank in flourishing condition. On vote taken Club meetings beat Pictures easily. Arrangements being made for summer outings. *Leader and Secretary:* Mr. H. May, 17, High Street, Mexboro'.

ST. MARGARET'S (Liverpool).—Although the Club only started in February fine progress has been made; membership stands at 28, excluding officials. Mr. Pearson, the Leader, offers a hearty invitation to other Liverpool Meccano Clubs on Tuesday Evenings. Rover Scouts take a great interest in the Club work.

HEAMOOR M.C.—Has made fine progress—members very keen, and holding Exhibition of Models, May 7th. *Leader:* Mr. W. J. Berryman, 1, Jamaica Place, Heamoor, Cornwall.

HILDENBOROUGH M.C.—Held very successful Exhibition; proceeds (over 35/-) after expenses paid will go to Club funds. Members built a fine Dockyard—river spanned by two bridges with railway track over one and round the Dock. *Secretary:* Master W. Bassett, Laburnam Cottages, Hildenborough.

HOUGH GREEN M.C.—Club's first session very successful. Besides model building, members enjoyed Competition, judged by Mr. Bebbington, Chief Engineer of Messrs. Denniss & Co., Widnes, and Lectures "Dangers Seen and Unseen" (special reference to food and air) by R. F. Eaton, Esq., Professor of Chemistry; "The Growth of Electricity" by Master N. Strickland, and "Playing the Game" by the Club Leader. Outsiders have been invited to the special meetings, and many of these will shortly get outfits and join the Club. *Secretary:* Master N. Strickland, Daisy Cottage, Hough Green.

LEAMINGTON M.C.—Mr. Bull reports a most successful season. Regular attendance, unabated enthusiasm, and growing numbers. Big Exhibition of working models arranged, to which parents, Mayor and Council, and Members of Education Committee are invited. In addition to Exhibition, members will give a Concert programme. *Secretary:* Master G. Hare, 36, Willes Road, Leamington.

ST. ANNE'S (Leicester) M.C.—Interesting session finished with enjoyable Social and Exhibition. Rev. A. H. Sellwood kindly devoted certain funds to prizes for best models. 1st: E. Allsopp, Planing Machine; 2nd: Ralph Smith, Crane; 3rd: Jesse Porter, Fire Escape. Between thirty and forty ladies and gentlemen were present and thoroughly enjoyed Whist Drive after the Exhibition. *Leader:* Mr. K. W. Smith, 8, Sunnycroft Road, Leicester.

STATIONER'S M.C.—Meetings included visit to South Kensington Museum, where boys saw many interesting models, including Aeroplane which flew Atlantic; also visit to Hornsey Electricity Works. Club Competition very successful. 1st Prize: Master Cook, Beam Engine. *Secretary:* Master K. G. I. Scott, 42, Berkeley Road, Crouch End, N.8.

CHURCH OF CHRIST SUNDAY SCHOOL M.C.—Fine progress made. Membership now 32 and increasing every week. This is largely due to a notice in local dealer's window, put in by Mr. Lindsey, the Leader. Members enthusiastic and all out to help Club along. *Leader and Secretary:* Mr. J. Lindsey, 24, Pitt Street East, Oldham.

COWLEY ROAD C.S.S. M.C.—Model building at most meetings—larger models built on "team work" principle. Two Competitions held, one for Manual Models and one for original Models. Successful Social and Exhibition at which list of "wants" was displayed—the result being useful contributions to Club funds. Friend of the Club Leader gives members boxing lessons. *Secretary:* Mr. H. P. Sterne, 191, Divinity Road, Oxford.

SECOND PORTHCAWL M.C.—Thanks to Mr. Porritt, the Club Leader, boys have a fine room for meetings attached to Chapel. Most meetings have been devoted to Model Building with interesting chats among members. Cricket Club has been formed for the summer months. *Secretary:* Master J. Morgan, Gwyddfryn, Mackworth Road, Porthcawl.

SOUTH KIRKBY M.C.—With added help of Mr. Liversidge, the Club has made further rapid progress. Recruiting Campaign has been means of increasing membership; and with balance of over £4 in hand, future prospects are bright. Tea and Exhibition, held on February 11th, splendid success. Members made realistic model Dock, and large numbers of visitors were present. Boys take course of Physical Training every other meeting, and every member has the welfare of the Club at heart. *Secretary:* Master S. Forrest, Roseville, Mill Lane, S. Kirkby.

DUDLEY M.C.—Report shows excellent progress—Lectures, Model Building, Ramble and Treasure Hunt, being notable items. Mr. Lewis is arranging a rally for Wolverhampton and Dudley boys to help on the Guild movement in the district. *Secretary:* Master F. W. Whitehouse, 16, New Rowley Road, Dudley.

RATCLIFFE COLLEGE M.C. is making steady progress. The Club Competition run on the "team work" principle was a great success. 1st Prize: W. Hickey, I. Crosta, and L. Valkering with Model Tower Bridge, 5 feet long. *Secretary:* Master L. Valkering, Ratcliffe College, Leicester.

SOUTHVILLE M.C.—Splendid way in which report is presented reflects great credit on the Secretary. Membership increased from 14 to 22. Attendance averaged over 85 per cent. Club meetings—Model Building, Discussions, Lectures, etc. Football Club has had good season, and Club Library contains over 50 volumes. Good luck to Master S. Coles, Editor of proposed Magazine *Cranks and Couplings*. *Secretary:* Master L. Dyer, 4, Morley Road, Southville.

MEAD'S M.C.—Although sickness has interfered somewhat with attendance, members have had enjoyable evenings, and look forward to re-opening the Club next season. *Secretary:* Master F. Moore, Chesterfield Cottage, Chesterfield Road, Eastbourne.

A Meccano Story Competition.

In one of the entries in our last Essay Competition a boy competitor has made the suggestion that we publish short stories, the Meccano hobby being the central idea in each one. He also suggests that many Meccano boys themselves would be able to write little stories of this kind, and this suggestion has interested us very much. We have proved over and over again in our Essay Competitions that Meccano boys can write intelligently and can express their ideas clearly, and that they possess vivid imaginations. We should like as many of our readers as possible to endeavour to write a little story round the Meccano hobby and send it in for this competition. It can either be a story of actual fact, a fairy story, a story dealing with engineering, or in fact, any kind of a story with Meccano as the main idea of interest in it.

Read the following conditions carefully before sending your entry in.

The story should be about 500 words in length.

The competition is open to all readers of the "Meccano Magazine."

A Hornby Clockwork Train Set will be awarded for the best story, with other awards for stories showing special merit.

The closing date will be July 1st, and the result will be announced in the July-August issue of the "Magazine."

Write on one side of the paper only. Give your name and address on the back of each sheet, and address the envelope "Meccano Limited, Story Competition, Binns Road, Liverpool."

To Meccano Boys Overseas.

We print below a letter from a Meccano enthusiast in Central Africa, to which additional interest is lent by the fact that the sender, a Missionary who is devoting his life to spreading the Gospel in that part of the world, is blind. We are always very glad to receive letters from friends in remote parts of the world, and especially so when they tell us something of their lives and surroundings. In our last issue we published a letter of this type from a Meccano boy in New Zealand, a most interesting letter which it was a pleasure to read. We hope that other boys and men abroad who follow the Meccano hobby and are readers of the *M.M.* will send us similar letters, which we shall be glad to publish.

Baptist Missionary Society,
10, Furnival Street,
Holborn, E.C.4.

B.M.S. WAYIKA, via PONTHIERVILLE,
LE LUALABA, CONGO BELGE.
February 11th, 192[illegible].

Messrs. MECCANO LIMITED,
LIVERPOOL.

DEAR SIRS,

It is a long time since you fitted me up with a number of Meccano supplied at Aylsham in the beginning of 1919. I found Meccano incomparably useful in demonstration addresses. You will be surprised, maybe amused, but undoubtedly interested, to know that in my hands Meccano has been pre-eminently useful in explaining moral and doctrinal difficulties. At last, many of our little people have been struck with Meccano. On the verandah, at the present time, a model of a platen printing machine, like one in our printing office, is hard at work printing visiting cards; frisket fingers rise and fall properly, ink table revolves at the proper time, the rollers are properly represented, a double-elbow joint takes the place of the rocking cam. Others are at work with various trolleys and wheelbarrows. Some extensive models for their instruction and delight I have put on one side until the arrival of some of the new parts recently produced, which will save a lot of time.

I congratulate you on the advances which Meccano is making.

My only excuse for all this trouble I am giving you is an enthusiasm for Meccano, which you are entirely responsible for, and for which you must pay the penalty.

Wishing Meccano every success.

I remain,

Yours truly,

JOHN WHITEHEAD

A Parent's Tribute to Meccano.

DEAR MR. EDITOR,

May the Mother of two Meccano devotees send a small contribution to your Magazine? Meccano makes them spend many a happy hour through hours of illness as well as health.

"The way was long, the wind was cold,
The rider was but ten years old.
In good fresh air he biked all day,
His youthful thoughts had their full sway—
Meccano.

For well-a-day his health had fled,
Pneumonia laid him low in bed,
And he—exempt from schoolboy lore,
Over a Magazine would pore—
Meccano.

His mother marked his thoughtful look,
Preoccupied his meals he took,
She bade her boy his secret tell.
He answered her, 'I'm really well,
I'm planning out a Helter Skel-
ter in Meccano.

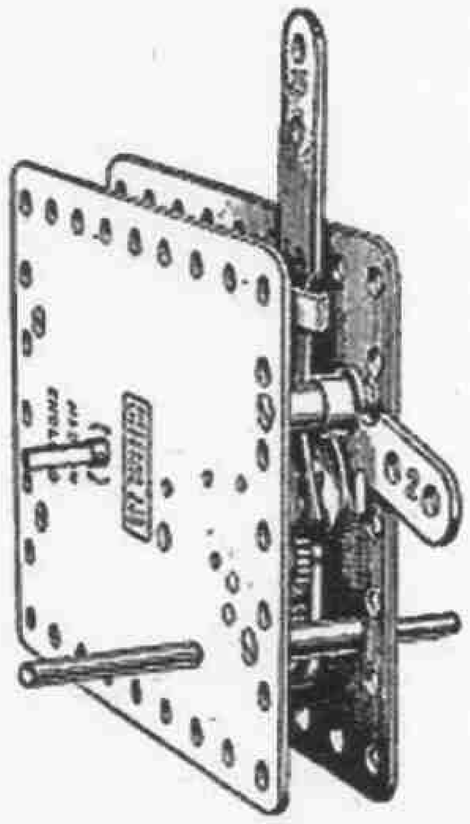
For when you're sick, and when you're sad,
And when you're well, and when you're glad,
There's nothing so allures a boy
As nuts and screws—this is no toy—
But it's Meccano!'"

With all good wishes for your splendid scheme.

Yours sincerely,

JANETTE B. ROWLAND.

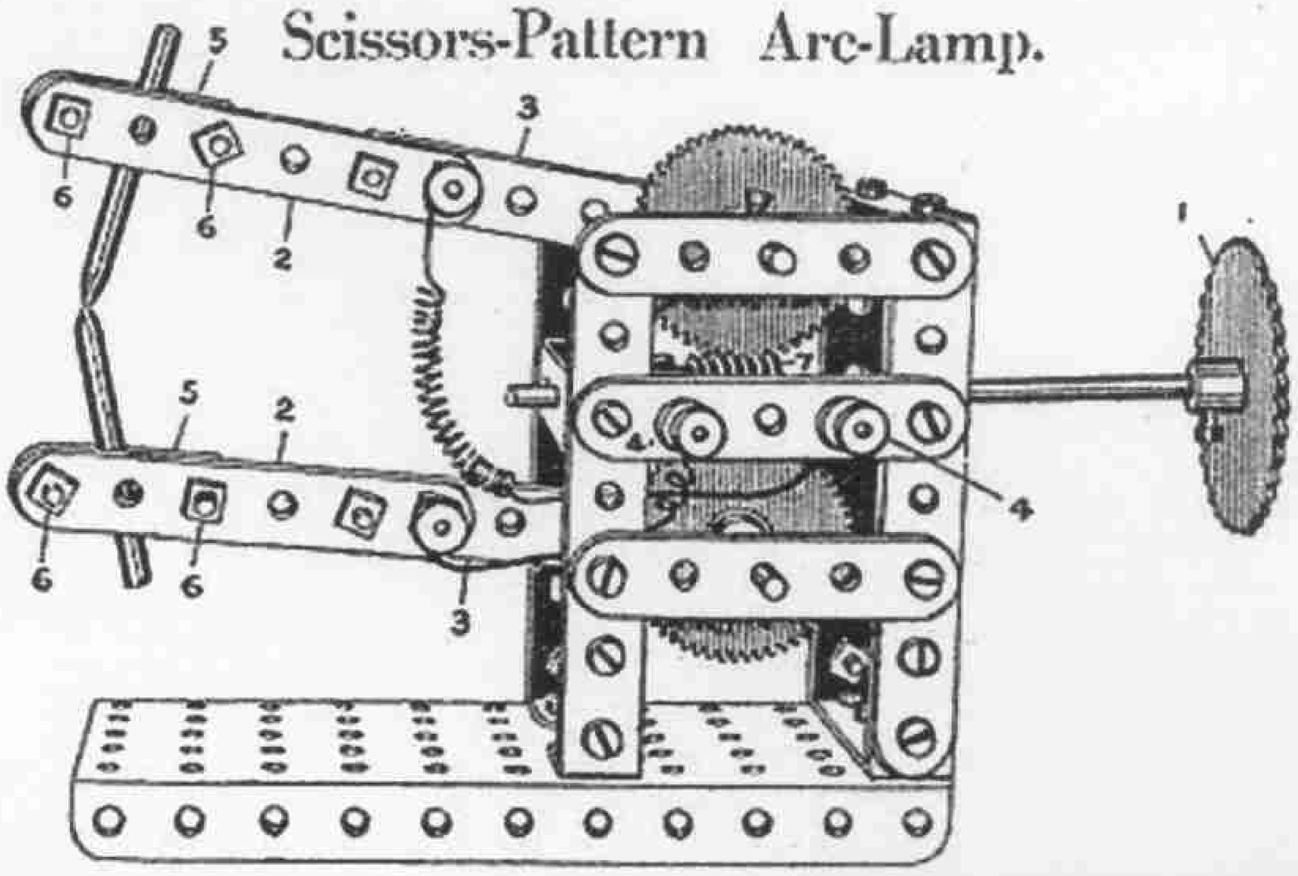
The Meccano Clockwork Motor.



For some little time past the demand for these excellent motors has been greater than the supply and many Meccano boys have been disappointed in not being able to obtain one. We are now manufacturing them in greater numbers, and are able to fill all orders immediately. We have made improvements to the mechanism, and it is now a wonderfully smooth-running and reliable motor. It has stopping, starting and reversing levers, and it is designed to build into and operate most of the Meccano Working Models.

Price - - 12/6

Scissors-Pattern Arc-Lamp.



In our last issue we illustrated an experimental arc-light designed by a user of Meccano, and this has aroused a great deal of interest amongst our readers. We now illustrate a simpler type of light which any boy can put together with Meccano parts.

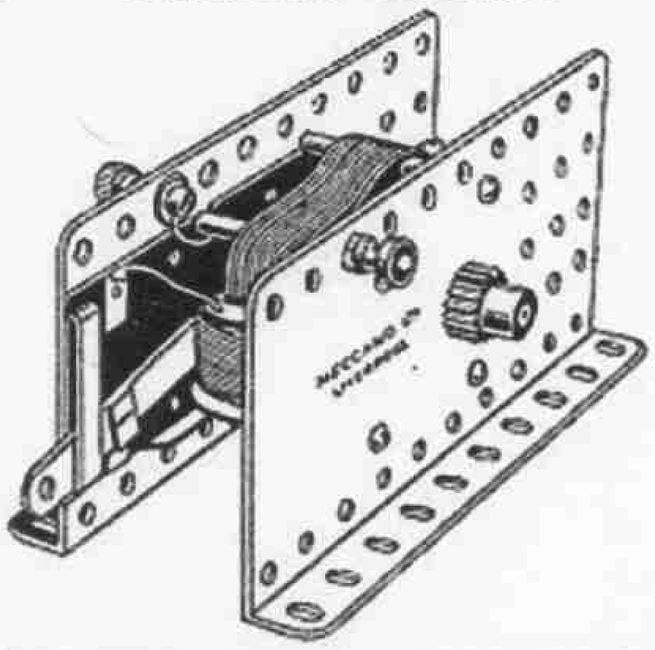
Each carbon is held in position between a 1½" strip 5 and a 3" strip bolted together by means of ¾" bolts 6. The 3" strips are bolted to, but insulated from, the 3½" strips 3.

Insulated wires are taken from the carbon holders to two insulated terminals on the side of the lamp 4.

The adjustment of the carbons is effected by turning the sprocket wheel 1. The worm wheel is thus made to act on the two 50-teeth gear wheels to which the 3½" strips 3 are bolted.

Cored carbon is best for the purpose, and each piece should be 3" long and 5 mm. in diameter. When an 8-volt accumulator is connected to the two insulated terminals, and the points of the carbon brought close together they will become incandescent. A much better effect may be obtained by using a 40-volt supply, as the carbons may be separated, thus producing a brighter light. If alternating current be used the voltage may be reduced to 30.

The New Meccano Electric Motor.



The Meccano Electric Motor has been re-designed, and several new and useful features have been added. It takes 4 volts, and it may be operated by accumulators, dry batteries, or direct from town supply if a suitable transformer is used.

The height of the side plates has been increased, permitting the use of extra gearing.

The standard Meccano rod is used for the armature shaft, and any of the Meccano gear or pinion wheels may be used to drive the gears. If a direct drive is required, any of the Meccano pulley wheels may be fixed to the armature shaft.

The reversing switch gives improved facilities for gear control. The switch handle projects from the rear of the motor, and is pierced with the Meccano standard hole. A strip may be bolted to the switch handle or a rod passed through the hole, allowing the switch to be operated from any part of the model.

Suitably geared, this motor has very great lifting power. The holes in the side plates and flanges are the standard equidistant Meccano perforations, enabling the motor to be connected to Meccano perforated plates, strips, or angle girders, with the regular Meccano nuts and bolts.

The Meccano Electric Motor is supplied, as shewn, without gearing, but with a ½" pinion on the driving shaft.

Price - - 17/6

Meccano Cartons.

We are frequently asked to quote prices of empty Meccano Cartons by boys who have damaged their own, or who, having purchased an Accessory Outfit, require a single carton or Wood Cabinet to hold all their parts. We, therefore, give below a full list of both Cartons and Cabinets with prices.

Cartons.

		Postage.
No. 0	1/-	6d.
No. 1	1/6	8d.
No. 2	1/9	9d.
No. 3	2/9	9d.
No. 4	3/6	1/-
No. 5	5/6	1/-
No. 0a	1/-	4d.
No. 1a	1/3	6d.
No. 2a	1/6	6d.
No. 3a	1/6	6½d.
No. 4a	1/9	9d.
No. 5a	4/6	1/-
"A" Inventor's	1/6	6d.
"B" Inventor's	1/6	6d.

Wood Cabinets (*with lock and key*)

		Postage.
No. 5	42/-	1/3
No. 5a	40/-	1/6
No. 6	70/-	1/6

The above is a reproduction of the No. 1 Hornby Train Set in its new presentation. The box is covered in brown leather paper with the lettering and train beautifully embossed in gold. There is a special shaped compartment for Engine, Tender and Trucks, each of which is held rigidly. The box thus provides a safe storage for the set, and complete freedom from accidental damage when the train is not in use.

THE HORNBY CLOCKWORK TRAIN

Boys ! a new era in Clockwork Trains has begun. The Hornby Train is first of all a beautiful piece of workmanship, the smartest-looking and the smoothest-running Clockwork Train you ever saw ; delightful to handle and to watch as it dashes busily round its track.

But the Hornby Train has also a most valuable and remarkable new feature. It can be taken entirely to pieces and rebuilt, just like a Meccano model. It is really an extension of the Meccano principle, all the parts being standardised and interchangeable. There is just as much fun taking the Engine, Tender, and Trucks to pieces and rebuilding them as there is in playing with them.

If one of the parts is damaged or lost you can replace it with a new one and fit it yourself. The Hornby Train lasts for ever.

Supplied in Gauge O in different colours to represent the L. & N.W., G.N., Midland, Caledonian, and L.B. & S.C. railway systems. Each Engine is fitted with Reversing Gear, Brakes, and Regulators.

Perfect Mechanism

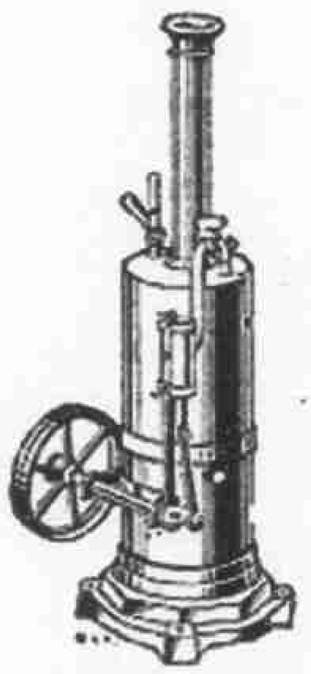
Beautiful Finish

Standardised Parts

Complete Set including Engine, Tender, Goods Wagon, and Set of Rails including a 2ft. circle and two straights. 30/-

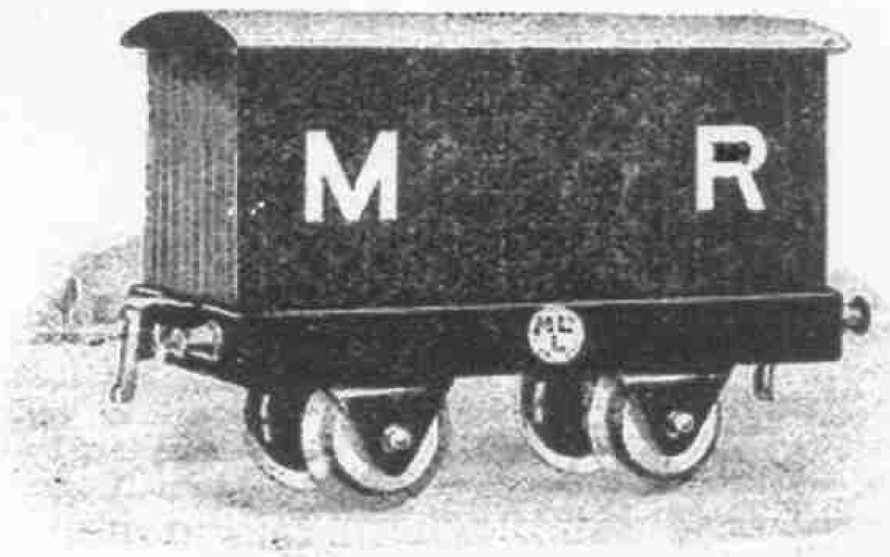
Engines	18/6 each	Wagons	4/6 each
Tenders	4/6 each	Rails (straight or curved)	6/- doz.

Vertical Steam Engine



A finely finished Steam Engine, superior workmanship ; each one carefully tested. Oxidized brass boiler ; stationary cylinder, and eccentric reversing gear ; whistle, spring safety valve, etc., cast base ; fittings nickelled and finely polished. Dimensions of boiler, 2½in. diameter by 3½in. long.

Price - 27/6 each



Covered Luggage Van

Price - 6/-

This is a new addition to the Hornby Train Set. It measures 6in. long by 3½in. high, and is embossed and beautifully enamelled in colours.

Like the Hornby Train it is built of standardised parts, and may be taken to pieces and rebuilt. Any damaged part may be renewed at any time.

May be purchased with M.R., L.N.W.R., or G.N. initials.

Our Mail Bag.

The Editor has a little talk in this column with his Meccano boys. Whether he has space to reply to them all here or not, he is always glad to hear from them. He receives hundreds of letters each day, and only those which deal with matters which are likely to interest other Meccano boys can be dealt with here.

Correspondents will help the Editor if they will write on one side of the paper only.

Kenneth C. Downes.—As your father is a press photographer he should be able to help you to get those interesting snapshots for the "M.M." We look forward to receiving them.

F. Lawrence, Blackwater.—It was a pleasure to read your interesting letter. Any boy who, like you, builds lots of Meccano models, is a member of the Guild, and reads the "Meccano Magazine" regularly, is bound to have a happy life with lots of fun. Your Certificate will have reached you safely by this time.

Norman Wearing, St. Bees.—You have our very best wishes when you start business in May. We can see that you take an intelligent interest in all that goes on around you and we feel sure you will do well. Glad the Correspondence Club has been the means of gaining a good chum for you.

Albert M. Taylor, Lenton Sands.—

"Meccano's the toy for fun, Meccano's the toy for play.
Meccano's the toy that you can trust to chase the blues away."

—From your letter you have evidently adopted this little couplet as your motto. You should have no more of those dreary and lonely nights now.

A. C. West, Holmewood.—Your Meccano poem, even if it did not rhyme very well, did cheer us up just as you thought it would. We shall be very glad to see you any time you come to Liverpool.

Wilfrid Wiles, New Malden.—You have our best wishes for the success of your Club concert. In our No. 17 issue you will find some verses which should serve your purpose admirably.

V. Patterson, Rathmines.—"I am very lonely now, because I have no Meccano models to make, as I have made all the models in the No. 1 and No. 2 Books." Surely it is not so bad as that, Victor! Many thousands of Meccano boys are inventing new models every day. Designing new models is one of the very finest features of the hobby, and you are missing the best part of the fun if you do not invent new Cranes, Bridges, Towers, and all kinds of new mechanisms for yourself. Remember Robert Bruce's motto, Victor, and set to work.

H. G. Burden, Wallasey.—We are glad to hear that you like your Recruiting Medallion so much, also that under the presidency of the Rev. J. C. Magee your Club is making great progress. You are quite right about the Meccano imitators, Harold, but believe us they make no real progress. Every boy these days with any sense knows how grossly inferior they are both in finish and in value, and will have nothing to do with them.

Fred Hudson, Leicester.—"I saw a Hornby Clockwork Train in a shop window and I felt like raiding it." We hope you will be able to secure one of these beautiful productions for your very own soon, Fred. You will have a wonderful assortment of Engines, Trucks and Coaches to select from next winter.

H. E. Underwood, Geneva.—Suggests that we should give puzzles, riddles, etc., in the Magazine, and sends the following:—

In Pinion Wheel my first you'll find
Unless you're absolutely blind.
My second is in Sprocket Chain,
Also in Hornby Clockwork Train.
The new Rack Strip contains my third.
My fourth you certainly have heard
In Contrate Wheels. Not in Spring Clips
My fifth you'll see, but in Bent Strips.
My sixth's in Eye Piece not in Face Plate,
Nor Girder Frame, nor Sector Plate.
My whole is a name that's very dear
To Meccano boys both far and near.

Bert Woods, Gathurst.—"I made Model No. 114 for a Meccano dealer's shop window, and he says it is through my model that he sold all his outfits. I can tell you that I felt delighted as I am only eight years old." That was a piece of good work, Bert, and we are glad to report that very many Meccano boys are doing a good turn to their dealers in the same way.

R. G. Moorhead, Ballybay.—"I think that the Correspondence Club is a splendid thing. I correspond with a Meccano boy in Cumberland, and I always receive his letters with the feeling that I have a true friend." The C.C. is firmly established now, Robert, and has been the means of creating many warm friendships amongst Meccano boys.

Effie & Vincent Horrocks, Sandford.—We welcome both of you as poetic admirers of Meccano. Your verses "The Secret of Content" possess the real poetic fervour and sentiment, but are rather too long for us to print. We shall be very glad to see the photographs you promise us.

H. Timberlake, Southall.—

"We remember that our motto is
To be helpful, clean and true.
If we keep this motto
It will help us all
In whatever we wish to do."

We can see that you have absorbed the true spirit of the Meccano Guild, H.T., and from this and your other verses, we gather that you have a sturdy and manly outlook on life.

B. Martin, Neulme.—"No. 14 of the 'M.M.' is the best issue yet. The Magazine is fine, but I think it would be even more interesting if you published the lives of great inventors in it." What say other Meccano boys?

H. G. M. King, Farringdon.—You must certainly pay more attention to your lessons, Hugh, or you will never make a real man of yourself. You are not a dull boy, and if you were as keen on your school work as you are on Meccano and Chemistry you would soon be well up in your class. We are interested in you and would like you to write us often.

Norman Cooper, Bebside.—Thanks for your very interesting letter and description of your new model. Yes, things are bad in the coal business, and we sympathise with you. We hope that by the time you read this you will be back again and hard at work.

C. Harrison, Ashington.—Photo of your boy in Meccano costume safely received, and we are not surprised to hear that he took first prize at the Carnival. We will endeavour to find space for his photo in the "M.M." shortly.

H. Goldberg, Johannesburg.—We shall have something very interesting to say about Wireless Telegraphy in the next few issues of the "M.M." We have been experimenting for some time now, and soon every Meccano boy will be able to send wireless messages to his friends and receive messages from them.

Meccano Manuals of Instructions.

There are two Meccano Manuals of Instructions, and no Meccano boy is properly equipped unless he has them both. Book No. 1 is the regular manual which goes with the main Meccano outfits. It contains illustrations and full instructions for making 323 fine models; some of the models have been designed by our own staff of experts, and others are prize-winning models contributed by Meccano boys, from every country in the world. Price 2s. 6d. (postage 3d. extra).

Meccano Manual, Book No. 2, has only recently been published, and it contains illustrations and instructions for building 100 entirely new models, very many of them prize winners. It contains Tanks, Guns, Submarines, Searchlights, and other warlike models; also a new series of simple and intensely-interesting scientific experiments which any boy can make and which impart a lot of useful knowledge. Price 1s. 3d. (postage 2½d. extra).

Prices of Meccano.

No.				
0	Outfit with full instructions for building,			6/-
1	do.	do.		10/-
2	do.	do.		20/-
3	do.	do.		30/-
4	do.	do.		50/-
5	do.	do.	(Carton)	70/-
*5	do.	do.	(Wood)	100/-
*6	do.	do.	(Wood)	180/-

* In well-finished cabinet with lock and key.

Accessory Outfits.

No.						
0a	Converting a	No. 0	into a	No. 1	...	5/-
1a	do.	1	do.	2	...	11/-
2a	do.	2	do.	3	...	12/-
3a	do.	3	do.	4	...	22/-
4a	do.	4	do.	5	...	17/6
5a	do.	5	do.	6	Carton	65/-
5a	do.	5	do.	6	Wood	95/-
Inventor's Outfit "A"				...	...	10/-
Inventor's Outfit "B"				...	...	25/-
Meccano Clockwork Motor				...	...	12/6

Each Meccano outfit is complete with all parts and tools necessary for building models. Full instructions are included, and the youngest boy can commence to build at once without study. An Accessory outfit may be purchased at any time, enabling bigger and more interesting models to be built. Additional parts may also be purchased separately, at prices given in our published lists.

Remember that though boys play with Meccano for pleasure, and though they get more genuine fun from it than from any other toy, it also gives them a sound knowledge of engineering. Through playing with Meccano, many a bright boy has been started on a prosperous career in one of the most important and profitable professions—engineering and mechanics.

Change of Address.

Subscribers should immediately notify the Editor of any change of address. Send a postcard *giving the old and new address*, so that records may be kept up to date.

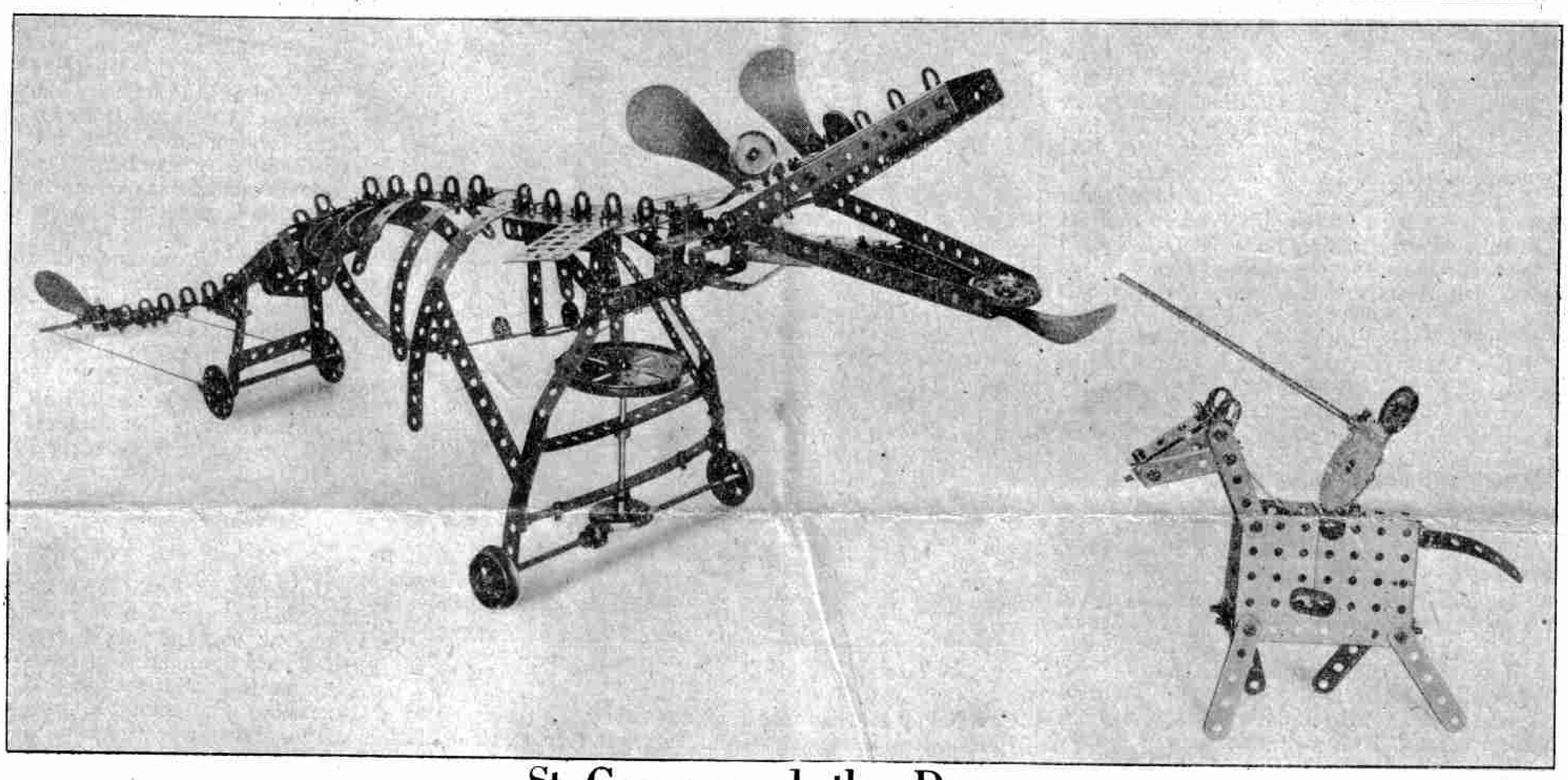
PUBLISHED BY MECCANO LTD.,
BINNS ROAD, LIVERPOOL.
Printed by C. Tinling & Co., Ltd., Liverpool, London, and Prescot.

No. 19. JULY-AUGUST, 1921.

MECCANO MAGAZINE

PRICE 1d

TO HELP MECCANO BOYS TO HAVE MORE FUN THAN OTHER BOYS



St. George and the Dragon.

If Meccano boys could sit beside the judges when they are considering the entries in our £250 Competition, they would assuredly be amazed to see the extraordinary ingenuity displayed by competitors in applying Meccano parts to novel and unexpected uses. We illustrate here an example from the competition just closed. A boy who can create such a formidable monster must be blessed with a bright and vivid imagination. We hope that many of our readers will find this model sufficiently interesting to build for themselves. It requires little description. The jaws of the dragon work by means of a cord fastened to a 3½ in. strip which is attached to the 2½ in. × 2½ in. flat plate forming the head. The cord is passed through a hole in the 12½ in. strip, which forms the back-bone. It is attached at its other end to the periphery of a 3 in. pulley wheel, which is caused to rotate as the dragon moves along the ground. To make the tail wag, cords are fastened to each end of the pivotted 3½ in. strip which carries the bush wheel and propeller blade forming the tail, and attached at their other ends to angle brackets bolted to the back wheels. As the animal moves along the ground the tail wags in quite a realistic way.

Editorial.

£250 Competition Results.

I am pleased to be able to announce the full results of our last big contest in this issue. This has been a most successful event, and the work of adjudication has been long and difficult. Many fine models were sent in and I hope to illustrate some of the best in the *M.M.* a little later.

Meccano Boys busy during the Summer.

Although Meccano model building is mostly done during the Winter evenings, my heavy mail bag shews me that Meccano boys are by no means idle during the Summer. There is a vast amount of experimenting being done with the fine new parts which have recently been added, and keen workers are evolving new and ingenious types of models of which much will be heard later.

Meccano Friendships.

Nothing has given me so much pleasure recently as to observe the great number of strong and happy friendships which are daily being formed amongst Meccano boys. Meccano Club work, organised and encouraged by the Meccano Guild, and our flourishing Correspondence Club are in a large measure responsible for this, and many a lonely boy has reason to feel grateful to the hobby that has been the means of forming friendships for him amongst the cleanest and cleverest boys in the kingdom.

Which would you choose?

It has often been suggested that I should publish the lives of great inventors in the *Meccano Magazine.* Other suggestions have been for some account of different engineering appliances, such as Cranes, Bridges or Machines. Yet again, some readers would like to have as a regular feature, a short article on engineering achievements. I should like the readers of the *Meccano Magazine* to write and let me know which of these articles they would prefer—there is not room for them all—and we shall publish that series which is chosen by most of our readers. Address your letter or post-card to the Editor.

Increased Postage.

I would remind my numerous correspondents that the postage on post-cards has recently been increased to 1½d. A small matter, perhaps, but if you boys saw the huge numbers of post-cards I get by every mail upon which there is 1d. excess to pay, you would realise why I am mentioning the matter in this column.

A new £250 Competition.

A new big model building Competition will shortly be announced, and full particulars will be furnished in the next issue of the *M.M.*

The Editor

The Result of the Meccano Story Competition.

In our last Essay Competition it was suggested that we should publish in the *Meccano Magazine* short stories, in each of which the Meccano hobby would be the central idea. This suggestion interested us very much and we decided to offer a prize of a Hornby Clockwork Train Set for the best story received before 1st July. As a result, hundreds of entries have been sent in for the Competition and the judging of them has been a very long and difficult task.

The stories deal with all manner of subjects and include stories of engineering feats, autobiographies, adventures, detective stories, and fairy tales. Very interesting too, are those dealing with some of the wonderful dreams of Meccano boys. The results of the Competition fully confirm the belief we expressed, that Meccano boys can write intelligently and express their ideas clearly. That they possess vivid imaginations, in addition, is also clearly proved by the fact that the heroes of several of the stories used magic swords, made from Meccano strips, for despatching Giant Gloom; while more than one author took an imaginative trip to Mars by the aid of airships, built out of enlarged Meccano parts.

This Competition has been a great success and the results will be found below. I hope to print one or two of the winning stories in future numbers of the *M.M.* I should like to congratulate those who sent in the winning essays, while I would urge those who have not succeeded this time to endeavour to excel in our next Essay Competition, particulars of which will be announced in the *M.M.* in due course.

The best story was sent in by Master Eric Joyce, 8, Edinburgh Road, Walthamstow, E. 17. to whom a Hornby Clockwork Train Set has been despatched. Specially good stories were sent by Master W. I. Rogers, 66, High Street, Plymouth ("The Test") and Master L. I. Hunt, Magnus Grammar School, Newark ("Meccano to the Rescue") and to each of these entrants a special clockwork train set has been awarded.

The Winning Story.

Meccano and the Martians.

By Master E. Joyce.

It was a sunny morning in July, 2021. A few miles outside the city of Meccanoton, formerly called Liverpool, in a huge Meccano aerodrome, a gigantic machine "The Spanner" was being prepared for one of her periodical flights to Mars, laden with Meccano goods. As she reclined on the grassy sward in front of her huge hanger, people accustomed to ordinary machines, wondered at her somewhat curious shape. A testing machine was sounding every nut, screw and stay, and soon the dial of the tester indicated that all was well. The roomy machine was mainly occupied by Meccano goods, so that there were few passengers. They clambered aboard, followed by the attendants and pilot.

Directly the ponderous door was closed, the atmospheric machine automatically commenced its work of circulating currents of pure air through "The Spanner." The pilot, with his hand on a switch, paused on hearing the tinkling of a bell on a curious apparatus in his belt. He took the machine, a wireless telephone, from his waist and put the receiver to his ear.

"Hallo! is that the machine 'Spanner' at the Meccano aerodrome 157?" queried a voice.

"Yes," answered the pilot. "What do you want?"

"I'm speaking from the Meccano Works," continued the voice. "Are the 500,000 Meccano Magazines on board 'The Spanner'?"

Having given an affirmative reply, the pilot replaced the receiver in his belt, and by touching a switch, started the radium-worked engines of "The Spanner," which were capable of forcing the mighty machine through both air and space at a terrific velocity.

The earth seemed to drop like a stone, and the speedometer indicated that they were travelling at 40,000 miles an hour. After speeding through space for a month, a delicate instrument showed that they

(*Continued on page* 8.)

The Life Story of Meccano.

By Frank Hornby.

(*Continued.*)

I am sure that all you boys who have seen our newspaper and magazine advertisements so many times will be interested in learning something of the way in which they are prepared. We are determined that every boy in this country shall know what Meccano is, how happy it will make him, and what fine times he can have with it, and we spend very large sums in trying to reach him through our advertisements. It is very necessary, therefore, that the greatest care be exercised in order that the money may be spent judiciously, and at the beginning of each year we hold conferences at which our own advertising experts consult with an eminent firm of advertising agents in London. At these conferences discussions are held as to the best method of clearly and lucidly explaining the merits of Meccano to boys; how our advertisements shall be illustrated; which models shall be employed in the advertisements; which newspapers, Magazines, etc., shall be used; the dates on which our advertisements shall appear; the sizes of the spaces to be used, and the number of insertions in each publication. There is nothing left to chance on all these questions, and our long experience of advertising Meccano helps us to solve many of the problems which arise each year.

Big advertisements, like those appearing in the "Daily Mail" which cost £1,000 per page for each insertion, come in for special attention, and all the details in them, the wording, the illustrations, etc., are the subject of very anxious and careful deliberation. For advertisements of this kind many illustrations by first-rate artists are well considered before the final choice is made. After we have decided upon the general lines upon which the season's advertising campaign shall be run, the artists and copywriters set to work to submit first proofs of our advertisements, and after further conferences these are finally passed, and instructions are given to the various publications for insertions at the proper dates.

A Meccano Advertisement in "The Daily Mail."

This by no means completes the work of our Advertising Department in connection with press advertising. The Meccano Catalogue, "Meccanoland," other booklets and attractive literature of all kinds have to be prepared and made ready for despatching to the boys who write to us for particulars of the Meccano hobby. The writing and illustrating of all these calls for expert knowledge and much serious thought.

In addition to our advertising in this country we also advertise largely in the most important publications in South Africa, Australia, New Zealand, France, Belgium, Spain, Holland, Sweden, Denmark, Norway, the Argentine and Brazil. Practically the whole of the translations for our foreign advertising are made by our own staff. The advertisements are set up in type here, and the matrices made and despatched to the various publications for use during the Christmas buying season. In addition to this we translate most of our literature into about 10 different languages, the distribution in all cases being controlled by our Advertising Department.

Each year we spread further afield and more languages are added. From the beginning of September, when our big advertising commences, is a very busy time indeed in this Department. Each day hundreds of enquiries have to be replied to, and at a low estimate the number of communications addressed to this Department from boys who want full particulars of Meccano, and others who require information from the Department, is no less than 80,000 to 100,000.

(*To be continued.*)

Meccano Advertisement from a Danish Paper.

Suggestions by Meccano Boys.

This column is reserved for dealing with suggestions sent in by Meccano users for new parts, new models, and new ways of making Meccano model-building attractive. We are always glad to hear from any Meccano boy who has an idea which he considers will be useful to the Meccano system.

G. Brash, Walworth. In our next edition of the Electrical Manual we shall illustrate a simple electric motor made with Meccano parts. We doubt whether it would be practical to introduce mud-guards for chassis as there are so many different designs made by boys that it would be difficult to make one that would be interchangeable.

Alfred Beadles, Birmingham. A spring buffer would be a costly part to manufacture and we doubt whether it would be justified. We already have under consideration a cylinder for the purposes you name.

R. K. McLeod, Dulwich Common. We compliment you on being first with your Meccano models in the "Hobby Exhibition" of your school. We shall give your suggestion for a cylinder further consideration.

Geo. Leighton, Bishop, Borwich.—We endeavour to make the instructions in our Manual for building the models as simple as possible, but if any difficulty is experienced we are always glad to answer any questions sent to us. In suggesting the introduction of 4", 6" and 8" wheels you do not say the type of wheels you mean.

H. Beadsmoore, Ashby-de-la-Zouch. We have under consideration the introduction of a cranked rod and connection for same. When this is ready it will be announced in the *M.M.* It is unnecessary for us to provide elastic bands for belt drives as these may be obtained at any rubber shop. We occasionally omit models from our Manual which are not sufficiently interesting or which it is intended to improve. We shall shortly issue a No. 3 Manual of new models which we are sure will interest you.

Edward B. Brake, Tansley. The wheel you mention is an internally toothed wheel. We already have an external curved rack and we shall give consideration to the internally toothed wheel. It would not be practical to have a diagonal hole in our present coupling such as you suggest.

A. Faulks, Bedworth. We have just included an eccentric in our list of parts. See announcement in this issue. This is a very fine new part.

B. Schubeler, London. A new coupling has just been added to our parts to connect a plain rod with a threaded rod.

J. S. Hare, Windermere. Our present rods may be connected by couplings to make 16" and 20" axle rods. We shall consider the introductions of 9½" by 5½" flanged plates and also the 1" by ½" double angle strip. An 18½" strip may be made by overlapping and bolting together two large strips. We have already introduced a pawl which, in conjunction with a pinion, forms a ratchet. We do not quite understand your suggestion No. 5.

Robert Higgins, Lassodie. We have not yet considered the introduction of taps, dies, or hand drilling machines. No doubt you will be able to obtain these from your local tool shop.

A. B. Grosvenor, Norwich. Your suggestion for the introduction of obtuse angle strips is very practical and we shall consider the matter later.

F. G. C. Henwood, Dunedin, N.Z. It is possible to introduce eye bolts, but we should be glad to know the purpose for which you require them.

Arthur Heal, Farnborough. We doubt whether it would be advisable to introduce a coil spring on account of the difficulty of controlling it. We have considered the introduction of a ½" sprocket wheel, but have found it impracticable on account of the size of the bush.

Gilbert Wilks, East Sheen. We think your suggestion for a 2½" strip bent at one end a good one, and we shall give it further consideration.

G. S. Hollis, Cheam. We have already adopted a new type of coupling for our Hornby trains which overcomes your difficulty.

F. V. Mitchell, Chesterfield. We have recently introduced a 9½" strip which we believe will meet your requirements.

Ronald Mansi, Battersea. We shall consider your suggestion for a curved girder.

G. Proto, Dundee. Your suggestion for a "Meccano parts and their uses column" is a good one, and we shall give it consideration. We also note your suggestion that we devote a column of the Magazine especially for replies to Guild Members' letters.

R. P. Jonas, Dulwich. We should like to know the purpose for which you require a threaded pin longer than the one we already list.

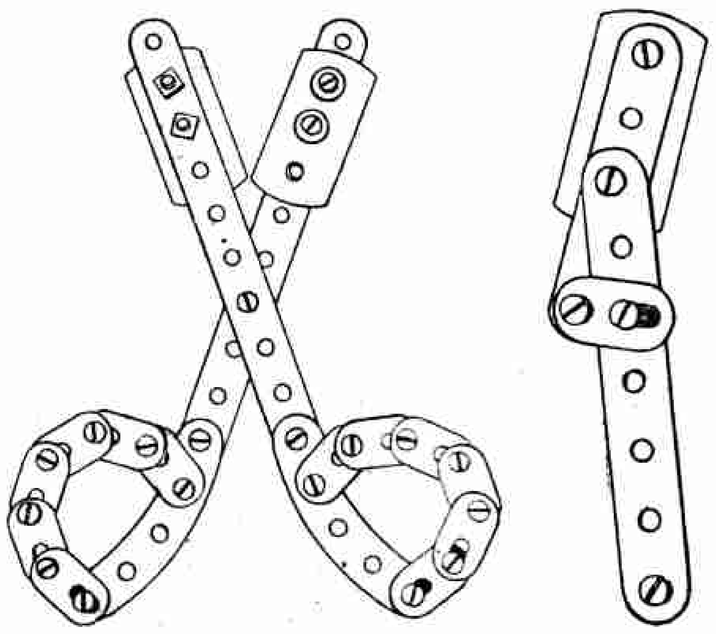
J. Long, Norwich. We doubt whether it would be advisable to issue various sizes and shapes of cardboard for the purposes you suggest on account of the unlimited shapes which would be required to cover the sides of models, etc.

E. Morrison, Motherwell. We think your wire stays bent round at each end a good suggestion and we shall give it consideration.

F. R. Falkner, Dundrum. Our regular rails for Hornby trains are not adapted to have a third rail connected to them as it would require a special chair and proper insulation, but we shall arrange for this later.

H. King, Alresford. Our present rack strip may be increased in length by butting together more than one.

William J. Rogers, Plymouth. We feel sure your suggestions for using old safety razor blades to make a pair of scissors, photographer's trimming knife, and for use with our model cutting machine No. 144 will be interesting to our readers, and we have thought well to illustrate them.



B. Cordiner, Dingwall. It would be necessary to provide current to run the dynamo, and the same current would run your motor so that we see no advantage in considering the introduction of a dynamo.

G. W. Adams, Westward Ho. We may introduce reversed brackets with three and five holes later. We already have double angle strips with these number of holes, would these not suit your purpose? We are sorry you have received some defective wheels. If you will return them to us we will replace them with good ones. We endeavour to avoid defects by testing each part before it leaves our factory. We shall go into the matter of reducing the projection of the pummel on the bush wheel, and see if this is practicable. We have in mind the introduction of longer threaded rods than 5 inches. It would add very considerably to the cost if we were to drill and thread each pummel right through, and we doubt whether it would be expedient seeing that only a few would be required where a firmer grip was needed. We shall consider the introduction of right angle plates to take the place of diagonal tie strips.

E. Armitage, Garston. Your suggestion for an alteration to our large sprocket wheel to make it suitable for building up a hexagon is on good lines, but we had already decided to pierce this wheel with eight holes, enabling strips to be attached at right angles, and providing other useful advantages. We will keep your own idea in mind.

Wm. Pringle, West Stanley. The sample of sleeve you sent us for butt joining two angle girders or strips might be useful in some cases, but we think its drawback would be the absence of a secure fastening.

T. Kendall, Southampton. We are at a loss to know why you suggest fastening three pinions together like the cone pulley. Would they not serve your purpose disconnected on the same rod? We hope later to introduce steam trains. This is a big proposition and will require much preparation.

M. H. O. Lewis, Helvedon. Your suggestion for a petrol engine to take the place of the clockwork motor and electric motor is a good one. We doubt whether it would be less costly than the Meccano electric motor with an accumulator, but we will consider the suggestion.

Vernon Dennis, Nottingham. We already have under consideration the introduction of a cranked rod with suitable connection, and when this is ready it will be announced in the *Meccano Magazine.*

W. G. Symons, Streatham. Regarding your suggestion of a curved plate, eye piece for braced girder, etc., you do not indicate how you consider they would be useful to the Meccano system. Before we can adopt new parts we must be sure that they will serve a definite and useful purpose.

S. W. Gough, Smethwick. The threaded rod you suggest would not be in accordance with our standard thread, and we are at a loss to know how you would adapt this to other standard Meccano parts.

S. Harry Frank, Petersfield. We are considering the introduction of a large flanged wheel standardised to run with our regular flanged wheel.

Reginald V. Pike, Mortlake. Your suggestion for using old safety razor blades snapped off at any angle to the edge, for use as cutters in lathes, or planing machines, is quite ingenious and no doubt many Meccano users will avail themselves of it.

The Meccano Guild

Member's Badge

Leader's Badge

A Fellowship of Meccano Boys

The objects of the Meccano Guild are

(*a*) To make every boy's life brighter and happier.

(*b*) To foster clean-mindedness, truthfulness, ambition, and initiative in boys.

(*c*) To encourage boys in the pursuit of their studies and hobbies, and especially in the development of their knowledge of mechanical and engineering principles.

The Meccano Guild has been formed to bring Meccano boys more closely together, and to make them feel that they are all members of a great brotherhood of boys, trying to help each other and themselves to get the very best out of life.

Every Meccano boy can join the Guild as an individual member, and so share in the privileges of membership. As soon as possible he should attach himself to a local Meccano Club, or if there is not one already in existence, he should take steps to form one with the assistance of his Meccano boy friends.

The Secretary of the Guild is always very glad to help with the formation of new Meccano Clubs, and to provide literature which will give all the necessary information.

Every new Meccano boy should immediately get to know all about the Guild in order that he may get the full pleasure from Meccano model-building, and the companionship and friendship of hundreds of thousands other boys who are glad to welcome him as a friend.

Forms of application and all other information will be furnished by The Secretary, Meccano Guild Headquarters, Old Swan, Liverpool. Each member on joining is furnished with the official member's badge, and a beautiful Certificate of membership ready for framing.

Guild Notes.

By the SECRETARY.

The Meccano Guild is forging ahead and every day I receive letters from enthusiastic Club Leaders and Secretaries, who express their appreciation of the movement in no uncertain terms. Although the original intention was to hold only two sessions each year (Session 1, October—December, Session 2, January—March) so great is the members' enthusiasm that several Clubs are holding additional sessions through the Spring and Summer months. This is quite a sound idea, and I was pleased to note that excursions to works and places of interest, as well as cricket matches and sports, are prominent in the programmes of several Clubs. Meccano boys are true sportsmen, and can play Cricket and Footer with the best. Clubs in the same districts are able to arrange matches with each other and in these many ways does the Guild help Meccano boys to have enjoyable times.

I would very strongly urge upon Leaders and Secretaries the desirability of continuing their club activities through the Summer. By doing this they will keep their members together in happy companionship, help them to form strong and valuable friendships amongst themselves, and will also ensure a successful and enthusiastic opening of their next Winter's session. I have already indicated the lines on which a number of clubs are arranging their Summer programmes, and I would commend to Leaders and Secretaries a careful perusal of the Club notes in this issue for hints and guidance on this very important matter.

Every day brings new members to our Guild and in this the Recruiting Campaign, which ended 31st March, was largely successful. I would remind members that the new Campaign has well started and by the large amount of work already done, I feel confident that on the closing date (31st December, 1921) the results will even surpass those of the last Campaign. Each member who secures three new recruits will receive a handsome Medallion. Recruiting Forms may be had on application, and each member should write his own name and address on the back of the form used.

I have to thank several Clubs for sending me further copies of their Magazines. The quality of these little productions is improving considerably. I have been wondering which of the Clubs will be the first to actually print their Magazine. At present, of course, the high cost of printing prevents this being done. For the same reason we are not able to increase the *M.M.* in size, although I am constantly receiving suggestions that the number of its pages should be doubled, nor are we able to publish more often. We certainly have the enthusiasm necessary amongst the members, and we could fill every issue with Club Notes alone.

Our Correspondence Club continues to be much appreciated, and has been the means of commencing many close friendships. Any member who is interested in corresponding with other Meccano boys should write to me for full particulars of the Guild Correspondence Club.

There have been a number of requests for a membership card for distribution among Club members, which would contain a syllabus and the Club rules. Several Leaders and Secretaries have kindly forwarded me ideas, and I shall be pleased to have further views, as I propose issuing the cards in good time for the 1921-2 Winter Session. The chief difficulty is that all Clubs have a different programme, and it will not be possible to separately print each individual programme. What is required is some form of membership card applicable to the whole of the Clubs, and yet adaptable to the requirements of individual Clubs.

I find that many of our Clubs and members are still receiving letters from native boys in Africa. These generally come from the Gold Coast, and sooner or later ask for presents to be sent to them. I have previously advised all Meccano boys to ignore these letters, and I now mention the matter again.

Club Notes.

BRISLINGTON M.C.—Have obtained the use of a room in the New Parish Hall, meet each week and have a good attendance. Held two Competitions during the season and awarded money prizes. Gramophone and Lantern evenings much enjoyed. Closed session with a tea, paid for out of balance of Club funds. *Secretary:* Master W. R. Knight, 13, Belle Vue Terrace, Brislington, Bristol.

CLAYGATE M.C.—During the past session lessons in carpentering were given. Lecture: "How to Use Tools" and instruction on the different kinds of wood and their uses. Members now number 44. Under the guidance of Mr. H. Hudson a model of a Floating Dock was constructed, and this won First Prize in the Inter-Club Competition. (Photographs of this model may be obtained from the *Club Leader*, Mr. J. W. Haynes, Fontmell, Covers Road, Claygate, Surrey, post free 1s.) Entertainment arranged by Leader, performance by Club members of "Dick Whittington" realised £19. 7s. for Club funds. Sports were arranged for June with a fancy costume Cricket Match, exhibition of models and many other attractions. The Claygate Brass Band attended and there was a full programme of events followed by a tea. Sir Francis and Lady Barker very kindly presented the prizes. It is hoped that at least 100 members will be enrolled by the commencement of next session. *Secretary:* Mr. Brittnal, Vale Road, Claygate, Surrey.

CIRENCESTER M.C.—Doing good work. Visits to Electricity Works and Railway Works were of great interest. Several excellent papers read by members during the session. Arranging to hold a model building competition. *Secretary:* Master N. Gobey, "Clovelly," Victoria Road, Cirencester.

ASCENSION (London E. 16) M.C.—Balance sheet shows balance in hand of £1. 7s. 0d. Lectures on "Trucking" by Master H. Maggs, and "Railways" by Master M. Prater. The Club has been carried on under difficulties, and much is due to Mr. J. McDonald, the Vice-President, who has done good work in filling the position of Club Leader. Average attendance of 20. *Secretary:* Master M. Prater, 96, Alnwick Road, Custom House, London, E. 16.

ALL SOULS (Liverpool) M.C.—Membership is improving, and model building is being continued through the Summer months, along with discussions and games. Picnic arranged for August Bank holiday, and also outdoor sports. Club funds augmented by sale of periodicals and magazines among members. I very much regret to learn of the death of Rev. Father Southworth, through a motor-cycling accident. To him the Club owed the loan of their Club room. *Secretary:* Master T. Roberts, 170, Dryden Street, Liverpool.

CITY OF NORWICH SCHOOL (Norwich) M.C.—Several large models built during the session, including an overhead rope railway, water-chute, and electric motor lorry. Three enjoyable papers read: "Photography" by Master Kingaby, "Stamp Collecting" by Master J. Long, and "British Butterflies & Moths" by Master Kingaby. Exhibition of models, the best model being subsequently shown in the School Art Room on Speech Day. Meccanograph was very popular and designs much admired. The outdoor programme arranged for the summer months includes several country cycle rides. Balance sheet shows small balance in hand. *Secretary:* Master J. Long, 19, Newmarket Street, Norwich.

BUTT LANE (Talke-on-Trent) M.C.—Exhibition proved most successful; models showing a very high standard throughout. Nine new members for next session. *Secretary:* Master G. Brookes, Congleton Road, Talke, Stoke-on-Trent.

BROMSGROVE (Worcester) M.C.—New Club. Forming a Cricket Team during the summer. *Leader:* Mr. J. S. Cooke, Market Place, Post Office, Bromsgrove. *Secretary:* Master J. Gibbs, Rock Hill, Bromsgrove.

AIRDRIE N.B. Y.M.C.A. M.C.—New Club. Enthusiastic start shows great promise. Meets at Y.M.C.A. Hall, East High Street. *Leader:* Mr. Robt. Bell, "Cairnhope," Cairnhill Road, Airdrie.

GRIFFITHSTOWN (Mon.) M.C.—Very successful session, Model building, Story telling, Lectures, Painting, Drawing and Gymnastics. Session closed with Exhibitions of Models. Concert by members included musical items and Gymnastic Display.

Over 100 attended. For Summer months have arranged rambles and outdoor events, the first of which was a very successful paper chase. Have already arranged for several Lecturers for next session, including the chief engineer and draughtsman from a large steel works, and an official of a School of Mining. *Secretary:* Mr. H. Francis, 2, Park Street, Griffithstown.

JUNIOR ENGINEERS (Longsight) M.C.—Going strong. Now 35 members. *Club Leader* Mr. J. Yeats writes: "We are sailing with the gale." Mr. Norman Meredith, engineer, of Stretford, judged entries of recent Competition. First prize was awarded to Master A. Whitwam (1st round), Master S. Whittaker (2nd round), and Masters A. Walker and O. S. Levings took the Ridgway Prize. Some very fine models built. Had interesting cycle runs, visiting Barton (to view Bridge), Warrington, and deserted village of Havana, near Congleton. Planning many enjoyable runs for future. *Secretary:* Master Tremlow Booth, 96, Birch Lane, Longsight, Manchester.

HILDENBOROUGH M.C.—Closed successful session with an Exhibition. Picnics being arranged for Summer months. Accounts show a balance of 15s. in hand. *Secretary:* Master W. Bassett, Laburnham Cottage, Hildenborough, Kent.

KING STREET (Luton) M.C.—Many interesting meetings held. Model-building, competitions and discussions. Microscopical evenings also arranged. Lectures by Master Squires on "Automobiles." Session closed with an enjoyable Social at which prizes were awarded. The accounts show a small balance in hand. *Secretary:* Master W. Humby, Luton.

NEW MALDEN M.C.—Session has been most successful both financially and socially. 10 new members, 21 meetings, Model-building and Lectures. Two Exhibitions and Concerts added greatly to the Club funds. Club Library contains a variety of books on engineering. Visit to engineering works is being arranged. Balance of over £5 in hand. The Club Leader, Mr. V. Hammond writes:—"I have received a great deal of praise from the parents of members, the managers of the School and other interested persons. I wish you would oblige me by allowing me to hand to the boys their full share of praise. They have worked splendidly during the session, and there has been splendid co-operation between members, combined brains solving many difficulties. I am specially indebted to Master S. B. Evans, Secretary of the Club for the amount of time and labour he has put into the Club work to make it a success, and also to Master Dudley Forshaw for his untiring energy and valuable help with intricate models."

The Club is to be congratulated on its splendid enthusiasm, and on the excellent work done by its members. The session closed with an exhibition for which an excellent model of a Fair, on the Earl's Court lines, was constructed. Included in the models were Switchback, Eiffel Tower, Big Wheel, Swings, Flip Flap, Flying Boats, Roundabout, and several interesting side shows. The whole was encircled by a railway with Hornby Train, and crossed by a bridge. Even artificial lighting was not forgotten, and electric standards were placed on the fair ground. This model has since been awarded the first prize in the inter-club competition.

KENYON HALL COLLEGE M.C.—Club going well, and had a very successful session. Lectures and Model-making, visits of other Clubs. Programme of ummer session includes several Lectures on Mechanics" by Dr. J. Mastin, D.Sc., etc. *Secretary:* Master J. W. Mayhew, Kenyon Hall College, Kenyon, Manchester.

LISCARD HIGH SCHOOL M.C.—New Club. Successfully started. *Leader:* Mr. H. S. Casey, 3, Brisbane Avenue, New Brighton. Summer programme includes visits to Factories, Workshops, Docks, Ships and Telephone Exchanges, as well as picnics. Have had first outing, visiting the Electric Power Station at Wallasey. Lectures have been given on "Electricity" by Master Holmes, "The Locomotive" by Master Boyes, and on "First Aid" by Mr. Brunsden, who kindly visited the Club for the purpose. *Secretary:* Master B. Warburton, 11, Brisbane Avenue, New Brighton.

WATERFOOT M.C.—Session opened with a successful exhibition, proceeds given to the Childrens' Home. Lectures on "Electricity" by the Club Leader, Mr. Teasdale; on "Picture Framing" by the Assistant Leader, Mr. N. Jackson; and on "Various Kinds of Joints" by Master Maudsley. Model-building nights alternated with hobby nights—an excellent idea. The session closed with a Social. *Secretary:* Master J. W. Mawdsley, 334a, Edgeside Lane, Waterfoot.

WESTERTON M.C.—Session opened with a study of model Railways, each member building a different model in connection with railways. Special evenings were devoted to a study of aeroplanes, ships, motors and armoured cars and cranes. *Secretary:* Master J. Ireland, Westerton, by Drum Chapel, Glasgow.

NORWICH ENTERPRIZE M.C.—Club making favourable progress. Considerable time devoted building models in which the subject is announced for the following week's meeting, and each member builds a model according to the capacity of his set. These models then form part of a large model and are built up together at the ensuing meeting. The best of these combination models was a model Village, and this was a splendid model including a Railway Station with Hornby Train, splendid bridge, signal box, operating bells, signals and gates, electric telegraph, shops and houses and many other interesting models. It was visited by a large number of parents and friends, who were entertained by the Guild members working the models, following which an impromptu concert was held. The Club Leader announced the boys are very keen and during the summer months outdoor games and cross country runs are being arranged. The club won the second prize in the inter-club competition, and are to be congratulated in their effort. *Secretary:* Pastor A. B. Grosvenor, 118, Vincent Road, Norwich.

LEAMINGTON M.C.—Very successful Social evening. Large number of visitors. Lt.-Gen. Sir John Keir distributed prizes. Dr. C. Crowther gave special prize to Master Saltmarsh for essay. Visitors then inspected models, which included Travelling Gantry, Motor Chassis, Electric Loco., Windmill, and Pit Head Gear. The following is an extract from the local paper:—

"The boys gave a display of their decided talent on the social side; they arranged an impromptu concert, including part songs, recitations, vocal and instrumental music. The Rev. J. A. Murray spoke in the highest terms of the Club's usefulness in encouraging the study of engineering and general science, and of the zeal of the Leader (Mr. Bull) and the enthusiasm of the boys. The session has been a great success, and Leamington can boast of having one of the finest Meccano Clubs in Great Britain. The Club appeals to the intellectual side of a boy's recreation, and most of its members have an ambition to make some name in the engineering world later on. During the summer months visits are made to engineering works, and on the social side the Club organise picnics, also motor and cycle excursions." *Secretary:* Master G. Hare, 36, Willes Road, Leamington.

NONINGTON (Dover) M.C.—Held an enjoyable session. Cricket and games during summer. Suggested Club Motto "Think and Act." The accounts show a balance of 19s. in hand. *Secretary:* Master K. Leppard, Nonington.

CIRENCESTER GRAMMAR SCHOOL M.C.—Very successful session. Excellent papers read including "Shipbuilding," by Master Robertson; "Marine Salvage," Master Legg; "Sailing Craft," Master Gobey; "Transport Ships," Master Inward; "Warships," Master Tolley, and "Submarines," Master Richards. Visits paid to the Cirencester Electricity Works and Midland and South-Western Railway Works. The Session was closed with an impromptu concert, which was very amusing. No Summer session being held, the time being devoted to Cricket and other outdoor pursuits. *Secretary:* Master H. W. Inglis, 3, Colin Villas, The Avenue, Cirencester.

Guild Members and the £250 Prize Competition

The list of prize-winners in our most successful model-building Competition is printed elsewhere in this issue. Meccano Guild members will be specially interested in the awards, for in addition to the valuable cash prizes and the numerous other prizes awarded, the Guild offered three special prizes of £5 in cash to the member of the Guild who gained the best prize in his section. This presented a splendid opportunity to members of the Guild and was also of great interest to our Clubs. That the Guild members were fully alive to the advantages of this special offer was shown by the very great number of models entered by members.

Elsewhere Mr. Hornby has paid a tribute to the ingenuity displayed in the design of new movements and models, and I was pleased to see that our Guild members played a prominent part in submitting new designs. This is not at all unexpected, of course, for our ranks include some of the cleverest and most enthusiastic Meccano boys.

The three cash prizes of £5 are awarded to the following members each of whom gained the best prize in his section.

Section A.—J. Dorling, Delamere Street, Boniface Cliff, Shanklin. Model lighthouse.

Section B.—S. B. Evans, 22, Howard Road, New Malden. Quayside warehouse.

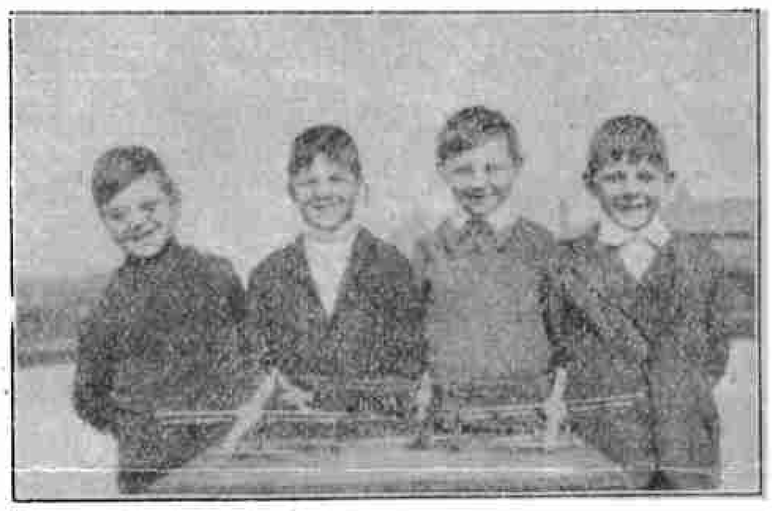
Section C.—E. C. Herbert, 16, Harradon Road, Aintree. Ship's gantry crane.

Special prizes for Guild members will again be offered in our 1921-22 Competition, particulars of which will appear in the *M.M.* later in the year. All Meccano boys should join the Guild at once, not only that they may obtain the full pleasure from building Meccano models, but also that they may have the world-wide friendship of hundreds of thousands of other Meccano boys, who are already members of the Guild. By becoming members of the Guild, Meccano boys may join the local Meccano Club. Clubs will shortly be commencing their next sessions, and new members will be warmly welcomed.

The Inter-Club Competition.

In the No. 17 Meccano Magazine it was announced that the closing date for the Inter-Club Model Building Competition was the 15th of May. The result has been very gratifying and a large number of models have been submitted. The First Prize of £5 in cash has been awarded to the New Malden Meccano Club for an exceptionally fine model of a "Fair Ground," which is referred to elsewhere in these pages. The Second Prize of £3 in cash has been awarded to the Norwich Enterprize Meccano Club, also for an excellent model and, curiously enough, the subject chosen in this case was also a "Fair Ground." The entries for this Competition were of a very high standard of workmanship, and in the Prize-winning models no details were omitted. A model I should like to specially mention is that submitted by the Ratcliffe College Meccano Club of a "Landing Stage."

Joy in a County School.



To the Editor,

Meccano Magazine.

Dear Sir,

This is a large school of 1,200 children. We recently held a Meccano Competition of original models for the boys of 8–9 years of age, and I am sending you snapshots of the best presented.

The boys are very keen on Meccano. Through the interest of their teacher thirty-eight boys out of fifty in one class have outfits, and as their birthdays come, that number is being increased. Other classes are also keenly enthusiastic, and we have held inter-class Competitions.

Yours sincerely,

The Head Teacher.

The above letter is typical of very many which we receive from School teachers. We have pleasure in reproducing one of the snapshots referred to. A more pleasing picture of juvenile happiness we have never seen.

How to get the Meccano Magazine regularly.

The Meccano Magazine is now sold by most of the regular Meccano dealers, but in order to prevent disappointment you should place an order with your dealer for a copy of each issue to be reserved for you. The price of each issue is 1d. If you experience difficulty we will mail you a copy regularly on receipt of 6d. for the next six issues, or 1/- for the next twelve.

RESULT OF THE £250 MECCANO PRIZE COMPETITION

FULL LIST OF AWARDS

This has been the most successful model building competition we have ever run, both as regards the number of entries and the excellence of the models submitted. It has been a real pleasure to me to note the ingenuity displayed by most of the competitors in designing new movements and models, and I have again this year increased the number and value of the prizes in order that those who have shown most inventiveness and resource may receive proper recognition.

The dividing up of our big Prize Competition into Sections according to age has proved most successful, and the same course will be followed in the 1921-22 Competition. Full particulars of the last named event will be announced in the next issue of the Meccano Magazine.

I congratulate the winning competitors on their successes, and to the unsuccessful ones I would say that many of them missed gaining prizes by only a very few points, and I feel quite sure that I shall see their names in the lists of awards in future competitions.

Frank Hornby

THE PRIZE WINNERS

Section "C" (Competitors over 14 years of age on May 1st, 1921)

E. C. Herbert, 16, Harradon Road, Aintree. Ship's Gantry Crane .. .. — First Prize - £20

W. R. Parkes, 2, Gawber Road, Barnsley. Mechanical Harmonograph .. ..
R. McKenzie, 1812, Newkirk Avenue, Brooklyn, N.Y. Coal Ship Unloader .. — Second Prize (Divided) £15

J. Yoxall, 76, Carleton Street, Nelson. Beaming Frame .. ..
L. Marc, 16, Boulevard Jean-Jaurés, Boulogne-Sur-Seine. Machine a Coudre
Stanley Weston, 110, Burnley Road, Briercliffe. Testing Machine .. .. — Third Prize „ £10

Additional Prizes of Meccano Outfits and Train Sets.

L. H. Woodworth, Box 385, Arcola, Illinois. T Head Crane.
A. E. Roberts, Henry Street, Ruabon. Traction Engine.
E. Simpson, 14, Mersey View, Blundellsands. Silk Twisting Machine.
J. de Flamesuil, Rue St. Pierre, Yvetot. Presse rotative à impremeur.
G. Marmonier, 149, Avenue de Saxe, Lyon. Marteau pilon.
H. G. Lee, 48, Cleveland's Road, Burnley. Twin Elliptic Harmonograph.
W. Tung, Nord 47, La Chaux de Fonds. Machine à Isoler.
A. Jullien, 65, Avenue Léon Bollee, La Mans. Indicateur de Watt.
E. Young, 42, Wellesley Road, Colchester. Lathe.
P. Burcher, 4, Rue Deloye, Nice. Horloge electrique.
G. Valeriani, Baxiano (prov. Teramo), Italia. Mecchina per rivestive fili elettrici.
H. M. Hayes, Brean House, West Street, Axbridge, Som. Testing Machine.
A. Bourdet, 69, Avenue du Chemin de fer, Machine à faire du retord.
G. Chifflot, 90, Boulevard Raspail, Paris. Motrice Electrique.
W. J. Burge, 30, St. Margaret's Road, Manor Park, London, E.12. Lighthouse and Signal Station.
N. Raymond, 66, Rue de la Charite, Lyon. Funiculaire.
A. N. Carr, 12, Hardwick Street, South Shields. Colliery.
N. K. Axtell, 18, Hamilton Terrace, New York. Oscillating Electric Fan.
A. E. Hill, 79, Dixon Street, Liverpool Road, Irlam. Stripper Crane.
H. Marie, 57, Rue de Belleville, 19ea, Paris. Montagne Russe.
A. L. Troup, 31, Kimbolton Avenue, Linton Sands, Notts. Coin Control for Electric Motor.
E. L. Thompson, "Inglewood," Russell Avenue, Lindfield, N.S.W. Alarm Clock.
E. W. Morris, 429, East 51 Street, New York. Gear Box.
T. A. G. Rappis, B.A., Via G. B. Lanata, N.1, Genoa, Italy. Military Motor Car.
D. Adamson, "Ivanhoff," 118, Liscard Road, Wallasey. Dockyard Shear Legs.
R. Maglia, Esmeralda 274, Buenos Aires. Looping the Loop.
D. E. Fleming, 37, St. Peter's Road, Croydon, Surrey. Swivelling Cantilever Crane.
R. Voillaume, 1, Avenue de Paris, Versailles. Excavateur.
G. Marmonier, 149, Avenue de Saxe, Lyon. Elevateur à godets combine avec un transporteur à palettes.
V. M. Spence, 19, Williams Avenue, Dulwich, S., Australia. Power Press.
Henri Tenard, Sies (Orne), France. Planimetre.
Ada Bentley, 26, Morris Road, Crownfield Road, Leytonstone. Umbrella.
E. Forshaw, Albion House, Albion Road, New Mills, Stockport. Galloping Donkey.
E. S. Twist, Leicester Road, Blaby, Leicester. Free Wheel.
J. E. Gask, 86, Farm Lane, London, S.W.6. Band Knife Cutting Machine and Table.
J. M. Smith, Cheyne Cottage, Gordon Avenue, Stanmore. Electric Motor.
G. W. Adams, 8, Nelson Terrace, Westward Ho. Hand Drill Attachment for Bench.
J. Van Koocke, 19, rue de l'Orge, Ixelies, Brussels. Propulseur à bras.
W. H. Lowe, 28, Henley Gardens, Consett. Vertical Drilling Machine.
J. B. Craven, 5, Brook Street, Selby. Electric Overhead Mono-rail Travelling Crane.
J. B. Roberts, 64, Mansell Street, Port Talbot. Hydraulic Elevator.
F. C. Osgood, Cambus-by-Stirling. Automatic Ore Unloader.
Helge Rafn, Blytsvej, 8, Copenhagen, F. Meccano Automaton.
Percy Playfoot, 31a, Portswood Road, Southampton. Weight Motor for Meccano Models.
E. Holt, Ashleigh, Swansfield Road, Alnwick. Grandfather Clock.
M. E. Galliers, "Ponsford," Escombe, Natal, S.A. Tram Car.
A. Upson, 102, Churchill Road, Willesden Green. Foster's Latest Showman's Engine.
H. E. V. Summers, "St. Omer," Clinton Avenue, St. Peter's, S. Australia. Adelaide Combination Electric Car.
D. Firestone, 811, R. Road Avenue, Hancock, Mich. Carpet and Rug Cleaner.
W. Higley, 634, Campbell Avenue, Long Branch, N.J. Navy Yard Crane.
E. Thomas, 734, Arcadia Street, Victoria, Transvaal, S. Africa. Dock Crane.
F. Henderson, 66, St. George's Road, Bellevue, Johannesburg. Inclined Plane and Skip for Waste Rock Pump.
B. D. Virmani, c/o Mr. K. C. Virmani, General Merchant, Dera Ismail Khan, India. Spinning Wheel.
J. Boursier, 28, Rue de Lyon, Paris, XIIe. Drageur.
Rene Parel, Rue A. M. Piaget, 81, La Chaux de Fonds. Jeu d'echecs Meccano.
C. E. Box, "Lyndhurst," Moor Lane, Great Crosby. Boiler Trolley.
Robert Smith, The Hostel, Wyton, Hunts. Pit Head Gear.
C. Boocock, 64, Glen Street, Colne, Lancs. Roundabout.
A. Maisonneuve, Librairie, Olliergues, Puy de Dome, France. Pylone Eolien.
J. Morris, Royal Albert Institution, Lancaster. Roundabout.
C. Griffiths, 18, Fortune Green Road, W. Hampstead, N.W.6. Adding Machine.
E. Borgeaud, Moreno 1342, Dpto. 26, Buenos Aires. Planimetre.
Emile Martin Fils, 44, Cours St. Andre, Grenoble. Roue-poulie.
R. M. Anderson, Tiakitahuna, Palmerston, N., N.Z. N.Z. Traction Engine.

Section "B" (For Competitors between 10 and 14 years of age)

J. Fox Mortimer, Jr., 150, West 86th Street, New York. Hook and Ladder Fire Truck
S. B. Evans, 22, Howard Road, New Malden. Quayside Warehouse

First Prize (Divided) - - £15

R. Shillito, 34, Main Street, Wombwell, Yorks. Miniature Colliery
W. K. Bhaisa, 141, Dadar Road, Dadar, India. Indian Giant Wheel
J. E. Field, 58, Derwent Road, Palmers Green, London, N.13. Swivelling Gantry

Second and Third Prizes (Divided) £16

Additional Prizes of Meccano Outfits and Train Sets.

F. Godfrey, 3, Russell Place, Norfolk Street, Hull. Conveyor.
H. Walmsley, 57, Brownlow Road, Horwich. Goods Loco.
Perino Emile, 1, Rue Lamartine, Nice. Velocimane.
H. McWilliam, 263, Main Street, Bridgeton, Glasgow. Seaplane.
G. S. Barrass, 7, Chapel Row, New Lambton, Fence Houses, Durham. Electric Coal Conveyor.
M. Brenot, 85, Boulevard de Charonne, Paris XIe. Funiculaire.
C. P. Sharman, 17, Northumberland Road, Broomhill, Sheffield. Distance Meter.
D. J. Wakely, The Grange, Church Norton, Near Chichester. Steam Lorry.
L. Boige, Les Guillemottes, Vienne (Isere). Orchestra Meccano.
R. T. Gurnett, 46, High Street, Grays, Essex. Meccano Clock.
G. Cheetham, 156, Horton Grange Road, Bradford, Yorks. Skittle Alley.
D. W. O. Dwyer, 8, St. Alban's Road, Woodford Green, Essex. A Crocodile Wagon.
G. Nordahl-Pedersen, Dovregaten 1, Kristiania, Norway. Kicking Sleigh.
C. H. Rudd, 51, Richmond Street, Barnstaple. Metal Cutting Jig Saw.
J. W. Dring, 18, Coupland Terrace, Beeston Hill, Leeds. Bogie Wagon.
T. Carnana, 28, Str. Fra. Diego Hamrun, Malta. Sewing Machine.
C. A. Mason, 23, Glasgow Street, St. James', Northampton. Combined Morticing and Boring Machine.
K. Harbridge, 16, Feckenham Road, Redditch. Drop Hammer.
A. W. Coupe, 9, Delhi Road, Bury Street, Edmonton, N.9. Multiple Spindle Drill.
C. G. and R. L. Trapnell, Essendene, Clifton, Bristol. St. George and the Dragon.
D. R. Stewart, Trenchfield, King's Ave., Prestatyn. Clockwork Fan.
G. Bentley, 26, Morris Road, Crownfield Road, Leytonstone. Try-your-Strength Machine.
Pierre Lehmann, route Nationale a Dieulouar, Meurthe-et-Moselle. Martinet Laminoir.
Mosca Maurizio, Via Cavalletto No. 1, int. 7, Genova (Italia). Dipanatrice.
Renauld Scarcericau, 9, rue de Frignicourt, Vitry-le-Francois, Marne, P. Promenade en barque.
Jacques Hersleven, 342, Chausfee de Waterloo, Brussels. Porte Congie.
W. Knoll, Kinderheinr, Samaden, Schweig. Forderriernen.
Orrin, R. Fackler, Aitkin, Minn, U.S.A. Meccanograph.
E. R. Sinclair Watkin, 146, Gerningham Road, New Cross, London, S.E.14. Motor Lorry.
Norman Hoyle, "Elmfield," Higher Lane, Lymm, near Warrington. Mono-rail Luggage Transporter.
J. A. Rance, 35, Peel Road, Wealdstone, Middlesex. Horse and Tip Cart.
T. Tostrup, Incognito Terrace 3, Kristiania, Norway. Balance.
P. Jacot, 26, Rue des Victoires, Paris. Ascenseur.
G. R. Bent, 18, Reddish Vale, Reddish, near Stockport. Motor Stone Lurry.
L. Radclyffe, "Derwent," Laburnum Street, Blackburn, Victoria, Australia. A Meccano Mangle.
Eliseo F. Colombo, Domicilio Eucuman 3054 D. to 12, Buenos Aires. Crane.
Eduardo Puceiro, Lavalle 801, Buenos Aires, Windmill.
Nicolas Guisepponi, Don Cristobal 1286, Buenos Aires. Trolley Car.
Yvonne Liot, 4 Quai Brixeux 4, Quimperle. Parapluie sans Couverture.
R. A. Ivers, Marikuppam, Kolar Gold Fields, S. India. Boy Scouts' Semaphore Tutor.
H. Webster, 185, John Street, London, Ontario, Canada. Cylinder Press.
F. J. Hunter, 178, North View Road, Hornsey, N.8. Steam Wagon.
A. Tulpius, 49, Avenue Wendt, Geneve (Suisse). Grand Huit.
Gosta Grahn, Teatergaten 23, Goteborg, Sweden. Dredging Machine.
Theodore Rietzel, 4, George Street West, Roxbury, Mass. Portable Drill. b
Armand Tocabens, 24, Bd. Gambetta Alger, Algerie. Tramway electrique.
P. Richard, Clinique du Docteur le France, Roscoff, Finistere. Usine d'avions a Moteur.
Beatrice Shilling, 65a, South Street, Dorking, Surrey. Spinning Wheel.
V. K. Rangappa, c/o the Trustee, Vizianagram, India. Water-lift "Persian Wheel."
Joseph de'Conti Manduca, "Eltham House," 57 Sda. Ridolfo, Sliema, Malta. Upper Barraca Lift.
D. E. Elkis, 6, Peak Road, Hong Kong, China. Mystery Tower in Action.
L. P. Trotter, Hillgrove, Otago, New Zealand. Modern Windmill.
G. Ugo, Via Assarotti 10/3, Genoa, Italy. Machine a' Carder la Laine.
Luis Vazquez de Parga, Calle de Monte Esquinza, No. 11, Madrid. Windmill.
W. Salter, The Vineries, Mill Hill, London, N.W.7. Clocked work by weight.
T. A. Gatley, 504, Liverpool Road, Peel Green, Manchester. Crane Gear Box.
Eric Desbruslais, The Mall, Amritsar, Punjab, India. Blondin Cable Way.
W. Muckle, 89, George Street, Willington Quay-on-Tyne. Double Action Steam Pumps.
Matthew Onderdonk, East Greenbush, Box 29, New York State. Electric Washer and Wringer.
W. S. Hencke, Stop 147, Shore Line, Willoughby, Ohio. Roller Coaster.
James Hertig, Rue Midole 12, Besangon, Doubs. Un Phare.
Charles Rochette, Rambervillers, rue Clemenceau, Vosges. Machine à'onduler le papier.
J. Hingant, 63, Rue S. Quentin, Havre. Ferry Boat de rivière.
Franco Palmizi, Via Mentana 9, Bologna, Italy. Macchina da cucire a bobina centrale.

Section "A" (For Competitors under 10 years of age.)

Fred Dighton, 147, Florence Road, Wimbledon, S.W.19. Mechanical Digger
N. J. Pollet, 41, Boulevard Pater, Valenciennes, Nord. Transbordeur Mecanique
John P. Turner, Jr., 520, West 122 Street, New York. Workshop

First and Second Prizes (Divided) £20

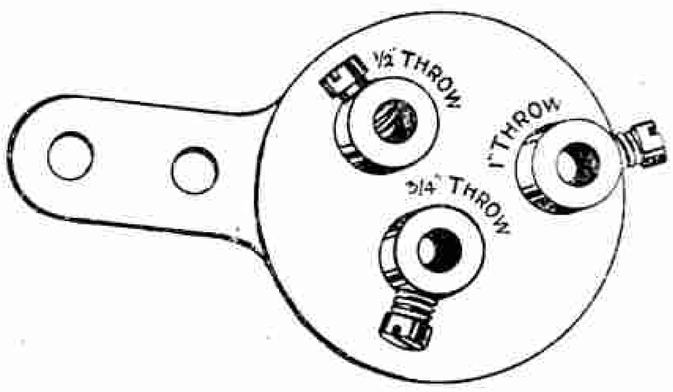
S. Delorme, Rue Bahpt, St. Julien, Mezieres, Ardennes. Cuisine Roulante.

Third Prize - - - - £4

Additional Prizes of Meccano Outfits and Train Sets.

L. M. Gibson, 31, Leytonstone Road, Stratford, E.15. Royal State Coach.
R. J. Hajlk, 140, Beach, 127 Street, Belle Harbor, L.I. Motor Plough.
E. Alberani, Via Barberia, 11, Bologna. Aerial Swing.
J. Dorling, Delamere Street, Boniface Cliff, Shanklin. Lighthouse.
P. R. Charles, 2, Brook Mount, Llangollen, Acrefair, near Ruabon. Battle Cruiser.
R. Colombe, 202, Rue Croix Nivert, Paris 15e A. Loterie Foraine.
W. Blacker, 4, East Park Grove, East Park Road, Leeds. Football Game.
R. Dupuy, 57, rue de Barbezieux, Cognac, France. Rouet a'Filer la Laine.
K. Kenney, 77, Parliament Hill, London, N.W.3. Chassis.
S. Sabbatini, via Simonetti No. 2, Ancona, Italy. Novo di Pasqua.
R. Hind, Queens Street, Chatham, Ontario, Canada. London Bus.
J. N. Pullen, 8, Queens Street, Broadwater, Worthing. Motor Life Boat.
P. M. Waszink, Delft N., Einde 9, Holland. Tower.
W. Melville, 44, Woodville Gardens, Langside, Glasgow. Mill Engine.
M. Solinot, 9, Rue Emilio, Castelar 120, Paris. Escalier Elevateur.
E. Jeltes, Nieuwe Gracht 49, Haarlem, Holland. Dutch Drawbridge.
A. Ladeville, 83, Bd. Sebastopol, Paris. Grue Electrique.
H. Gordon Hill, Suite 50, Wellsboro' Apts, Toronto. Ship.
M. O. Decugis, 20, Quai du Louvre, Paris 1e. Balancoine.
Earl Nicholson, Newberry, Mich., U.S.A. Buzz Saw.
J. Anthony, 10, Stanmore Road, Stevenage. Marble Chute.
G. Wharton, Ringstead, Kings Lynn. "Overtime" Farm Tractor.
A. Holmes, 40, Bellevue Street, West Gorton, Manchester. Lift for Toy Soldiers.
W. Saville, 1, Delamere Avenue, Stretford, near Manchester. Draw Bench.
J. Murphy, 6, North Mall, Cork. Horse Mowing Machine.
W. T. F. Castle, St. James' Rectory, Clitheroe, Lancs. Turnip Chopper.
H. Bryan Hillcoat, Portland Hotel, Buxton. Winch.
C. J. Morley, The Vicarage, Southwingfield, Alfreton. Crane Truck.
G. Horton, 183, Hodges Street, Wigan. Bacon Slicer.

Three New Meccano Parts.

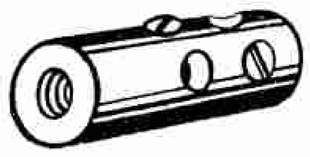


Triple Throw Eccentric, No. 130.

An eccentric is generally used to convert a rotary motion into a to-and-fro motion, and the Meccano eccentric is so designed as to give three different throws. The Throw of an eccentric is the amount of the to-and-fro motion which it can impart.

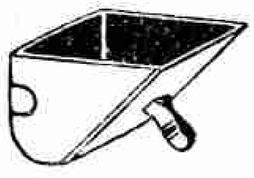
The three bosses on the eccentric are arranged at different distances from the centre of the eccentric and consequently if the eccentric is secured on the shafting by that boss which is nearest the centre of the eccentric, a less amount of to-and-fro movement will be obtained, namely, ½ in.; if the eccentric be secured by the boss which is next furthest from the centre, a greater to-and-fro movement, namely, ¾ in., will be obtained, whilst if it is connected by the boss farthest from the centre, the greatest movement of 1 in. is obtained.

The arm is perforated to enable the eccentric to be connected to any length of strip, as desired. Price 1/3 each.



Threaded Coupling, No. 63c.

A new coupling designed to hold a threaded rod at one end and a plain rod at the other. Price 9d. each.



Dredger Bucket, No. 131.

For attaching to Meccano sprocket chain by means of clips. Price 2d. each.

MECCANO

Our Mail Bag.

The Editor has a little talk in this column with his Meccano boys. Whether or not he has space to reply to them all here, he is always glad to hear from them. He receives hundreds of letters each day, but only those which deal with matters which are likely to interest other Meccano boys can be dealt with here.

Correspondents will help the Editor if they will write on one side of the paper only.

E. Winterbottom, Shaw.—Many thanks for your sketch. It is nicely drawn, and the idea in the main is quite good. It is, however, on too large a scale to be reproduced in the *M.M.*

A. B. Grosvenor, Norwich.—The Guild Secretary has handed your story on to us, and we hope to be able to use it in a later number. We have followed your work both at Brightlingsea and Norwich with interest and pleasure.

C. Beasley, Exeter.—The Hornby Train is certainly a flyer, and we are not surprised to hear that your's won the race. The No. 2 Hornby Train will be ready soon, with a bigger and even more powerful engine.

C. Carter, Horsham.—Letters like the one you have sent us give us much pleasure. Your name has been added to the long list of Mr. Hornby's friends.

G. Kerley, Fulham.—"I believe the Guild badge has a charm in it. I believe the Meccano Magician has charmed it. It is better than medicine and a hundred times nicer." Many boys have written to us to tell us of the good things which have happened to them since they wore the Meccano badge. Our explanation of this is that Meccano boys are happy, and they look happy, and all the world loves to shower good things on happy boys.

B. G. Kingston, Guildford.—Thanks for your interesting account of how you made a frame for your Guild Certificate. Let us hear more about your Meccanoland Railway.

Jack French, Wilmington.—You quite justify your claim to be called "The Meccano King" by your School friends. You are acquiring much excellent engineering knowledge which you will find useful later. We will consider your suggestion for a new Competition.

L. Jonsson, Natal.—We were pleased to see the photo of the excavating work being done on your father's farm in connection with the new railway. It appears to be a big engineering feat. We should like to see a photo of the completed cutting sometime.

A. Vine, Bournemouth.—Now that you have at last secured your badge, we shall expect you to take a keen interest in all the doings of the Guild. We note that your father agrees with you about Meccano.

W. F. Butterworth, Disley.—"The carbon rods used in the experimental arc-lights described in Nos. 17 and 18 of the *M.M.* are the same as the carbons from the old cells of a pocket lamp battery." This may prove a useful tip for other Meccano boys who wish to make these models.

J. Gray, Glasgow.—"I have two cash boxes and I call one of them "Savings for Meccano Parts." Half of any money I get goes into it. It soon mounts up and you never miss the odd pennies and halfpennies." It gave us pleasure to read your enthusiastic letter James. You will find the results of the big Competition in another part of this issue.

H. Grierson, Christchurch, N.Z.—Your suggestion that the Meccano Guild adopt the Maori words *Kia Ora* meaning "Good Luck" as their motto is an interesting one, but we think that most of the members would prefer a motto in English. We were glad to hear from your father. Your Hornby Train will run better than ever as you use it more. Thanks for your suggestion that we arrange engineering contests and confer degrees on clever Meccano boys, which we will consider.

A. Clements, Birmingham.—Your clever Magazine "Nuts and Bolts" grows more interesting each issue, and we are pleased to hear that the circulation is increasing. You have our very best wishes.

G. Allen, Bedford.—In these days no one looks down on a boy or a man who works for his living. The only question asked is "Are you a *good* workman?" If you can give a satisfactory answer to that question, you can hold up your head anywhere.

A. W. James, Patagonia.—Many thanks for your very interesting photos which we may be able to use in a future issue. We are gratified to know that yourself and your wife bless Meccano for the amusement and instruction it has provided for your boy. It is hard luck that he should only have an opportunity of coming in contact with other children once a year.

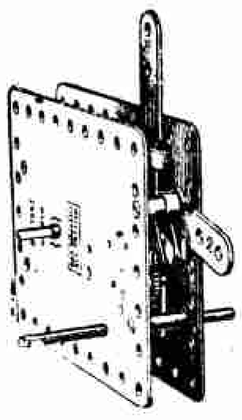
Grace A. Holmes, Bournemouth.—We are always glad to hear from Meccano girls. Your poetry is good but rather too long for use in this column. There is no reason why you should not enter any of the Meccano competitions, and nothing would please us better than to see your name amongst the winners.

Graham Penfold, Woodbridge.—

"All the boys like Meccano you know,
Because they can make things that go.
One day a searchlight, the next one a tank,
For all these fine things Mr. Hornby we thank.
We make heaps of toys, never twice the same one,
So why don't *you* join us in this ripping fun?"

We like both your poetry and your letter Graham. We are sorry we cannot let you have all the back numbers of the *M.M.* which you need to complete your series. Many of them are out of print.

The Meccano Motors.

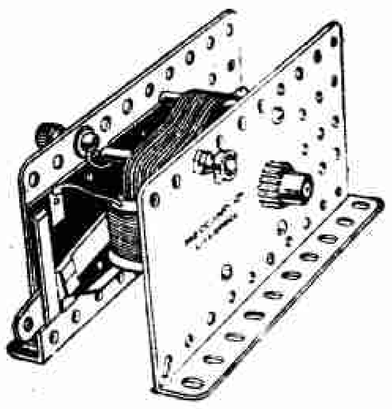


The Clockwork Motor.

This is a splendid piece of mechanism, simple, powerful and reliable, and fitted with starting, stopping, and reversing levers. By the use of extra gearing made from Meccano parts, a greater lifting power is obtained.

Price 12/6

The Electric Motor.



This motor is well designed, simple, strong, and free from danger. Suitably geared it has a lifting power of over 30 lbs. It may be run by a 4-volt accumulator, or direct from the main if a satisfactory transformer is used. Fitted with reversing lever, starting and stopping mechanism, it is the most powerful and satisfactory toy Electric Motor yet designed.

Price 17/6

Meccano Manuals of Instructions.

There are two Meccano Manuals of Instructions, and no Meccano boy is properly equipped unless he has them both. Book No. 1 is the regular Manual which goes with the main Meccano outfits. It contains illustrations and full instructions for making 323 fine models; some of the models have been designed by our own staff of experts, and others are prize-winning models contributed by Meccano boys, from every country in the world. Price 2s. 6d. (postage 3d. extra).

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Prices of Meccano.

No.			
0	Outfit with full instructions for building		6/-
1	do.	do.	10/-
2	do.	do.	20/-
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4	do.	do.	50/-
5	do.	do. (Carton)	70/-
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*In well-finished cabinet with lock and key

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No.						
0a	Converting a	No. 0	into a	No 1	..	5/-
1a	do.	do. 1	do.	2	..	11/-
2a	do.	do. 2	do.	3	..	12/-
3a	do.	do. 3	do.	4	..	22/-
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5a	do.	do. 5	do.	6 Wood		95/-
Inventor's Outfit "A"				..	..	10/-
Inventor's Outfit "B"				..	..	25/-
Meccano Clockwork Motor				..	..	12/6

Change of Address.

Subscribers should immediately notify the Editor of any change of address. Send a postcard *giving the old and new address*, so that records may be kept up to date.

(*Continued from page 2.*)

were within 25,000,000 miles from Mars. At this point the pilot pulled a lever, which, by means of electrical influence, cut off the attraction of Earth, and the gravitation of Mars commenced to draw "The Spanner" to her, considerably increasing the speed.

In three weeks time, they landed on Mars, and directly the door was opened they were besieged by a crowd of Martians, each wearing a triangular badge, enamelled in blue and white, with the words "The Meccano Guild" engraved on it, in the Martian language. The Martians clamoured for the goods they had ordered, when "The Spanner" had last called, particularly for the latest *Meccano Magazine*, and the Meccano Manual 1579. The pilot watched the Martians being served with their goods, then turned to a passenger, and remarked:

"There's a big rush for Meccano things, is there not?"

"You are right," was the reply. "But they will obtain their parts sooner, when Mr. Hornby finishes the factory he is building here."

"It must be nearly finished," rejoined the pilot. "Mr. Hornby is due to return to England this next trip and he seldom leaves anything unfinished."

"The Spanner" remained for two days on Mars, to take in a fresh supply of radium—for Mars possesses countless tons of this valuable element—before making the return journey to England, carrying with her Mr. Hornby.

The next time "The Spanner" flew to Mars, she did not carry Meccano goods, for the factory was at work manufacturing Meccano parts for the Martians, which saved the trouble incurred in taking them to the planet.

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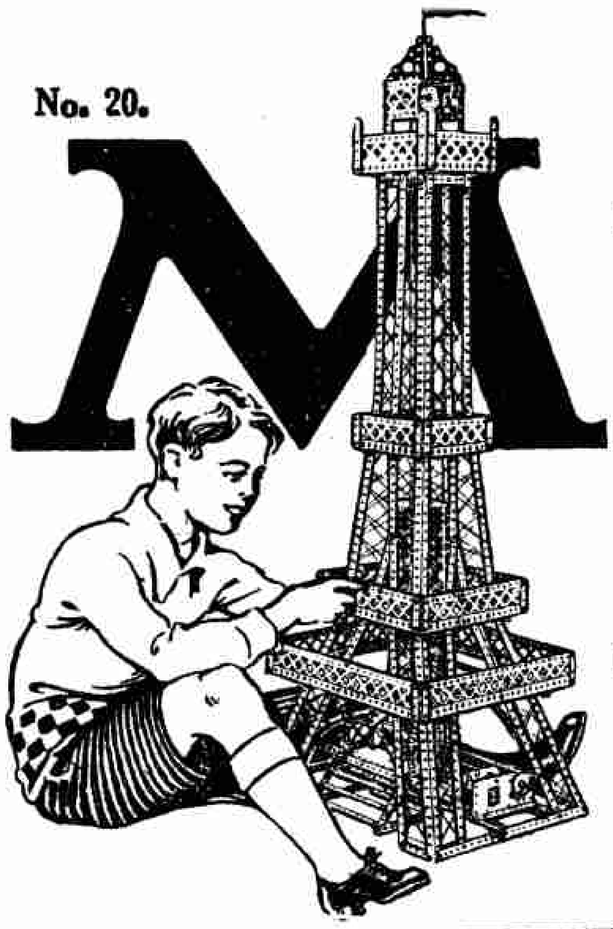
No. 20.

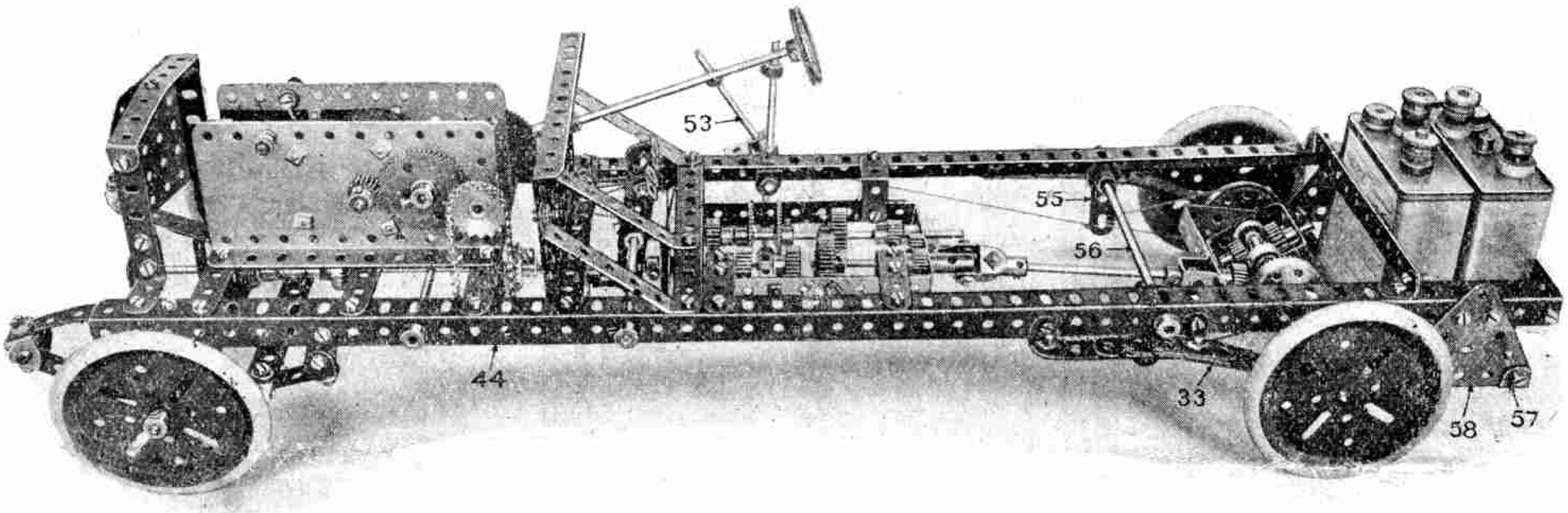
SEPTEMBER-OCTOBER, 1921.



MECCANO MAGAZINE

PRICE 1d

TO HELP MECCANO BOYS TO HAVE MORE FUN THAN OTHER BOYS



A New Meccano Motor Chassis.

We have pleasure in illustrating what we consider to be a veritable triumph in Meccano model-making. The new Meccano chassis was first shown at the British Industries Fair this year where it attracted marked attention, and since then it has been adopted by various schools of motoring for teaching purposes. It forms a perfect demonstration of the main mechanism of a modern motor car with a perfect gear box, differential and steering gears, and an underslung system of springing. This model should be closely studied by every Meccano boy.

The chassis frame is made of 24″ angle girders connected by 5½″ strips, the overall length being 26″ and breadth 7¾″. The chassis is under-slung, the elliptical leaf springs being built up from strips of various sizes. Worm and wheel Ackermann steering is included. The Meccano Electric Motor, mounted in the position occupied by the engine in real automobile practice, provides the motive power, the current being obtained from a four volt accumulator mounted at the rear of the chassis. The drive is through a two-speed sliding-pinion gear box and universal-jointed propeller shaft to a gear-driven back axle, on which is situated the built-up differential. The gear box gives two forward speeds and reverse, the top speed being direct drive. The change-speed gear is actuated by a cross shaft connected to the gear lever, the gears sliding into position by successive backward or forward movements of the lever.

The universal joint to the propeller shaft—a combination of the cross-pin and sliding types—operates in exactly the same manner as on a real chassis. The steering also follows actual car practice, a worm and pinion being used, the shaft being connected by rods and strips to the steering swivels.

We have prepared full instructions for building the Motor Chassis and these are contained in a beautifully illustrated sheet on art paper, which shows not only the complete model but also sectional drawings of all the details. The price of this instruction sheet is 3d., or 4d. post free.

Editorial.

Springtime in Meccanoland.

This is the time of year when life in that wonderful country Meccanoland enters upon its happiest and busiest phase. All its inhabitants put their Outfits in first-class order and build and build, and never cease to build. They invent, they compete for prizes, they attend Club meetings, they correspond with kindred spirits, and they write stern notes to the Editor of the *M.M.* calling upon him to mend his ways. We are in for a gloriously busy time, boys!

Dick's Visit to Meccanoland.

I am asked so many times each week for copies of this fascinating little yarn that I have decided to reprint it in a new and compact form. This story of Dick's famous interview with Mr. Hornby has attained extraordinary popularity amongst Meccano boys, and I am glad to once more be able to fill demands for it. The new edition will be ready by the time this issue of the *M.M.* is in the hands of our readers.

Hornby Clockwork Trains.

The making of first-class Clockwork Trains marks an epoch in the history of Meccano Limited. In designing and manufacturing these goods, neither thought, care nor expense have been spared, and they strike a note in quality and efficiency never before reached in this type of toy. In appearance they are superb, and in action they are a delight to watch.

A New £250 Competition.

There is no weakening of interest in our big annual Model-building Competition, and I have pleasure in announcing that another one will be run during the coming winter. Every Meccano boy has ideas for new models and new movements. We want all these ideas to be sent in to us so that we can make them known to hundreds of thousands of other Meccano boys, and hundreds of prizes will be awarded to those who submit the best efforts.

New Parts for Old.

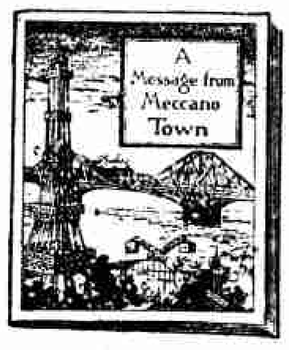
At the beginning of a new Meccano building season I want to make it as widely known as possible that any boy who has old or damaged parts can have these replaced by bright new parts on payment of half list prices. The old parts should be returned either through a dealer or direct, accompanied by a list, and a remittance covering the cost of the new parts, plus postage.

Meccano Manual No. 3.

For some time past we have been hard at work on a new Manual, which will include a number of entirely new Meccano models. This is now in the hands of the printers, and I hope will be ready by the end of September. The price will be 1/3, or 1/5½d., post free.

The Editor

The New Meccano Book.



This beautiful book should be in the hands of every Meccano boy. Besides illustrating and describing each Outfit and explaining the simplicity and beauty of the Meccano system, it gives full particulars of the new Electrical Accessory Outfits, the Meccano Clockwork and Electric Motors, the wonderful new Hornby Clockwork Train System; the Tin Printed Clockwork Trains and Vertical Steam Engines. It also contains illustrations of Prize-winning Models in the Big Meccano Competitions, and a fully illustrated list of the entire range of Meccano parts, including the new and valuable parts which have been added recently.

We wish every reader of the *Meccano Magazine* to possess one of these beautiful booklets. A copy will be sent FREE on receipt of your postcard. Write to-day.

The demand for "A Message from Meccano Town" will be very great, and we advise you to take advantage of this splendid offer, and write to us at once for your copy.

How to get the Meccano Magazine regularly.

The Meccano Magazine is now sold by most of the regular Meccano dealers but in order to prevent disappointment you should place an order with your dealer for a copy of each issue to be reserved for you. The price of each issue is 1d. If you experience difficulty we will mail you a copy regularly on receipt of 6d. for the next six issues, or 1/- for the next twelve.

The Life Story of Meccano.

By Frank Hornby.

(*Continued.*)

At our Head Office in Binns Road we have a room which we call our Museum, and it is in this room that we keep samples of all constructional outfits which have been brought out in various countries throughout the world in imitation of Meccano. Probably no article or commodity of outstanding merit was ever manufactured which was not imitated at some time or other by envious competitors, and Meccano is certainly no exception to this. In fact, I do not know of any article ever made which has had to submit to so much imitation, most of it unfair, and much of it unscrupulous.

It is very rarely indeed, however, that an imitator meets with real success. He is always following in the rear of the article which he is imitating, and is always handicapped by his own lack of initiative. There is neither room nor justification for an imitator, unless he produces a superior article, and this, so far as Meccano is concerned, is quite out of the question. As I have so frequently explained to you, Meccano is what you might call a basic system, rigidly following the lines of real engineering. Unless, therefore, one of our competitors were to introduce something which is an improvement upon engineering itself he could offer nothing superior to Meccano. So far as quality, accuracy, and finish are concerned, I know of no factory in the world capable of producing better work than our own, and I am not afraid of any competition on this score.

I think amongst the first of the imitators of our system was a man called Walther of Germany, who brought out a metal constructional toy containing strips with equidistant holes, etc., under the name of "Stabil." He also imported his goods into France under the name of "*Arts et Metier.*" It was a flimsy kind of toy, however, and not well manufactured, and although it had a small sale, I think the principal effect of its introduction was to emphasise the value and quality of Meccano.

In the course of the next few years the German manufacturers, who at that time largely dominated the toy business in this country, became alarmed at the success of Meccano, and an avalanche of imitations followed. They all went badly astray, however, leaving the path of engineering, and introducing little make-shift fastenings, couplings, and odd contrivances, which they evidently thought were ingenious, showy, and quite good enough for a toy which was to be played with by boys. Some of you may remember one of them called "Structator," manufactured by the largest makers of metal toys in Germany, and introduced into this country before the war with a great flourish of trumpets. It was a showy toy, but it was just about as bad in principle as it could well be. Its method of fastening was defective, and the models would neither hold together nor work. It died a natural death, as all the other imitations of Meccano have done. There are no exceptions and, as I have already stated, no imitator will meet with success until he introduces something which is an improvement upon real engineering.

Not much was seen in this country of the many other German imitations, but they had some little vogue on the Continent before Meccano became thoroughly well known there. The best that can be said of them is that some were bright and showy, and had attractive labels on the box lids. One or two of them tried to get a footing in this country, but neither the public nor the dealer would pay any attention to them, so that little was heard of them. (*To be continued*)

Suggestions by Meccano Boys.

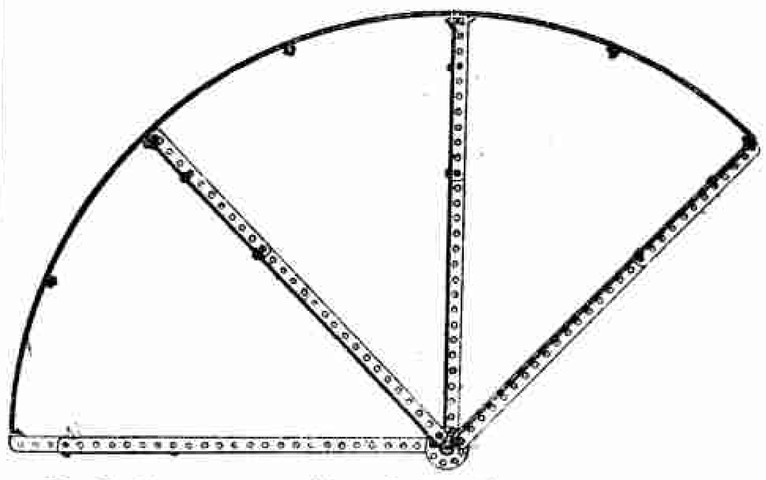
These columns are reserved for dealing with suggestions sent in by Meccano users for new parts, new models, and new ways of making Meccano model-building attractive. We are always glad to hear from any Meccano boy who has an idea which he considers will be useful to the Meccano system.

P. C. Cummins.—Your criticisms of the Hornby Train system are sound in the main, but there are manufacturing difficulties which it would be a little difficult to explain here and which prevent their immediate adoption. We are improving the system all the time, and you will see from the latest patterns that very great progress has been made. We are glad to know that you hold such a high opinion of the Hornby Train.

Reginald W. Ludman.—With regard to your suggestion for a spring buffer, please see our answer to Alfred Beadles.

Wilfred Gorton (Stalybridge).—Our 3" pulley wheel with a rubber ring in the groove makes an excellent wheel for a motor chassis. We already list a cone pulley and if pulleys larger than these are required they may be secured on the same shaft butted against the cone. We shall consider your suggestion for a radiator and motor bonnet.

H. E. Coulsting (Macclesfield).—We thank you for your illustration how to make a large wheel 28½" diameter with a flat rim and without the bolt heads protruding. No doubt Jack Shaw, Manchester, will appreciate this as well as our other readers and we have thought well to reproduce it.



D. S. Parnacott (Anerley).—Your description of an automatically reversed fan is interesting, and we hope to illustrate one in our next issue of the Electrical Manual.

Alec Smyrna.—We sold a Water Motor some time ago but there was little demand for it. We are afraid it was considered too inconvenient and messy for driving Meccano models.

F. J. Adams (Edmonton).—We have in mind the introduction of a part such as you suggest with two discs running on ball bearings or on the flat. When this is ready it will be announced in the Meccano Magazine.

C. Chilton (Woburn Sands).—We would like to have further particulars of the purpose of your suggested road spring.

K. Dutfield (S. Hackney).—We doubt whether the 2½"×2½" flanged plate would have many uses.

Samuel H. Pearce (Birmingham).—We are illustrating a signal gantry in our No. 3 Manual which will be ready shortly, and which we think will help you. We shall consider the introduction of a 3-bladed propeller.

K. W. Miller (Ventnor).—The curved double angle strip will receive consideration. The introduction of an armature and commutator would require the corresponding parts to complete a motor. We think it a little premature to deal with this.

D. Gamble-Jones (Haverstock Hill).—It would not be a practical proposition to flatten rods as you suggest. If you will let us know the purpose for which you require them we might possibly help you.

Eric Bernard (London).—We shall consider the opening of a school of Engineering for Meccano boys later. We illustrate in our Electrical Manual a signal which can be worked automatically by the train running over an insulated section of the line.

Jack Derry (Worcester).—We presume you mean foot bridges under which the Hornby train may run, and we shall consider them later. We illustrate some very excellent bridges in our Meccano Manual over which the trains may be run.

F. C. Burland (Putney).—We doubt whether wire would be as convenient as fancy string to decorate Meccano models.

T. K. Glendinning (Thirsk).—We doubt whether it would be advisable to introduce a petrol engine to drive Meccano models on account of the danger of fire.

G. I. Morgan (Porthcawl).—We do not think that a flat headed bolt would overcome the difficulty of a projecting head, but we shall consider the matter.

David Ogilvy Bond (Scorrier).—We now include in our list of parts a 2¾" fly wheel which we think will serve your purpose.

J. A. Harris (Birmingham).—A long thin screwdriver capable of being passed through the holes in the strips, etc., such as you suggest, is included in our list of parts.

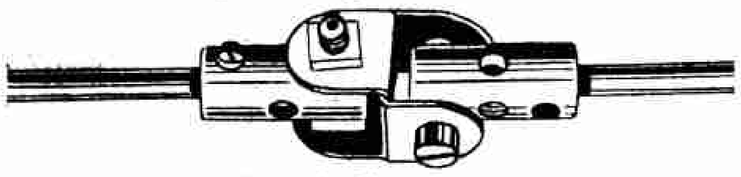
R. R. COMBER (East Grinstead).—We shall consider the introduction of a circular saw which, with the aid of a Meccano motor, would be capable of cutting thin material.

D. EDWARDS (Redhill).—We have a few 220 volt motors but these run at such a high speed that it would be necessary to gear them down to work Meccano models.

S. WILSON (Sudbury).—We are now engaged on an escapement which will be announced when ready.

M. HERWALD (Manchester).—We are afraid it would require a very strong spring to work a clock made with Meccano parts. We are experimenting with a clock made with Meccano parts, but operated by weights.

S. W. GOUGH.—A Hooke's coupling may be made from the existing Meccano parts as illustrated below:—



HOOKE'S COUPLING.

W. I. ROGERS (Plymouth).—We are introducing several small-sized angle girder lengths amongst which is a 2½". We shall consider your suggestion for pivot bolts, and also a larger diameter spring.

E. PAGE (London, N.).—We would suggest that you obtain a copy of instructions for making the Meccano Chassis—price 4d. post free. We think this might help you. We shall consider the part you suggest.

CECIL FARMER (Stratford-on-Avon).—We think your swivel coupling possesses advantages and we shall give it consideration.

MAX HAMILTON (Warkworth, New Zealand).—We shall give the gear wheel you suggest consideration. Would not our worm and pinion serve your purpose for a slow drive?

W. GODFREY (Camberley).—We list fibre washers for the purpose you suggest.

H. R. PATTEN (West Drayton).—We already include a ½" reversed angle bracket in our list.

ROBERT N. HOUSTON.—We shall consider your suggestion for flat pulleys.

W. POOLE (Sheffield).—We are including in our list of parts a threaded rod 11½" long. We doubt whether it would be advisable at present to introduce a spiral gear.

A. E. F. SPENCE (Manchester).—2½" and 3½" angle girders are being included in our list of parts. We shall consider your suggestion of the introduction of gear wheels giving a ratio of 1-4 or 1-6 in engagement with a ½" or ¾" pinion. We are now making our pinions with 19 teeth and 25 teeth to engage with gears having 57 and 50 respectively. These will give you the ratio you require. Our Sprocket chain is made to pitch with our gear wheels or rack segments in alternate teeth. We may introduce bolts with hexagonal heads later.

E. G. BRYANT (Aberdeen).—We are now making rails for our No. 2 Hornby trains with a diameter of 4'. The new connections on our trains enable them to travel backwards or forwards without fouling. We shall consider your suggestion for a brake. We appreciate your kind expressions and would say that it also gives us great pleasure to know that our efforts are being appreciated.

ALEC (The Point, Smyrna).—We hope later to alter the type of our vertical steam engine so that it may be attached to our models and sufficiently powerful to work them. Our present type is simply a working model.

E. R. CLARKE (Dartford).—We consider your idea of publishing a small booklet on the different uses of Meccano parts a good one and we shall keep this in mind.

CYRIL STOCKLEY (Stafford).—Suggests that by bolting two curved rack segments opposite each other on a face plate they may be used in conjunction with a ½" pinion to operate a mechanical hammer or embossing machine. This will no doubt be useful to many Meccano boys.

WALTER W. FRISBY (Market Harborough).—We should be glad if you would send us a small sketch for the use of eye bolts, when we could better consider the matter.

W. COMBS (Bradford).—We cannot see any purpose in introducing a dynamo, as the current necessary to run this could be utilised to do the work of the dynamo unless other power were intended to be used.

A. L. CHATTELL (Huesca, Spain).—We think your suggestion of a round rubber band placed in the groove of a pulley wheel to prevent the cord slipping a good one, and might be of advantage to other Meccano boys.

R. LEAVER (Dumfries).—We use 3" pulley wheels with a round rubber ring in the groove for the Meccano chassis. The printed instructions for making this chassis costs 2d. At present we only have gauge 0 lines but you could make lines for your other models with Meccano strips. The boiler of a Hornby train may be bolted to a Meccano plate, and this can be bought separately.

G. S. REID (Edinburgh).—The idea of connecting a pinion or bush wheel to a threaded boss is ingenious, but we should be glad to know to what purpose this arrangement could be applied.

A. CLATWORTHY (Camberwell).—See our reply to K. W. Miller.

VICTOR LINROTT (BECCLES).—We have included a fly-wheel and crank in our list of parts which may possibly serve your purpose. The boiler of our Hornby loco. may be connected with a Meccano plate. This and a funnel may be purchased separately.

I. K. HARE (Biggleswade).—We hope before long to introduce a much better type of funnel into the Meccano system which will serve a variety of purposes. We shall consider your suggestion regarding the bell crank. A fly-wheel has already been added to our list.

W. G. SMITH (Wigton).—Our present lines for the Hornby trains are now being made so that a third rail may be attached to them.

ALBERT TYRER (Churchfields).—We supply buffers and you will see them illustrated in our list of parts.

F. HOOPER (Brockenhurst).—We are at a loss to understand the purpose of a drum or roller with knives all round it.

ERNEST W. DAY (Bootle).—We shall consider your suggestion for an improved eccentric. For many purposes our strip coupling may be used to connect a rod to our new eccentric. We are introducing a number of smaller sized angle girders to those already in our list, and they are announced below. Your suggestion for smaller plates will be considered, also larger flanged wheels. We have introduced a new type of coupling to our Hornby train which prevents fouling when reversed.

R. MANET (Exeter).—We have already introduced two curved strips of different radii and propose adding others as occasion requires.

S. H. FRANK (Petersfield).—Your suggestion to introduce a rim which could be attached to a 3" wheel to form a flange with the object of making a driving wheel for a locomotive will have our consideration.

HAROLD JONES (Sevenoaks).—We have not forgotten your suggestion for a slotted rod, but our difficulty is how to devise a suitable sleeve to be used in connection with it, to operate models. We have this under consideration. We shall be glad to exchange any defective parts you may have. Each part is inspected in our factory before it is sent out, to avoid defects.

J. W. HARRIS (Jersey).—It would not be advisable to introduce a circular rail of a definite diameter as this might not be suitable for other models of a similar kind.

ERIC CHEADLE (Dumfries).—You might let us know how you would propose to use a ½" pinion 2" long when we should be better able to consider the matter. We shall consider the introduction of 1" girder brackets. See our replies to W. L. Rogers and Harold Jones.

G. ALLEN (Wisbech).—We were very interested in reading an account of your work which must be very trying. We do not quite understand the type of wheel you suggest to run freely on the centre boss. Perhaps you will give us further particulars and also of the other matters you refer to.

A. LESTER (Dawley).—The wheel you suggest would be a very expensive one to make, and we doubt whether the purposes for which it could be used would justify its introduction.

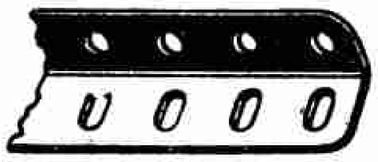
F. WILLIAMS (Warrington).—We shall consider the introduction of a single bent angle strip as no doubt it would have many uses.

GIUSEPPE VALERIANI (Barciano, Italy).—We shall go carefully into the merits of the hook you suggest and may possibly adopt it after experimenting.

HOODY SMITH (Waltham).—See our reply to T. K. Glendinning.

DICK CLELAND (Kilcreggan).—We hope to introduce a 3" sprocket wheel later. This will be announced when ready.

New Meccano Parts.

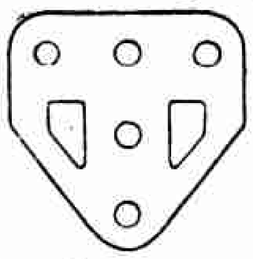


				s.	d.
9A.	Angle Girders	4½"	½ doz.	1	0
9B.	" "	3½"	"	0	10
9C.	" "	3"	"	0	9
9D.	" "	2½"	"	0	8
9E.	" "	2"	"	0	7
9F.	" "	1½"	"	0	6

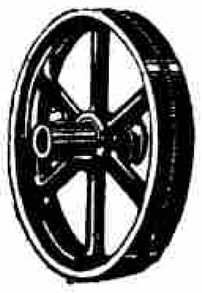
55.	Perf. Strips, Slotted	each	0	2
60D.	Dble. Angle Strips 4½" × ½"	"	0	3

78.	Screwed Rods 11½"	each	1	0
79.	" " 8"	"	0	9
79A.	" " 6"	"	0	7
80B.	" " 4½"	"	0	6
82.	" " 1"	"	0	2

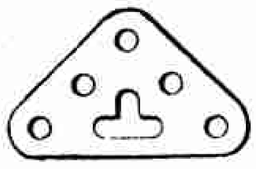
			s.	d.
111A.	Bolts ½"	2 for	0	1

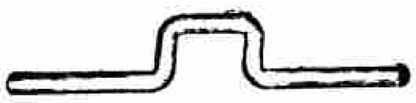


126A.	Flat Trunnions	each	0	2



132.	Fly Wheels 2¾" diam.	"	2	3



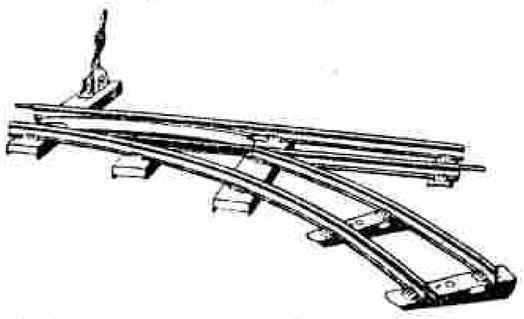


133.	Corner Brackets	each	0	3
134.	Crank Shafts 1" stroke	"	0	3

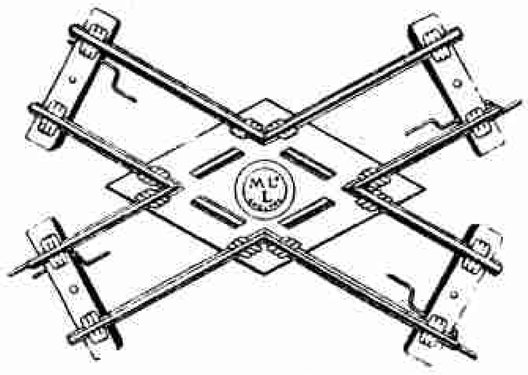
Points and Crossings for Hornby Trains.

We have now ready for delivery right and acute Angle Crossings for Hornby Trains, and by the end of September we shall be able to deliver right and left-hand Points for both 2-ft. and 4-ft. diameter circles.

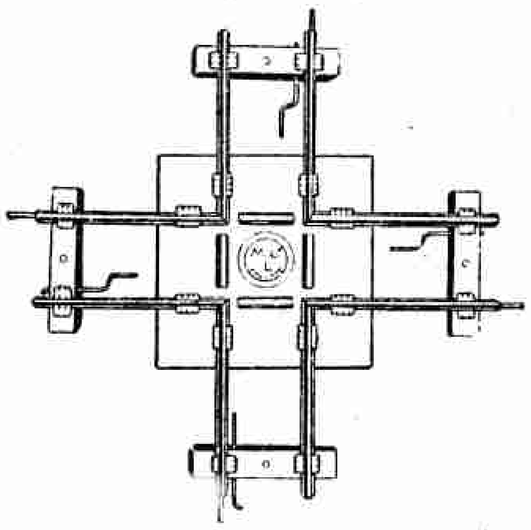
It should be carefully noted that both crossings and points are for use only with the rails supplied with 1921-2 model Hornby Trains, and that they are not adaptable to last year's rails. The improved rails are slightly higher and a larger diameter pin is used for holding them together.



		s.	d.
Points, Right or Left-Hand, Gauge 0, for 2 feet, diam. circle	each	5	0
" 4 " "	"	5	0



Crossings, Acute Angle, Guage 0	each	2	6



Crossings, Right Angle, Gauge 0	each	2	6

The Meccano Guild

Member's Badge

A Fellowship of Meccano Boys

Leader's Badge

The objects of the Meccano Guild are:

(*a*) To make every boy's life brighter and happier.

(*b*) To foster clean-mindedness, truthfulness, ambition, and initiative in boys.

(*c*) To encourage boys in the pursuit of their studies and hobbies, and especially in the development of their knowledge of mechanical and engineering principles.

The Meccano Guild has been formed to bring Meccano boys more closely together, and to make them feel that they are all members of a great brotherhood of boys, trying to help each other and themselves to get the very best out of life.

Every Meccano boy can join the Guild as an individual member, and so share in the privileges of membership. As soon as possible he should attach himself to a local Meccano Club, or if there is not one already in existence, he should take steps to form one with the assistance of his Meccano boy friends.

The Secretary of the Guild is always very glad to help with the formation of new Meccano Clubs, and to provide literature which will give all the necessary information.

Every new Meccano boy should immediately get to know all about the Guild in order that he may get the full pleasure from Meccano model-building, and the companionship and friendship of hundreds of thousands of other boys who are glad to welcome him as a friend.

Forms of application and all other information will be furnished by The Secretary, Meccano Guild Headquarters, Old Swan, Liverpool. Each member on joining is furnished with a beautiful Certificate of membership ready for framing, and should obtain the official member's badge.

Guild Notes

By the SECRETARY.

A World Wide Movement. I wish that all Guild members could look over my shoulder and share my delight and pleasure when I am opening my morning mail. Not only do enthusiastic letters reach me from all parts of Great Britain, but every mail brings similar letters from all corners of the world. It is most inspiring to receive them, for they all speak in the highest terms of the splendid work the Guild is doing.

Our Next Session. I am looking forward to being able to help our Clubs to have a most successful session during the next three months. Already I have been in touch with the Leader and Secretary of every affiliated Club and I want to place the knowledge and experience in club work of myself and of my special staff at the disposal of Club Leaders. Every week new Clubs are being formed throughout the country and I would ask those Guild members who live in towns where there is no Meccano Club to write to me for information and advice as to forming Clubs in their town.

A New Feature. At my suggestion the Clubs this session are making a special feature of Lectures, and many local gentlemen who take an interest in boys' welfare have already consented to give Lectures to different Clubs. Managers of Gas and Electricity Works, Engineers, Chiefs of Fire Brigades—all have a wonderful story to tell of the interesting things in their own particular sphere of activity. Where necessary I am willing to do all I can to help Club Leaders to get into touch with these gentlemen.

Meccano Lectures. We are busy at Headquarters preparing a series of Meccano Lectures which will shortly be available for Club Leaders or other gentlemen to read on Club nights. These Meccano lectures will cover interesting subjects, and at the moment we are working on three, the titles of which will be "The Lives of Great Inventors," "The Romance of Electricity" and "The World's Greatest Bridges." Other Lectures will be added from time to time, so that in due course we shall have a selection of those subjects which are of the greatest interest to boys.

A Guild Rally. I am making arrangements to pay a personal visit to some of our Clubs during the coming winter, and where possible shall make my visit the occasion for a Meccano Guild Rally. On the evening of Saturday the 26th November I am to visit the "Holy Trinity Meccano Club" at Barnsbury, London, N.1, and I hope to make that occasion a rally for all the Meccano Clubs in London, if suitable accommodation can be arranged. I shall then be able to tell all members who attend of the great work the Meccano Guild is doing and also to give them some account of the many interesting manufacturing processes which are carried on in the great Meccano Factory.

Guild Friendships. A delightful illustration of the excellent associations arising from the Meccano Guild was mentioned in a letter which I received last week from Master J. Long, the Secretary of the City of Norwich School Meccano Club. Master Long wrote me from Paris and mentioned that he was in the French capital solely through the Correspondence Club. "Less than a year ago," he says, "you found for me a French correspondent, Master Amaury Laurentin, who recently invited me to visit him for a month—a fortnight in Paris and a fortnight in the country. This I am now doing. It is all due to your Correspondence Club and we both wish to thank you heartily for starting it, for it has thus brought to us what may well be the most momentous holiday of our lives." It is interesting to know that Master Laurentin will return to Norwich with Master Long.

A Meccano Club for Geneva. I recently had the pleasure of a visit at Headquarters from Master Underwood, an enthusiastic Meccano boy who had come all the way from Geneva with the purpose of seeing the Meccano Factory and meeting the Guild Secretary well at the front of his mind. I was interested—but not surprised—to hear that there are a large number of Meccano users in Geneva and that it is Master Underwood's intention on his return to Switzerland after his stay in this country, to form a Meccano Club in Geneva. Every good wish for his success.

Special Merit Medallions.

I am particularly desirous of encouraging members to read instructive papers on subjects which interest them at their Club meetings. It is excellent training for boys to stand up before their friends and to address them in this way. A popular and instructive discourse should be aimed at, to last from a quarter to half an hour and a discussion may follow, members adding some interesting facts to those dealt with by the member who reads the paper.

In getting up such papers the great secret is thorough preparation. Facts should be sought for from every possible source such as parents, libraries, teachers, fellow-workers, and chums. The facts thus obtained should be set down briefly and clearly in proper order and the whole paper should be rehearsed and correctly timed. It may be illustrated by working models. There are a great number of subjects to choose from in all branches of engineering and science and I am sure that Club Secretaries will be very pleased to hear from members who will offer to read such papers at their Clubs.

In order to offer encouragement I am this session again allotting a special medallion to each Club, to be given to the member who delivers the best paper. After the papers have been read at the Club meetings they must be sent to me with any comments by the Secretary or Leader at the end of each session. The Medallions, which are here illustrated, are very beautiful in both design and finish and have been produced specially for us by a well-known firm. On each Medallion will be engraved the name of the recipient and I trust that all Club Leaders will help me to make this valuable part of the Meccano Club work a great success.

The Guild Recruiting Campaign.

HOW EACH MEMBER CAN HELP.

Now is the time for all enthusiastic members to do a good turn to the Guild movement. I want all Meccano boys to understand the objects of the Guild, for once they realise what the Meccano Guild stands for they will join our ranks enthusiastically and without hesitation. There are many thousands of Meccano boys in this country who, strange to say, have never yet heard either of the Meccano Guild or the *Meccano Magazine!!!* Most of us would scarcely believe this to be possible, so widely do we endeavour to make both known, yet the numerous enquiries I receive every day show this to be the case. I want you all to help me to get these Meccano boys to be Guild members—indeed, it is the duty of each Guild member to do his best to spread the knowledge of the Guild far and wide.

If each of our members brings only one Meccano boy as a new member our membership will be doubled. I am aiming for even a greater achievement than that, however, and I want every member to endeavour to recruit at least three new members. This was the basis of our Recruiting Campaign which met with such remarkable success during the last two winter sessions.

The campaign is being started again this session, and to each member who obtains three new recruits for the Guild a handsome medallion will be awarded. This medallion (which is here illustrated actual size) is a mark of merit of which any boy may well be proud. Recruiting forms may be had on application to Headquarters and each member participating in the campaign should take particular care to see that his own name and address are written on the back of every form used.

Club Notes.

ASKEAN (London, S.E. 14) M.C.—Held enjoyable outings during the summer session on one occasion paying a visit to Buckingham Palace to view the changing of the Guard; then proceeding by way of Constitution Hill to Rotten Row, and the banks of the Serpentine to the Science Museum, Kensington. Here an inspection was made of the interesting mechanical models, many of which provide suggestions for Meccano builders. The original locomotives, the "Rocket" and the "Sans Pareil," are to be seen in the Museum and very exact models of modern omnibuses in the same room form a peculiar contrast. The club has also visited the Victoria and Albert and the Natural History Museums. The visits were made more enjoyable by the interesting discourse of the Leader on many and varied subjects. *Leader*: Mr. A. R. Gregory, Aske's Boys' School, Pepys Road, New Cross, London, S.E. 14.

DUDLEY M.C.—Indoor meetings were continued until May, after which month the meetings were adjourned to Buffery Park for cricket and other sports. Several successful and well-attended rambles have been held during the summer months, visits being made to Penn Common and Wren's Nest where "treasure hunts" have been a popular feature. An interesting programme is being arranged for the coming session. *Leader:* Mr. L. Lewis, 2, Thornley Street, Wolverhampton.

RUABON M.C.—A very successful Boxing Competition was arranged to run through the summer months and was made possible by the loan of a piece of land which was fitted up with a ring. A lively interest was taken by all the members and many keen contests were witnessed. The final contest was for the championship with a purse of 10s. and a silver medal, while the runner-up was awarded a bronze medal. Master J. W. Ellis obtained the first prize at an entertainment at the close of last session for a model of a crane. The Savings Bank is even more prosperous than it was last session and the prospects of the Club for the winter are very bright. *Leader and Secretary:* Mr. A. H. Squires, "Bryn End," Ruabon.

ST. MARY WITH ST. GABRIEL (London, S.E. 11) M.C.—The activities of this Club have surpassed all anticipations and an extremely successful session has been held. The Meccano section of an Exhibition in aid of the Church funds was opened by J. D. Gilbert, Esq., M.P., who started a motor which set several models in motion. The Exhibition naturally resulted in an increase in membership. Competitions have been held in speed and accuracy in building, and lantern lectures on "Aeroplanes" and "Railways" also have been a feature. Prizes were awarded for the best essays on these lectures. During the summer months a cricket team has played matches with other parochial clubs, the Club team being successful in several matches. Club membership is rapidly increasing, the members being drawn from several London districts. *Leader:* Mr. G. Treves, 207, Newington Butts, London, S.E. 11.

SOUTHVILLE (Bristol) M.C.—The cricket team has played six matches during the summer and of these only two were won, and these by a small margin. The total runs made during the season were 301, Master J. Hillier accounting for 89. In bowling, Master S. Dembrey, the captain of the team, took 31 wickets at the cost of 10 runs each. A football club has been established for play during the winter, and black and gold has been decided upon for the colours of the members' jerseys. A good fixture list has been arranged and many enjoyable games are anticipated. *Leader:* Mr. Allen, 15, Truro Road, Ashton, Bristol.

KING STREET (Luton) M.C.—Activities during the summer months have been somewhat curtailed, but cycle runs have been held and the cricket team played several matches. In August, an outing to a delightful spot several miles from Luton, called Totterhoe Knolls, was held. *Leader:* Mr. S. Burgoyne, 58, Wellington Street, Luton, Beds.

WESTERTON (Glasgow) M.C.—An enjoyable winter session finished on the 26th March, and a cricket club was successfully formed during the summer months, matches with neighbouring teams being arranged. Several members also joined the local tennis club. On the occasion of the Australians' visit to Glasgow, a party was formed to attend the match on July 11th and a very enjoyable day was spent. The session closed with a picnic. *Leader:* Mr. F. J. Ireland, "Oakenholt," Westerton, Glasgow.

BARNETBY (Lincs.) M.C.—Had a very enjoyable summer session with picnics, cricket matches, and other sports. Arrangements for a new Club-room are being made for the next session and a particularly good programme is anticipated. *Leader:* Mr. H. Brader, 28, Victoria Road, Barnetby, Lincs.

AIRDRIE Y.M.C.A. M.C.—Very successful summer session has been held, a particularly successful Exhibition being arranged in which special prizes were awarded for the best models, four valuable prizes being given by the Secretary of the Y.M.C.A. Consolation prizes of nuts and bolts were given to all the other competitors. The Club assisted a local Meccano dealer in display work, in return for which help the dealer has offered a special prize for the next competition. Present membership is 27, and several new members are waiting to be enrolled. A sports meeting was held with great success, and there is every prospect of the coming session of this recently affiliated Club being most enjoyable. *Leader and Secretary:* Mr. R. Bell, 125, Aitchison Street, Airdrie.

NEWTONGRANGE (Midlothian) M.C.—An interesting programme had been arranged but was so interrupted by the miners' strike that it had to be abandoned. Cricket matches were played during the summer. A money box is placed in the Club-room, and spare coppers are deposited therein for the purchase of an Electrical Outfit for Club use. Lectures are being arranged for the ensuing session. *Leader:* Rev. W. Lindsay, The Manse, Newbattle, Midlothian.

NEW MALDEN M.C.—During Welfare Week the Club was invited to give an Exhibition of Models, and a stall was reserved for their use. Some fine models were made, including the Loom, Workshop, Crane, and many others. During this session an enjoyable visit has been paid to the Leyland motor works at Ham, Surrey, and the different machines were explained by one of the chiefs. Two cricket matches have been played of which the Club won one and lost the other. The members are looking forward to next session, which they anticipate will be even more enjoyable than the last. *Leader:* Mr. V. Hammond, 11, Penrith Road, New Malden.

NEW BRANCEPETH M.C.—During the summer, cricket, tennis, and cycle rides, as well as Model-Building evenings, have been on the programme, and many fine models have been submitted for exhibition. In the Club competition, Master H. Meek won the first prize, with a model of a modern gun and carriage. Lectures have been very popular, and the Club has visited the Sunderland shipyards and quay. The present membership is 22, and in spite of the miners' strike which so seriously affected this part of the country, the Club has had a very enjoyable session. *Leader:* Mr. J. Hardy, Post Office, New Brancepeth.

PRINCES RISBOROUGH M.C.—This is a most successful Club, the membership now standing at 60. At the commencement of the session considerable difficulty was experienced in coping with the increased membership. The Club room, placed at the disposal of the Club by the Rector, was soon found to be too small, and an increase in accomodation, was again very kindly provided by the Rector. A Meccano Model-Building competition was held in May, and prizes were awarded. A cricket team was formed and of the five matches arranged by the Club Leader, the Club won four and lost one. In addition, friendly matches took place among the members. The members took part in the annual Hospital Parade in aid of the Royal Bucks Hospital, and assisted to raise a considerable sum of money. A Club outing was held on Whit Monday when a trip was made to White Leaf Hill. The members met at headquarters and marched through the town, headed by the Club banner, the baggage party with their gaily painted baggage-cart following in the rear. On arriving at the Hill, games were indulged in, and considerable fun and amusement was caused by toboggan rides down the hill-side. A splendid tea was given by various friends, after which games were again played. Before dispersing, hearty cheers were given for the Club Leader, Secretary, and other interested friends. An exhibition of models is being arranged for the Winter Session, also a series of social evenings to raise funds for carrying on the work of the Club. A holiday camp has been suggested for next summer, and is under consideration. *Leader:* Mr. R. Bailey, Vine House, Church Street, Princes Risborough.

ALL SOULS (Liverpool) M.C.—Membership increasing, 6 new members waiting to be enrolled. Model-Building evenings have been held and also games during the summer and a Lecture on "Photography" by the Secretary. A model of the Blackpool Tower was built and lent to a local Meccano dealer for a window display. The first annual picnic was held on August Bank Holiday at Wavertree, the scene of a pleasant ramble. Lunch was taken at Childwall Abbey, after which games were indulged in. The afternoon was spent in cricket and prizes were awarded in the sports held subsequently. New session opens the first week in September. *Secretary:* Master T. J. Roberts, 170, Dryden Street, Liverpool.

CLAYGATE (Surrey) M.C.—Winter session commenced on the 3rd of September and evenings have been arranged for Model Building, Carpentry, and for the Club's ever successful Concert Party. A Savings Bank has been introduced and Lectures are being arranged. The energetic Leader, Mr. J. W. Haynes, proposes to start two other Meccano Clubs this winter, one at Chessington, and the other at Esher. Our hearty good wishes go to him for his success. *Leader:* Mr. J. W. Haynes, "Fontmell," Covers Road, Claygate, Surrey.

HOLY TRINITY (Barnsbury, London, N.1) M.C.—I recently had the pleasure of showing the Leader and Secretary of this very progressive Club around the Meccano Works. I understand that a very successful session is anticipated and a big programme is under consideration. During the past session talks have been given by the Leader on "Magnetism" and "Electricity" with practical demonstrations. The Meetings have been devoted to Model Building, Fretwork, and Photography, and Lectures by Mr. Wanstall ("The Printing of a Newspaper") and by Mr. C. Godwin ("Birds which frequent London"), and a successful Garden Fête was held in July. The programme for next session includes Sections Night, Model Building, and visits to Pascall's Chocolate and Bryant & May's Match Factories. The third annual Exhibition is arranged for the 29th of October. The Club membership now numbers 23, with 17 honorary members in addition. The accounts show a balance of nearly £5 on the right side. *Leader:* Mr. S. H. Wilson, 29, Thornhill Road, Barnsbury, London, N. 1.

CIRENCESTER GRAMMAR SCHOOL M.C.—During the past session have held an Exhibition and paid a visit to the local Electricity Works. Several papers have been read on "Ships" and impromptu concerts have been arranged, as well as Model-Building evenings. The Club is looking forward to Lectures by Mr. A. Stradling on "The Setting of Clock Times to Greenwich Time" and "The Harmonograph." *Leader:* Mr. N. Gobey, "Clovelly," Victoria Road, Cirencester.

NORWICH ENTERPRIZE M.C.—Summer session has been taken up with scouting games, paper chases, and open-air gymnastics on the Heath. Members took an important part in the Garden Fête held at Crown Point in August. The second prize in the Fancy Wheel Parade was won by one of the members dressed as a motorist, with a model of a car. Old English sports followed, including ham-cutting, belling-the-chicken, blindfold-drawing, wheel-barrow races, and treasure hunting. The Club members gave a praiseworthy gymnastic display under the direction of the Club Leader. The programme for the coming session is now being considered. *Leader and Secretary:* Pastor A. B. Grosvenor, 118, Vincent Road, Norwich.

KELVINSIDE (Glasgow) M.C.—No summer session has been held owing to several of the members being laid up with an infectious complaint. In the spring a successful Exhibition was held in aid of the Western Infirmary, and some twenty different models were exhibited, including a Loom, Electric Locomotive, Rope Making Machine, and a Travelling Crane. The session closed with a balance in hand, and great things are expected during the coming session. *Leader:* Master A. W. A. Dick-Cleland, Benvue, Kilcreggan, Dumbartonshire.

ST. ANNES (Leicester) M.C.—Outings were arranged during the summer, and the Club paid a visit to Mountsorrel Granite Quarries, where an interesting afternoon was spent. Games were enjoyed after tea on Castle Hill. There is every prospect for a successful session, which starts at the end of September. *Leader:* Mr. K. W. Smith, 8, Sunnycroft Road, Leicester.

GRIFFITHSTOWN (Mon.) M.C.—Several rambles and paper chases have been held during the summer and it is hoped to fix up a cricket team for next summer. An interesting programme is being arranged and an enjoyable session is anticipated. *Leader:* Mr. J. Briggs, 21, St. Hilda's Road, Griffithstown.

(*Continued on Page* 8)

Clubs not yet Affiliated.

CLAYGATE GIRLS' M.C.—The first Meccano Club for girls has been commenced at Claygate, Surrey, and has a membership of over 20. The first meeting was held on the 3rd inst. An interesting programme of Lectures and discussions has already been arranged. The Club is under the leadership of Mr. J. W. Haynes, the enthusiastic Leader of the Claygate (Boys) Meccano Club, whose address is: "Fontmell," Covers Road, Claygate.

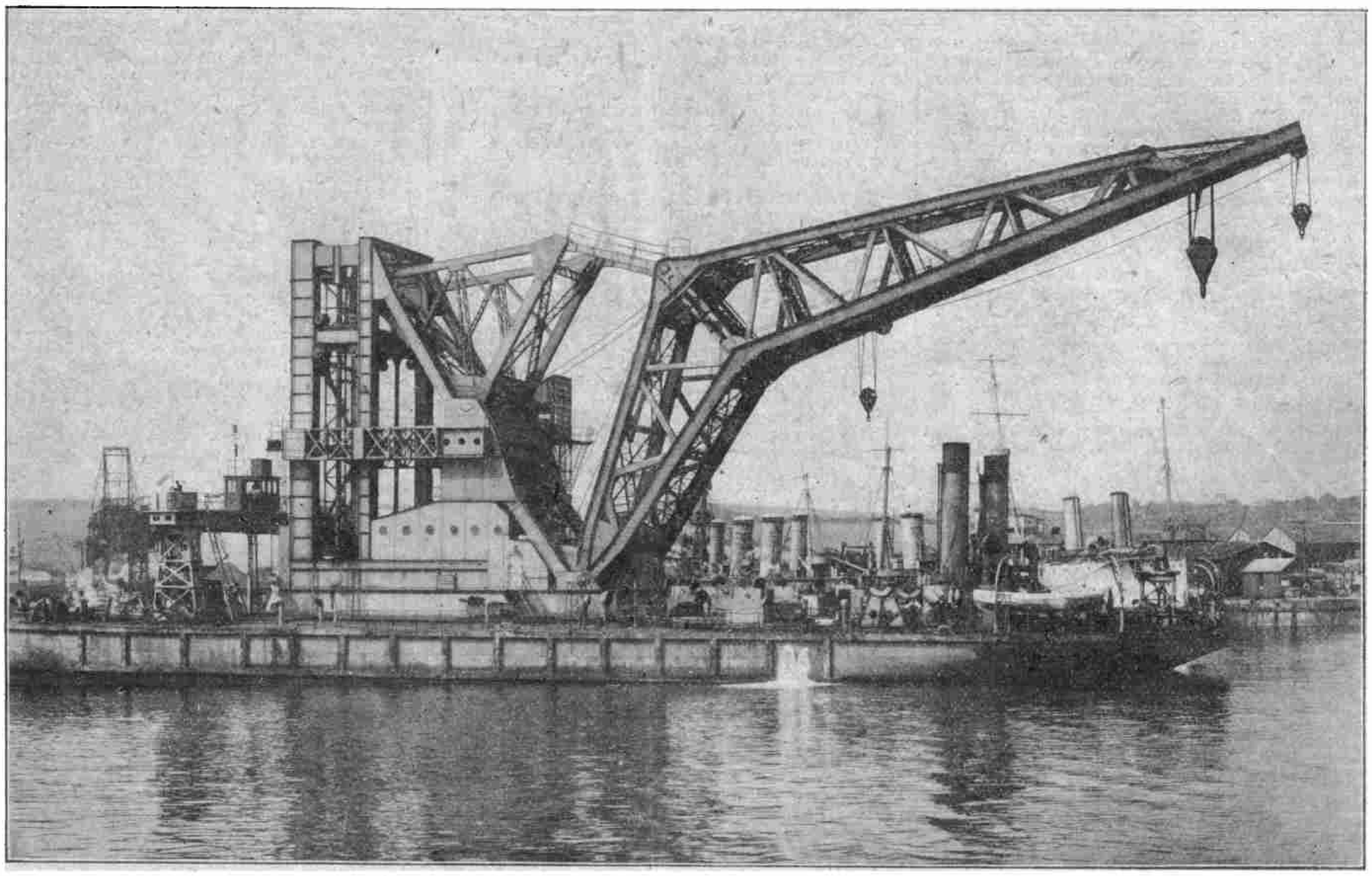
REYKJAVIK (ICELAND) M.C.—We welcome this new Club, which made a splendid start with a membership of over 50. A special Club Recruiting Campaign has been instituted, and Club Competitions are being held. An interesting paper on "Inventors" was read by the Club Leader, Mr. Otto B. Arnar. Several of the members are able to read English, and eagerly devour the contents of the Meccano Magazine. *Secretary:* Master Paul Helgason. *Leader:* Mr. O. B. Arnar, Lofskeytafrædingur, Reykjavik, Iceland.

LOWER CIRCULAR RD. M.C. (Calcutta, India).—This new Club was recently formed and a first meeting held on the 11th of June. The Rev. S. Pearce Carey, M.A., kindly consented to become the Club Leader. Meetings are held every Saturday evening, and several Model-Building evenings have already been held. We heartily welcome to the Guild this new Club and look forward to hearing further news of its doings by next mail. *Leader:* Rev. S. Pearce Carey, M.A., *Secretary:* Master H. C. Key, c/o Dr. G. H. Key, Passenger Rest House, Babu Ghat, Strand, Calcutta, India.

Guild Members and the New £250 Prize Competition.

The attention of all Guild members is directed to the announcement of the new £250 Prize Competition made in this issue. In addition to the valuable cash prizes and numerous other prizes awarded, the Guild offers three special prizes of £5 in cash to each member of the Guild who gains the best prize in his section. This presents a splendid opportunity to members of the Guild and should be an additional encouragement for them to compete in this great contest.

All Meccano boys should join the Guild at once, not only that they may obtain a greater pleasure from building Meccano Models and these increased awards in the Competition, but also that they may have the world-wide friendship of hundreds of thousands of other Meccano boys who are already members of the Guild. By becoming members of the Guild, Meccano boys may join the Meccano Club in their town. These Clubs are commencing their new session at the end of this month and any Meccano boy who wears the Guild badge will receive a warm welcome from the Leader and Secretary and also from the other members of the Club.



The Largest Pontoon Crane in the World.

We believe readers of the *Meccano Magazine* will be greatly interested in our illustration which shows the largest pontoon, or floating crane in the world, officially known as "Crane Lighter No. 4," and the property of the British Admiralty. It is capable of lifting a maximum load of 250 tons, over a radius of 100 feet, and to a height of 77½ feet above the level of the water. It has actually been tested to lift a load of 312 tons.

The crane is mounted slightly forward of exact mid-ships, the pontoon being 242 feet in length and 86½ feet in breadth. These great dimensions make it possible to lift heavy loads with a minimum of tipping of the pontoon's deck. By raising or lowering the jib the reach of the crane is altered, thus enabling loads to be picked up from the deck of the pontoon at, say, a reach of 70 feet, swung round at a right angle and lowered into place at a reach of 100 feet. The crane, as erect as possible, picks up its load, swings round in line with the place where the load is being dropped, and the jib is then lowered, extending the reach of the load as it hangs, until it comes immediately over the spot where it is finally deposited. The base of the crane rotates and rests upon rollers which have a path of 25 feet radius.

The mounting of the crane and distribution of the enormous weight has been so carefully thought out that even when the crane-arm is elevated to its greatest extent without a load, and has its minimum reach athwart-ships, the deck is inclined only 4 degrees in a direction of depression on the side behind the elbow.

Hauling is accomplished by steel ropes and the maximum effort is made with the jib inclined at an angle of 40 or 45 degrees to the horizontal.

When a heavy load is on, both steam and hydraulic brakes control the movements with great accuracy and precision.

Our illustration is from a photograph specially taken for the Meccano Magazine by permission of the Secretary of the Admiralty.

Meccano Story Competition

In the last issue of the Meccano Magazine we announced the result of the Essay Competition and printed the Winning Story. We have pleasure in printing below the story which won the second prize.

It is interesting to know that "The Test" is based on actual fact. "About a year ago," writes the author, "a friend of mine, a farmer's son, 22 years of age, went to Canada to work on a farm. He found the place in an uncultivated condition, and in great need of machinery. In his schooldays my friend was an enthusiastic Meccano boy, and when he went abroad he took most of his Meccano parts with him. Since arriving at the farm he has, he now tells me, made several implements —some exact copies of the ones in your Manual, and all upon the Meccano principle of interchangeable parts. It was this that gave me the idea for the Story, and to my thinking no more striking instance can be given of the value of Meccano as an educational medium."

"The Test."

By William Ingles Rogers.

When Archie M'Bush was ten years old his father gave him a No. 4 Meccano, and thereafter, in Ted Sprocket's play-yard, the two were daily to be seen having the best fun it is possible for boys to have in this rampagious world. The neighbours sneered, and the rumscallions who did nothing but loaf or indulge in stupid horseplay called them "muffs" and "mopers." But Archie's parents were of the sort that look ahead, and they said: "Wait till they get older. *That will be the test.*"

And so in course of time Archie M'Bush grew to be sixteen years of age when, sad to relate, his parents died and he, with a small fortune, was sent to his only living relative in Australia. It was Christmas when he arrived and the Australian harvest was in full swing. But to see the way in which the half-breed labourers handled the rich sheaves of grain, and later threshed them, made our young mechanician sore. Such a contrast it was to the English and American ways! But Archie was outspoken and his mind was soon divested of its burden of thought.

"You want a good reaping outfit, Uncle," he observed. "And a horse-rake, and a thresher, and a stack elevator, and——."

"Huh!" interrupted the old colonist. "Them things cost money. Tho' I aren't above wishin' I 'ad 'em. Th' farm's ruinin' fer want of cultivation."

"Get machines," said his matter of fact nephew.

"Machines be dear. They'd cost thousands. But if I could get *one that would do th' lot*——."

Archie at once plunged into thought. And, boys, let me tell you what perhaps you already know: that "Meccano Boys" *can* think! Meccano is a *thinking* hobby! You can play games that are pleasant while they last, but when the time comes for headwork—well, *that's* the TEST! And it's the Meccano Boy that meets it. Now, isn't that so?

"Been wool-gatherin', laddie?"

"No," replied our hero with a grin. "But—it's a hot night—let's sit on the verandah, Uncle. I've got something to show you."

Archie ran for his "No. 4," which I should have told you he had brought to his new abode.

"Bless my soul!" cried Uncle Caleb. "I've no time fer games. But I *shud* like t' see th' meanin' o' them bits o' iron."

Archie showed him! First he made a plough, and then, *with the very same "bits o' iron,"* a rake, a harrow and a scarifier. Then followed a hay tedder, a farm tractor, and a reaping machine with long efficient arms.

"Reckon you'll miss your sleep, Caleb," Archie's aunt ventured to remind them when midnight had come and gone.

"G'wan t' bed!" snapped the farmer. "I'm hinterested!"

Archie kept on constructing, and explaining what he had not time to make. A corn-shaker, a manure waggon, a windmill; then a pump, a ground-roller, a timber-drag, a chaff-cutting machine, and a clever self-acting churn.

"Dang my buttons!" exclaimed the delighted agriculturist. "Th' mischief's in them bits o' iron! But how's it to help my farm?"

The time had come to broach the BIG IDEA! And Archie was not long in divulging it!

"It's this way, Uncle," he explained. "You've seen what a toy will do. My money's idle, so I'm going to take it to Melbourne and *get some BIG PARTS made!* We'll have 'em by next year and with your permission, Uncle, we'll re-name this place. It'll be 'MECCANO FARM.' And we'll show the world what a Meccano farm can do!"

A NEW GRAND

MECCANO PRIZE COMPETITION £250 IN PRIZES

Another big Meccano Model Building Contest is announced, and we want every Meccano boy to know all about it. There will be hundreds of prizes awarded, including nine prizes in cash to the value of £100, and Meccano Outfits to the value of not less than £150. As was the case last year the Competition will be divided into three sections.

1. For boys under 10 years of age.
2. For boys between 10 and 14 years of age.
3. For boys over 14 years of age.

In addition to these prizes the Meccano Guild is again offering three awards of £5 each in cash to the Member of the Guild who gains the best prize in his Section. Forms of entry may be obtained either from your dealer or from us.

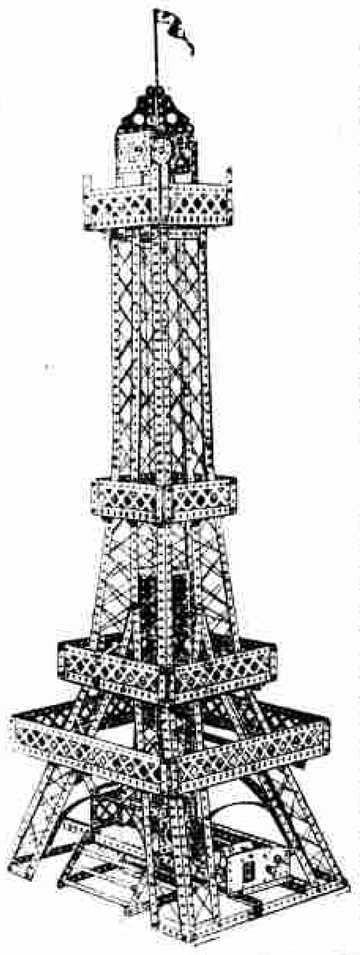
There are no restrictions or entrance fees. Any Meccano boy can enter, and the competitor sending in a simple model made with a No. 0 Outfit stands just as good a chance of winning a prize as does the competitor who sends in a complicated model made from a No. 6 Outfit. **This Competition will close on April 15th, 1922, for entries from the United Kingdom, and May 31st, 1922, for entries from the Colonies.**

Meccano Manuals of Instructions.

There are two Meccano Manuals of Instructions, and no Meccano boy is properly equipped unless he has them both. -Book No. 1 is the regular Manual which goes with the main Meccano outfits. It contains illustrations and full instructions for making 323 fine models. Price 2s. 6d. (postage 3d. extra).

Book No. 2 contains instructions for building 100 entirely new models, some of which have been designed by our own staff of experts, and others are prize-winning models contributed by Meccano boys, from every country in the world. Price 1s. 3d. (postage 2½d. extra).

The Eiffel Tower.



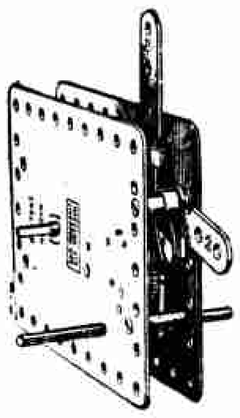
Our congratulations to M. Eiffel, the builder of the famous tower which bears his name, who recently attained his 89th birthday. He celebrated the occasion by entertaining a company of Wireless Engineers in his rooms, situated on the third platform of the tower. Here, over 900 feet above the ground, M. Eiffel has a flat consisting of a comfortable bed-room and a drawing-room.

The Tower was built for the great Exhibition of 1889, and in spite of the fact that some of the greatest engineers of that time prophesied that it would speedily collapse, it is still as strong as ever. The builder of the Tower says that in his opinion the only danger to be feared is rust, but he thinks he will be able to deal even with this, and he believes that his Tower will prove as imperishable as the glory of France.

Change of Address.

Subscribers should immediately notify the Editor of any change of address. Send a postcard *giving the old and new address*, so that records may be kept up to date.

The Meccano Motors.

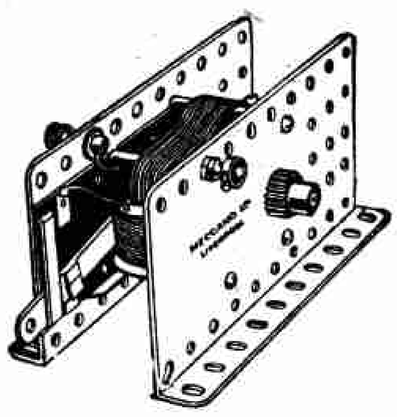


Clockwork Motor.

This is a splendid piece of mechanism, simple, powerful and reliable, and fitted with starting, stopping, and reversing levers. By the use of extra gearing made from Meccano parts, a greater lifting power is obtained.

Price 12/6

Electric Motor.



This motor is well designed, simple, strong, and free from danger. Suitably geared it has a lifting power of over 30 lbs. It may be run by a 4-volt accumulator, or direct from the main if a suitable transformer is used. Fitted with reversing lever, starting and stopping mechanism, it is the most powerful and satisfactory toy Electric Motor yet designed.

Price 17/6

Our Mail Bag.

The Editor has a little talk in this column with his Meccano boys. Whether he has space to reply to them all here or not, he is always glad to hear from them. He receives hundreds of letters each day and only those which deal with matters which are likely to interest other Meccano boys can be dealt with here.

Correspondents will help the Editor if they will write on one side of the paper only.

Spencer W. Wilson, Sudbury.—Photo of yourself with Meccanograph safely received, but it is scarcely clear enough for the *M.M.* Try again.

R. Bates, Le Havre.—You are a fortunate boy to be able to learn the French language in France. We motored through your native Cheadle a day or two ago, and admired the pleasant country.

Dickie Jones, Cheltenham.—We like your breezy letters and we look forward to receiving them. We are pleased your new Meccano friend and yourself enjoy corresponding with each other.

B. O. Goddard, Sandown.—Thanks for interesting photos of the Meccano models which you entered in the "Daily Mail" Competition. We are glad they won such a handsome prize for you.

Alan Mackie, Auckland, N.Z.—It gives us much pleasure to know that your dad and yourself enjoy building models together. We note that you will come over to see us when you are a millionaire. Hurry up and work hard. We want to see you.

Teddie Marrian, Manningham.—If your mother raises no objection there is no reason why you should not run your models with her sewing machine. Of course, the best motive power is the Meccano Electric Motor, and your father is wise in getting one of these for you.

N. E. Willis, Gulgong, N.S.W.—We receive quite a lot of bright sparkling letters from Meccano boys in Australia, just the "newsy" and chatty type we like. It is always a pleasure to hear from you, Norman.

G. Dalziel, Glasgow.—It would never do for the Editorial Staff to stay up all night to bring out the *M.M.* every week, Gregor. There would soon be no Editorial Staff left. At present there are many difficulties, but all in good time we shall go to press oftener.

V. Warrell, Hammersmith.—We appreciate the keenness and earnestness with which you have set about your work for the Guild, and we wish you every success. The Secretary tells me he is planning to address members of Meccano Clubs in London very shortly, and you may then have an opportunity of meeting him.

H. R. Foxley, Vina del Mar, Chile.—I was glad to have your nice letter and your verses, which are rather too long for me to publish in the *M.M.* It always gives me special pleasure to know that Meccano boys abroad are building models and taking a keen interest in all our doings at home.

G. Allen, Wisbech.—Thanks for your interesting description of strawberry picking. We had no idea it was such hard work. We will consider your suggestions for improving the *M.M.*

Philip Crosby, Didsbury.—

Now when it simply pours and pours,
And I'm obliged to stay indoors,
I do not cry or sulk or pout,
I bring my big Meccano out.
And then I build a model grand,
And set it up upon a stand,
Then play with it from morn till night,
It fills me with such great delight.

We couldn't find room for your verses before Philip, but here they are at last. For a first attempt they are very good.

Otto B. Arnar, Reykjavik (Iceland).—"The name of our Club is Meccanofjelag Reykjavikur.' The present membership is 50 and is increasing." We admire the thoroughness with which you have completed your Club arrangements. Your rules are excellent, and your programme a splendid and a very enjoyable one. We shall follow your doings with great interest.

J. Jewell, Subiaco.—Thanks for copy of "The Meccano Chum" which is good and very interesting. We quite understand that Meccano boys in West Africa watch anxiously for each issue.

C. Miller, Frizington.—

"To many a boy Meccano brings joy,
And makes the weary hours bright,
When the day's work is done he will eagerly run
To play with Meccano at night."

Thanks for your poetical tribute to Meccano, Charles. "Meccano Products" is now replaced by a very beautiful book called "A Message from Meccanotown." We have also reprinted the story of "Dick's Visit to Meccanoland," which had such a big success, and any new Meccano boy can have a copy if he will write to me.

G. Younger, Holyhead.—We quite understand your anxiety to receive the *M.M.* oftener, and we will see what can be done later. We should not care to increase its price as you suggest. We want boys to have all the latest Meccano news for as little outlay as possible. We hope you were successful in putting your sister "on the Meccano stunt." Thousands of girls keenly enjoy model-building.

J. L. Robinson, Georgetown, British Guiana.—

"One day I put this question to
All the clever boys I knew.
Toys of all kinds you have had,
Some were good and some were bad,
What's the best you've ever tried ?
With one voice they all replied—
'Meccano !'"

We print one of your verses J. L., the last and the best. The other beginning "The shades of night were falling fast" are beautiful, but time-worn; we learned them all off by heart in our school days. In these days, of course, the clarion voice would loudly reply "Meccano" instead of the other less understood word.

L. Brandon (Miss) Beckenham.—Thanks for photo of yourself in your prize-winning costume "Meccano." No wonder your local newspaper refers to it as "magnificent."

W. J. Fearn, Derby.—We were very interested in the photo of your Meccano model for generating a hyperboloid of revolution, and we are glad to know that you have used this model in your lectures with success. We have had the model made here, and it works perfectly.

L. N. Gibson.—Not *all* the prize-winning models find their way into our Manual, Laurence, else this book would, in size and weight, resemble a Family Bible. We hope your own prize-winner will prove one of the favoured ones.

N. Strickland, Widnes.—We are glad to hear of your pleasure in receiving the Recruiting Medal. With reference to your stock of very old Meccano parts, do not forget that all Meccano boys have the privilege of returning these to us, and having them replaced at half list prices.

G. Hay, Glasgow.—It was a great pleasure to read your cheery, and, in the main, complimentary letter. It is difficult sometimes to strike a balance between what is due to non-Guild members, and that great and increasing army of Guild and Club enthusiasts. The remedy of course is to increase the size of the *M.M.*, and this we hope to be able to do some day. We have blushed ever since we read in your letter that whilst you love and adore Editors, we are the best of them all, and we are blushing at this very minute.

A. Parkhurst, Capetown, S.A.—We liked your letter and your photographs. We have no such mountains in England. Snowdon is our highest, 3,560 feet. We hope you will write us again.

A. Nixon, Middlesbro.—Glad you consider Meccano a "superb salubrious recreational game, enabling boys to procure an enthralling quota of enjoyment." We are quite sure you mean well Albert, and we appreciate your desire to let us know how much you enjoy your hobby.

W. J. French, Tnysybwl.—The trouble is W.J. that the cost of labour is even now more than three times pre-war: the cost of steel, brass and all the other commodities we use, more than that, whilst the prices of Meccano Outfits are only double pre-war. Only our enormously increased production enables us to keep prices down to their present level.

J. Smith, South Shields.—We shall be very glad to see a photograph of the Railway Station made with Meccano. Your suggestion regarding the list of awards in our big Competition is a good one, and will be adopted.

E. Joyce, Walthamstow.—"I am sure there is nothing a boy would wish for more than to own a Hornby Clockwork Train. Mine is simply ripping." Thousands of boys already agree with you, and hundreds of thousands more will join the ranks of H.C.T. devotees this winter.

A. Riding, Lostock Hall.—You can always purchase a Meccano Electrical Manual separately, and by adding a few simple Electrical Accessory parts to your Outfit, you can make delightful and instructive new models.

CLUB NOTES (*continued from page* 5)

LISCARD HIGH SCHOOL M.C.—Three interesting Lectures have been held, dealing with the "Electric Car," by Mr. R. Samuel (of the local Tramway Depot), "Locomotives," by a member of the Club, and "Principles of First Aid," by Mr. Brensdon (Scoutmaster of the 3rd Wallasey Troop). Model Building has not been neglected, an arrangement being made with a Meccano dealer to make models from parts provided by him, for exhibition in his window, an arrangement which has worked satisfactorily from both points of view. Visits have been paid at week-ends to local power stations and docks, and the first annual picnic was held at Eastham, where an opportunity was taken to visit the entrance and some of the locks of the Manchester Ship Canal. *Leader:* Mr. H. S. Casey, 3, Brisbane Avenue, New Brighton.

JARROW-ON-TYNE M.C.—A club is being commenced here and anticipates being further developed at an early date. The members are extremely enthusiastic, and a successful session is looked forward to. Any Meccano boys interested, should write to the Club Leader or Secretary for further details. *Leader:* Mr. W. G. Scott, 20, Kitchener Terrace, Jarrow-on-Tyne. *Secretary:* Master Stevens, Gordon House, Field Terrace, Jarrow-on-Tyne.

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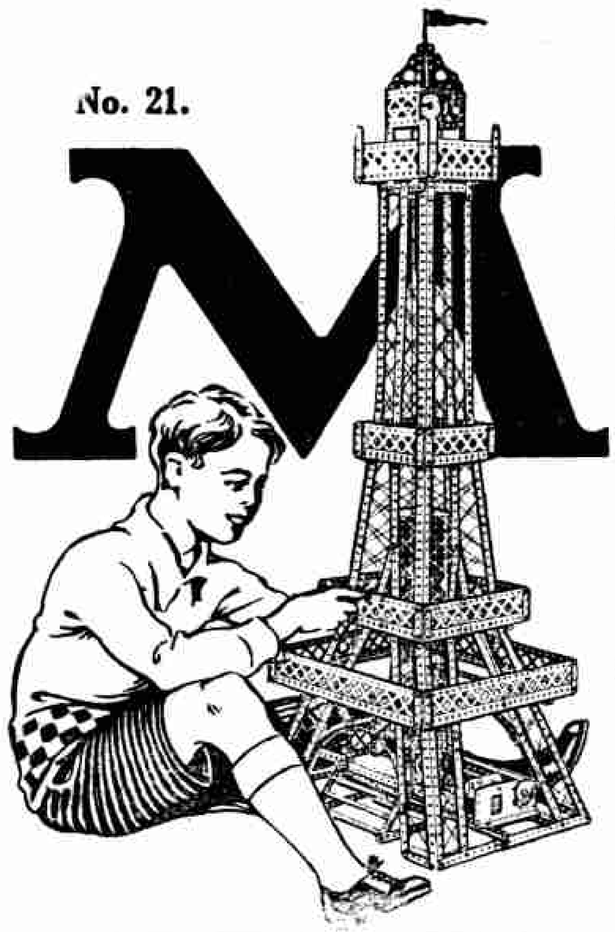


MECCANO MAGAZINE

PRICE 1d

TO HELP MECCANO BOYS TO HAVE MORE FUN THAN OTHER BOYS.

The New Meccano Loom.

No model could better illustrate the wonderful genius of the Meccano system than this new model of the Meccano Loom. In this model every technical operation in the process of weaving is perfectly carried out in miniature, exactly as in every-day practice in actual manufacture. The Loom is operated simply by the turning of a crank handle, which sets in motion the whole of the necessary operations.

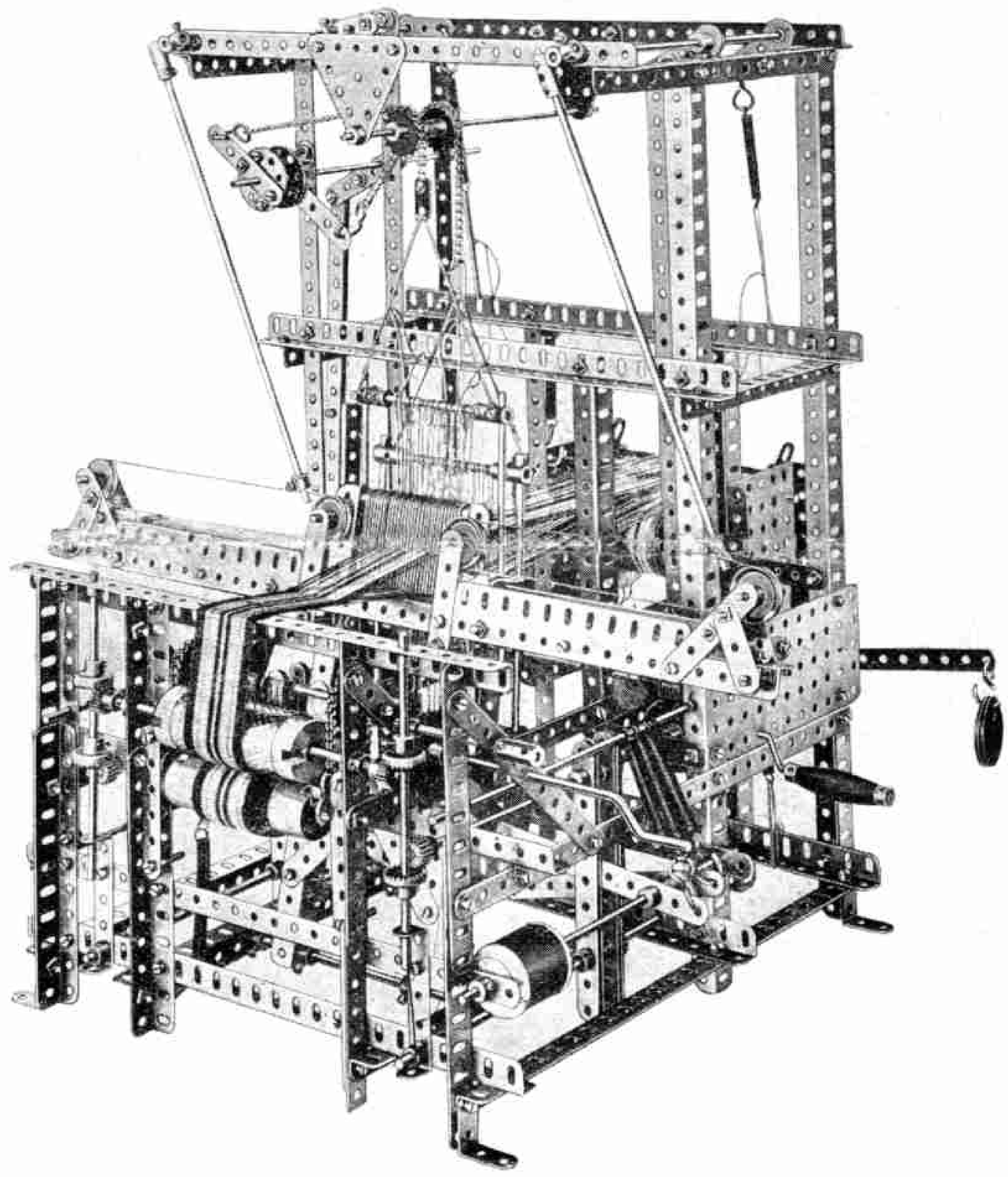
WARP AND WEFT. A woven fabric is composed of two elements, the "warp," or longitudinal threads, and the "weft," or cross threads. The inter-weaving of the warp by the weft is called the "picking motion," and this is effected by the passing of a thread from the shuttle which flies from one side of the loom to the other, and in doing so passes each time between the threads of the warp. Three distinct operations are necessary to carry this out, the first being the opening of the warp when some of the threads are raised for the second operation of picking, and finally the third operation called "beating up" the weft, when the weft is pressed into place by the reed. These three primary operations must be carried out by every loom no matter whether it is the hand loom of a cottager or the latest power-loom used in our largest spinning factories.

WEAVING FABRIC. Before cloth can be woven in a loom the warp threads must be wound evenly and in their correct places upon a roller, known as a "weaver's beam." This operation is carried out by a beaming frame, which is the subject of a special Meccano model. From the beam the warp threads are passed through the "healds," which consist of a number of wires, called "leaches," each having in its centre an eye or "mail," which to a certain extent, resembles the eye of a needle. The healds are assembled vertically in two—or sometimes more—frames, so arranged that when one heald frame is raised the other is pulled down. The healds thus serve to lift and depress the threads of the warp, so that the shuttle may be passed between, along with the weft.

The shuttle moves along the "slay" which supports and guides it as it is jerked from one side of the loom to the other by means of the "picking stick," suspended from above. Attached to the slay is the "reed," formed by a number of strips spaced with washers, and this moves forward with the slay after every crossing of the warp by the weft.

PREPARING TO WEAVE. In preparing to weave, the first thing to be done is to pass the ends of the warp from the beam (situated at the back of the loom) through the mails of the healds and then through the reed, one or more threads being passed through each division, and attach them to the taking-off roller. On turning the crank the shuttle is jerked across the loom and passes over the threads held down by the lower heald and beneath those raised by the upper heald, at the same time leaving in its wake a loose thread of weft. The slay then moves forward and brings up the reed which drives before it this thread or "first pick" of the weft. By continuing to turn the handle, the same process is repeated, the shuttle being again jerked back and across the loom this time from the other side and the reed moving forward again and pressing up the second pick against the first. The taking-off roller in the meantime slowly rotates and as the weaving proceeds it rolls around itself the woven fabric.

TEXTURE. The closeness of the texture of any material depends upon the number of warp and weft threads to the inch. In actual manufacturing fine cloth may have 125, or even more, threads to the inch both in warp and in weft.



PATTERN. The pattern depends upon the number of healds, the greater the number employed making a more complex pattern possible. For the weaving of very complex figures the warp must be divided among a large number of healds. In cases where specially intricate patterns are being worked, each individual warp thread may have its separate lifting apparatus. In such a case some automatic mechanism is necessary in order that the pattern may be preserved when working at a high speed. Such a lifting mechanism is used in the "Dobby" loom, a model of which can also be successfully constructed by means of Meccano.

HAND LOOMS. Hand looms are still in use in many parts of this country—in Scotland and Ireland for instance—and also in France and elsewhere. The cloth they weave has a peculiarly individual appearance and is quite easily distinguished from the fabric of the mechanical loom. Cloth may be woven in a hand loom to a width of 150in. or even greater.

Full instructions for building the new Meccano Loom are given in a beautifully illustrated sheet, on art paper, which shows not only the complete model but also sectional photographs of all essential details. The leaflet also gives full instructions for building a beaming frame. The price of this Instruction Leaflet is 4d. post free.

Editorial.

What the *M.M.* does for Meccano Boys.

There are lots of good things always going on in Meccanoland, the country of happy boys: new inventions, new models, new competitions, new ways of getting fun out of life. Meccanoland is a land of unbounded activity, enthusiasm and enjoyment. All the doings there are reported to Headquarters, and set down in the *Meccano Magazine* so that all Meccano boys may know of them and participate in them.

A Big Event in Meccanoland.

Just now the inhabitants of Meccanoland are all agog over the advent of the wonderful new series of Hornby Clockwork Trains. Some of the fortunate ones have already secured their sets, and are combining Meccano and Hornby Train fun in great style. Before the winter is far advanced the charming colourings of these trains will shed further brightness and animation on our land of sunshine.

A New Feature in the *M.M.*

The illustrated article in our last issue on the Admiralty Crane Lighter, No. 4, the largest pontoon crane in the world, has brought me so many letters of approval from my readers that I have arranged to publish a series of the world's engineering wonders in the *M.M.* You will find a further beautiful example on page 6 in this issue. To the large number of my readers who prefer to invent rather than copy, these fine structures furnish a splendid opportunity for creating new Meccano models.

Success of the New Meccano Chassis.

So great has been the demand for the instruction leaflet for building the new Meccano Motor Chassis (announced in the last number of our Magazine) that the supply which we had printed was entirely exhausted, and it has been necessary for us to print another edition. I advise any of my readers who has not yet secured his copy to send for it without delay. The leaflet is beautifully illustrated and printed on art paper and shows not only the completed model, but also sectional photographs of the gear-box, differential, etc. The price of the leaflet is 4d., post free.

A New Accessory Parts List.

A new edition of the Accessory Parts List is now ready. So many splendid new Meccano parts have been added to the system recently that it has been found necessary to print the new list in four-page form instead of in one large sheet as hitherto. This is the time of year when all Meccano boys overhaul their Outfits, make up deficiencies and add new parts before commencing the season's activities, and the new parts list is indispensable to them. It will be sent post free to any Meccano boy. The new form in which the list is printed is convenient for inserting in your Meccano Manual.

How to get the Meccano Magazine regularly.

The Meccano Magazine is now sold by most of the regular Meccano dealers but in order to prevent disappointment you should place an order with your dealer for a copy of each issue to be reserved for you. The price of each issue is 1d. If you experience difficulty we will mail you a copy regularly on receipt of 6d. for the next six issues, or 1/- for the next twelve.

Life Story of Meccano.

By Frank Hornby.

(*Continued.*)

During the whole of the time that the German manufacturers were struggling here to get into the constructional toy market and steal some of the Meccano business, we were rapidly extending our own business in Germany, and we found it necessary to take offices in Berlin, with large store rooms attached, to take care of the rapidly increasing business in that country. We sent over our own representative who got together an efficient organisation, and we commenced a campaign of advertising and demonstrating on the lines familiar to all Meccano boys in this country, and soon Meccano Outfits and models were a familiar sight in the leading shops throughout the country. Even in Nuremburg, which up to then had been considered the home of the toy manufacturing industry, we had customers who purchased heavily from us. Many German toy dealers who came to England called to see us, and spoke enthusiastically of the business they were doing in our goods, and of the wonderful way in which the German boys were fascinated with the possibilities of Meccano.

My last visit to Berlin was during the week before the War broke out. It had been a most successful visit, and promised to be followed by even further extensions in the Meccano business. At that time the War Cloud was hanging heavily over Europe, but I had never a thought that England would be drawn into any struggle that might take place. For several reasons I had to hurry back to England, and this was most fortunate as it happened, as I got out on the last train which left Germany before all Englishmen remaining in that country were interned.

The War, of course, put an end to our German business for the time being. Our Manager was interned in Ruhleben, and the business was taken over by the German government, who placed an official in charge. The stocks of Meccano on hand were sold, and the proceeds appropriated by the German government, and finally, what remained of the business, including patents, trade-marks, good will, etc., was sold to a German house.

It was a great disappointment to me to have our German business, started under such promising and encouraging conditions, brought to an end so suddenly and completely, but the only thing to be done was to concentrate our energies in other directions, and wait patiently for the time when we could again give German boys an opportunity of coming under the happy and stimulating influence of the Meccano hobby.

I think that probably the greatest number of imitations of the Meccano system have emanated from America, and the complete history of the rise and downfall of them all would fill a very large volume. The first to make its appearance was a system introduced under the name of "American Model Builder." This system was almost an exact duplication of Meccano, both in regard to the design of the parts, and to the precise contents of each outfit. The Meccano Manual, the compilation of which had taken me years of thought, study, and experience, was copied almost in its entirety, and in fact, except for the lack of finish and smartness of the presentation, one of these imitation outfits might easily have been taken for a genuine Meccano outfit.

This was about 10 years ago, and you can readily imagine the deep concern I felt when I discovered that all that I had worked and striven for for so many years had been misappropriated by a newcomer, whose sole intention was to rob me of the business belonging wholly to me. I immediately sailed to New York, and had a consultation with a well-known firm of Attorneys, as to the proper steps to be taken to put an end to this grossly unfair form of trading. It seemed to me that such a flagrant breach of the laws of copyright and patents as this, could very quickly be put an end to, and I felt very sure that I should soon be able to compel the manufacturers of the imitation line to withdraw their outfits from the market. I was, however, destined to have a bitter experience of the law's delays, and the enormous cost of putting into operation a simple act of justice. The case lasted for 9 years, cost my Company many thousands of pounds, and ended in the complete restoration of our rights, and the final establishment of our copyrights, patents and other privileges.

(*To be continued.*)

Suggestions by Meccano Boys.

These columns are reserved for dealing with suggestions sent in by Meccano users for new parts, new models, and new ways of making Meccano model-building attractive. We are always glad to hear from any Meccano boy who has an idea which he considers will be useful to the Meccano system.

F. G. Smith (London).—We have had in mind loosely swivelling an octagonal strip coupling on the throw of the crank shaft, and we may introduce this later, when we have had an opportunity of testing its application.

Stanley and Charles Yelland (Leeds).—We do not recommend points made with Meccano strips. It would be much more satisfactory to use our standard rails and points. Pedals for a bicycle might be made by fixing a No. 62 crank at each end of a straight rod, and a pivot bolt No. 33A on each crank to form the pedals.

John Spink (Leeds)—The type of engine on the Hornby No. 2 Goods and Passenger sets is the same. We have under consideration the coupling up of the driving wheels.

H. S. Batten (Bristol)—We are pleased to know that you like our Hornby Trains. There are six curves required to make a two-foot diam. circle, and eight for the four. Curved and straight rails may be purchased separately.

J. Hemsley (Littlehampton).—We shall give consideration to your suggestion for a smaller crank.

H. Hawkins (Reading).—Your suggestion for a piston and cylinder is one to which we shall give consideration later. Also circular ends to form boilers.

B. Lewis (Bournemouth).—Your suggestion for a punch is a good one, but would constitute a special apparatus, and would not have an interchangeable purpose in accordance with the Meccano principle.

Eric Cheadle (Dumfries).—The Meccano rod is too small in diameter to slot for the purpose of sliding a wheel or clutch, and it might affect its usefulness for other purposes. We are engaged on a device for getting over this difficulty. With regard to the longer pinion we think you can get over your difficulty of changing gear by the use of our existing toothed wheels, as demonstrated in our Meccano Chassis.

Robert Peel (Harrogate).—See our reply to Eric Cheadle.

A. Morrod (Newcastle-on-Tyne).—We are at present engaged on a ratchet wheel and will announce its introduction when ready.

Kenneth E. B. Jay (Amersham-on-the-Hill).—It would take a lot of space to illustrate the various uses of the threaded boss. We would suggest however, that you obtain our No. 3 Manual, which will be ready shortly, and inspect some of the very beautiful models, to the construction of which we have applied it. The lathe is a model in which we use a threaded boss to traverse the tool holder.

Cedric Harvey (Cardiff).—It would not be practical to use a large tapered gear wheel such as you suggest which could also be used as a saw worked with a clockwork motor. There would not be sufficient power, and in any case a tapered wheel would bind in cutting.

Harry Hampton (Leith).—We do not think the rails you suggest would be effective. We recommend that you use our standard rails as supplied with Hornby Trains.

Hugh King.—We have abandoned the old funnel and hope shortly to introduce a much more efficient one. We have only published one Meccanograph Manual. We illustrate the movement you suggest in Model 315 of our regular Manual. We would recommend you to write for our new price list, which will give you prices of all the parts.

ERNEST H. ATKINS (Sutton).—See our reply to Rowland H. Alexander.

A. H. FELLOWS (Leamore).—We hope very shortly to issue a Meccano Wireless set, which will be capable of transmitting as well as receiving messages. It would not be possible to attach a speed regulator to our present Meccano clockwork motor.

W. H. MOORE (Narborough).—A contrate wheel with teeth only half way round would not effect your purpose. If two pinion wheels were operated, one at each side of our regular contrate wheel, the motion of each would be in opposite directions.

H. WATSON (Hoyland).—A 5½" perforated strip with the two end holes elongated, could only be used in a very limited way, and might militate against its use for other purposes.

GEORGE GRAVES (London).—We do not quite understand your suggestion. Perhaps you will write us again furnishing further particulars.

F. T. ORRILL (Bulivell).—Your suggestion for increasing the power of our clockwork motor is quite sound, but the length of run would be very much reduced.

J. COUDERC (St. Etienne).—We are interested in your suggestion for a worm wheel 10cm., and we shall be glad if you will send us a drawing of one example of how this would be applied.

J. W. HARVEY (Kidderminster).—We have recently introduced a cranked axle rod in our list of parts.

J. FLANIGAN (Liverpool).—We shall give your suggestion for cutting tools for model lathes consideration.

DAVID GARDNER (London).—We have lines of 2ft. and 4ft. diameter. The latter are perhaps what you require. Your account of your experiences with Meccano is very interesting.

W. RAYBOULD (Boxwich).—The difficulty of introducing a ½in. sprocket wheel is that the teeth could not be made sufficiently large to prevent the chain fouling the boss.

C. M. ALDRIDGE (Reading).—Would not our triangular plate serve the purpose for the bow; and a curved strip for the stern or counter of your model liner?

JAMES GREEN (Bristol).—We cannot see how you would start and stop a machine by the use of a ratchet wheel and cam such as you illustrate. We would like to have more particulars. Meccano is pronounced Mek-ah-no.

C. MICHAN (Patay).—We do not think it would be advisable to introduce a perforated plate as large as you suggest. A base plate upon which to mount a model could be made by bolting flat plates to angle girders practically to any size required. We think your suggestion for a tube to be used as a spacing piece between two plates or strips a good one, and it is one we shall introduce in our list. We think the most convenient length is 15mm.

V. H. THOMAS (Shirebrook).—No useful purpose would be served by generating electricity with a small engine and dynamo, and it would be very expensive.

J. AMER (Holloway).—Your suggestion is quite good, and we already employ different sizes strips superimposed and slightly bent to form springs for our Meccano Chassis. An angle bracket would serve the purpose of a bearing.

K. CONNOR (Seven Kings).—It would be cheaper and more efficient to use our regular triple throw eccentric than to put two flanged wheels together, taking the axle rod through the perforated holes.

LESLIE E. FLUX (Newport).—We have in mind the introduction of a signal arm and may issue it later.

C. I. HOPEWELL (Malvern, Natal).—We include a flat trunnion in our list of parts which will serve as a T piece; also a bucket capable of being attached to our sprocket chain.

ROWLAND H. ALEXANDER (Bitton).—We think your suggestion for smaller flat girder strips a good one and we shall arrange for them to be included in our next list of parts.

STANLEY WESTON (Briercliffe).—We sell a long thin screw driver which can be passed through the standard holes in the strips. It is No. 36A in the price list, and costs 1/9.

R. WOOD (London).—We are experimenting on a pallet for a clock movement and will announce its introduction when ready.

R. LE FEVRE (Bexley Heath).—The centre hole in the sleepers of our railway track is not only intended to enable the track to be screwed to the floor if necessary; but to connect the insulated chair carrying a third rail for use with our electric loco model.

A. CUNNINGHAM (Mossley Hill).—The metal from which we make our strips and plates is not thick enough to countersink the holes.

C. W. CROCKER (Teignmouth).—There would be no difficulty in connecting safety razor blades to our present face plate for a chaff cutter, but the other part of the machine would require to be thought out.

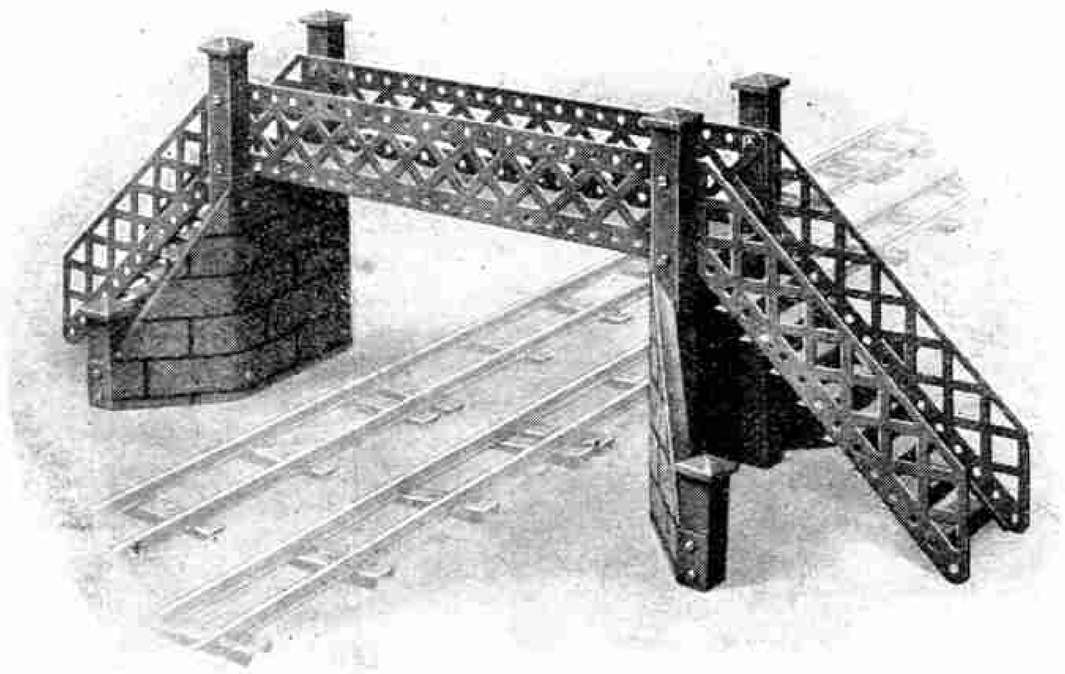
HARRY J. SAKER (South Darenth).—The cutter you suggest would be expensive to make and would only have one purpose.

H. J. CRONDACE (Mantzburg, Natal).—We illustrate in our electric manual, model 12, a motor starter which may be used for regulating the speed of our electric motor.

R. N. SMITH (Leicester).—A reinforced axle bearing may be made by superimposing several strips and bolting them together to the side plates.

BROSSE JACQUES (Loire).—We have already added to our list of parts a cone pulley giving three speeds which we think will serve your purpose.

The Hornby Lattice Girder Bridge.

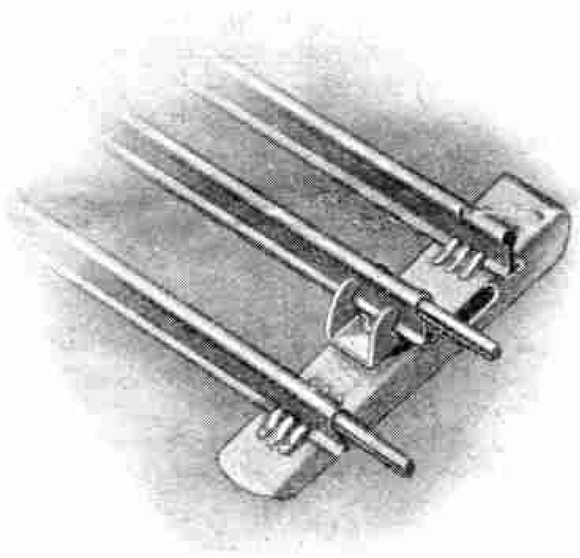


As will be seen from our illustration, this is a bridge of constructional type, strong and well proportioned. In the footway and steps, the design of the well-known Meccano braced girder has been followed, giving a pleasing and realistic appearance. The bridge is beautifully enamelled in colours.

It will be seen that the Meccano system of equidistant holes has been preserved, and signals made from Meccano strips, etc., may be erected on the bridge. The Hornby Lattice Girder Bridge is supplied dis-assembled for convenience of packing, and is erected by securing the foot bridge and steps to the upright columns with 12 nuts and bolts as shown in our illustration.

PRICE 10/6

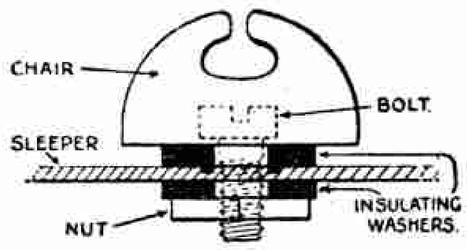
The Hornby Third Rail Track.



The regular Hornby Railway Track may be converted by any Meccano boy into an Electrical Track, by the fitting of a third rail with the parts mentioned below.

Each section of track, either curved or straight, will require for the purpose of conversion the quantities shown on the left-hand side of the undermentioned list.

The rail is fixed in the centre of the two regular rails by means of chairs, one being fixed to the end sleeper of each section. The chair is secured to the sleeper by means of a nut and bolt, which is insulated from the sleeper by fibre washers. Our illustration above shows the third rail in position, and the figure below clearly shows the method of fixing.



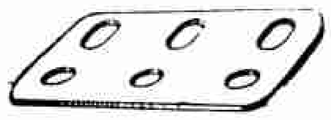
1. Single rails, straight or curved. (2ft. or 4ft. diameter circle) . ..	per ½ doz.	9d.
2. Chairs, for holding single rails in position on the track	per doz.	4d.
2. Insulating bushes ..	per doz.	6d.
2. Insulating washers ..	„ „	3d.
2. Screws 6 B.A. (special)	„ „	6d.
2. Nuts 6 B.A.	„ „	3d.

(*Continued top of next column.*)

The chairs should be fixed loosely to the sleepers, the third rail placed in position and the nuts then tightened up.

New Meccano Parts.

95B.	3in. Sprocket Wheels ..	each	8d.



103C.	Flat Girders 4½in. ..	½ doz.	10d.
103D.	„ „ 3½in. ..	„	8d.
103E.	„ „ 3in. ..	„	7d.
103F.	„ „ 2½in. ..	„	6d.
103G.	„ „ 2in. ..	„	5d.
103H.	„ „ 1½in. ..	„	4d.

Changes in Gear Wheels.—Accessory Part No. 26, Pinion Wheel ½in., will in future have 19 teeth instead of 20 as at present. The 19-tooth pinion is now in process of manufacture and will be available shortly.

No. 27A, Gear Wheel will shortly be made with 57 teeth instead of 56 and No. 31 Gear Wheel with 38 teeth instead of 40. These new Gear Wheels are not likely to be introduced until the end of the present year or the beginning of 1922. All the new gears will engage perfectly with the gears, either old or new, with which they have always been associated.

The Meccano Guild

Member's Badge

A Fellowship of Meccano Boys

Leader's Badge

The objects of the Meccano Guild are:

(*a*) To make every boy's life brighter and happier.

(*b*) To foster clean-mindedness, truthfulness, ambition, and initiative in boys.

(*c*) To encourage boys in the pursuit of their studies and hobbies, and especially in the development of their knowledge of mechanical and engineering principles.

The Meccano Guild has been formed to bring Meccano boys more closely together, and to make them feel that they are all members of a great brotherhood of boys, trying to help each other and themselves to get the very best out of life.

Every Meccano boy can join the Guild as an individual member, and so share in the privileges of membership. As soon as possible he should attach himself to a local Meccano Club, or if there is not one already in existence, he should take steps to form one with the assistance of his Meccano boy friends.

The Secretary of the Guild is always very glad to help with the formation of new Meccano Clubs, and to provide literature which will give all the necessary information.

Every new Meccano boy should immediately get to know all about the Guild in order that he may get the full pleasure from Meccano model-building, and the companionship and friendship of hundreds of thousands of other boys who are glad to welcome him as a friend.

Forms of application and all other information will be furnished by The Secretary, Meccano Guild Headquarters, Old Swan, Liverpool. Each member on joining is furnished with a beautiful Certificate of membership ready for framing, and should obtain the official member's badge.

Guild Notes

By the SECRETARY.

The Work of the Guild. I feel sure that it would surprise and please all officials and members of the Clubs if they could follow, as I do, the growing strength of the Guild movement and realise the work that is being done in brightening the lives of boys, and in helping to steady them and to form their characters. Both myself and my helpers have gained much knowledge and experience in Club work during the last few years. This knowledge and experience is at the disposal of all Club Leaders and Secretaries, and also of those Guild members who are thinking of forming new Clubs. If any assistance is required you may be sure that I shall be only too pleased to lend a sympathetic ear and to do all that I can to help the movement forward.

Club Membership Cards. The new Club membership card has now been received from the printers and I am able to illustrate it Those Clubs who have already applied for these cards have expressed their great delight with their appearance, and the idea behind them. That they fill a long-felt want seems to be generally accepted. The membership card is supplied free to affiliated clubs and a specimen card has been sent to all Club Leaders. Any Clubs who have not yet received their copies should apply at once, giving the number of members on their roll.

Special Club Prizes. Last year an inter-Club Model-building Competition was held with great success, and it is proposed to hold a Competition on similar lines during the present winter. The Competition—particulars of which appear elsewhere—is held with a view to encourage a spirit of friendly rivalry between the various Clubs, and the cash prizes are a valuable addition to Club Funds.

A Chance for Meccano Actors. An interesting Competition in connection with amateur theatricals will be announced in the next number of the *M.M.* I sincerely hope that all Guild members who have a leaning to acting will enter for this Competition, which will provide plenty of scope for their imagination and literary ability.

In this connection there is now available a short play entitled "*Nonsense Nana.*" This play is for three characters, two boys and their old nurse. It is suitable for being produced at Club Concerts and Exhibitions, and I shall be very pleased to forward a copy to any Club Leader who is arranging such a Concert and who would like to include a little Meccano play of about half-an-hour's duration.

The Meccano Guild Rally.

All Meccano boys are invited to the Guild Rally, the arrangements for which have now been completed.

The Rally will be held in the Parish Hall of Holy Trinity Church, Richmond Road, Barnsbury, London, N.1., at 7 p.m., on Saturday, the 26th November. Club Leaders, Secretaries and members of Clubs are invited to attend and I wish to emphasise the fact that parents, friends and non-members are specially invited to the Rally by the kindness of the Leader and the members of the Holy Trinity Meccano Club, who have kindly placed accommodation at our disposal. Already a number of the London Clubs have indicated that they will be attending the Rally, and I hope that everybody who is able to do so, will come along. I shall be at the Rally myself and hope to give a short talk illustrated with Lantern slides, mentioning the great work the Meccano Guild is doing, and the activities of the Clubs throughout the country. Also I shall hope to say something of the different Departments in the big Meccano Factory, and to show views of some of our latest models.

Mr. S. H. Wilson, the Leader of the "Holy Trinity Meccano Club," 29, Thornhill Road, Barnsbury, London, N.1., will be pleased to hear from any Clubs who propose sending representatives. He will also appreciate a postcard from any boys who propose visiting, although this is not absolutely necessary. Holy Trinity is but a short distance from "The Angel" at Islington, along High Street and Liverpool Road, being situated in Richmond Road. "The Angel" may be reached by several bus routes (including 4, 19, 30, 38, etc.) or the tube may be taken to King's Cross.

The Guild Recruiting Campaign.

HOW EACH MEMBER CAN HELP.

Now is the time for all enthusiastic members to do a good turn to the Guild movement. I want all Meccano boys to understand the objects of the Guild, for once they realise what the Meccano Guild stands for they will join our ranks enthusiastically and without hesitation. There are many thousands of Meccano boys in this country who, strange to say, have never yet heard either of the Meccano Guild or the *Meccano Magazine!* Most of us would scarcely believe this to be possible, so widely do we endeavour to make both known, yet the numerous enquiries I receive every day show this to be the case. I want you all to help me to get these Meccano boys to be Guild members indeed, it is the duty of each Guild member to do his best to spread the knowledge of the Guild far and wide.

I want every member to endeavour to recruit at least three new members and it was on this basis that we ran our Recruiting Campaign during the last two winter sessions. The Campaign has been started again this session and will be run through the two winter sessions. To each member who obtains three new recruits for the Guild a handsome medallion will be awarded. This medallion (which is here illustrated, actual size) is a mark of merit of which any boy may well be proud.

To those who already possess the medallion I am offering a further mark of favour. When they have recruited 6 more members for the Guild, in addition to the 3 which they recruited for their medallion—making 9 in all—I shall arrange to have their names engraved on their medallions, together with the words "Special Merit." Those members who wish to take advantage of this new offer should forward their medallion to this office so that it may be engraved when they have recruited the additional 6 members.

Club Notes.

NEW MALDEN M.C.—Visited the Shipping, Engineering and Machinery Exhibition held at Olympia last month. Working machinery and models were subjects of much interest. The Club opened the first week in October "as the result of much clamouring from the members." An excellent session enjoyed by the cricket team will be followed by the organising of a football team. *Secretary:* Master S. B. Evans, 22, Howard Road, New Malden.

LEAMINGTON M.C.—Very enjoyable meetings were held during the summer session, and the Club paid a visit to Dr. Crowther's workshop at the Bury, Offchurch. Dr. Crowther first took them through the laboratories, showing them the method of testing soil by shaking it with water and allowing it to stand for varying lengths of time. An electric bottle-shaker was much admired, all the members being of the opinion that they could put the electric motor to much better use in driving Meccano models! The cows were then visited, and a mechanical method of milking described.

Bazaar held in the Town Hall in aid of St. Mary's Parish funds, when it was hoped to raise £400. The Meccano Club had an Exhibition of 25 models on the stage. Interesting programme has been prepared, including hobbies and demonstration nights, competitions and lantern lectures. *Secretary:* Master G. M. Hare, 26, Willes Road, Leamington.

GT. YARMOUTH M.C.—A splendid and instructive display of what can be erected with Meccano was shown at an interesting evening at the Club's headquarters. One model exhibited was a reproduction of Euston Station, including signals, gantries, signal boxes, bridges, level crossings, and in fact all necessary equipment for a complete miniature railway. This model was most interesting and attracted great attention. Hornby Trains, kindly loaned by a local firm, were running on the track, and Mr. Weston, G.E.R. (Stationmaster of Southtown and Vauxhall), introduced Inspector Hammond of Norwich, whom the G.E.R. had kindly allowed to come over for the purpose of addressing the Club. The lecture lasted for over an hour and a half and was very much appreciated by the members. Mr. Linford, the Club Leader is to be complimented on the success of the Gt. Yarmouth Meccano Club. *Leader:* Mr. Linford, 81, Middle Market Road, Gt. Yarmouth.

CARSHALTON AND DISTRICT M.C.—Meetings are held every Monday evening from 7 until 9, and the Secretary will be pleased to hear from any Meccano boy who wishes to join. Three new members were enrolled at the second meeting. *Leader and Secretary:* E. H. Atkins, "Strawberry Cottages," 46, Mill Lane, Carshalton, Sutton.

JARROW-ON-TYNE M.C.—The Leader, Mr. W. Scott, has included in the winter programme a series of "Talks" on different mechanical and engineering principles, much appreciated by the members. *Secretary:* Master G. Stevens, Gorden House, Field Terrace, Jarrow.

NEW BRANCEPETH M.C.—Starts the winter session with a membership of 23. A visit to the Sunderland Shipyards and Quay was much enjoyed by the members, and during the summer months cricket matches were played and cycle runs held. *Secretary:* Master E. Furby, 9, Unthank Road, New Brancepeth, Durham.

STATIONERS (London, N.8) M.C.—Programme includes papers on light-houses, model railways, photography, electricity and fretwork. An interesting evening will be provided by a debate, the subject of which is "Meccano or Primus." The leader of the debate for Meccano is Master Scott, and for Primus, Master Bricklehurst. Excursions have been arranged to Hornsey Electricity Works, South Kensington Science Museum, Manor Farm Dairy Works and the Tower of London. Interesting evenings will be provided by holding Story Telling Competitions. The Club is sending 15 members to the Guild Rally on the 26th inst. *Secretary:* Master K. G. I. Scott, 42, Berkeley Road, Crouch End, London, N.8.

SPARKBROOK M.C.—Opened on the 6th ult. with an attendance of 18 members "all looking pleased, as if they had been looking forward to a treat for a considerable time." *Secretary:* Master F. H. Hubball, 71, Turner Street, Sparkbrook, Birmingham.

ST. MARGARET'S (Liverpool) M.C.—Programme for the new session was drawn up at the general meeting, at which 15 members were present. The first meeting held October 4th was a social, and this proved very successful. The Club are looking forward to a successful session under the leadership of Mr. V. A. Pearson. Several new members have been enrolled. *Leader and Secretary:* Mr. V. A. Pearson, 126, Hill Street, Liverpool.

MEXBORO' M.C.—A highly successful Exhibition held recently was visited by over 5,000 people. Some fine models were on show among which was a model of a blast furnace, with automatic elevators for carrying coal and metal. This model attracted considerable attention and "was the talk of the district." The membership now stands at 74. The Club Leader, Mr. H. May, gave an interesting lecture on "Motor Cycles," which was much enjoyed by the members. The Savings Bank is in a flourishing condition. *Club Leader and Secretary:* Mr. H. May, 17, High Street, Mexboro'.

ST. MARY WITH ST. GABRIEL (Newington Butts, S.E.11) M.C.—An interesting programme has been drawn up including model-building, competitions and lectures, and a very successful session is anticipated. Mr. Curle has kindly promised to assist the Club and Mr. Adams—who carried on the Club work during the Leader's recent indisposition—will still maintain his interest. A lantern lecture on early English history was much enjoyed by members of the Club and friends. *Secretary:* Master T. L. Bullock, 213, Newington Butts, London, S.E.11.

SOUTH KIRKBY M.C.—Recommenced activities on October 5th, and a very successful session is anticipated. A fine cricket club was run during the summer months. *Secretary:* Master J. Williamson, School House, South Kirkby, near Wakefield.

WHITLEY AND MONKSEATON M.C.—The Secretary writes: "With the coming session we expect to do great things both in sports and other work." We trust that his anticipation will be realised. *Secretary:* Master W. Hope, 16, Queen Road, Monkseaton, Whitley Bay.

HERNE HILL M.C.—The members of this club have been busy with out-door pursuits, but now they return with renewed enthusiasm to model-building evenings. The session commenced on October 3rd, with an increase of membership, and the members intend to issue a Club Magazine. *Secretary:* Master G. H. Dowsett, Cartref, 29, Frankfurt Road, Herne Hill, London, S.E.

SMALLHEATH M.C.—A New Club-room has been obtained at Little Green Lane School through the kindness of Mr. W. P. Innes, Chief Education Officer for the City of Birmingham. The programme has been arranged and a successful session is looked for. A suggestion is made for a Guild Rally of all the Birmingham Clubs on the lines of the Rally to be held in London on the 26th November. Arrangements are in hand with a view to putting this suggestion into practice. The Leader made the recent occasion of presenting Guild badges to new members an opportunity for a short lecture and ceremony. He states that: "Had it been the freedom of the city which was being conferred, the whole Club could not have taken it more seriously or given more genuine applause." The Club is expecting great things during the winter session, and Miss E. M. Edge has been appointed Minute Secretary and to assist the general Secretary. The Leader reports that there is some possibility of starting a "Girls Club" and we sincerely trust that it will be possible to follow the Claygate Meccano Club in this connection. *Secretary:* Master W. Edge, 131, Whitehall Road, Smallheath, Birmingham.

THORNTON HEATH (High School) M.C.—A number of illustrated lectures have been arranged, the first by Mr. H. Cox (of "The Builder and Architect") being a lantern lecture on "Old London." An invitation has been received from Mr. B. Sayers, the Croydon Librarian for the members to visit his Library for a special lecture. The Club will be represented at the Guild Rally on the 26th November by the senior members. The Football Club is making up a fixture list, and "The Spanners" Pierrot Troupe have already had a rehearsal and hope to give a concert shortly. *Secretary:* Master G. Holme, 61, Lodge Road, Croydon.

CLAYGATE BOYS M.C.—At a recent meeting a lantern lecture on the "History of the *Daily Mail*" was given. The members number 44, and are fortunate in having such an enthusiastic Leader as Mr. J. W. Haynes. The Club, along with the Girls' Club, is endeavouring to obtain an ex-army hut, so that meetings may be held every night. This is an excellent idea and we look forward to hearing of the success of the effort. *Secretary:* Mr. Brittnal, Vale Road, Claygate, Surrey.

CIRENCESTER GRAMMAR SCHOOL M.C.—The membership of this Club has now increased to 30, thus showing a great improvement on last year. Two interesting lectures have been given by Mr. Stradling, on "Time," and on the "Harmonograph." The Club looks forward to a successful session. *Secretary:* Master N. Gobey, "Clovelly," Victoria Road, Cirencester.

CARDIFF Y.M.C.A.—Have secured a Leader in the person of Mr. W. H. Whiting, and to make a good start the Club has arranged with a local dealer tor supply parts for building the Transporter Bridge. The Club then intends to exhibit this model in the dealer's window. Electric motors are on the premises for the Club's use when required, and power is available for driving these. Valuable prizes are being offered for model-building, and it is hoped to make the present session a record. The first meetings have proved so successful that a larger room has had to be procured. The Secretary hopes to extend still further the activities of the Club. At the Cardiff Y.M.C.A. a model railway is under construction on the roof of the boys' department. Permanent way is being equipped for steam, clockwork and electric locomotives, and during the winter rolling stock and track will be manufactured in the workshops. It is hoped to make the model railway the most complete system in the district, and a large station is being built, having a set of six rails, and a signal box which will be over 6ft. in length when complete. *Leader and Secretary:* Mr. W. H. Whiting, Central Y.M.C.A., Cardiff.

BLOEMFONTEIN (South Africa) M.C.—Despite the loss of the Club Leader, Mr. Large, this Club is making rapid progress. The membership is now over 20, and the Club has been able to add several new books to their library. A word competition was held recently. and K. Ham won the 1st prize, while G. Lupton carried off the 2nd prize. The Club takes great pride in a small silver cup, which is the trophy held for one year by the best all-round boy. A concert was held at the end of the second session, and forty people attended. The Club has now been affiliated and we welcome it to the Guild. The Club Leader is Mr. H. E. Lambert, 4, Loop Street, Bloemfontein, who will be pleased to hear from any Meccano boys who desire to join the Club. Meetings are held in the Presbyterian Church Hall, and the Club is now in its second session. Club funds for the first session show a balance in hand. *Secretary:* F. H. Lupton, 4, Loop Street, Bloemfontein, South Africa.

AIRDRIE Y.M.C.A. M.C.—Took part in the Burgh Centenary Procession with marked success. An Eiffel Tower, surrounded by a roundabout, both worked by electricity, were on view. A great number of people were present, and much interest was shown in Master J. McElroy, who was dressed to represent "Meccano." Also in Master W. Gemmell, who represented an "Indian Chief," Master Bert. Danskin as a "Clown," and Master Gardner Henderson as an "Engineer." Master G. Henderson was the builder of the Eiffel Tower. A social was held on October 31st to which the Westerton Meccano Club was invited, and a very happy evening was spent. An enjoyable social was held on Hallowe'en. The energetic Leader, Mr. Robert Bett, is helping to form a Meccano Club in Coatbridge. *Leader and Secretary:* Mr. R. Bell, "Cairnhope," Cairnhill Road, Airdrie.

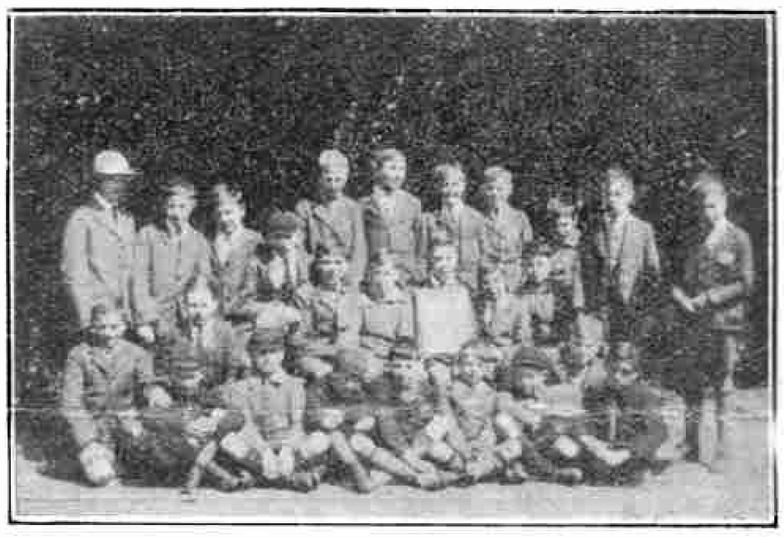
HEAMOOR M.C.—The Club outing took place on September 10th, when the members journeyed to St. Ives and Corbis Bay. Everything of interest was visited, and the "Caves" attracted particular attention. A very good syllabus has been drawn up for the winter session, and the Club looks forward to an instructive session. We should like to express our sincere sympathy with Mr. W. J. Berryman in his recent illness. *Secretary:* Master J. Reynolds, c/o Jamaica Place, Heamoor, Cornwall.

Clubs newly Affiliated.

CLAYGATE GIRLS M.C.—This new Club, the formation of which was announced in our last number, has now been affiliated, and we welcome it to the Guild. The Club is making good progress and already has 48 members. *Leader:* Mr. J. W. Haynes, "Fontmell," Covers Road, Claygate.

ST. DAVID'S (Tonyrefail) M.C.—The first meeting held on the 4th October. The Club opened with a membership of 10, and there are good prospects of adding to this number. The Vicar kindly consented to become the President, and opened the meeting with appropriate remarks. He told the boys that if they stuck together he would support them to the hilt. Mr. F. Morse, 68, High Street, Tonyrefail, has been appointed Club Leader, and the Secretary will be pleased to hear from any boys in the district who wish to join the Club. Meetings are held every Tuesday evening in a comfortable Club-room in St. David's Institute. An Exhibition of Meccano Models will be held at Christmas, and lectures are also being arranged. *Secretary:* Master James Davies, The Warren, Tonyrefail.

A Successful Meccano Club.



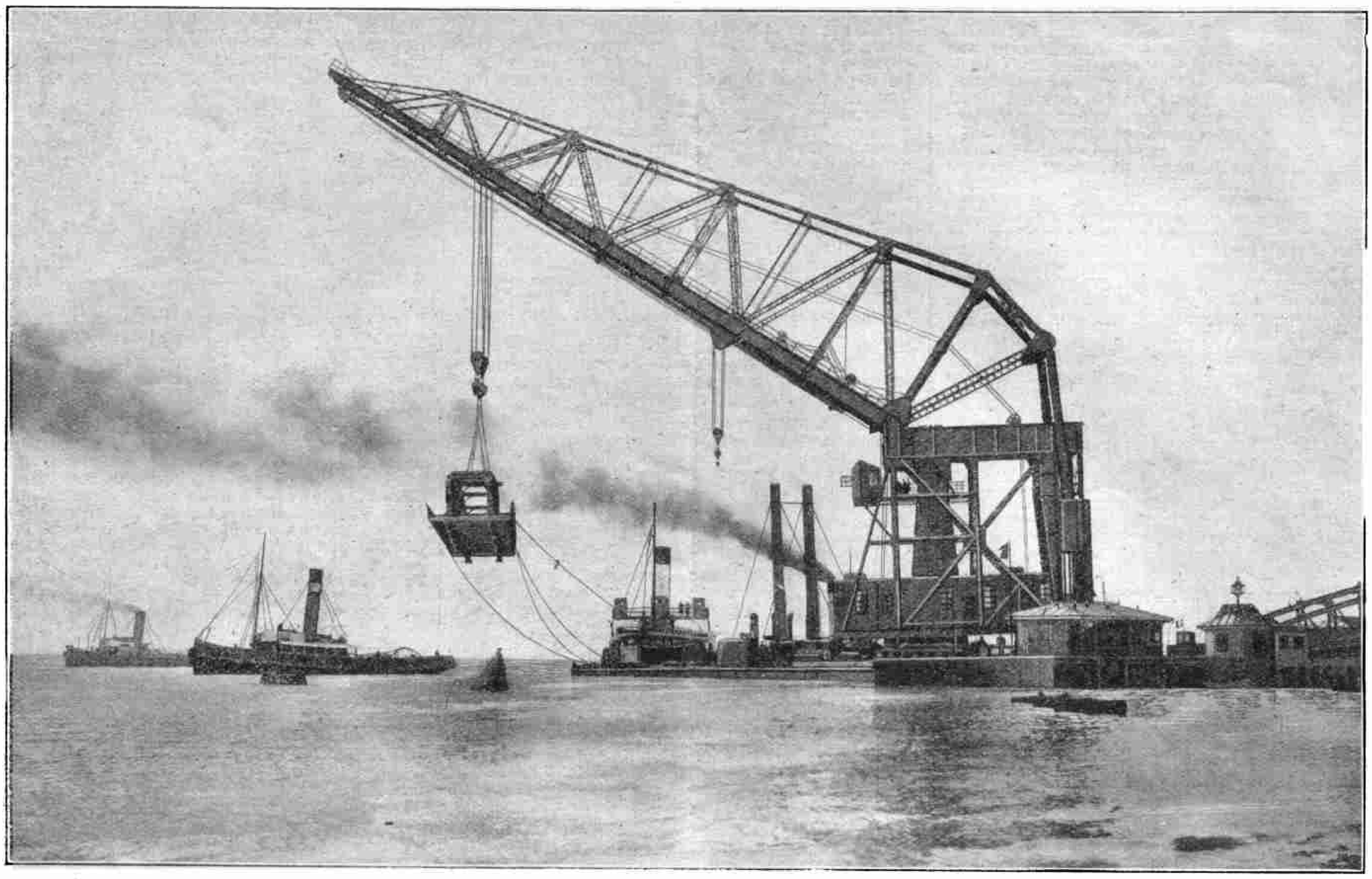
I have pleasure in reproducing the above photograph of the "Steyne School Meccano Club," Worthing. This club was commenced in the summer of 1920, and there are now 26 members. Two exhibitions were held last session. A collection was made for the local convalescent home for disabled soldiers and sailors, which realised over £1. Three lectures were given during the session on "Steam Engines" and "Natural History," by members of the Club.

Inter-Club Competition.

I have pleasure in announcing that it has again been decided to offer two prizes for the best models built by Clubs during the winter session. The first prize of £5 in cash will be awarded to the Club who designs the best model, and the second prize of £3 goes to the Club who designs the second best model. The only conditions of entry are that each model must be the joint work of the Club members and must be started and finished at the Club meetings under the guidance of the Club Leader. There is no restriction in regard to the size or type of the model, or the number of parts used in making it.

The subject of both first and second prize models last year was, curiously enough, the same. The first prize for an exceptionally fine model of a fair-ground, being won by the New Malden M.C., and the second by the Norwich Enterprize M.C. Other models submitted included Railway Stations, Graving Docks and Warehouses. There is, however, a very large range of models suitable.

The judge will be the President of the Guild, Mr. Frank Hornby, whose decision will be final. No special consideration will be given to the size of the model, the award being based principally on ingenuity, novelty, and mechanical accuracy. The model itself should not be sent for adjudication, all that is necessary being a clear photograph or drawing with a simple description of any points which require explanation. The closing date of the competition will be March 31st, 1922.



THE 200-TON FLOATING CRANE "MAMMOTH," LIFTING A BRIDGE WEIGHING 152 TONS, AT NEW BRIGHTON FERRY.

THE "MAMMOTH"

A 200-Ton Self-Propelling Floating Crane.

The Mersey Docks and Harbour Board have in use in Liverpool this large self-propelling floating crane, capable of handling loads up to 200 tons, and known as the "*Mammoth*." It is of the derricking-jib type and the fact that it is able to deal with heavy loads over the gates of large graving docks is a particularly valuable asset especially in ship repairing.

The "*Mammoth*" is carried on a self-propelled pontoon, 154ft. in length and 88½ft. in beam. The crane-arm is so placed that the maximum out-reach may be obtained either over the side or over the stem of the vessel. The crane is thus able to handle loads in narrow entrances, or in restricted places. It has two principal parts, the framework and the jib, the latter being mounted on a tower 66ft. in height, and built in the form of a truncated cone. The jib is connected to the upper platform of the framework at the front by two pins, and two links connect it to a movable counterweight, situated between the platforms at the rear. This counterweight is operated by vertical worm shafts, the rotation of which raises the counterweights, thus lowering the jib and *vice versa*.

The larger of the two pairs of lifting blocks is fixed, but the other is capable of being traversed throughout the full length of the jib. Loads up to 90 tons are dealt with by the latter pair, while loads of over 60 tons and up to 200 tons are taken by the pair of fixed blocks. In each case, the blocks may be used singly up to their maximum capacities, each being capable of individual operation.

The crane may be slewed through a complete circle and the whole of the movements are electrically driven by ten electric motors. These are operated on the Ward-Leonard system, by which any load may be hoisted or lowered from extremely low speeds to maximum, without any change in the mechanical transmission. The Ward-Leonard system also reduces wear and tear to a minimum and eliminates loss of energy, starting and stopping being effected without the setting up of undue stresses. The power is transmitted from the motors by worm gears and gear wheels, while electrical brakes are fitted to all motor shafts. The handling of the load is a comparatively simple matter, only one man being required for even the heaviest loads. From the central cabin, situated at the top of the framework and just below the jib hinge pins, the operator has at all times a clear view of the load with which he is dealing, as well as of the deck of the pontoon. Of this deck an area of about 300 square yards on the after portion is reserved for the reception of loads for transit, the structure being specially strengthened to support the maximum weights.

The pontoon is propelled by twin screws, driven by two sets of triple-expansion Marine type engines, which work at a steam pressure of 150lbs. per square inch. The crane was built in Holland and on a trial trip on the River Meuse attained an average speed of 4·85 miles per hour. Incidentally it may be mentioned that it was towed from Schiedam to Liverpool without the jib being dismantled. One set of engines is arranged so that it may be uncoupled from the propeller-shaft and utilised for driving the dynamos of the electric generating plant, which produces the supply of electrical energy necessary for the crane movements. A separate steam-driven generator is provided for the extensive electric light installation, by which the whole of the vessel is illuminated to facilitate night working.

So far as heights of lifting and radii of action are concerned, the scope of the "*Mammoth*" is exceptional, the crane being capable of lying alongside the largest vessel afloat and delivering loads up to 60 tons from the hold of the vessel direct on to the quay.

We have described this important crane in detail, as we feel that it cannot fail to be of great interest to Meccano boys. We are sure that many of our readers will derive much pleasure from constructing a replica of the "*Mammoth*" with Meccano parts.

Our photograph is reproduced by the kind permission of the Mersey Docks and Harbour Board.

Meccano Story Competition

In No. 19 of the *Meccano Magazine* we announced the result of the Essay Competition, and printed the winning story. We have pleasure in printing below the story which won the third prize.

MECCANO TO THE RESCUE!

By MASTER L. I. HUNT.

"Jack, I've had a challenge!" said my friend Lionel, meeting me on my way home from the Meccano Club. "You know young Seymour, that youngster in the third? He's started geometrical drawing or some such stuff, and when I ragged him about it, he said he'd bet me ten shillings I couldn't show him a design half as good as his. Of course I took him on, but I can't draw for nuts, and I look like losing the game."

"Did you say a design was what you wanted?" I asked.

"Yes; any old thing will do *him*, but I can't do *it*!" answered Lionel.

"I can do it, though," I replied.

"What!" shouted my friend; "*You* do it, why you can't even *write* decently!"

"You wait and see!" I said.

. . . . . .

The next night I went round to the Club and borrowed a few gear wheels and other parts, and returning home, set to work to build a Meccanograph. I assembled the parts, tested and oiled the bearings and wheels, and spent a good hour adjusting and improving, after actually completing the model before I was satisfied. Then I took a well-earned night's rest. Next morning I met Lionel on the way to school and asked him how he was getting on.

"Rotten," he replied, "I've only to-day to win that bet, and I simply can't do it."

"Look here," I said, holding out the pick of my evening's work.

"By Jove!" exclaimed Lionel. "You didn't do these did you?"

"Yes I did!" I grinned, "Will any of them do?"

"Even this one would make Seymour look small," Lionel replied pointing to my first attempt, "but *this* one is simply marvellous. How on earth you thought of such beautiful designs beats me entirely, let alone how you managed to put them on to paper!"

"You get that money from Seymour," I replied, "and come round to tea this afternoon. It is necessary!"

"I will," he agreed, "and thanks awfully!"

. . . . . .

"Well, what did Seymour say?" I asked as I let Lionel in that afternoon.

"The designs absolutely knocked him out," he replied. "He seems to regard me now either as an angel or a demon or——, well, something mighty clever, specially sent down to earth to plague him! I believe he would have kissed my feet if I'd let him; but of course I couldn't take his ten shillings. I gave him the designs instead."

"Good for you!" I congratulated. "Come and be introduced to your unknown benefactor."

Then I took him into my room and showed him the Meccanograph. The model absolutely seemed to fascinate him. He spent the whole evening making different designs, one after another after I had shown him how to alter the connections. When at last he showed signs of getting tired—although he was no less eager—I showed him the Meccano Manual, and explained how easy it was to build Meccano models. Well, next morning I saw him gazing rapturously into my favourite dealer's window, feeling for his purse!

"Lend me ten shillings, old chap," he pleaded.

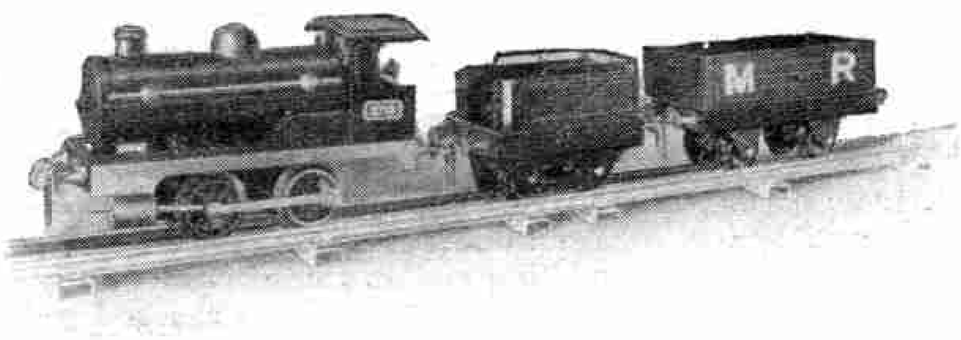
But I made young Seymour do that!

HORNBY CLOCK WORK TRAINS

Perfect Mechanism, Beautiful Finish, Standardised Parts.

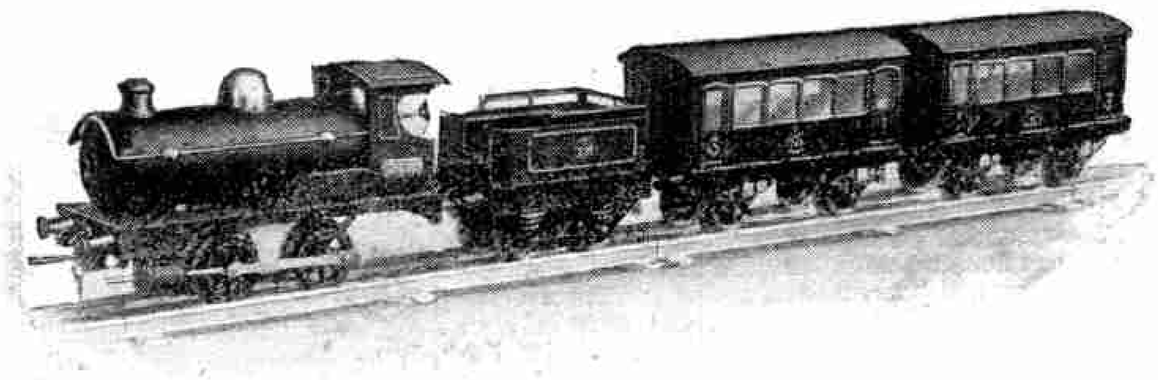
The Hornby Trains are manufactured by Meccano, Ltd., and they are built on the Meccano principle. All the parts are standardised, and Locos., Tenders, Coaches, and Wagons may be taken entirely to pieces and rebuilt. If one of the parts is lost or damaged, you can fit a new one yourself. *A HORNBY TRAIN LASTS FOR EVER!* They are beautiful pieces of workmanship, with perfect clockwork mechanism ensuring smooth running, and each train is guaranteed.

The Hornby Trains are all made in Gauge 0, in four colours to represent the London and North Western, Midland, Great Northern, and Caledonian Railway systems. All the Locos. are fitted with reversing gears, brakes, and governors. The Coaches are beautifully enamelled in colours, and the trains are packed in strong attractive boxes.



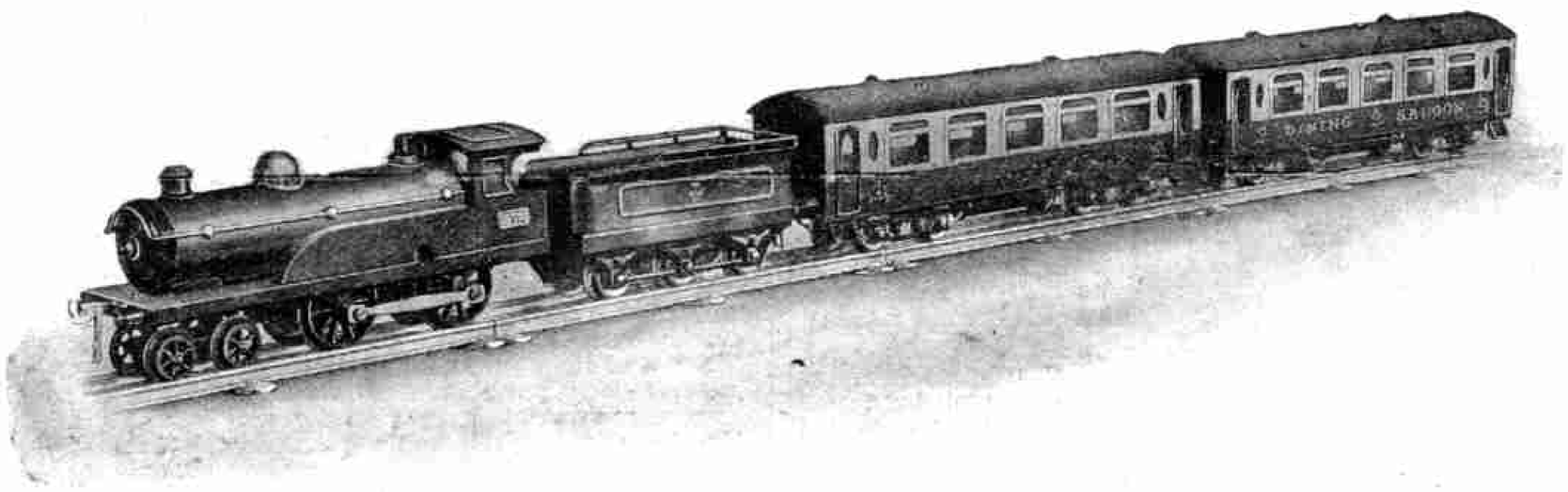
No. 1 GOODS SET.

Contains Loco Tender, and one Wagon, with set of Rails including a 2ft. diameter circle and two straights. Complete set, price 30/-.



No. 1 PASSENGER SET.

Contains Loco., Tender, and two Coaches, with set of Rails including a 2ft. diameter circle and two straights. Complete set, price 38/6.



PRICES.

	H.T. No. 1	H.T. No. 2
Locos.	each 18/6	each 40/-
Tenders	„ 4/6	„ 5/-
Wagons	„ 4/6	„ 4/6
Coaches	„ 6/6	„ 16/-

Rails. Straight or curved, for No. 1 or No. 2 6/- per dozen.

Crossings. Right or acute angle, 2/6 each.

Points. (Right or left hand) for 2ft. or 4ft. diameter circle, 5/- each.

No. 2 PULLMAN.

Loco. and tender of a larger type, measuring 17in. in length. A superior mechanism has been adopted making this the most satisfactory clockwork train yet produced. The Coaches are beautiful both in colour and finish. Each set includes a Loco., Tender, Pullman, and Dining Saloon as illustrated, with set of Rails making a 4ft. diameter circle. Complete Set, price 80/-.

No. 2 GOODS.

This is similar to the Passenger Set No. 2, but with two Wagons in place of Coaches. Complete Set, price 57/6.

THE NEW Meccano Prize Competition—£250 in Prizes.

Another big Meccano Model Building Contest is announced, and we want every Meccano boy to know all about it. There will be hundreds of prizes awarded, including nine prizes in cash to the value of £100, and Meccano Outfits to the value of not less than £150. As was the case last year the Competition will be divided into three sections.

1. For boys under 10 years of age.
2. For boys between 10 and 14 years of age.
3. For boys over 14 years of age.

In addition to these prizes the Meccano Guild is again offering three awards of £5 each in cash to the Member of the Guild who gains the best prize in his Section. Forms of entry may be obtained either from your dealer or from us.

There are no restrictions or entrance fees. Any Meccano boy can enter, and the competitor sending in a simple model made with a No. 0 Outfit stands just as good a chance of winning a prize as does the competitor who sends in a complicated model made from a No. 6 Outfit. **This Competition will close on April 15th, 1922, for entries from the United Kingdom, and on May 31st, 1922, for entries from the Colonies.**

MECCANO

Our Mail Bag.

The Editor has a little talk in this column with his Meccano boys. Whether he has space to reply to them all here or not, he is always glad to hear from them. He receives hundreds of letters each day and only those which deal with matters which are likely to interest other Meccano boys can be dealt with here.

Correspondents will help the Editor if they will write on one side of the paper only.

B. Waistnage, Cantley.—We are glad you find the *M.M.* more and more interesting. We quite believe it seems to you a very simple matter to further enlarge our Magazine, but we would assure you that the whole matter bristles with difficulties. We shall overcome them in due course, however, and the *M.M.* will then be the biggest and brightest boys' paper in the world.

H. Loming, Doncaster.—We are glad to know that your heart jumps with joy when you hear from us. We like to have letters from such boys as yourself, and our pleasure shows itself in our replies.

V. Hammond, New Malden.—"The winning of the £5 prize has done me as much good as the expenditure of the money will benefit the boys of my Club. One of H.M. Inspectors visited the School purposely to find out what the Meccano Club was doing for the boys. He was indeed pleased and the Managers of the School are also very pleased with our work." We follow the doings of the New Malden Meccano Club with very great interest. We are gratified to know that competent outside authorities think so highly of your endeavours and the results you have obtained.

F. Louton, Slough.—You have omitted to put your address at the head of your letter. If you will write us again, we shall be glad to give you all the assistance in our power.

L. C. Edwards, Hull.—You are quite right, Laurence, we like straight letters, and we have no objection whatever to your criticisms of the sentence under the heading of the *Meccano Magazine*. Looking at it the way you do, it may seem selfish, but on the other hand, it is just a simple truth. We shall have to give your other suggestion a little more consideration. We are always glad to hear from you.

R. Deakin, London, N.12.—

"I long for the hour when school is done,
I do not walk, I simply run,
For something awaits me that gives me joy,
Meccano, the toy for every boy."

It is nice to know how much you enjoy playing with Meccano, and your little verse shows us how enthusiastically you pursue the hobby.

B. Burkin, Wallington.—We have many times had the suggestion that the story of Dick's Visit to the Meccano Factory should be written, and we shall no doubt publish it before very long. All the interesting little incidents which took place on his visit have been recorded, and when it is issued the book will be a very fascinating one.

S. A. Stray, West Horsham.—The designer of the St. George and the Dragon model would blush with pleasure if he read your letter. It is certainly a clever model and it has already gained many admirers.

John D. Tonkinson, Wolverhampton.—Meccanoland is getting along splendidly and the inhabitants are having a wonderful time just now. You were a long time writing to us, but your letter was such a nice one, that we have forgiven you. We will try to publish the *M.M.* oftener.

Jack Johns, Rivera Pinente.—Of course if you sign yourself "Jack" we expect you to be a boy, and you must forgive us for addressing you as "Master." You seem to lead a very roving life and to see a great deal of the world. We can tell by your letters that you are a happy girl and we should like to hear from you often.

Geo. Clement, Christchurch.—You are right, George, Meccano links up the four corners of the earth. If you wish very hard for a Hornby Clockwork Train about Christmas time, we shouldn't wonder if you got it. The Guild Secretary tells me that you have secured two recruits, and you will be entitled to a Recruiting Medallion when you have secured another.

Graham E. Bennett, Merton Park.—"Mr. Hornby ought to have a statue erected to him at every street corner, and I hope he will live long and go on inventing new things." This might be a very good way of perpetuating his memory, Graham, but just think of Mr. Hornby's feelings if he were to meet himself at every street corner all his life long. We think we should spare him such a horrible experience.

E. Farrar, Pelton.—Thank you for your suggestion that we publish the lives of great inventors in the *M.M.* We have these in mind, and have articles on these lines in preparation.

J. Fisher, Radford.—We are sorry to learn that you have had your Meccano badge stolen from you whilst playing football. We frequently hear of incidents like this, and we advise all Meccano boys to keep a careful watch over their badges.

Tom Kendall, Southampton.—Many thanks for your photograph of the 40 ton pontoon crane used in the Fishguard Harbour. This is a very fine structure, and we may be able to publish an illustration of it in a future number of the *M.M.*

R. Roebuck, Huddersfield.—You are right in saying that yourself and your chums have been missing a good thing by not forming a Meccano Club, and we are glad to see that you are now making up for lost time by working hard. You have made very good progress, and your syllabus of lectures is an excellent one. Yourself and your fellow-chums have our very best wishes.

R. Hill, Nottingham.—Particulars of the Guild Correspondence Club have been sent to you by post. We appreciate your keen enthusiasm for Meccano, and we hope your connection with the hobby will be a long and happy one. We are afraid you will have some difficulty in constructing a cinematograph with Meccano parts, but there is no harm in trying.

Jack L. Francis, Bramford.—Many thanks for your offer to write articles for us. We shall be very glad to give these consideration. You have a gift of happy expression which you should certainly cultivate. There is much of interest in "Metallurgy" which we could publish in the *M.M.*, but for the present we must confine ourselves to articles suitable for the majority of our readers, and not too technical and difficult of understanding. We shall certainly publish more and more articles on engineering topics, dealing with them in a simple and easily understood way.

A. McGregor, Wallsend.—We were glad to receive your letter, and we hope your boy will qualify for a No. 2 Hornby Train Set before Christmas. We note that the sentence "Present for Tommy—and Daddy—Meccano" took a prize in an "Answers" competition, and we agree with you that this sentence sums up Meccano very well.

T. Bulling, Cape Town, S.A.—We are always pleased to hear from any of the members of the Wynberg Meccano Club. We often hear of Meccano boys going to fancy dress balls dressed in Meccano costumes, and they very frequently win prizes. If we can help you with your own costume we shall be very glad to do so.

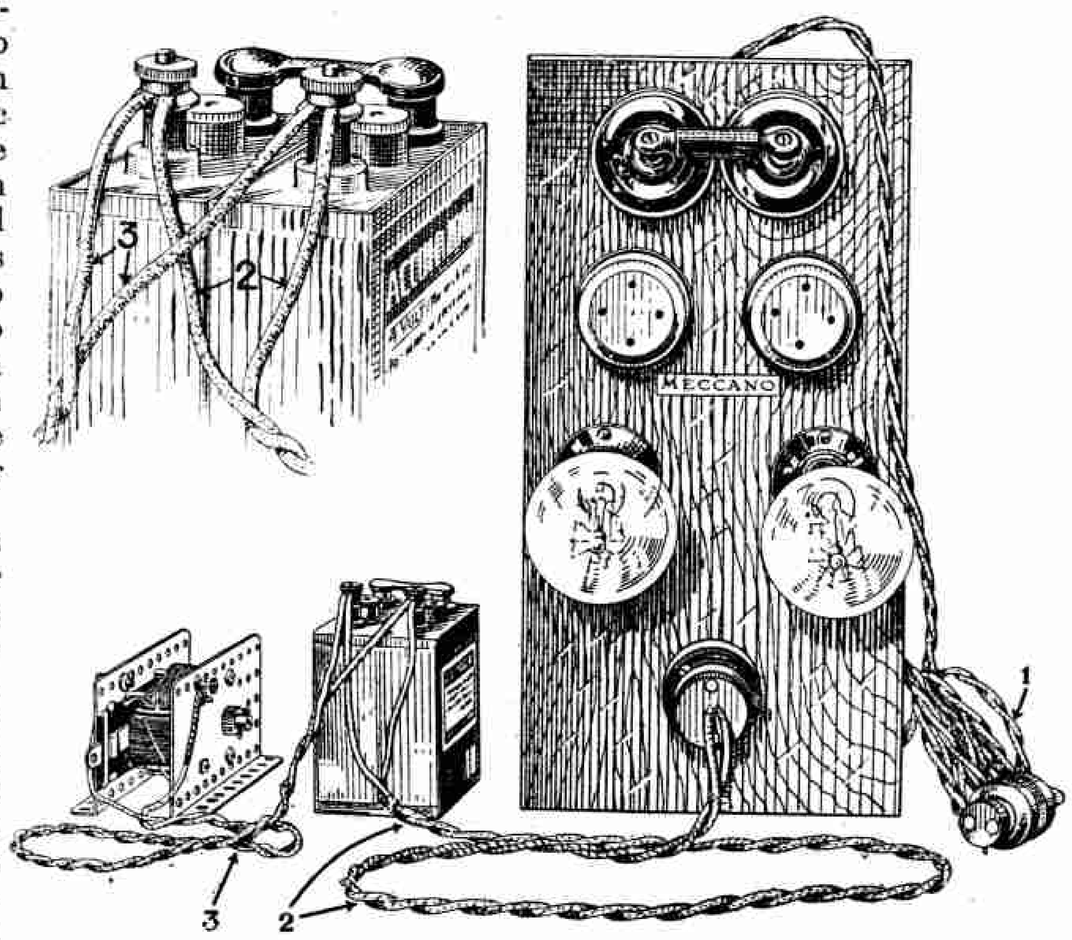
R. Higgins, Lassodie.—We see no reason why, because yourself and your friends have a football club you should not also have a Meccano Club. We know many instances where a Meccano Club is the parent Club, with successful football, cricket, cycling and other clubs as off-shoots. There is nothing which holds boys together in harmony and good-feeling more effectively than a well-managed Meccano Club.

David Patterson, Ballymena.—Many thanks for your suggested secret code for Meccano boys. This is quite sound but rather too complicated we fear.

B. D. Virmani, Dera Ismail Khan.—We were interested in reading your verses, and we appreciate your glowing description of the Meccano hobby, which evidently contributes much to your happiness. The verses are a little too lengthy to appear in this column.

J. W. Hatfield, Croydon.—"All is changed by the magic touch of Meccano. My Outfit is my truest friend, and the wisest man on earth could not find a better friend than a Meccano Outfit. Meccano has been my constant companion for five years. Mr. Hornby is for ever thinking out something for his boy friends." He is, indeed, John, and you would be happier still if you knew what further good things he has in preparation for his Meccano boys. You will hear more of them in a little while.

The Meccano Charging Board.



To meet the requirements of many Meccano boys, who wish to run their Meccano Electric Motors direct from the main current in their own homes, we have designed a simple type of apparatus which is safe and easy to use. This is the Meccano Charging Board which may be obtained through any Meccano dealer, price 50/- complete (except for two 60-watt lamps).

The Charging Board is connected by an adapter to an ordinary electric lamp holder, but it is important to note that it can only be used where the source of supply is direct current from 200 to 250 volts. Therefore, before deciding whether to use the Charging Board, enquiries should be made from the local Electricity Offices as to the nature and voltage of the current of the town main.

In addition to enabling the Meccano Motor to be run direct from the main, the Meccano Charging Board may also be used for charging accumulators and in this connection it is very economical in use. To charge an accumulator it is necessary to leave it on charge for about 10 hours. If a direct current of, say, 200 volts be used the cost of charging a cell would amount to about 4d. Several accumulators may be charged at the same time at no extra cost.

Our illustration shows the Meccano Charging Board connected to allow the Electric Motor to be run direct from the main, and the enlarged drawing shows the method of making the necessary connections to the accumulator.

Those boys who are interested in electricity and who are handy with their tools can easily make the Charging Board themselves at a reduced cost, and to enable them to do this we have prepared full instructions for making and wiring the Charging Board in the form of an illustrated leaflet, the price of which is 3d. post free.

The Meccano Manuals.

There are three Meccano Manuals of Instruction, Book No. 1 is the regular Manual which is included with the main Meccano Outfits and contains instructions for making 323 fine models. Price 2/6 (postage 3d. extra). Book No. 2 illustrates a large number of fine models and describes a series of simple scientific experiments. Price 1/3 (postage 2½d. extra).

The new Manual No. 3 contains illustrations and instructions for building a large number of entirely new and imposing models of great beauty. These include such interesting models as the Theodolite, Signal Gantry, Level-Crossing Gates, Revolving and Hydraulic Cranes, Coal Cutter, Lathe, Dredger, Planing Machine, Travelling Gantry, Wire-covering Machine, and Twin Elliptic Harmonograph.

The Manual is illustrated by an entirely new process, by which the component parts of every model may be clearly seen. The price is 1/3 (postage 1½d. extra).

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