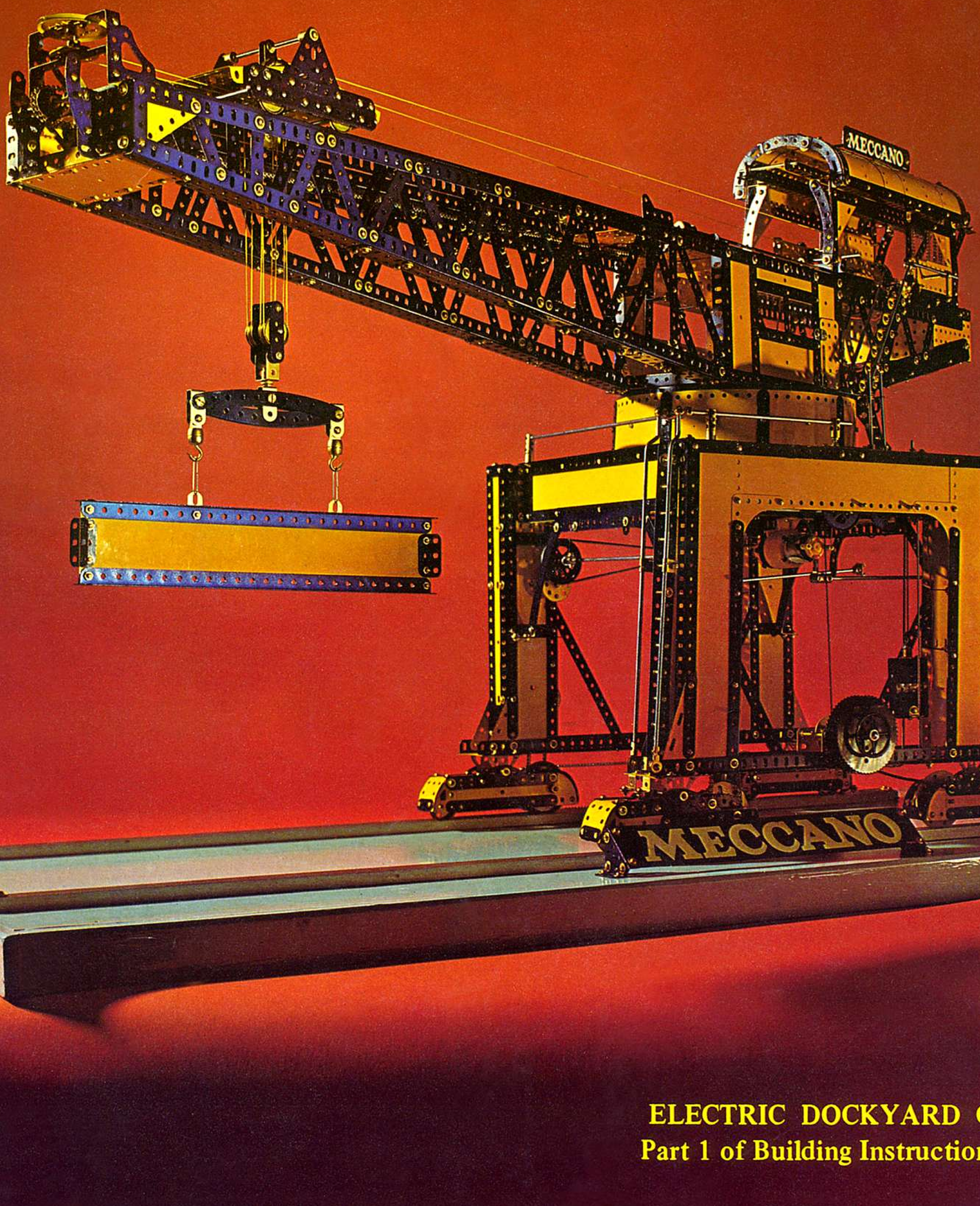
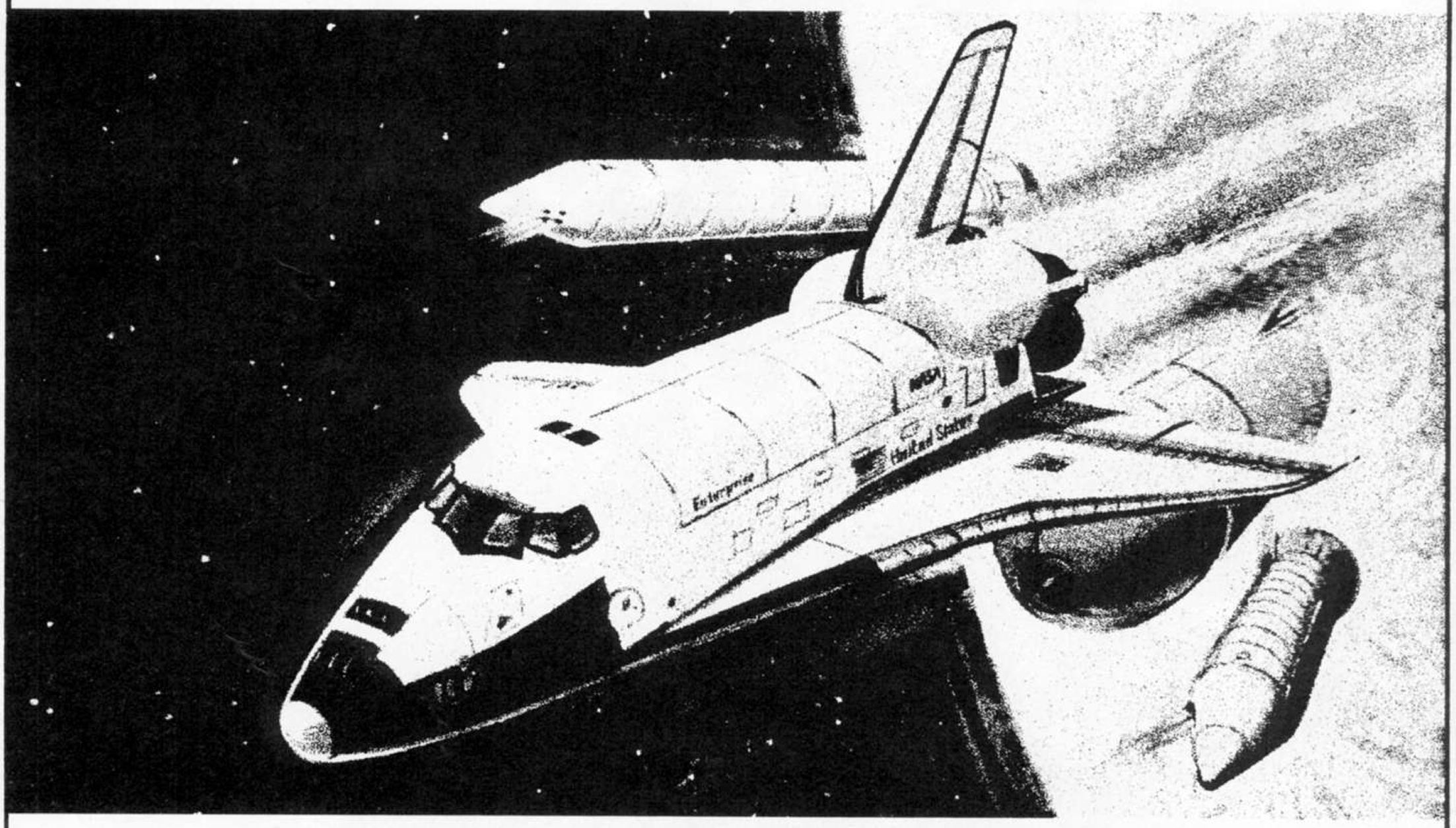
MECCANO MAGAZINE

VOL. 63 No. 3
1978 JULY £1

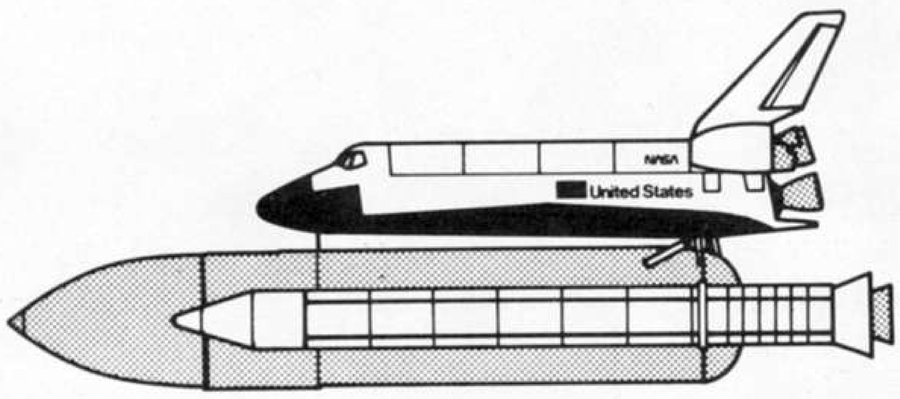


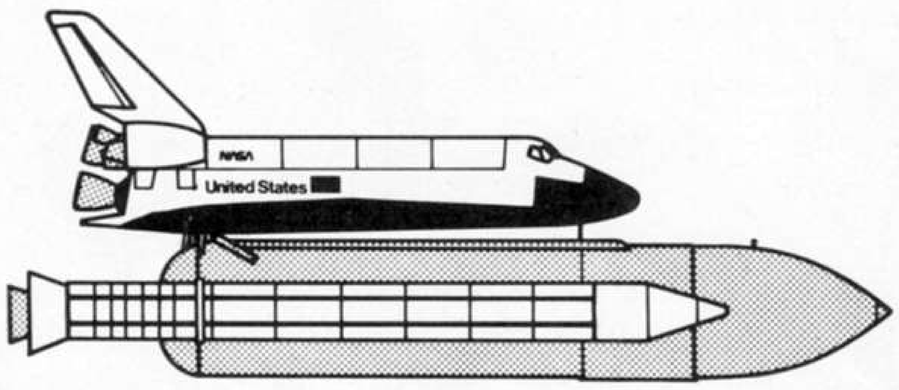
ELECTRIC DOCKYARD CRANE
Part 1 of Building Instructions inside

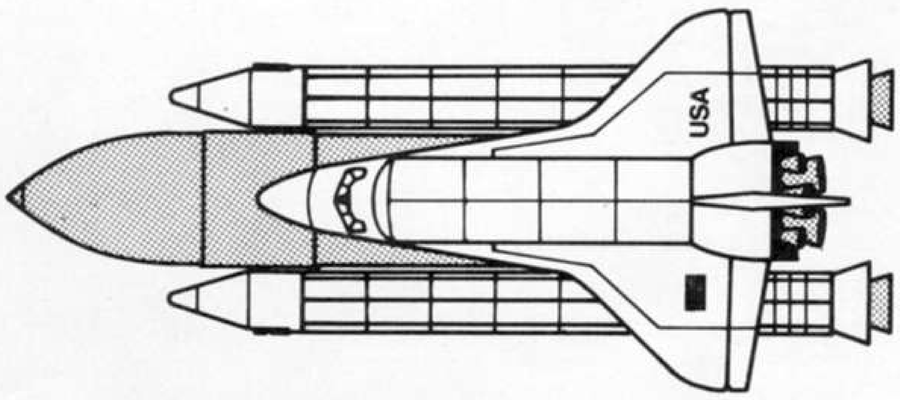
NEW FROM AIRFIX



THE 8.15 OF THE 1980's







For years the idea of spacecraft plying regularly between earth and space has been pure science fiction.

But now it's becoming science fact. In the shape of the Space Shuttle Transportation System being developed by NASA.

Its first manned space mission is planned for 1979, prior to the first scheduled operational mission in 1980.

By the mid 1980's, this re-usable space vehicle will be operating as a commuter ferry, shuttling men and materials with the same familiar regularity as the 8.15.

The Shuttle is now available in a 1/144 scale Airfix kit, with over 90 parts. The kit includes two strap on booster rockets, the huge fuel tank and a Space Lab payload.

Its detailed modelling is an eloquent demonstration of the close co-operation kindly provided by Rockwell Space Division, the Space Shuttle's designers.

Technical Details

Lift-Off Thrust:	6.61 million lb
Re-entry Speed:	17,450 mph
Re-entry Height:	76 miles
Touch-Down Speed:	215 mph

SPACE SHUTTLE
1/144 Scale

AIRFIX

JULY 1978

MECCANO MAGAZINE

Vol. 63, No. 3 July 1978.

ON THE COVER: a magnificent Electric Dockyard Crane designed by our correspondent Mr. Bert Love of Birmingham, and built by him from the contents of a current No. 10 Meccano Set. Reminiscent of the classic Block-Setting Crane of pre-war vintage, this new model is probably the best of its type designed specifically as a No. 10 Set project. Full building instructions begin on page 100 inside.

EDITOR – CHRIS JELLEY

Sorry about the April issue, lads (and ladies). It was, as you may have noticed, a little on the late side! However, it did eventually appear and, as many readers have said – better late than never. This issue, also, is threatening to be late as I write my Editorial, but the delay will be considerably reduced and perhaps by October we will be up to date. In the meantime, I repeat the plea for your patience I made in the April/July/October MM last year and I also thank you most sincerely for the patience you have shown this year.

COMPETITION EXTENDED

Because of the late circulation of the April MM, readers were left with insufficient time to tackle our Meccano Mouse Contest in that issue. In fairness, therefore, we have decided to extend the competition by three months to give everyone a chance to enter. Thus, no Competition Page is included in this issue, but, all being well, it will be back in October.

For the benefit of new subscribers, the task in the Meccano Mouse Contest is to make a model which, when suitably prepared, set down on a smooth surface and released, will move along a figure-of-eight course and return to the starting point. Only Standard Meccano (not Plastic Meccano) parts may be used, along with any motor – clockwork or electric– made by the Company within the last 10 years. Batteries must be carried on the model so that it moves without any external power supply or guidance. The prize will go to the maker of the lightest model, although the model itself must not be sent into us; just sufficient details to enable it to be rebuilt. And please state the all-up weight, including batteries, but excluding the winding key if a clockwork motor is used. *Entries must reach us by 14th September, 1978.*

RENEWAL REMINDERS

Following circulation of the last issue, a number of readers wrote to us expressing concern that they had already renewed their subscription. This can occur, especially when a subscription is renewed in advance of it being due. The circulation computer is programmed to produce a reminder for a particular issue and, as it is not feasible to alter the whole programme for an occasional renewal-in-advance the reminder will automatically be sent out. However, the renewal will have been entered, so the magazine will continue to be supplied. Thus, under these circumstances, the reminder should be ignored.



More and more, these days, Meccano Ltd. is receiving invaluable help from Meccano Clubs and individuals around the Country, especially in the way of models for exhibition and display. Nor is this support limited exclusively to the UK, as Kilroy Brothers Ltd., our Irish Distributors, would readily agree. Our picture, taken at Kilroy's big Toy Trade Fair held in Dublin in mid-May, shows a large and impressive 2–6–2 Railway Locomotive which was built by Irish Meccano Club member David Murphy and which attracted tremendous interest at the Fair. Kilroy's received great help from the Irish M.C. for the Fair, including the loan of some fine, big models such as, in addition to the Loco, a Vintage Rolls Royce also from David Murphy, and a Traction Engine from Ron Wayte of Dublin. Members of the Club attended regularly during the Fair to service the models as well as to demonstrate them to Trade visitors.

SPACE PROBLEMS

Although we have the same number of pages in this issue as in April, I have had some space problems in that it has been difficult to find room for everything. As a result, I have been forced, with regret, to omit 'Postbag' from this July edition, but I hope to remedy the situation in October. In the meantime, I would like to remind Meccano Clubs around the world that they are themselves entitled to space in 'Roundup'. One or two Clubs are conspicuous by their absence this issue; I do hope they will provide reports for future issues.

And, finally, may I again remind all interested readers of two forthcoming modellers' events: the Midlands MG's display at the Town and Country Festival, Stoneleigh, 26th–28th August, inclusive; and Henley's giant Meccano Exhibition on 1st and 2nd September. I strongly urge all who can make it to attend – you will not be disappointed. Might see you there !

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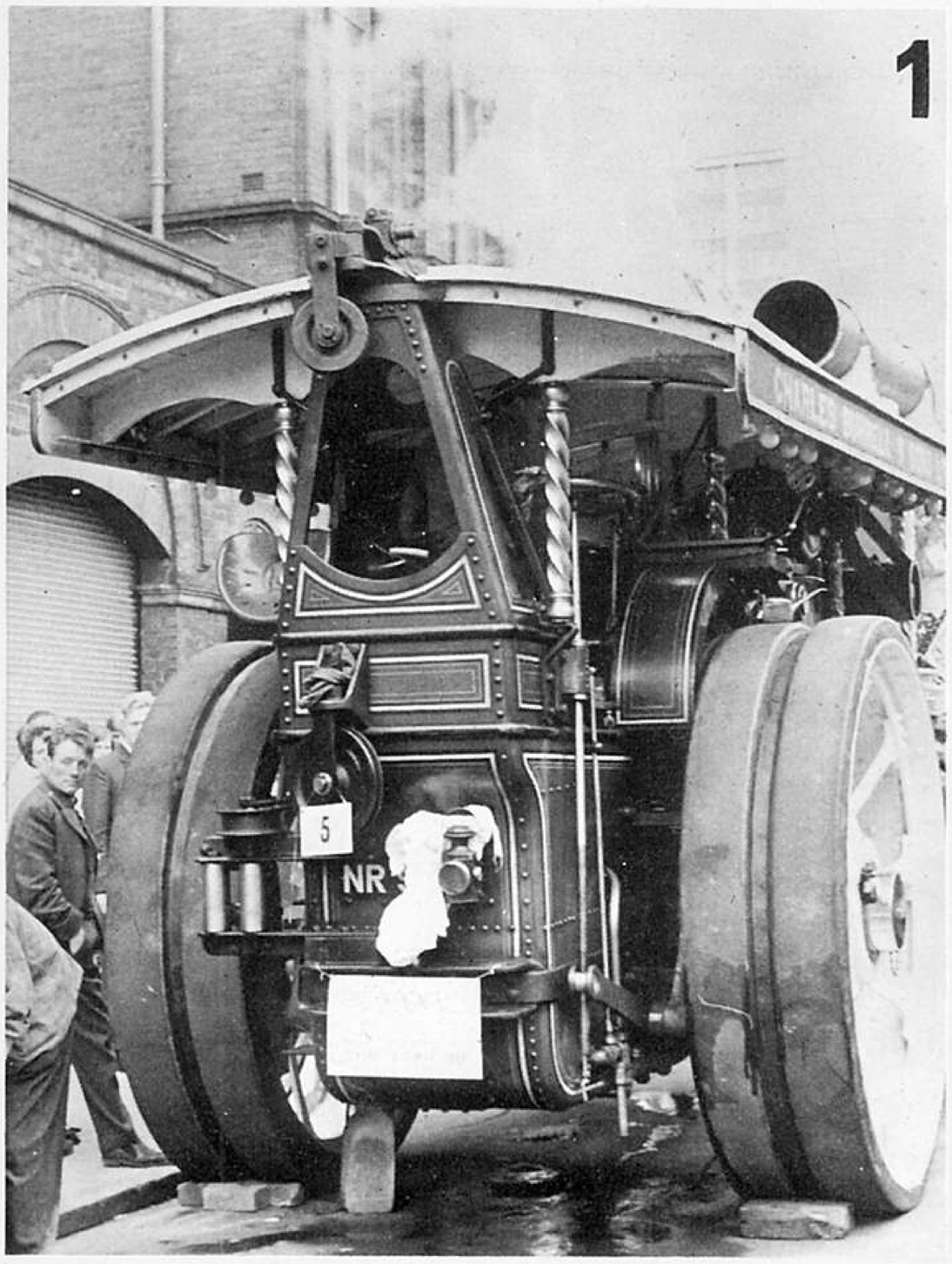
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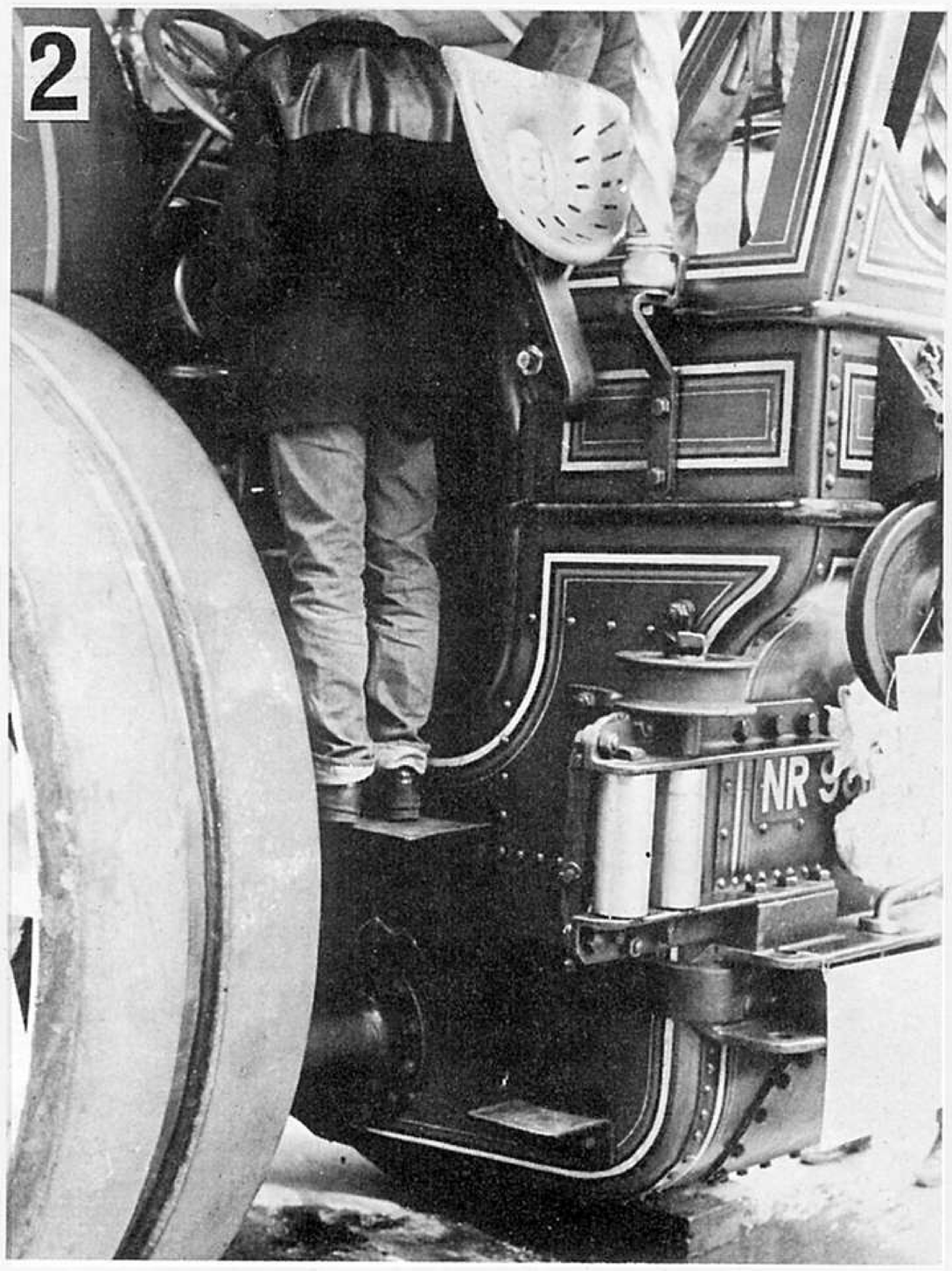
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Continuing his series on traction engine modelling, COLIN HAMILTON deals with

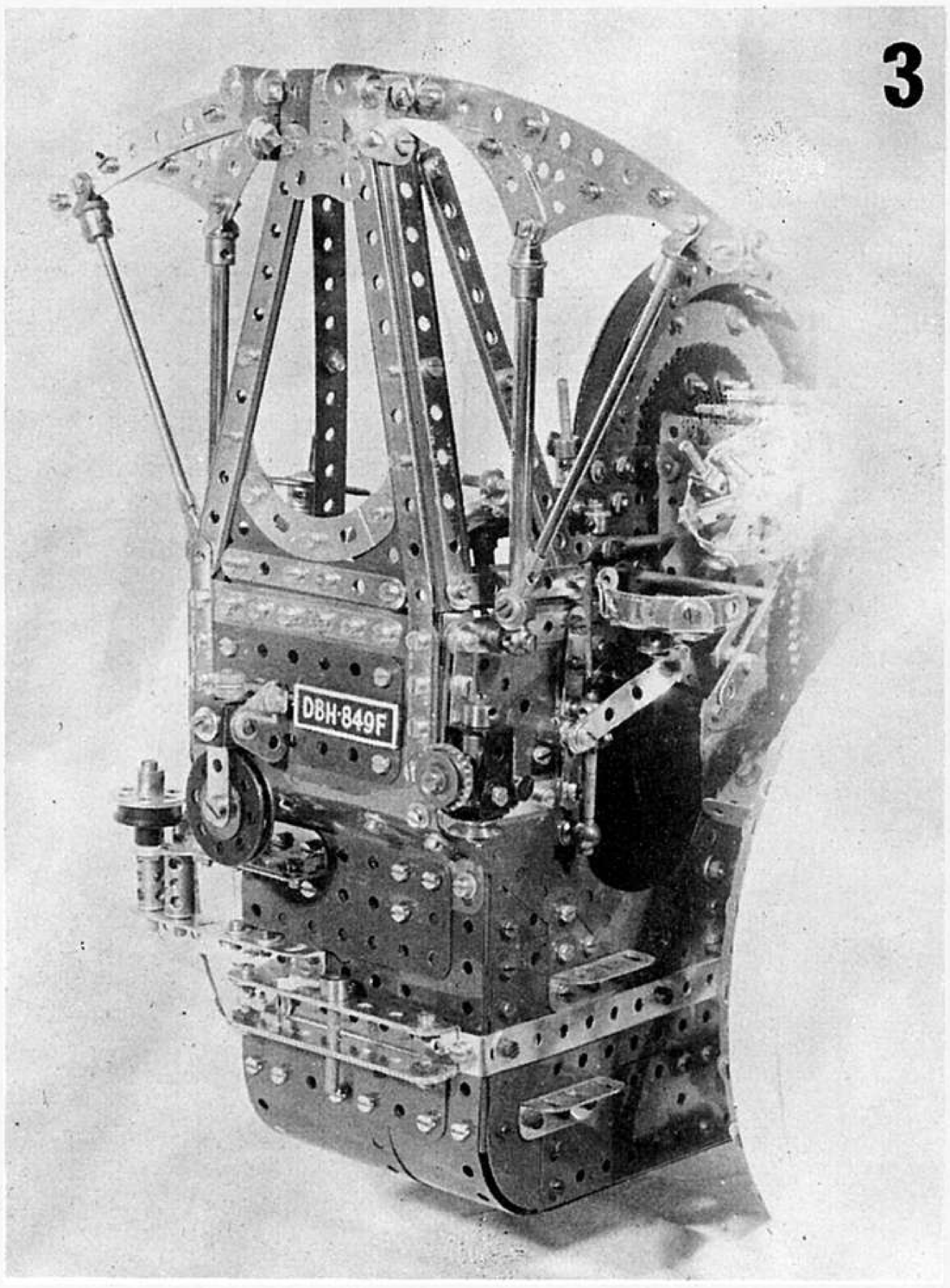
REAR ENDS OF SHOWMAN'S ENGINES

To the enthusiast's eye, the tail end of a good showman's engine is as interesting in detail as the front, and once again the famous Burrell outlines are illustrated here in Figs. 1 and 2 to typify the design. Not only were these massive engines the hauling and generating work horse of the showground, but they were also the mobile cranes of their day. Study of Fig. 1 showing the rear of "Winston Churchill" reveals various pulleys and guides which were fitted to these road locomotives to enable them to carry out winching or hoisting duties. If, for example, a roller coaster was being erected on site, certain sections required hoisting well above ground level, so the auxiliary equipment for the Burrell included a strong derrick post with a heel pivot-pin and this was inserted in the draw-bar of the engine in place of the towing-pin shown in Fig. 2. A fixed "topping Lift" (wire stay) kept the derrick post at a set angle while the cable on the engine's winching drum was paid out round the roller and two guide pulleys which can be clearly seen in Fig. 1. Note that the lower guide pulley is off-set to one side on the rear bunker plate to give a clear vertical lead to the hoisting wire. A pair of vertical rollers was also fitted at winch level to the rear of these engines so that straightforward horizontal winching for recovery or a remote derrick operation could be carried out.

A fine example of modelling the rear end of a Burrell compound is shown in Fig. 3 where the essential contours of the prototype are shaped in Flat and Flexible Plates. Strength and elegance are combined in the upper struts for supporting the derrick by use of standard Meccano Girders overlaid with Narrow Strips, a contrasting silver on green producing a very pleasing 'slimline' effect.

Most important is the scale of the bunker width which virtually matches that of the boiler diameter. A common fault, even today, in modelling traction engines in Meccano is to use a bunker width which is quite out of scale and which gives a very ugly squat appearance to the model. This trend was set some fifty years ago by the original Meccano Supermodel Leaflet for a Traction Engine and it is the well-known pioneering Meccano specialists of the last decade who have put the matter right. Fig. 5 shows a rebuild of the offending pre-war model where the bad scale of bunker width to boiler diameter is clearly seen, apart from complete absence of driver access! However, even with the general overall size of the early Meccano model, much can be done to improve matters as shown in Fig. 4. This time, a bunker width of four-holed Strips gives the correct proportions when combined with the Meccano Boiler up front. Even at this smaller scale, additional details are easily modelled as the towing winch, rollers and neat draw-bar tow-pin bracket shows in Fig. 4.

Agricultural engines also need careful attention to their rear end proportions when modelled in Meccano and an excellent rugged example of this is shown in Fig. 6. Careful attention to outline modelling is the first priority, i.e. getting the general scale and shape right. All additional details such as lamps, handrails, driver's steps levers and steering wheels then compliment what is already a soundly designed and soundly built model.



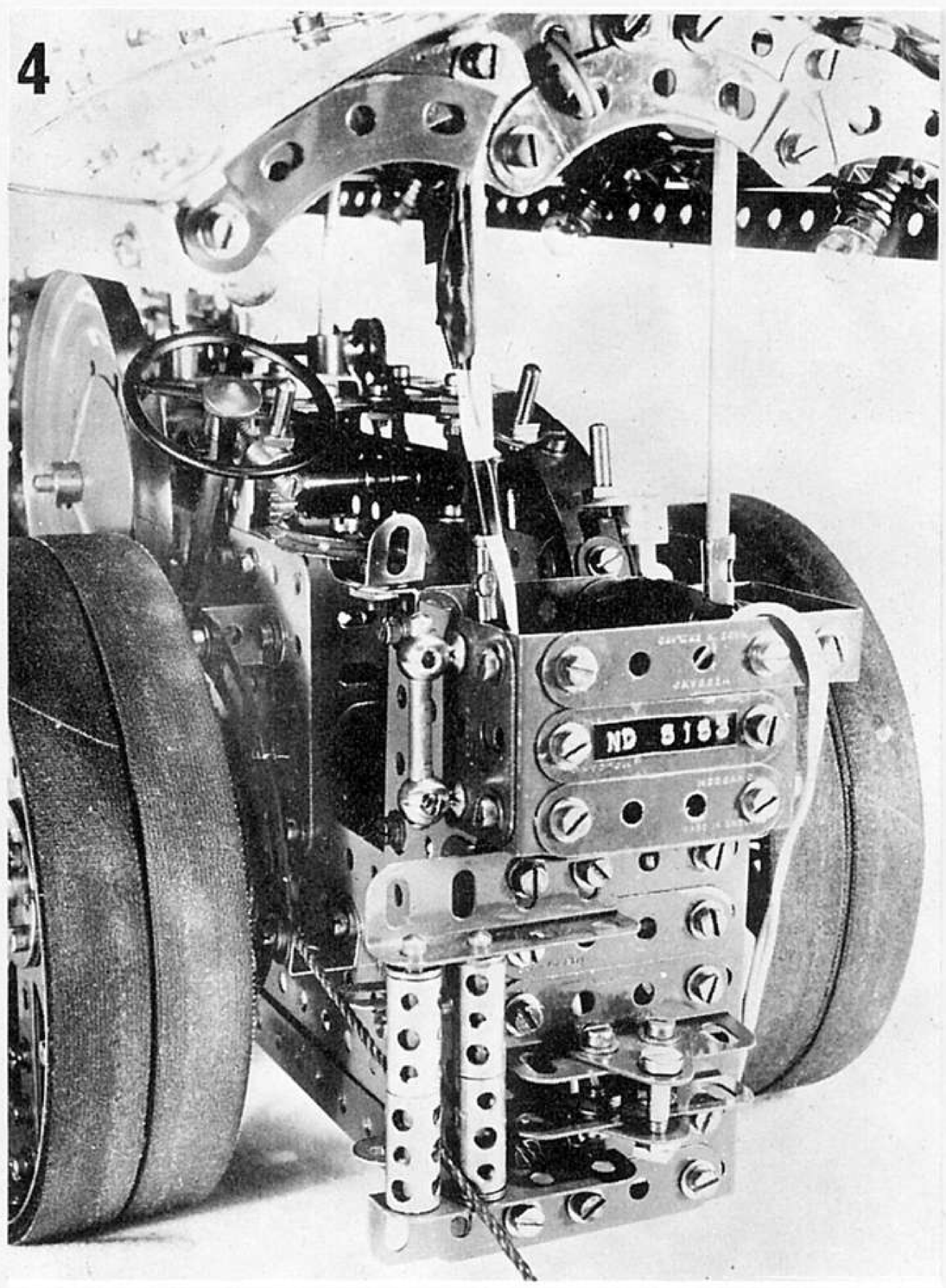


Fig. 1, a rear view of the well-known Burrell Compound Showman's Engine, "Winston Churchill"

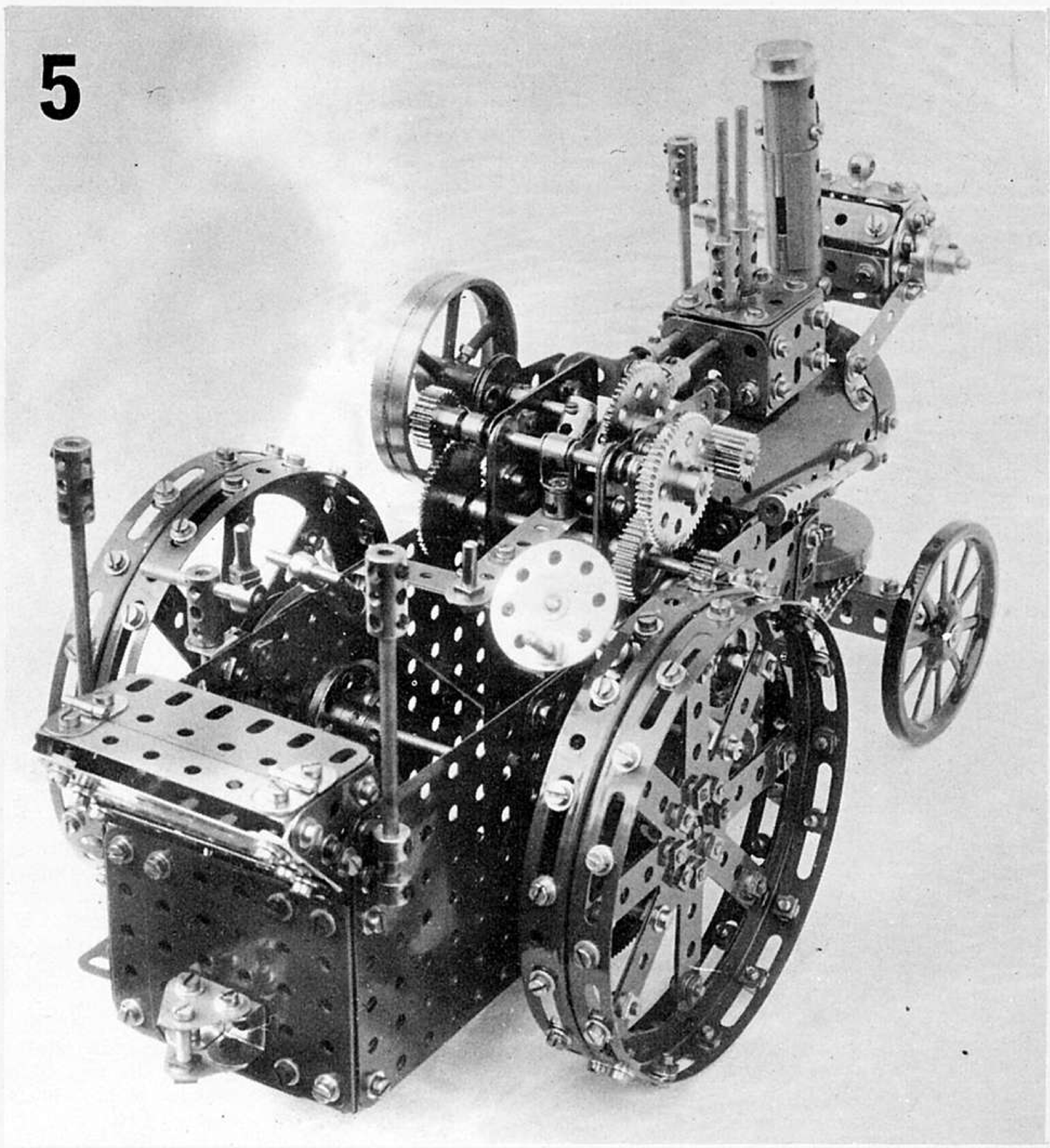
Fig. 2, close-up of details on rear end of the Burrell. Note location height of vertical rollers and horizontal guide drum, and the off-set of the first derrick pulley

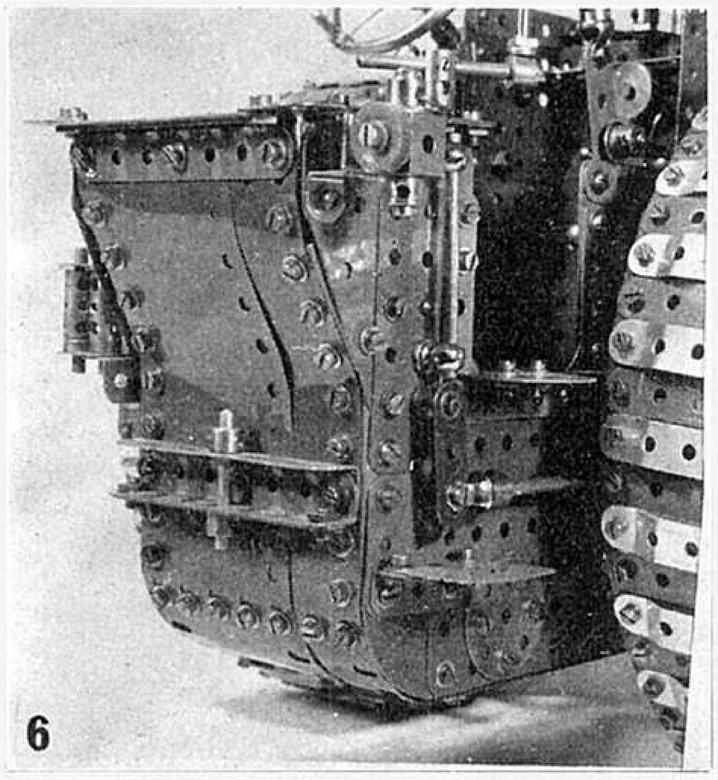
Fig. 3, a fine example of modelling on the rear end of a Meccano model of a famous Burrell Compound. Note excellent basic contours, scale and wealth of detail

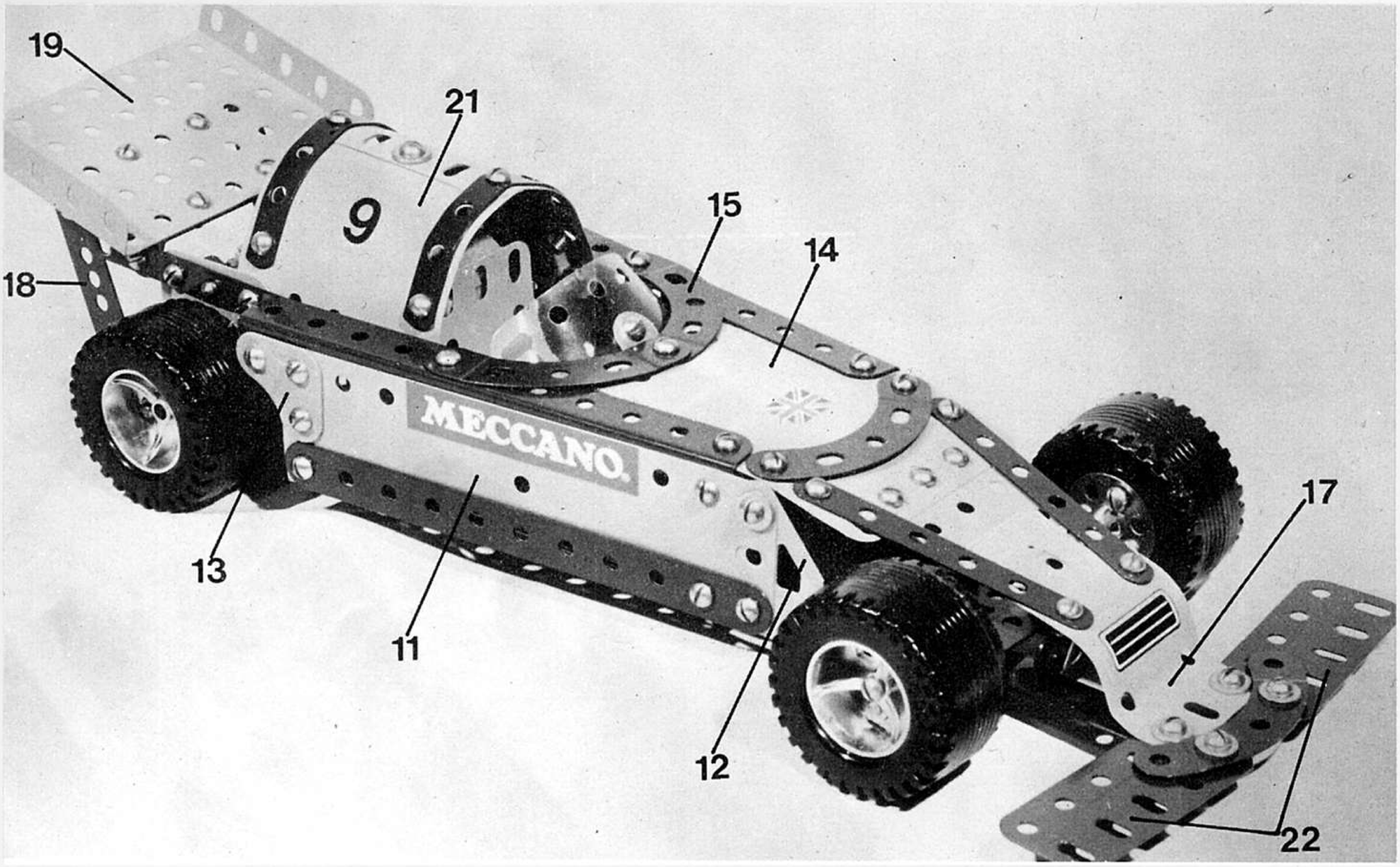
Fig. 4, getting the scale right. Neat proportions of a well-designed model of the same basic size as that shown in Fig. 5

Fig. 5, how not to do it! Example of bad proportions on a pre-war Meccano Supermodel Leaflet design for a Traction Engine. Note "squat" and ugly shape of the rear end, with oversize width

Fig. 6, another example of excellent Meccano modelling on the rear end of an Agricultural Engine. Note the rugged wheel treads and clean access to the driver's compartment







Another chapter in M.M. history is begun with this...

FORMULA 1 RACING CAR

Built by B.N.Love from a new No.3 Set, it serves as our first ever 1978 Meccano system offering.

Making its debut in the new series of Meccano Sets is the special Road Wheel, Part No. 187c, which lends itself so well to the concept of a modern racing car that Bert Love decided to see if the new No. 3 Meccano Set could provide the parts for a finished model. It could, as Bert proves with this excellent design for a Formula 1 Racing Car!

Construction is completed in two sections: the chassis with power unit, and the detachable bodywork. A 5½" x 2½" Flat Plate 1 is used for the chassis base, this being extended with overlays of two 7½" Strips 2 projecting to the rear with an overhang of five holes to provide a simple pair of rear cantilever leaf springs for the back axle. A pair of 5½" Strips 3, reinforced on top by 3½" Double Angle Strips, are set in by two holes on the forward edge of the base-plate. These Strips run forward to give a sprung leading section to the chassis and they hold a 2½" fixed Double Angle Strip 4 forming the front axle of the model.

At the rear end of the base plate, four ½" Bolts are set in with lock-nuts and the motor is mounted as shown, using paired Nuts on each bolt shank to adjust the motor for optimum height when engaging the intermediate gear shaft. The driver's seat is made from a 2½" x 1½" yellow Plastic Plate, curved to press against the motor casing and bolted to a Channel Bearing 5 in the position shown. Rear Axle journals are now fitted by bolting on 1½" Angle Girders to the overhung 7½" Strips 2. The 'nearside' Girder is fitted with its round hole flange pointing outwards while the other Girder has its flange pointing inwards, this arrangement permitting the use of the 2½" Axle Rod in the No. 3 Set for the purpose of an intermediate gear shaft.

A 1½" x 1½" Flat Plate 6 is bolted to the slotted flange of each 1½" Girder, due clearance being allowed for the main rear axle – a 4" Rod – to which the rear Road Wheels are attached. Two Plastic Pulleys act as smooth spacing washers for the 'nearside' Road Wheel. Mounted on the rear axle is a 57-teeth Gear Wheel 7, boss inwards, its face just clearing the inside edge of the 7½" Strip 2.

Setting up the intermediate gear shaft requires a certain amount of care and patience. A 2½" Rod rides in the top centre holes of the 1½" x 1½" Flat Plates and carried on this Rod are, starting inside the 'nearside' Plates, three Washers, a Multi-purpose Gear Wheel 8, a ½" Pinion 9, boss outwards, followed by an adjacent Spring Clip plus one Washer. Before assembling this shaft, the second Multi-purpose Gear Wheel 10 must be fitted, boss outwards, onto the drive shaft of the motor. The two Multi-purpose Gears are set to mesh smoothly at right angles to each other, the motor height being adjusted as necessary by the paired Nuts on the bolt shanks. When satisfied, the ½" Pinion is set to hold the Rod in place between the 1½" Flat Plates and this should place the Pinion in clean mesh with 57-teeth Gear 7.

At this stage it is useful to connect up a Battery Box and leads to the motor to try a "dry" run while holding the chassis off the

ground. Re-adjustments should be made for any tightness, and the metal Gears and Rods should be lubricated with the slightest touch of fine oil.

The ends of 7½" Strips 2 are now reinforced by bolting a 2½" x ½" Double Angle Strip between their rear ends. The front wheels are mounted in place on 1$\frac{1}{8}$" Bolts which are then lock-nutted to Double Angle Strip 4 forming the front axle. (To all intents and purposes, we now already have one completed model – a Dragster!). At this stage, the model may be put through its motorised trials, all axles and bearings being adjusted for optimum performance.

Having passed its trial, the Dragster can be turned into the Formula 1 Racing Car by the addition of the sleek body shell. Each side of the bodywork is provided by a 5½" Angle Girder to which is bolted a 5½" x 1½" Flexible Plate 11, the lower edge of which is overlaid by a 5½" Strip. The side is extended forward by a Flat Trunnion 12 and extended rearwards by a 1½" Corner Bracket 13. A 3½" x 2½" Flexible Plate 14 forms the main top section just forward of the cockpit, and the 5½" Angle Girders at the sides are bolted direct to the centre holes of this Plate and are then splayed rearwards to be fixed to the back central slotted hole of the Flexible Plate by a pair of 2½" Stepped Curved Strips 15. Forward extension of the body top is made by a 2½" x 1½" Flanged Plate 16 bolted underneath the 3½" Flexible Plate and extended three holes by a 2½" x 1½" Plastic Plate 17. A pair of 3" Narrow Strips give taper continuity between Plates 16 and 17 as shown in our overall view of the model. A 2½" x 1½" Transparent Plastic Plate is attached to the junction of the 2½" Stepped Curved Strips by an Obtuse Angle Bracket to form the windshield.

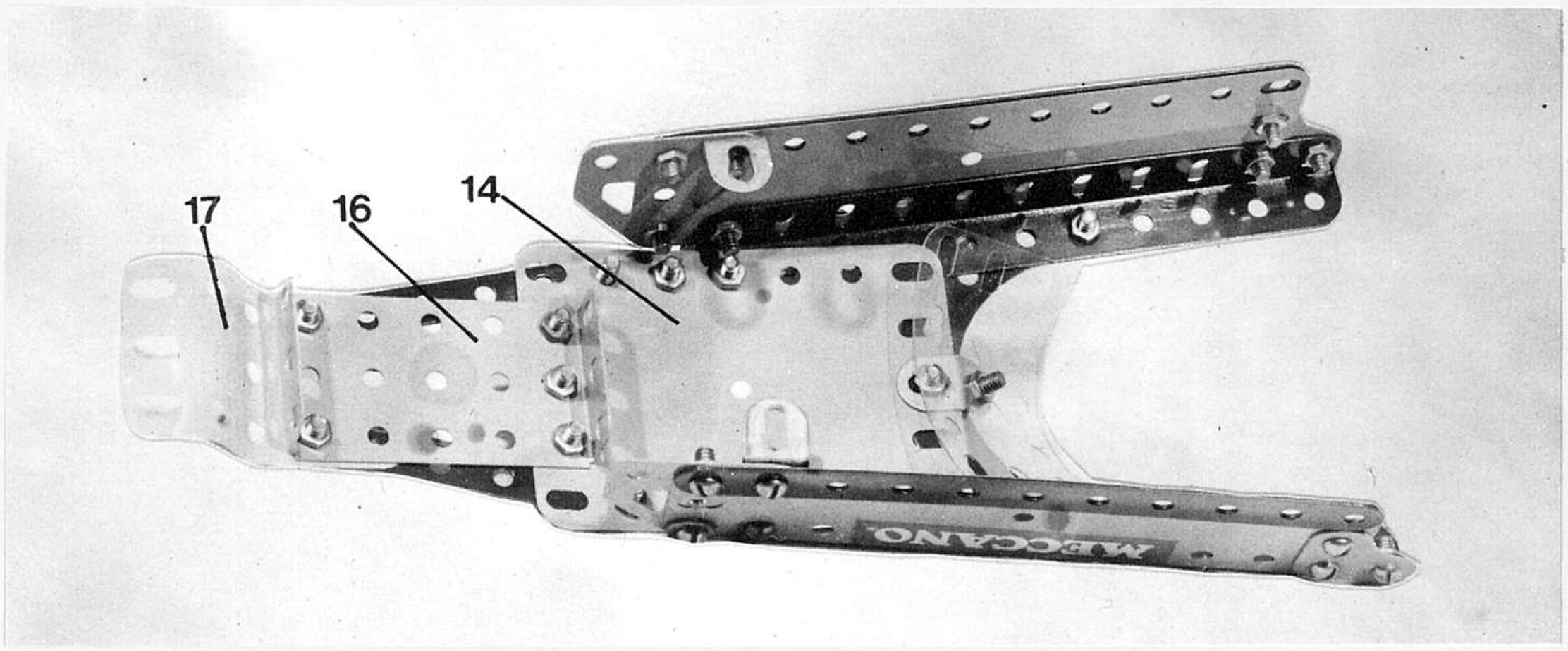
Finishing touches are provided by front and rear aerofoils and an engine cowling with anti-roll protection. A pair of 2" Strips 18 rise from the rear of the chassis, the upper ends of these being connected by a 2½" x ½" Double Angle Strip, to which a 3½" x 2½" Flanged Plate 19 is bolted through its centre row of holes to serve as the rear aerofoil. Another Double Angle Strip holds the leading edge of the foil and secures it to horizontal 4½" Narrow Strips 20 at each side of the motor. These Narrow Strips also support the anti-roll engine cowling which is made from two 2½" x 2½" Plastic Plates 21 reinforced by a pair of 3½" Narrow Strips formed into a gentle curve.

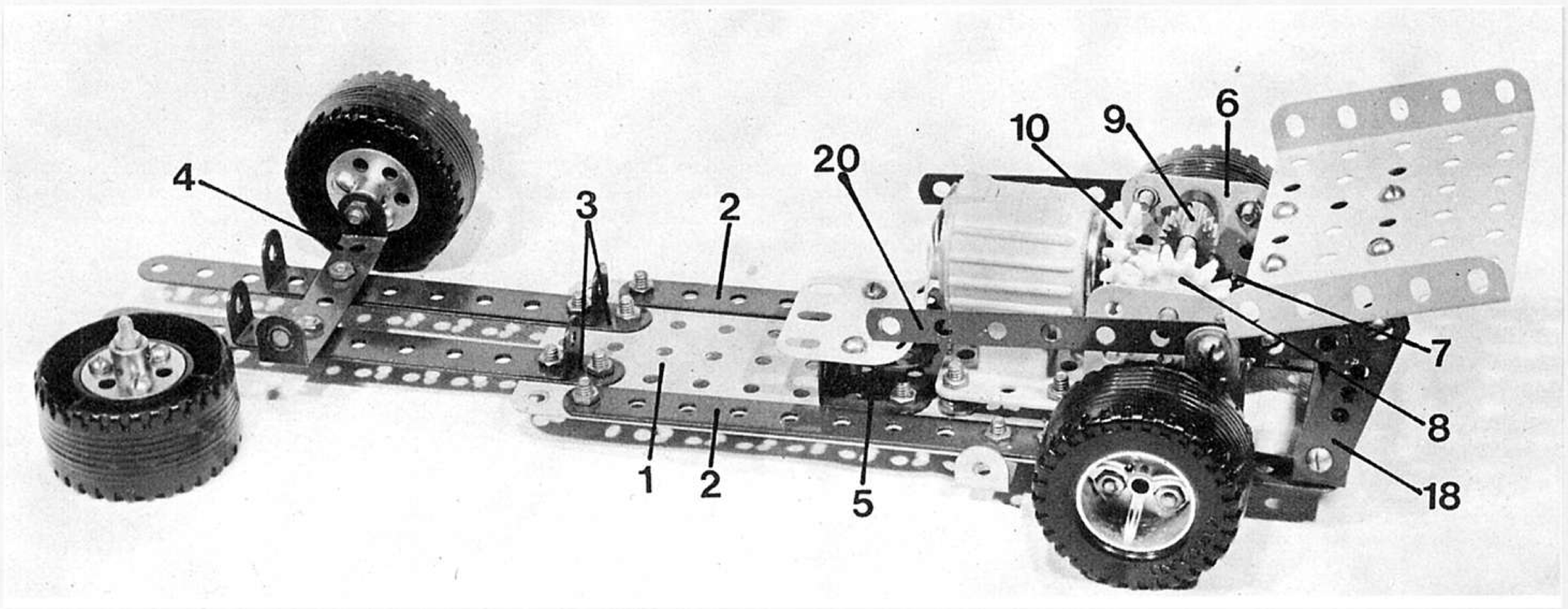
The body section is attached to the chassis by means of six standard Nuts and Bolts. Two 1" x½" Angle Brackets are bolted to the rear corner holes of the chassis baseplate, while 1½" x ½" Double Angle Strips are bolted to the front. The side plates are then bolted to these parts. The curvature shown in our general view is set into the forward Plastic Plate of the bodywork and then the front aerofoil is fixed in place. This aerofoil is made from a pair of 2½" Flat Girders 22 secured by means of a 2½" Stepped Curved Strip which is bolted through to the forward ends of the 5½" chassis Strips 3 below.

Adequate self-adhesive stickers are available in the Set to provide suitable decoration in order to add the finishing touches to the model. It will be noticed that our Car carries the Number "9" on each side and this was achieved by using the figure "9" from the sticker sheet on one side and the figure "6", inverted, on the other side!

PARTS REQUIRED

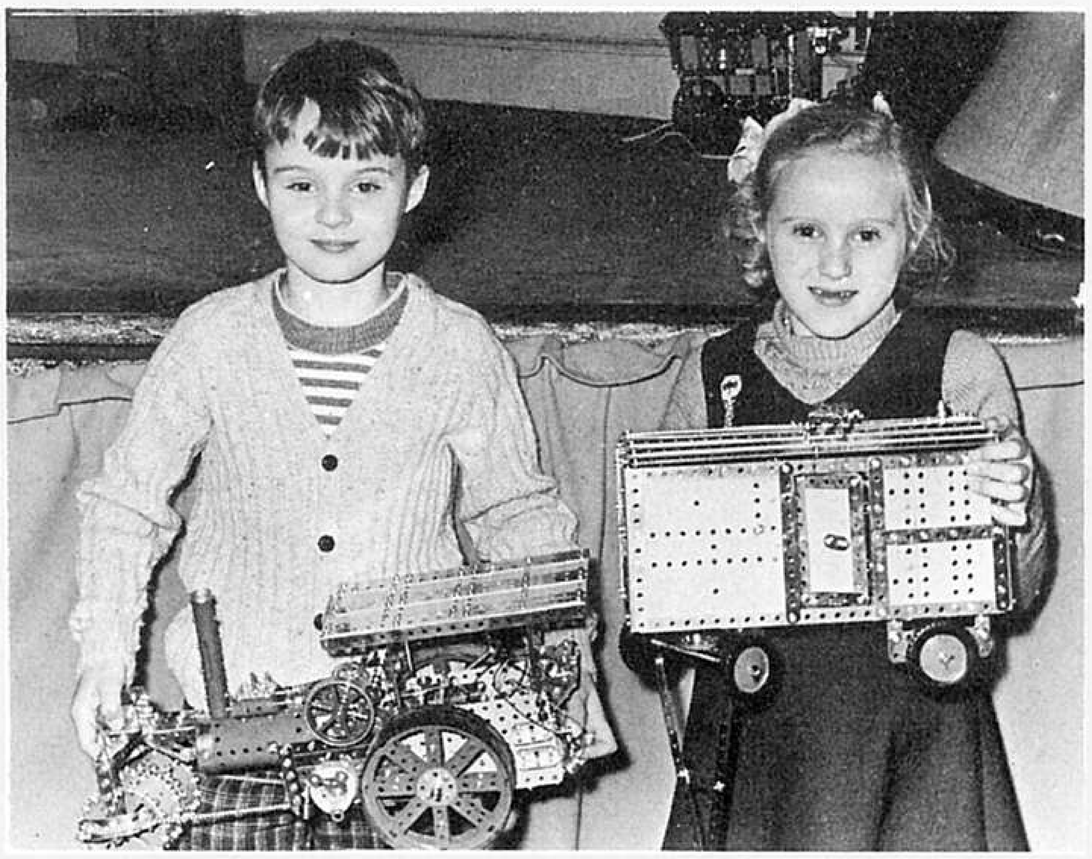
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4 - 2	1 - 26	1 - 53	1 - 160
2 - 6	1 - 27a	1 - 70	4 - 187c
2 - 9	2 - 27f	2 - 74	2 - 189
2 - 9f	1 - 35	4 - 90a	1 - 190a
2 - 12	110 - 37b	2 - 103f	1 - 193
2 - 12b	130 - 37c	4 - 111a	2 - 194
1 - 12c	50 - 38	2 - 111d	2 - 194a
1 - 15b	4 - 48a	1 - 125	2 - 235a
1 - 16b	2 - 48b	2 - 126a	2 - 235b
			2 - 235d



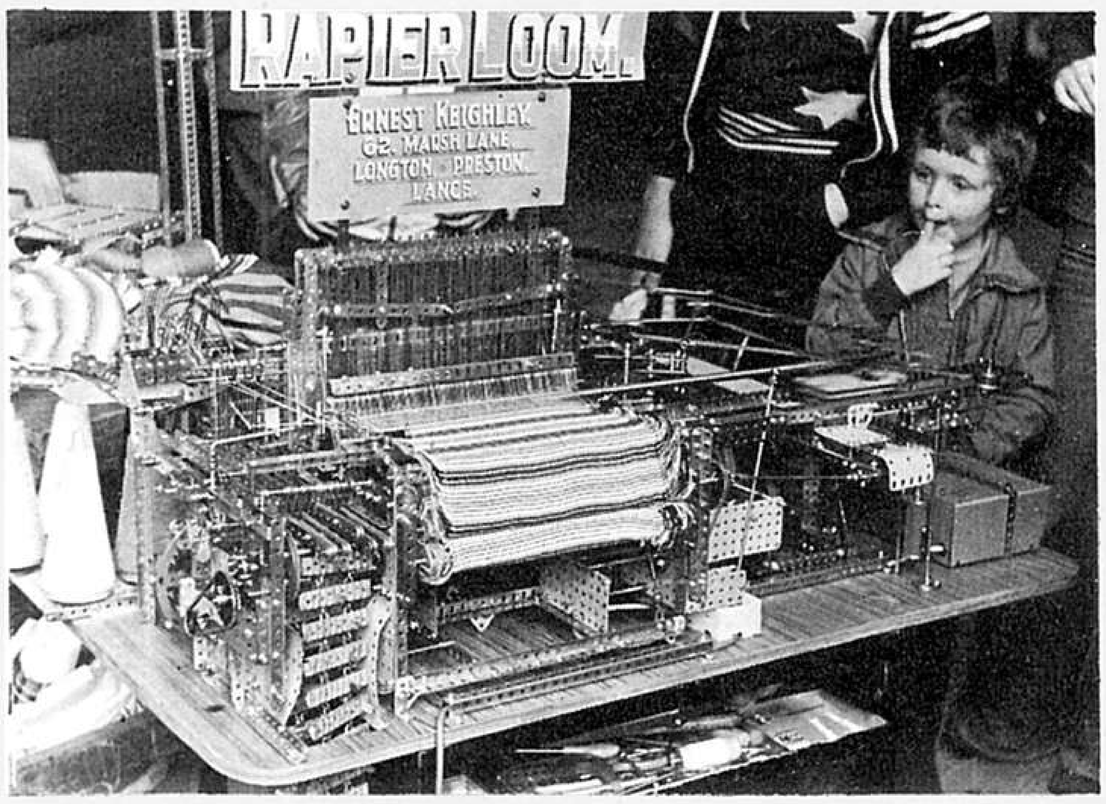


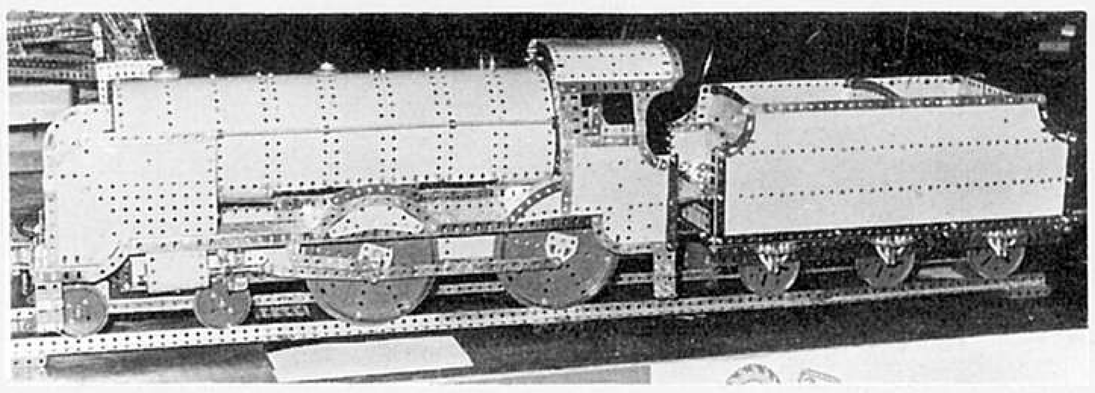
SHOW SCENE WIGAN

Just a few of the many fine models displayed at the North West M.G's Exhibition held at Wigan, Lancs, on April 8.

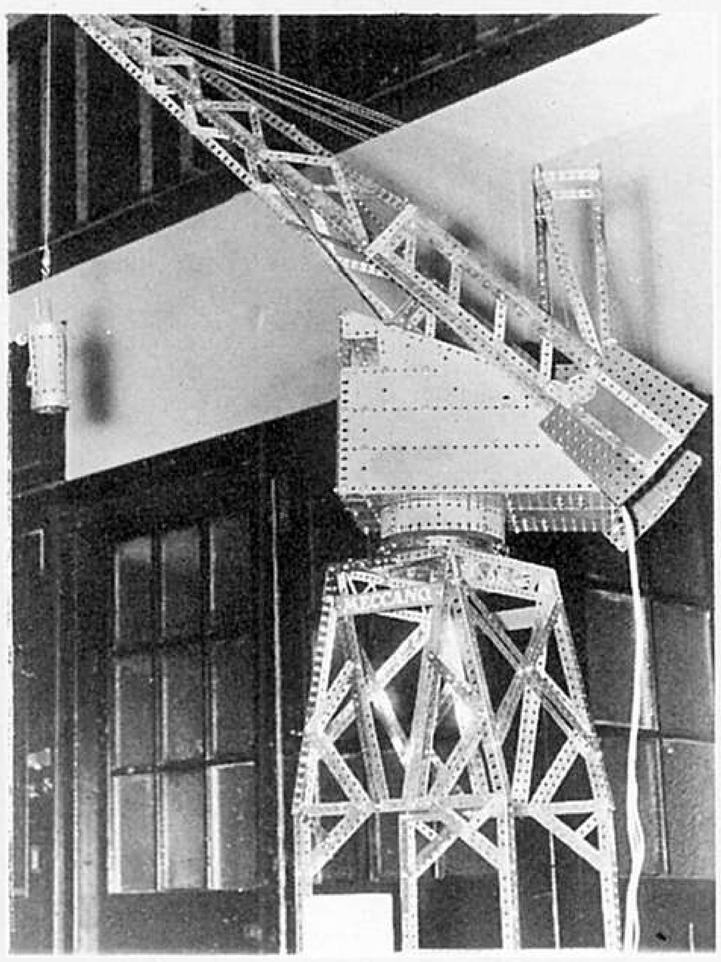


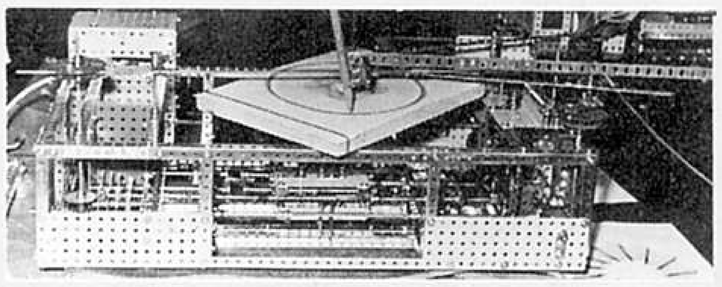
Above, winner of the junior modelling competition at Wigan was Andrew Ward of Garforth, Nr. Leeds, pictured here with his sister Lesley and the excellent winning model of a Steam Roller and Trailer. Lesley herself received a consolation prize for a neat Plastic Meccano Twin Push Chair. Left, Ernest Keighley's outstanding Rapier Loom which always fascinates visitors wherever it appears.

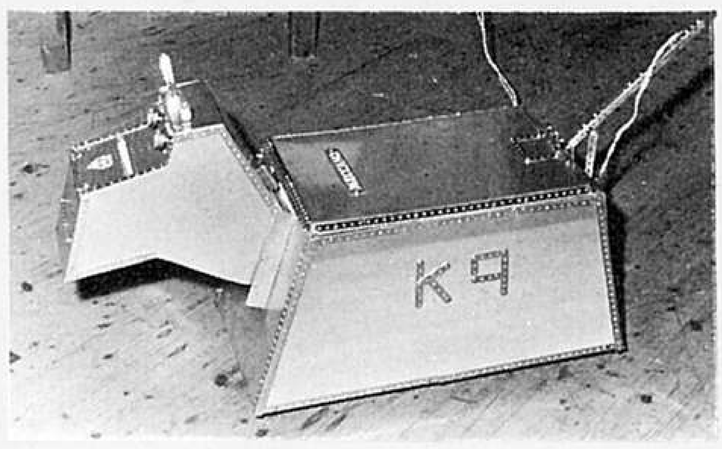


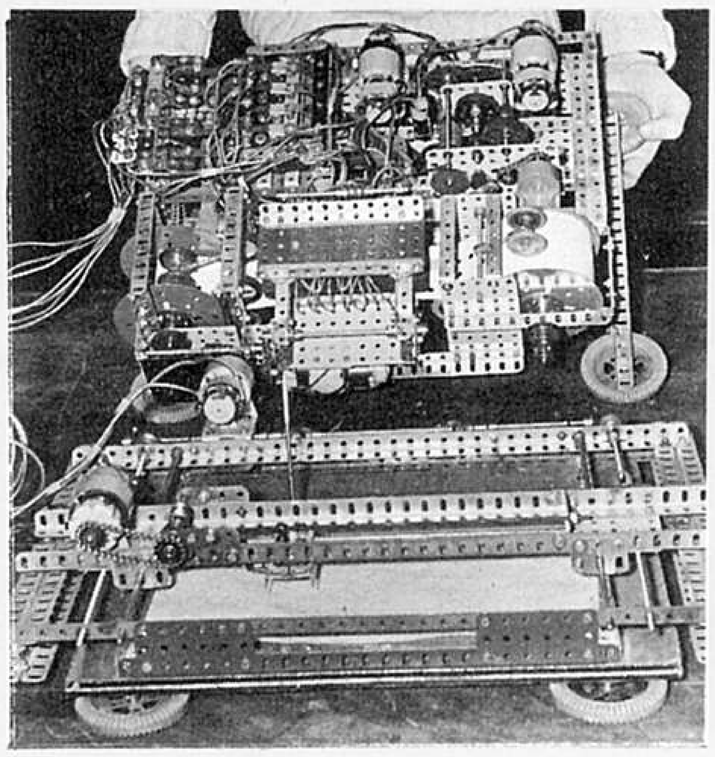


Above right, a 4–4–0 Passenger Locomotive built by John Ellis. Below centre, a Combination Meccanograph built by visiting exhibitor John Lythgoe of the North Eastern Meccano Society. Below right, an almost-complete Automatic Drawing Machine built by Graham Brown from an original design by Giuseppe Servetti of Italy. When finished it will be able to reproduce drawings or outlines of figures automatically.

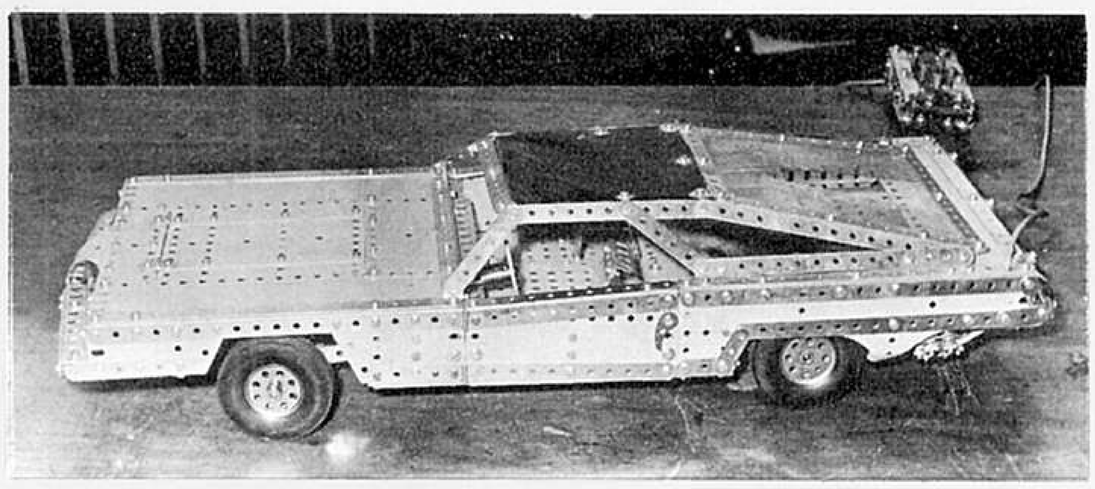


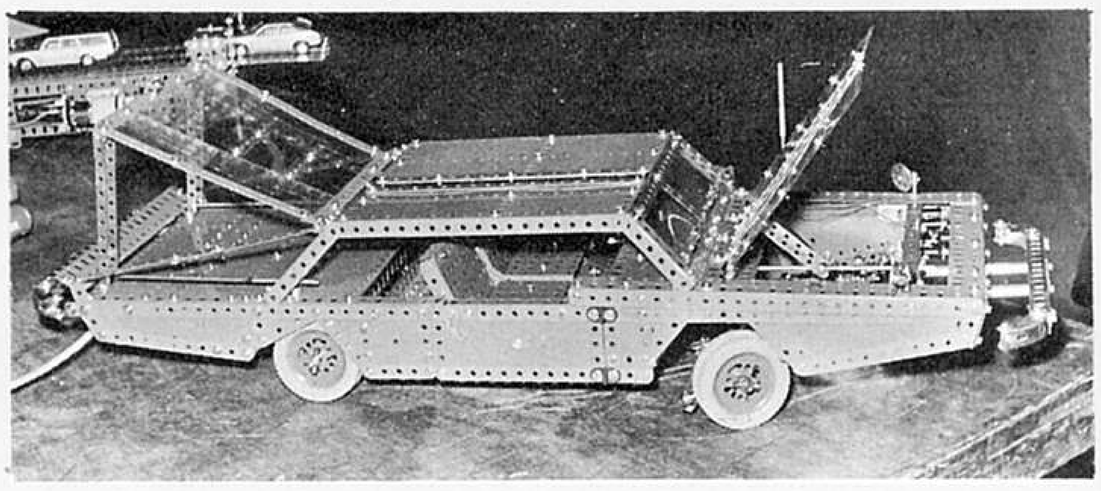






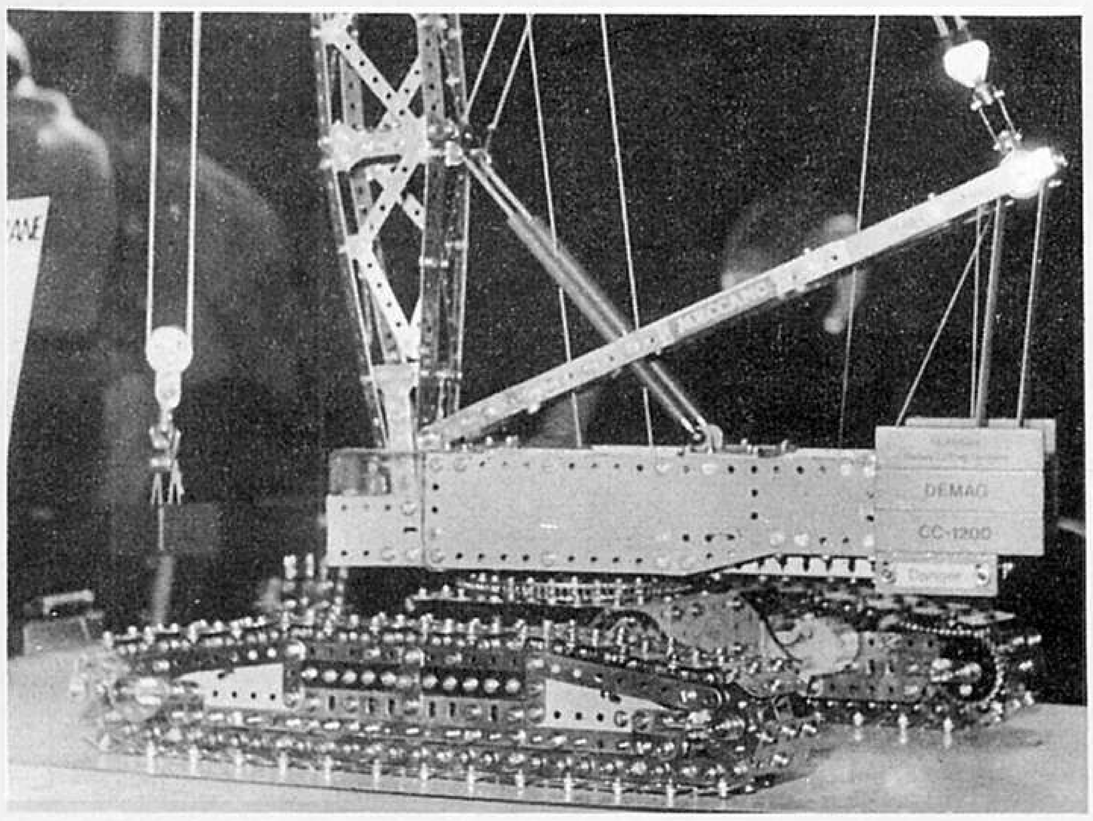
Above left, a fully operating Dockside Crane, with hand-held remote control, built by Eric Lightly. Above centre, shades of "Doctor Who" – K9, the robot dog in the TV show, designed and built by 14-year-old Philip Dandy of Standish, Nr. Wigan. Below left, an American Car by Michael Walker, Secretary of the N.W.M.G. Below right, another American Car, this one built by Mike Walker's friendly rival, Julian Coles. Both models have full working features housed in a sleek, modern bodywork design.



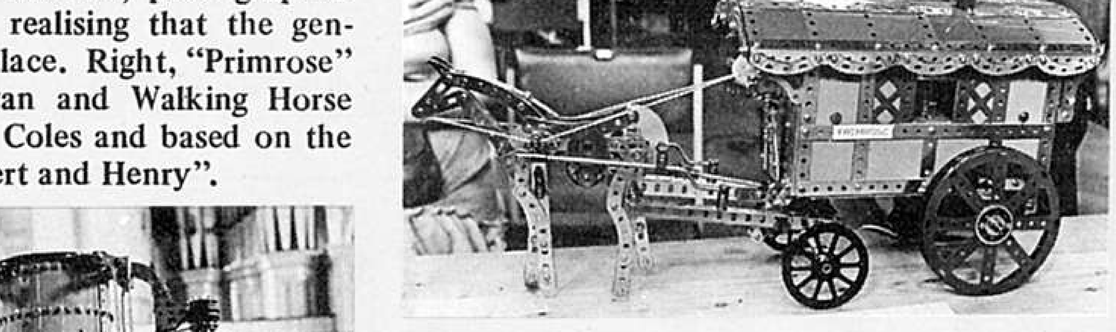


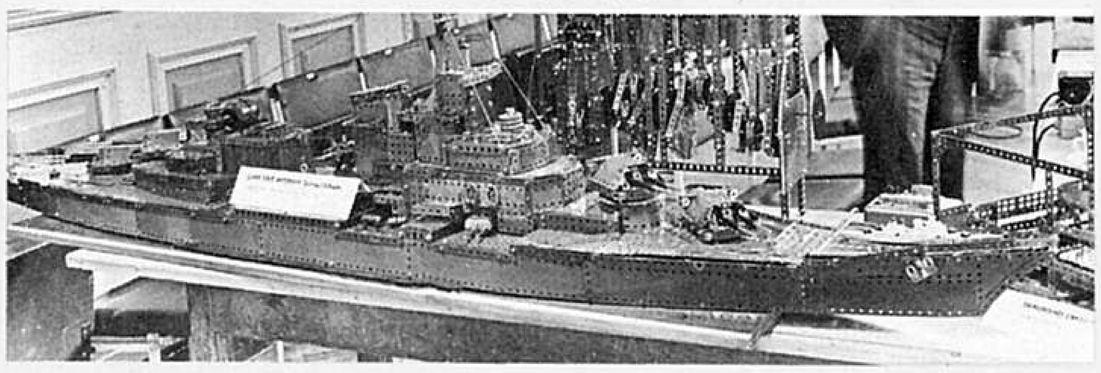
SHOW SCENE HUDDERSFIELD

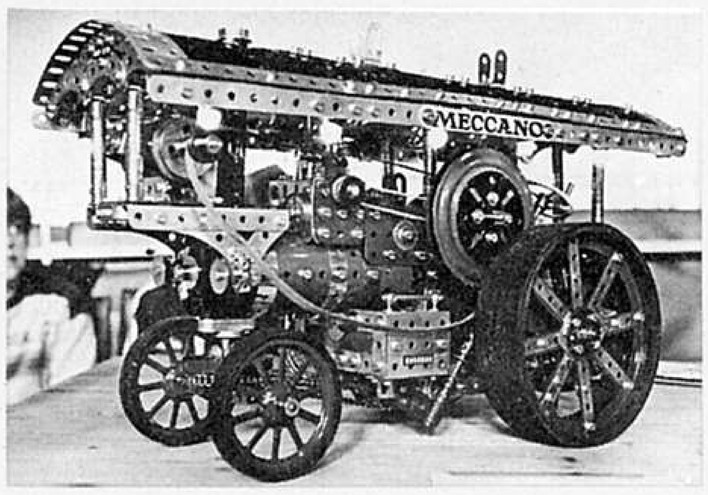
A small selection from the many models displayed at the Pennine M.G's Exhibition held in Huddersfield on May 27.



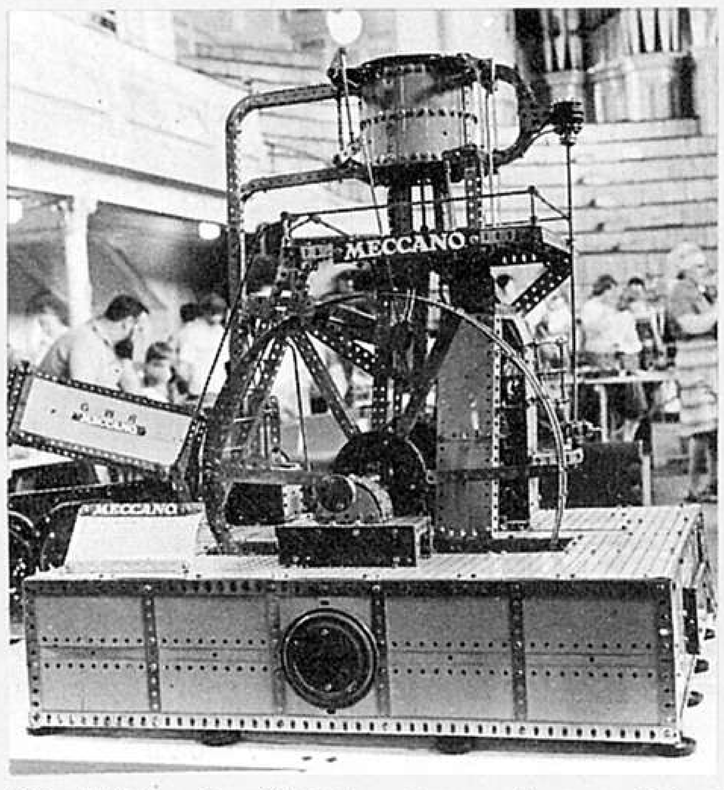
Above, just part of the superb giant Demag Crawler Crane which won the "Model of the Day" competition for its builder, John Hornsby. It towered so high we couldn't get it all in the picture! Below, a Class K303 Battleship by Frank Beadle, Secretary of the Pennine M.G. Right, another giant was this Lorry-mounted Crane pictured with its builder, Joe Ethridge.

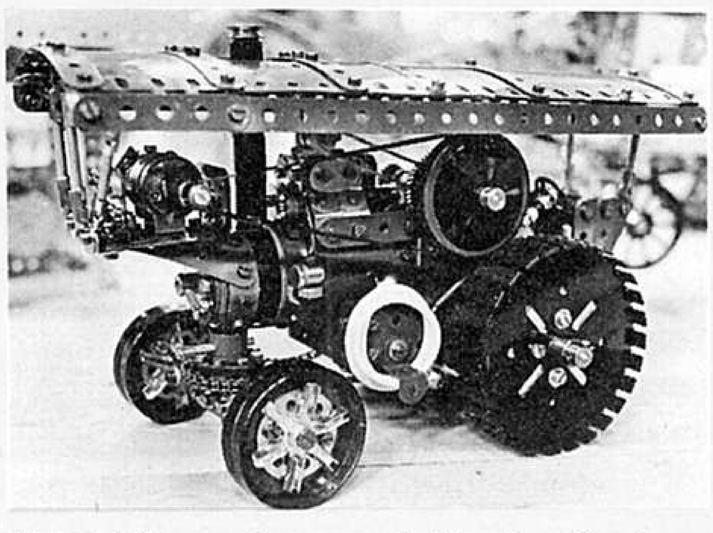


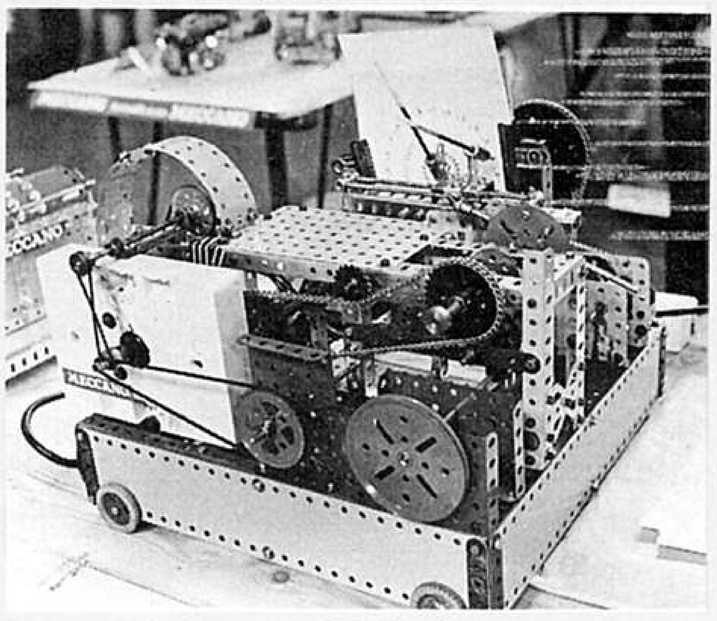




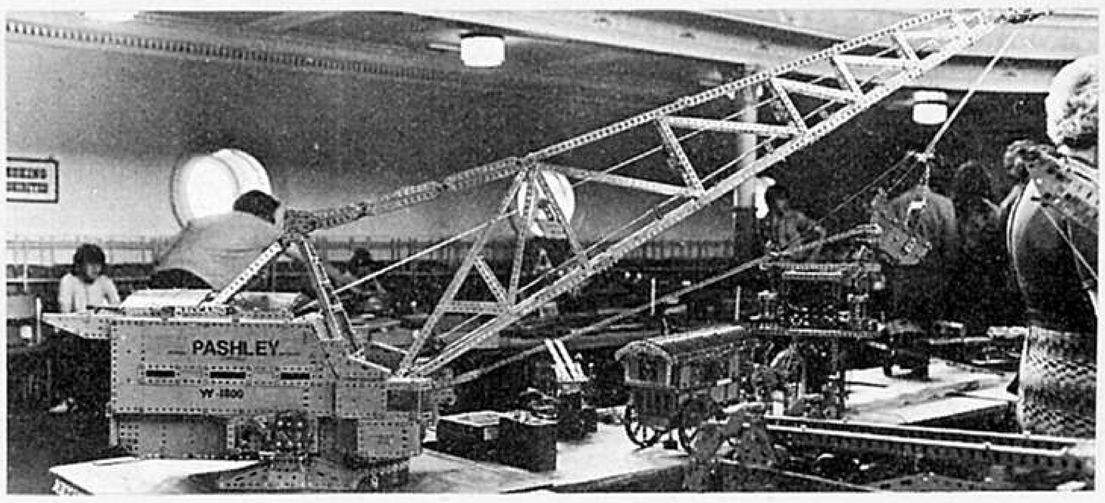
Left, an eye-catching Showman's Road Locomotive by Phil Ashworth, photographed unfortunately without realising that the generator belt was out of place. Right, "Primrose" a delightful old Caravan and Walking Horse built by Miss Francine Coles and based on the book, "Albert and Henry".

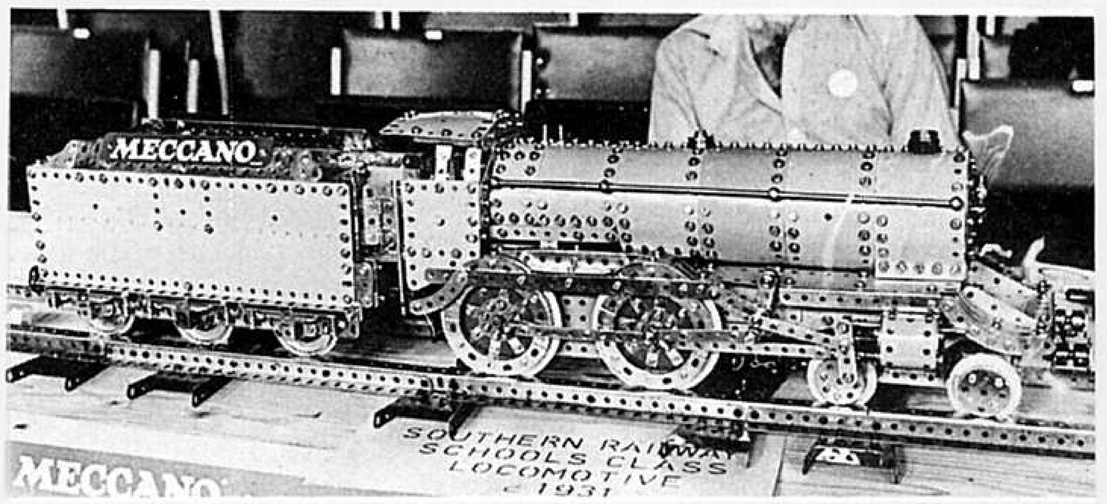


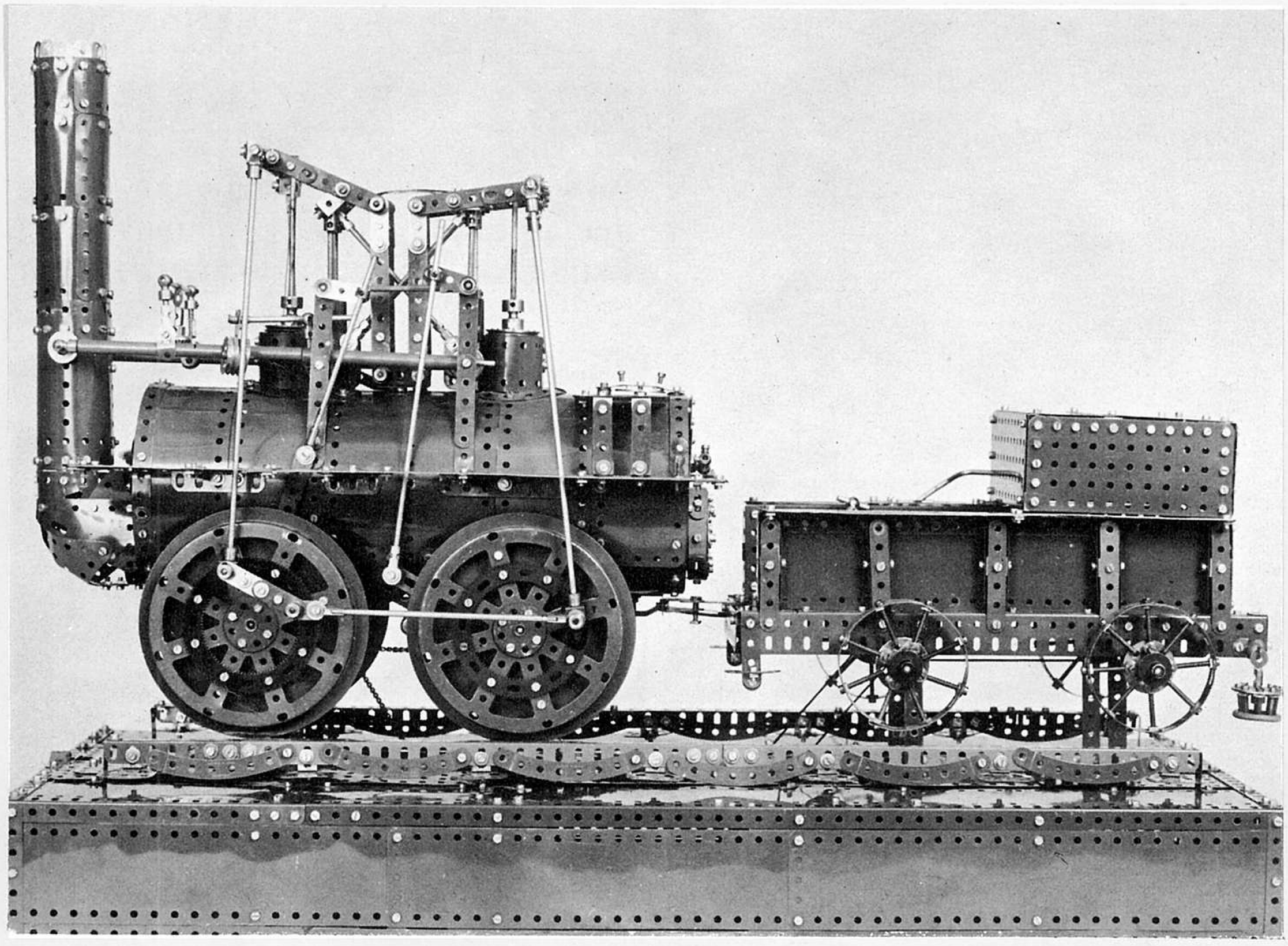




Above left, another superb Traction Engine was "Rosie" by Geoff Coles, the smallest model of its type we have seen with full working features. Above centre, a Vertical Mill Engine by Harry Wolfenden. Above right, an unusual Vertical Table Meccanograph built by Dave Barton from an original design by Andreas Konkoly of Hungary. Below left, Mike Pashley's enormous W1800 Walking Dragline – always a big attraction. Below right, Mike Cotterill pictured with his Schools Class 4–4–0 Locomotive, recalling the romantic days of live steam.







LOCOMOTION No.1

A fine display model built & described by F.A.Beadle

Now preserved for posterity in the Darlington Railway Museum, Co. Durham, Locomotion No. 1 is one of the most famous locomotives of railway history. It hauled the first-ever passenger train on its 'maiden' trip from Darlington to Stockton, a distance of 14 miles, on Tuesday, September 27th, 1825. Described here is an impressive model of Locomotion, built by the author, and it makes an interesting departure from the more usual type of railway engine in that a wealth of movement can be see over the top of the boiler, reproducing the attractive, if rather ungainly rhythm of the original. These working parts represent the only difficult part of the construction and require careful setting before the model is completed.

BOILER

Beginning description with the boiler, this has a 5½" Circular Girder at each end, joined by a 12½" Angle Girder along the top, this extended four holes with a 2" Angle Girder, both overlapped by a 3" Strip. The pistons eventually pass through this Angle Girder. A frame of the same length is built to form a subframe and a wheel bearing frame, before being fitted into the boiler in a horizontal position at its lowest chord. This frame is 3½" wide and has two Strips four holes and eight holes from the rear end, with a 5½" x 3½" Flat Plate situated two holes from the front end to give stability. The frame is joined to the Circular Girders by four Obtuse Angle Brackets.

Perforated Strips run along each side of the boiler to give extra support to the Flexible Plates which serve as boiler cladding. In fitting the Flexible Plates, which can be of any suitable size, care should be taken to allow the pistons to pass through the top of the boiler eight holes from the front for the front piston and a further 13 holes (21 holes in all) for the rear piston. The Plates are carried right round the boiler, 2½" from each end, but those in-between terminate at the horizontal subframe to allow wheel mountings to be fitted.

Bolted to the subframe are 2½" Triangular Plates to carry the axles, the front wheels being positioned seven holes from the front end of the boiler, whilst the rear wheels are nine holes from the fire box end. Some Flexible Plates will need to be bolted after these and other parts are bolted to the frame. Wheel Discs are fitted to the Triangular Plates to give bearing area for the main axles, the Bolt holding the Discs to the Plates also carrying a 1½" x ½" Double Angle Bracket to which the Perforated Strips of 2½" x 1½" form the triangular shape of the main axle's brackets. Two Obtuse Brackets join these Strips.

ENGINE SUPPORT FRAME

Four stanchions are then built onto the Boiler to extend from the subframe to the top of the plinth and give clearance to the wheels when the model is in motion. These two frames are twelve holes from the frame to the plinth, the first being situated one hole behind the front axle and the rear one, one hole forward of the rear axle. These frames are to carry the entire weight of the engine and are built from doubled Strips and have 2½" x 1½" Double Angle Brackets at their lower ends to bolt to the plinth later. They

are also cross-braced along the boiler to give extra strength and are well concealed by the wheels.

CYLINDERS

Each cylinder is identical and has two 1½" x ½" Double Angle Strips bolted to opposite holes of a 1½" Pulley 1 mounted boss uppermost. A 5½" x 1½" Flexible Plate is fixed through the centre holes at one side, whilst a Channel Bearing is bolted to the other Double Angle Strip. The ends of the Flexible Plates are bolted to the side holes of the Channel Bearings after the Cylinder is mounted to the Boiler by the lower holes of the Double Angle Strips.

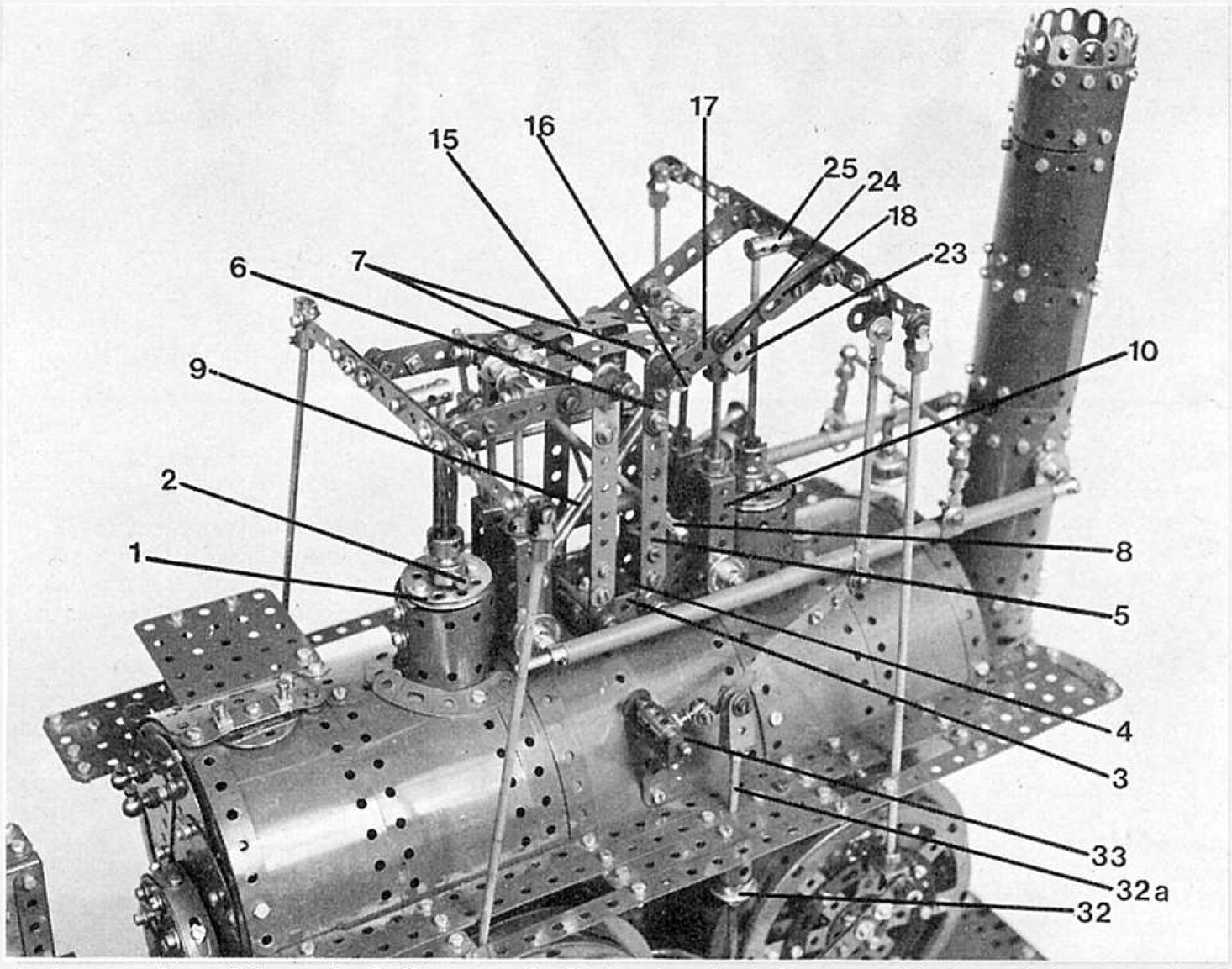
Socket Couplings are fixed to each Cylinder head. These are held in place by ¾" Bolts, two fixed to the 1½" Pulley boss. Care should be taken that the piston rods pass freely into the boiler at this stage. The Cylinders are situated eight holes from the front and nine holes from the rear of the boiler, respectively.

BOILER OVER FRAME

Between the centres of the two cylinders a 1½" x 1½" Flat Plate is bolted. This carries a 1½" Angle Girder, 3 on each side, 2½" axles passing through the outer holes of each of these to carry Cranks 4 on each side. The vertical lever arms 5 are 5" long and made up from 4½" Strips joined to the Cranks at the lower end, whilst they carry a further four Cranks 6 at the upper end, the 3" Rods 7 passing through the last hole of the 4½" Strips as well as the crank boss.

Rod and Strip Connectors 8 are secured on each side of the Channel Bearings with 1" Bolts, the two front examples being outside the Channel Bearings, whilst the rear ones are inside to allow the rod braces to cross over one another. Each of these braces is a 4" Rod 9 which has a further Rod and Strip Connector at its top end.

The four pillars, or stanchions, of the frame consist of 2½" x ½" Double Angle Brackets 10 bolted to the Channel Bearings by the same Bolts 11 which hold the ends of the Flexible Plates from the cylinders. A further 2½" x ½" Double Angle Bracket is fixed to each by 4½" Rods 12 which pass through the pairs and have collars 13 to secure them at the top ends of the Double Angle Brackets. Two-inch Rods are



A close-up view of the author's "Locomotion" showing the boiler top with the cylinders, crosshead and valve gear as well as the main driving rods. The appearance is a lot different from later breeds of steam locomotives!

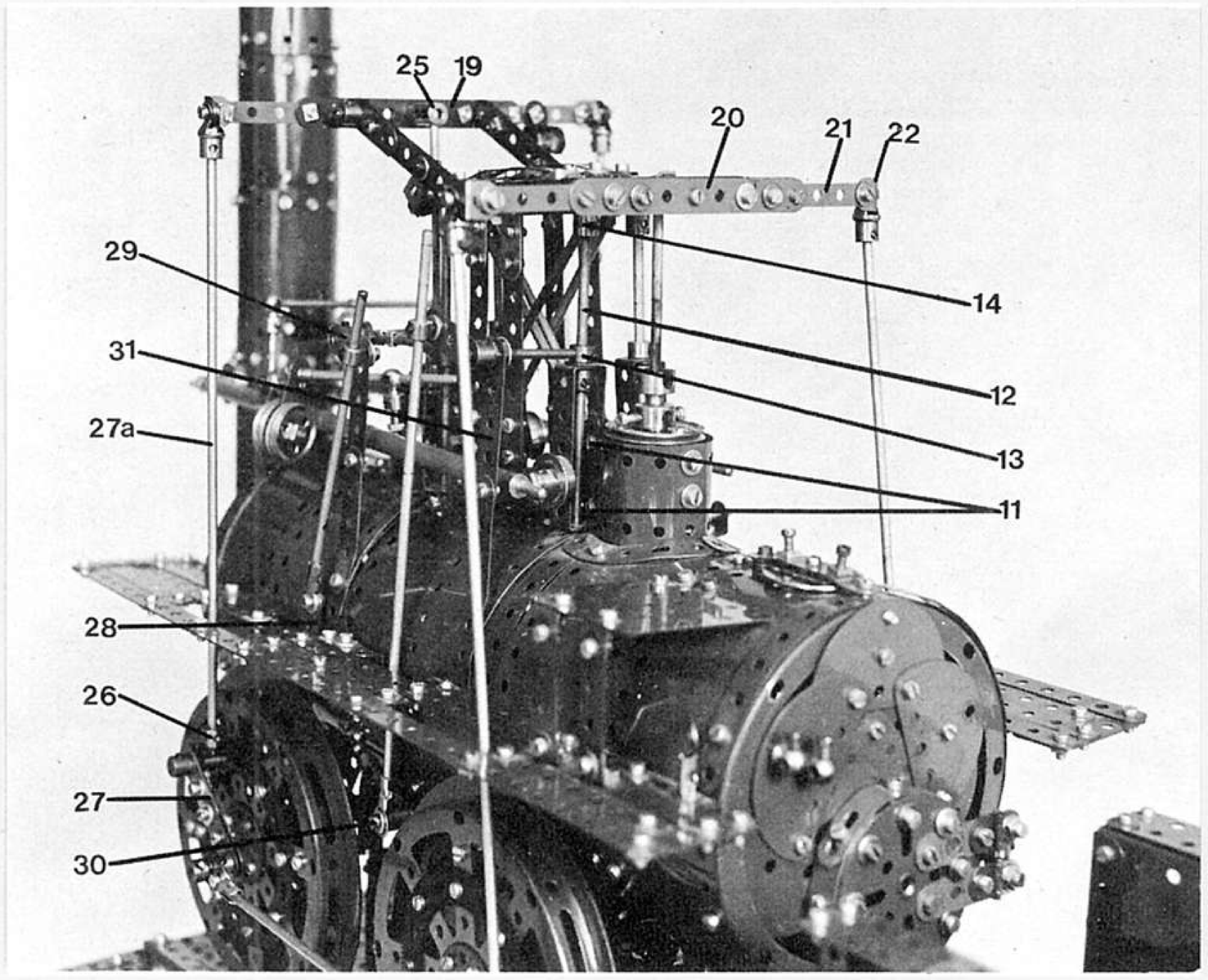
fixed to four Couplings 14 at the upper end of Rods 12, these Couplings carrying horizontal Rods on which, between the Couplings, are the Rod and Strip Connectors from the cross braces with a Right-angled Rod and Strip Connector to take the 1½" Strips and the 3½" Strips 15 to form the top frame. These 3½" Strips can be slightly bent for appearance, as shown. Carried on each Rod 7 is a 3½" Strip 17, between Washers held in place by Collars 16.

Four Threaded Cranks 18 are fixed to the outer ends of the Strips, the arms being joined to the crossheads with 2½" x ½" Double Angle Strips 19. The crossheads are built up from 4½" Strips 20, in pairs for strength, with 2½" Narrow Strips 21 clamped between them and ½" x ½" Angle Brackets 22 at each end to complete these members.

The horizontal 2" Rods in Couplings 14 each carry Collars outside the Couplings, these Collars having 1" x ½" Angle Brackets 23 firmly bolted to them, but with Washers to allow the Collars to move freely on the 2" Rods. The long holes of Brackets 23 are locknutted to the lever arm Strips through their third hole 24, and allowed to slide along when the arm is in operation.

Strip Couplings 25 are bolted to the centre holes of the crossheads to carry the piston rods which are 6½" long. All parts of the entire assembly should have Washers at all points of contact and adjustments will be necessary before the system operates without restrictions.

Another close-up shot of the historic locomotive viewed from the rear. Again the cylinders and the associated connecting rods, crosshead gear, etc. can be seen to good advantage.



DRIVING WHEELS

The driving wheels are built from 6" Circular Plates to which Double Arm Cranks are bolted to take the connecting rod spindles. The Hub Discs which form the flanged part of the wheel have Gear Rings fixed to them before being held to the Circular Plates by two ¾" Bolts at right-angles to the Double Arm Crank inside the wheel. Bush Wheels are fitted to both the Hub Disc and the Circular Plates, with the boss towards the inner part of the wheel in each case. Secured in the Double Arm Cranks, and passing also through the Gear Ring, are 2" (or shorter) Rods, each carrying a Large Fork Piece 26 spaced with Washers.

At this stage the front wheels differ from the rear as they carry a 2½" Strip 27, to which two Cranks are bolted, the lower example packed with a Washer to compensate for the thickness of the upper one. The Strip must form an exact chord on the centre line of the Gear Ring before it is tightened. The 6½" connecting rod to each wheel is fitted with a Rod and Strip Connector at each end, a Fish-plate also being bolted to the front Rod and Strip Connector to allow the important factor of movement along its long hole when the model is in motion. A Collar holds the front end of the connecting rod, with two Collars to bring the rear end level and a further Collar at the outer end.

DRIVING RODS, VALVE GEAR & PUMP

The four upright driving rods 27a are 10½" long and should be cut from 11" Rods or joined to make up this length. The lower end of each

→

LOCOMOTION No.1

continued from previous page.

Rod is fixed in Large Fork Pieces 26 and the top end in End Bearings which are locknutted to Angle Brackets already fixed to the ends of the crossheads. Some minor adjustments will be necessary to ensure smooth running, and, this being a display model, care should be taken to see that smooth-running is achieved.

Single-throw Eccentrics are mounted on each main axle next to the inner Bush Wheel on the left side of the model. In the actual original, both eccentrics came from the front axle and were of very slender design. The front Eccentric is attached to a 4½" Strip 28 slightly bent to the curvature of the boiler with a Rod and Strip Connector at its upper end, into which a 5" Rod is fitted to activate a Crank 29 fitted to move freely on a 2" Screwed Rod secured into one of the holes of the Collar holding the frame stanchion, or uprights. The rear wheel Eccentric has a 2½" Strip attached by two holes, this Strip being locknutted to a Bell Crank which, in turn, is connected to a Crank fitted to the main sub-frame in the boiler. The opposite arm of the Bell Crank is fitted with a Threaded Boss to which a Rod and Strip Connector is *pivotally* attached by a ¾" Bolt 30. Located in this Rod and Strip Connector is a 9" Rod, the upper end of which is attached to the Crank which represents the other valve on the upper frame. The Strips through which the outer end of the valve mountings pass are taken from the bandings of the boiler 31 and, again, have Rod and Strip Connectors to join the two with a horizontal 3" Rod.

The Water Pump on the right side of the Boiler is built up from a Sleeve Piece attached by a ½" Angle Bracket to the walkway along the boiler, 13 holes from the boiler front. A ¾" Flanged Wheel 32 is held at the lower end of the Sleeve Piece and, from this, a realistic water pipe can be taken to the tender tank, with the aid of a few Rods, Crank Handles and Rod Connectors. The compensating valve for the pump is fixed two holes forward and employs a Chimney Adaptor, ¾" Flanged Wheel and long Bolt. A 2" Rod 32a serves as the plunger, the upper end being fixed to a Single Bent Strip with Springs. Locknutted to the outer holes of the Strip is a 3½" Narrow Strip, bent to provide an arm, a Handrail Coupling being bolted to its rear end. The threaded part of the Handrail Coupling is screwed into a Coupling fixed on a 2" Rod mounted in a 1½" x ½" Double Angle Bracket 33 which is attached to the boiler by two Obtuse Brackets and a 1½" Perforated Strip. The 3½" Rod which activates the pump is fitted with a Rod and Strip Connector at each end and is joined to the crosshead with a Double Bracket and Fishplate.

CHIMNEY AND STEAM PIPES

The chimney is quite straightforward and, although only one Boiler without ends was used, two can be incorporated. A 4" Rod passes horizontally through the chimney to give it stability and take the steam pipes at each side, these being represented by Flanged Wheels, with a Handrail Coupling to take the 11½" Rods to the cylinders. Each steam pipe is fixed only at the rear cylinder by a Collar and Flanged Wheel to each stanchion of the main frame. The front cylinder outlets are merely 'floating' ¾" Flanged Wheels fixed to the front stanchions. A 6" and 4" Red Plastic Meccano Rod is used on each steam pipe to give proportional size.

The curvature at the base of the chimney is best arranged last to allow access to the chimney, but various Triangular Plates make up the base and Fishplates represent the serrated outlet end at the top.

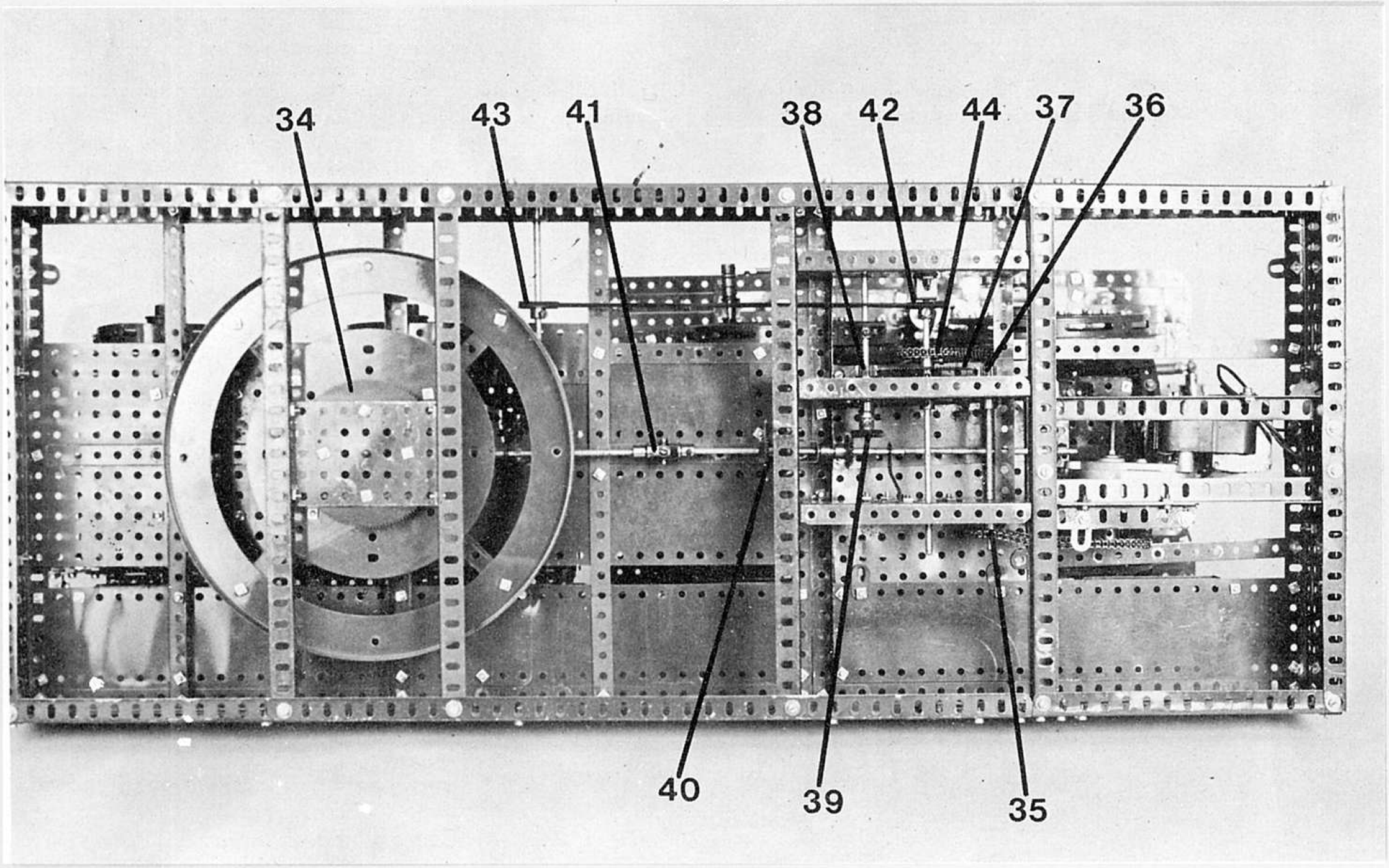
THE TENDER

Turning, now, to the tender, the chassis consists of 12½" Angle Girders extended by 1½" Angle Girders, which in turn carry Flat Girders of similar length staggered along the outsides. The floor is made up of 5½" x 3½" Flat Plates stopping two holes short at the rear end. Further Angle Girders are set one hole in to carry the 12½" x 2½" Strip Plates which have 12½" Angle Girders to their outsides to bring the top of the sides out again to full width. 2½" Angle Girders are bolted in an upright position at each end to form part of the pillars which represent the heavy wooden frame of the original. Each is made up of 3" Strips bolted to the outside of the Flat Girders, each Strip carrying a Double Angle Bracket and a 2½" Strip on each side.

The Water Tank is built as a separate unit from Flat Plates, the completed tank being secured in place by Angle Brackets. Rivets are represented by Bolts and Nuts all round the plating. Perforated Strips are added to the top rail of the tender sides and held by Fishplates at intervals. It should be noted that bolted to the right-hand side Strips is a 2" Formed Slotted Strip through which the water pipe from the boiler is taken at an angle.

Tender wheels are built up, each consisting of four 3" Formed Slotted Strips locked to

An underside view of the plinth on which "Locomotion" is mounted for display purposes. The model incorporates various working movements and, as can be seen, the motor and initial drive gearing for these are carried in the plinth.



four 1⅛" Bolts, the ends of which are suitably adjusted in the holes of Collars fixed to a Bush Wheel which forms the hub. The wheels will need to be run by hand on a Rod at this stage to ensure a true circle, after which four further long Bolts are added for appearance. These four are *not* fixed to Collars at the hub. A ¾" Flanged Wheel is placed at the outer end of each axle, which is an 8" Rod journalled in Flat Trunnions bolted to the chassis.

When completed, the tender is raised by 4½" Double Angle Brackets at four concealed positions. These have a Trunnion at the upper end and are spaced 3½" apart across the tender. The rear axle carries a 1" Pulley and the front axle two 1" Pulleys for powering Driving Bands though Sprockets and Chain could be used to give a more positive drive to the wheels.

PLINTH

As this model was built for display purposes, it is plinth-mounted, the plinth housing the driving mechanism. The plinth is built up from a 32" x 12½" x 3½" framework of Angle Girders, with additional side bracing provided by 2½" Strips. Strip Plates are bolted to these Strips and to the 3½" Girders to enclose the sides. 12½" Angle Girders are fixed across the top of the Plinth at appropriate positions to give support to the eight stanchions of both engine and tender and a 12½" Strip is also bolted across the plinth, in a central position, to give support to later plating.

On the lower, or table surface of the plinth a 12½" Angle Girder is positioned across 7½" from the front end where two Girders of that length run from the front to form motor mountings. Three 5½" x 2½" Flanged Plates are bolted to the 12½" Girder, 3" apart in the case of the central two, with the third 3" to the right side to take the driving mechanism. The flywheel mounting is made from two 12½" Angle Girders spaced by a 3½" x 2½" Flanged Plate, the central hole of which is 8½" from the rear of the plinth. The driving mechanism should now be installed before plating for the plinth upper surface is completed.

DRIVING MECHANISM

The model was successfully driven by an E20R long sideplate Motor with the gearing mounted between the plates. An Enicron Motor was installed at a later date, and the description given here applies to that motor or any suitable 60 r.p.m. Mains motor.

A large flywheel is seen in a horizontal position mounted 17 holes from the rear of the plinth. The bearings consists of a 3" Gear Wheel 34 bolted to the 3½" x 2½" Flanged Plate mentioned above, with a Collar for spacing on a 3½" Rod, the upper end of which passes through a 12½" Perforated Strip bolted along the centre top of the plinth upper surface. The flywheel itself is built from two 9⅞" Flanged Rings and two 6" Circular Plates held with 9½" Perforated Strips to the Flanged Plates, with a Bush Wheel at each side of the Plates to form the hub. A ¾" Pinion is mounted above the wheel which engages with a ¾" Contrate Wheel to take the drive to the gearbox.

A 1" Sprocket 35 on a 4" Rod takes the drive from a 2" Sprocket on the motor shaft. At the other end of the Rod a ½" Pinion 36 engages with a 2½" Gear 37 on a 6" Rod passing through all three 5½" x 2½" Flanged Plates. A ½" Pinion 38 on a 4" Rod also engages with the 2½" Gear and takes the drive speed up again for the flywheel. A Bevel Gear 39 transfers the drive to a lateral rod which also carries a 50-t Gear 40 outside the 3½" x 2½" Flanged Plate which forms the gearbox end. The lateral rod 41 consists of an 11½" and a 5½" Rod joined by a Universal Coupling.

A 1" Pulley is connected by a Driving Band to another 1" Pulley 43 fixed on a 6½" Rod journalled at one end in two 1" Angle Brackets bolted to the central Strip on the Plinth and, at the other end in a Double Bent Strip. A further 1" Pulley behind the flywheel takes the drive to the front axle of the tender, which has further 1" Pulleys and Driving Bands between the wheels. A 1½" Sprocket Wheel 44 takes the drive to the 2" Sprocket on the right side of the front wheel of the engine, where two 1" Sprockets, one on each main axle, ensure that the wheels turn in unison.

To ensure smooth running and to compensate for the weight of the cranks and connecting rods, the front driving wheels each have two Semi-circular Plates bolted to their inside surfaces opposite the Cranks, whilst the rear driving wheels each have one Semi-circular Plate to maintain balance.

The model should be earthed if using a Mains motor.

RAILWAY LINES

These represent the 'fishbellied' type of the era and can be built as separate units mounted only by 1" Reversed Angle Brackets at each end, with a further two Brackets spaced along the rail length. The representations of the original stone sleeper blocks are made from Flat Trunnions, each bolted to an Angle Bracket. The entire right-hand side rails lift off in one piece for the same reason.

OTHER FITTINGS

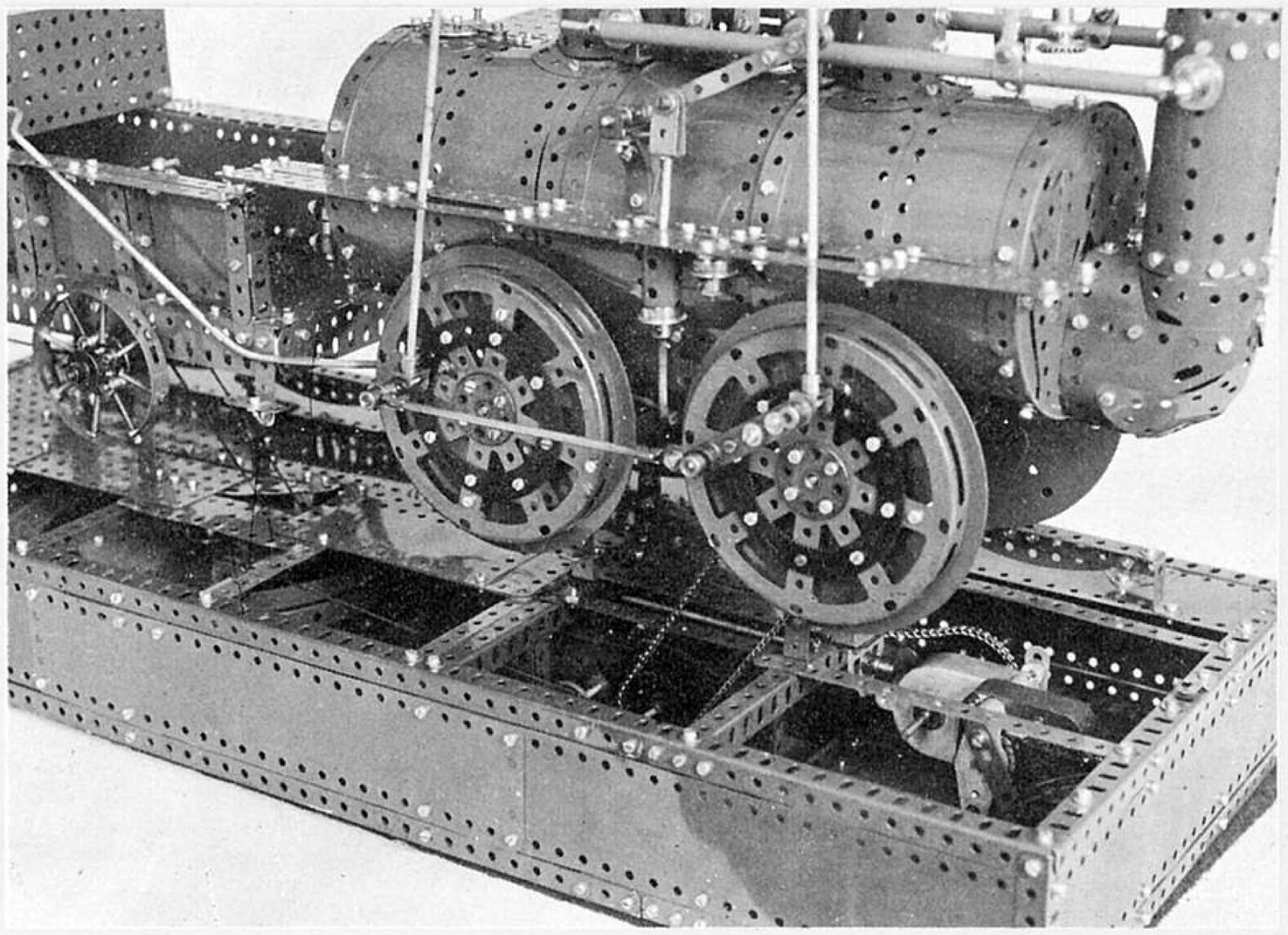
An opening firedoor is made from a Face Plate with 3" Formed Slotted Strips on its boss side. The hinges are bolted to two Collars on a 1" Rod and to a further Collar bolted to an Angle Bracket joined by a Fishplate to the Circular Girder of the boiler end. The remainder of the boiler end is made up from Semi-circular Plates, the whole unit being hung on the Bolt from where it can be easily lifted off for access.

The Bell behind the chimney is made from a Bevel Gear and a ¾" Contrate on a 1½" Rod which has a Rod and Strip Connector hanging on a Cord Anchoring Spring placed centrally on a 3½" Rod. Each end of the Rod is fitted with a Handrail Coupling, a 1" Rod, Rod and Strip Connector and two Obtuse Brackets to clamp to the steam pipes.

The Steam Weight at the front left of the boiler is represented by 1" Pulleys without boss, hanging on a 4" Rod fixed by a further Handrail Coupling and a 1" Screwed Rod to the Flanged Wheel of the Steam Pipes. The Fire Bucket on the rear left side end of the tender is made from a Bush Wheel with eight ¾" Bolts inside a 1" Rubber Ring. These Bolts should be almost tight to grip the rubber ring. A Small Hook serves as the type of bracket of the day.

The linkage between engine and tender has a Trunnion bolted to the underside of the boiler, a Single Bent Strip locknutted to this, with a 2" Slotted Strip and Corner Bracket to allow for movement. A Pivot Bolt adds further realism. A Fireshovel can also be built from a 1" Triangular Plate, Rod and Strip Connector, 2" Rod, Handrail Coupling and a 1" Rod.

Finally, the walkway on the right side of the boiler is supported by a 12½" Angle Girder which has its end level with the boiler rear Circular Girder. This is not the case for the left walkway supports, which consist of a 5½" Angle Girder at the rear end, a 2½" Girder at the front end, with a 1½" Angle Girder in-between the Rods activating the steam valves from the Eccentrics.



A close-up view of the locomotive's driving wheels and the plinth with part of the top removed. Note the mains motor which the author used for its long-running display characteristics.

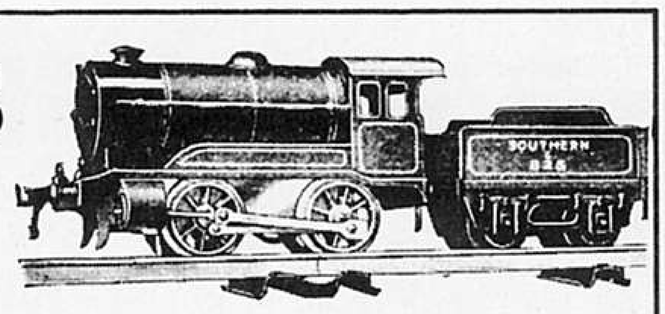
PARTS REQUIRED

10 - 1	8 - 18b	11 - 70	2 - 160
3 - 1a	2 - 19s	1 - 72	1 - 162b
4 - 1b	12 - 20b	1 - 74	1 - 163
16 - 2	2 - 21	4 - 76	1 - 164
10 - 2a	7 - 22	1 - 77	4 - 166
40 - 3	4 - 22a	2 - 81	2 - 167b
3 - 4	8 - 24a	2 - 82	2 - 171
49 - 5	1 - 24c	12 - 89b	1 - 175
14 - 6	1 - 25	1 - 102	3 - 176
16 - 6a	3 - 26	1 - 103	4 - 180
4 - 7	1 - 27a	2 - 103b	1 - 186
29 - 8	1 - 27b	1 - 103d	2 - 186a
6 - 8b	1 - 27c	3 - 103h	7 - 188
3 - 9	2 - 29	3 - 103g	5 - 189
7 - 9b	3 - 30	1 - 103f	3 - 190
6 - 9d	600 - 37	1 - 109	8 - 192
3 - 9e	3 - 45	18 - 111	2 - 196
2 - 9f	1 - 46	10 - 111a	17 - 197
43 - 10	2 - 47	28 - 111c	6 - 200
13 - 11	7 - 48	33 - 111d	1 - 207
50 - 12	15 - 48a	4 - 116	24 - 212
4 - 12a	4 - 48c	4 - 118	2 - 212a
10 - 12b	4 - 48d	8 - 124	3 - 213
6 - 13	3 - 52	5 - 126	14 - 214
4 - 13a	3 - 52a	19 - 126a	24 - 215
5 - 14	7 - 53	1 - 128	2 - 221
2 - 14a	2 - 53a	2 - 130a	4 - 222
3 - 15	2 - 55a	1 - 133a	2 - 223
1 - 15a	1 - 57c	3 - 136	2 - 225
1 - 15b	70 - 59	6 - 136a	5 - 235
5 - 16	12 - 62	1 - 140	1 - 235b
6 - 16a	6 - 62a	2 - 143	2 - P65
4 - 16b	8 - 62b	6 - 146	2 - P67
7 - 17	5 - 63	1 - 147b	
8 - 18a	2 - 63c	1 - 155	

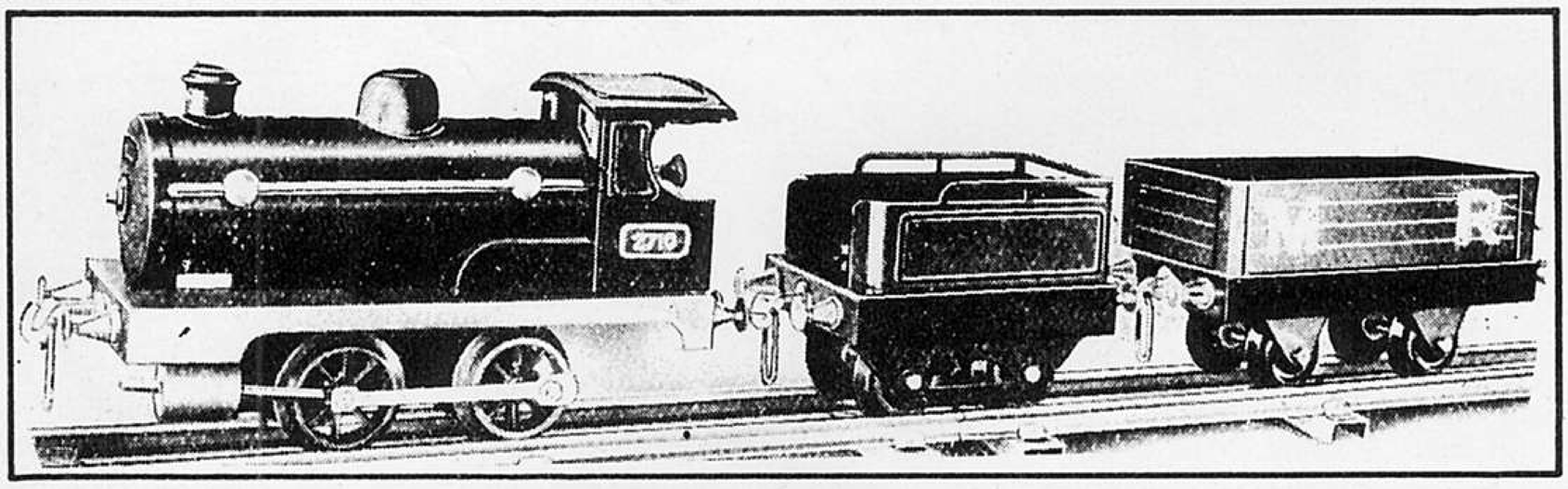
Enicron or E20R motor with extra gearing

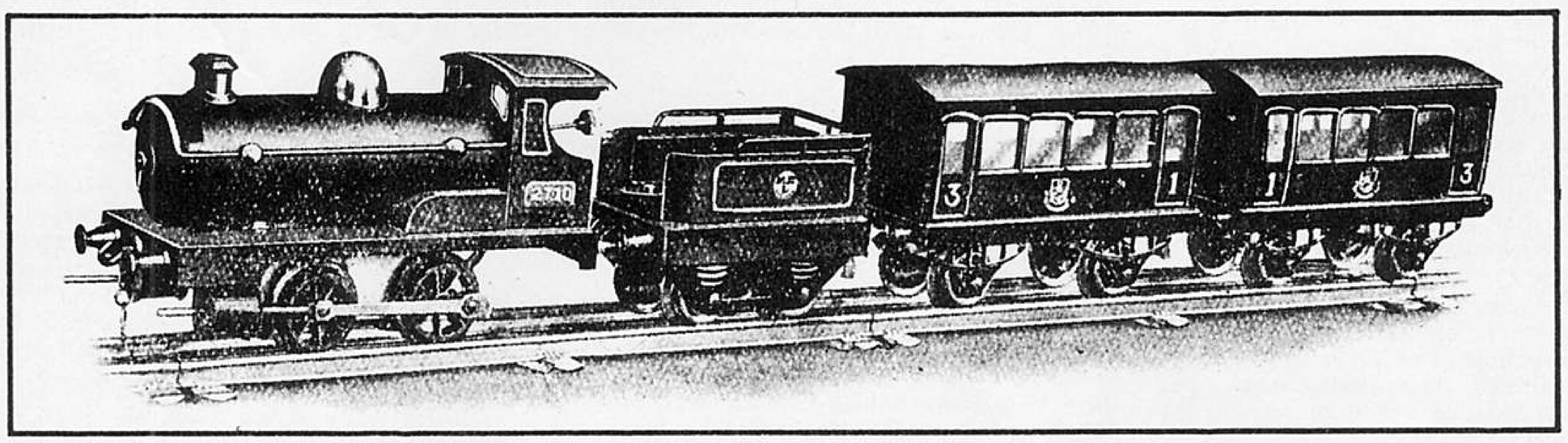
For a period of forty years, between the early twenties and the early sixties, the *Meccano Magazine* carried articles every month devoted to Hornby Gauge '0' Trains. Although it is now more than ten years since the familiar tin trains disappered from the toy shops, interest in them is growing rather than fading. So we feel that a description of some of the old Hornby engines will be of interest to many readers of the present day *MM*, to the older for evoking nostalgia and to the younger for a glimse of Meccano products which have now slipped into history.

LOCOMOTIVES IN THE HORNBY SERIES

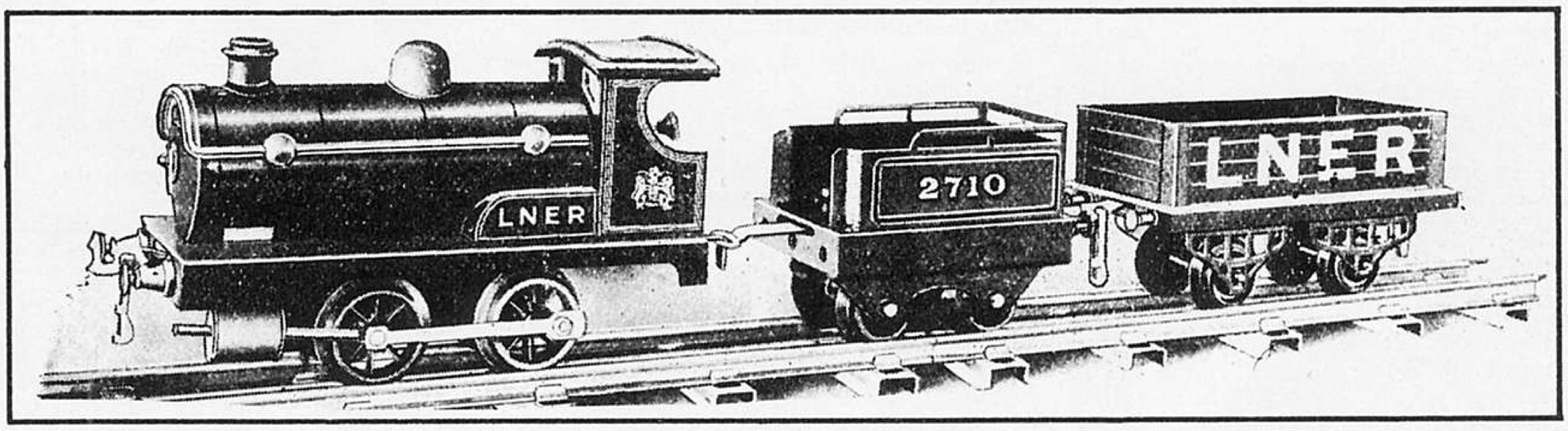


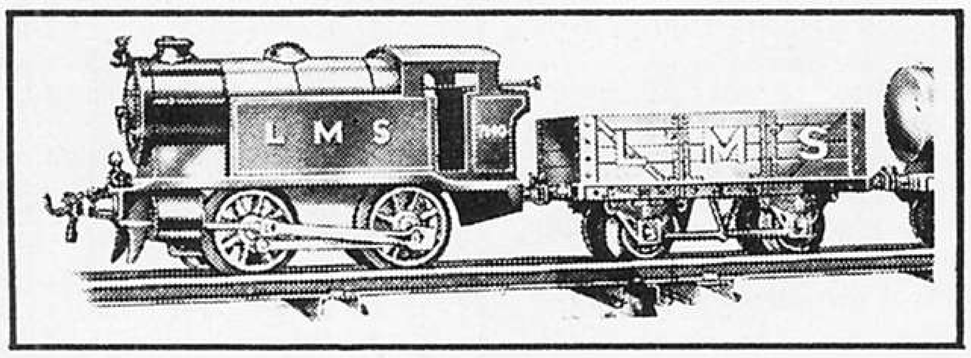
THE NO. 1 LOCO
by PETER RANDALL

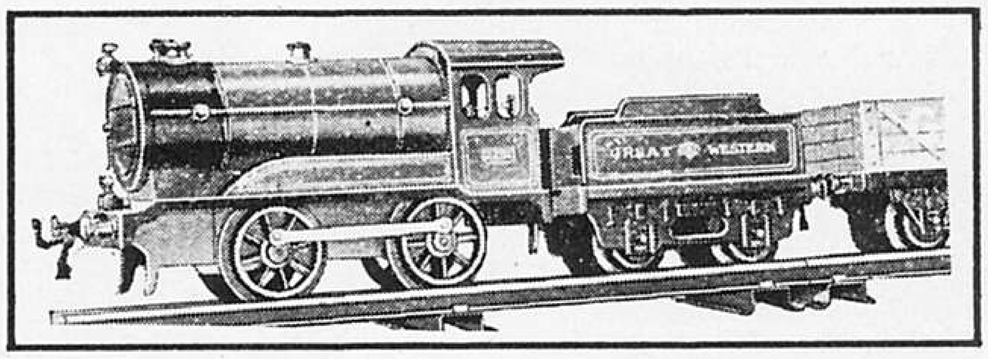




PICTURES ON THIS PAGE
Heading Picture: The No. 1 Loco of 1927 in Southern Livery. Left and below (from top to bottom): Stages in the early development of the Loco. Note three different front couplings. Bottom: No. 50 and 51 Locos – The BR look comes to the No. 1 Loco in the '50's







Probably the most famous of all Hornby locomotives was the No 1 — born 1920 and died 1960. For the first few years of its life it was just known as 'the Hornby locomotive' as there were no others, and in post-war times it went through two numbering changes, but for all that it was the Alpha of the Hornby range.

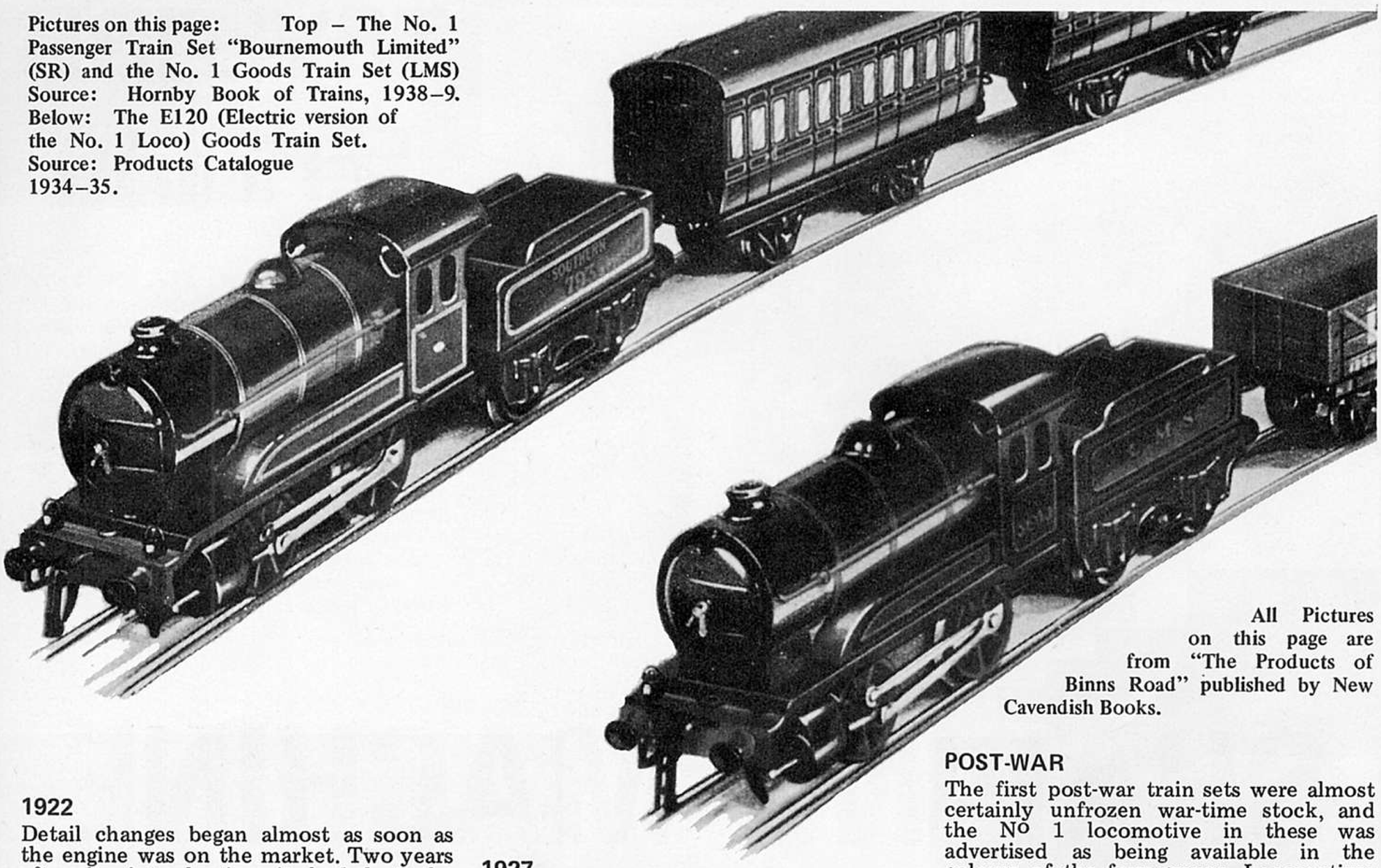
In 1919, Frank Hornby released from war contracts, was beginning to catch up with the demand for Meccano, but he had also been occupying his active brain with the design of a clockwork train set. Perhaps it was not surprising that, to make it different from other train sets on the market, he made it constructional, so that it could be taken to pieces and rebuilt like a Meccano model, but he later had second thoughts, and after five years the construction changed to a more traditional style, mainly tabs and slots.

1920

But to return to Christmas 1920, we would have found the stocking of many lucky boys containing the very first Hornby locomotive. A sturdy, outside-cylindered 0—4—0 having several unusual features. The wheels were small but the handrails were very much oversized, as were the three-link couplings, and — strangest of all — there were buffers and couplings between engine and tender!

All these points however, faded into insignificance when one considered the sheer quality of the workmanship, as many surviving engines bear witness today. Available in green, red, black, or blue, with a brass dome, the locomotive bore no lettering, but there was a brass plate on the cab side with the number 2710, and the tender carried the Hornby trademark, M Ld L.

Pictures on this page: Top – The No. 1 Passenger Train Set "Bournemouth Limited" (SR) and the No. 1 Goods Train Set (LMS) Source: Hornby Book of Trains, 1938–9. Below: The E120 (Electric version of the No. 1 Loco) Goods Train Set. Source: Products Catalogue 1934–35.



All Pictures on this page are from "The Products of Binns Road" published by New Cavendish Books.

1922

Detail changes began almost as soon as the engine was on the market. Two years after its introduction it had lost the buffers and couplings between engine and tender, which were now close coupled, and the three-link coupling had been replaced by one of the familiar large tinplate type. The handrail was now of more suitable proportions and — as the Hornby series now had a larger locomotive, designated the Nº 2 — our subject became the Nº 1.

1925

By 1925, the grouping was already two years old on the real railways, and Hornby followed suit. The Nº 1 like all Hornby locomotives, now appeared, in the passenger or goods colours of the LMS or LNER, with appropriate lettering on the splashers and the number 2719 in large numerals on the tender sides.

Not only was lining now applied, but a handsome coat of arms was transferred on to the cabside. The dome was still brass-coloured and two headlamps were fixed to the front of the engine in the 'express passenger' position. The Locomotive also was equipped with larger wheels and there were modifications to the mechanism.

Many collectors think that the 1925/27 locomotive was the most attractive version ever produced, and examples in good condition are much sought today.

1927

By 1927, there were more minor changes — mainly in the finish — as in that year all Hornby locomotives were additionally available in GWR and SR colours. The Nº1 locomotives now had numbers on the cab sides which correspond with real ones, with lettering in the style of the four groups on the tenders. Domes were now coloured to match the engines and the short splashers were lengthened.

1931

In 1931, along with other major changes in the Hornby series, the Nº 1 loco was completely re-designed to a modern concept with a squat chimney and dome, and a large boiler and cab of North Eastern appearance. The engine (but not the tender) was fitted with detachable lamps to enable boys to use the proper headlamp code. Automatic couplings became standard on tenders although — presumably for appearance sake— link type couplings were retained on the front of engines.

1933

There were no more changes until war-time regulations put an end to the sale of metal toys in 1943, although from 1933 to the war, one could buy a Nº 1 electric engine, fitted with the familiar headlamp in the centre of the smokebox door.

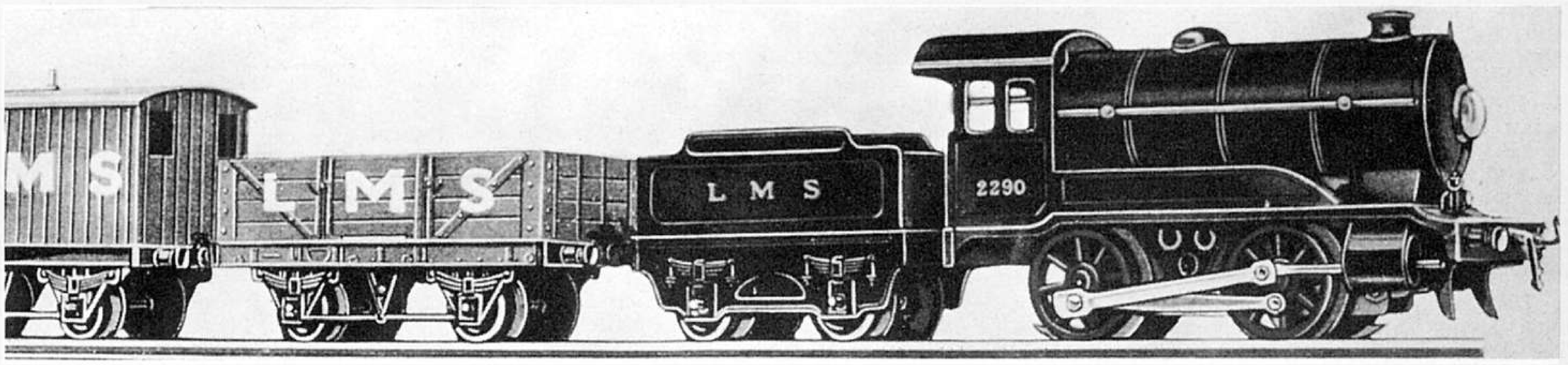
POST-WAR

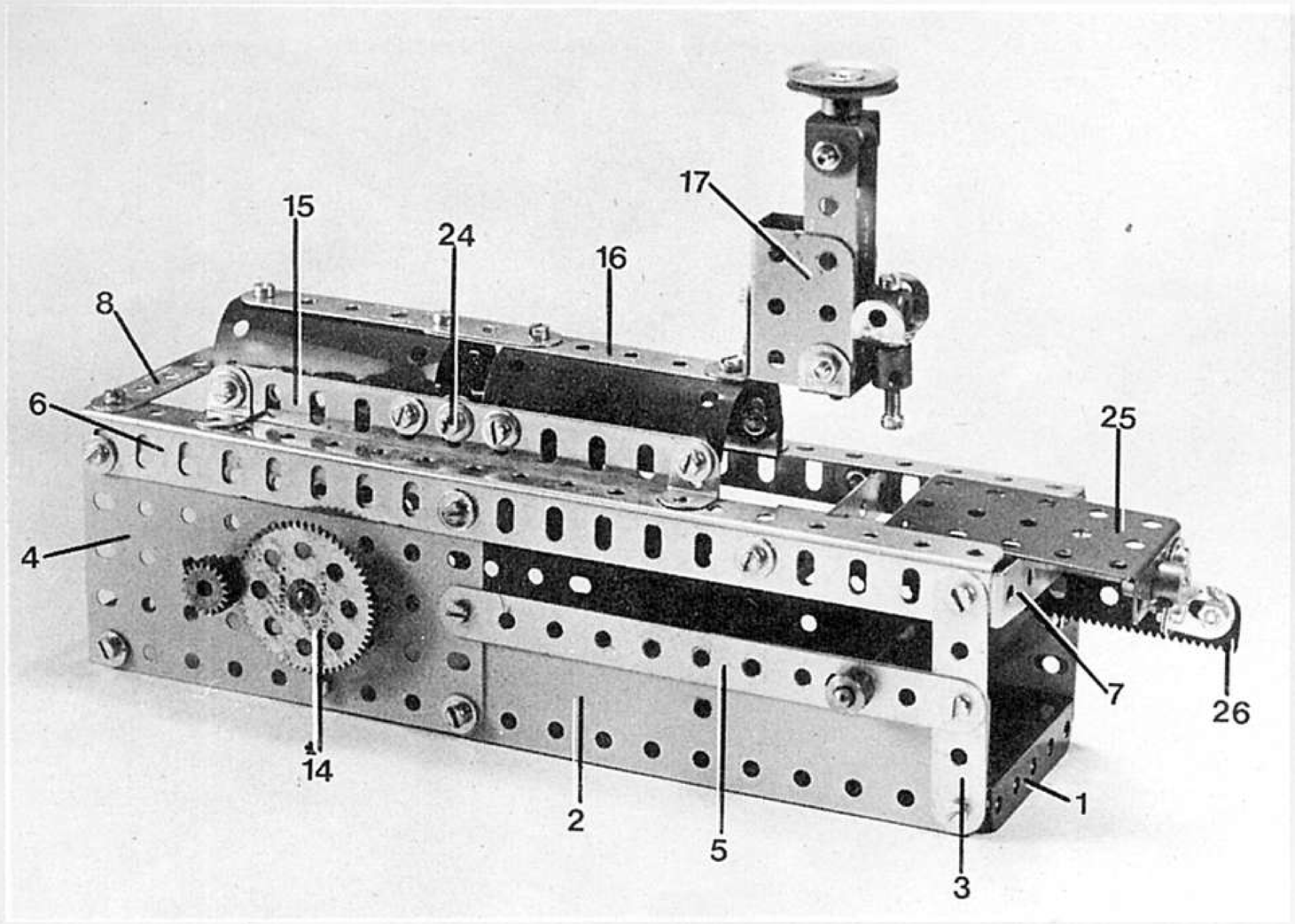
The first post-war train sets were almost certainly unfrozen war-time stock, and the Nº 1 locomotive in these was advertised as being available in the colours of the four groups. Locomotives of post-war *manufacture* were only produced in the passenger colours of the LMS and LNER (shades of 1925) but their paint was 'eggshell' rather than glossy. Obviously Meccano Ltd used the same paint as on their Dublo locomotives.

Except for a complete set of lamp brackets on engine and tender, the post-war locomotive — now designated the 501— was almost identical to the 1931 Nº 1. Attractively lined out in gold on the red engine and white on the green, they were soon the pride of many a lad's line, up and down the country. Produced in large numbers from 1947 to 1954, many have survived in good condition to this day.

1954

In 1954 came the last change in our long-lived engine, when it received a coat of BR black with the serial Nº 50 and BR green with the serial Nº 51, both once more in the familiar shiny Hornby finish. In its last form, the locomotive had a fairly short life, becoming one of the first casualties of the '0' gauge system contraction in the early fifties. However, many were to be found in small remote shops well into the seventies, and it is still possible there are some waiting to be unearthed by a present day bounty hunter!





TAYLOR'S TEKNIKIT

As mentioned in the April MM, Taylor's Teknikit is our name for a "machinery multikit" developed for his own interest by Mr. Harold Taylor of Huddersfield. The kit consists of a selection of standard parts, specially chosen for building interesting machine models, and Harold has in fact produced several excellent machines from the parts. The kit is not commercially available, of course, but we have undertaken to present some of the models in these pages over the next few issues and we give a 'contents list' for the set to the right for those who wish to collect the parts. Our first model, last issue, was a Bench Drill; our second offering, here, is a .....

SHAPING MACHINE

Believe it or not, according to our reference book the main function of a shaping machine is not so much to produce intricate shapes as flat surfaces, and how this is achieved will be better understood by studying the movements of this model, when built.

Construction of the model is somewhat more involved than the Bench Drill featured in this series in April, but it is still far from difficult. The main body of the machine is built up from a 5½" x 2½" Flanged Plate 1, to the side flanges of which are bolted a 5½" x 1½" Flexible Plate 2, the front edge overlayed by a vertical 2½" Strip 3, and a 4½" x 2½" Flat Plate 4, the securing Bolt of the latter passing through the end hole in the side flange of Plate 1. Bolted between Strip 3 and Plate 4 is a 5½" Strip 5, this overlaying the upper edge of Flexible Plate 2, then a 9½" Angle Girder 6 is bolted between the upper edge of Flat Plate 4 and the top of Strip 3 to complete each side, at the same time fixing a 2½" x ½" Double Angle Strip 7 between the front ends of the Girders, as shown, to connect the sides. The rear ends of the Girders at each side are connected by a 2½" Strip 8, while two 2½" x ½" Double Angle Strips 9 are bolted between Flexible Plates 4 in the positions shown, six holes from the rear edge of the Plate.

At this stage, the oscillating mechanism for the shaping head should be fitted while access is readily available. Journalled in the centre holes of Double Angle Strips 9 is a 2" Rod carrying a free Short Coupling 10 and held in place by a Collar and a Multi-purpose Gear 11. Fixed on the upper end of the Rod is an 8-hole Bush Wheel 12, to which a pivoting 2½" Strip 13 is lock-nutted. In mesh with the Multi-purpose gear is another Multi-purpose Gear at right-angles to it; this fixed on a 1½" Rod journalled in the centre bore of the Short Coupling and in the corresponding hole in right-hand Flat Plate 4, where it is held in place by a Collar inside the Plate and a 57-teeth Gear 14 outside the Plate. This Gear meshes with a ½" Pinion on a 3½" Rod, to the opposite end of which a 2" Pulley is fixed to receive the drive if external motor power is used.

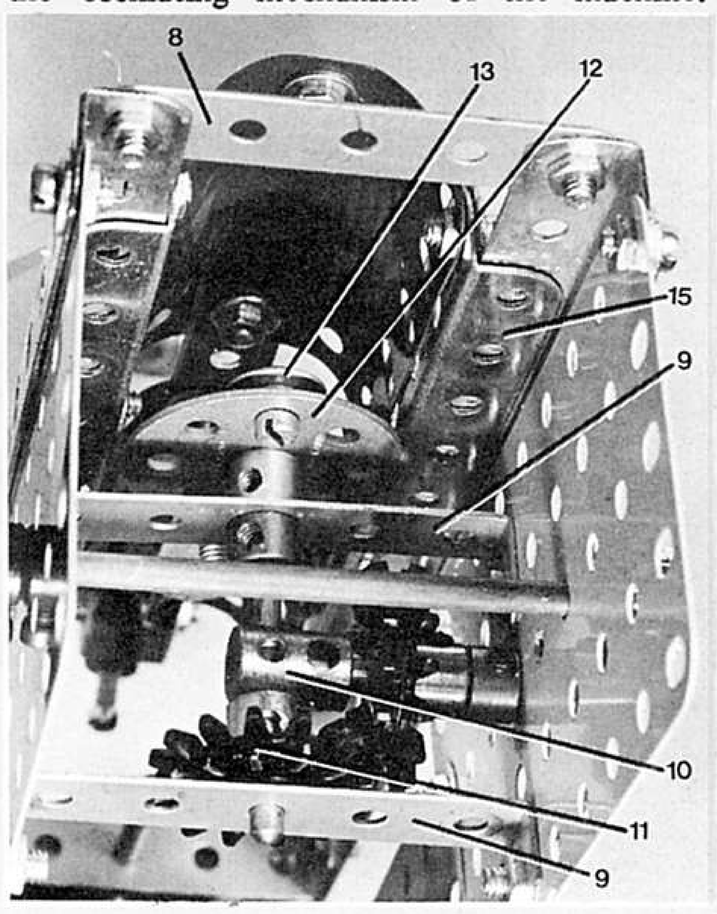
The shaping head can now be built as a separate unit and fitted when completed. The slide section consists of two 5½" Angle Girders 15, the slotted hole flanges of which are connected by two 2½" x 2½" Plastic Plates, the end securing Bolts also fixing two Angle Brackets in place by their slotted lugs. Using the slotted holes of the Brackets and Girders, the Angle Brackets are positioned so that an appropriate gap is left between the projecting Bracket Lugs and Girder Flanges to later allow the unit to be located on the body of the machine.

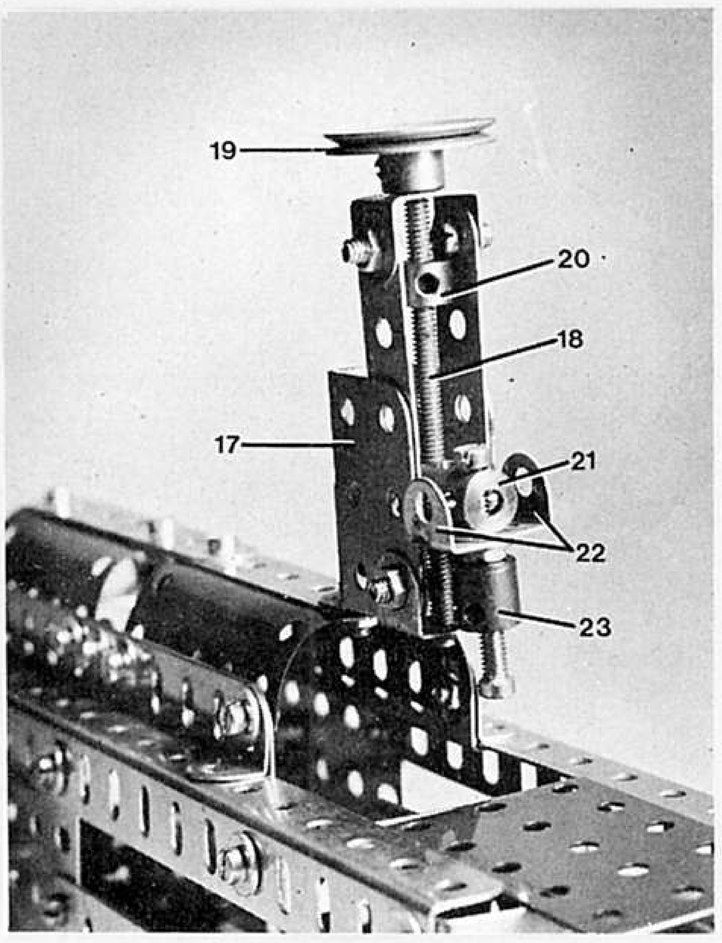
Bolted across the centre of the Plastic Plates is a 5½" compound strip 16, built up from two overlapping 3½" Strips, to the forward end of which a 1" x ½" Angle Bracket is fixed with its long lug upright. Secured to this lug is a Channel Bearing, the flanges of which are extended two holes upwards by two 2½" Strips, the securing Bolt also fixing a Double Bracket between the lower corners of the flanges of the Bearing. Another Double Bracket is bolted between the upper ends of the 2½" Strips, securing Bolts shank outwards, then located in the centre holes of the Double Brackets is a 3" Screwed Rod 18 held in place by a 1" Pulley 19 on the upper end of the Rod and a Collar 20 fixed on the Rod in such a position that it locates against the heads of the Bolts fixing the upper Double Bracket in place. The Rod itself is screwed through one end threaded bore of a Coupling 21, to the other end of which two Angle Brackets 22, arranged to form a double bracket, are fixed by a ½" Bolt and Nut. Below the Nut, a short length of bolt shank remains and onto this is screwed a Threaded Boss 23 into the other end of which another ½" Bolt is screwed to represent the shaping tool.

To complete the shaping unit, a 1" x ½" Angle Bracket is fixed to the centre of right-hand Angle Girder 15 by Bolt 24, the long lug of the Bracket projecting inwards. Fixed by a Nut in the end hole of this lug is a ¾" Bolt, the shank of which projects downwards. The completed unit is then positioned on the body of the machine with the horizontal flanges of Angle Girders 6 locating in the gap between the horizontal flanges of Angle Girders

PARTS REQUIRED			
2 – 2	2 – 16	50 – 37b	1 – 63d
2 – 3	1 – 17	53 – 37c	1 – 64
5 – 5	1 – 18a	26 – 38	1 – 80c
2 – 8a	1 – 20a	5 – 48a	1 – 110
2 – 9	2 – 22	1 – 51	1 – 111
2 – 10	1 – 24	1 – 52	1 – 111a
2 – 11	2 – 26	2 – 53a	1 – 111b
8 – 12	1 – 27a	6 – 59	1 – 160
2 – 12b	2 – 27f	1 – 63	2 – 189
1 – 15b			2 – 194a

Pictured above is the complete Shaping Machine which we feature as the second model built from Taylor's Teknikit – the 'Machinery Multikit' devised by Mr. Harold Taylor of Huddersfield. Below is a close-up view showing the oscillating mechanism of the machine.





TAYLOR'S TEKNIKIT
CONTENTS LIST

Part No.	Qty	Part No.	Qty	Part No.	Qty	Part No.	Qty
2	4	22a	2	53a	2	126a	2
3	2	24	2	59	6	133a	2
5	10	26	2	62	1	160	1
8a	2	27a	1	63	1	188	4
9	2	27f	2	63d	1	189	4
10	4	32	1	64	1	190	2
11	2	35	2	80c	1	194a	2
12	8	37b	64	108	2	194c	2
12b	2	37c	64	110	1	214	2
15b	1	38	30	111	2	230	1
16	3	43	1	111a	2	231	1
17	2	48a	6	111c	6	235a	2
18a	2	51	1	115	1	235d	2
20a	2	52	1	125	2	235g (1½" N.S.)	2
22	3			126	2		

15 and the Angle Brackets bolted to these Girders. The projecting shank of the ¾" Bolt just mentioned engages in the second hole of Strip 13.

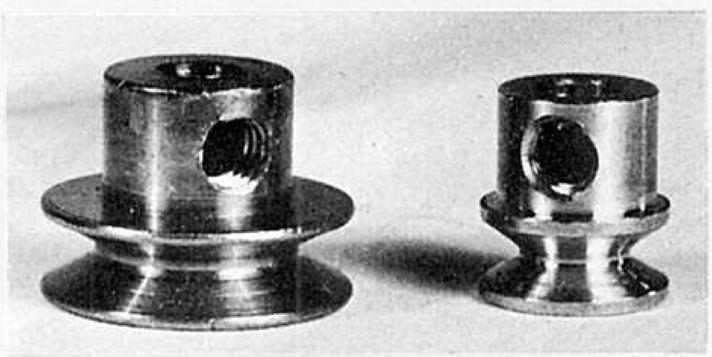
Coming finally to the work table this features a realistic forwards/backwards controllable movement and is built up on a 4" Rod mounted in the centre hole of Double Angle Strip 7 and another, similar Double Angle Strip bolted between the fifth hole of Angle Girders 6. Mounted on the Rod is a 2½" x 1½" Flanged Plate 25, held in place by two Collars, one each side of the forward flange of the Plate. Bolted tightly to each flange of the Plate through its far end hole as viewed in our main illustration, is a Fishplate, the securing Bolt passing through the circular hole of the Fishplate. Bolted to each Fishplate through its slotted hole is an Angle Bracket to which a 3½" Rack Strip 26 is fixed. This Rack Strip engages with a ½" Pinion on a 3½" Rod mounted in the third holes of Strip 5 and held in place by a Collar at one end and a 1" Pulley at the other. The Pulley serves as the control wheel for work table positioning.

In View

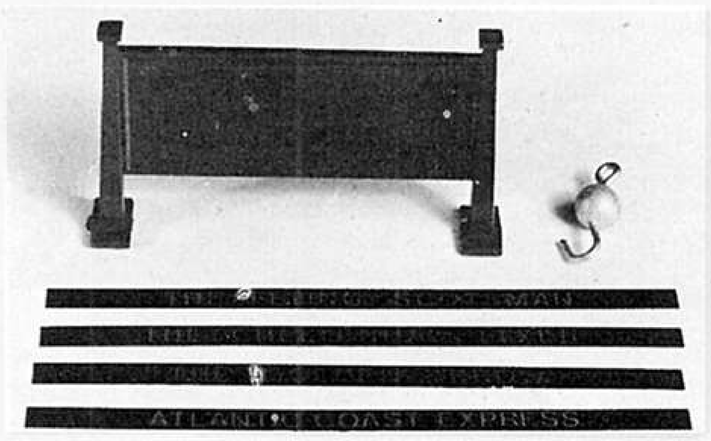
MICK'S REPLICAS No. 23MRS 25p each

Available only from M. J. Burgess, 56 Park Rd, Kettering, NN16 9LL

Here is another excellent product from the same source as the replica parts discussed in MM for April/July/October 1977. This time, however, we do not have a replica, but a completely new part. Beautifully turned in solid brass it is a minimal-sized pulley-with-boss, the pulley groove only about 1 mm greater in diameter than the standard Axle Rod itself, and the outside diameter no more than the size of a standard brass part. The integral boss is turned down to the diameter of the old Aeroplane Collar, P52, but in length remains standard size and is tapped for a Meccano Grub Screw.



▲ Mick's Replicas ▼ Tinplate Design Revivals



The thought that such freelance, yet compatible parts can be produced so well, and so inexpensively, excites the mind of the more adventurous Meccano modeller. What is now not possible, if he overcomes his dilemma of using "non-Meccano" parts? Mick's Replicas have embarked on a splendid scheme of creative additions to the range and one can hardly wait for the next offering.

There is one curious feature about this new part: there is only a single tapped hole in the boss, presumably deriving from its ancestry in the Aeroplane Collar. Whatever the rights and wrongs of double Grub Screws for security (and Meccano abandoned the single hole many years ago) there is no doubt that to have a tapped hole straight through both sides is an important amenity that extends the versatility of brass parts.

Despite this one shortcoming I have no hesitation in recommending this product – it looks good, feels good and should have lots of uses both technically and decoratively.

Alf Reeve

* * *

TINPLATE DESIGN REVIVALS

123 Fore Street, Exeter, Devon.

Advertisement Hoarding, blue, £1.20.

Originally described in the pre-war Hornby Train accessories literature as a "Station or Field Hoarding", the Advertisement Hoarding by Tinplate Design Revivals is a very good reproduction of the original, cast we believe in rather softer white metal, and smartly finished in blue enamel. There was a small casting flaw in our review sample which detracted slightly from the overall impression, but then, in these days of vandalism, it's hard to find a poster hoarding in real life that is not damaged in some way! Approximate overall dimensions are 3" wide, measured between the outsides of the posts, with the depth of the actual poster area being 1" compared to an overall height of almost 2".

Replacement Hook for Hornby Gauge O Crane/Breakdown Wagon, unpainted, 20p.

Like the Hoarding, the Hook is a good visual reproduction of the original Hornby item, but we question its strength under lifting conditions. The original Hook was made from strong wire with a die-cast metal ball-shaped weight secured to it. The replica Hook is cast as a single item from white metal, including the part that was previously wire, and, as white metal is a very soft metal, we believe that it will easily break – as happened with our review sample. However, for renovation work to a collection, where visual effect only is required, the Hook will make a good replacement.

Coachboards, 35p each.

A number of different coachboards, designed to fit Hornby O Gauge No. 2 coaching stock, were supplied for review and these we found excellent. Some 5" long, each is produced from tinplate finished in dark blue or dark grey enamel (on the front side only) behind gold lettering edged in black. Tinplate Design Revivals did not indicate how many boards are available, but we were supplied with nine examples with romantic names ranging from "The Golden Arrow" and "Flying Scotsman" to "The Cheltenham Flyer" and "Ocean Liner Express". At 35p each, all represent very good value for money.

The prices given include VAT, but postage is extra.

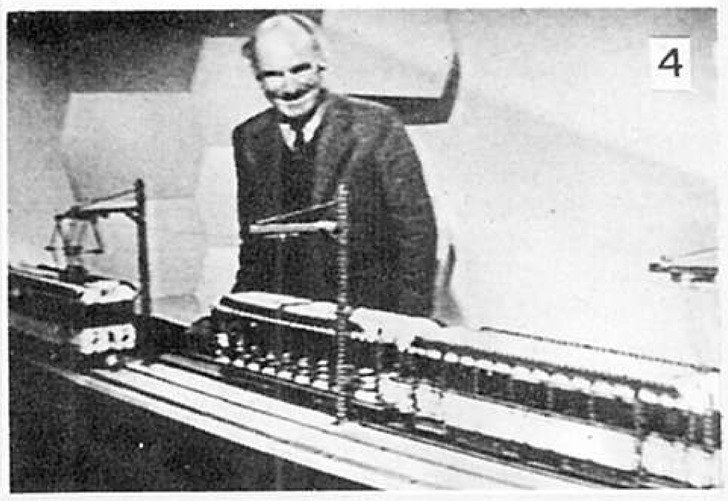
AMONG THE MODEL-BUILDERS

with 'Spanner'









MECCANOMEN ON "NATIONWIDE"

1. Tony Homden with Bob Welling in the London Studio.
2. Alan Partridge in the Birmingham Studio.
3. John Stephenson and Magician in Leeds.
4. Esmond Roden and Tramcars in Bristol.
5. Chris Goodwin in the Southampton Studio.



In these days of high enthusiast publicity, when so many modellers are achieving unprecedented coverage for the hobby in the media, it is perhaps a little unfair to single out an individual, or group, for special mention in this connection. On this occasion, however, I cannot resist describing my surprise, then excitement when, one Friday evening in May as I was watching BBC Television's "Nationwide" programme, I beheld Meccano models in profusion situated in TV studios all around the Country!

For overseas readers, I should explain that "Nationwide" is one of the most popular magazine programmes on British television. Broadcast in the early evening, it has a viewing audience of many millions and to obtain mention on the programme is indeed rare and outstanding. But, rather than listening to me waxing emotional on the subject why not listen to one of the "Stars" of the piece: Alan Partridge of the Midlands Meccano Guild who demonstrated his Orrery in the Birmingham Studio.

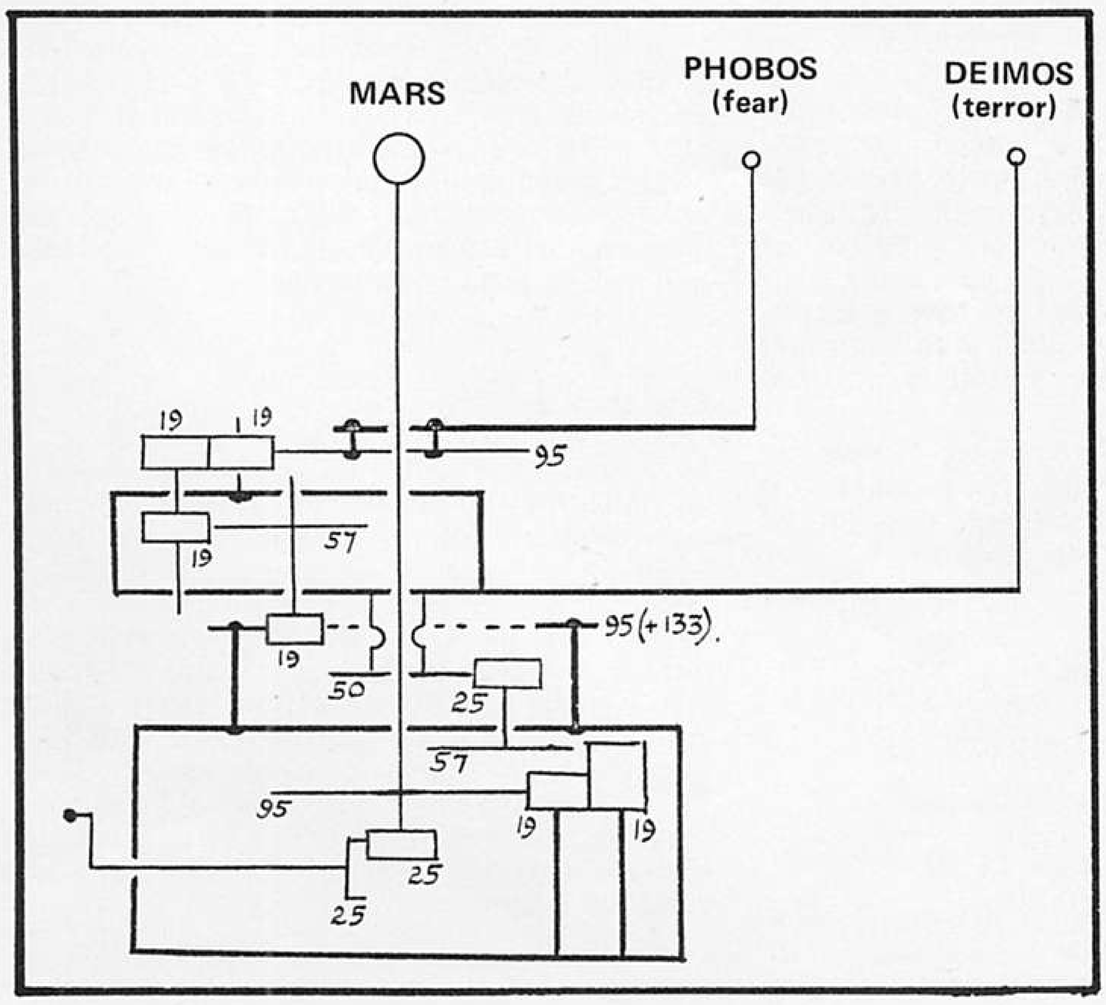
"On May 12th, (writes Alan), five Meccano Modellers filled a five minute spot on the BBC Television programme "Nationwide". The first to appear, interviewed in the London Studio by Bob Welling, was Tony Homden. He showed a set of machines designed by Marc Brunel to shape wooden pulley blocks for the British Navy of the Napoleonic era. This was the first mass-production machinery in the world and Tony managed to show each item working in a lightening tour of the workshop. Next, the screen switched to Birmingham where your correspondent demonstrated that hardy annual, the Orrery, Modelplan 59. He managed to squeeze three months of movements of the Earth and Moon into one minute!

"Another published model followed, Servetti's Magician, built by John Stephenson, and shown by him in the Leeds Studio. The flashing wizard just managed one quick-change act before the camera moved to Bristol, where Esmond Roden had taken a caravan load of tram cars and track. He just got in one trip up and down the line! The above are all members of the Midlands Meccano Guild. The last to show, at Southampton, was Chris Goodwin, Chairman of the Solent Meccano Club. He had a carriage with trotting horse, based on a design by Andreas Konkoly. He, too, got in one trip, with detailed views of the mechanism."

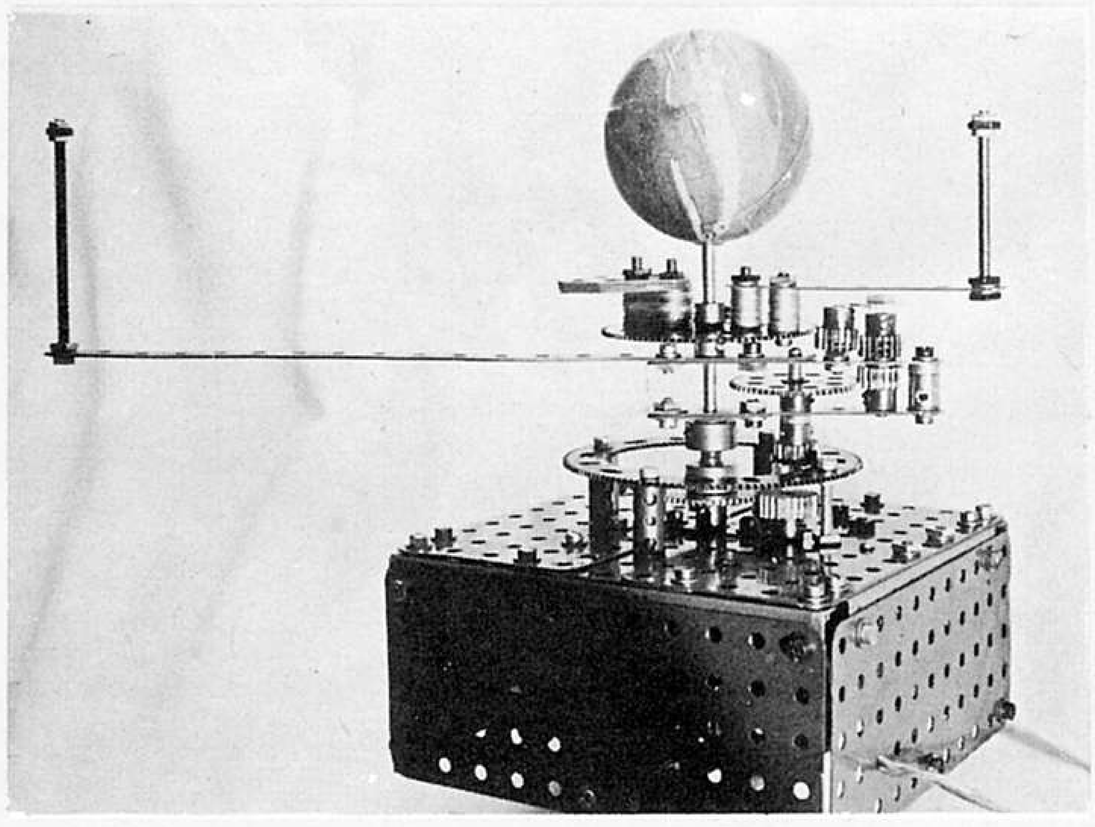
"For exhibitors, the time seemed to go in a flash – and for Meccano viewing enthusiasts, not much longer!

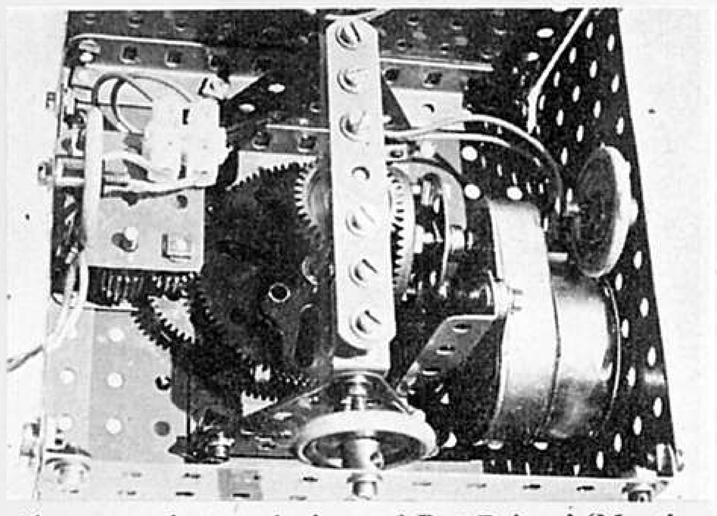
NEW PLANETARY MODEL

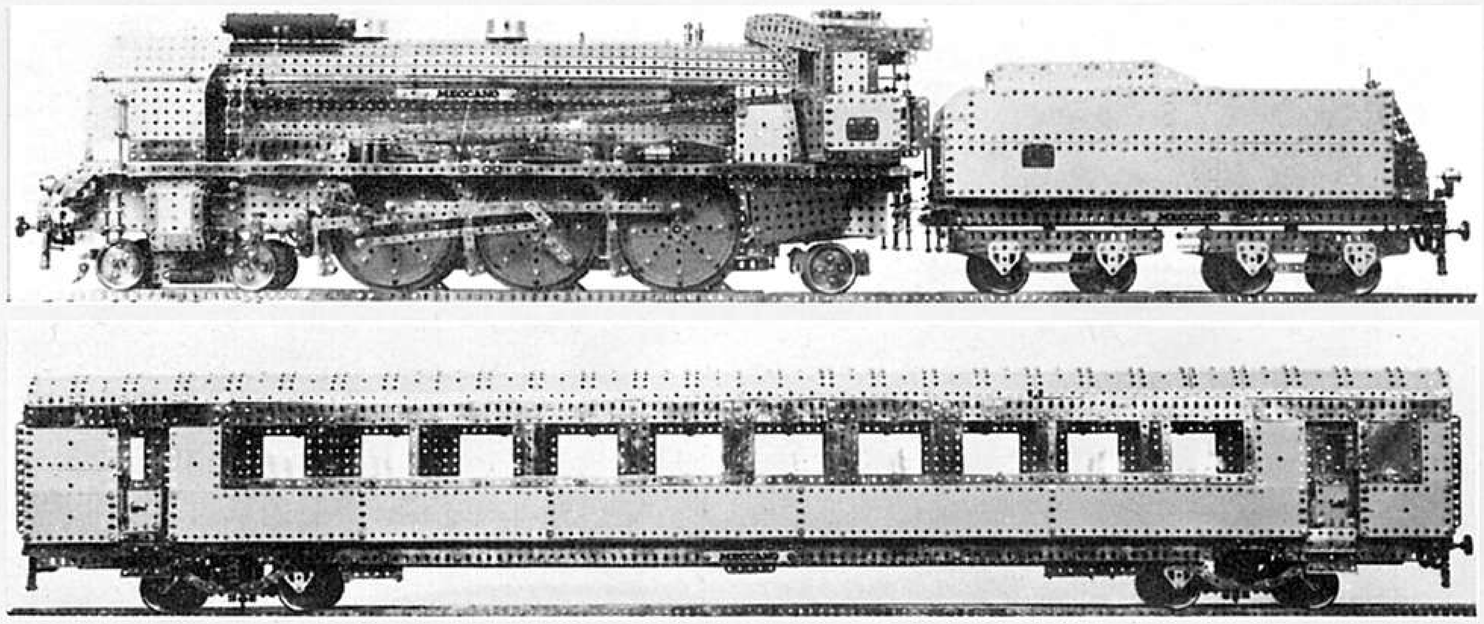
"One one corner of the table in the Birmingham Studio (continued Allan), but without time for attention to be brought to it,. was a



Below and left, a new Orrery by Pat Briggs showing the movements of Mars and its two satellites, Phobos and Diemos. The diagram, left, shows the layout of the gearing. Pictured right are various views of Stan Evans' Crane, see "Readership Inspiration" on opposite page.







Above, an internal view of Pat Briggs' 'Martian Orrery'. Right, railway models by André Barbe of Voiron, France.

new planetary model designed by Pat Briggs. A type of Orrery, it shows the rotation of the planet Mars on its own axis, and the movement round Mars of its two tiny satellites, Phobos and Deimos. These are so close-in to the planet that it is possible to show the radii of their orbits in correct proportion to the diameter of Mars, as well as getting the speeds of rotation right – something which is hardly ever done in other planetary models.

"Construction should be sufficiently clear from the accompanying photographs and diagram. The model shown on TV was fitted with a 6 rpm Crouzet motor, which is almost silent. However, a standard Meccano Power Drive Unit, or Crane Motor, could easily be fitted, possibly with a Worm drive direct to the 95-teeth Gear, or one of the Pinions. If obsolete gears are available, the periods can be improved by using two of them in the base. A gear of 56 teeth is substituted for that of 57, and the long-faced Pinion is replaced by two on one shaft, 19-teeth above (meshing with 56) and 20-teeth below.

"To a visitor from Earth, the behaviour of the Moons of Mars would appear very confusing. Although both are rotating in the same direction as our own Moon, Phobos arises in the West and sets in the East, while Deimos behaves normally! Now nearly all the planets and satellites in the Solar System rotate in the same direction, West to East (yes, that's right!), or anti-clockwise as seen from the North."

"On Earth, rotation with respect to the (nearly) stationary Sun makes the latter appear to move from East to West. The same goes for rotation with respect to the slowly moving Moon – though, if you bother to notice, the Moon is 15° further round in the sky each day (further East in the Southern sky by night, further West in the Northern sky by day). That's not meant to be the confusing bit – wait till we get to Mars! There, Deimos, which is the slower of the two, behaves rather like our Moon, but because its rotation is only a little slower than that of Mars, it remains in view, day and night, for 66 hours at a time, passing through all its phases (New, Crescent, Full, etc) twice during one appearance! Meanwhile, Phobos, not much further out than an inter-continental missile, is seen twice every day, moving in its true direction! No wonder the meanings of their Greek names are Fear and Terror! But if you build the model, your fear and terror will vanish; even a hand-driven model will serve to dispel any confusion!

READERSHIP INSPIRATION

My thanks go to Alan Partridge for the foregoing, but I have one other subject to cover and, as my space is very limited this issue, I must move on without further ado.

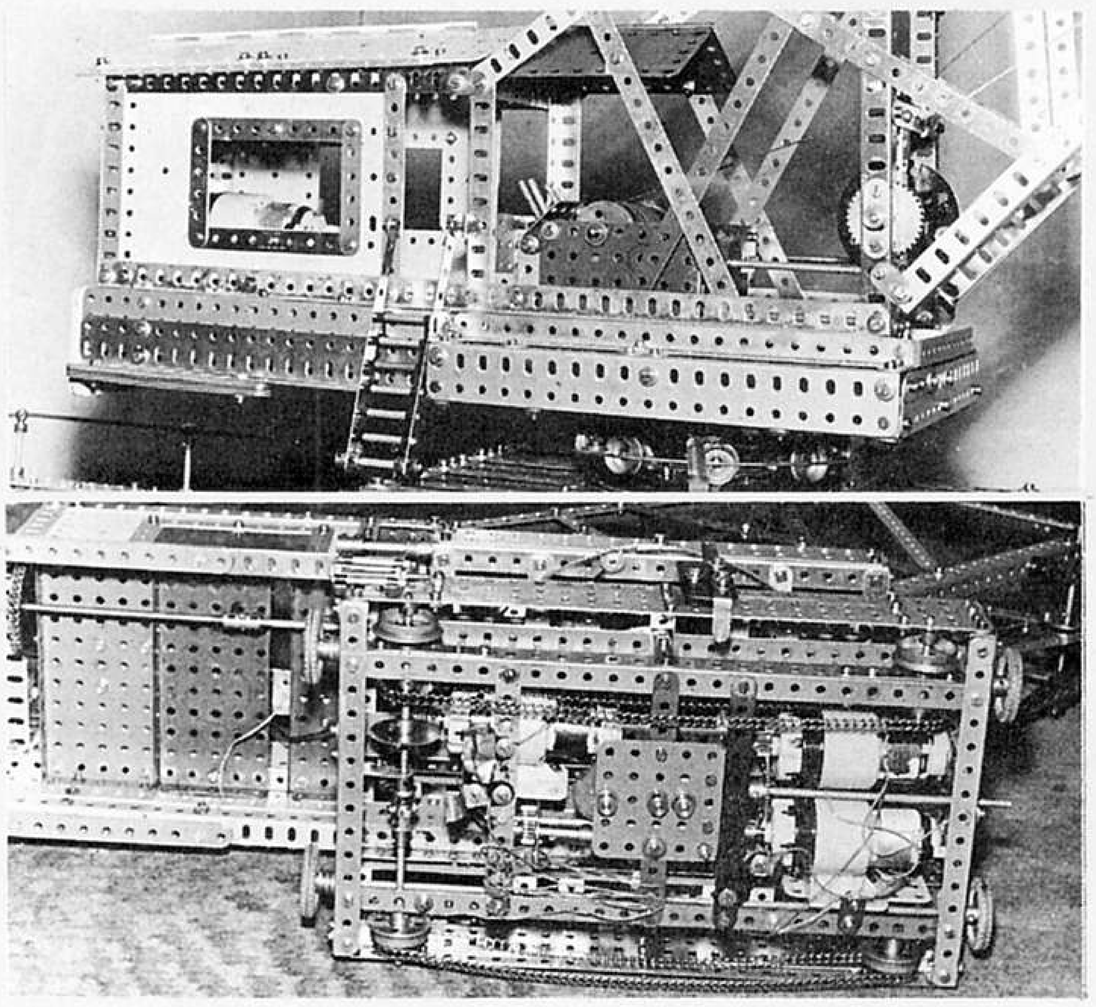
It is always very pleasant for any columnist to receive concrete proof that an item he has included in his column has been of direct value to a reader, or readers, just as it is pleasing to a model-builder to receive proof that his work has aroused interest. In this context, both myself and Mr. Hans Hock of Winterthur, Switzerland, have reason to be pleased, thanks to Mr. Stan Evans of Bebington, Merseyside. In the January MM, we illustrated a huge Grabbing Crane built by Mr. Hock and, although we did not provide any constructional details, the illustrations alone were enough to attract Mr. Evans and inspire him to build a model based on Mr. Hock's original. Mr. Evans tells me that all he had to go on were the illustrations in the Magazine, and these were certainly sufficient for him to produce a pretty impressive construction, as the accompanying illustrations show.

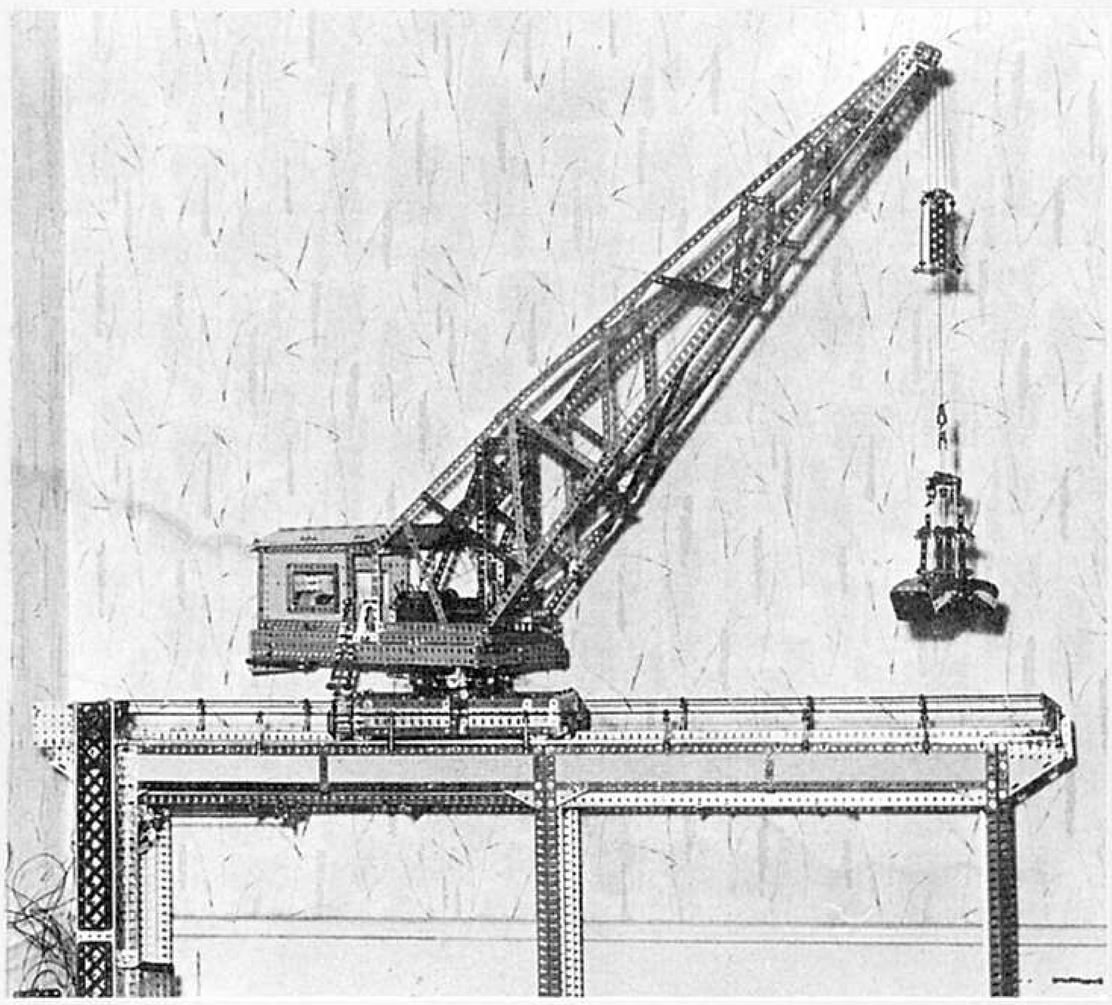
"Three Power Drive Units" are situated in the travelling base", writes Mr. Evans, "and provide the drive for the hoisting, slewing and travelling operations, while the grab-opening drive comes from another Power Drive Unit carried in the cab. An E15R Motor located in the high-level platform drives the lift running up one leg of the base section. Drive from the PDU's in the base to the Crane is transmitted up through the centre of the turntable by a planetary gear arrangement using four ½" Pinions and a Socket Coupling. The Grab, itself, was taken from a design published in the Meccano Magazine Handbook, published in 1968. The model is operated from one power source using a rotary switch made from Meccano electrical parts."

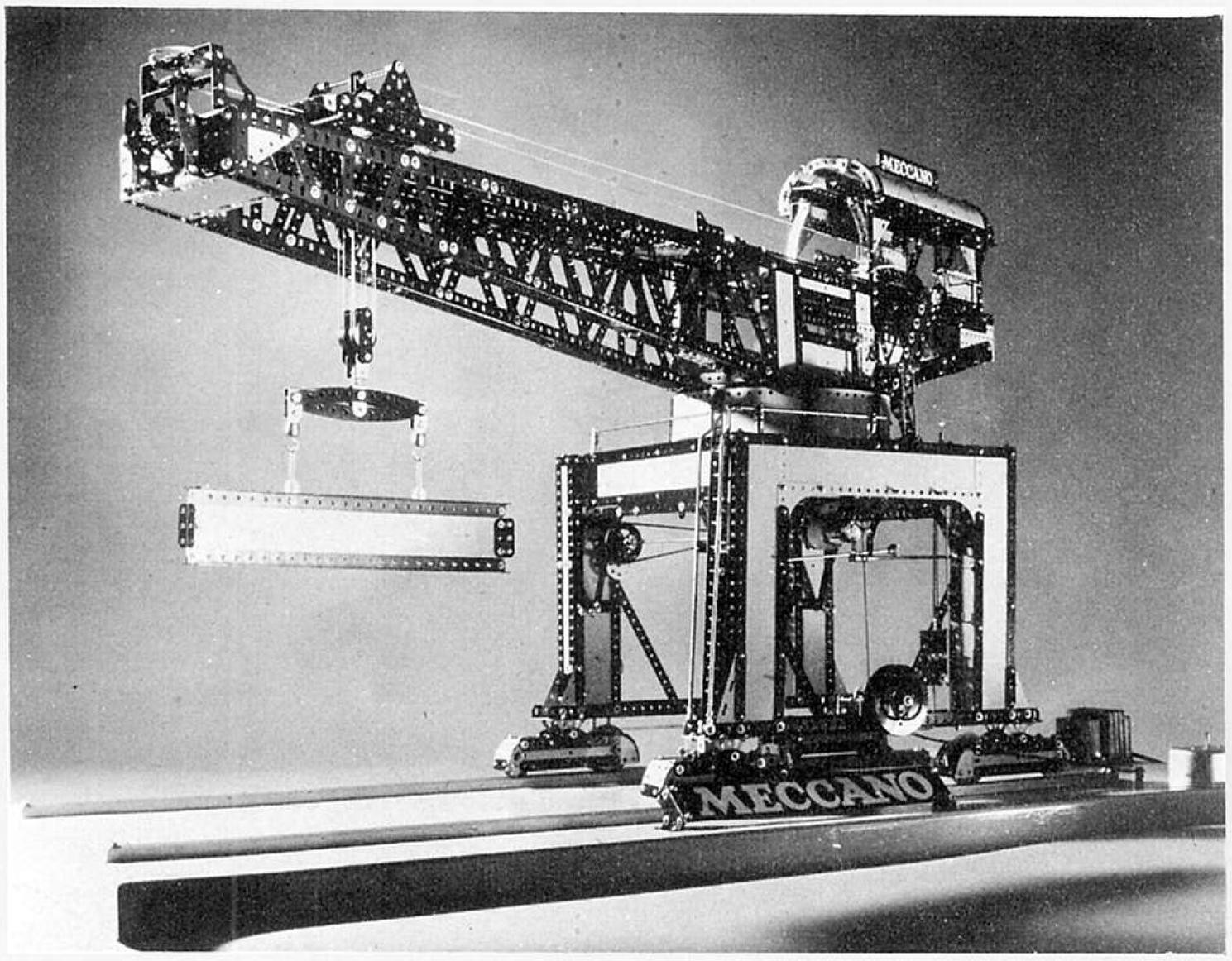
LOCOMOTIVE AND TENDER

In similar inspirational vein, sight of Norman Chapman's Baltic Tank Locomotive in the April MM moved Mr. André Barbe of Voiron, France, to send along the accompanying photograph of his Pacific 231 PLM Locomotive, the full-size version of which was built in 1937. A really impressive model, the Locomotive is 108 cm. long by 32 cm. high by 20.5 cm. wide. Even the Tender is an impressive 65 cm. long by 26.5 cm. high by 19 cm. wide and I am told that this means that the model is a 1/14th scale reproduction of the original. I think all will agree that it is a first-class example of the Loco modellers' art.

So, also, is the Railway Passenger Coach, built by Mr. Barbe and illustrated in the accompanying photograph. Mr. Barbe calls it a "Voiture Corail" and tells me that the original was introduced into service with the French National Railways (SNCF) in 1945. Beautifully proportioned, the model has all the windows, doors and other major features of the original including seating for 80 passengers. Overall length is 175 cm. with a height of 30.5 cm. and a width of 19.5 cm. Again, a very pleasing model, as I am sure all railway fans will agree.







Included in the instructions literature for the No. 10 Set is a leaflet describing a Blocksetting Crane – perhaps the most famous of all advanced Meccano subjects. The model is reasonably large and fairly advanced, but unfortunately it is not the ultimate No. 10 model of its type. For instance, it uses far from all the parts in the Set and thus it falls short of the full modelling potential of the biggest Meccano Set on the market. In contrast, the Electric Dockyard Crane, illustrated in full colour on our cover and featured constructionally here, is a No. 10 Set masterpiece! Newly designed and built by Mr. Bert Love, it uses nearly everything in the Set and offers strength, substance, rugged form and, of course, fully operational working features. Though technically not a Block-Setter in that it is fitted with hook-lifting equipment instead of block-setting gear, it is the same breed of Giant Hammerhead Crane and is instantly recognisable as such.

Electric Dockyard Crane

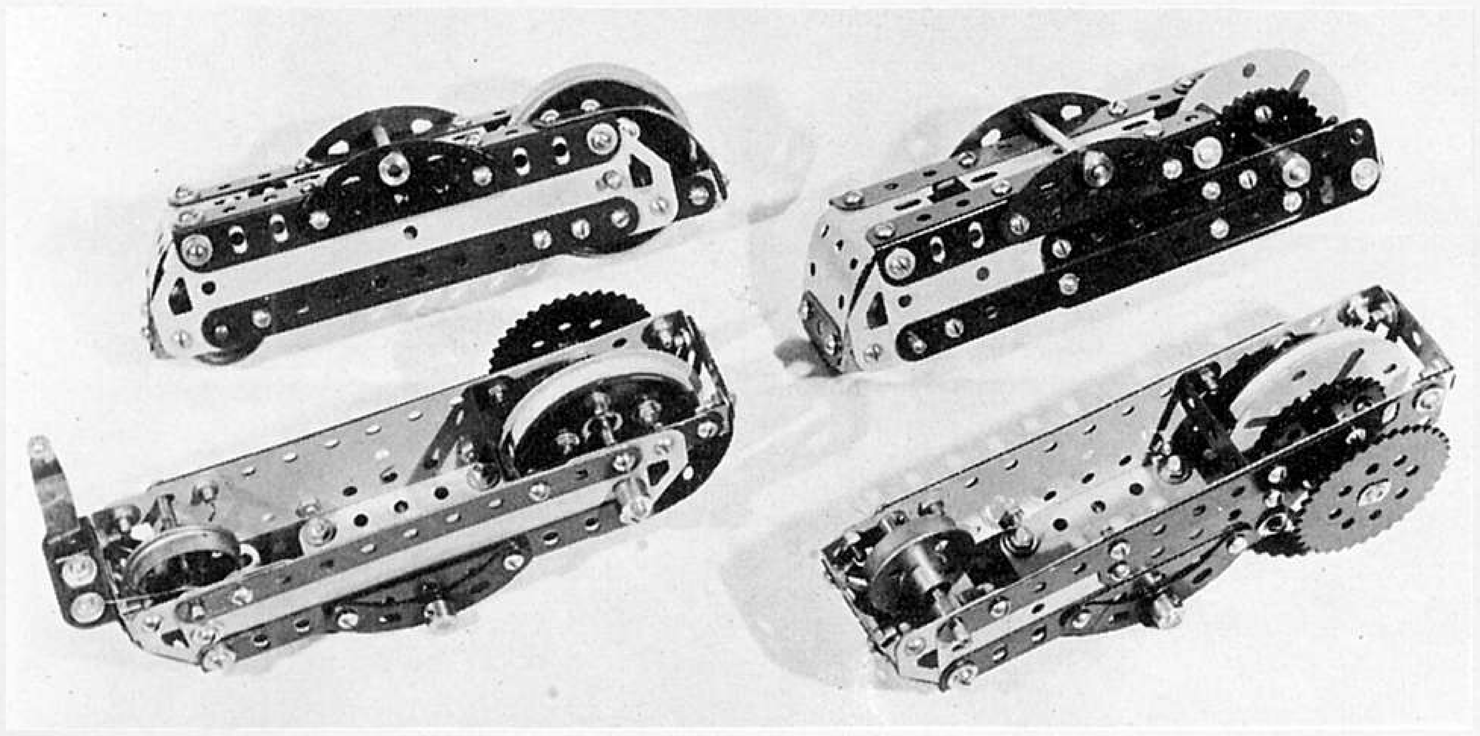
A No.10 Set model built & described by B.N. LOVE

Because of the size and complexity of this outstanding, advanced model we are unable to provide the full building instructions in this one feature. They would take up most of the magazine! We are therefore splitting the instructions into two instalments with PART 1, here, dealing with the travelling bogies and tower. PART 2 in our next issue will conclude with the jib, hoisting gear and wiring, etc. We are indebted to Mr. Bert Love, the builder, both for the accompanying illustrations and the comprehensive building instructions.

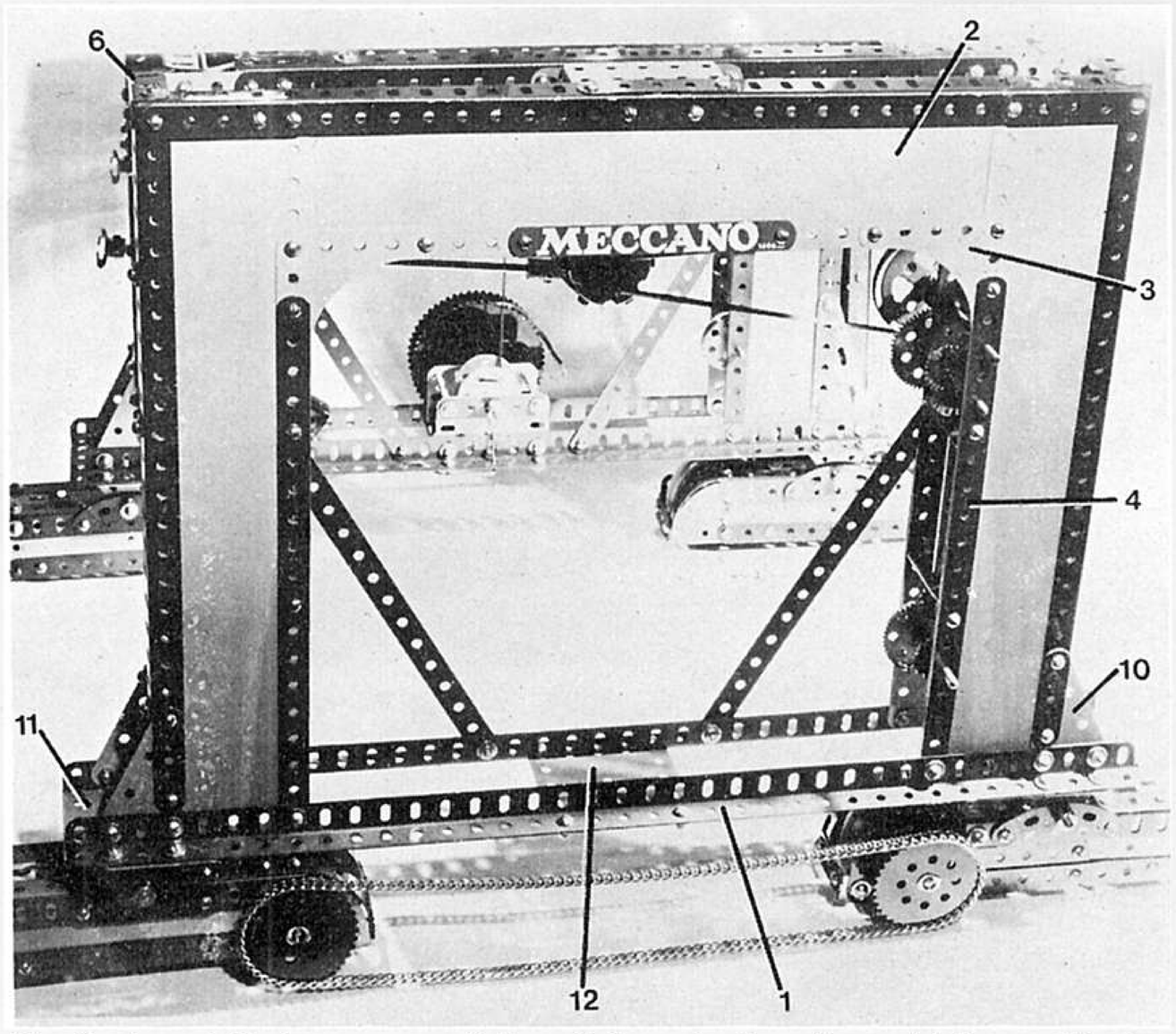
BOGIE CONSTRUCTION

All four bogies are of slightly different construction and their general arrangement may be seen from the overall view of the Dockyard Crane in Fig. 1. Two of the bogies are directly chain driven through gearing from a Powerdrive Motor inside the Tower and a third bogie picks up its drive by external Sprocket Chain on the far side of the model. Fig. 2 shows the construction for a powered and non-powered bogie, one of each being required at both sides of the Tower but a "mirror-image" or reversal of each construction is needed to complete the set. It should be noted that the non-powered Flanged Wheels in each bogie are free to slide on their Axle Rods and are thus self-aligning in the sunken rails required for dockyard working where vehicular traffic requires access under the portals of the crane. The two Bell Cranks in the No. 10 Set secure the trailing Axle Rod in two of the bogies while Collars and the two ½" Pulleys with Boss do the same job in the other pair. It is left to the ingenuity of the builder to place his limited number of Collars (24 of them) in the most appropriate parts of the model and to bear in mind that any spare gears or, indeed, any spare wheel with boss can double-up as a Collar if applied sensibly.

Fig. 1, above, shows a general view of the completed Crane which is built entirely from the contents of a standard No. 10 Set. Fig 2, below, gives a close-up view of the four travelling bogies, each pair of which is a "mirror image" of the other pair.



Large flanged wheels are built up by bolting Face Plates to Wheel Flanges, but for the Sprocket-driven pair, the boss of the Face Plate is pushed through the Wheel Flange and the 1½" Sprocket Wheels employed are positioned at the same time, but stood away from the Face Plate by double Nuts to give clearance for the Chain drive. On the plain bogie, (and the far side bogie picking up its drive by external Sprocket Chain) the built-up flanged wheels protrude between a pair of Formed Slotted Strips, but for the Sprockets mounted internally only one Formed Slotted Strip is used on each bogie, again to give clearance for the Sprocket Chain. Construction of the bogies is clear from Fig. 2, each one being topped by 5½" or 4½" Angle Girders, reinforced externally on the lower edges by overlaid 5½" Strips and braced internally by a 1½" x ½" Double Angle Strip in the position shown. Ten Flat Trunnions, four 2½" Semi-Circular Plates and two 4½"



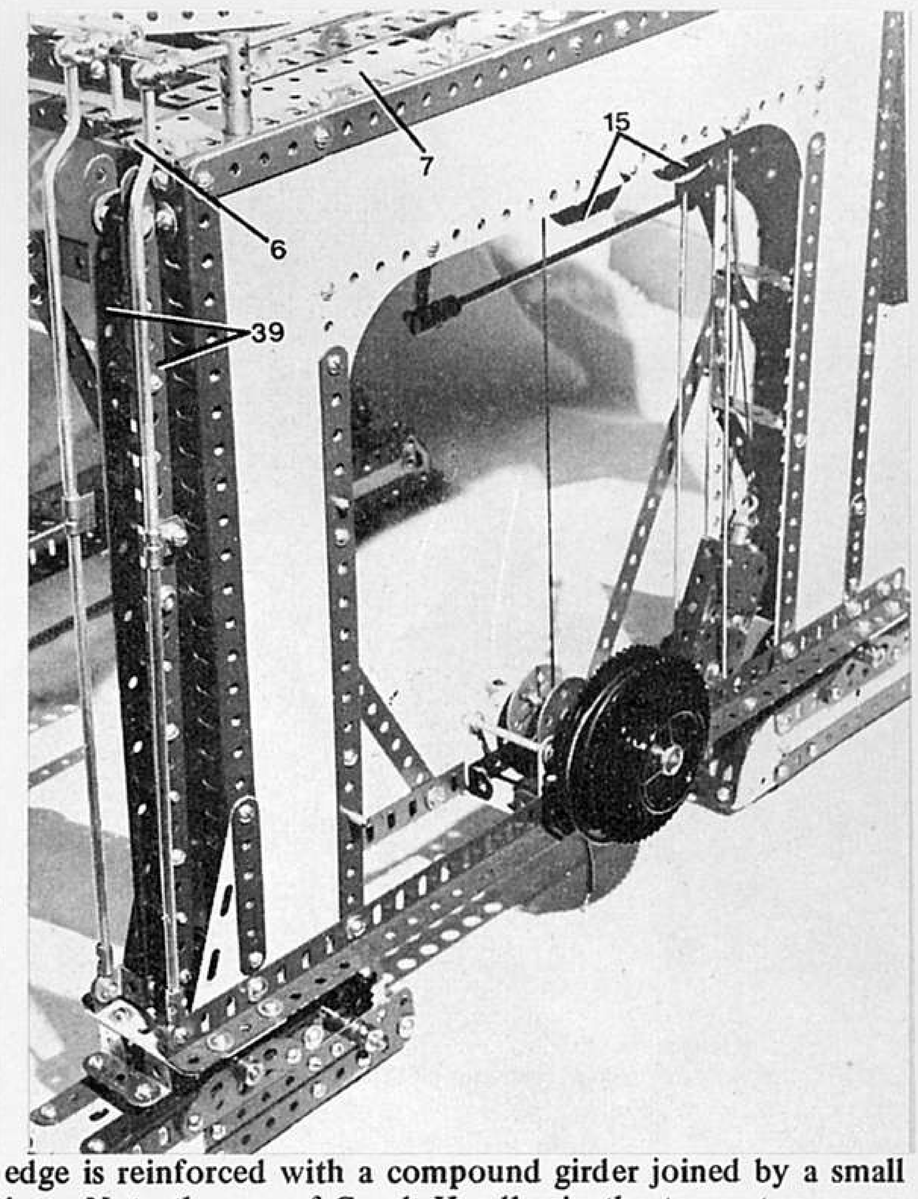


Fig. 3, above left, shows a general view of the outer face of a portal frame. The top edge is reinforced with a compound girder joined by a small Flanged Plate, as shown. Fig. 4, above right, is another view showing portal construction. Note the use of Crank Handles in the tower top access ladder rails to achieve neat contour appearance.

Flat Girders provide reinforced journals for the driven and trailing axles in the bogies. As the bogies are free to float and thus accommodate slight fluctuations in rail level, they are provided with journals beneath the feet of each Tower portal. A pair of 2½" Curved Stepped Strips are mounted on the bogie Girders, placed centrally and stood off with one Washer to allow for the distance between the Trunnions bolted onto the base of the portal legs. Any convenient size of Axle Rods (3½" in the illustrations) are used to pivot the bogies to the portal and the sheer weight of the model holds them in place without using Collars. Smaller Axle Rods and Collars may be added as extras if preferred.

BUILDING THE TOWER

There are four sections to the Tower, namely the two portals or side frames, the platform and the turntable. Construction is started by building identical portals and reference should be made to Figs. 1 and 3. Each portal is 12½" high and 15½" long at the top edges. Pairs of 18½" Angle Girders 1 brace the bottom and overlap the portal legs by 1½" at each end. Outer faces of the portal frames are made from five 12½" x 2½" Strip Plates, vertical pairs overlapping and sandwiching a horizontal Plate 2 by two holes at each end, thus providing the 15½" dimension of the top edge. The inside corners resulting are overlaid externally with Corner Gussets 3 for reinforcing the corners and providing a neat curvature in the design. Vertically below the Gussets, 9½" Strips 4 continue the overlay for additional support, while outer edges of the portal frames are all reinforced by Girders. A compound girder is made from two 7½" Girders joined by a 2½" x 1½" Flanged Plate, leaving a ½" gap at the join, and this girder runs inside the top edge of the horizontal Strip Plate 2. Outside, a 12½" Strip is overlaid and lengthened by 2½" Strips at each end to make up the 15½" span. The bottom edge of the horizontal Strip Plate is reinforced internally by a 12½" Strip and is held in place by the Bolts which attach the Corner Gussets at that level. Leading vertical edges of the portal legs are reinforced by 12½" Angle Girders.

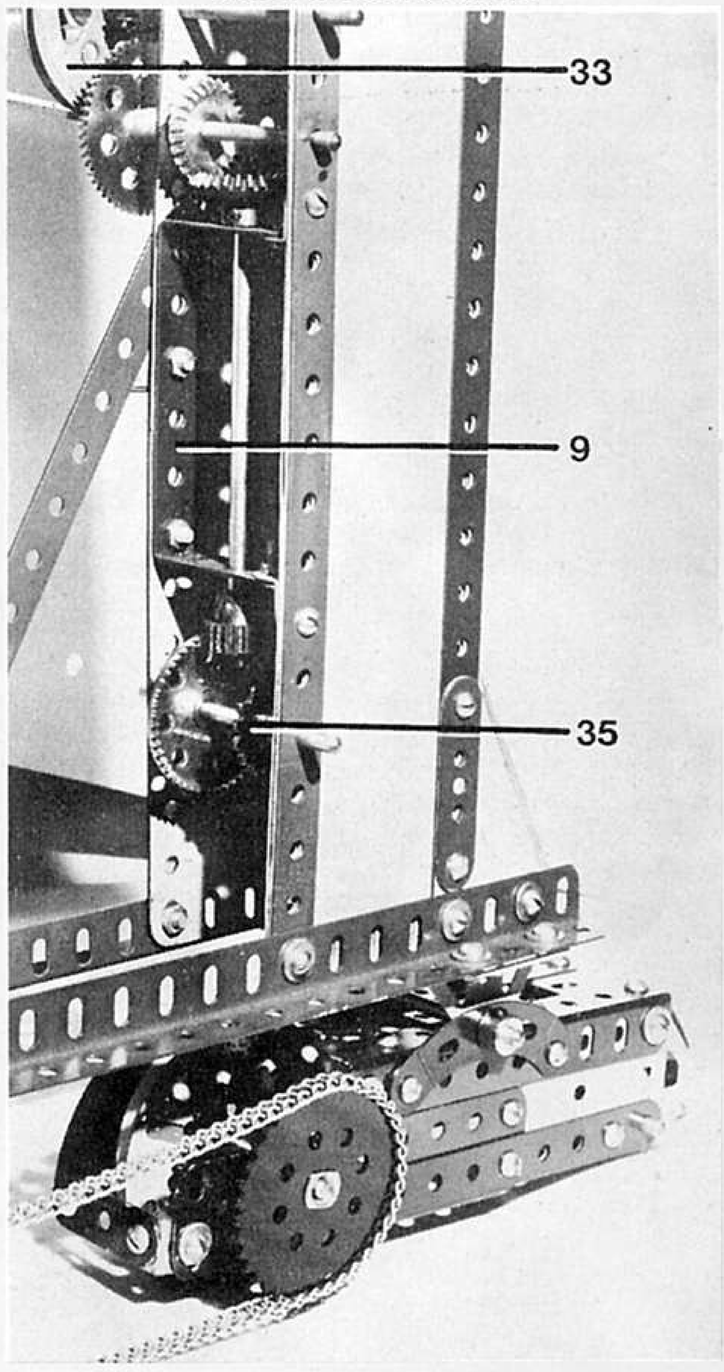
The inner faces of the portal frames are somewhat different in construction. This time, the horizontal Strip Plates at the top are doubled up to sandwich 4½" x 2½" Flat Plates (22), allowing 1½" of Plate to extend at each end. The holes provide attachment points for the main platform across the top of the Tower. The inner faces of all four portal legs are clad with double thicknesses of 5½" x 2½" Flexible Plates 5, reinforced at their leading edges with 12½" Angle Girders and by vertical 12½" Strips as overlays. The Flexible Plates overlap by one hole. When the internal and external faces of the portal frames are completed, each side may be completed by joining the faces with 1½" Flat Girders at the bottom of each portal leg and by 1½" Girders 6 at the top. This can be seen in Figs. 1 and 4. One 5½" x 1½" Flexible Plate 7 is bolted into the top of the legs as extra bracing on each leg (any extra plate shown, as in Fig. 1, should be ignored). Just inside each portal leg, at the height of the lapover of the 5½" Flexible Plates, a 2½" Angle Girder is bolted on horizontally by its round holes to form ledges as anchoring points for a double layer of 5½" Curved Strips 8 which form bracing struts from the legs to the platform.

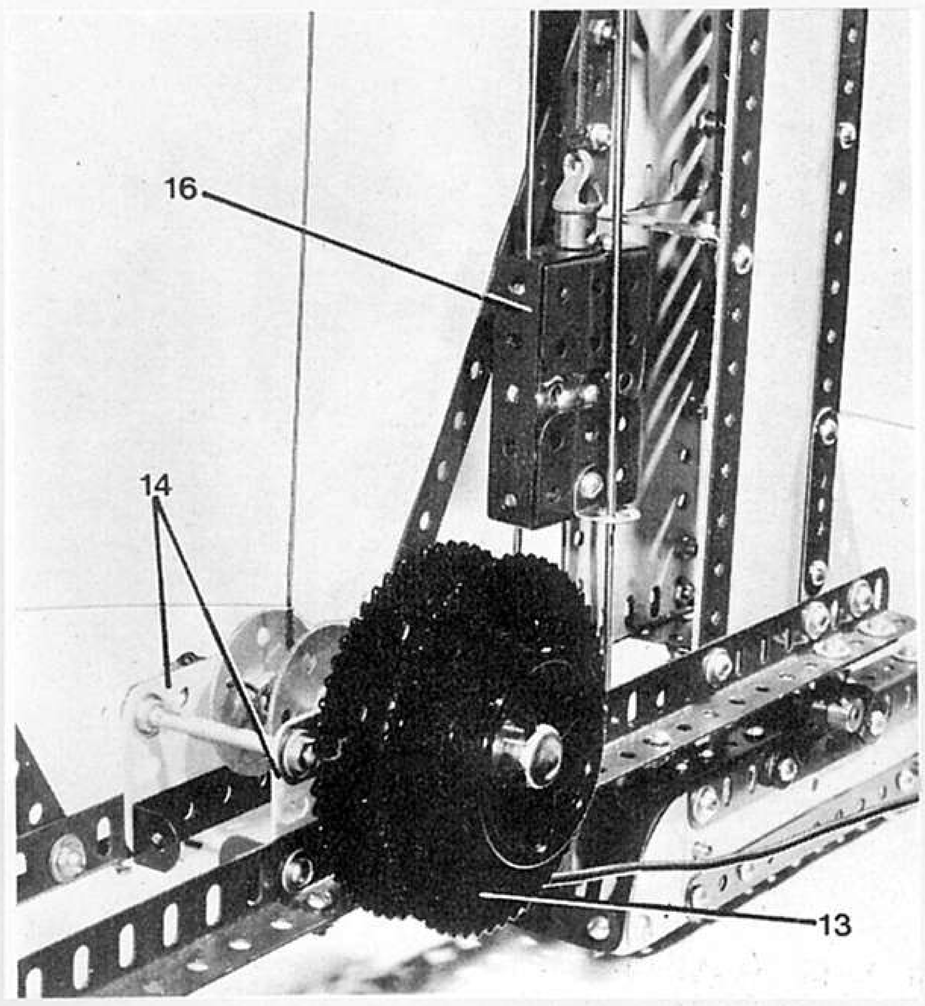
Internal bracing of the portal legs is achieved by using four Double Angle Strips with 1½" lugs. The location of the 3" x 1½" D.A.S. 9 is shown in Fig. 5, and can be seen to carry the vertical drive shaft for the bogie through its central holes. Angle Brackets fix the free end of the lugs to the portal legs as shown. The legs which have no transmission shaft inside are reinforced in a similar manner using a pair of 2½" x 1½" D.A. Strips. Some additional support to the portal feet is provided by a pair of 2½" x 1½" Triangular Flexible Plates 10 on three of the legs and one pair of 3½" x 1½" T.F. Plates on the fourth leg carrying the ladder. The shorter Plates carry vertical overlays of 2" Strips and the longer pair are covered by 3" Strips. This gives a neat line of continuity up the corner Angle Girders of the portal.

At this stage the pairs of 18½" Angle Girders can be bolted, slotted flanges upwards, to the bottom of the portal legs as shown in Fig. 1, being secured in place with Washers under the boltheads. It will be noted as construction progresses that various illustrations show more standard Washers than are available in the No. 10 Set, but most of them, are for 'show' and are not essential to the construction. At each end of 18½" Girders 1, pads made from double thicknesses of 2½" x 2½" Flexible Plates 11 are bolted on below and fixed in place by Trunnions in the positions shown. It is necessary to have the elongated holes of the Plates available because of the slightly expanded width of the portal legs. A similar double thickness pad 12 is bolted under the centre point of the 18½" Girders. Four 9½" Strips complete the portal frames as diagonal struts bolted from the vertical flanges of Angle Girdles 1 to the vertical overlaid 12½" Strips on the inner faces of the frames.

Continued →

Fig. 5, open side of portal leg showing Double Angle Strip bracing acting as journals for travelling gear drive. Note small Sprocket Wheel on lowest shaft.





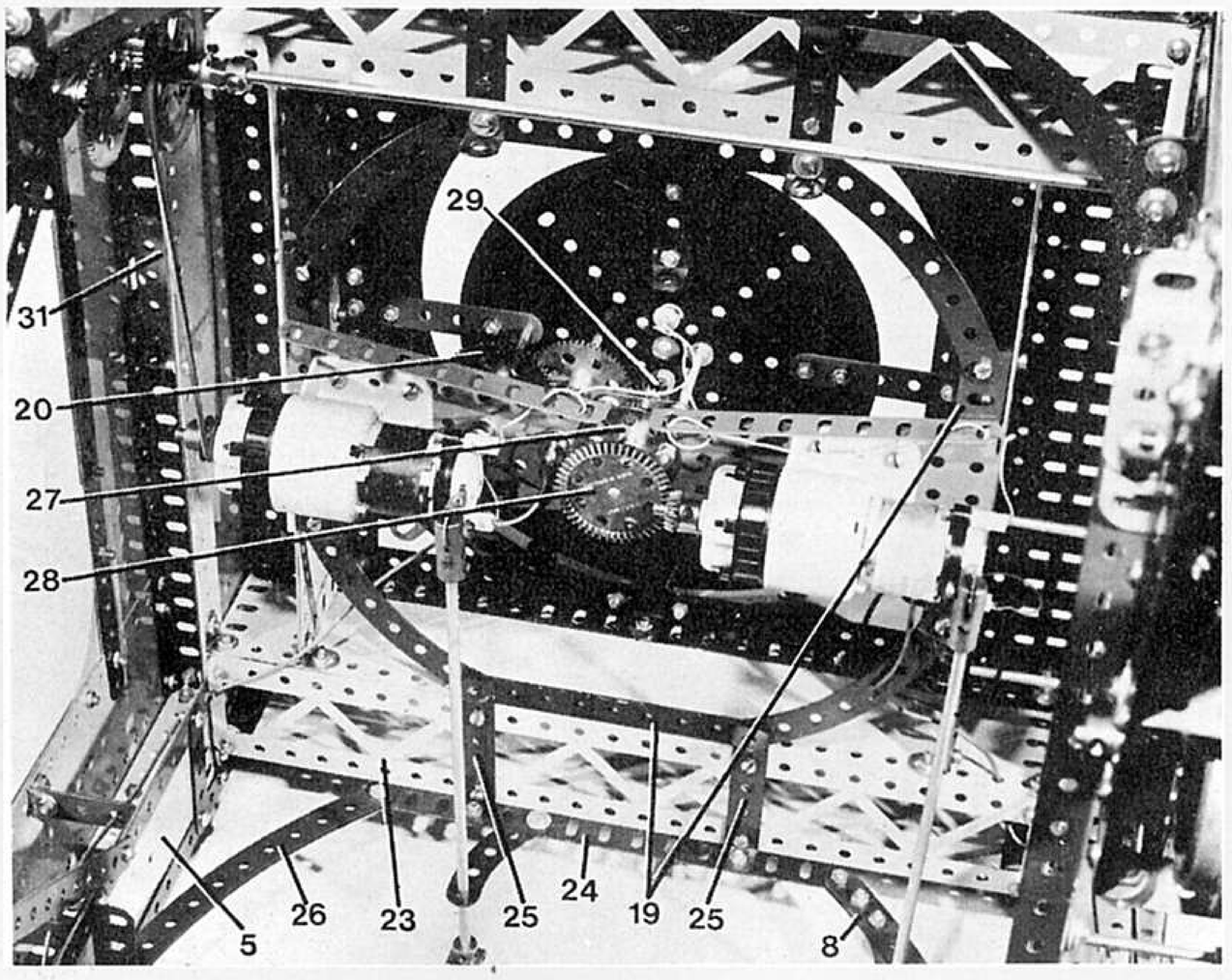


Fig. 6, above left, shows the cable drum mounting of the No. 10 Set Electric Dockyard Crane. Reinforced Plastic Plates give insulated feed for the flexible cable and note the counterweight giving automatic reel-in. Fig. 7, above right, is a view from beneath the tower platform showing the mounting for travelling and slewing motors. Note transverse reinforcing provided by 12½" Braced Girders.

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ELECTRICAL FEED TO TOWER

Construction of the automatic reel-in, reel-out power feed is quite straightforward. A 4" Axle Rod is capped with a Steering Wheel followed by the face of a 3" Sprocket 13, boss inwards. Two 1" Motor Tyres are passed over the boss and are jammed in place, roughly centred, by a second 3" Sprocket secured tightly with one Grub Screw. The boss of this Sprocket also points inwards towards the model. Very flexible multi-stranded plastic covered wire is required and that used in the model is known as 'Radiospares Flexible Instrument Lead Wire'. A 2 amp carrying-capacity is adequate, but the cable must be very flexible. Two metres of wire are adequate. A standard Bolt fitted with a Nut and then a Washer is screwed into the second hole of the boss on the inner Sprocket. Two cm. of cable is bared of insulation and passed through an inner hole of the Sprocket face, round the Bolt and trapped in place by the Nut and Washer. Most of the insulated flexible cable is then wrapped round the drum between the Sprocket faces.

It is obvious that the Axle Rod is now 'live' but will be carrying only 12 volts for the Power Drive Motors. *(N.B. Under NO circumstances must this method of electrical feed ever be used at mains voltage!)* It is now necessary to ensure that this 'live' Rod runs in insulated journals and these are supplied by a pair of 2½" Strips reinforcing the top edges of a pair of 2½" x 1½" PLASTIC Plates 14. These Plates are bolted directly to the vertical flanges of 18½" Angle Girders 1, at their centre, and two 2" Screwed Rods make a rigid cross connection to the top of the plates, as shown in fig. 6. The electrical drum shaft is now passed through the middle holes of the 2½" Strips and a pair of 6-hole Bush Wheels, boss to boss, are slipped on between the Strips to make a small winding drum for the counterweight. A Collar and Washer secures the drum shaft and the Washer is arranged to rub against a Fishplate or freely-turning solder tag to which the ordinary insulated wiring is carried up the tower to the motors. Two 2" Pulleys 15 revolve freely on Axle Rods set into the portal frame as shown, being arranged to receive a vertical rise of cord from the winding drum and a vertical fall of cord to the counterweight 16, which consists of a pair of Channel Bearings joined by a 2½" x ½" Double Angle Strip and a 2½" x 1" D.A.S. This allows the latter to be swung out of the way while the container thus formed is filled with Meccano Steel Balls. A 2½" x 1½" Plastic Plate, Transparent or coloured is inserted as a 'U' shape to prevent balls from spilling through the gap between the Channel Bearings. One pair of ½" Angle Brackets are bolted to the centre holes of the lower Channel Bearing, slotted lugs outwards, and these act as guides running on a single loop of Spring Cord secured by Hooks inside the portal frame at the top and passing through the slotted ends of a pair of Fishplates bolted to the bottom 18½" Girders 1, and set to make the Spring Cord run vertically and parallel.

General arrangement of the reel and counterweight is shown in Fig. 6. Sealing the counterweight is done by swinging the 2½" x 1" D.A.S. back into place and tightening up the lower Bolt and then the upper one, which is a ½" Bolt (or Threaded Pin) carrying an End Bearing to which the Meccano Cord is attached. This completes the insulated supply line for the crane and the remainder of the wiring may be carried out in any low voltage, single strand insulated wire generally available.

All motors in this model have one terminal wired directly to the nearest point of the model's framework as a 'common' earth return and no trouble should be experienced if the model is made in parts using the zinc finish. With the latest finish on Meccano Strips and Girders, it may be necessary to run a separate return wire down to a pick-up point on the rails as there can be sufficient insulation from the new enamels to prevent circuit continuity through the model's framework.

MAIN PLATFORM

As this will support the full weight of the boom and its loads, a sturdy platform of deep web box-girder construction is used to give a firm base for the roller bearing. Figs. 7 and 8 should be studied carefully when constructing this part of the model. Assembly is started by laying the slotted flange of a 9½" Angle Girder over one edge of a 9½" x 2½" Strip Plate 17 and a 9½" Strip on the other edge of the Plate, separating and overlaying them with 2½" Strips at each end. Angle Brackets are fitted internally (the Strips and Angle Girder will show to the outside of the model) by their round holes at each end of the 9½" Strip. This operation is repeated to make an identical pair. The top edge of a 12½" x 2½" Strip Plate is now sandwiched between the slotted flange of a 12½" Girder 18 and a 12½" Strip. The same thing is repeated and then the 9½" assemblies are bolted to the 12½" assemblies by means of the round holes in the Girder flanges to form a 9½" square, the four Angle Brackets being bolted to the bottom edges of the longer Strip Plates. Internal reinforcing is carried out on the bottom edges of all four Strip Plates by 4½" Angle Girders 19 located as shown in Fig. 7 and each pair is braced at their outer ends by 4½" Curved Strips to make rigid corners. The top inside edge of each portal frame is fitted with a 12½" Angle Girder, slotted holes downwards, overlaid inside the frame with a 12½" Strip. Secured by ½" Angle Brackets to this Strip, at the top centres of each portal frame, are small Flanged Plates 20, the securing Bolts passing through the Girder on the other side at the same time. The top edges of the portals are thus reinforced and may now be bolted on, by the round holes in the Girders, to the centre section of the main platform just described. The bottom corners of the two 12½" Strip Plates across the main platform are now fitted with pairs of ½" Angle Brackets, each pair back-to-back by the round holes, and four of these Brackets are then bolted by their slotted lugs to the portal frames horizontal internal Strip Plates. At this stage, the Tower assembly should already be taking on a rugged appearance.

Additional bracing for the Tower is supplied by front and rear deep web girders as seen in Fig. 1. This time, a 12½" Strip Plate 21 is fitted externally at the top with a 12½" Girder, by the round holes andthen a 12½" Strip overlays the bottom row of holes as shown. At each end, vertical 2½" Girders are bolted on by their round holes *behind* the ends of the Strip Plates and then overlaid for appearance by 2½" Strips at the front. This allows the forward-running slotted flange of the short Girders to tuck in neatly and to be bolted to the perforations of the 4½" Flat Plates 22 extending at either end of the insides of the portal frames. Fig. 7, showing the view of the Tower from below, illustrates additional support for the front and rear deep girders by horizontal 12½" Braced Girders 23. The lower edges of Strip Plates 21 are fitted with 7½" Flat Girders 24, placed centrally as shown in Fig. 1, and these are used to secure four 2½" x ½" Double Angle Strips 25, which are also bolted at their inside ends to two of the 4½" Angle Girders providing internal bracing. The Braced Girders are bolted, in turn, to the D.A. Strips and further reinforced by ½" Angle Brackets, four of which are already in place at the bottom corners of the central 9½" square assembly. A careful check should be made to ensure that the portal frames are vertical and parallel at this stage. Pairs of 5½" Curved Strips 26 are now fitted with 1" x ½" Angle Brackets, lugs forward, and are fixed to the four horizontal 2½" Girders mounted inside

the portal legs. The upper ends of the Curved Strips sandwich the frontal 7½" Flat Girders 24 at each end and then, after checking once again that the portals are equally spaced all the way across the Tower, the Curved Strips and the 1" x ½" Angle Brackets are bolted securely in place. All nuts and bolts round the Tower assembly should now be checked.

TRAVELLING AND SLEWING MECHANISM

A simple, but strong, motor platform is made from a pair of Flanged Sector Plates fixed to the 4½" Angle Girders and joined by an 8-hole Bush Wheel 27, boss downwards in the centre. The Bush Wheel is secured by a 3" Screwed Rod through one hole and a $1\frac{1}{8}$" Bolt through its opposite hole. Lock-nutted both to the Screwed Rod and to the end of the long Bolt is a 1½" Strip and its centre hole forms a second journal, with the boss of the Bush Wheel, for a 2½" Rod on which a 1½" Bevel Gear 28 picks up the slewing drive from a first Power Drive Motor. One Collar is used to space the large Bevel from the Bush Wheel and a 19-t Pinion 29 is secured to the top end of the 2½" Rod.

Attached to the top of the main platform is a 6" diameter Circular Plate 30 located by two 3½" Strips and two 3½" x ½" Double Angle Strips, as seen in Fig. 8. No weight is placed on the Circular Plate which simply carries a 6-hole Wheel Disc at its centre to centralise the pivot rod from the boom's roller race. Journalled in this Plate, and in the Sector Plate below, are the second and third shafts for the slewing drive being 3½" or 4" Rods. Mounted on the second shaft is a 57-t Gear, meshing with 19-t Pinion 29, and a 15-t Pinion which meshes with a 60-t Gear 31 on the third shaft. At the top of the third shaft, spaced by four Washers above the surface of the Circular Plate, is the final drive 19-t Pinion 32 which will engage a 3½" Gear Wheel attached to the crane boom. All of this gearing needs careful setting up for free running without slop and should then be lightly lubricated. This arrangement of shafts and the general selection of gears in the No. 10 Set permits changes of gear ratios to suit individual tastes for 'scale' slewing speed. The Power Drive Motor should be set in its highest ratio (60 : 1).

Mounting for the travelling motor is also shown in Fig. 7 where the leading edge of the base plate is set one hole in from the broad end of the Sector Plate. A 2½" Axle Rod is journalled through the rear edge of the portal leg carrying the ladder, nine holes below the top of the portal frame, and is fitted with a 2" Pulley 33 and a Swivel Bearing. Between the 2" Pulley and the portal leg, a 19-t Pinion is fitted to the Rod, boss inwards. After looping a 10" Heavy Driving Band over the Pulley, an 11½" Axle Rod is also fitted with a 19-t Pinion 34 and then locked in the swivel of the Swivel Bearing. Once the second 19-t Pinion is locked in place as shown in Fig. 1, no Collars are required to hold this compound shaft in place and the Swivel Bearing gives all the flexibility required.

Again, the motor is set to the highest ratio and connected up via a ½" Pully (supplied with the Motor) by the Driving Band to the 2" Pulley. Just below the 19-t Pinions, 57-t Gears are mounted on 2½" Rods also passing through the portal legs and they carry 7/8" Bevel Gears just inside the legs which also position these shafts without the use of Collars. Fig. 5 shows how the drive is carried on via a second Bevel and Contrate Gears to a ¾" Sprocket Wheel 35 which provides the final drive to the bogies. All of the travelling bogies now may be fitted and Sprocket Chain connected up for a test run. It is important that the Chain is slightly slack, rather than tight, otherwise the large driving flanged wheels will actually be lifted off the track, thus losing traction. On the far side of the crane, each bogie is fitted outboard with a 2" Sprocket on the driving shaft and connected up by a length of Sprocket Chain running from one bogie to the next. The fourth bogie remains unpowered.

TURNTABLE AND ROLLER BEARING

Eight 4½" x 2½" Flexible Plates 36 with centre holes are required for the roller bearing drum which is simple to construct, but which must be assembled with care. Each Plate is attached by a ½" or $\frac{3}{8}$" Bolt through every second hole on the outside rim of a Large Flanged Ring, but the Plates must be spaced internally from the Ring by two Washers and one Spring Clip. The centre holes in each Plate are used for the initial attachments, but Nuts are left fingertight. The ends of each Plate are now overlapped in turn, overlaid with vertical 2½" Strips and bolted to the Large Flanged Ring with the same stand-off spacing just mentioned. The assembly should be stood on a flat table top to check that all plates are aligned at their bottom edges and are standing vertical to the Flanged Ring. All Nuts are tightened in turn and then Bolts and Nuts are added to the bottom end of each 2½" Strip, but not to the upper end. These should be left clear to avoid fouling the internal rollers.

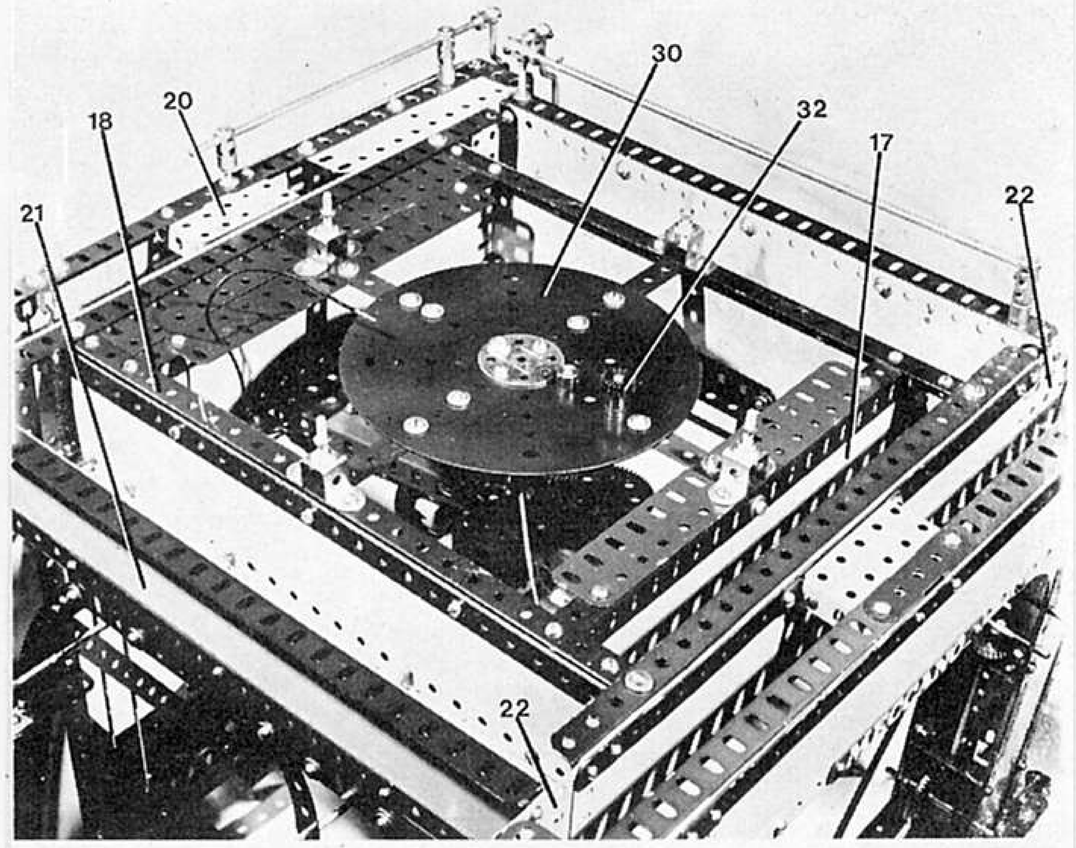
Fig. 9 shows the drum in position on the Tower and it is attached to ½" Bolts set in Double Bent Strips which can be seen centrally located on the sides of the 9½" square at the top of the Tower in Fig. 8. A roller race is made from a 7½" Circular Strip fitted with four Couplings 37, attached by pairs of ½" Bolts and four Collars mounted by standard Bolts, Washers and lock-nuts. The Couplings carry 2" Rods and the Collars are fitted with 1½" Rods. Spring Clips hold eight ¾" Flanged Wheels on a fixed radius so that their rims just run inside the upturned flange of the Large Flanged Ring. When a second Flanged Ring, fixed to the boom above, is located over the rollers, they become self-centring, allowing electrical contact to be passed up the crane through the centre of the roller bearing to the machinery house. It will be noticed in Fig. 9 that a 2½" x 1½" Plastic or Transparent Plate 38 is bolted to the Flanged Ring and has a ¾" Washer attached. This acts as an insulated electrical wiper to pass current up to an insulated ring in the upper half of the roller bearing and this will be dealt with in PART 2 of this feature to be published in the October MM. When fixing the roller bearing drum to the Double Bent Strips, lock-nuts must be placed on the bolt shanks to ensure level plane attachment without distorting the Large Flanged Ring.

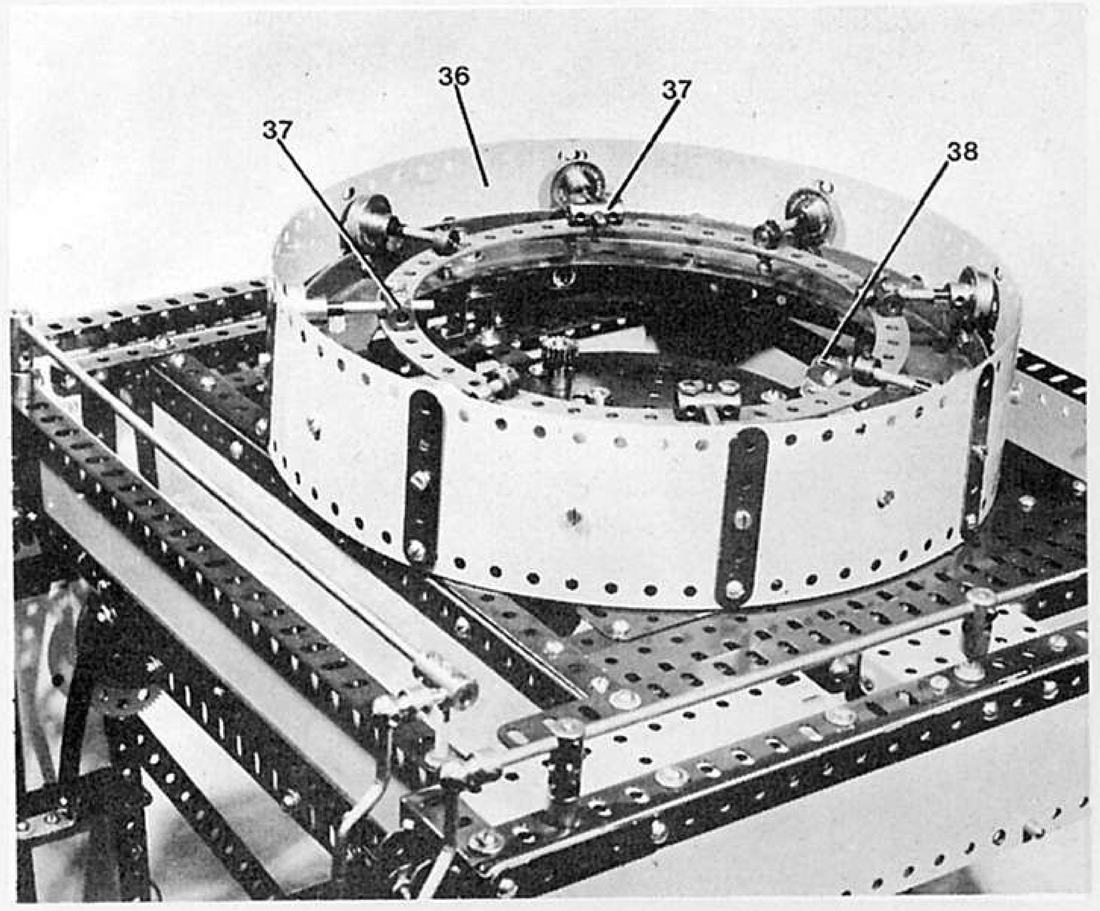
TOWER LADDERWORK

A pair of 12½" Strips 39 are joined at their centre holes by a 1" Screwed Rod, four lock-nuts and Washers (optional). In alternate holes of each Strip ¾" Bolts are fixed with one lock-nut to form rungs and ½" Reversed Angle Brackets are bolted to the foot of the ladder, attaching these to the front holes of the horizontal 18½" Angle Girders 1 as shown in Fig. 4. At the same points, Rod and Strip Connectors are attached to hold a pair of 8" Axle Rods acting as the first section of handrails. These Rods pass through Right-angled Rod and Strip Connectors and these are attached by a pair of ¾" Bolts with lock-nuts to the ladder, ten holes down from the top. The top pair of holes in the ladder are left open and the second holes are fitted with Angle Brackets with which the ladder is secured to the vertical 12½" Angle Girders of the Tower portals, one hole down from the top. A pair of 3½" Crank Handles continue the handrails, terminating in Handrail Couplings at the top of the ladder. From here, handrails may be extended to suit any residual Axle Rods or spare Couplings.

TO BE CONCLUDED IN OUR NEXT ISSUE

Fig. 8, below left, is a top view of the tower platform showing the final slew drive pinion and construction of central section. Note the Double Bent Strips with Bolts to support and to secure the turntable drum. In Fig. 9, below right, the turntable drum and roller race are shown in position. Note the absence of Bolts in the upper rim to give roller clearance inside the drum. A large Washer on a pair of small Plastic Plates is bolted to the Flanged Ring to act as an insulated contact wiper arm for the revolving crane boom.





LET YOUR MODELS LIVE!

* * *

Part 8 — by Geoff Pratt

Sound Ideas For Your Films

There's no doubt about it - films *need* a sound accompaniment of some sort or another. When you think about it, when did you last see a silent film at the cinema or on T.V. – if ever? If you are one of the few whose memories date back to the days of the "silent" cinema – prior to the introduction of "talkies" – you will also recall that the films, although silent in themselves, were seldom shown in silence.

If this sounds like a Greek talking Double-Dutch, let me explain that silent films were usually accompanied by, at the very least, a piano which was played "live". The pianist would play spontaneously, selecting his music to suit the mood and pace of the film; so a hectic chase sequence would be accompanied by appropriate fast music and the quiet, romantic scenes would be accompanied by moody, sentimental music.

The piano is a very versatile instrument, but to accompany *all* films with one instrument is a bit much, and sometimes an orchestra would act as accompaniment. Then came the introduction of cinema organs with all their wonderful range of different tones, which could be played by one man and thus save the cost of an orchestra. The vast range of tonal colour made the organ an even more versatile instrument than the piano. In addition, as organs were made more complicated, various novelty effects were built in, such as motor horns, bells, crashes, cymbals, drum-beats, sirens, and so on. A skilful organist would greatly enhance his audience's enjoyment of the films by the introduction of suitable bangs, crashes, gongs, etc. at the precise moment so as to coincide with the action on the screen. All this and music too!

SOUND FOR HOME MOVIES

In the same way as described above, you can greatly improve the presentation of *your* films if they are shown with some form of sound accompaniment. This sound accompaniment does not have to be an elaborate affair like in a commercial film; it can be quite simple. You have possibly seen friends' holiday films shown silent, and experienced a feeling of them being somehow incomplete. You see people moving across the screen in a strange, silent world, mouths working, but no sounds coming out; seas crashing on the shore, but no sound of surf or shingle. How much more satisfactory it would be if we could *hear* what we can *see*.

Another important aspect of sound accompaniment is *commentary*. Usually when holiday and family films are shown at home, they are accompanied by a running commentary delivered off-the-cuff, telling us what we are looking at and perhaps explaining some not-so-obvious point so that we know what is going on. Films of your models will almost certainly need a commentary, because there will be a great deal of information not known to your audience which could enhance their enjoyment of your film were they to be given this information. Such details could be how a mechanism works, background information as to how many hours went into building the model, or interesting facts about the prototype upon which the model is based, and so on. But this commentary is best if it has been thought-out beforehand and timed to link up with what is being shown on the screen at the time. A badly-delivered commentary is worse than no commentary at all. It will irritate the audience and distract, instead of focussing, attention on the screen. So what are the component parts of sound accompaniment? They can be detailed as follows:

a) MUSICAL BACKGROUND – The selection of music should compliment the mood of the film. As the mood or tempo changes, then the music should also be changed to suit. A film of a railway train in motion could be accompanied by rhythmic, lively music; a battle scene involving tanks, guns, etc. calls for a heavy, menacing, or dramatic type of music. Machinery in motion again would be best served by rhythmic music, of a tempo to suit the speed at which the machinery operates. Preferably the music should not be a well-known piece, such as the theme of some well known T.V. series or film, as the audience will already have fixed in their minds a mental association between the music and the type of film in which it was featured. As an example, a piece of music I find very pleasing is "Love Theme from Spartacus", but I could not use it in a film because it is too well known as the theme music in "The Onedin Line". For me, it always conjures up a mental image of sea breezes and sailing ships. To accompany any other type of film it would be discordant.

Symphonies and rhapsodies performed by a large orchestra are generally too "heavy" or overpowering – having powerful crescendoes. This type of dramatic music is all very well in a dramatic scene, but for general use they are too overpowering. For general background music a lesser known piece played by a small band, or combo, is the most suitable. For film-makers who want to go into the business of sound films in a big way there is a whole range of Mood Music records available at reasonable cost. In addition, several records have been published with amateur film-makers in mind. These include music of various moods to suit all kinds of film (Fig. 1). They are obtainable from large photographic dealers and are advertised in amateur movie magazines.

Fig. 1. Home movies can be greatly improved by the use of background music and other special effects. Pictured here are some of the records of music and effects that are available, specially prepared with the amateur film-maker in mind.



b) BACKGROUND EFFECTS – This category covers the general sound, or "atmosphere", noises of a particular setting. Noises such as rain, wind, sea, traffic, crowds, machine shop or factory noise and so forth. These noises are not directly linked to the subject being shown on the screen in as much as they are not usually generated by the subject itself. Rather, they are the *setting* in which the subject is located. They evoke an atmosphere which makes a film of a model spring to life in a remarkable way.

If you own, or can borrow, a battery-operated cassette or tape recorder you can usefully record your own background noises in the majority of day-to-day cases. An excellent machine for this purpose is one of the Philips range of cassette recorders (Fig. 3). An automatic recording level control is an extremely useful feature and gives you one less item requiring special attention. Having gone to the trouble of recording sound effects, they can be stored away to form a small library of effects which may come in useful for future films. I prefer to transfer the recorded sounds onto ¼" tape (Fig. 2). By doing this, the best section of recorded sound can be preserved and "dud" takes can be eliminated, releasing the cassette for further use.

To make this library really valuable, the recorded effects should be carefully catalogued as to which tape, which track and at what point on the tape they appear (tape counter reading). Also to be noted is a detailed description of the



Fig. 2. The Author at work transferring recorded effects from cassette onto ¼" tape to form part of a permanent effects library. ¼" tape is much better to work with than a cassette as, in the latter, the tape itself is permanently enclosed and cannot therefore be marked for soundtrack positioning.

effect, e.g. Sea – general atmosphere with gulls; Sea – heavy waves on shingle; Water – gentle lapping of stream; Waterfall – small; Waterfall – Niagra (Horseshoe Falls).

There will be occasions when a particular sound effect will be required which cannot conveniently be recorded yourself. Or you may find that even the more common sounds such as wind and rain are more convenient if recorded professionally and on disc. There is an excellent range of effects records available from most large record shops. They are published by the BBC and are very reasonably priced (Fig.1). The variety of sounds recorded is really tremendous and covers almost every contingency. Being on disc, each effect is easy to find without having to wade through yards and yards of tape to find it.

c) SPOT EFFECTS – These are sounds that are generated by some action that is seen, or are accurately timed to coincide with some action. It may be the slamming of a door, a car driving off, a gun firing, an aircraft taking off. These sounds really bring your pictures to life – even more so than in the case of background effects. Again they can be recorded on a cassette recorder, or bought in record form. The choice of suitable sounds here is a little more difficult because we can see the cause of the sound on the screen; if the sound does not synchronise with what we see, it will destroy the illusion.

Perspective of sound comes into consideration now. If a model of, say, a tank is seen in a shot to be a long way off. then the sound must not only be faint but must have that muffled quality about it that distant sounds have. As the vehicle approaches, the sound will become louder and clearer. A gunshot heard from a distance will sound muffled, whereas a nearby gunshot has a "sharper" sound to it.

With vehicles travelling past the camera there is a distinct change in the pitch of the vehicle's noise as it passes. This effect is most noticeable when an ambulance or police car dashes past sounding its siren. As the vehicle draws level with you, the pitch of the siren's note distinctly drops. The faster the rate of travel, the more the drop in pitch as it passes. This effect, known as the "Doppler Effect", needs to be taken into account when selecting a suitable sound to match up with your film.

In all cases, however, the acid test is to view the finished film with effects recorded and see if it sounds "right". Some minor discrepancies will pass unnoticed. but glaringly obvious faults should be put right if you want your film to be satisfactory. A recording of the engine noise of the family car will *not* be a suitable substitute for an aircraft engine. Fortunately, the range of pre-recorded sounds available is quite enormous, and you should be able to find something to suit. Sometimes the duration of a suitable sound is insufficient for the length of film it is to accompany. Here the sound must be recorded on tape in several "takes" and all of them linked together end to end, either by splicing the tape with the aid of a tape splicing kit, or by adept use of the tape recorder "PAUSE" control.

d) DIALOGUE - This is not generally applicable to Meccano films, but there may be instances where it can be applied. Robots could be made to hold a conversation, or to shout orders to one another. You may have live characters in your film or you may appear in the film yourself to demonstrate a particular feature of the model – in which case you could well be describing it while you are demonstrating. This partly comes under the next heading "Commentary" as regards the content of the speech, but I have included it here because the character in the film will be seen to be speaking.

If you are to use dialogue in the true sense of the word, as opposed to commentary, the best advice I can give is to keep it brief and to the point. The character of the person speaking should be studied so that the words he is to speak are appropriate – in character, as it were. People don't usually make long speeches in normal everyday life or use high-flown phrases and long words. Dialogue should be colloquial to be convincing. It may consist of grunts, snorts, sighs, tuts, as well as words, and indeed should include them in order to sound realistic. Natural voices should be used and the lines should be spoken convincingly.

e) COMMENTARY – or voice over. This is perhaps the most generally useful aspect of sound for films. Seldom is a film completely self-explanatory, and comments by an unseen speaker or narrator can be a real help to the enjoyment of a film. The most important aspect as to what is said is that is should *supplement* what is being seen. A commentary that merely describes what is happening on the screen is irritating. It should avoid stating the obvious. The audience can *see* what is happening and does not need to be told what they can perfectly well see for themselves. To be interesting, the commentary should explain things the audience *cannot* see for themselves, giving useful, interesting items of information to augment the information given visually. As an illustration of this point, compare the commentaries given by professional commentators at something like, say, a sporting event. Listen to the difference between a radio commentary and a television coverage of a similar event. The TV reporter does not have to describe what is going on in the same way that a radio commentator does. His approach is altogether different, because his audience can of course see so much for themselves.

Careful consideration should be given to wording, avoiding tongue-twisters or phrasing that is likely to prove difficult to speak. The style of speech should be natural, avoiding unnaturally elaborate wording. The commentary should appear as though you are speaking in your natural way, although you will in fact be reading it from a script. If you speak with a strong local dialect and it is likely that your films will be shown outside your local area, it would be advisable to engage the services of a friend to record your commentary. Strong dialects, although acceptable in their natural locality, sometimes prove difficult for outsiders to understand.

Commentary has the advantage that at times it can easily put over information that is otherwise difficult, or clumsy to do with pictures alone. It can also be used to bridge gaps in visual continuity or prepare the audience for a sudden action that would otherwise be missed. Thus, a concise, to-the-point, well-written commentary can be a great asset to your film.

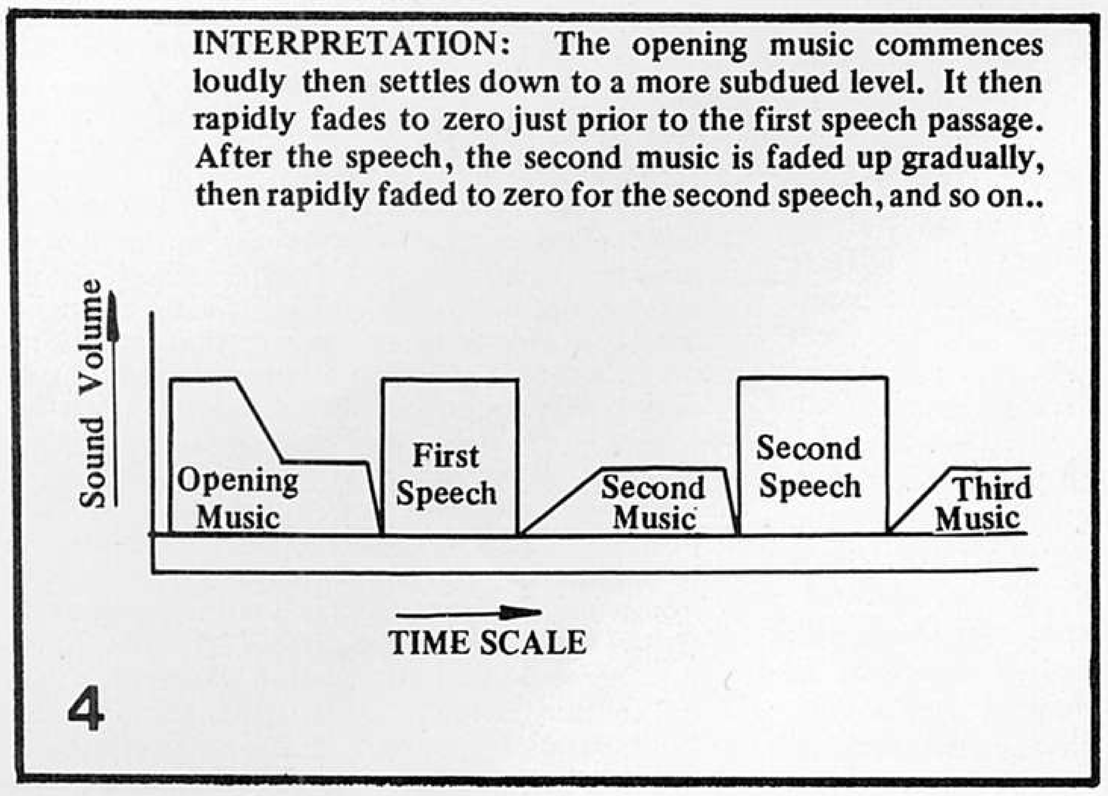
SYNCHRONISATION

These, then, are the five basic ingredients that go to make up a film soundtrack. Now,

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Fig. 3. One of the simplest of the good quality cassette recorders, from the Philips range, coming complete with microphone and carrying case.





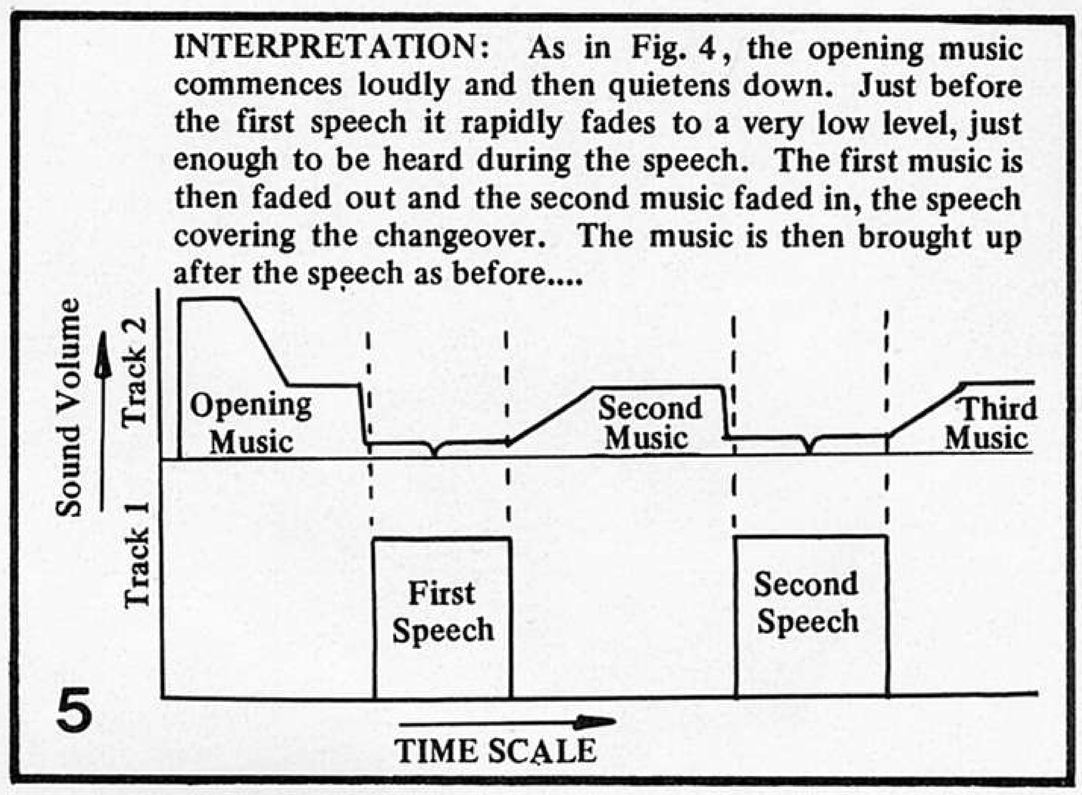


Fig. 4, left, a diagrammatic representation of a sound track recorded on a single track of ¼" tape. Fig. 5, right, a diagrammatical representation of a sound track recorded in parallel on twin tracks of ¼" tape.

there are two groups into which these items can be divided – loosely sychronised and tightly synchronised. Musical background, background effects and commentary fall into the first group and dialogue and spot effects are in the tightly synchronised group. The significance of these categories is in the type of equipment that is required to make and show the sound accompaniment. Tightly synchronised spot effects and dialogue require equipment that will hold the sound track and the picture very accurately together so that they are in unison, whereas loosely synchronised sound requires no such refinements and can be used with almost any projector and tape/cassette recorder.

WHERE DO I START?

Method 1. Well, if you have a projector that can be kept at a steady speed and some means of reproducing music via a record player or tape/ cassette recorder, then you can start right away. But don't try anything too ambitious. I *have* shown films with just a record player as accompaniment and this is quite feasible. It does mean, however, that you are limited to one record per film, unless you want to end up with a complicated DJ type of set-up using two turntables, changing records by following a cue sheet. You will be too busy changing records to be able to enjoy the film.

No – keep it simple. One well-chosen record, and a page of commentary written in advance with notes in the margin as to when to begin each passage of commentary is quite sufficient The commentary can be delivered live, but if you possess tape or cassette recorder, then use that instead to avoid slip-ups in speech. Passages of commentary can be recorded one after the other, leaving a 2 second gap between each passage. When showing the film, hold the tape with the "PAUSE" button until the first cue comes up on the screen. Release the tape until the first passage of speech is finished and press the pause button to hold the tape again. Release the next commentary when its cue comes up, and so on to the end of the film.

Method 2. If you do have a recorder, a far more satisfactory method of working is to record both the music and the commentary on the tape. This can be done on the simplest of equipment, but involves careful planning and timing to ensure that the commentary occurs at the right moments. ¼" open reel tape is easier to work with than cassettes.

Make a start-mark (an 'X' will do) on the tape about 1 metre in from the beginning, using a spirit marker pen. Make a similar mark on the white film leader well before the first pictures. Align the start mark on the tape with a piece of coloured Sellotape or something similar fixed onto the body of the tape recorder somewhere along the tape path. Align the film start mark with another coloured marker on the projector. Start the projector and the tape recorder simultaneously and watch the screen carefully. Holding your spirit marker at the ready, wait for the first pictures to come up on the screen. As soon as they appear, make a mark on the tape *without stopping the recorder.* Make another mark when the first cue for commentary appears, and another mark at the beginning of each passage of commentary. One final mark is made as the "END" title finishes.

When you have worked your way through the film, wind back the tape to the beginning. Run the tape up to the first mark (indicating the start of the pictures) and make sure there is no sound recorded up to that point. Place a record of your first choice of music on the record deck and check the recording level on the level meter so as to give the maximum recording level on the loudest passages without going into the red or "over-recording" sector of the meter. Time how long it takes from the moment when the stylus settles on the record to the first note of music. Set the tape recorder to "RECORD", but hold the tape back with the "PAUSE" control. Start the record playing and just before the first note of music starts, release the pause button and start recording the first music. After the introductory few bars, which will play during the film titles, the recording level can be turned down to a lower level which must be determined by experiment. When showing the film we don't want the music to blast people out of their seats, just to provide a background accompaniment.

Speech, however, needs to be recorded at a higher volume so that it comes over clearly and intelligibly. As the cue mark for the first speech approaches, fade the music gradually down to zero level at the cue mark. Stop the recorder, and set the cue against the coloured marker. Set the microphone recording level, start the recorder and record the first piece of commentary.

When this commentary is finished, unplug the microphone, reset the record on the turntable to the required piece of music, set the recorder to "RECORD" and start recording the next music, immediately fading up the recording level gradually to the required level. Work your way through the film in this manner right to the end, recording alternately passages of music and speech. The final piece of music can be timed carefully to finish at the last mark on the tape, which was made to correspond with the end of the 'END" title. On playback, the music will start loudly by way of introduction and then settle down to the subdued level. It will then fade to zero prior to each piece of commentary and finally end with the last few frames of film (Fig. 4).

Users of cassette machines are greatly handicapped as there is no way of getting at the tape to mark it physically, except by taking the cassette out of the machine. This is of little use anyway, as any marks made will not be visible when the tape is playing. Without such marking you cannot time things so readily, and have to use a stopwatch. Far more convenient to use an open-reel recorder, examples of which can be bought second-hand very cheaply these days. A model suitable for soundtrack work would preferably be a 4-track machine, with a "PAUSE" control. It should be capable of recording on either track independently of the other and of playing either track or *both simultaneously* (parallel playback). A stereo machine is most likely to conform to these requirements.

Another extremely useful feature is the ability to do "multi-tracking", whereby a soundtrack is built up by transferring the recorded sound from one track to the other and at the same time mixing in a new sound from another source, such as a cassette recorder, record deck or microphone. By repeating the process several times, a composite recording can be quickly built up from several sound elements.

Method 3. For anyone who possesses a tape recorder with parallel play-back, a more satisfactory method of soundtrack compilation is to record the commentary first of all using track 1. The background music or effects can then be recorded onto track 2 without fear of accidently erasing anything already recorded. If the beginning and end of each speech passage is marked on the tape, then the marks can be used as cue marks when recording the music, to enable the music recording level to be faded down gradually just before the speech begins and turned up again when the speech is finished. On playback the music will thus continue quietly during the commentary, albeit at a very subdued level, giving a soundtrack that sounds more polished. Furthermore, changes in background music from one mood to another can be usefully masked by arranging for the commentary to bridge the change. The music being already faded down for speech, it becomes a simple matter to fade it down quickly to zero, restart a fresh music recording and bring the volume up to a subdued level while the commentary effectively hides the change (Fig. 5). This is a much better way than to suddenly change the mood or tempo while the music is being played at full volume.

In using the above methods, it will soon become evident that a projector and tape/ cassette recorder will seldom run at the same speed each time. The changes in speed are so slight as to be normally unnoticeable, but when you are trying to run two pieces of equipment in step, then these slight differences do show up. It may be only a matter of a few seconds difference if the commentary or effects are closely linked to what is being seen on the screen. There are other ways of building up a soundtrack, and other techniques involved where precise synchronisation is required. These will be dealt with in my next article, as also will be the matter or copyright – a legal aspect which one encounters when recording music from commercial records.

COLLECTORS' CORNER

by B.N. Love

INVENTOR'S OUTFIT "B"



As Great Britain made its slow recovery after World War I, Binns Road began to increase its range of Meccano parts, and, in 1919, supplemented its "INVENTOR'S OUTFIT "A" (illustrated in the April 1976 M.M. Quarterly) with the "B" Outfit illustrated in this article.

Meccano enthusiasts will recognise most of the parts shown from the inside of the box lid as being quite familiar, although four of the items are now antiquities. These are the Octagonal Coupling and Octagonal Strip Coupling, Part Nos. 63a and 63b in 1919, the Architrave, Part No. 108, with its plain circular centre, and the distinctive Train Coupling of the period, Part No. 121. There is some question as to whether the large Train Coupling shown inside the lid is artist's licence, based on an identical train coupling supplied by the "PRIMUS" engineering system running as a competitor of Meccano Limited at the time.

A number of Meccano Inventor's Outfits are held by various enthusiasts, but, in general, the early pattern of Meccano Train Coupling is of a smaller and neater design than the one illustrated inside the outfit box lid. Virtually all of the parts included in the Inventor's Outfit "B" were new designs and were announced by Meccano Limited by means of a single sheet insert in the Meccano Magazine at the time. A list of parts contained in the outfit is given below.

This outfit was never intended to be used as a basic constructional set and the legend on the box lid (outer) is as follows:

"This outfit contains a number of new and valuable parts not contained in the regular Meccano outfits. These parts increase the scope of the Meccano system, improving the models, and making new models and movements possible."

The plain centre hole Architrave, Part No. 108, is also a Meccano Historian's enigma because, although it is shown in various items of Meccano literature round about the period concerned, usually at the top of the 'standard' model of the Eiffel Tower, specimens of the original have not yet come to light and this may again be a case of artist's licence. Those found in the author's outfit are of the same design as those which we know today, although they are very well nickel-plated. Readers will note that most of the numbers allocated to parts at the time have been retained, with the exception of all of the Double Angle Strips which were subsequently re-allocated the numbers 46 to 48d.

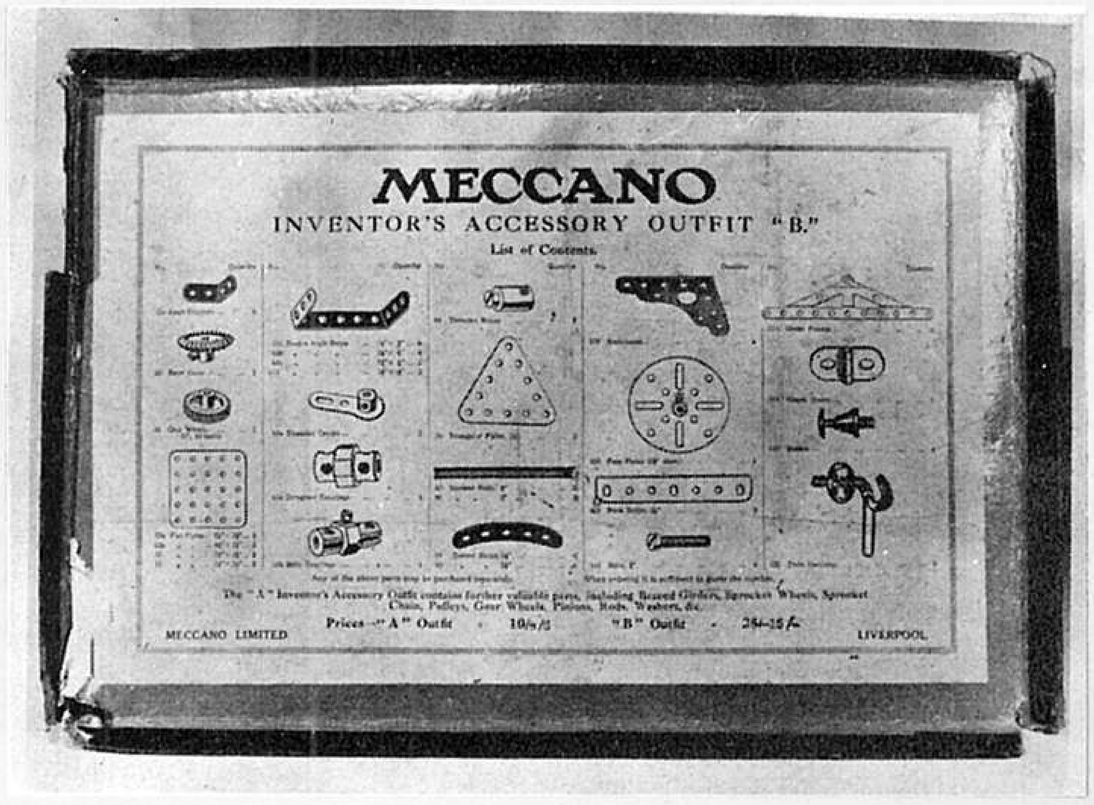
Perhaps the most curious introduction at the time was the Girder Frame with its reduced width of strip section almost suggesting the Narrow Strip of today, but apart from its inclusion in the famous pre-war Supermodel No. 4, Giant Block-Setting Crane (where it was lamentably mis-used for securing the bogies in rigid configuration instead of permitting them to 'float', or pivot), it has remained more of a novelty than a regular feature of models.

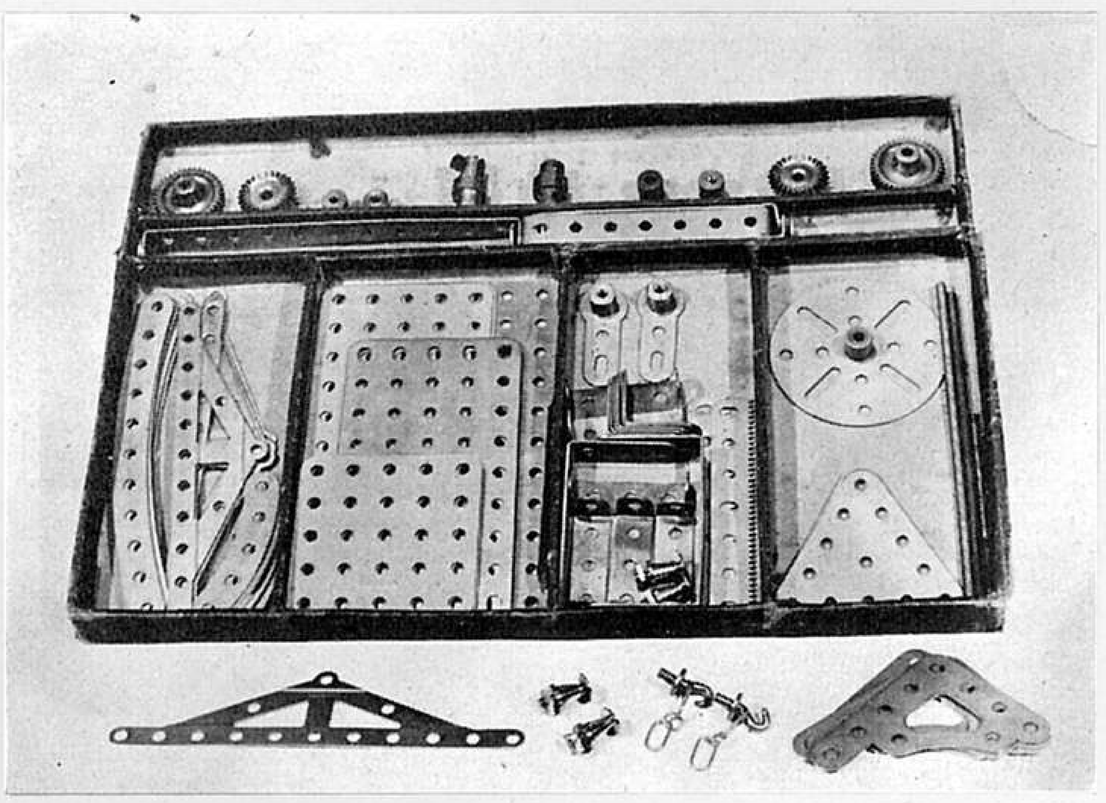
Nevertheless, when properly applied, it has both good engineering aspects and aesthetic appeal. Perhaps its lack of application is largely due to the fact that it was never included in any of the standard Meccano sets throughout its history!

CONTENTS OF MECCANO INVENTOR'S OUTFIT "B", CIRCA 1920

No.		Quantity	No.		Quantity	No.		Quantity
12a	Angle Bracket	6	60b	Double Angle Strip (3½"x ½")	4	89	Curved Strip 5½"	6
30	Bevel Gear	2	60C	Double Angle Strip (5½' x ½")	2	90	Curved Strip 2½"	6
31	Gear Wheel (1", 40 teeth)	2	112	Double Angle Strip (2½"x ½")	2	108	Architrave	4
52a	Flat Plate 5½"x 3½"	2	62a	Threaded Crank	2	109	Face Plate (2½" dia.)	1
53a	Flat Plate 4½"x 2½"	2	63a	Octagonal Coupling	1	110	Rack Strip 3½"	2
70	Flat Plate 5½"x 2½"	2	63b	Strip Coupling	1	111	Bolt ¾"	4
72	Flat Plate 2½"x 2½"	2	64	Threaded Boss	4	113	Girder Frame	6
60a	Double Angle Strip (1½"x ½")	6	76	Triangular Plate 2½"	2	114	Hinges (pairs)	1
			80	Screwed Rod 5"	2	120	Buffer	4
			81	Screwed Rod 2"	2	121	Train Coupling	2

Pictured at the top of the page is the cover design for the box lid of the 1919–20 Meccano Inventor's Outfit "B" described in this article. Inside the lid, below left, was an illustrated parts list detailing the contents of the outfit. Note peculiar form of the Architrave, Part No. 108, and the large Train Coupling. Below right, general contents and disposition of the parts in the Inventor's Outfit "B".





DATELINE MECCANO!

LINDSAY G. BOND offers a general guide on how to help date the parts in your Meccano collection.

Most of us at some stage in our Meccano "career" have purchased, either new or second-hand, odd collections of spare parts, many of which are clearly of an earlier period, and the thought has often crossed our minds: "If only I knew how old some of these parts are." After many years of collecting and purchasing such collections, I would like to suggest the following system as an aid in dating your collection:

(1) When buying that box of odd parts, see if you can obtain the Meccano Manual that went with it, or even a few odd pages as these may identify for you the age of the basic collection of parts, or Set. The fact to remember is that nearly all Meccano literature has carried a date, either printed or coded, from the earliest times, as follows:

1913/1920 approx., the year is given on the front or back cover;
1920/1969, the following type of coding is used on all Manuals and other literature, including Warranty Forms, Membership Forms, Leaflets, Sales Literature and so on;
1920/1930 EXAMPLE: 628/100 on front cover. 628 = printed in June 1928; 100 = 100,000 printed.
1930/1969 EXAMPLE: 13/164/175. 13 = printer's code; 164 = printed in January 1964; 175 = 175,000 printed.
1970 to Date, A Copyright Year is given on all Manuals, although much other literature carries the previous type of coding well into the 1970s and some items still carry it today.

If the front and rear pages of the Manual are missing, or if you have only a couple of pages, then "The Meccanoman's Guide, Supplement No. 2" supplies a detailed list of all Manuals, models, their numbering, and a reasonably accurate year can be obtained with a little research.

(2) The division of the parts in the collection into their various periods narrows the field down to seven major groups, as the enclosed diagram illustrates. There may well be some difference between the parts manufactured for the home market and those exported abroad, and also parts for Special Outfits have been coloured differently from the Main Sets, but this article is not meant to cover these minor departures.

(3) The seven main groups can be sub-divided still further by concentrating on two common parts, namely the 2½" Perforated Strip, Part No. 5, which indicates at least nine variations of the basic part, and the 1" Pulley with boss, Part No. 22, which gives no less than fourteen different variations and thus narrows the dates down considerably. Charts detailing the variations in these components are provided herewith.

(4) By using A Meccano Manual Parts List for the period covered by the parts, or by using "The Meccanoman's Guide, Supplement No. 1" which covers all Sets and all periods, you can determine approximately the size of the original Set. And you may make a surprise dicovery, like I did recently when I found I owned all the parts of a 1928 Special Inventors Outfit, these being additional to the basic Set when purchased.

So, from the information supplied it is quite possible that you will be able to date your collection, determine the original size of the Set concerned and, for some readers, begin on the never-ending fascination of the History of Meccano and its associated products. Many imitators have sought to produce an inferior product, but only Meccano still leads the world with a mechanical construction system that is a household word in most countries of the World.

For further study, the following are recommended: "The Development of the Meccano System" and its Supplement; "The Meccanoman's Guide" and its Supplements, all available from Everything Meccano (M.W. Models) in Henley-on-Thames. Also, old Meccano Magazines provide a wealth of historical material and are worth collecting for this purpose as well as the reading pleasure they provide.

If any reader would like further advice or help, contact me, Lindsay G. Bond at 86 Brecon Road, Stratford, New Zealand. Your letters would be answered in the order in which they were received.

FOOTNOTES

As mentioned in our heading, Mr. Bond's dating system has offered us a general guide, but because no comprehensive Company records on the subject currently exist, it is doubtful if any one historian is fully aware of all the many variations that have occurred in seventy years of Meccano production. Thanks to the following information kindly supplied by Mr. Geoff Wright of M.W. Models, we are able to clarify some points presented by Mr. Bond, and expand on others, but Mr. Wright himself stresses that he is open to correction from other historians, so any reader who has a contribution to make to the subject is welcome to contact us. In the meantime, though, we make it quite clear that, in providing the following additional information from Mr. Wright, no criticism whatsoever of Mr. Bond is implied.

HISTORICAL CLARIFICATION

(Supplied by G. M. Wright)

The pre-war Red/Green era was in fact split into two periods determined by different shades of enamel. The 1st Red/Green period (1926/27), called by the Company at the time, "The New Meccano", featured light red Flanged and Flat Plates. Only part 90a and the Braced Girders were (a light) green; the wheels, etc. were brass-finished and all the other parts, including the 2½" Strip, were nickel-plated.

In the 2nd Red/Green period (1928/34), the Flanged and Flat Plates were a dark red; the Girders, Strips (including No. 5) were a dark green. Boilers, etc. were a medium grey colour and, in the early Thirties, Pulleys were a dark blue in some small sets. Though open to argument, I do not personally agree that there was a production reversion to Red/Green in 1937; I believe that the Red/Green equipment, which did certainly appear at that time, was simply old stock from the previous period which came out as a result of shortages of the day.

During the 1934/37 Blue/Gold period, the Pulleys were brass-finished, though in 1937/41, when Blue/Gold was still produced, the Pulleys were Red, along with some other small parts.

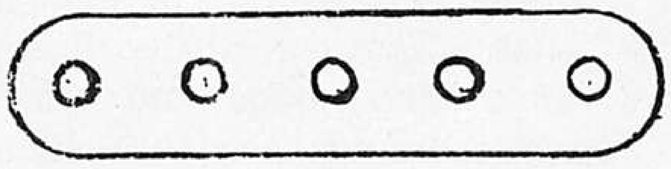
As in the pre-war case, the post-war Red/Green era was split into two periods. From 1945 to 1955 medium shades of red and green were used and, for part of the time at least, Pulleys were black. From 1956 until 1964, the red and green were noticeably lighter in shade, with brass Pulleys.

The 1964/70 period is perhaps better identified as the Black/Yellow/*Silver* (the latter not literally!) as all the Strips and Girders etc. were silver-coloured being sprayed aluminium from 1964/1967 and zinc plated from 1968 until 1977. Also, though the new-radius Strips were introduced in 1976, the previous type of Strip has continued to be produced as demand has dictated. Indeed, I have seen the rounder-ended Strips in new 1978 outfits, so the appearance of such Strips does not necessarily date a Set or Collection as pre-1976. I am unable to comment on export variations.

THE 7 MAIN PERIODS OF MECCANO

DATE	Main Coloured Parts	Small Pulleys	MARKINGS	
To 1926	Nickel	Brass	MECCANO	PRE WAR
1926 – 1934	Red–Green	Brass	MECCANO	
1934 – 1937	Blue–Gold	Blue	MECCANO	
1937 – 1941	Red–Green	Red	MECCANO	
1945 – 1964	Red–Green	Brass	Meccano made in England	POST WAR
1964 – 1970	Black–Yellow	Brass	Meccano made in England	
1970 – 1976	Blue–Yellow	Dull Brass	Meccano made in England	

THE HISTORY OF MECCANO PART No. 5 — 2½" (5 hole) PERFORATED STRIP — EXTERNAL TRACING



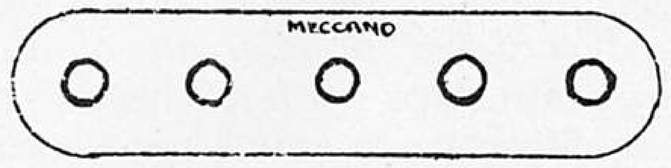
1911 – 1912
Nickel Plated
No Name



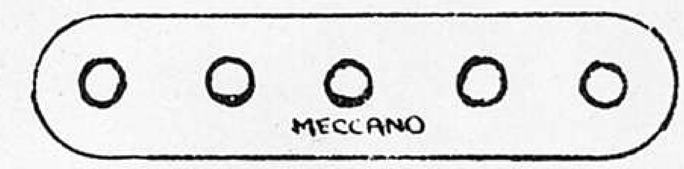
1913 – 1919
Nickel Plated
1915–16. Some Tin-plated U.K.
Some Blackened Steel Export



1920 – 1924
Nickel Plated



1925
Nickel Plated



1928 – 1941
Green for Export
Green 1926 1934
Gold 1934 – 1941 UK Market



1945 – 1955
Dark Green

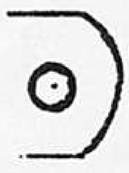
1956 – 1964 Light Green



1965 – 1967
Aluminium Sprayed



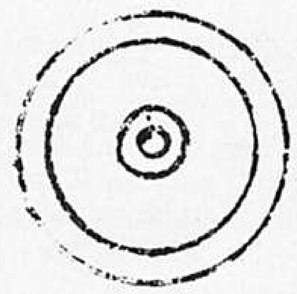
1968 – 1977
Bright Zinc



1976 –
Bright Zinc
Different End Radius

NOTE: There are other variations in colour as this part was used in special sets.
But these are the main variations as used in the main sets.

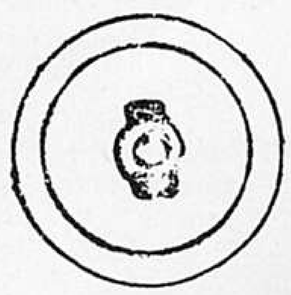
THE HISTORY OF MECCANO PART No. 22 — 1" PULLEY WITH BOSS — EXTERNAL TRACING



1911 – 1912
Heavy Gauge Brass
Single Screw



1913 – 1915
Brass
Single Screw



1916
Tinned Steel
Single Screw



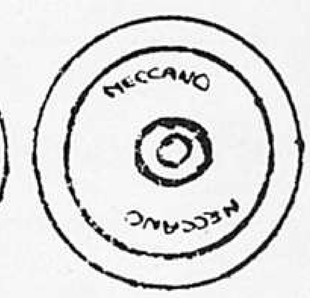
1918 – 1923
Brass
Single Screw



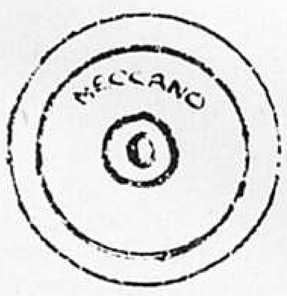
1924
Brass
Double Screw



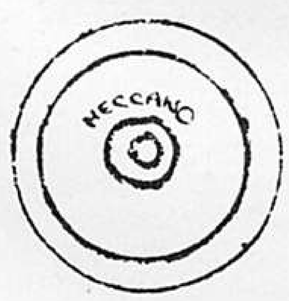
1925
Brass
Double



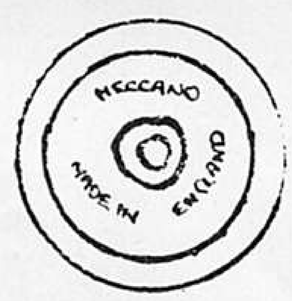
1926 – 1934
Brass Double
Large 'V' Groove



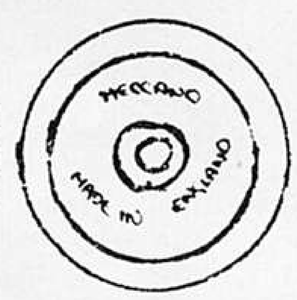
1934 – 1937
Brass Double
Large 'V' Groove



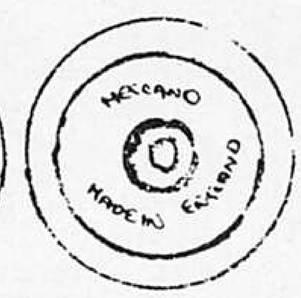
1937 – 1941
Red Double
Large 'V' Groove



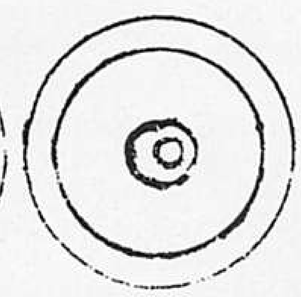
1945 – 1950
Brass Double
Large 'V' Groove



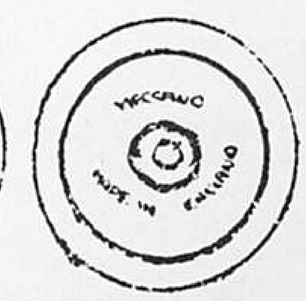
1951
Black
Double



1952 – 1964
Brass
Double

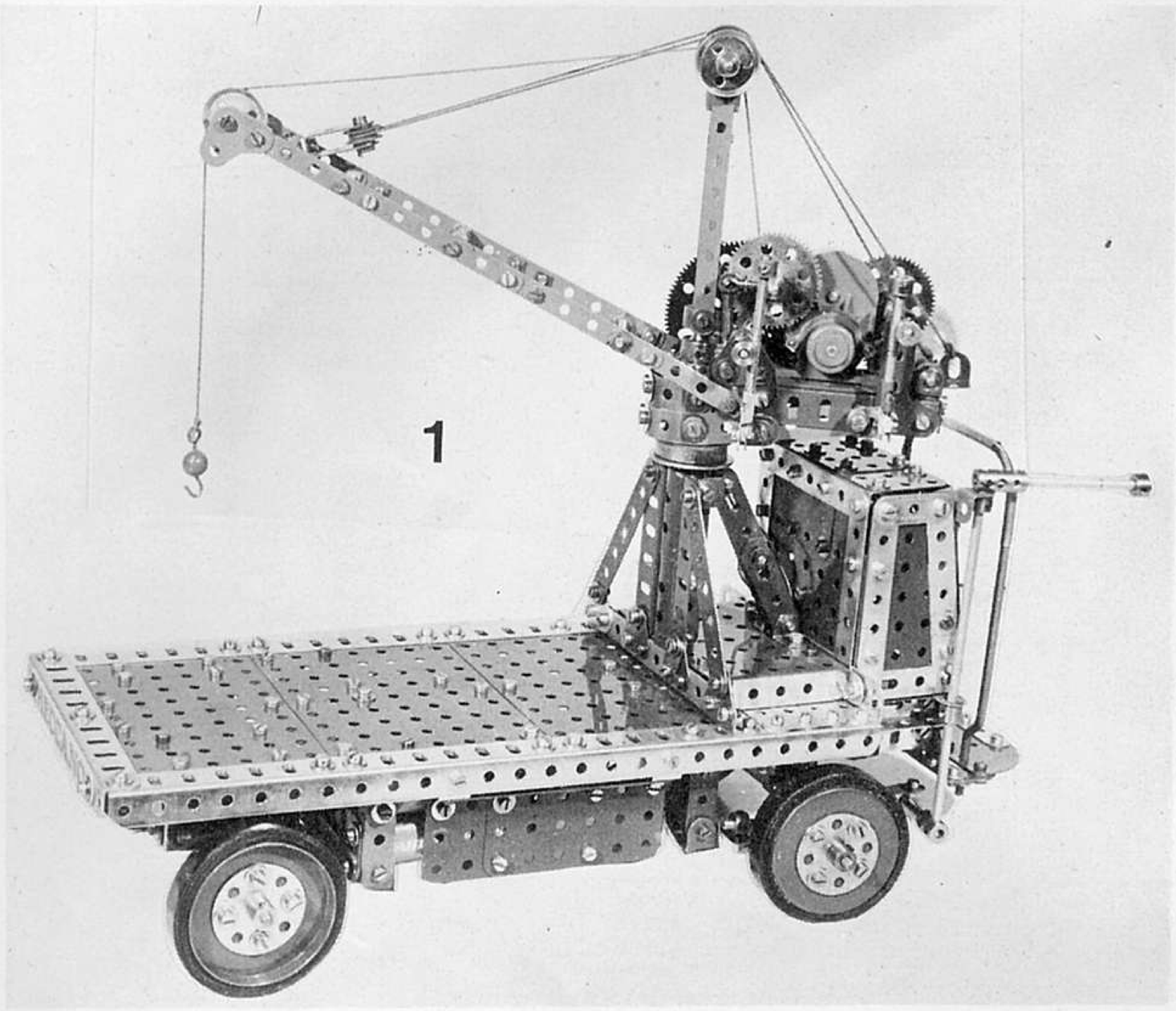


1964 – 1970
Brass
Double



1970 – 19
Dull Brass
Double

NOTE: There appears to be some overlap during the 1915 – 1918 period with Design No. 2.
having been seen in Sets as late as 1918–19.



Eric Jenkins had a dedicated approach to his Meccano Modelling based on an eye for detail and realism of appearance which graced the dozens of models, large and small, which he regularly brought to Society meetings. Fortunately much of his work is recorded and we have pleasure in presenting here his reproduction of the Collis Crane-truck in Meccano, based on a cigarette card-size photograph of the prototype published in Meccano Magazine some forty years ago! This model would have been published a decade back, but the Meccano Emebo Motor of the period had gone out of production. Fortunately, the new Meccano Crane Kit motor scales in nicely to size and may be used as a replacement with a few modifications.

COLLIS CRANE-TRUCK

A fine model designed and built by the late Eric Jenkins and featured here as an M.M. tribute to a modeller of outstanding ability.

CHASSIS AND PLATFORM

Fig. 1, giving the rear quarter view of the model shows the general construction. A pair of 12½" Angle Girders are spaced by three 5½" x 3½" Flat Plates, butted edge-to-edge from the rear. A 5½" Angle Girder is placed across the rear end, as shown, with a Washer under the centre elongated hole of the Girder to keep levels correct. Three more 5½" Girders are used at the front end of the platform, one on top with its elongated holes upwards and two more below in the form of a "U" channel girder.

A sub-assembly which simulates the massive battery box of the prototype electric truck is now built up on each side from lapped 2" and 2½" Girders, overlaid with lapped 3" x 1½" Flat Plates to give an eight hole length. Washers or Fishplates are placed under appropriate points, again, to maintain a smooth line and the two sides are joined together by a 5½" Angle Girder (out of view in Fig. 4), with its elongated holes forward and its round hole flange tucked up underneath the platform. The securing Bolts for this Girder can be seen in Fig. 4, four holes back from the leading edge of the short lapped Girders. Additional strengthening of the sub-assembly is provided by a 4½" x ½"Double Angle Strip set three holes in from the rear and this can be clearly seen in Fig. 4, a 1½" Angle Girder being added as a forward clamp to the flat torch battery (4½ volts) used for powering the transmission and crane motor.

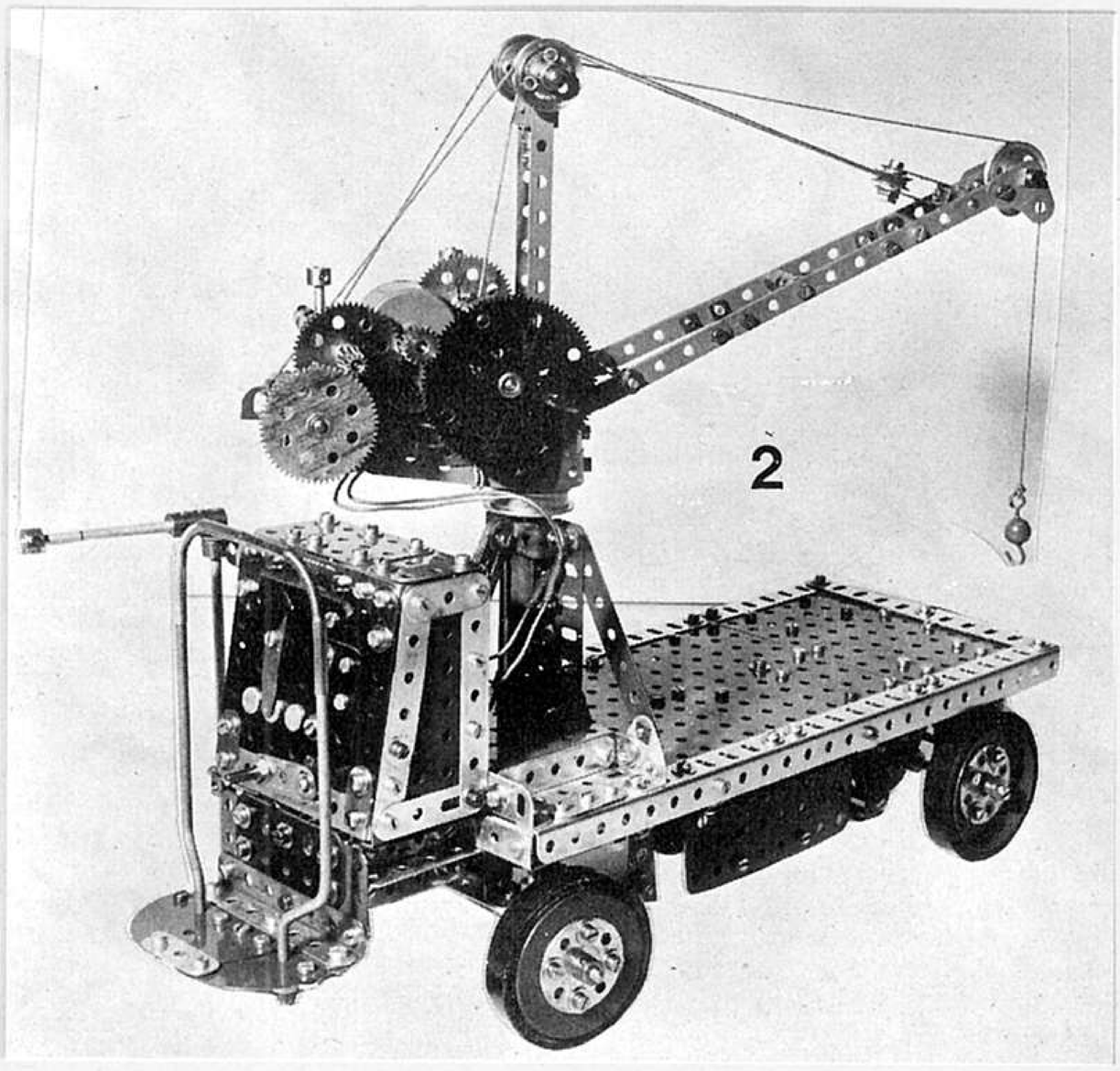
STEERING GEAR

This section is also in the form of a sub-assembly using a pair of 7½" Angle Girders spaced five holes apart, as shown in Fig. 4. Six holes back from the front, these Girders are joined by a double thickness of 4½" Narrow Strips bolted to the round holes of the Girders and it is the outer end holes of the Narrow Strips which provide the upper journals for the "Kingpins" in the steering mechanism. At the rear, 1½" Angle Girders reinforced with 1½" Corner Brackets provide supports on the 7½" Girders for a double thickness of 2½" Flat Girders which join the side members and provide a forward journal for the transmission shaft. All of this can be clearly seen in Fig. 4 in the vicinity of the 1" Gear Wheel.

As this type of truck is designed to run on a flat concrete factory floor, it is 'solid' built throughout to provide a stable platform when handling heavy goods and no suspension is provided. A heavy-duty front axle is made from two layers of 3½" Strips fitted with a Crank from below at each end, set two holes in. The inner securing Bolts also fix 1" x ½" Angle Brackets which are attached to the 7½" Angle Girders above and, as these brackets are reinforced with 1" Corner Brackets, the front axle is well supported. Again, packing Washers are needed under the forward holes of the Corner Brackets, see Fig. 4.

Before any further assembly is carried out the motor for the transmission must be fitted. This is the Meccano 6 – 12 volt Motor with Gearbox and it is slung centrally under the platform. By studying Fig. 1, the first pair of Bolts fixing the motor can be seen at platform level just behind the crane post. The 5½" Angle Girder which can be seen at this point supports the rear legs of the crane post and its centre fixing Bolts also locate the rear holes underneath of the motor base (packing Washers again!). Once the motor is fixed in position, the box sub-assembly can be bolted to the platform side Girders by ½" Angle Brackets, the location being clear from Figs. 1 and 2. When this is in place, the steering sub-assembly is attached by being bolted to the lower 5½" Girder across the front of the platform and to the other 5½" Girder attached inside the box as previously described.

Basic tiller steering is provided on the model as on the prototype and much of the construction is obvious from Fig. 4. The Kingpins are formed by 2" Rods which are passed through the Cranks and into the end holes of the Narrow Strips above and located by Collars, etc. Handrail Couplings are used to hold stub



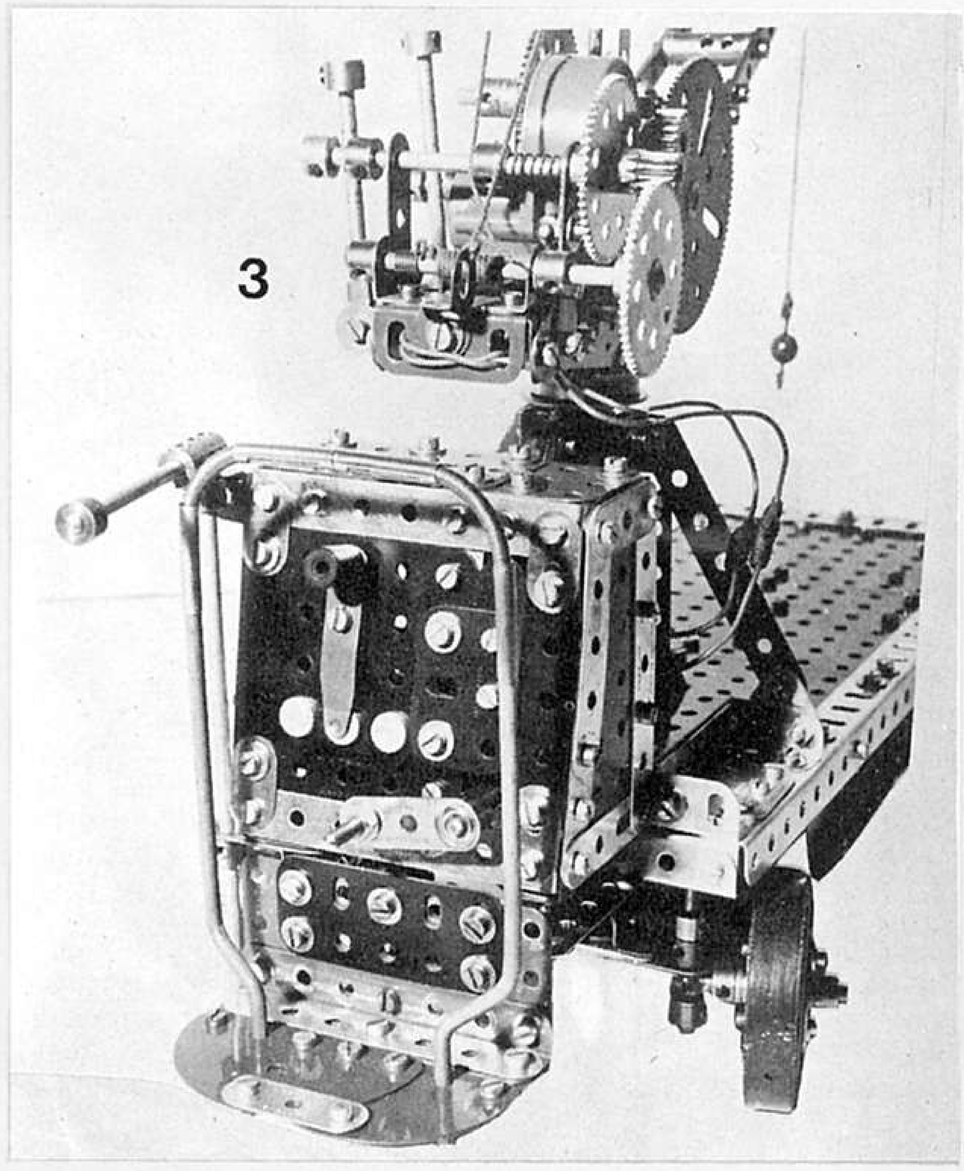


Fig. 1 on opposite page and Fig. 2, above left, show general views of the late Eric Jenkins' Collis Crane-Truck. Note the solid construction and attention to detail. Fig. 3, above right, shows a close-up of the driver's platform and the winch section of the crane. The obsolete Emebo Motor illustrated can be replaced by a modern Crane Set Motor.

axles and to receive Long Threaded Pins in their tapped bores to form steering arms. The track rod is a sandwich of two 4½" Narrow Strips, bolted together as shown and pivoted at each end by Set Screws tightened in the Collars on the end of the Long Threaded Pins. The 'offside' (left hand wheel viewed from the front) has its Kingpin fitted with a Short Coupling extended by a 1" Rod into a Collar and a draglink is made from a 3" Narrow Strip lock-nutted to Collars, as shown, while a second Short Coupling connects this to the vertical 5½" Rod forming the steering column. Fig. 1 shows how this is journalled in the boss of a Crank and a Corner Angle Bracket on the side of the truck.

WHEELS AND TRANSMISSION

All four wheels are made from pairs of Wheel Flanges, the rear wheels having the flanges back-to-back and secured by four ⅜" Bolts to 8-hole Bush Wheels outside and to Wheel Discs inside. The front wheels have both flanges pointing in the same direction, with the faces of the Wheel flanges being separated by Collars and fitted with Bush Wheels on the inside and Wheel Discs outside. The front wheels are held on their 1½" stub axles by external Collars with Washers fitted where appropriate.

Fig. 5 shows the partly assembled rear axle which is made from one 3" Rod having a fixed ¾" Contrate and a 3½" Rod, also having a fixed ¾" Contrate, but carrying the free-running differential gear. This is a modified, but recommended alternative to Eric Jenkin's original design which uses a non-standard short screwed rod to lock a pair of Collars together. A start is made on the assembly by making the axle brackets from Flat Trunnions and Girder Brackets bolted to the platform as shown. Different spacing of the brackets is required, those holding the shorter 'half-shaft' being spaced three holes apart (nearest camera) and reinforced with Washers and lock-nuts on a 2" Screwed Rod. The other pair of brackets are only two holes apart to leave room for the crown wheel of the differential and this time a ¾" Bolt lock-nutted into a Threaded Boss reinforces the Trunnions. Finally a 4½" Flat Girder is bolted on by ½" Angle Brackets to the rear ends of the Girder Brackets. It should be noted that the outer brackets are set in one hole from each side of the truck.

Providing rigid bearings for the two half-shafts like this allows a simple self-aligning differential 'carrier' to be used. A single 19-t Pinion is mounted on a ¾" Bolt with two (possibly three) Washers under the bolthead and set into the tapped bore of a Coupling as shown. A lock-nut secures the ¾" Bolt in the Coupling at a critical depth to prevent contact with the end of the 3½" Axle Rod on which the Coupling is free to revolve and to float sideways. A 1" Rod is fixed into the second transverse bore of the Coupling and this freely engages with a hole in the large Bevel Gear. This gear is free to revolve on the 3½" half-shaft, but should be critically spaced from its adjacent Trunnion by shim washers (Electrical Thin Washers) when its small driving Bevel is fitted in the final transmission. Setting of the two ¾" Contrate gears is achieved by the Double Collars between each pair of axle brackets.

This 'single pinion' type of differential is adequate for the low running speed of such a truck, but a second 19-t Pinion may be fitted if required. It is important before fitting the gearing to test the alignment of all four Flat Trunnions by means of a 6½" Rod passed through them. A rear support for the transmission shaft is provided by a Double Bent Strip bolted to a 4½" Flat Girder supported on 2" Angle Girders, clearly shown in Fig. 5. The isolated Girder Bracket also shown is an adjustable grip for the pocket flashlamp battery used to power the model. Final stages of the transmission are seen in Fig. 4 where a 1" Gear Wheel meshes with a 19-t Pinion on the motor shaft, set in the lowest ratio. A straight 6" Rod is used for the driving shaft, its lateral position being adjusted by Collars and Washers.

CONTROL CONSOLE

The Control Console is made from a 3½" x 2½" Flanged Plate extended upwards by lapped 2½" x 1½" Flexible Plates, the outline being overlaid with three 3½" Strips, as shown in Fig. 1. A 3½" Angle Girder at the top holds a compound plate made from three 1½" Square Flat Plates. Side panels are provided by 3½" x 1½" Flat Plates with overlaid Strips (see Fig. 2), 2" Slotted Strips assisting in getting the trapezoid shape shown. Two 3½" x ½" Double Angle Strips reinforce the front panel at top and bottom and it is to these that the switchgear is attached. Constructors who have Meccano Electrical parts may follow the illustrations of the original model, otherwise the Insulated Plates shown may be replaced by two or three thicknesses of 2½" x 1½" Blue Plastic Plates, or even a sandwich of Transparent Plastic Plates. It is really only necessary to have a simple change-over switch to supply the crane section or transmission motor as required. The use of the smaller Plastic Plates suggested will enable suitable holes to be located for the switch contact studs. At the base of the control console, 2" Angle Girders are attached at each side and bolted to a second pair of 2" Girders with round hole flange downwards. This, in turn, is bolted to a 2" Flat Girder each side. The completed console is then bolted to the forward projection of the 7½" Girders forming the steering sub-assembly.

When operating the vehicle, the driver stands on the small front platform and may face in either direction. His handrails are combinations of Crank Handles, Rod Connectors and Flexible Coupling Units fixed in Double Arm Cranks as can be seen in Figs. 2 and 4. A 3½" Flat Girder joins two Semi-circular Plates for the driving platform and a 3½" Angle Girder is used to attach this to a pair of 1½" Flat Plates joined by a 2½" Flat Girder (standard or insulated) forming the vertical side of the driver's platform. Four ½" Angle Brackets are then used to fix the platform to the front of the truck chassis.

Readers will notice that a Crank with Threaded Pin is provided on the control console half way up at the front. It is shown in the "OFF" position. Vertically upwards it operates the FORWARD motion of the truck and vertically downwards it puts the truck into REVERSE by a rotary double pole change-over switch constructed inside the console, originally from Meccano Electrical parts. This consists of a pair of 8-hole Insulated Bush Wheels carrying stud contacts wiping against Wiper Arms connected to the two battery terminals by flexible cable under the chassis. Reversing of the crane motor is carried out in the same manner on the original as both motors are selected by the first switch mentioned. However, assuming that a Crane Kit Motor is used →

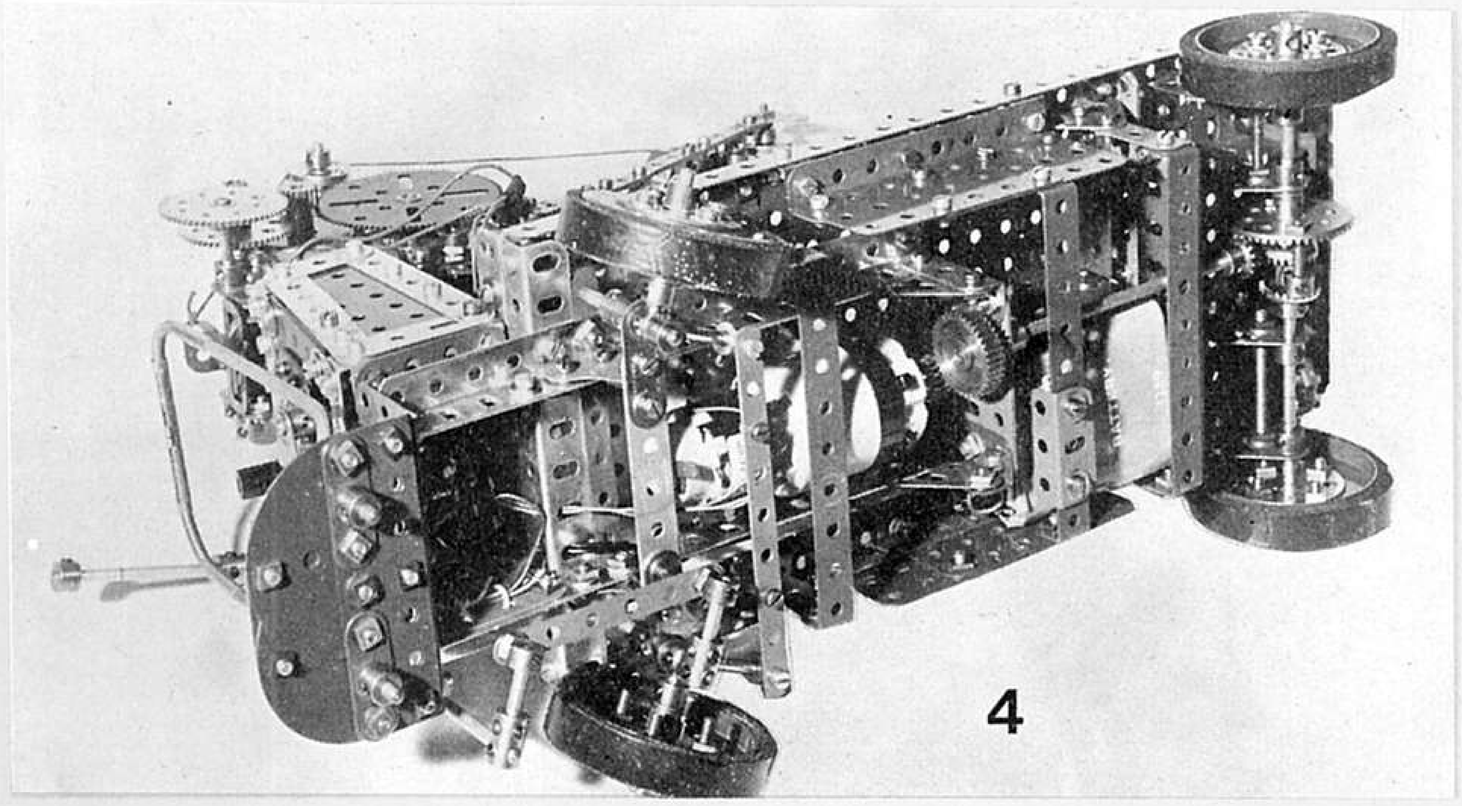


Fig. 4, an underside view of the Truck showing the main traction drive motor – a Power Drive Unit – and the tiller steering gear. Note that power is supplied by a 4½ volt "flat" torch battery carried within the model.

in an up-to-date rebuild, its starting, stopping and reversing can be done manually from the crane platform.

CRANE CONSTRUCTION

Most of the details of the crane base and supporting legs for the crane post can be seen in Fig. 1. A 3½" x 2½" Flanged Plate is fitted with Double Angle Strips at each end and a Double Arm Crank from underneath, thus holding the bottom end of an 8½" Rod on which the upper portion of the crane is free to swivel. A 2½" Strip overlays the slotted flanges of the Flanged Plate for the sake of appearance. Three 5½" Strips fill in the gap across the main platform between the two 5½" Angle Girders and the Flanged Plate fits inside these Girders.

Two Sleeve Pieces are bolted to a pair of 3" Angle Girders and this construction requires care and preferably the use of a small pair of tweezers. Assembly is started by pushing a Chimney Adaptor, closed end uppermost, into the first Sleeve Piece and then the 3" Girders are fixed to the bottom holes keeping the Nuts finger-tight. A Rod is pushed through the third holes of the Girders and the top holes of the Sleeve Piece and then the internal Chimney Adaptor is pushed down until it locates against the Nuts. The Bolts are tightened up, then a second pair are added after withdrawing the Rod. This now locks the lower Sleeve Piece in place. Careful study of Fig. 1 shows the correct aspect of the two Sleeve Pieces and the second one is bolted on at the fourth hole up on the 3" Girders, but this time it will be necessary to feed the two Nuts down inside the Sleeve with tweezers. A second Chimney Adaptor is placed inside the upper Sleeve Piece and pushed down just far enough to clear the top side holes of the Sleeve Piece.

At this stage, some further work is required on the 3½" x 2½" Flanged Plate by fitting it with a pair of ½" Angle Brackets to support the rear strut of the Crane Post. This can be seen in Fig. 1. Four 2" Slotted Strips form the top part of the strut and are sandwiched at the upper end by a pair of ½" Reversed Angle Brackets. The lower part of the strut is two more 2" Slotted Strips packed with Washers on a ½" Bolt through the bottom Angle Brackets. The slotted lugs of the upper Reversed Angle Brackets are now bolted to the top of the second Sleeve Piece, through the 3" Girders by $\frac{3}{8}$" Bolts packed with Washers as necessary. A straight 8½" Rod is fitted with a Bush Wheel, boss downwards, and the Rod is pushed through the two Chimney Adaptors, through the rear centre hole of the Flanged Plate and into the boss of the Double Arm Crank below. A check should be made for length of insert. The Bush Wheel is held to the Rod and the Rod is then pushed back into location with the Double Arm Crank and locked so that the Bush Wheel face locates on the top of the upper Sleeve Piece. The Flanged Plate is fitted between the two transverse 5½" Girders and it is bolted to them by the Double Angle Strips. Two 3½" Strips are fixed by 1" Triangular Plates to the rear 5½" Girder to act as front struts for the crane post and then the two vertical 3" Girders are secured by pairs of Fishplates as shown in Fig. 1.

The crane motor platform is made from a pair of 3½" Girders spaced at the rear by a 1½" Girder and 2½" x ½" Double Angle Strip. If a Crane Kit Motor is used, the 3" Girders are inverted so that the motor can drop down between them, Washers being used to achieve correct meshing height as required, see Figs. 1 & 3. An 8-hole Bush Wheel is locked into a Socket Coupling then the Bush Wheel is fitted with three 1" x ½" Angle Brackets. Two Threaded Bosses are bolted to the top of a large Flanged Wheel. The Flanged Wheel is connected to the Bush Wheel by side Bolts passing through overlaid 2½" Strips as shown in Fig. 1. The upper Strips are fixed to the 3½" Girders and the lower Strips are secured at the same points with internal Fishplates. The upper Strips are bent to meet in front of the crane post and thus are bolted to the 1" x ½" Angle Bracket on the front of the Bush Wheel. The lower Strips are secured at the same points with internal Fishplates. The upper Strips are bent to meet in front of the crane post and they are bolted to the 1" x ½" Angle Bracket on the front of the Bush Wheel. The lower Strips are similarly treated, then two Rod Sockets are fixed vertically on the leading top holes of the 3" Girders with 1½" Axle Rods topped by Handrail Supports being fixed in these Rod Sockets. Their threaded portions point to the rear and carry Collars by the tapped bores to act as self-aligning bearings for the crane hoisting drum.

A 2" Rod carrying a 57-t Gear and a Collar is used for the winding drum, only a short length of Cord being required to reach to floor level. The intermediate shaft for the winding drum is a 2½" Rod having a 19-t Pinion in sliding mesh with the 57-t Gear and a 95-t Gear Wheel set so that it is normally out of mesh with the 19-t Pinion on the motor drive shaft. This intermediate shaft is spring-loaded and can be slid into the drive position by the forward lever shown in Figs. 1 and 3 and it is carried in journals made from 1" Triangular Plates mounted at each side as shown. A 3" Rod is used for a luffing drum and is fitted with Collars, Washers, a Cord Anchoring Spring and a 60-t Gear Wheel. Its intermediate shaft is also a 3" Rod, spring-loaded and fitted with two Collars, to embrace the gear-shift lever, a third Collar to compress the Spring and a 57-t Gear followed by a No. 1 Clockwork Motor pinion. This latter pinion stays in mesh with the 60-t Gear Wheel and the shift lever puts the 57-t Gear into mesh with the motor pinion as required. Journals for the luffing intermediate shaft are vertical 2" Strips supported by 1" Corner Brackets as the near end of the side Girders (see Fig. 3). Spring tension on both intermediate shafts is enough to have a braking effect on both drums in the disengaged positions. Each gear-shift lever is mounted in a Rod and Strip Connector lock-nutted to Angle Brackets secured to the crane sides as shown, sufficient grip being set to prevent the levers being sloppy in action.

At this point the crane body may be placed on the crane post and the Socket Coupling extended upwards by a pair of 4½" Narrow Strips bolted one hole below the top to a Large Fork Piece. A Collar fixed to the Rod just below the Fork Piece adjusts the height of the crane body to just clear the contact below, between the rim of the large Flanged Wheel and the Bush Wheel. Packing Washers and a Collar just above the Socket Coupling prevent the crane from rising vertically on its post. A tapered support to the sides of the crane base is given by a 2" Strip on the lever side and a 2½" Strip on the gearing side running outwards and upwards from the lower curved 2½" Strips, see Fig. 2. Jib details are evident from the various views and while no parts list is available, the open and comparatively simple construction of the model should appeal to a wide readership.

Finishing touches to the model are provided by giving it a set of 'tyres'. In the original model, black fabric adhesive tape was carefully wound on, but thick, wide rubber bands would suffice. For a professional finish, ½" wide black rubber or plastic driving belts from a certain range of vacuum cleaners will do the trick!

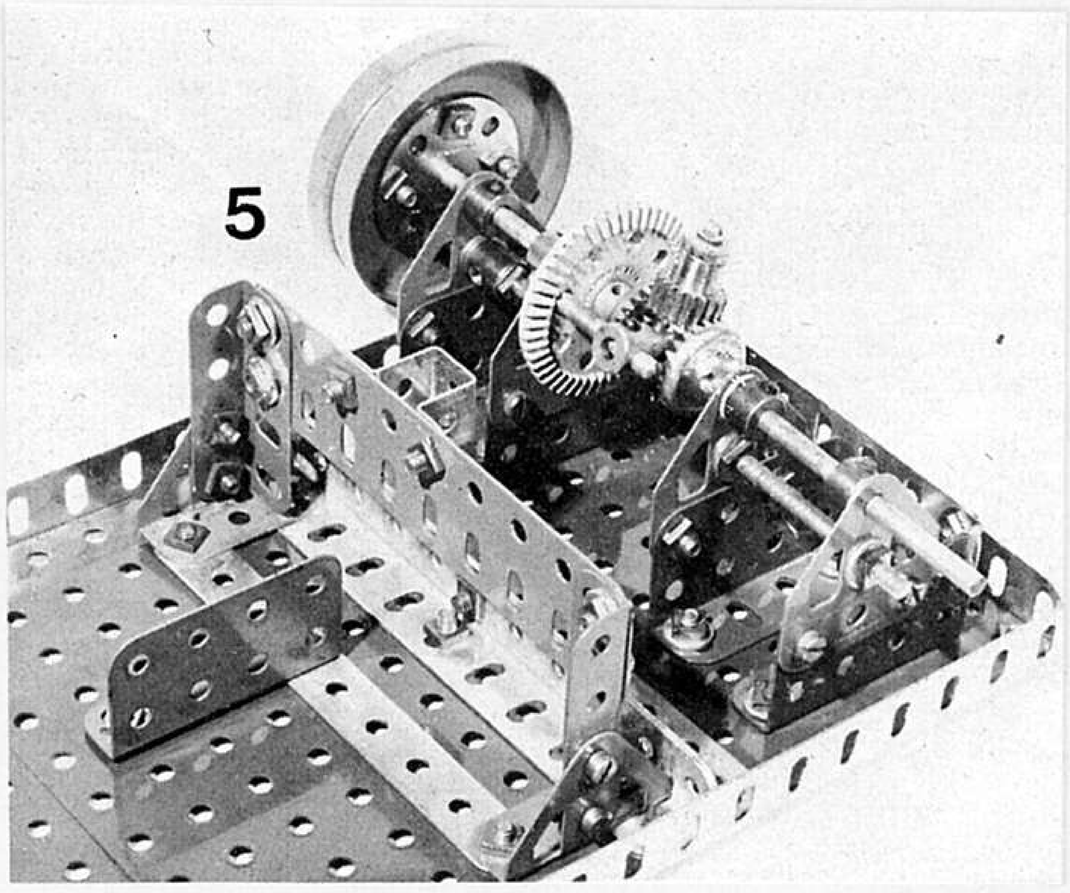


Fig. 5, the rear axle in partly-assembled form. The mechanism illustrated is a modified, though recommended alternative to Eric Jenkins' original design which actually made use of a non-standard screwed rod length. Note the 'single pinion' type of differential which is all that is required in view of the slow speeds at which the Truck operates. However, a second Pinion can be added if desired.

DINKY TOYS NEWS



A REVIEW OF THE DINKY TOYS INTRODUCED SINCE THOSE FEATURED IN THE JANUARY M.M.

No. 385 ROYAL MAIL TRUCK

In the Royal Mail Truck, we have a budget-priced toy of wide cutomer appeal which combines low cost with high play value. Basically the same model as the N.C.L. Truck, it has an overall length of 110 mm and features a die-cast metal cab/chassis unit and a moulded rear load body complete with a removable moulded

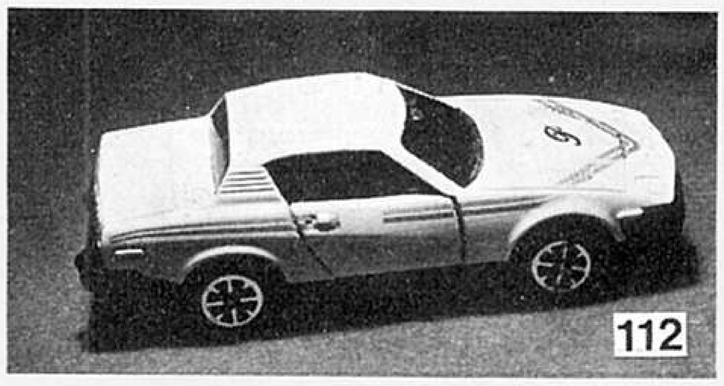


canopy. The cab, itself, sports windows and an interior seat moulding. Finish is in a smart red colour, with "Royal Mail" livery.

No. 112 PURDEY'S TR 7

Highly popular with TV thriller fans is the fast-moving British series "The New Avengers" and Dinky have secured exclusive die-cast modelling rights to the series' vehicles. First toy to hit this action scene is the sleek Triumph TR 7 as driven by the glamorous Joanna Lumley, who plays Purdey in the TV show.

A highly attractive model with a crisp body casting, it is finished in special personalised "Purdey" livery of smart yellow with silver stripes across bonnet and sides and an elegant letter "P" centrally positioned on the bonnet. Fitted with glazed windows, it has opening doors, a highly detailed interior moulding complete with seats, dashboard and even gear-



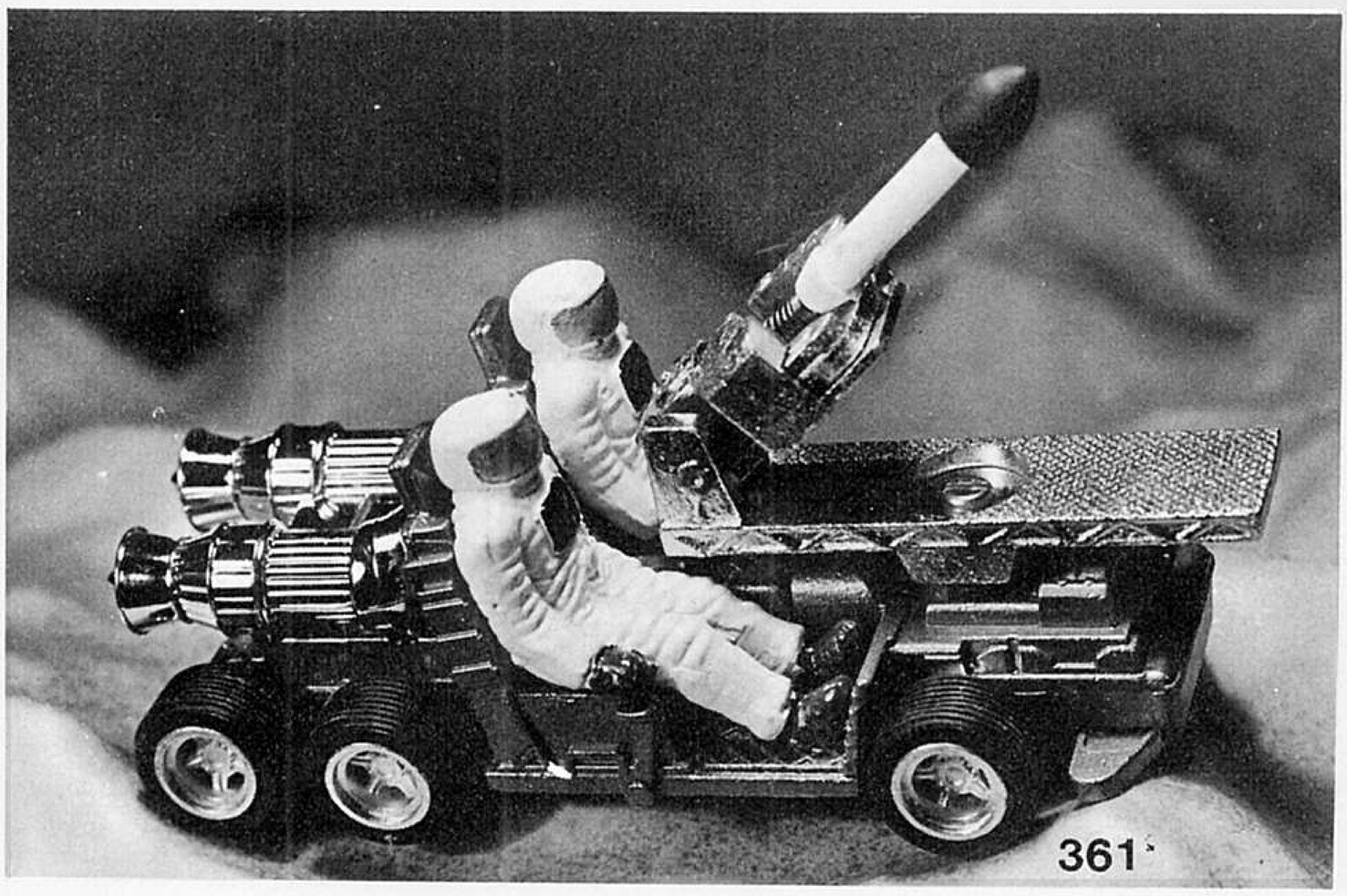
change lever, and shock-absorbing bumpers which press inwards on impact. Overall length is 98 mm.

No. 278 PLYMOUTH YELLOW CAB

This new introduction represents the 'classic' U.S. Taxi as seen in just about every contemporary American film and suspense-packed TV thriller series. Easily recognised



and readily associated with the glamour of both big and small screens, the Plymouth Yellow Cab has instant child appeal. A really big toy, 135 mm long, it features a detailed body casting, complete with windows and full moulded interior, and a striking colour finish of bright yellow with "Yellow Cab Company" identification on the side doors and "Yellow" on a roof-mounted console. A natural for television-inspired play scenes.



No. 243 VOLVO POLICE CAR

Police vehicles are highly popular with children everywhere, therefore the latest toy to hit Dinky's crime-busting fleet – the Volvo Police Car – is sure of success. A big, action-packed toy, 141 mm long, it is fitted with windows, seats and an opening tailgate which allows access to the spacious luggage area behind the rear seats. Finished in white, it has an orange flash down the sides and a Police sign with simulated blue light on the roof.

Appealing in itself, its play-appeal is enormously extended by the provision of two "Police Slow" signs, three traffic cones and a moulded policeman – accompanied by his trusty Police Dog !

No. 383 CONVOY N.C.L. TRUCK

In May this year, National Carriers Limited, one of Britain's leading distribution organisations, launched a special new service known as the Medallion Guaranteed Delivery Service, and the Dinky N.C.L. Truck was launched in May to coincide with the new service. How's that for 'quick off the mark' ? !

Another in the range of budget-priced commercial vehicles, the new toy represents a heavy-duty, general purpose type of wagon. Finished in eye-catching yellow, with



"NATIONAL CARRIERS" and "Medallion Guaranteed Delivery" identification, it comes complete with a removable moulded canopy and a cast metal cab which is fitted with windows and an interior seat moulding. Overall length of the toy is 110 mm.

No. 361 GALACTIC WAR CHARIOT

This year sees a dramatic acceleration in the demand for space toys, and Dinky are well placed to take advantage of this demand. Already available are action-packed winners from 'Star Trek'; 'Space 1999'; 'UFO' and 'Thunderbirds'. Now comes the fictional Galactic War Chariot.

Intended for surface operation, this is a 6-wheeled runabout vehicle with an elevating and rotating spring-fired missile launcher mounted ahead of two space-suited 'astronauts', seated amidships. Behind the astronauts is a simulated jet propulsion unit, bright-plated for extra effect. With an overall length of 126 mm, this heavy cast toy offers excellent play value.

MECCANO CLUB ROUNDUP

All Meccano Clubs are invited to submit reports for these pages. Report should be approx. 350–400 words long and should reach us by the end of the second month before the month of publication.

GUISBOROUGH MECCANO CLUB

We went on a map-reading exercise mentioned in the last notes, but the children's map-reading was not up to it and we ended up doing a straightforward hike. We went camping Whit week-end and I enclose a photo of some of the members that attended.

Last week we did a sponsored walk to raise funds for more Meccano and, up to the time of writing, we have raised £99 with still more to come in! With the exception of two or three of my members, all are onto higher models, i.e. models out of Sets 6, 7 and 8, and my equipment is now stretched to the limit.

I was invited up to the local school recently to give a talk on Meccano. It was very successful; they want me to start a Meccano Club at school to be held in school hours. The interest in Meccano round here is fantastic among the children and, as I have said before, if Meccano advertised more, I am sure they would sell far more. I took models built by Club members to show the children and also a rather large model of a Stirling Bomber which had revolving props and gun turrets. The children were fascinated. I have now an attendance of 11 members and still a waiting list; oh, for loads and loads of money so I could start them all!

A. Ing, Leader
5 Scarteen Close
Guisborough, Cleveland

HENLEY SOCIETY OF MECCANO ENGINEERS

A meeting of the Society was held early in May and upwards of thirty members came along with a good selection of interesting models. Some of them were partially built and it was noticeable that such models gave rise to a lot of interest and discussion.

One of the most impressive models present was Tony Homden's 'Portsmouth Blockmaking Machinery'. The 'blocks' in question are those used in the rigging of ships and the original gear, still in use in 1960, was designed by Marc Brunel in 1805. It was one of the earliest examples of mass production. In the model the sawing, drilling, morticing and turning operations of the original are reproduced and properly formed 'mini' blocks (made from low density plastic) are made. Not only does the model work well but much care has been taken to keep the model to scale.

Two Locomotives, both in the course of construction, were shown. Bob Ford's was a Garrett type 'Half Fairlie' – apologies if the terminology is not right; at any rate it is really two locos, back to back and articulated. Much detail is included and the wheels, built up using axle rods as spokes, are most realistic. Ted Brooker showed his Shay narrow gauge locomotive, based on the photos which GMM issued some years ago.

Ray Senior and his son Daniel brought along a number of models and among these was a SML 4 Blocksetter and an attractive Articulated Lorry. Bill Roberts, too, brought several models which caught the eye. There was a Man Pushing a Lawn Mower and a Stage Coach drawn by two 'Konkoly type' horses powered by a PDU. Bill's models are an object lesson in the art of exploiting original ideas with ingenuity. And most of them also fall into the 'small is beautiful' category which should inspire anyone with limited space available for model building. Peter Roberts also displayed several models including a rather nice Steam Engine.

Now for a spot of nostalgia. Alf Reeve has recently acquired a 1929 type Steam Engine and he showed it propelling a Paddle Steamer (design from the same era) up and down the Club Room floor. It was so quiet and so smooth, and so evocative of times gone by!

It is not possible to write about all the other models present, but mention must be made of Tony Rednall's Hymac Digger, well worth seeing again, and a nice Veteran Car made by Paul Eddington. Paul was among several junior members present who used to attend the Junior Society. Unfortunately the latter, at least for the time being, no longer operates independently, but junior members are very welcome to attend the main meetings. And finally for this show, many thanks to the ladies who provided the refreshments during the meeting – most excellent as always!

On Sunday, 16th July, the Society put on a "Mini Exhibition" locally, at Park Place Special School, and many members came from considerable distances to help. The Roberts family from Godalming and Ray Senior from Harlow set up the main model display and they were joined by Frank Palin all the way from Tunbridge Wells. Tony Homden and Alf Reeve put in sterling work with, representing the juniors, Paul Eddington. The result was a fine display covering subjects such as Block-setting Cranes, a Meccanograph, a working Loom and a fine group of vintage Meccano Aeroplane Constructor aircraft.

In closing, it should be mentioned that Geoff Wright hopes to run a coach to the Midlands Meccano Guild's Stoneleigh Exhibition. Anybody wishing to attend, or anyone wishing to join our Society, should contact Geoff, our Secretary, at 165 Reading Road, Henley-on-Thames, Oxon, RG9 1DP.

Tony Knowles

THE HOLY TRINITY MECCANO CLUB

The 22nd meeting of the Club was held at Hildenborough on April 29th, 1978. The hall was opened up just after 12 noon and tables were soon laid out for the models. Vi Palin was agreeably surprised at the improvements to the kitchen, which had been completely modernised and made larger. With help from Mrs. Senior, the refreshments were prepared and soon tea and biscuits were available for the early arrivals. Mesdames Schoolar and Barak were on hand later on to help with the main refreshments.

About 2.00 pm, the Chairman, Eric Schoolar, welcomed new member Ian Robertson and visitors. He asked members to clearly label entries for the Stuart Wilson Cup so that voting could take place later in the afternoon. General tour of the models took us up to a short business meeting at 4.00 pm.

The Secretary had some interesting items of news. He had been approached by DRS News Services to assist in some publicity for Meccano Ltd. This was to take the form of an Exhibition on 4th May of Meccano models built by enthusiasts. In view of the short notice, the Secretary had contacted certain members who might be in a position to help. The exhibition was primarily for Press, Radio and TV reporters and eventually the following models were taken to Dryden Street (off Drury Lane), London, on 4th May, 1978: Michael Martin's Tiger Tank; David Whitmore's Maudslay Table Engine and Horizontal Single Cylinder Stationary Steam Engine; Frank Palin's Guilloche Designing Machine. David and Frank were present to demonstrate the models and incidentally to make sure the models were not damaged. Geoff Wright, Bob Faulkner and Ian Henwood from Henley, and Tony Rednall from the Solent Club were also there with their models. David and Frank were able to have short talks with Chris Jelley and George Flynn (Managing Director, Meccano Ltd.) and were able to put to them some of the points raised by members. From the interest shown by the representatives of the media, it certainly put Meccano into the "good class toy" category and also capable of being used by enthusiasts for model engineering.

The next item mentioned was the exhibition at Horsham held on 22nd/23rd April. Notice of this had been given earlier and the response was good. Bill Roberts and family had a display of models on the Saturday, their place being taken by Bert Halliday on the Sunday with his Showman's Engine, Meccanograph and Railway with Tank Engine. Bob Ford showed his Mobile Crane, and Michael Edwards had his Volks Railway, Austin 7, and the Electrikit Fire Engine in operation. Alan Niell's sons showed two Cranes in Plastic Meccano on the Saturday. Frank Palin took along the novelty Lighthouse and Supply Ship, and on Sunday, Eric Schoolar took along his Half Track Military Lorry. The organiser, John Edwards, thanked all those who attended and expressed the hope that next year we could do even better.

Tony Homden, the President, gave a short talk on the background of the Club and mentioned the large amount of historical material he had acquired from the founder, Stuart Wilson, of the first Holy Trinity Club. He promised to select some items and bring them along to the October 1978 meeting.

The time being 4.30 pm, refreshments were available and after a vote of thanks to the "tea ladies" had been passed, tea was taken. The Secretary proceeded to collect outstanding subscriptions and visitors' tea money, whilst members voted for the Stuart Wilson Cup model. The winner was David Whitmore for his Cornish Beam Engine, and the cup was presented to David by the Club President. Talks on a selection of the models were finally given and the meeting then closed.

Frank Palin, Secretary
22 Highfield Close
Penbury, Tunbridge Wells
Kent, TN2 4HQ

MIDLANDS MECCANO GUILD

The lastest edition of the MM was worth waiting for – even though I received my copy on the same day as the Competition closing date! The appearance of the Guild January Newsletter brought some quick replies from non-guild members supporting my remarks about the attitude professional' take to the Meccano system as voiced in the BBC television programme "Young Scientist" of January this year. These chaps also supported my theory that Liverpool are not aiming high enough with their sales drives.

Plans are being made to hold an International Model Engineering Exhibition at Stoneleigh in 1980. This will be in addition to the Town and Country Festival and it will probably be held over five days in May. Will all members give this some thought because Meccano could really go to town and get a good showing. Camping arrangements would be the same as usual, as far as we know, with the Rank Village, a kind of dormitory accommodation, being available for persons staying without their own accommodation. Meccano Limited will be asked to join us by putting on a Trade Stand with our Exhibition. Our men at Stoneleigh will keep us informed on future developments.

Referring to the forthcoming Town and Country Festival at Stoneleigh, Ken and Nicholas Wright, David Goodman and I attended a meeting at the Ground on Monday, 26th June, when we had rather a shock. Owing to an unfortunate incident last year when a car and trailer caravan collided with an engine on the level crossing of the Echills Wood Railway, causing considerable damage to the engine although no one was hurt, the Organisers have clamped down on all vehicle movement during the show. It has been laid down that all exhibitors' vehicles *must* be off the showground by 9.00 am on Sunday and Monday of the show and in the free car parks provided. (No. 5 car park is the nearest to the hall). On the Saturday, all exhibitors' cars must be off the showground by 10.00 am.

The whole of the Model Engineering Section will be housed in the Tate and Lyle Hall on the Main Avenue near the Rank Centre. The Guild Exhibit has been entered for the Sunday Mercury Trophy which is a competition sponsored by the Sunday Mercury Newspaper for the best exhibit in the Model Engineering Section. So, to you who are attending the Show, please do your best and let's try to win the Trophy. The Town and Country Festival will be held at the Royal Showground, Stoneleigh, Warwickshire, on 25th, 26th and 27th August, 1978.

Ernest Chandler
86 Clopton Road
Stratford-on-Avon
Warwickshire

NORTH EASTERN MECCANO SOCIETY

The Mini Exhibition in Stockton-on-Tees YMCA was preceded by 32 cm. of snow the previous weekend! Nevertheless it was a great success and nearly 40 models were presented to an interested portion of the public on the Tees side area. This was our third exhibition in a year.

The Annual Meeting in March gave a pleasing report of things in general, with a fairly solvent state of funds for the first time since the Society was founded. Joseph Scarth was welcomed as a new member and Michael Gallagher was elevated to adult membership status. Special note was made of our Junior members who support the Society well at its major functions.

Several members attended the NWMG Exhibition at Wigan in April, and also the PMG Exhibition at Huddersfield in May. Both meetings served to renew friendships as well as to display and see a large variety of models.

At the Club meeting in May, Barry Wilkinson showed a fine model of a Suffolk Punch Traction Engine of unusual design; John Lythgoe brought along his Mark 14 Meccanograph and still insisted it was not the ultimate in this field. Chris Barron displayed a Stationary Steam Engine based on the Konkoly design, whilst Dave Dalton featured an unusual vertical designing machine as a freelance model. Frank Beadle presented a partly-built 4-cylinder car engine.

Plans are going ahead for our marquee at a large two-day event during June in the centre of Darlington, when we hope

to be well represented, in addition to at least one Steam Rally in Yorkshire.

Secretary : Frank A. Beadle

SOLENT MECCANO CLUB

The main feature of the Solent Meccano Club's activities since our last report has been the Club's second Annual Exhibition which was held in Fratton, Portsmouth, on Saturday, 13th May, 1978, at the Wesley Central Hall.

The Hall was available to us from 8.00 am, and members spent a hectic two hours setting up tables, arranging power supplies and setting up their models to be ready for the anticipated rush when the doors opened to the public at 10.00 am.

Unfortunately (or fortunately, perhaps, for those exhibitors who hadn't yet found time for a cup of coffee), the anticipated rush didn't occur until some time later, and ticket sales were very slow at first. However, by the end of the day, the Exhibition had been visited by about 650 people, more than sufficient to cover the Club's expenditure, so we can say that the show was successful.

There is no doubt that there was a splendid display of models of all types and sizes, ranging from a certain Henley gentleman's Strip Bending Machine to Harry Gower's giant model of a Vickers Dockside Container Crane which dominated the exhibition from the stage. The writer apologises to the exhibitors whose models are not mentioned in this report, but amongst those of outstanding interest were the following:

Tony Homden's most fascinating model of Marc Brunel's Block-making Machinery of 1805; Tony Knowles' display of sets and models covering almost all eras of Meccano; Michael Edwards' splendid model of the Volks Electric Railway at Brighton; Brian Gulley's large scale model Chieftain Tank; John Basham's SML 4 Blocksetter, in *current* colours of dark blue and yellow; a detailed model of a Darby-Savage steam-powered Digging Machine, built by one of our visiting exhibitors, whose name unfortunately I omitted to note; and, as described in our Exhibition Guide, due to typing errors, the exhibition's most mysterious model, by Eric and Michael Dormer – a Meccanograph De Singing Machine! Perhaps this has some connection with unpopular vocalists ?

Thanks are due not only to our own members for their hard work in connection with the Exhibition, but also to those visiting exhibitors from Henley and from the Holy Trinity Meccano Club.

B.W. Williams (Secretary)
7 Thorndike Road, Maybush,
Southampton, Hants SO1 6FN

SOUTH EAST LONDON MECCANO CLUB

The eighth meeting of SELMC took place at the Salvation Army Hall, Welling, on 8th April, 1978. Doors opened at 2.00 pm and by 3.00 pm, we were ready to commence the tour of models.

Adrian Ashford demonstrated his model of an "Ajax" 50 ft. Wheeled Fire Escape. It is built to a scale of 1¼": 1 ft. from a scale drawing kindly supplied by the London Fire Brigade. The ladder is in three separate sections: a main ladder and two extensions. The complete ladder is mounted on a wheeled carriage. When at its maximum angle (80°) and fully extended, the ladder reaches a height of 5' 2½", the correct scale height of 50 ft. A model of a London Fire Brigade pumping appliance to carry the escape is at present under construction.

Richard Greenshields showed a part freelance model of a "Hatra" Tractor Shovel based on a "Matchbox" vehicle. At present it is unfinished, but the essential movements are completed.

David Whitmore demonstrated his model of the Darby-Savage Digging Machine which was widely used in agriculture. It consists of two parts, the digger itself and the land vehicle. The digger is the rearmost portion and consists of a 12½" x 3" diameter cylinder which represents the double boiler. The bulky roller wheels placed below the boiler propel it along the ground. Various linkages enable the five sets of digging forks to be operated. The land vehicle is used to steer the digger and to adjust the entry of the digging forks into the ground. The forks can be disengaged to enable the digger to travel from one place to another.

Other models were as follows:–

Geoff Davison – Double Fairlie Locomotive & Milk Float, both from Meccano Magazine.
Frank Palin – Novelty model of Lighthouse with Supply Ship and Meccano Guilloche Machine (designed by Andreas Konkoly).
Neil Bedford – Cargo Crane, Armoured Scout Car, Custom Dragster and Articulated Low Loader.
Peter Clay – Electric Mobile Crane based on L Outfit model.
Eddie Oatley – Level-Luffing Crane.
Stan Bedford – Gantry Crane.

Also present were Richard Whitmore, Bob Walter and David Smithers. The date for the next meeting is Saturday, 8th July, 1978, at the usual time and place. Anyone interested in joining, please contact the Secretary:

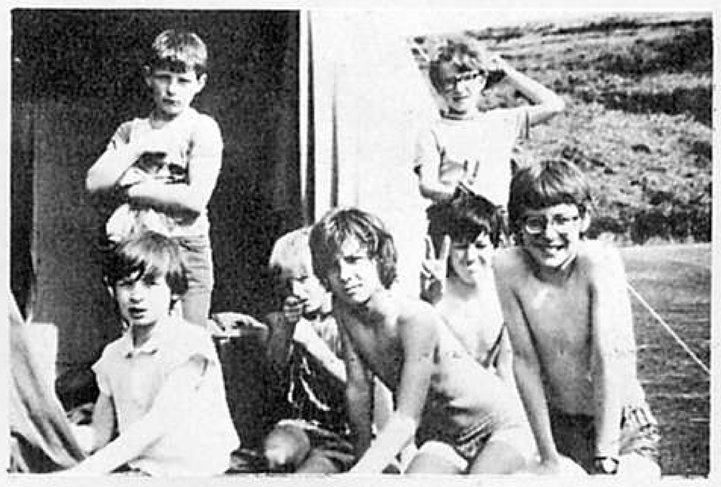
Christopher Warrell (Secretary)
41 Beechhill Road, Eltham,
London SE9 1HJ

WELLINGBOROUGH & DISTRICT MECCANO CLUB

Since our last report members have enjoyed two outings to local works. In November of last year, we visited Wellingborough Locomotive Depot, and were shown around the outside of a Class 45/1 and Class 08 Locomotive. Various questions were answered on these two Locos, then we were privileged to be shown around the engine room of a Class 25/3 Loco. Great interest was displayed in the engine and all the electrical gear in the cubicles and, when finally we entered the cab of this Loco, the engine was started and all the relative controls operated for the members to see. With the assistance of a shed driver, I myself was able to help in all this, as I am employed as a driver by British Rail.

After shutting the engine down we were shown around the TOPS office by the Train Crew Supervisor. TOPS are the letters given to the computer system which tells you where any freight wagon is in any part of the country. The persons responsible for permitting our tour were thanked for a very pleasant and instructive three hours, and we made our way home.

Members of the Guisborough Meccano Club pictured while out camping at Whit this year. We wonder if they took their Meccano Sets with them!



The following month, a visit was made to the British Leyland Foundry at Wellingborough, kindly arranged through a friend of mine who is an employee of the company. The minimum age for this visit was thirteen, which rather limited the number who could go. However, a party of eight or so commenced our visit at 20.30, this being the best time to see everything working. We were shown around the various stages of making the moulds for the engine blocks which is the main production item at Wellingborough, then we saw the Electric Furnaces in action, and the molten metal when ready, being poured into the moulds. The last section seen was the Fettling Shop where the engine blocks are cleaned up prior to despatch by road and rail to other British Leyland plants. The surprise of the evening came when, at the close of our visit, we were shepherded into the canteen, where a giant teapot and pile of pastries and biscuits awaited our welcome attention. A very thoughtful touch to round off a pleasant evening, thoroughly enjoyed by all, and it was almost midnight before we dispersed to our homes.

Our Club is flourishing well. In February of this year, we had to split into two groups to enable more children to join, as several enquiries had been received from interested parents. This has proved to be successful and I am now kept on my toes by the young Meccano engineers of the Club.

We have been pleased to welcome the following new members into our Club: P. Bewell; P. Chandler; R. Goodliffe; L. Mynard; C. Richards; and P. Rzepka.

Before closing, I would like to wish the best of luck to a correspondent of mine, Bob Bowley from the USA, who has formed a Meccano Club out there. It must be very frustrating awaiting the arrival of parts from England.

Terry Pope, Secretary
16 Princess Way
Wellingborough
Northants NN8 2HJ

CHILEAN MECCANO CLUB

The Chilean Meccano Club, in association with Bianchi Y Cia Ltda, of Santiago, Meccano's Distributor in Chile, have been doing much to make Meccano known in their area. Currently each week, they organise a simple but effective Meccano Competition for boys aged between 7 and 15 years old. Once a week, a Meccano Competition coupon appears in the local paper and boys between these ages are invited to send the coupon to the Distributor. Lots are cast and ten boys are selected from the coupons for each of four different age groups: 7–8 years, 9–10 years, 11–12 years and 13–15 years.

In all, 40 boys are selected and, each Saturday, these go to the local school's Liceo Lastarria gymnasium where they are each given a No. 1, No.2, No. 3 or No. 4 Meccano Set according to their age group. Using the sets, the competitors race to complete one of the instructions book models for their set, the model being previously selected by the organisers. The winner in each group receives as a prize a Meccano Set of the size he has used to build his winning model.

So far, the Club, with the Distributor, has held five contests, which are proving extremely popular, and they plan to hold seven more. The Club also invites older Meccano enthusiasts to build models and these are exhibited to the boys taking part in the competition. It is all helping to establish Meccano in the area and so successful have the efforts been that the YMCA has invited the organisers to hold competitions in the YMCA and the premises have also been offered to the Club for Club meetings each Saturday.

Anybody interested in joining the Chilean Meccano Club should contact M. Bianchi, Miguel Claro 039, Santiago, Chile.

SOUTHERN CALIFORNIA MECCANO CLUB

The Southern California Meccano Club held its Spring meeting on Saturday, 1st April, at the residence of Clyde Suttle in Garden Grove instead of the residence of Doug Lock who was in Canada on business at the time. The Corresponding Secretary reported three new members since the last meeting. Out-of-town members present were Timothy P. Holls of Wappingers Falls, New York and Ricardo de Sobrino of Palo Alto, California.

Anton Calleia presented a Dockside Loading Crane; Barry Holland showed off a small Radar model his son had made and Ricardo de Sobrino had a small electric motor-driven epicyclic gear train demonstration plus a very neat simplicity model of a Motorcycle. Clyde Suttle toted out a couple of older large Meccano Sets plus an American Model Builder Set that were too heavy to display elsewhere.

The major item of business was a discussion of the Club Members' participation in a plan for the construction of display and demonstration models for toy stores selling Meccano in the Southern California area. Parts for this project would be furnished by AVA International Inc, Meccano's U.S. distributor. The meeting eventually came to an end after tenatatively setting the date for the Summer Meeting for Saturday, 8th July at the residence of the President, Anton Calleia.

Outside the meeting, other Club news is that Al Sternagle has completed his first compilation of an Erector parts list. It is an excellent piece of work and a real must for the Erector collector. A list covers the period from 1913 to 1977, giving the part numbers, names, and first-known date of introduction in 21 single-spaced typed pages. Bob Bowley has completed his Science Centre Workshop for metal construction sets at the Des Moines Center of Science and Industry. Eight boys pre-registered with at least four attendances each Saturday morning during a stretch of sub-zero degrees F temperature each morning. The prgramme was well received with the participants expressing a desire for an on-going programme.

Finally, we welcome into the Southern California Meccano Club new members: Brian M. Lilley Snr. of Ste. Foy, Quebec, Canada; Charles Pritchard of Cleveland, Ohio; and Frank T. McInerney Jnr. of Easton, Pennsylvania.

Clyde T. Suttle Jnr.
Corresponding Secretary
6062 Cerulean Avenue
Garden Grove
California 92645, USA

A group of contestants pictured after one of the Meccano competitions held in Santiago, Chile, and organised by the Chilean Meccano Club in association with Meccano's Distributor in Chile, Bianchi Y Cia Ltda. Standing at the rear left of picture are Club President Raul Gatica and Mr. M. Bianchi himself



CLASSIFIED ADVERTISEMENTS

Rates charged in this section are as follows: Private, 2p per word; Trade, 3p per word. Please send advertisements, with remittance, to: Meccano Magazine, Classified Ads, P.O. Box No. 4, Binns Road, Liverpool L13 1DA.

FOR SALE: Large Meccano outfit in mint condition – in excess of 2¼ No. 10 Sets including many non-standard Set 10 parts, *all* Multikit parts, electric motors (including Crouzet display model), transformers, etc. etc. Contained in special 4-drawer cabinet. Realistic offers only (best secures). Also quantity of literature. A. Thorn, Derwentside, Rowlands Gill, Tyne & Wear NE39 1PS. Tel: 02074-2219

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FOR SALE: Konkoly's best Meccano Model Instructions for No. 10 Set: Designing Machines, Clock, never-seen moving models. Pre-war Marklin, Stabil, literature, etc. All replies answered. Andreas Konkoly, H-1137 BUDAPEST, Katona J.u.28 III. em.17, Hungary.

NORTH WALES READERS

Mr. P. Greenhalgh of Rhyl is anxious to contact anyone in the North Wales area who may be interested in getting together to form a Meccano Club. Although so close to Liverpool, he says, the area seems to be "the outback" as far as Meccano is concerned! So anyone interested – and we hope there will be many – should contact Mr. Greenhalgh at "Hibernia" 4 Heol-y-Llys, Rhyl, Clwyd. LL18 4EE.

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FOR SALE: Meccano 4-drawer cabinet (empty), as new. Offers over £15 plus carriage. Other items, S.A.E. 25 Armitage Road, Birkby, Huddersfield.

FOR SALE: Quantity of yellow/blue/ zinc plated parts in very good condition. Full details obtainable from: Pollock, 62 By The Wood, Carpenders Park, Watford, Herts.

FOR SALE: MM's from 1952; other magazines also. S.A.E. for details. Terry, 18 Lidgett Place, Leeds 8.

FOR SALE: Meccano No. 10 Set in 5-drawer wooden cabinet. Extras include a Gearbox, Motor and many spare parts. Good condition: £100 o.n.o. Brooks, 18 Silverdale Road, Gatley, Cheshire. Phone 061-428 4661.

BILL INGLIS of Australia wishes to advise all his Meccano friends that he has moved house and requests that, if they have cause to write to him, they write to the following address: W. R. Inglis, c/o Springvale Post Office, Springvale, 3171, Victoria, Australia.

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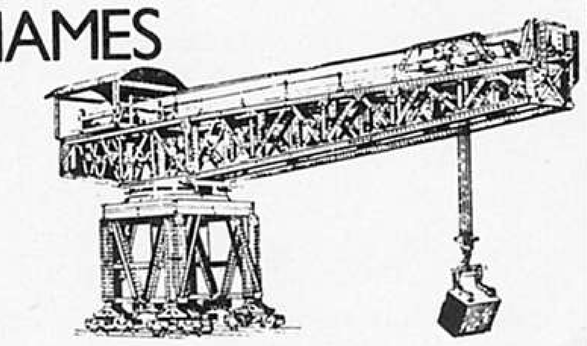
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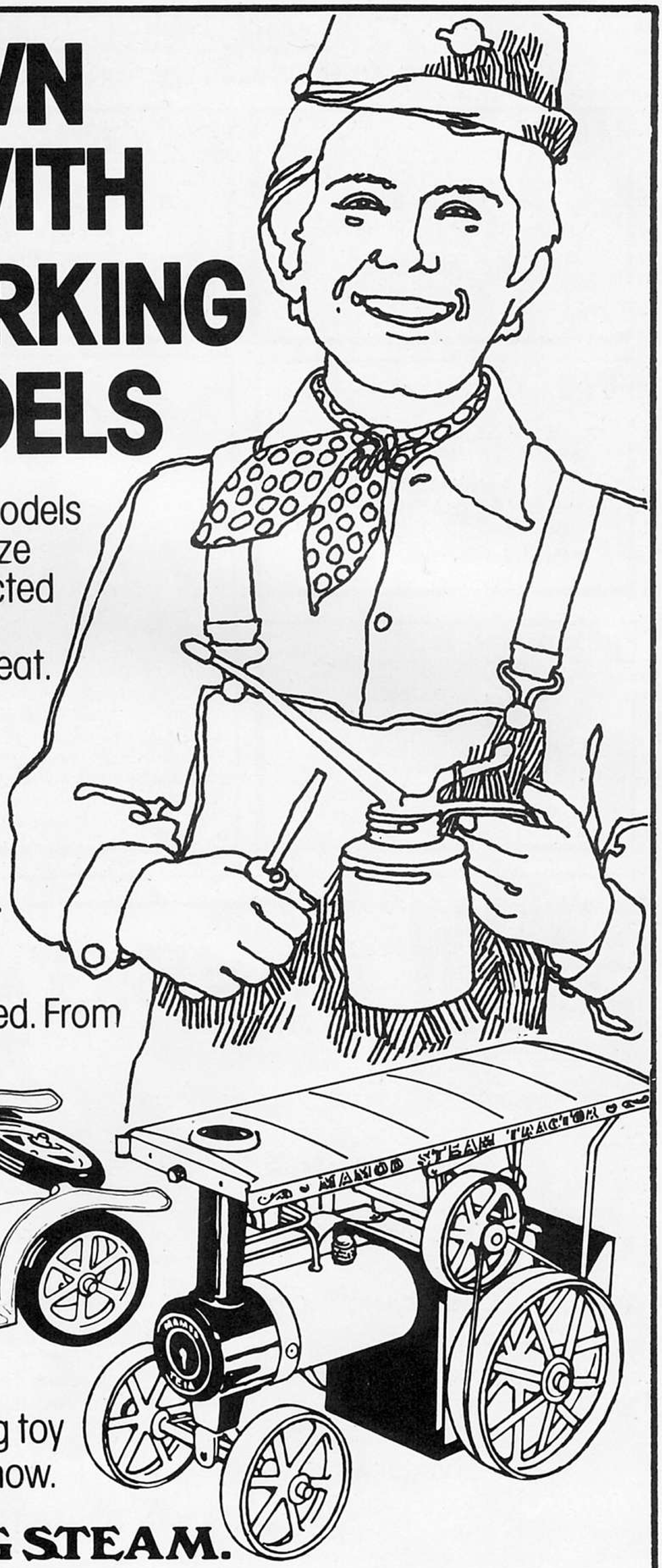
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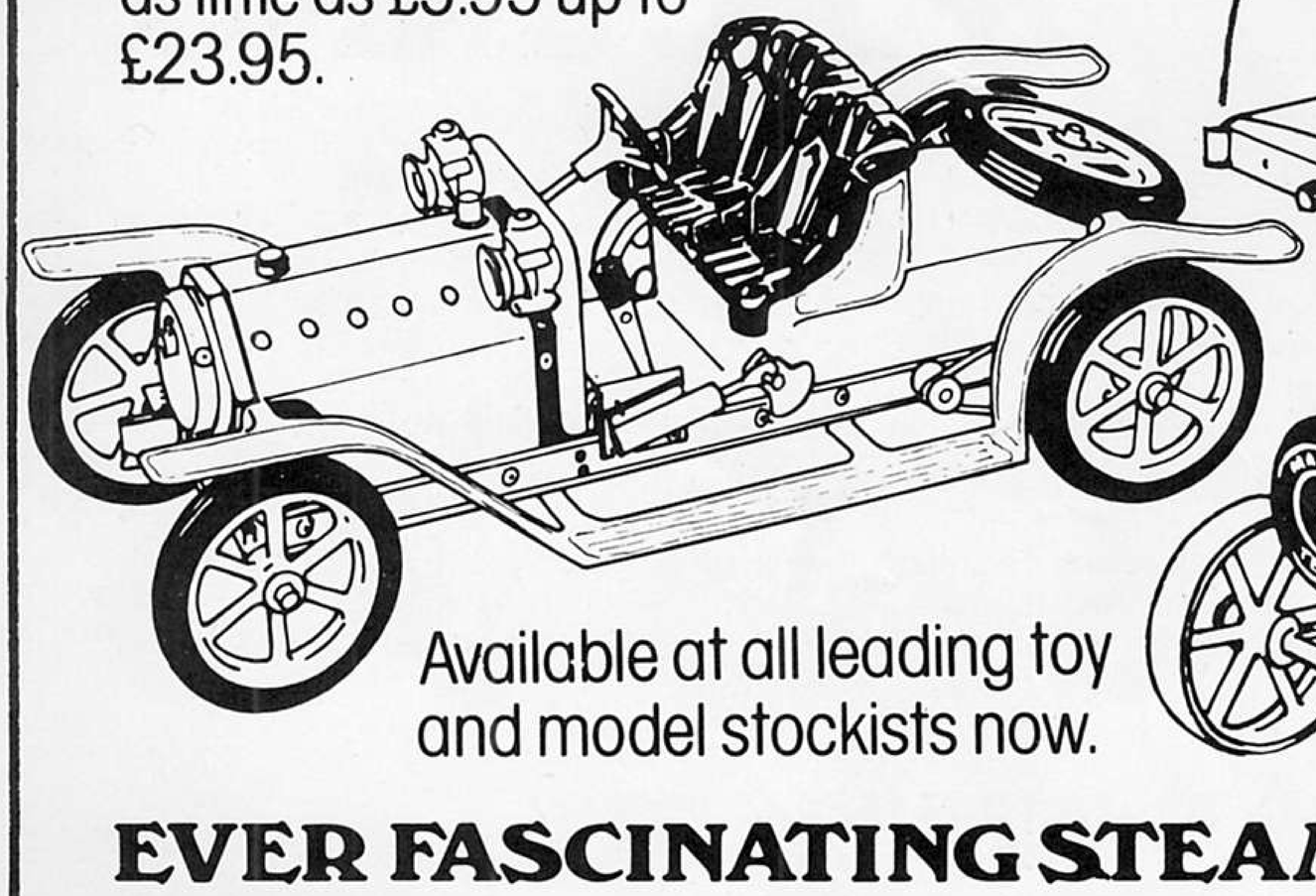


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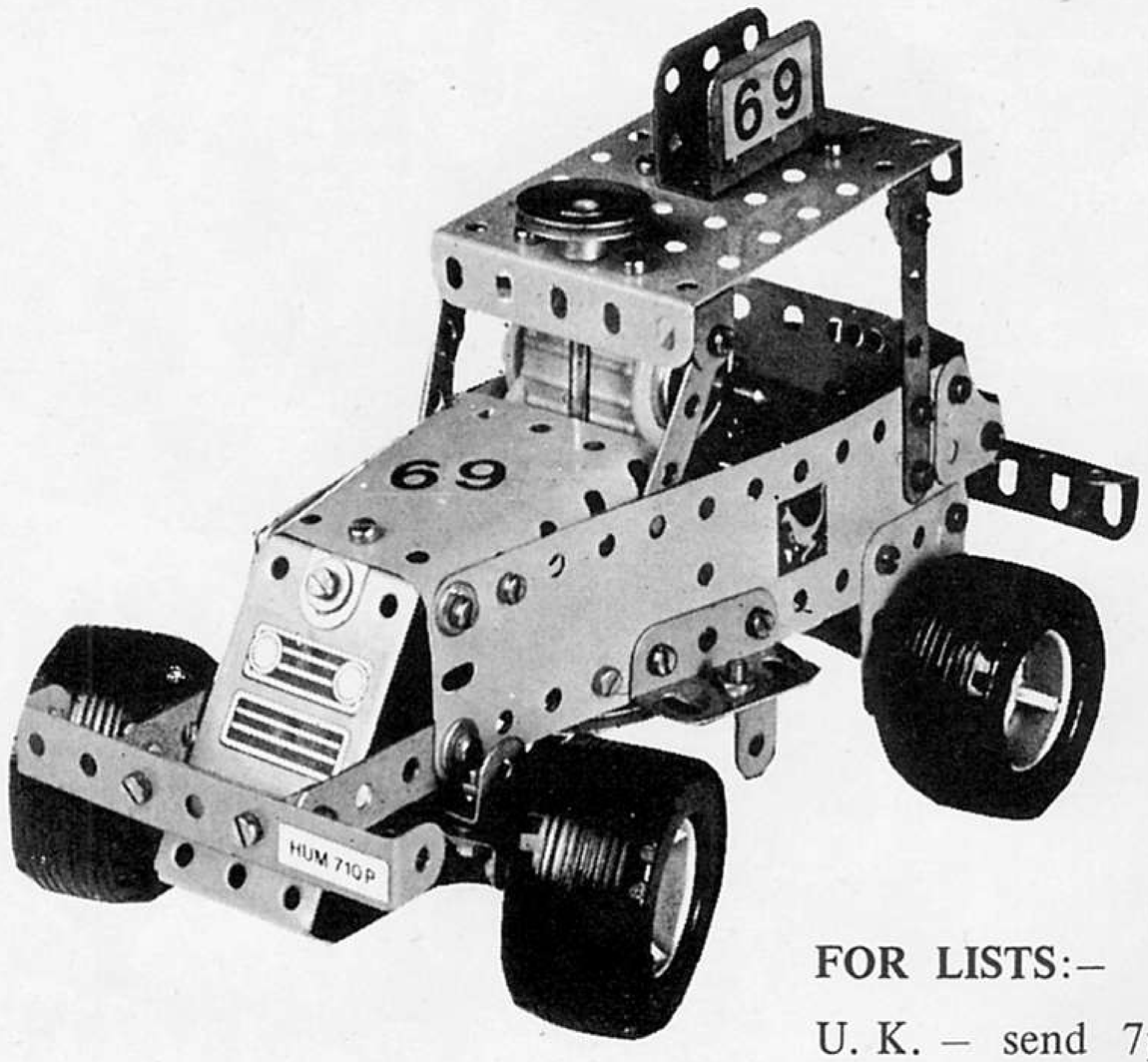
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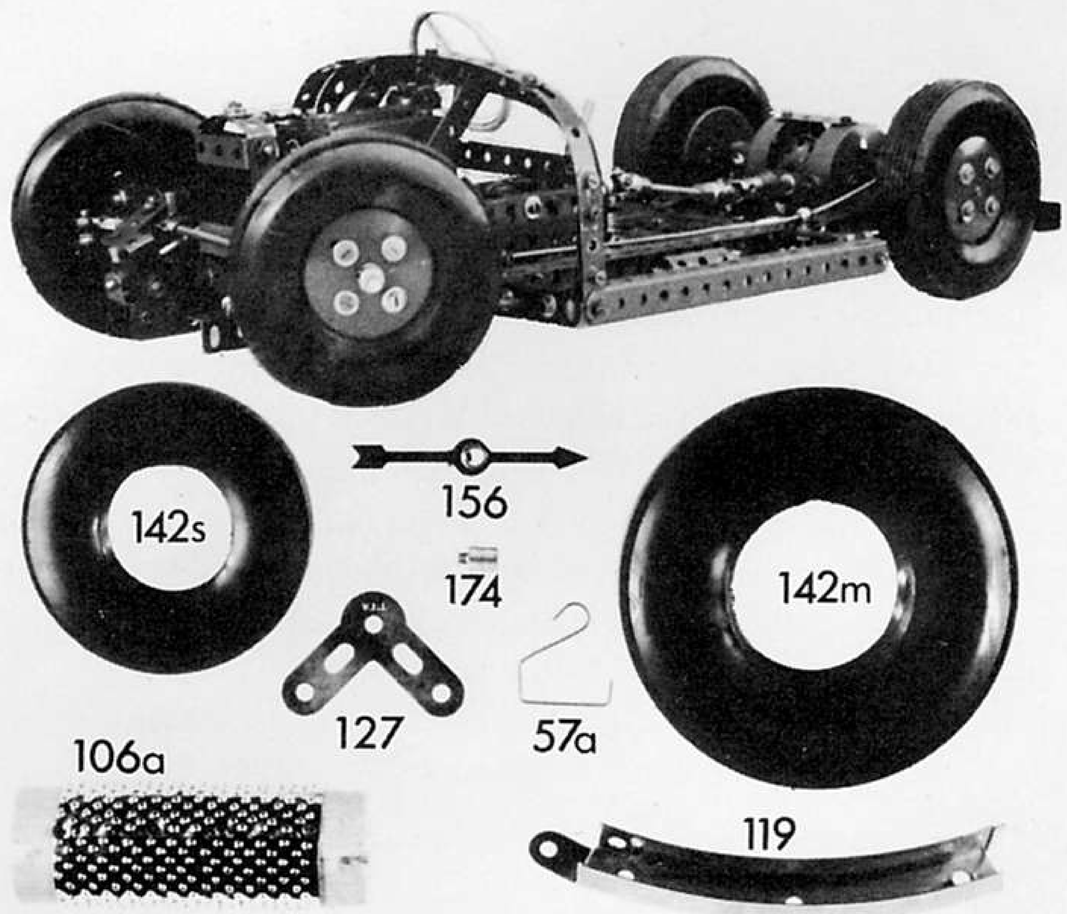
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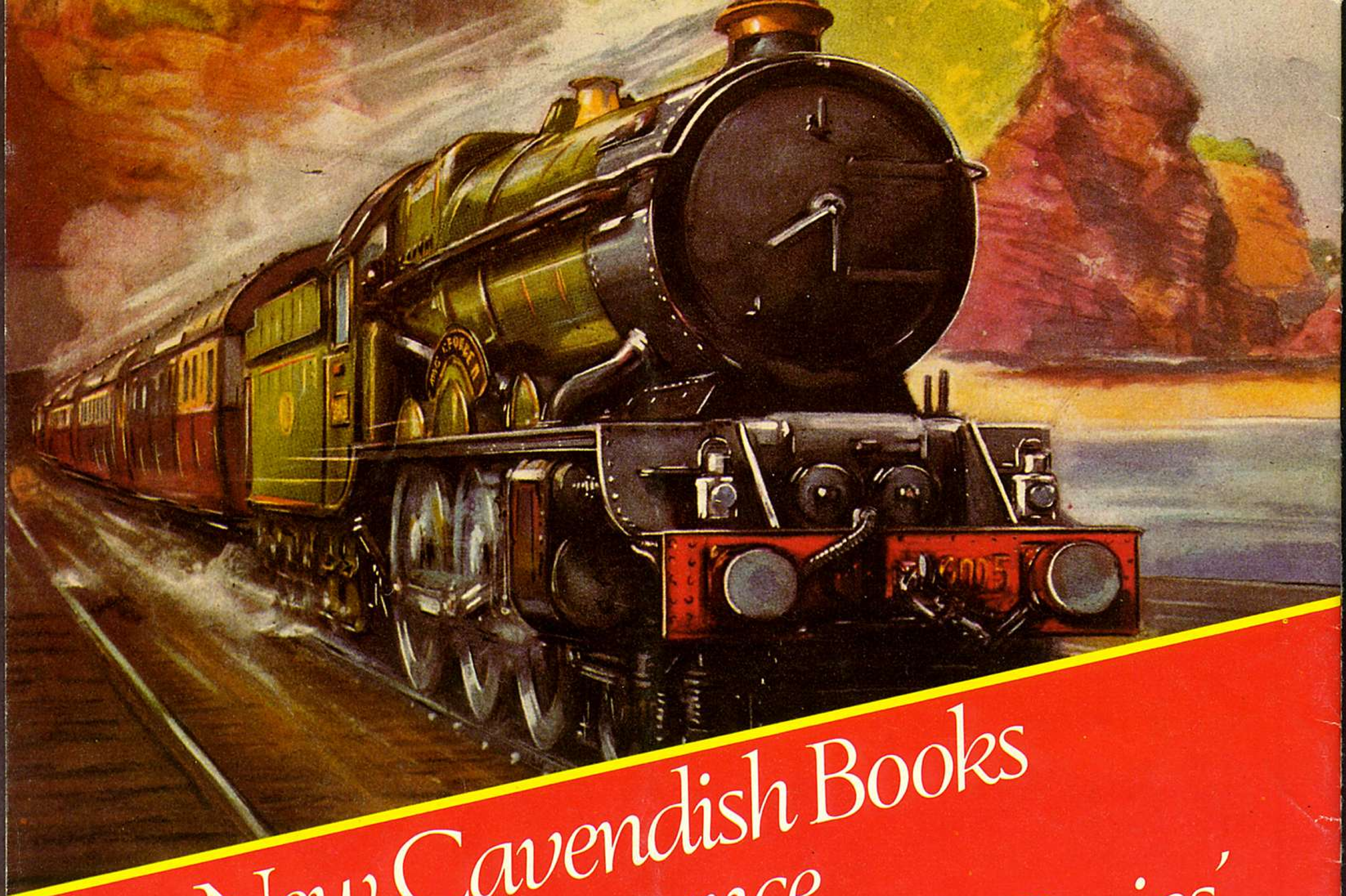
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