

VOL. XXVII. No. 12

DECEMBER 1942

MECCANO

MAGAZINE



A WELSH MINER'S DAY
(see page 414)

6^p



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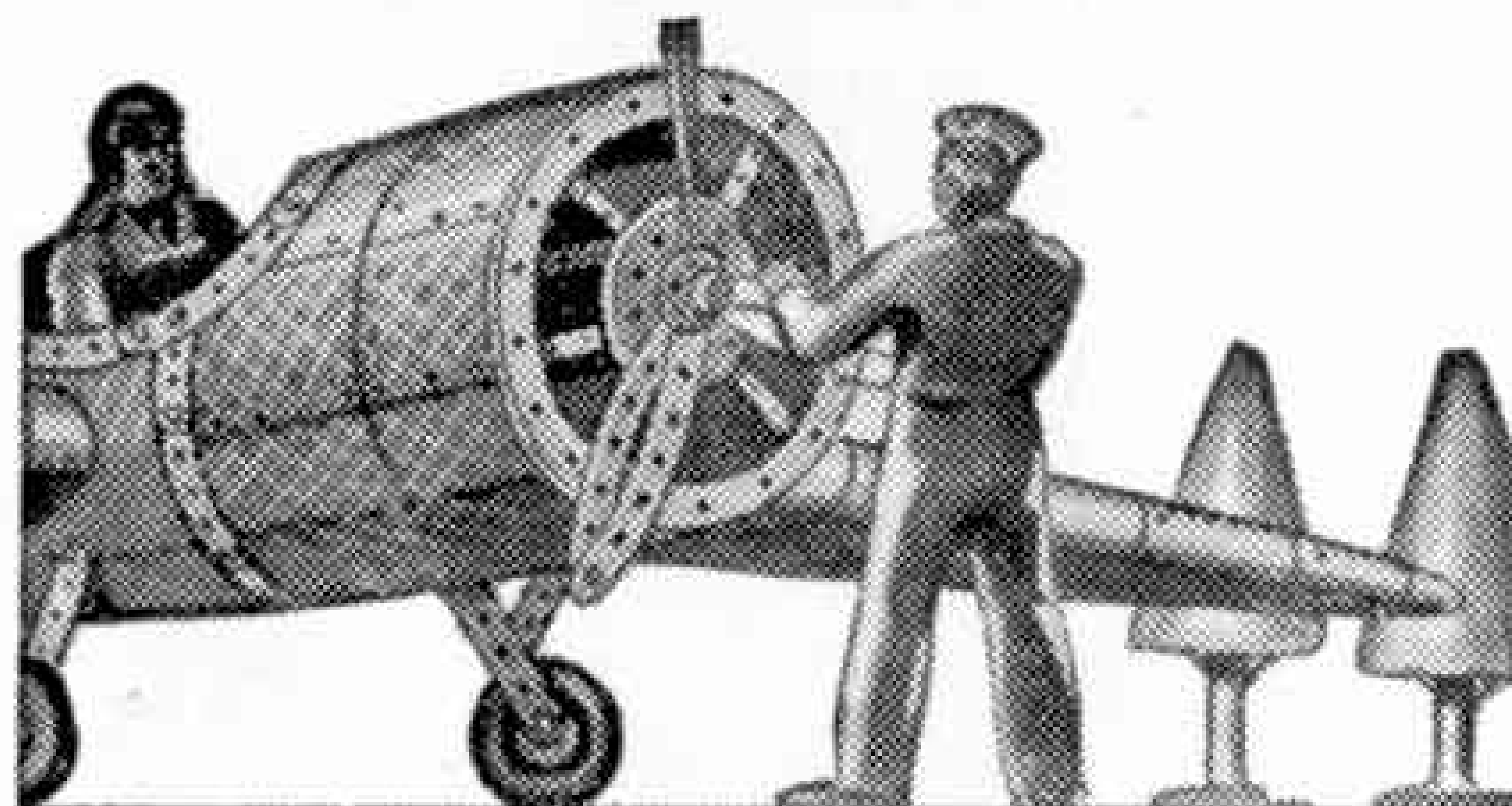
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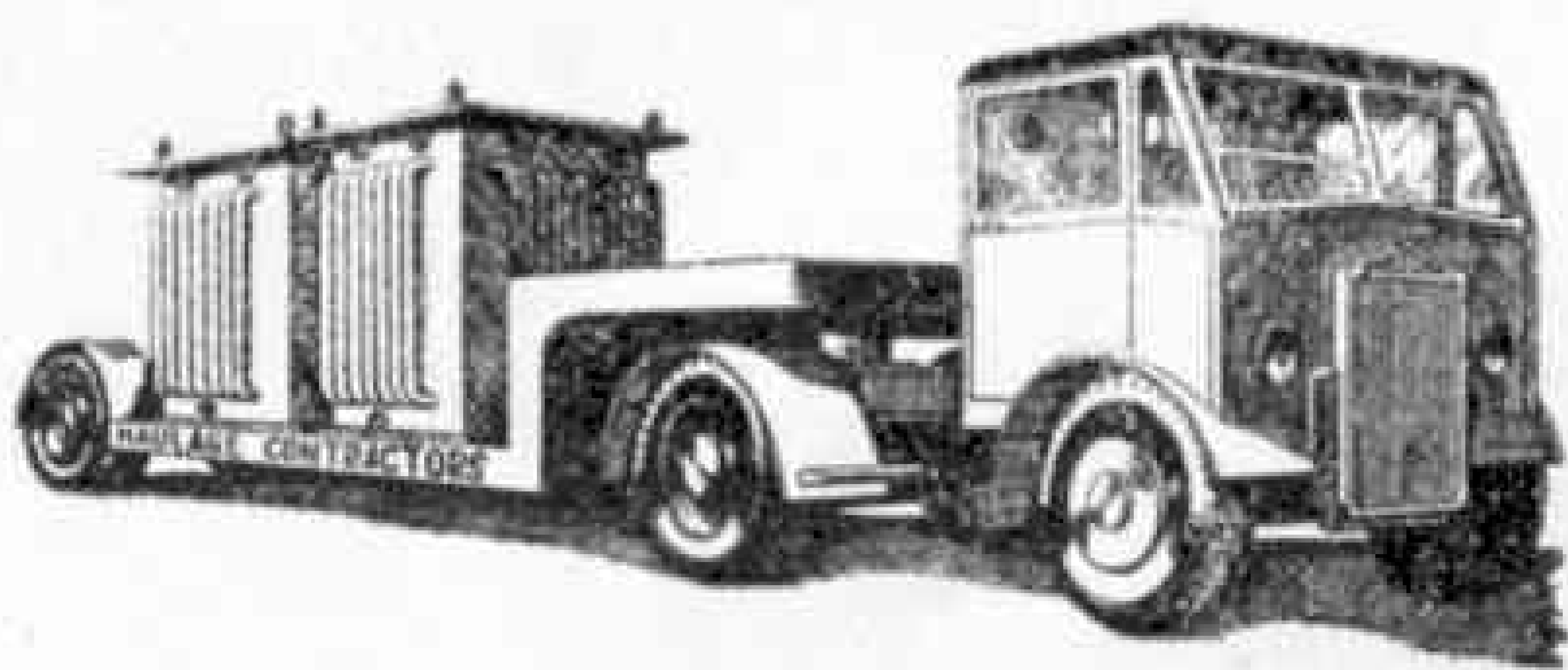
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MECCANO

MAGAZINE

Editorial Office:
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Vol. XXVII
No. 12
December 1942

With the Editor

First Year in "Pocket" Size

This month the "M.M." completes the first year in its 'pocket' size and, taking all things into account, it has been a successful year. To my surprise the change in the size of page has been welcomed by the majority of readers, and even those who disliked it have realised that it was a wartime necessity.

Unfortunately I am still unable to increase the number of copies printed each month, so that many boys must remain disappointed. I am glad to say, however, that the practice of sharing copies has grown considerably, and has greatly relieved the position.

I have no room here to describe the splendid articles in store, but readers may rest assured that the 1943 "M.M." will be better than ever!

The Late Captain Whitman

I am sure all my readers will be sorry to hear of the death of Captain J. E. A. Whitman, whose articles had become such a popular feature. All who enjoyed his splendid tribute to the Royal Marines in the September "M.M." will like to know that at his funeral the coffin was borne by six Staff Sergeants of that Corps.

Leaders in the War

Lt.-Gen. B. L. Montgomery

Lieut.-General Bernard Law Montgomery was born in 1887 and educated at St. Paul's school and Sandhurst. He joined the Royal Warwickshire Regiment in 1908. He served throughout the war of 1914-1918, and within a few weeks of going to France he was mentioned in despatches, and had won the D.S.O. for conspicuous gallantry in a bayonet attack during which he was severely wounded. In 1917 he was appointed a General Staff Officer, and between the end of the first World War and the outbreak of the present one he held a succession of important home commands, with a period abroad at the Staff College, Quetta, from 1934-1937.



Lieut.-General Bernard Law Montgomery, C.B.,
D.S.O.

In August last, at a few hours' notice, Montgomery gave up his post as Commander-in-Chief, South-Eastern Command, to take over the Command of the British Eighth Army in Egypt. He tackled his new job with characteristic energy and thoroughness, and the splendid results of his leadership are fresh in our minds. He has proved himself a great fighting General, and has dealt a mortal blow at the lingering myth of German invincibility.

A Day in the Life of a Welsh Miner

YOU ask me why I am a collier? Well, I suppose it's for the same reason that a farmer's son becomes a farmer, or a sailor's son follows the sea—it's in the blood. It's in the air, too, which is not altogether a figure of speech, for the smell of a colliery and the fresh wrought coal has for the miner the same fascination that the soil has for the farmer, the sea for the sailor, or the smell of the anæsthetic for the sister or matron.

More than that, the collier's life, being off the beaten track except within the last ten years or so, often meant isolation from other industries and outlook and the

coal is actually hewn.

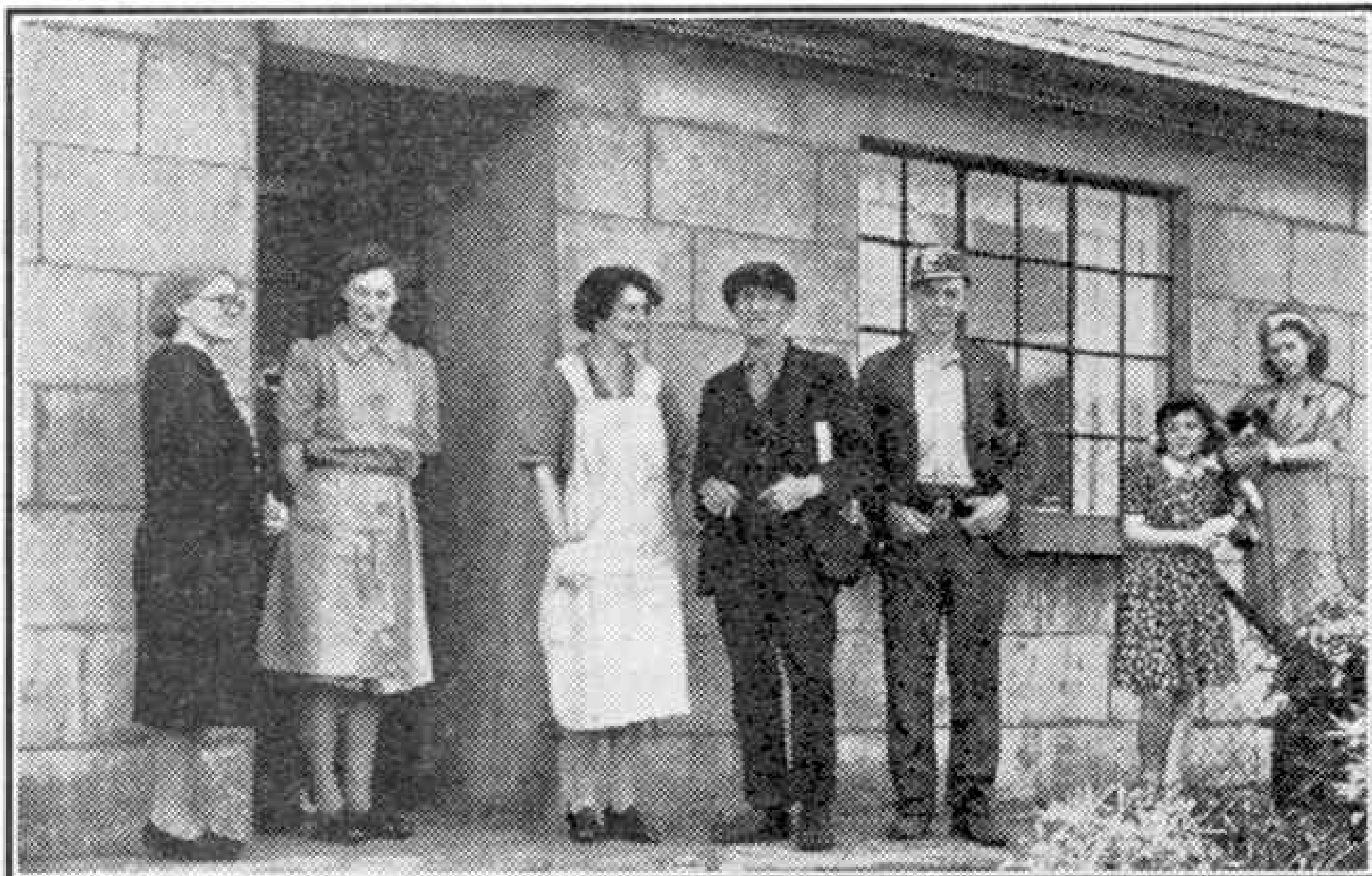
You ask me what a day's work is like in the life of a Welsh miner. Well, the day's work of each man is naturally very much a repetition, whether the worker is an underground haulier, hitcher, filler, coal cutter, engineman, or a surface worker. Each plays his part in the great cogwheel that goes to make a day's output.

In my case, I leave home so as to arrive at the pit for a descent not later than 7 a.m. On arrival, I change into my working clothes, which have been dried overnight in the drying room of

the pithead baths, hand in my indentification disc in exchange for my electric lamp, and make for the pitshaft. But, before descending, here and there a man is searched for matches or cigarettes. It is not a question of doubting a man's word, but of ensuring his own safety by strict observance of mining regulations. Even their Majesties the King and Queen were asked for these items before entering a Welsh munition factory recently.

Before I go on I must explain that

every colliery must have two shafts, at least 20 yards apart, one the "downcast" and the other the "upcast," both of which are used for winding coal. There are two cages in each shaft, one ascending while the other is descending. By means of these two shafts the underground workings are ventilated with fresh air drawn, by suction, down the "downcast." This is circulated round many miles of haulage roads and working places, so that pure fresh air is continually supplied to the hundreds of men below, to be drawn, finally, up the "upcast" shaft by a huge fan, which never ceases its task. The foul air drawn out by this leaves the "upcast" shaft by a side channel just below the



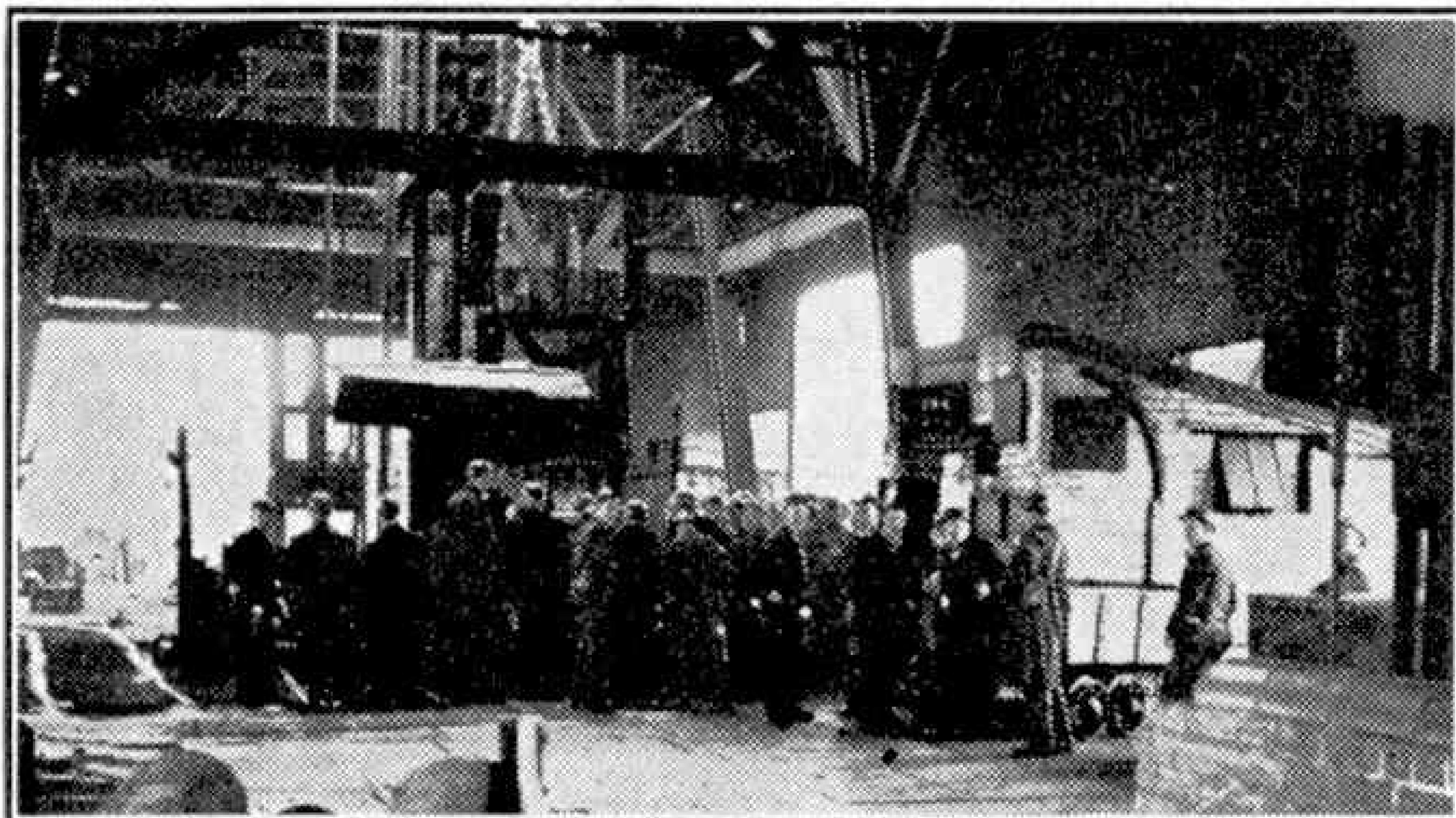
Breakfast over, the miner goes to the pithead for the day's work. The illustrations to this article are by courtesy of the Editor, "The P.D. Review," issued by Powell Duffryn Associated Collieries Ltd.

natural drift was to start where one's forefathers had sweated and struggled with nature for a living.

It is in the blood of the Welshman, too, that he should refuse to submit to conquest, whether from his neighbour or nature. That is largely why it took over 200 years for the Normans to subdue Wales, and even to-day the language and spirit of the Welshman prevails.

But I am wandering from the point.

I went underground at the age of 12, beginning as a door boy. As I grew older and stronger I became a collier's assistant, and about 40 years ago I started as a real collier, or coal cutter, and my work since then has been at the "face," where the



Assembling at the pithead for the descent.

surface. At large collieries where there are two or more decks to the cages, as many as 1,000 to 2,000 men often have to descend by these cages on each shift, and as many as 40 may occupy the descending cage.

To return to my day's work, after a quick descent in the cage of about 800 yards my "buddy," or working partner, and I make our way through various tunnels to our stall, which may be half a mile or more from the shaft. Others make for their various districts where coal is being won. As to the "face" where we work, let my readers picture us cutting at a wall or seam four or five feet thick of solid coal, which lies between a solid roof and an equally solid bottom. Our task is to separate the coal from the roof and bottom either by pick and crowbar or with a mechanical cutter, according to the method best suited for the purpose.

I have known only too well what a day's work means when using the pick. In general practice, and setting aside technical expressions, a cleavage has to be made by laborious picking between the top of the coal seam and the solid roof, and the bottom of the seam and the equally solid rock below. When a good depth is thus gained, a vertical cutting is made so that the particular section of coal is only held on to the wall of coal from the back. Here nature usually comes to our assistance for, after a very short while, sometimes even a matter of minutes, the squeeze between the roof pressing down and the floor pressing up, causes a fracture, and the big section sometimes cracks off with a roar. Mechanical appliances, driven by compressed air, which saw

their way into the top and bottom of the seam, now make this work easier, and blasting is a further aid.

And so, for the greater portion of a $7\frac{1}{2}$ hour shift, with a spell for a meal, the collier works, seeing little of the hundreds of men working the same seam on his right and left. Other men have their different underground tasks — fillers who load the cut coal

into trams, ostlers who care for the horses, hauliers who conduct the trams of coals from the "face" to the bottom of the shaft, and a host of others whose jobs are connected with the safe production of coal.

Do we get tired? Yes, like any men who do an honest day's work at the face in a temperature usually well above normal. We are both tired and hungry when we return to the daylight.



Miners working on the "face" with a pneumatic drill.

The pithead baths do much to ease the life of the collier of to-day. When I return to the surface I leave my dirty and wet clothes to be dried for the next day, enjoy a hot bath, dress in my dry clothes, and so home for a good meal.

A canteen is often available for those who desire it. These amenities do not apply to every colliery, but they were already fast coming into use before the outbreak of war.

I am often asked whether the miner is satisfied with his lot. Can you tell me of any grade of labour that does not ask for more if they can get it? I honestly cannot say that under existing conditions I am really dissatisfied. Now that I am getting on in years I should like to feel that I could enjoy retirement. But my early life, with its irregularity of work, and the fact that I have tried to educate a family, of which I have now just cause to be proud, have not enabled me to save. Still I have only to recall the tales of my father and grandfather, who worked 12 and 14 hours underground

school; but, nevertheless, many an old collier has instinctive invaluable knowledge of the working of nature underground. Nowadays the larger collieries and the



Young and old take full advantage of the pithead baths.

Education Authorities offer good opportunities for the young collier to study his calling and to rise to the top of the tree, leaving his parents behind.

For my amusements I have the male voice choir, in which I still sing, cinemas, bowls, recreation parks and theatres. Others have football, cricket, and the "dogs." Above all, I have a modern home and an allotment, which, together with an occasional visit to Cardiff, satisfy my requirements.

I can appreciate the natural cry of the younger man for more money, which is not peculiar to the coal industry. This increase we are in fact getting in the form of a bonus, so that it is up

to the young man to qualify for it. I am convinced that it is only a very small minority of colliers who are failing to respond to the urgent call for coal.



A good meal at home always awaits the miner after his day's labour.

under appalling conditions, for as little as a shilling a day, to appreciate the improvement in a miner's life.

My father was uneducated, and my own education was received in Sunday

Photography

Table-Top Pictures—II

THIS month we give the promised practical advice for table-top scenes, basing our hints on the two scenes illustrated.

The background of the snow scene is sketched on canvas in grey oil colour. Rough-surfaced paper and water colour could have been used just as well. It should be noted that it does not include any very definite features, so that it can be made to serve for a large number of different winter scenes. Readers who have no special drawing or painting ability need not hesitate to try their hands on backgrounds of this kind, because even quite rough results serve the purpose. Very little detail is necessary, as the background is never sharply focussed.

The foreground "snow" is ordinary kitchen salt, and the figures are made of Plasticine. The sledge



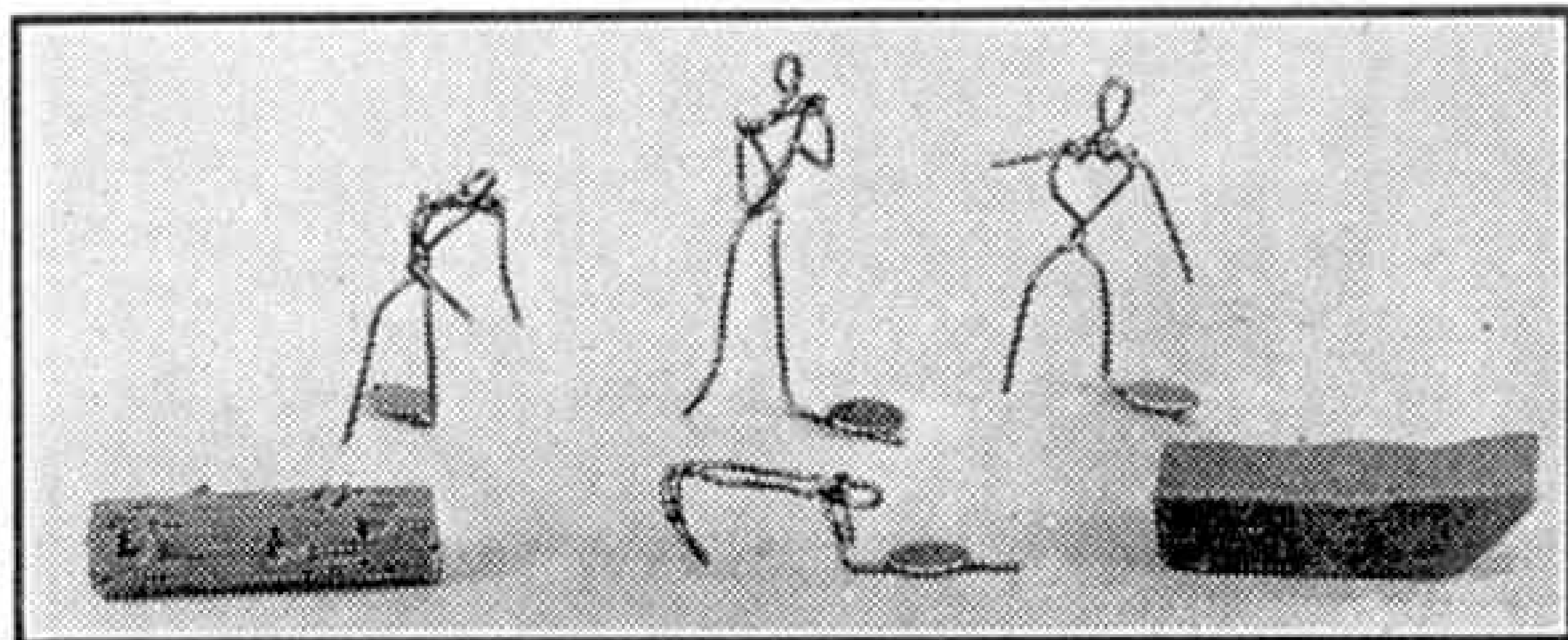
Bringing home the Christmas log.

When the figures were complete they were fixed in position with drawing pins as already described. Then the salt was added to form the "snow," and its surface was roughened to represent sledge marks and the footmarks of the figures.

The "motor smash" scene was prepared in a similar manner, the background again being roughly painted on canvas. The base consisted of grey paper, and the hedges were Hornby Hedging cut down to half its height. After the figures were fixed in position, sand was sprinkled to represent roads and to cover the drawing pins. The car and the lorry are Dinky Toys. They appear to be seriously damaged, but actually all that was done was to remove one wheel of the car bodily, and to take off the tyre of one of the wheels of the lorry. Thus the two Dinky Toys could afterwards be restored to their original condition. The boxes on the lorry are Hornby Imitation Bricks.

In table-top scenes it is important to pose the figures realistically. In the motor smash picture, for instance, the figures might have been arranged in many different ways. But the object was to convey the impression that the lorry driver is saying: "Blimey, guv'nor, it wasn't my fault," and there is no doubt that the posing does achieve this.

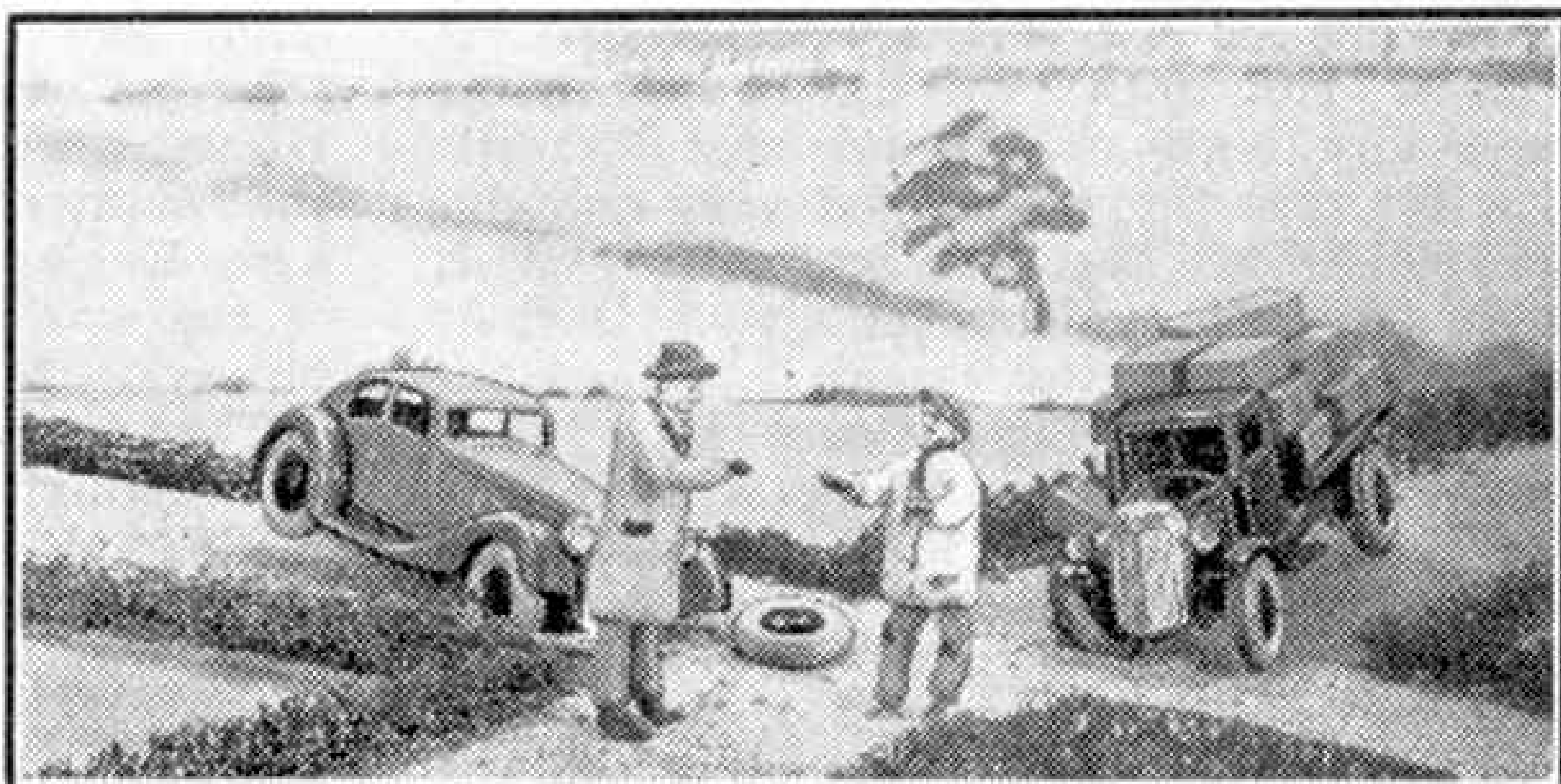
In next month's article we hope to illustrate and describe the design and construction of other table-top scenes. One of these will show how effective use can be made of the miniature figures of dogs, elephants and other animals that are to be found in most houses. These small creatures lend themselves particularly well to the production of humorous and grotesque scenes.



and the logs are simply lumps of Plasticine moulded to shape. The centre picture shows the construction of the figures.

The rough skeleton on which the Plasticine is moulded consists of copper or other wire. The exact thickness does not matter very much, so long as the wire can be bent easily and will "stay put" after being bent. The twisting and cutting is best done with pliers. It will be seen that for each of the "humans" two pieces of wire were used, one shaped to the head and arms, and the other twisted round the shoulders and then shaped to the body and legs. Two pieces were used also for the dog. One provided the near fore leg, head, back and near hind leg; the other made the off fore leg, and after being twisted round the neck, made the back and off hind leg. One leg of each figure was extended by about half an inch, and bent at right angles so that it lay flat on the baseboard. When the figure was completed, it was anchored in position by pressing a drawing pin down on this extension, as indicated in the photograph.

There was little difficulty in building the Plasticine bodies round the skeleton, using different colours for different parts. The eyes, ears, mouth, and other details were drawn in with a pen, using ordinary black ink. This body-building process will be found quite fascinating.



After the motor smash!

The Story of the Luftwaffe—II

By C. G. Grey

Founder of "The Aeroplane" 1911, Editor until September, 1939

THE first open sign of the Luftwaffe coming into existence was in about 1934, when an organisation called the Deutscher Luftsport Verband, or German Air Sports Club, took to wearing regular uniforms just like the present Luftwaffe, giving the Hitler salute, and parading with Swastika flags. This controlled 16 areas or groups all over Germany, and was sub-divided into regional groups, each of which included aeroplane and glider detachments. And their official newspaper was called the "*Deutsche Luftwacht*," or Air Watch. That was a pretty good beginning. But even then the Germans had no real warplanes.

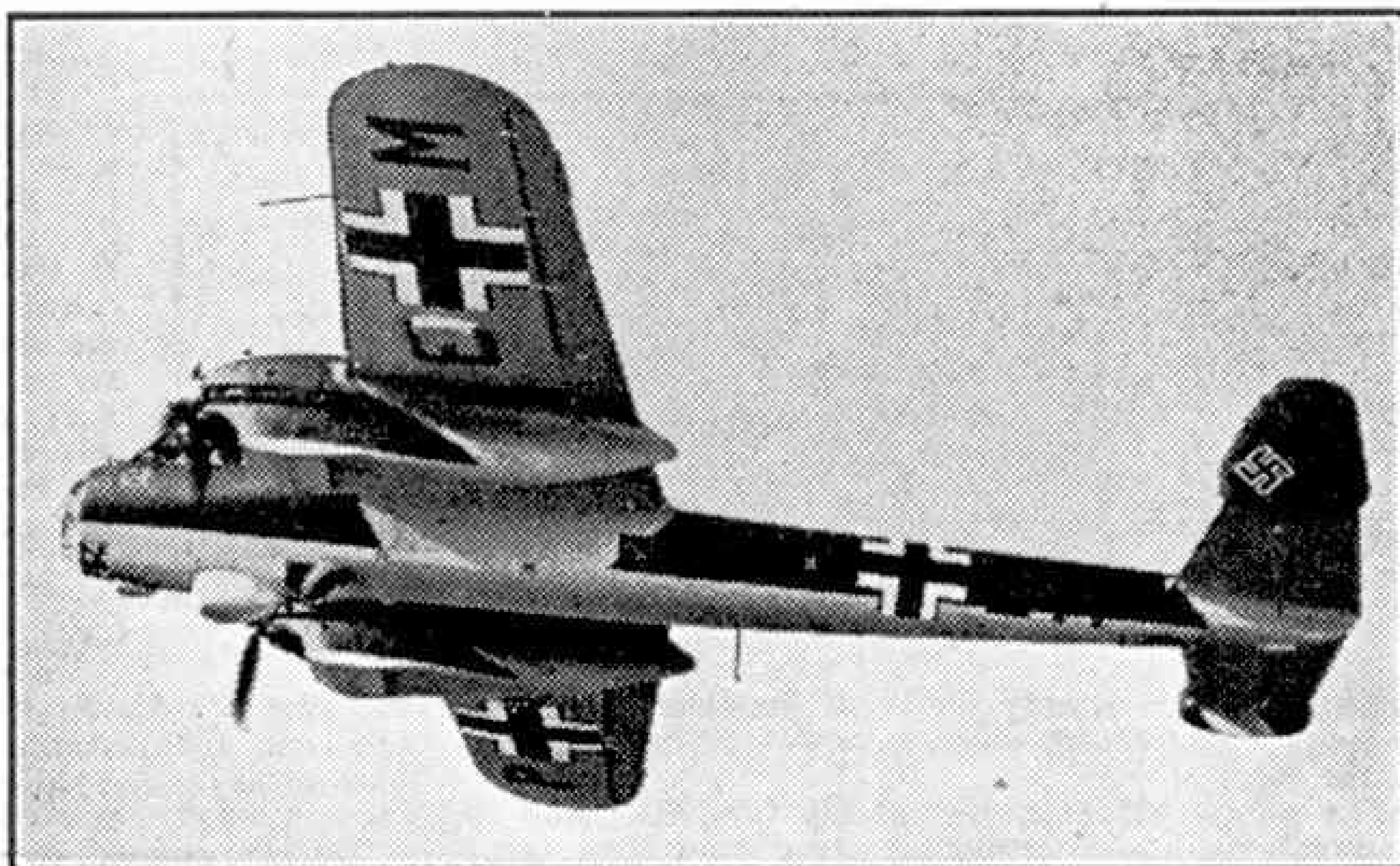
Not until 1935, only seven years ago now, did the Luftwaffe properly come into being. Young Goering, the squadron-leader of seventeen years before, was suddenly created General Goering, and he was responsible to Hitler, the Führer, through the Minister of Defence, General Blomberg. Looking back at the organisation of the Luftwaffe, as it was then, one is surprised to see that the name of General Milch does not yet appear. Several other generals whose names are now well known were in the organisation, but Erhardt Milch was State Secretary for Air and a director of Luft Hansa. Not until 1936 did the Germans have any high-power single-seat aircraft.

After that things changed very quickly. In 1936-7-8 we began to hear of Henschels and Heinkels, Messerschmitts, Dornier bombers, and all the names that have become familiar to us in the past three years.

By 1937 the Luftwaffe was a really big well-organised fighting force. At that time the German Air Ministry used to make a habit of asking English people to Germany to show us how they were getting along. I have been there many times with officers of the R.A.F. and officials of the Air Ministry,

technical people from our Royal Aircraft Establishment at Farnborough, and people belonging to our air lines, and private sports fliers as well. The Germans had a complete organisation called the Lilienthal Gesellschaft, or Lilienthal Society. Lilienthal was the first German who was killed flying—experimenting with a glider somewhere about 1900.

This great society used to give most elaborate entertainments. They used to give a big dinner and a dance, and to take



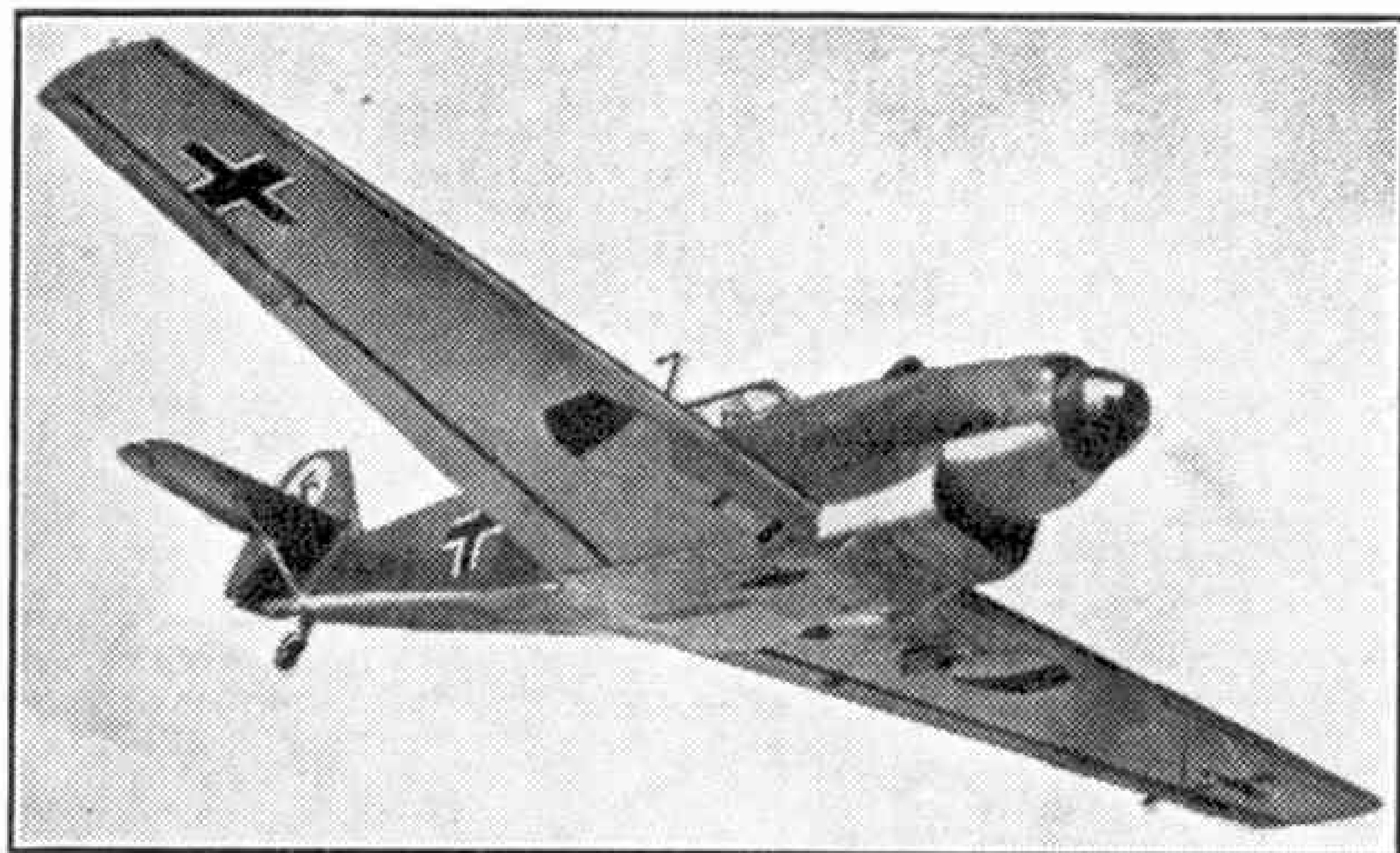
Dornier Do 215 Bomber—similar to the Do 217, but with liquid-cooled engines.

us round and show us their biggest and best and newest aircraft works, and all their research establishments and everything else.

Many of the important people in German Aviation were genuinely friendly to England, and privately disapproved of the schemes which Hitler and Goebbels and Himmler were working out. And I believe that many of them thought that in alliance with England, they could scoop up most of the world's trade, not only in aircraft but everything else.

Then there was probably another faction who thought that if they showed us all the Air Might and Power of Germany we might be afraid to go to war with them. Less than a year before the outbreak of the war I went with a number of the most important men in the British Aircraft Industry to visit the Heinkel works near

Berlin, their biggest and newest and most beautifully organised aircraft factory, and they took us round and showed us every-



Messerschmitt Me 109 Fighter in flight.

thing.

About the only thing they did not tell us was the number of machines they were turning out and the size of their Air Force. But knowing how many aircraft firms there were, and seeing the rate at which their people worked, there was no great difficulty in calculating about what their output was.

I have never believed that the German Air Force was as big in 1938-9 as the alarmists said it was, but by then they were turning out machines at such a speed that between the middle of 1939 and the middle of 1940, when they broke through into Holland and Belgium and France, they must have put an enormous number into store, and they had twelve months in which to train quite a lot of air-crews. So when the war really began in the middle of 1940 the Luftwaffe was a very big show.

One of the most interesting things about the Luftwaffe is that at the time of writing, the middle of 1942, they have only one type of aeroplane in use which was not known to be flying before the war—that is the Focke-Wulf 190. Their best fighter is still the Messerschmitt. Its engine has been hotted up, its armament has been altered a bit, it carries more armour, and its performance all round is

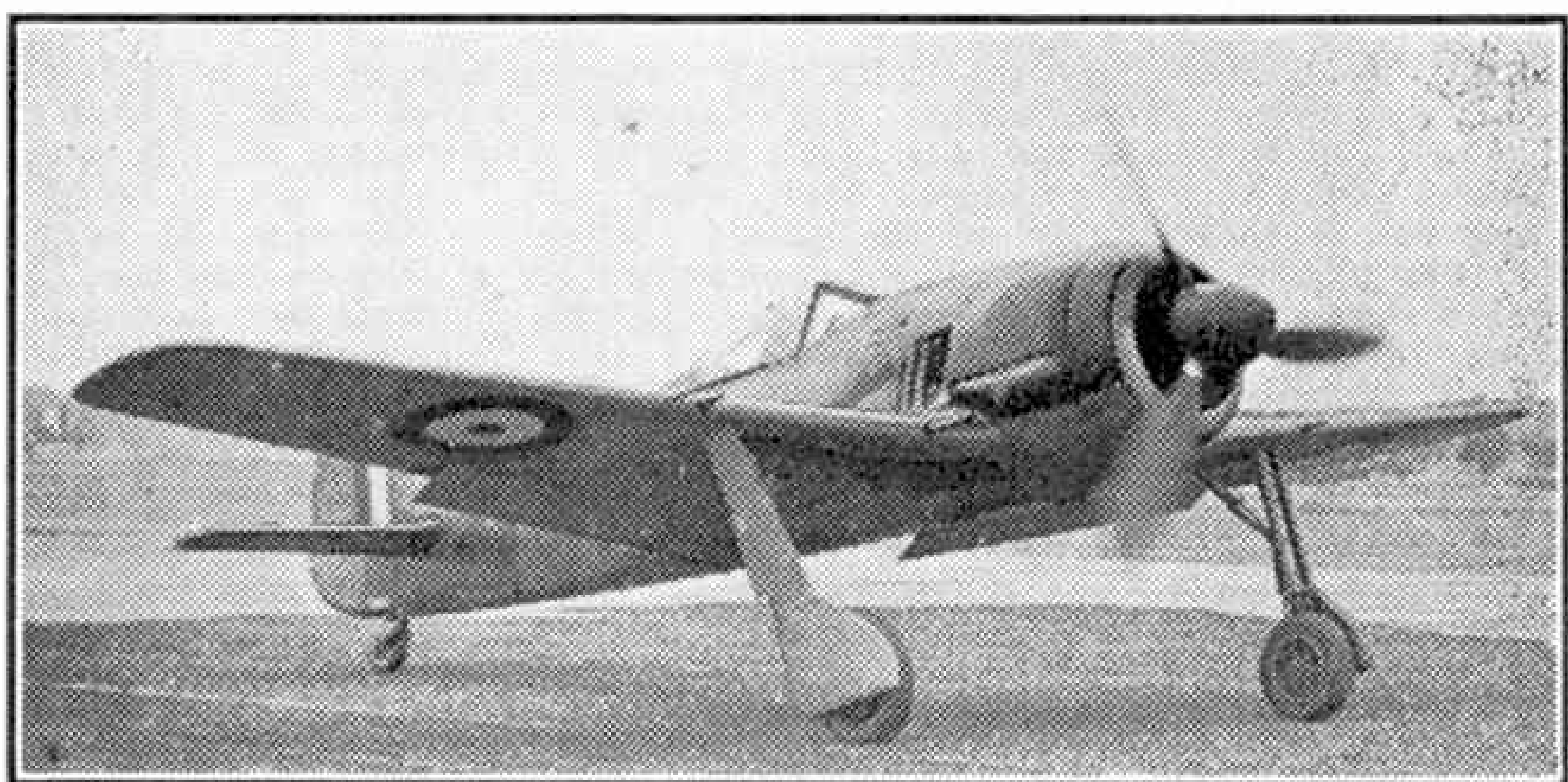
better, but it is still the Messerschmitt which existed before the war; and there is not so much difference between it and the pre-war Messerschmitt as there is between the pre-war "Spitfire" and the modern "Spitfire" with the "Merlin" XX and modern armament.

For a long time we knew little about the "Fw 190" because the Germans wisely kept them all on the French side of the Channel. If they had come over here we should have shot some down and have learned a lot about the machine. Then a few came over on "tip and run" raids, and one of them stayed too long. It ran out of

petrol and ammunition and was "nursed" down by "Spitfires," and the pilot was caught before he could burn his machine.

Now we know that, instead of the liquid-cooled engine which all the other first-class fighters have, it has a two-row 14-cylinder radial air-cooled engine, with a cooling fan which is new in this war, but was well known before it. Also it has four cannon-guns of 20 mm., and two rifle-calibre machine guns, so it is a formidable weapon. In spite of having "that great cauliflower" in its nose, as one of our aircraft constructors called the two-row air-cooled engine, it is very fast.

Our "Spitfire" pilots are not much worried by it, because unless it happens



The Focke-Wulf Fw 190, Germany's latest Fighter. Photograph by courtesy of "The Aeroplane."

to be very high up and drops down on them in a dive, the "Spitfire" is a bit faster. And similarly, unless it catches a "Hurricane" unawares the "Hurricane"

can always out-manceuvre it. Also the "190" does not appear to be very easy to fly, so the Germans may have some trouble in finding enough first-class pilots for it.

The Germans have already said on paper that a new version is coming along with 18 cylinders instead of 14, and correspondingly higher power. One never knows. Sometimes an attempt to put on more power means such a big engine, and having to build a machine so much stronger to carry it, that the result is actually worse than the original with lower power. And anyhow you can bet that we have something up our sleeves to meet it.

The Heinkel and the Dornier bombers are almost exactly what they were just before the war. At any rate they are no more of an advance than the modern "Wellingtons" or "Hampdens" or "Whitleys" are on their own original types. And, still more, the Germans have produced nothing new to compare with our "Stirlings" and "Halifaxes" and "Lancasters."

I will not argue here whether the weight of bombs carried by a few big bombers is more effective than the same weight of bombs carried by a number of smaller bombers, but the fact remains that our big bombers are faster, and carry more bombs, than any other bombers in the world, big or little, including the Americans. The objection to all big bombers is that they offer such a very big target to anti-aircraft guns and fighters carrying heavy guns.

So far the Germans have not produced any big bombers with power-driven gun-turrets which are able to carry two or four guns apiece, like the Frazer-Nash gun-turrets and the Boulton-Paul turrets in our machines. Consequently

our bombers are better able to defend themselves than the Luftwaffe bombers are.

The point on which the Luftwaffe differs most from the R.A.F. is in the early use which was made of troop-carrying aeroplanes, either with parachute-troops or ordinary troops, and with towed gliders full of troops. That method of attack works very well so long as the Luftwaffe is not up against a force which has plenty of fighters. The troop-carriers or towed carriers are helpless against any type of fighter.

A whole string of them, "Ju. 52s," were shot down in the Mediterranean going to Libya in May, and if only we had been able to get our fighters within flying distance of Crete they would have slaughtered the troop-carrying machines there in just the same way.

Another great point of difference is the development of the dive-bomber by the Luftwaffe. There again is an excellent weapon against an enemy which has not plenty of fighters. The effect of the dive-bomber has been very much over-rated. Against troops on the ground unaccustomed to it the effect is terrifying, but old soldiers of the last war say that it is nothing like as bad as an artillery barrage. Moreover, if the troops on the ground have the right weapons—and unfortunately these have only recently been developed—the dive-bomber is pretty helpless because it simply dies into the fire.

Similarly ships properly equipped can fight off dive-bombers. And a dive-bomber has no hope against a fighter, because to do his bombing the

dive-bomber must keep his nose on the mark; and so he cannot swerve to avoid a fighter on his tail.

There is no doubt that the troop-carriers and the gliders and the dive-bombers were built under orders from the German Army rather than by the wish of the Luftwaffe. The result was that when, in 1940, the whole force of the Luftwaffe's fighters and bombers were thrown against our South Coast in the hopes of wrecking all our defences so that the German Army could land, they were defeated by one Group of the R.A.F., No. 11, under Air Vice-Marshal K. R. Park. There was an absurd story going about that at the end of the Battle of Britain we only had half-a-dozen Hurricanes left in the country. As a matter of fact No. 10 Group in the West Country, under Air Vice-Marshal Sir Quintin Brand, was never called upon to put forward its whole strength, nor was No. 12 Group North of the Thames under Air Vice-Marshal

Leigh-Mallory. And besides those there were all the squadrons right up through the Eastern counties up to the North of Scotland, which were never called upon to do any fighting at all.

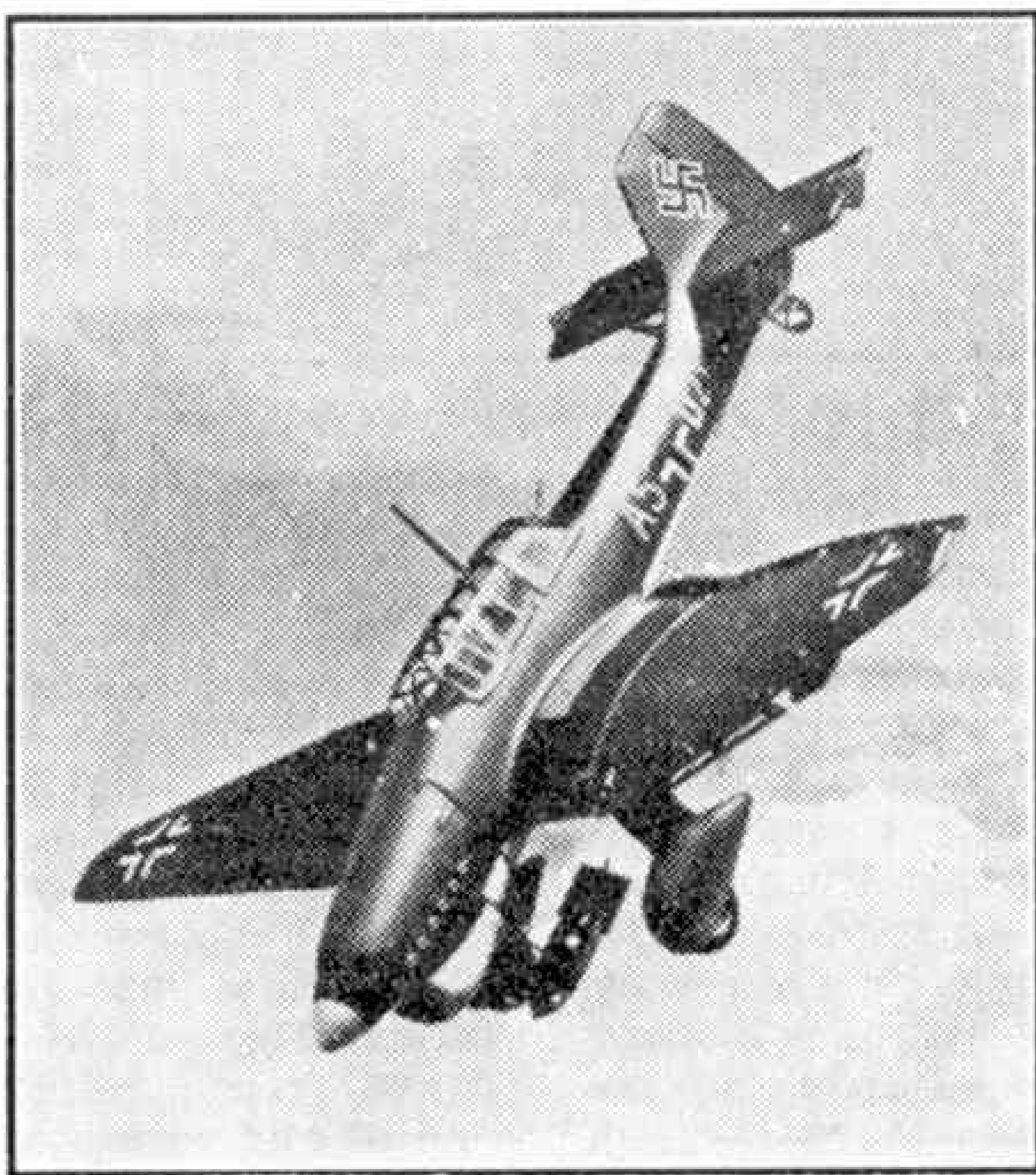
If instead of spending so much man-power and material on building those troop-carriers and dive-bombers the Germans had built more and more ordinary bombers and fighters, they might have attacked our great industrial districts in the Midlands and the North and done so much damage that they would have delayed our output of munitions. Then we should not have been able to build up such a big Air Force as quickly as we have done, or to build tanks and heavy guns and make all the munitions for them as we have done.

The Luftwaffe's troop-carriers and dive-bombers beat us out of

Greece and Crete, neither of which have been of much use to the Germans. The dive-bombers have damaged a lot of our ships in the Mediterranean—which is largely our own fault for not having the right weapons with which to beat them. But when the R.A.F. has reached its full strength, with the help of all those chaps who are being so well trained under the British Commonwealth Air Training Plan in Canada, and when we have the U.S. Army Air Corps over here with machines which are designed according to our experience, and manned by people trained by men who know what air war is, then the Luftwaffe will not have a hope.

I never believe in running down one's enemies. There is no credit in licking a chap who is smaller than yourself or inferior in any way. So I am not afraid to say that the Luftwaffe's pilots and air-crews are first-class fighting men. None of our fellows who has fought them has any contempt for them. But those people whom we call the Anglo-Saxon nations—ourselves and the Canadians and the Australians, the New Zealanders and the people from the United States—are just that one degree better which has so far enabled them to beat the Germans, even when the Germans have been superior in number and sometimes better mounted. And that little bit of superiority will in the end enable us to whack the Luftwaffe out of the air.

And when that happens that will be the end of the German Army, and about the end of the war.



Junkers Ju 87B Dive-Bomber. Photograph by courtesy of "The Aeroplane."

BOOKS TO READ

Here we review books of interest and of use to readers of the "M.M." With the exception of those issued by the Scientific and Children's Book Clubs, which are available only to members, we can supply copies of these books to readers who cannot obtain them through the usual channels. Order from Book Dept., Meccano Limited, Binns Road, Liverpool 13, adding 6d. for postage.

"STEEL MANUFACTURE SIMPLY EXPLAINED"

By Dr. E. GREGORY and E. N. SIMONS
(Pitman. 7/6)

Last month's "M.M." contained an interesting review by the Editor of "*The Structure of Steel Simply Explained*," by the authors of the present work. This is devoted to the production of steel, and in a sense the two books are complementary, for both should be read to get a complete understanding of the steel industry. The present book can stand by itself, however, and it cannot be too highly recommended. Excellent half-tone pictures and drawings help the reader wonderfully, and all who use the book in the way suggested last month in the review of the companion volume will gain a real understanding of the production and applications of steel.

Keeping the ordinary reader in mind, the authors do not go deeply into technicalities. They give a far better all-round appreciation of the steel industry than do many ambitious text books, however, for their story is so written that we can follow the growth of the industry from its early days. The steel age has been reached by a combination of experience on the one hand and scientific study on the other. We see how the former came into play in reading of the production of shear steel from the blister bars made by the cementation process, and also of the introduction of the crucible process by Benjamin Huntsman, the Doncaster clockmaker who found shear steel troublesome in making his clock and watch springs. This was in the 18th century, and in the 19th century came the more scientific researches, based partly on growing knowledge of the structure of steel, that gave us manganese and other alloy steels. One of the most recent achievements, the production of stainless steel, is another example of the great advances in our knowledge of steels that have followed on the development of scientific examination of their structure.

All these points are clearly made in the story, which begins in the iron ore mine and introduces us in turn to the blast furnace in which pig-iron is produced; the cementation furnaces that for so long were used in making steel; and the crucible furnace in its most modern form, in which high-frequency electric induction is used for melting the charges. Then we come to the Bessemer converter, in which a blast of air is blown through melted pig iron to burn out the impurities, and the open hearth processes now in use on an immense scale. These methods have undergone many modifications in order to make them suitable for metal from different types of ore, and it is interesting indeed to follow Dr. Gregory and Mr. Simons in their explanations of the effects of the various impurities, and of the changes in the processes that have led to success in dealing with them.

A very interesting section tells us how steel ingots are made, and explains how pipe, cracks and other defects are avoided. This is followed by chapters on steel castings, and on the refractory materials used in the linings of furnaces. The book concludes with an account of the day-to-day routine of the steel works chemist in checking casts of steel made, analysing and controlling production materials, analysing customers' samples, and investigating defects.

"GALLANT DEEDS OF THE WAR"

By Capt. J. E. A. WHITMAN
(Oxford University Press. 5/- net)

The fighting qualities of the British Army were shown in full in the earlier years of the present struggle, when in France our men were outnumbered and opposed to an enemy with immensely superior resources. Retreats and desperate stands were the order of the day, but thanks to the skill and courage of our men we survived in spite of the enormous perils that beset us. It is in circumstances of this kind that fighting qualities are seen at their best. Thus Captain Whitman, who has contributed many fine articles to the "M.M.," had a magnificent field in which to work when he set out to "praise the deeds of famous men," and he has done this so well that his book will stand as a great record of unparalleled deeds of heroism.

Unfortunately the book is the last that we shall get from this gifted writer, for he died on 22nd October.

The book is neither a string of highly coloured episodes, nor is it a chronicle of the war. Instead it is a selection of heroic deeds of all kinds, each accurately and fairly described; and these have been arranged in such a way that we can

understand the general drift of the war and thus appreciate to the full the value of the splendid efforts of the brave men about whom he writes. The author points out that for every deed of gallantry mentioned a hundred have been omitted, but there are more than enough left to give us one thrilling story after the other.

We begin well with the deeds of men who won the V.C. during the retreat through Belgium and Northern France after the French line had been broken. Then we hear of great fighting by the Guards and of the devotion of the gunners. After that we have story after story of officers and men of practically every county, who fought endlessly, holding up the enemy, even forcing him to retreat, although outnumbered and often attacked from the rear. In one place we read how 20 men wrecked a German tank column; in another of a Highland battalion that fought out to the very end a desperate battle against overwhelming odds. Individual deeds of bravery are innumerable, and the author does full justice to the gallant men who accomplished them. The thrill that his stories give us is increased when we realise that in every case he is giving us the bare facts. There is no attempt to write up, or exaggerate; the facts themselves are more than sufficiently impressive.

Captain Whitman also has many fine stories to tell of our airmen. Great deeds over France during the German onrush, the marvellous but unavailing efforts of the "Gladiator" pilots in Norway, and gallant fights for the protection of convoys, lead us on to tales of incredible daring and skill during the Battle of Britain, when hordes of German bombers and fighters were shot to pieces by our comparatively slender force of "Hurricane" and "Spitfire" pilots. Whatever the odds, these men attacked, and there is one almost incredible record in the book of a single man attacking a flight of 120 enemy machines when he was returning home after taking part in a previous engagement.

The book is illustrated by photographs and spirited drawings.

Owing to wartime difficulties, it is impossible to guarantee prompt delivery of books ordered as described at the head of this page, but every effort will be made to ensure speedy despatch.

"Mickey Mouse" goes to War

Disney's Marvellous Instructional Pictures

By Andrew R. Boone

BACKING up the United States Navy's big guns and the Army's hard-hitting ground and air force, "Uncle Sam" has unleashed a powerful new type offensive, not directly against the enemy, but behind the lines. "Mickey Mouse" and his faithful colleagues, through Walt Disney and the artists who draw them, have taken over the big job of teaching soldiers and sailors how to fight, and civilians how to improve sanitation, combat disease, and perform other important functions that contribute mightily to winning the war.

Disney approaches the task by turning out 150,000 feet of instructional pictures combining live or actual photography, model photography and animated cartoons. Departments of the American and Canadian Governments sponsor the programme, which represents three-fourth's of Disney's production. Cartoons and live action teach Canadian gunners

how to blast German tanks off the earth, and sell war bonds. Others, made for the U.S. Army Air Corps, Navy, Treasury and the Office of the Co-ordinator of Inter-American Affairs, serve a variety of purposes vital to offensive economic and political warfare.

Our pilots deserve protection against the fire of our own ground troops who may not recognise their own aircraft, and the cartoonist recently completed a picture that teaches an audience in fifteen minutes how to recognise these machines. Starting with a close-up still photograph of a machine, the artists enlarged and reproduced photographically on celluloid various recognisable parts of the craft. Line animation was added, the animation

being photographed step-by-step for the screen. By this means the machine could be "stopped" in the air for study. Finally, the animation is reviewed in live action, a machine manœuvring for the camera in various positions. Almost every type of Allied and enemy craft will be given this individual treatment on film.

Some twenty reels are being produced

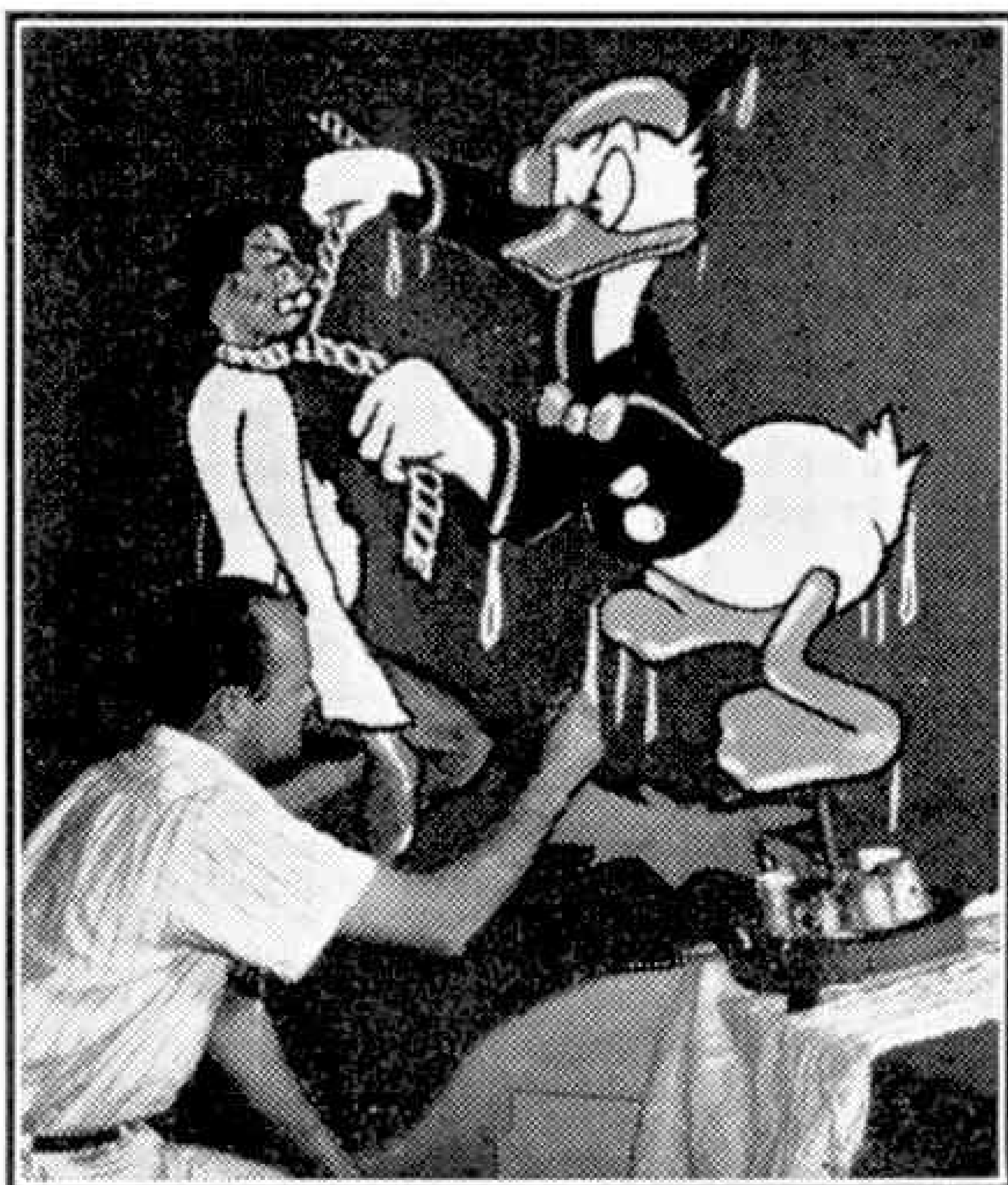
under the supervision of the Bureau of Aeronautics, U.S. Navy. Warship Identification, Primary Flight Training, Rules of the Nautical Road and Aerology are other subjects currently in work for the Navy. Other pictures are being made for the Army. These pictures will enable a sailor or soldier to learn in twenty minutes the basic types of aircraft, and with a little more study he will be able to tell at a glance whether it is an enemy plane or not that roars past his station.

Most ambitious of the Service films, one

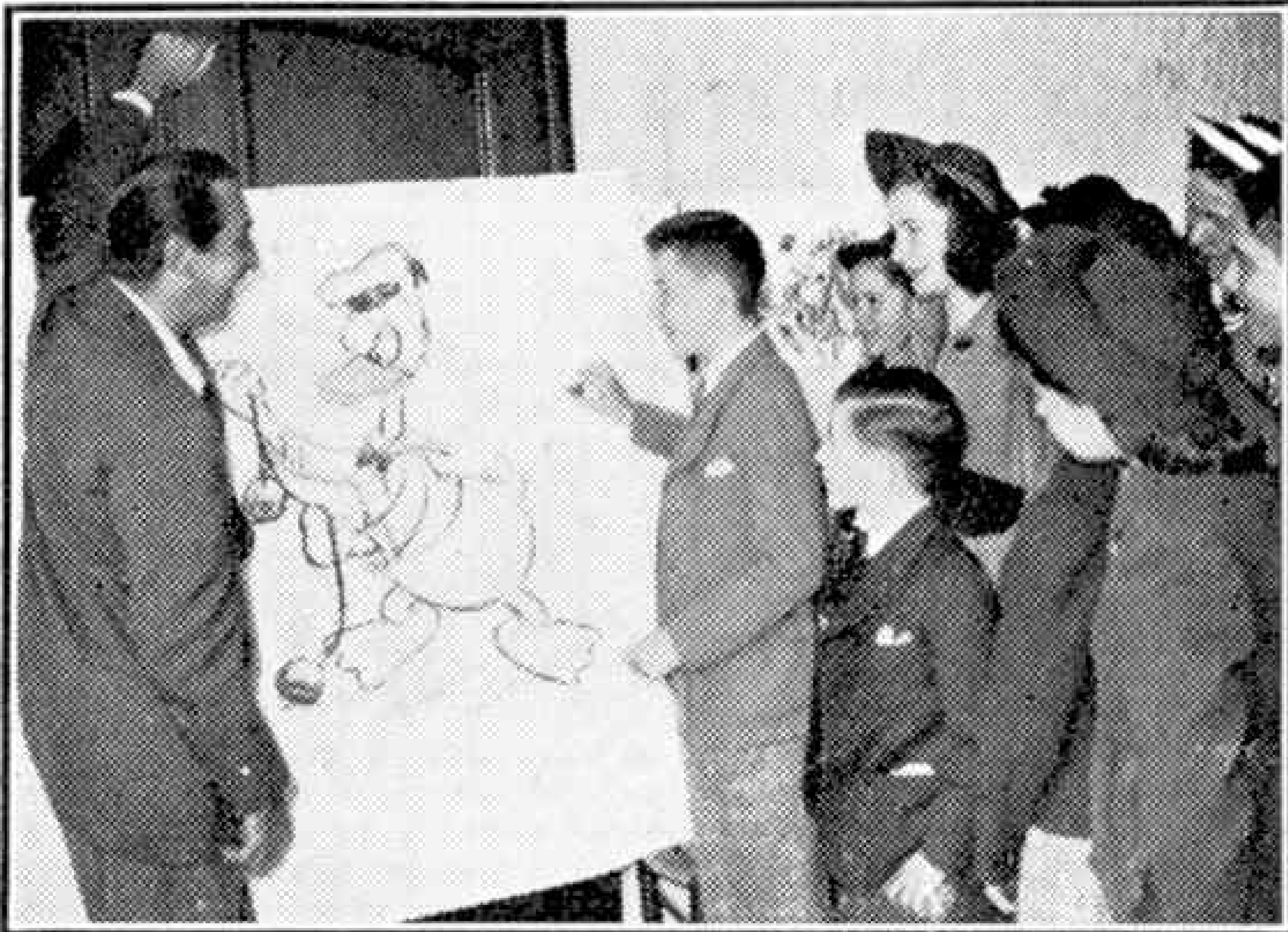
to be seen by every Army and Navy pilot, is "Aerology." After viewing the parts of this picture, which will equal in length three 5,000-foot features, a pilot should be able to recognise thunderheads, icing conditions and storms, and extricate himself before disaster overtakes him.

Similar techniques are incorporated in the films concerning warship recognition, films so highly confidential none but Naval officers and men are permitted to view them.

Somewhat more direct in training men to handle weapons is a picture of Canada's deadly anti-tank rifle. Not long ago J. L. Ralston, Canadian Minister of National Defence, visited the Disney studio to discuss methods of teaching the



One of the many Disney cartoons that appear on aircraft.



Disney (left) on a South American tour gets ideas for war films.

use of important military weapons by means of amusing animated cartoon films. "May we insert a little slapstick comedy?" asked Disney. "Yes," replied Ralston, "if you think the comedy will relieve the tension of the lecture." I saw the results the other afternoon. Under the title, "*Stop That Tank*," two reels of live action and cartoons unfolded on the screen. In twenty minutes, with some sequences repeated for emphasis, all important details of setting up, aiming, firing, and knocking out German tanks were revealed.

Although the Service films will speed the training of millions of fighting men, most of Disney's efforts are directed at "selling" the United States to Latin America, and to raising standards of health and living in those countries.

Twenty pictures are nearing completion, to be distributed by the Co-ordinator of American Affairs and the Rockefeller Foundation, in 35 mm. Technicolour and 16 mm. Kodachrome through theatres, churches, lodges and other meeting places, in nearly every city and village south of the border. Important among them is "*The Amazon Basin*," an agricultural and mineral watershed larger than the United States and more productive than the Mississippi valley.

Cartoons will show our southern neighbours how they may develop this rich land.

Other agricultural and public health films carry serious messages in a light vein, the subjects receiving novel treatment in order to convey dramatic messages so that the millions who see them will not forget.

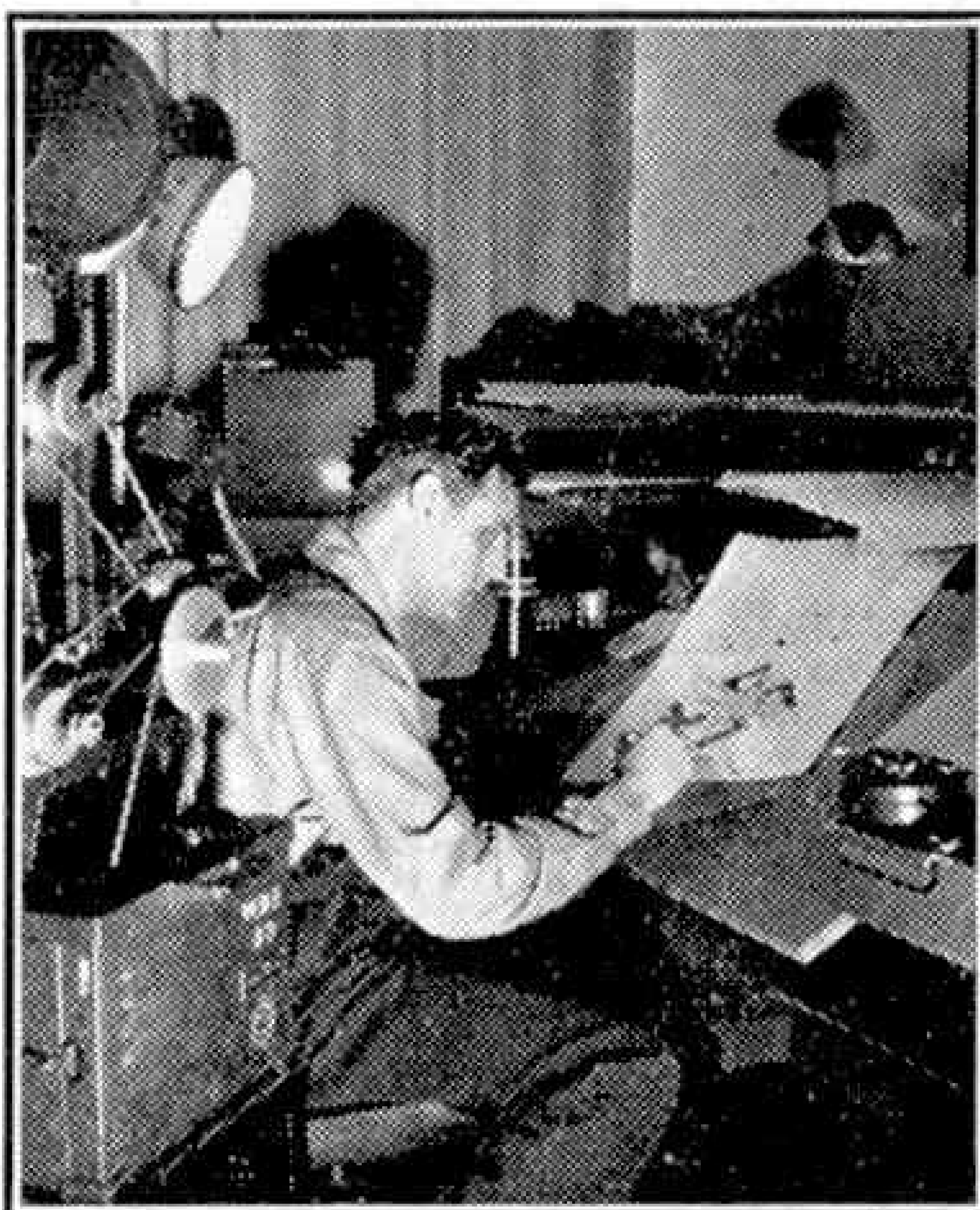
Let us look at a couple. In "*The Mosquito*," the Seven Dwarfs demonstrate in twelve minutes how this malaria-carrier may be routed. "*Sleepy*" carries a can of oil into a swamp; "*Sneezy*" dusts a pond, others perform various roles. From the swampy scene, the camera

cross-dissolves to a close-up of wigglers breeding, and through diagrammatic animation reveals in detail how the mosquitos carry disease from one human to another. You see the germs flowing through the skin into a female mosquito, and later from the mosquito to a second victim. Dramatic, unforgettable, and powerful lesson.

Disney artists worked out an unusually effective approach for "*Immunization*." Many people are prejudiced against vaccination in any form; they do not understand. The human body is treated as a city, the blood as an army of vigorous, red characters living in the city, disease as a rabble of ugly black germs. When the black fellows first attack, the defending

soldiers are beaten back and the human city dies. Now a doctor injects healthy organism into the city, and the vigorous red soldiers, riding jeeps and tanks and reinforced by the hypodermic needle supplies, turn back the invading disease hordes, driving them beyond the outer walls.

By these means "*Mickey*" and his make-believe friends are marching to war along a dozen roads. Disney contributes every month insignia for fighting aircraft. You will find them on the (Cont. on page 446)



Disney artist at work on idea showing method of smashing the Axis.

Railway News

Locomotive Performance Amid the Surrey Hills

The routes towards the south coast pass through and under the Downs in Surrey and Kent, with resulting steep gradients amid fine scenery not far from London. Along the steam-operated Oxted route to Sussex, which abounds in stiff grades, three runs on the 3.55 p.m. from Victoria, one of the fastest trains of the day as far as Eridge Junction, gave interesting comparative logs. From East Croydon, the first stop after leaving London, a 15-min. timing for the 10 miles to Oxted is very hard in view of the heavy climbing. Former Brighton "Atlantic" No. 2038 with 225 tons did the best, dropping only 22 sec., the minimum speed on the 1 in 100 to Woldingham being 36 m.p.h. Owing to a slower start, and on account of easy working or bad condition of engine, 3-cyl. "U1" 2-6-0 No. 1900, which should have shown up to best advantage, took half a minute longer and speed fell to 34 m.p.h. at Woldingham, though her time from Upper Warlingham over the summit and down the other side was almost exactly the same as that of the four-coupled "Atlantic."

With another corridor coach added, a "B4X" re-built Billinton 4-4-0 under wartime conditions lost several minutes and was never happy on this stretch. On the descending 5½ mile run forward to Edenbridge stop, annoyingly put in recently, both the 4-4-2 and the 4-4-0 touched 70 m.p.h. and gained on the 8-min. allowance. The 2-6-0 was within time, but did not get up to much over 60, though starting rapidly from Oxted. Along the next stage of 10 miles to Eridge stop, steeply uphill at first, then largely easy, similarly fast work was done by both the old Brighton express engines, the 4-4-0 with 33 tons more taking only 15 sec. longer than the 4-4-2, though doubtless worked harder, the maximum logged being 66 m.p.h. The 2-6-0 was not timed beyond Edenbridge.

Wood for Steam Raising on L.M.S.

The use of a mixture of waste wood and coal for steam raising on locomotives has been tried successfully by the L.M.S. and it is anticipated that 2,500 tons of coal a year will be saved in this way. The mixture will bring a locomotive into steam in almost the same time as coal.

Most of the waste wood, of which no other use can be made, comes from the company's carriage and wagon works and consists of oak, beech, larch and elm.

A Record Run from Harrow to Marylebone

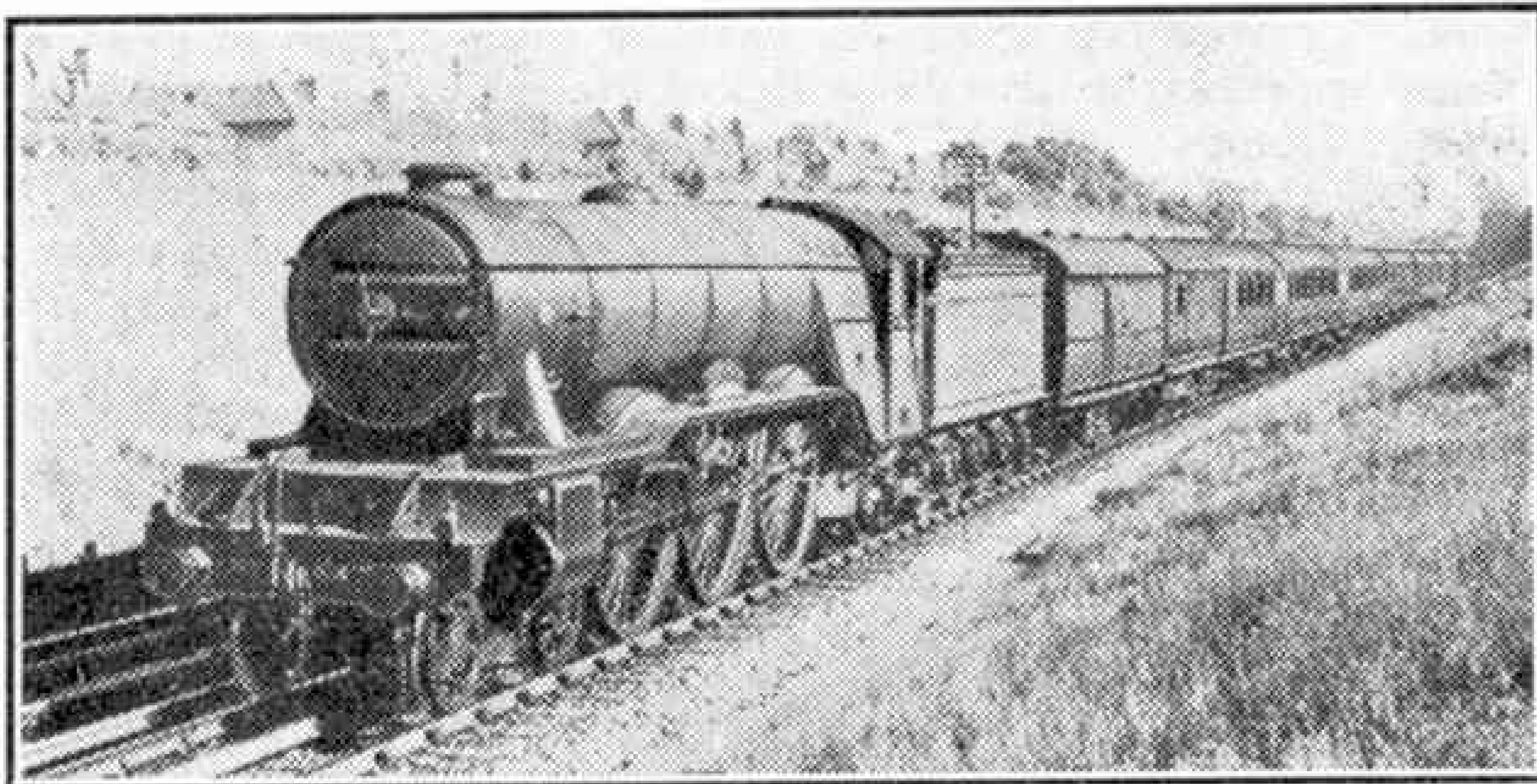
What is believed to have been the fastest start-to-stop run made with a regular passenger train between Harrow and Marylebone occurred not long ago. One of the "Green Arrow" class 2-6-2 mixed traffic locomotives, which are of remarkable power and versatility, took only 11 min. 25 sec. for the 9½ miles, compared with the 15 min. allowed. The load was about 285 tons and the engine had come through from Manchester, suffering signal delays on the Met. and G.C. Joint line north of Rickmansworth. Tremendous acceleration took the train at 66 m.p.h. past Preston Road, 1.8 miles, in just over 3 mins. Speed rose to 72 m.p.h. in the Neasden dip 2½ miles further on, and then was sustained at a remarkable figure up the ensuing 1 in 95 to Brondesbury, leading to a smart finish through the cuttings and tunnels.

L.M.S. Locomotive News

Class "8F" Stanier 2-8-0 engines recently turned out from the company's works and also by private builders have been noted, numbered 8146-9, 8202-11, 563-7 and 621. More 2-6-4Ts are reported to be in hand, following Nos. 2664-5. All the remaining Hughes 4-6-0 express locomotives, which were originally the largest passenger class on the Lancashire and Yorkshire Railway, are at the time of writing shedded at Blackpool for working passenger trains and freight services to and from Manchester, Bolton and district.

New Southern Engines in Service

A reader tells us that during a short period at Salisbury lately he saw four of the 10 Bulleid "Pacifics" in traffic. The return working to Salisbury of the engine of this class arriving at Waterloo with the West of England express due 10.30 p.m. was with the 1.35 a.m. news van train during the summer. "Q" type 0-6-0 engines Nos. 541-4 have been working



L.N.E.R. "A1" 4-6-2 No. 4478 "Hermit" at the head of a Marylebone-Manchester express. Photograph by C. R. L. Coles.

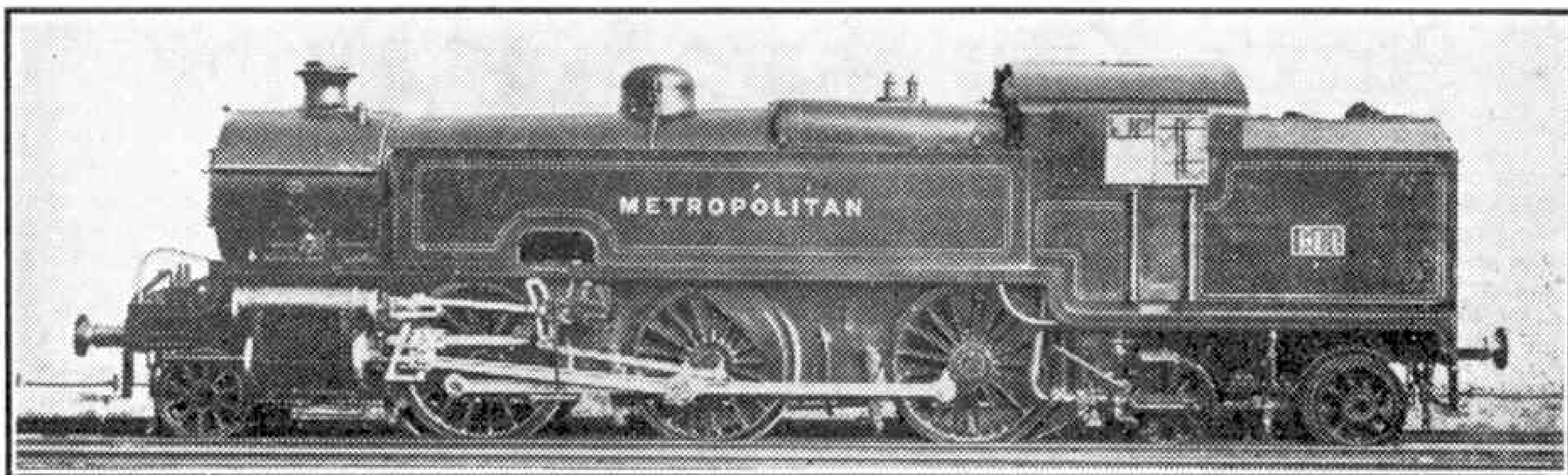
from Horsham, Central Section; hitherto they appear to have been allocated entirely to the Western division.

Further 0-6-0s of the latest "Q1" class, numbered in the series starting at C 1 and C 21 respectively, have been seen on various duties round about London and the home counties. No. C 1 worked a test freight train weighing approximately 1,000 tons between Woking and Basingstoke, 23½ miles, including a good deal of rising ground, in 58 min. compared with 66 mins. allowed for the normal maximum loading of about 800 tons. We are informed that this was done without fully extending the locomotive.

Carriage Washing Plants in Southern England

It is undoubtedly sound policy from many points of view to attack dirt on railway carriage exteriors before it has become encrusted on the surface; hence the employment of power-operated carriage washing plants, which cleanse by means of rotating cloths and water applied under pressure as the trains or sets of vehicles are run slowly past.

The S.R. have 10 such plants. Of these seven are situated at sidings in the London suburban area and can clean 1,435 passenger coaches a day in the course of normal practice, all but one being served by electrified tracks. By means of careful rostering of the set train workings, steam and electric, it is possible for all vehicles in regular use to be washed mechanically every three or four days. Coaches from country areas are worked to London and back in slow trains periodically in order to be passed through the plants.



One of the ex-Metropolitan 2-6-4 tanks of "L2" class, referred to in a paragraph on this page. Photograph by courtesy of the L.N.E.R.

An Exciting Run to Nottingham

With the substantial loads frequently carried, the operation of the limited service of the two day semi-expresses between Marylebone and Manchester, L.N.E.R., in each direction is an arduous task under wartime conditions, even for the "Pacific" or "Green Arrow" locomotives that now usually work them throughout, as many of the gradients are long and severe and the route is sharply undulating. The fact that at least 11 stops have to be made in the course of the 206 miles run adds even more to the difficulty of the duty.

One morning last autumn the 9.50 a.m. northbound from Marylebone had a load of 12 corridors, weighing about 420 tons full, and was hauled by "A1" 4-6-2 No. 2562 "*Isinglass*." Running out to the first pick-up stop at Harrow was not particularly brisk; the slow recovery from two bad engineering slacks also indicated that the locomotive was not in her best form. Indeed the unpromising appearance of pressure gauge, fire and coal quality induced the driver to stop at Rickmansworth to seek assistance up the 6 miles, mostly at 1 in 105, to Amersham. After a wait this was forthcoming in the shape of "L2" class 5 ft. 6 in. 2-6-4T No. 6160. This is one of the ex-Metropolitan goods tanks built in 1925 from parts intended for some of the Maunsell type "N" 2-6-0 tender engines, of the former South Eastern and Chatham design and now a Southern standard class.

The motive power thus became 2-6-4, plus 4-6-2. Unfortunately the tank engine was running bunker first and there was trouble from blowing coal dust, so no great speed was attempted. The odd appearance of such a locomotive combination, and the roar of the combined exhausts as the two engines climbed amid the beechwoods to the Chilterns, excited considerable interest among railwaymen and others at the lineside. By Chorley Wood 32 m.p.h. was attained, but speed fell back to 26 up the 1 in 105 near Chalfont, rising to 30 again by Amersham summit. The 6.4 miles to passing Amersham station took 15½ min. No higher speed than 58 m.p.h. was touched down the sharp descents, which were taken cautiously, Aylesbury being reached after a slow approach in 34½ min. from Rickmansworth, 20.7 miles. From here "*Isinglass*" went on alone and took nearly a minute over the

scheduled time to the next stop at Woodford.

After that it was an entirely different story! The wide fire-box and generous boiler capacity of the "Pacifics" allow ample scope for steam recovery, when aided by the strenuous efforts of a skilful fireman, and all traces of any shortage of steam disappeared after Woodford. Rugby was reached in 18 min. 21 sec. with a maximum speed of 68 m.p.h. at Braunston; for this 14.1 mile stretch 20 min. are allowed. Rugby to Leicester 19.9 miles was covered in 23 min. 5 sec. instead of the 26 min. allowed, and this grand snippet was achieved without exceeding 65 down Whetstone bank. Leicester-Loughborough followed, 9.9 miles in 12 min. 55 sec., 1 min. 5 sec. inside schedule, again with rapid acceleration and a maximum of 69 at Quorn.

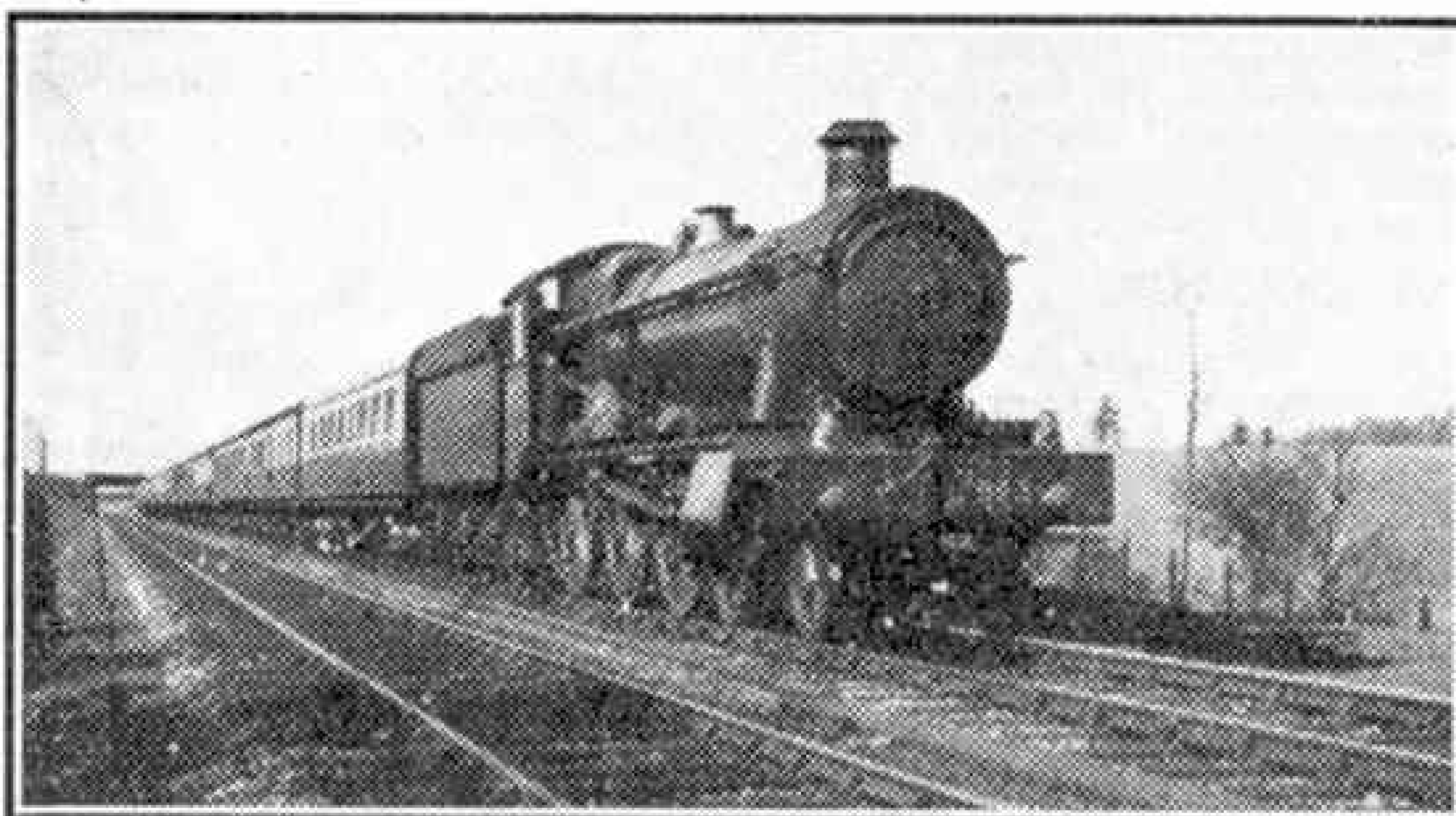
Loughborough to Nottingham, the last start-to-stop stage before the recorder alighted, yielded another outstanding sprint. Ruddington, 9.1 miles, was passed at 70-72 m.p.h. in 11 min. 52 sec. from the last start and but for slowing through Arkwright Street and near by, Victoria, Nottingham, would have been reached in about 16½ min. for 13½ miles. Actually the time was 17 min. 40 sec. compared with 20 min. allowed.

At this point the revived locomotive had recovered over 9 min. net from Woodford, although three stops had to be made in 57½ miles with a heavy train for that road.

Fruit Traffic from the "Garden of England"

Fruit traffic has been an important feature on all three constituent systems now forming the S.R. for many years.

There is no produce from the Channel Islands or from France at present, so that the harvest of tomatoes and fruit in the southern counties of the mainland is of ever-increasing importance. On some nights as many as 20,000 12-lb. baskets of tomatoes are despatched in two special van trains from the Worthing district to Victoria, London. In a good season vast quantities of strawberries and other soft fruit grown in Hampshire are conveyed by the S.R. initially, while special traffic from the extensive Kent fruit-growing districts begins in June with cherries, and ends in October with apples, just when hop traffic is intense. During last July 210 special passenger van trains or trips were run, comprising 1,488 vans, carrying 3,000 tons of fruit, as well as 21 additional freight trains.



A G.W.R. Wolverhampton-Paddington express, hauled by 4-6-0 No. 4993 "*Dalton Hall*."

Puzzle Your Sharp-Eyed Friends

By Norman Hunter (From Maskelyne's Mysteries)

WITH the help of these tricks you can soon build up a reputation as a first-class mystery man. For most of them only the very slightest preparation is needed, and for the rest no preparation at all. The tricks are all easy to do, need no special apparatus and can be done at any time, anywhere; on the spur of the moment in fact.

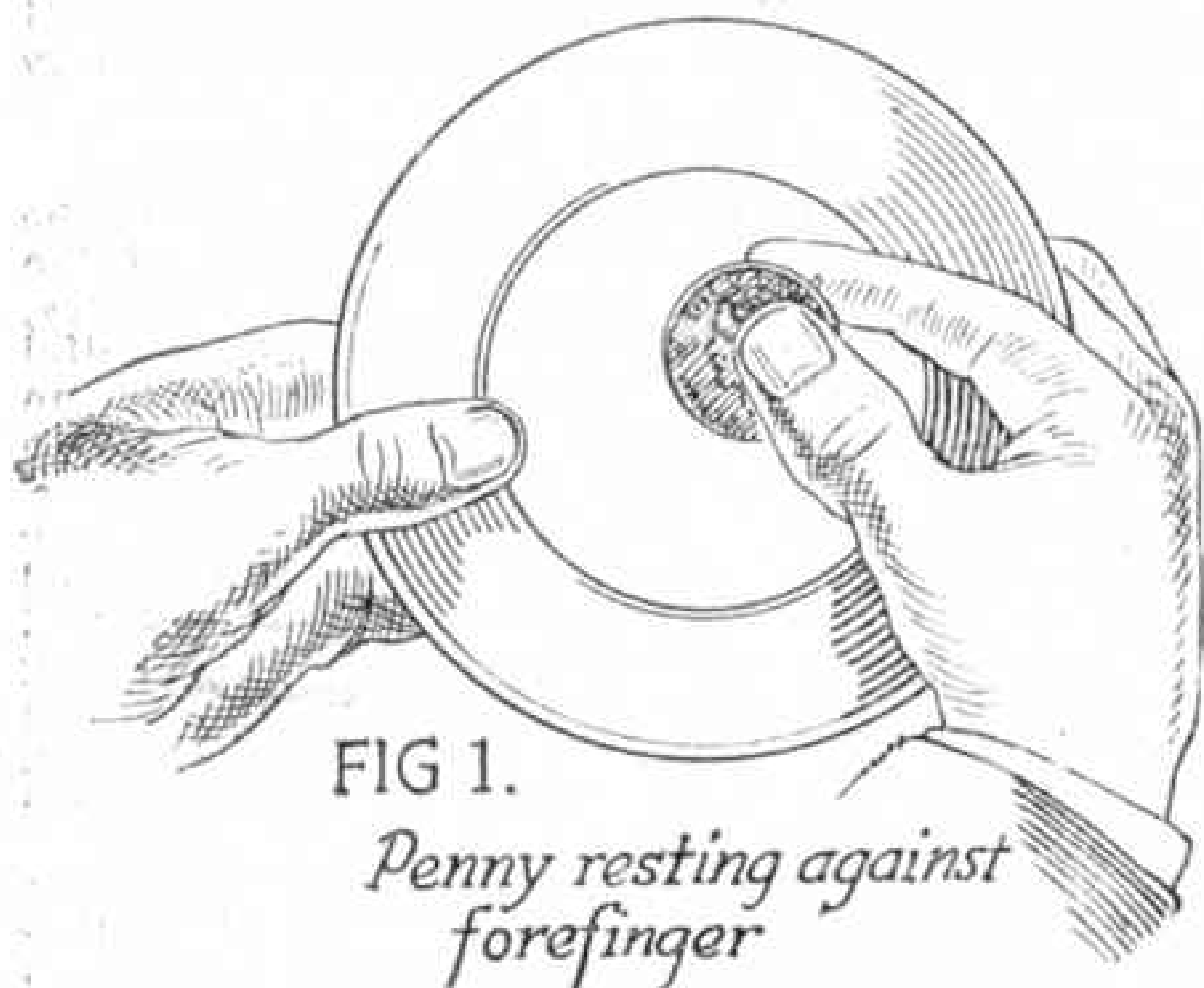


FIG 1.

Penny resting against forefinger

Before coming down to magical brass tacks with explanations of the tricks, let me remind you of the necessity for trying them over a few times before you set out to puzzle your chums with them. You can't do a trick properly, even an easy trick, unless you know it thoroughly and can handle it confidently. So perform these to yourself—your reflection in the wardrobe mirror is a good try-out audience—before you unloose the sorcery on your friends.

THE FIFTH COLUMNIST

This is a card trick with a startling finish. You shuffle the pack and ask someone to name a small number. "I will count down to the number chosen," you say, "and the card we arrive at shall be the one for the trick. In this way, as you can see, it will be impossible for me to influence your choice, or for that matter for you or anyone else here to know what card will be selected. What number did you say? Seven, thank you." You count seven cards off the pack on to the table. Then, standing well away from the table, you go on: "But although nobody here knows what the bottom card of that packet is, there is a fifth columnist here who does know. A magical fifth columnist. Will someone please look behind the clock."

Behind the clock, or wherever else you have told them to look, is found a folded piece of paper, and on it is written: "The card will be the Queen of Clubs." You then ask someone to turn up the packet of cards on the table and, sure enough, the bottom card is the Queen of Clubs.

How it is Done. The card is forced by a very simple but subtle device. Have the Queen of Clubs on top of the pack. As you shuffle the pack keep a little pressure on the top with your fingers, so that each time you lift cards off to shuffle them, the top card is retained in its original position. Shuffle the cards off on to the bottom of the pack. Now, whatever number is chosen, count them off one at a time face downward on to the table. The top card, the Queen

of Clubs, will thus automatically become the bottom card of the packet, and as you have previously put the paper with this name on it behind the clock, the trick is as good as done.

Another way to work the trick is to have several papers, each with the name of a different colour, hidden in different parts of the room. Do the trick this time with coloured handkerchiefs or coloured pieces of paper. Have one chosen quite freely and then direct the chooser to the particular hiding place of the paper that bears the same colour. Of course the audience are not aware of the other hidden papers and you are careful not to repeat this trick.

COMMANDO'S LUNCH

Remarking that one has to be tough nowadays, you pick up a plate, saying: "I never worry about rations. If there's nothing on my plate I eat the plate." So saying you place the edge of the plate into your mouth and bite. There is a loud crack, exactly as if a big piece of the plate has been broken off by your teeth, but the plate when examined is found undamaged.

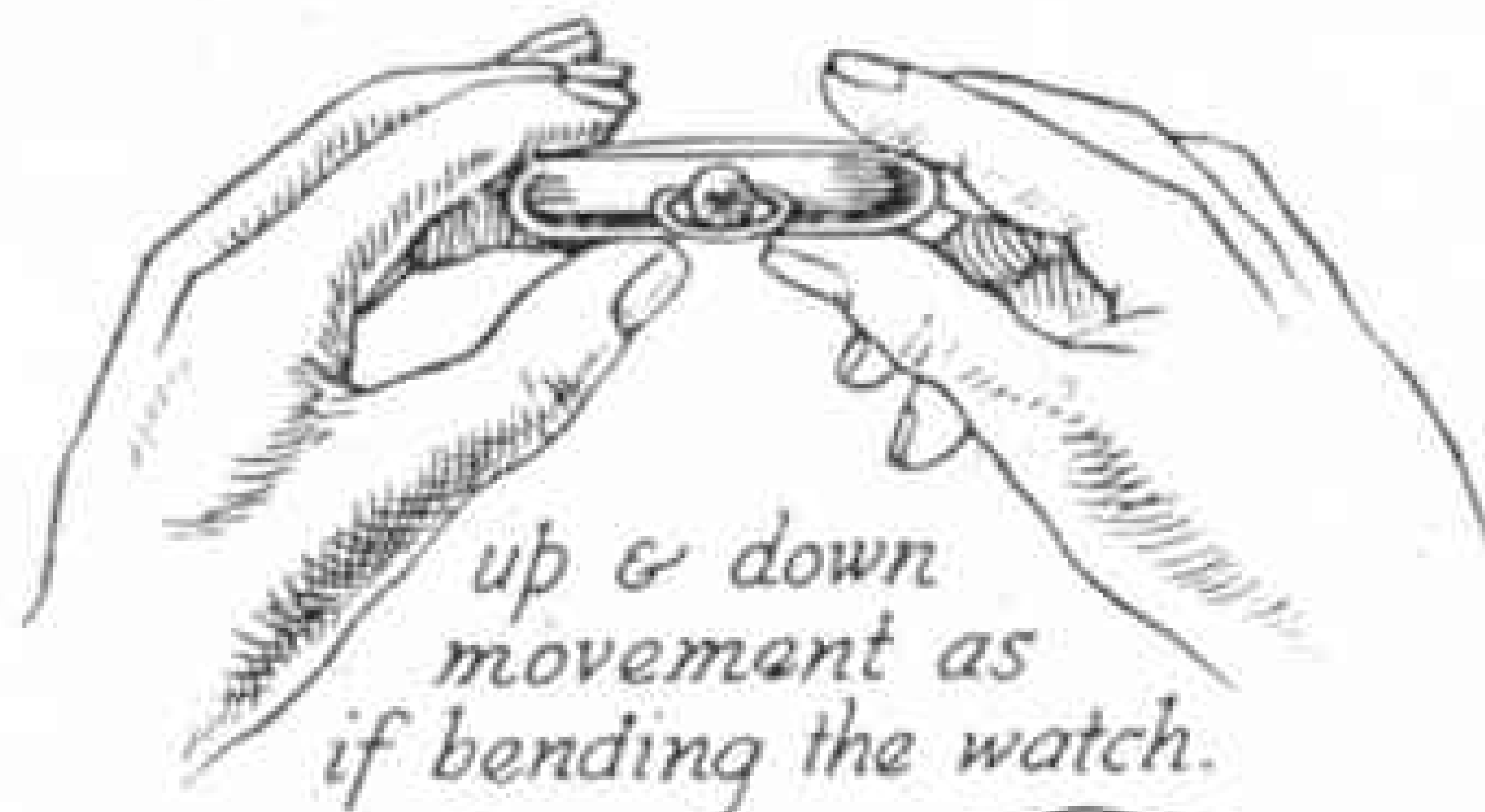
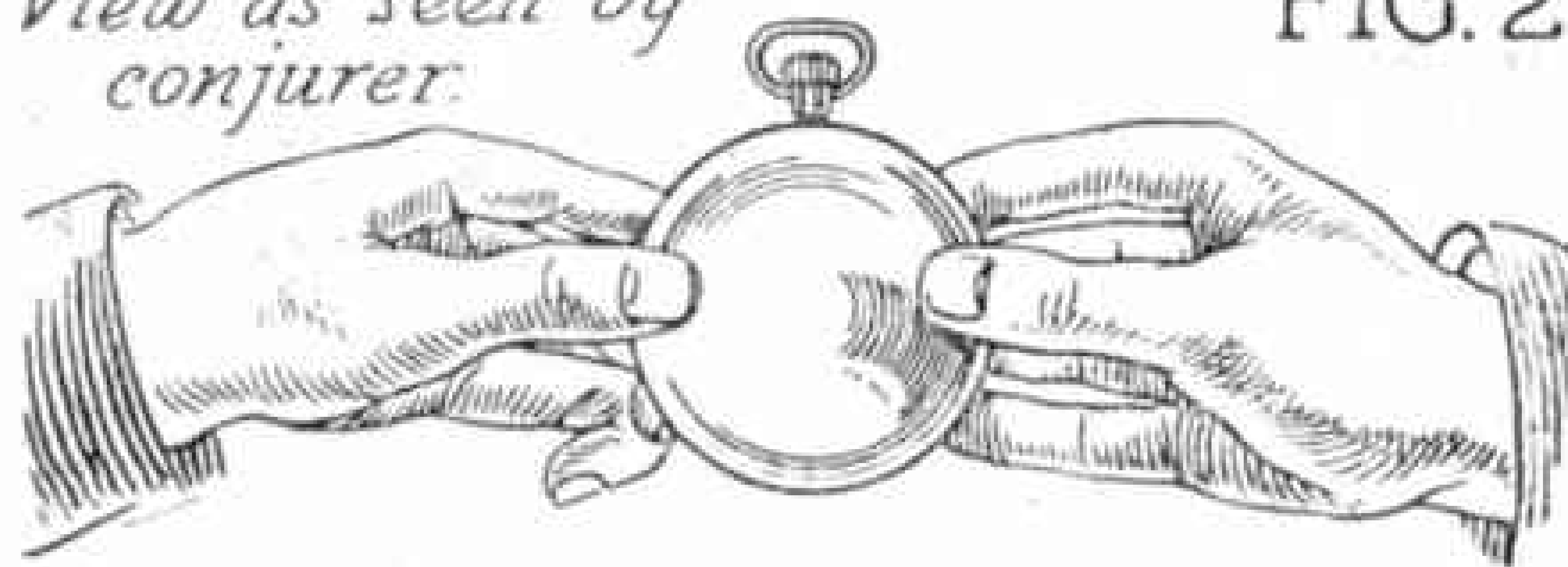
How it is Done. Have a penny concealed in your right hand. There is no need to try to palm it, just hold it loosely in the curve of your fingers. Pick up the plate and hold it with the top facing square to the audience. Place the penny against the bottom of it, the penny resting against the first finger of your hand as shown in Fig. 1. Put the top edge of the plate well into your mouth and make vigorous movements as if trying to bite through a tough crust. At the right moment draw the right forefinger upward, thus letting the penny snap sharply against the plate. The illusion is so perfect that you will get a gasp from your audience and much amazement when you hand out the plate—pocketing the penny—and it is found unbroken.

THE SOFT WATCH

The sight of a genuine watch being bent about in the fingers as if it was so much putty is uncanny,

View as seen by conjurer.

FIG. 2



up & down movement as if bending the watch.



Allow fingers to move about over the watch.

and you will find your friends anxious to make sure that it really is a watch you are using. They'll find out all right, it is a real watch, no fake about it.

How it is Done. An ordinary pocket watch is best for the trick, wrist watches are too small to be effective. Hold the watch as shown in Fig. 2, fingers in front and thumbs at the back. Now make a sort of up and down movement with both hands together, as if you were really bending the watch, but allowing your fingers to move about over the watch as you do so. The movement is entirely from the wrist, and once you get the hang of it the illusion is perfect. Try this carefully in front of the mirror, and note how you can heighten the effect of the trick by making the movement in a very loose manner and with a rather sweeping movement.

The same trick can also be performed with a half crown or even a penny, but it is not quite so effective with the smaller article.

THE LEAPING PENCIL

Hold an ordinary pencil in one hand close to the table and rest a second pencil across it as shown in Fig. 3. With a wave of your free hand, you cause the second pencil to suddenly take a flying leap into the air.

How it is Done. No springs, no elastic tied to your braces, no secret mechanism concealed under your thumb nail! Look at Fig. 4 and you will see just how simply this effect is performed.

Hold the pencil in your right hand as shown, with the tip of your little finger pressing firmly up against the under side of the end of the pencil. To cause the second pencil to jump, keep a firm grip on the pencil in your hand with thumb and forefinger, then press sharply up with the tip of the little finger until



FIG. 3

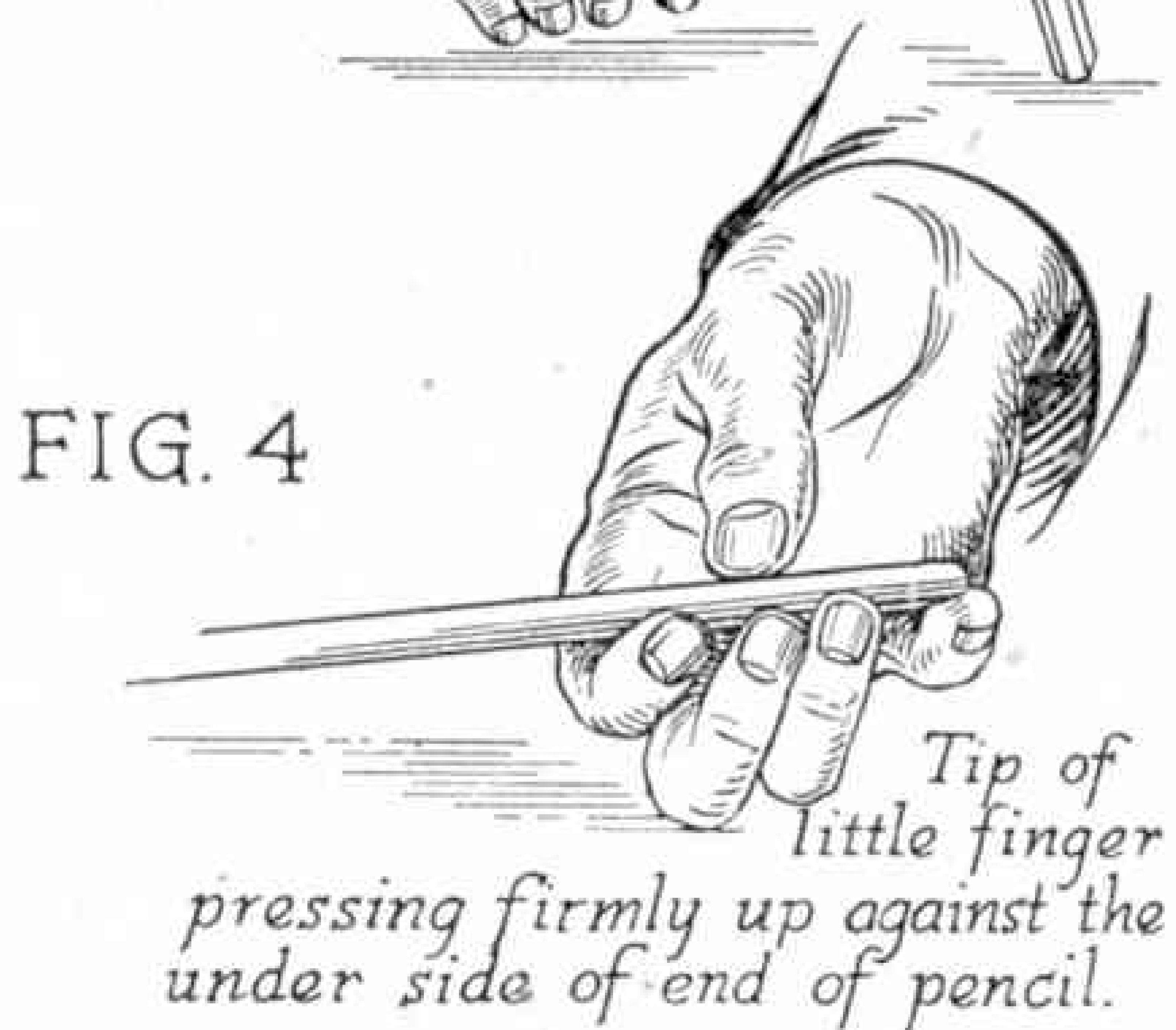


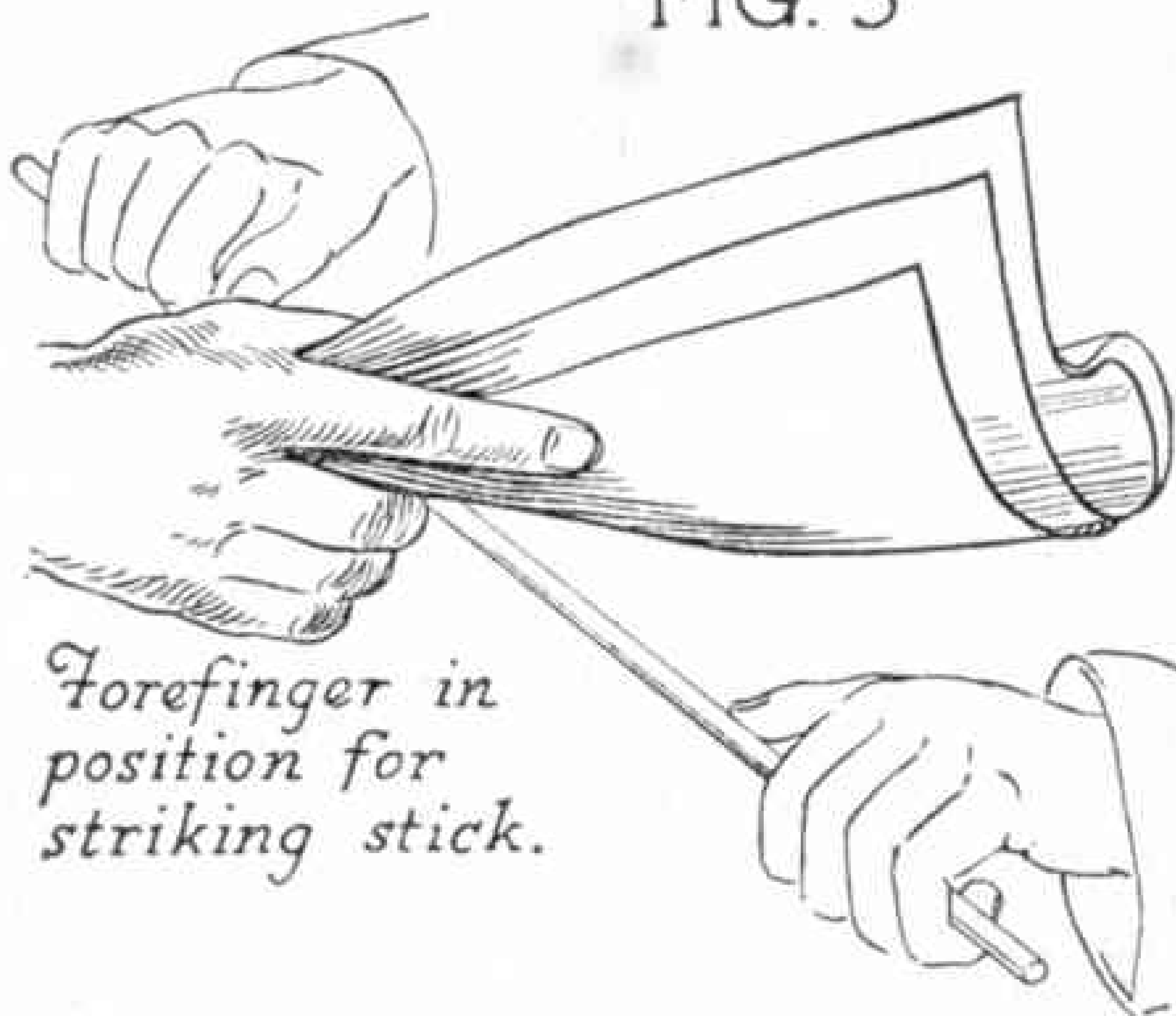
FIG. 4

it slips off the end of the pencil. This movement, though undetectable to your audience, imparts a sharp fillip to the pencil, causing the second pencil to somersault away from it. The secret movement is cunningly hidden also by the wave of your free hand, which distracts attention at the critical moment.

THE PAPER HATCHET

"It is not generally known," you say, "that a tightly rolled newspaper makes a very good weapon of defence. You can pretty well knock a man out with it; but of course not a wartime newspaper. But let me show you the power of paper in a very striking way."

FIG. 5



You ask someone to hold the two ends of either a drinking straw or a thin wooden stick—a stick about 12 in. long and about the same thickness as a drinking straw is best. You then take either a paper napkin, or, failing that, a piece of newspaper about a foot square. Drawing it out into a sort of lettuce leaf shape you strike several times on the middle of the stick with it. On the third stroke the paper cuts right through the stick, severing it into two parts.

How it is Done. You have a secret weapon for this trick, your first finger. The first twice you strike with the paper you hold the paper between second finger and thumb in the ordinary way. The third time you secretly place your first finger along behind the paper, and it is this finger which snaps the stick. See Fig. 5.

A SECOND-SIGHT TRICK

This is a very simple, crafty little trick, but well performed it proves a great source of mystification.

You give out a number of pieces of differently coloured chalk and ask someone to blindfold you with a handkerchief. "Now," you say, when the blindfold is in position, "I will place my hands behind my back. Will someone put one of the coloured chalks into my hand." This is done and, still holding the chalk clearly visible in your hand behind your back, you put your other hand to your forehead in a thinking attitude, and presently announce the colour of the chalk.

How it is Done. The bandage is quite genuine and so are the chalks. When you receive one chalk in your hand, rub a little on to your right forefinger, or scratch a tiny bit off under your finger nail. Keep the chalk clearly in view behind your back in your left hand. As you bring your right hand up to your forehead, look down your nose—I mean quite literally—and you will find you can just catch a glimpse of your right hand as you bring it up. This glimpse tells you the colour of the chalk, which you announce, and wipe off the tell-tale smudge of colour in the act of taking off the blindfold.

Make your conjuring entertainments amusing as well as mystifying, by telling a few jokes or humorous stories as you go along; these also serve to distract the attention of the audience at critical moments in the performance of your tricks.

Air News

The D.H. "Mosquito"

General details of the D.H. "Mosquito," Britain's new reconnaissance bomber, are now available. It is said to be the fastest bomber ever built, and is also of special interest in being constructed mainly of wood, a departure from the present-day fashion of building all-metal military aircraft.

The "Mosquito" is the first operational type of aircraft to be designed and built by the de Havilland company since the war of 1914-18, and in appearance it reminds one of the famous D.H. "Comet" monoplane with which C. W. A. Scott and T. Campbell Black won the MacRobertson England-Australia air race in 1934. It is a middle wing machine of 54 ft. 2 in. span, is 40 ft. 9½ in. long, and has two underslung Rolls-Royce liquid-cooled engines of great power. The offensive armament may consist of four 20 mm. cannon and four .303 machine guns, and a surprisingly large bomb load for a machine of its size can be carried. There is a crew of two. Both undercarriage and tail wheel units are retractable.

The first news of this splendid light bomber came from a German official report, but mention of it in the British Press was permitted after the "Mosquito" daring daylight raid on the Gestapo headquarters in Oslo on 25th September last. Since then it has made daylight raids deep into Germany, and has been mentioned several times in official news bulletins.

Mr. C. G. Grey, whose article *"The Story of the Luftwaffe"* appears in this issue, has related an amusing incident arising out of the great speed and remarkable manoeuvrability of this new British bomber. A test pilot was showing off a "Mosquito" to a gathering of "Brass Hats" of the Allied Nations. He took it off the ground in a climbing roll, then he came back over the aerodrome and slid downhill at an enormous speed until he was quite close to the ground; then he shot the machine straight up vertically, rolling as he went, like a corkscrew on end. One of the U.S. Army Air Corps Officers remarked: "Gee! That makes me think of a homesick angel!"

Night Fighter Pilot's Triple Success

Another R.A.F. night fighter pilot has shot down three enemy bombers over this country in one night. He is Flying Officer G. Pepper, D.F.C., a 26-year old Canadian from Belleville, Ontario, who was a T.T. motor cyclist and a dirt track rider before he joined the R.A.F. in 1940. At one time he was captain of the Newcastle dirt track team.

The first R.A.F. night fighter pilot to achieve a triple air success of this kind was Wing Commander J. Cunningham, who destroyed three Heinkel He 111s one night in April 1941.

Air Training Corps News

Boys can now join the Air Training Corps as soon as they are 15½ years old, instead of having to wait until they are 16. The new cadet receives his uniform when he has completed three months service in the Corps.

More than 100,000 British A.T.C. cadets visited R.A.F. summer training camps this year, and over 62,000 cadets were given a flight in Service aircraft during the camp season.

Following Britain's lead, air training organisations

are now firmly established in several Dominions, and many thousands of young Australians, Canadians, New Zealanders, West Indians, and Rhodesians are hard at work training to enter their own Air Force or the R.A.F. In Australia, where the present target for the A.T.C. is 12,000 cadets, 65 squadrons with a total of 8,000 cadets were enrolled in less than a year after the formation of the Corps. General George H. Brett, Commander-in-Chief Allied Air Forces in the South West Pacific, has said of these young air-minded Australians: "This is the sort of youth movement which answers the challenge of Hitlerism." He revealed that the United States, impressed with the value of the A.T.C., had recently formed its first unit at the New York Military Academy, Cornwall-on-Hudson.

Southern Rhodesian cadets had their first annual camp at an initial training wing in Bulawayo last August. Nearly 200 cadets spent a week in camp, visiting air stations at Kumalo, Heany, Induna, and Moffat; and like their opposite numbers in Britain



An impressive view of "Flying Fortress" heavy bombers in mass production, showing main body sections almost ready for the addition of wings, tail, engines, etc. Photograph by courtesy of Boeing Aircraft Company, U.S.A.

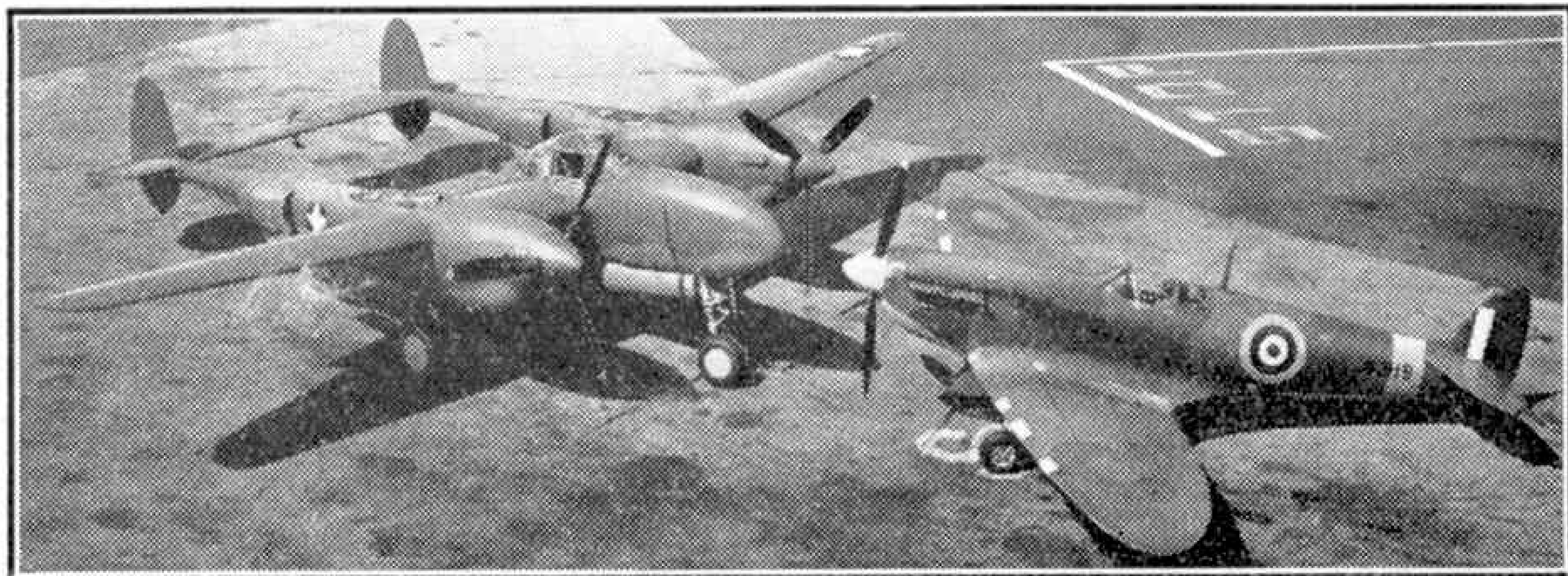
they had a full course of lectures on various R.A.F. subjects, as well as practical instruction. At one station they were taken for flights.

* * * * *

The latest version of the well-known Airspeed "Oxford" is now in service with the R.A.F. as an advanced trainer, and is being produced in large numbers. It is known as the "Oxford" V, and its two 450 h.p. Pratt and Whitney "Wasp Junior" engines give it a top speed of 202 m.p.h. The service ceiling of this trainer is now 20,000 ft.

* * * * *

The airport at Fort William, Canada, has been taken over by the Canadian Government for the duration of the war, and the runways there are to be lengthened by about 4,000 ft. in each of their two directions. This extension will enable them to be used for flight testing the Curtiss dive bombers to be produced in large numbers by the Canadian Car and Foundry Company. The first of these machines will be ready for flying early next year.



A "Lightning" and a "Spitfire," two of the fastest fighter aircraft in the world, meet at Lockheed Air Terminal, Burbank, U.S.A. The "Lightning" is produced by the Lockheed Aircraft Corporation, by whose courtesy this photograph is reproduced.

Heavy Traffic on Trans-Canada Air Lines

Almost every month shows an increase in the volume of traffic carried by Trans-Canada Air Lines. The number of passengers flown in the company's machines during August last, the most recent month for which figures are available, was below the record total of 10,317 attained in June this year, but both air mail and freight show further increases. A total of 208,617 lb. of air mail was carried during August, 15,646 lb. more than in the previous month and 179,190 lb. more than in August 1941. Air freight flown in T.C.A. machines during August amounted to 38,835 lb., an increase of 5,512 lb. over the July figure and almost 17,000 lb. more than the quantity carried in August 1941.

Most of the passengers are Government officials and personnel of the Armed Forces, and the freight consists largely of war materials. Splendid work is being

done in high-speed transportation of this wartime traffic. On one occasion a 235 lb. crankshaft urgently needed for an oil tanker at an Atlantic port was made by a firm in the Canadian Maritime Provinces, put aboard a T.C.A. machine at Halifax, and three days later was being fitted in the ship.

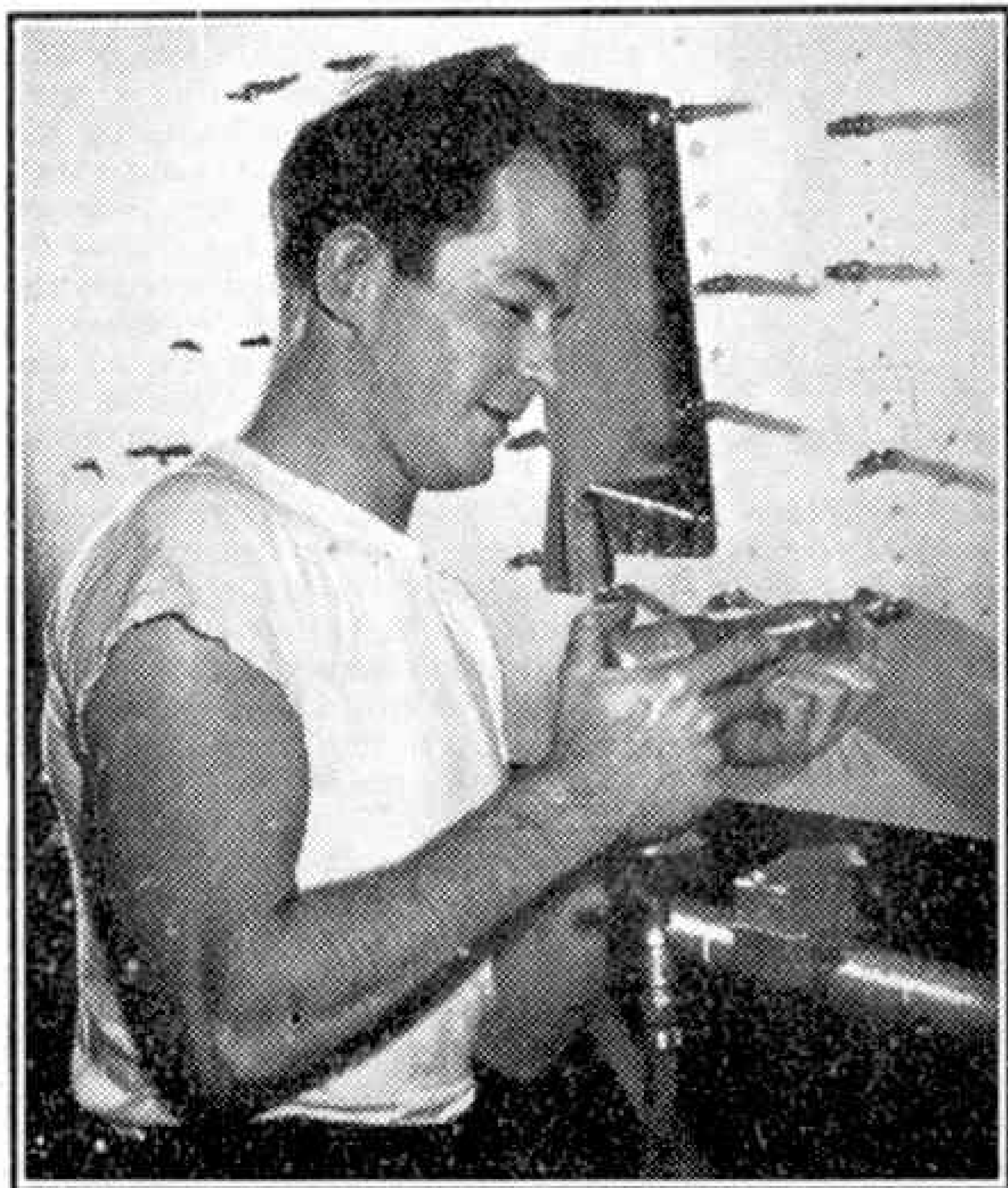
Swan Impaled by "Spitfire's" Cannon

A R.A.F. Fighter Command pilot recently brought home a tasty supper on the wing of his "Spitfire." Several "Spitfires" were flying low over a Scottish loch while returning from a practice operation, when the leader disturbed some swans which were on the water. The swans became "airborne" just in time for the second machine to hit one. The collision threw the pilot 40 deg. off his course, the bird was impaled on his starboard cannon and in this manner was carried to the R.A.F. station. It was lucky that the swan did not fly into the airscrew or hit the outboard section of the wing, as the pilot would have been "ditched," and there would not have been any roast swan for supper.

Good Work by "Beaufighters"

"Beaufighters" of R.A.F. Fighter Command are doing excellent work intercepting and shooting down enemy night raiders before they reach our coast. One night recently a "Beaufighter" piloted by a Flying Officer intercepted a Heinkel He 111 off the East coast, stalked it for 30 miles to make sure that it was an enemy machine, and when 20 miles from the English coast fired a 1-sec. burst from his guns. There was a blinding flash and explosion in the raider. "I think that its bombs exploded as soon as I hit it," said the pilot afterwards.

On another night two raiders were intercepted within 10 min. by pilots of a Canadian "Beaufighter" squadron. The 21-year old British Squadron Leader from Surbiton, Surrey, who leads one of the flights in this squadron, was flying in brilliant moonlight over the English Channel when he saw a Dornier Do 217, which opened fire on him. He shortened the distance between himself and the enemy, fired several bursts from his cannon, and saw the Dornier drop its port wing, spiral steeply to the ground just inland and there blow up. A Canadian Sergeant Pilot of the squadron, whose home is at Lethbridge, Alberta, engaged and hit the other enemy raider, a Junkers Ju 88. He was unable to claim more than a "probable," however, because the machine dived into cloud at a height of about 1,500 ft. and was not seen again.



Douglas MacArthur at the Vega aircraft factory at Burbank, at work on a "Ventura" bomber. He is nicknamed "General," as his great grandfather and General MacArthur's grandfather were brothers. Photograph by courtesy of the Vega Aircraft Corporation, U.S.A.

Destruction of enemy bombers by ramming them and clipping off the tail control surfaces has been developed so effectively by Russian fighter pilots that often they accomplish it without damage to their own machines.

Animal Life in Scandinavian Forests

By L. Hugh Newman

THERE are not many places in Europe now where big game animals can be found, but they still survive in the Scandinavian mountains, and the deep lonely forests of Finland. The present war undoubtedly will have an adverse effect on wild life, particularly in Finland, where the violent fighting, and the extensive forest fires ranging along the Russian border, will drive at least the larger animals to seek more peaceful surroundings farther away in Northern Russia. Indirectly too, the shortage of meat will endanger the existence of the elks, which had only just begun to be common again after being nearly exterminated during the last war.

When I spent a Christmas holiday in Scandinavia a few years ago I was lucky enough to see an elk, and it is an encounter that I shall always remember. I was skiing alone through the forest on a grey cheer-

cattle is now a rare occurrence, and the wolfskin coats that wealthy farmers used to wear in winter are seldom seen.

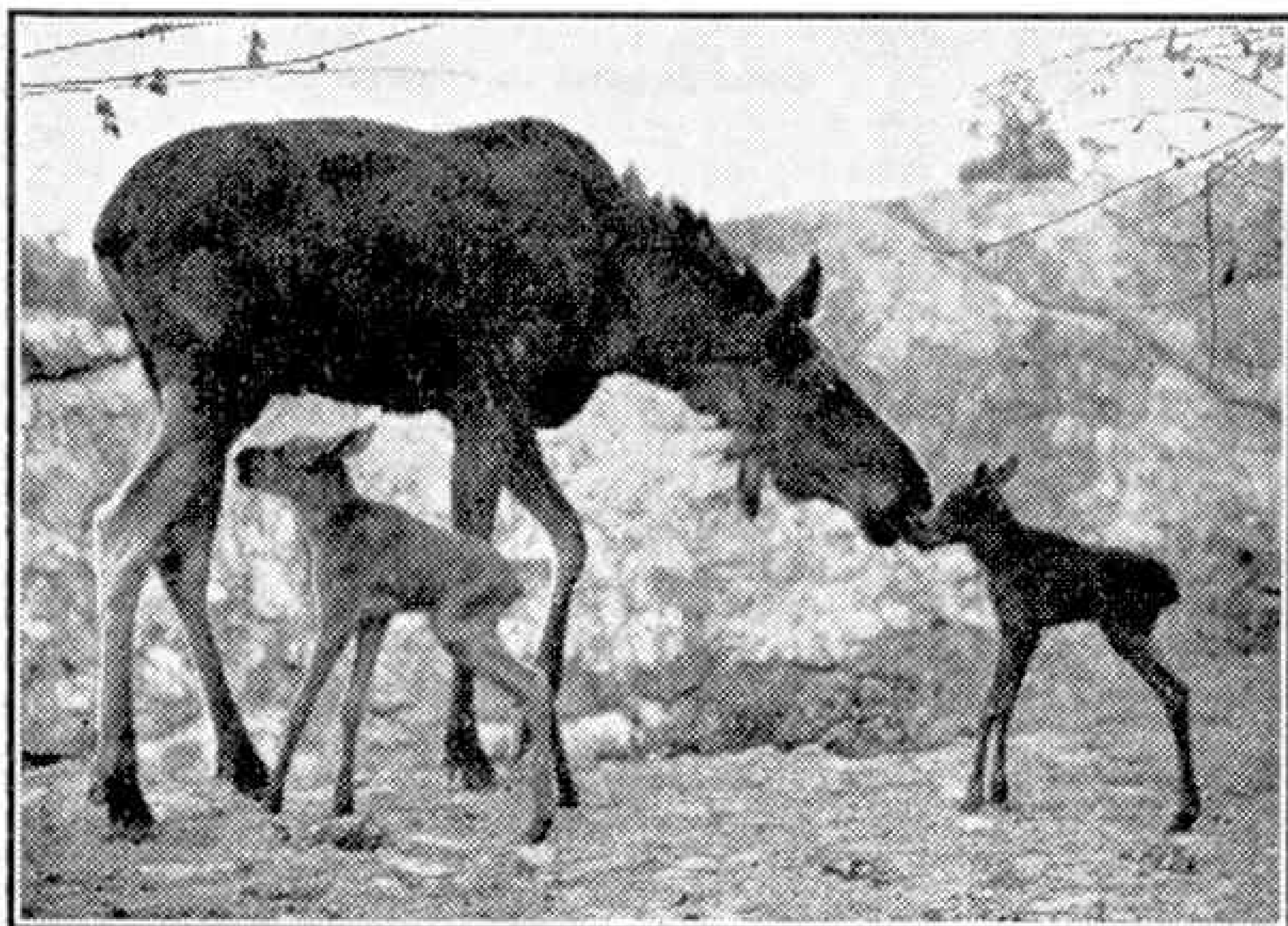
Bears are more common than wolves, and though normally they are harmless enough, living on roots, berries and grubs, they occasionally get a taste for meat and do a great deal of harm by killing cattle grazing in the forest clearings, or even breaking into cowsheds and stables unless these are very solidly built. Bear traps, in the shape of deep pits, covered and camouflaged with light fir branches and baited with a live woodcock or capercaillie tied to a stake in the centre, were once commonly used, but nowadays so called "killing bears" are nearly always shot outside their lairs in winter after being roused by dogs of the husky type used exclusively for this sport.

Though the bear is the largest fur-bearing animal in Scandinavia, the wolverine with his insatiable hunger does far more damage to sheep, cattle and reindeer, and consequently is hunted and killed whenever possible. Whereas the bears prefer deep forests and marshes, the wolverines are found more often in mountainous districts, and unlike bears they do not hibernate in winter. Reindeer floundering in deep drifts fall an easy prey to the wolverine, which can move quickly through deep loose snow on his large shaggy paws, or bound along in tremendous leaps. The wolverine not only attacks living animals larger than himself, but also does a great deal of damage by breaking into the caches where the Lapps leave their stores of food, fur coats and other things when they follow the reindeer herds on their wanderings.

The majority of reindeer in Scandinavia are domestic animals belonging to Lapp families who get their living from tending the herds, but a certain number of

wild reindeer still occur. During winter they keep to the forests, where they scratch for grey moss under the snow, but in summer the mosquitoes drive the herds up to the windy fells, where they remain until the plague is over for the season. Unlike most deer the reindeer do not always lose their horns annually, so even in winter individuals may be found that still carry their magnificent branched "candelabra."

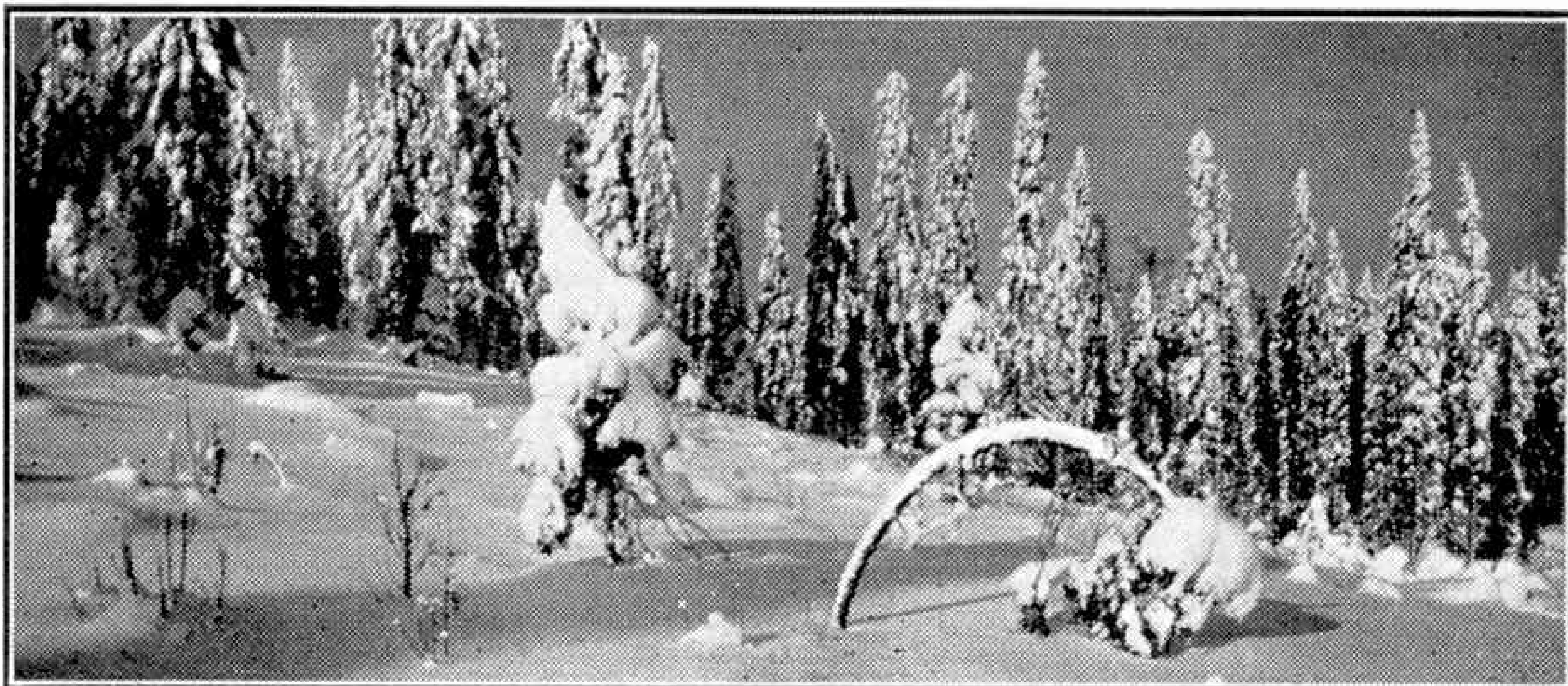
The only wild member of the cat tribe that occurs in Scandinavia is the lynx, and that too is becoming more and more rare. The lynx does less damage to domestic animals than either bears or wolverines, but the fur is highly prized, and lynx therefore are hunted every winter. The Scandinavian beaver unfortunately became extinct round about 1840, except in a small area of Norway. In 1922 a pair of Norwegian beavers were introduced into Sweden, and have since settled down and increased in their new home. Finland, with its vast network of lakes and rivers and wide marshy stretches, is an ideal country for beavers, but there, too, excessive hunting exterminated the native stock. In 1933 beavers were imported from Canada and turned loose in the Northern forests. Happily they have



An elk with her twin calves. Twins are very unusual in elk families.

less day, when rounding a bend in the track I suddenly saw the large form of an elk between the trees ahead of me. He looked a queer fantastic animal with his large head, heavy shoulders and long ungainly legs. There was nothing graceful about his build, in fact he seemed to be more grotesque than lovely; but in spite of his apparent clumsiness he vanished in a moment as soon as he saw me. He seemed to fade into the grey shadows under the spruces, and if it had not been for the tracks in the snow I might have thought I had been dreaming.

Perhaps the rarest of all the big game animals in Scandinavia now is the wolf, which is very seldom seen, although 70 or 80 years ago it was quite common. It is said that the railways drove them away, and in Finland at least the building of the coastline railway certainly saw the last of the wolves, except in the very remote forests in the East and North. I spoke to one very old peasant who could remember how during his boyhood wolves used to follow the lonely sleighs crossing the ice of the lakes late at night, and stalk wanderers along the roads through the forest. During recent years there have been one or two cases of wolves attacking small children in far away districts, but even damage to sheep and



The snow covered forests of Scandinavia are shrouded in deep silence.

increased exceedingly, and it is to be hoped that modern game laws will prevent them from disappearing once again. Another Canadian animal that has been introduced is the musk rat, which was brought over half a century ago. Before the war 50,000 musk rat skins used to be exported annually, and in some districts these rodents have become almost a nuisance.

Red squirrels are very common all over Scandinavia and during my stay there I often watched them for hours. My host told me that for some time after the last war they practically disappeared, and only after no shooting had been allowed for five years did they again appear in any number. They are charming little animals, very quick and graceful, and extremely inquisitive. At the chalet where I was staying a bowl of dripping was put out on the edge of the balcony for the birds. A squirrel that came regularly for nuts decided to inspect this bowl, and jumped from the nearest spruce on to the balcony. Unhappily

for him, the bowl was not very securely balanced on the narrow ledge, and when he attempted to peer over the rim his weight pushed it over, and squirrel and bowl tumbled down into the snowdrift together. Jabbering with rage he dashed across the yard and up the nearest tree, where he sat for a long time calming himself and smoothing his ruffled fur. These little squirrels, though red in summer, have a grey winter coat, but their tufted ears and pointed noses distinguish them clearly from the grey squirrel, which is now so common in England.

In this same district I came across a pair of flying squirrels. They lived in the attic of a house near by, gaining access through a hole that woodpeckers had made in the boarding. They were smaller than the other squirrels and did not move about in the daytime, but at dusk they ventured out in search of food. The distance from their hole to the nearest tree was quite 30 ft., but they always managed to reach the lower branches, by taking an enormous leap and using their tails and the flaps of loose skin between their front and hind legs on each side as sails.

There are no rabbits in the greater part of Scandinavia, and none at all in Finland, the winter weather is too severe for them; but hares abound. They too change their pelts in winter, becoming pure white, except for black tips to their ears, and they are therefore extremely difficult to see against the snow. Although I came across many well worn hare "paths" on my skiing trips, and found the places where they had been gnawing the bark off young willows and willows in the marshes, I never actually saw one.

Except for the chattering squirrels and the sigh of snow sliding from the branches, the forest was usually silent. All the more startling was the thunderous noise of black cock, partridge and capercaillie suddenly rising from their invisible burrows in the snow. They seemed to wait until my skis were almost on top of them before breaking cover. I could never resist stopping to break the surface crust covering their holes and follow the tunnels the covey had made as their sleeping quarters.

Great tits, coal tits, blue tits and occasionally crested tits visited the bird table, with its dripping and suet, and a sheaf of oats placed on a pole in the garden for the seed eaters. The loveliest birds of all were the bullfinches. They were particularly fond of a patch of milfoil sticking up above the snow in the garden. Clinging to the stems they pecked at the seed heads, scattering little eddies of dust in the wind, and with their soft grey and red colouring and their black heads against the sparkling snow they always reminded me of an exquisite Chinese print.

I hope it will not be too long before I can once again wander at will in Europe to study the birds and butterflies of foreign lands.



A squirrel makes its morning call for nuts.

Suggestions Section

By "Spanner"

(573) A Ratchet Fishing Reel (A. Brown, Preston)

Model-builders who are interested in fishing will find that a useful addition to their equipment, one that can easily be

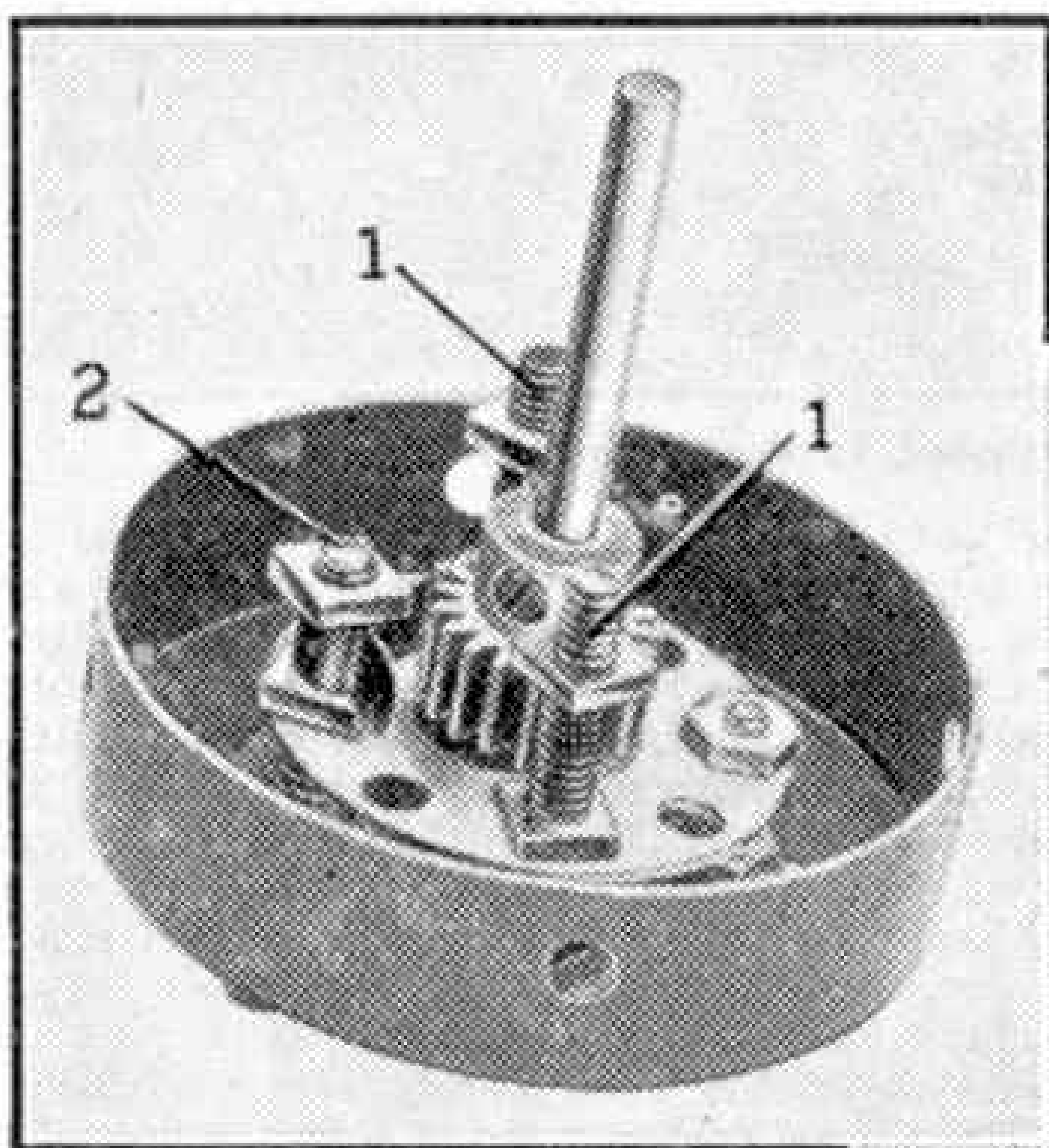


Fig. 573.

constructed from Meccano parts, is a ratchet line reel. The method of constructing it is shown in Fig. 573. The reel consists of two Face Plates fixed on a Rod journalled in a Boiler End, to which is attached a Bush Wheel by means of two $1\frac{1}{8}$ " Bolts 1. The Face Plates are spaced apart by a Chimney Adaptor placed between them on the Rod. The Bolts 1 also hold in place a $1\frac{1}{4}$ " Disc as shown. A second $1\frac{1}{8}$ " Bolt 2 is passed through holes in the Boiler End and the $1\frac{1}{4}$ " Disc, and carries at its outer end a Collar, in the tapped bore of which a $\frac{3}{4}$ " Bolt 3 is secured. This Bolt forms a lever by means of which the direction of rotation of the ratchet wheel is reversed.

The $\frac{3}{4}$ " Bolt is held in the desired position by a Pendulum Connection 4, bent to the shape shown in the right-hand

illustration, and fixed in place by a 6BA Bolt and Nuts. The inner end of the Bolt 2 carries a Spring Clip that is engaged by either of its lugs with the teeth of a $\frac{1}{2}$ " Pinion mounted on the Rod. The reel is completed by attaching a Wheel Flange to the Bolts 1 and fixing it by means of two $1\frac{1}{2}$ " Corner Brackets and a $2\frac{1}{2}$ " Angle Girder to two Angle Girders, which are then clipped to the fishing rod.

(574) Collapsible Clothes Hook (C. Smith, Stoke)

Fig. 574 shows a useful form of collapsible clothes hook that is designed for fixing to doors that open back against a wall. It consists of a clothes peg that is spring mounted, so that normally it lies flat against the door, but opens out when clothing is hung on it.

To assemble the device several $2\frac{1}{2}$ "

Triangular Plates, placed one on top of another, are bolted in a suitable position to the door and fitted with two $1" \times \frac{1}{2}"$ Angle Brackets. These Angle Brackets are fitted with a Swivel Bearing 1 that is also fixed by its "spider" to the Triangular

Plates. The boss of the Swivel Bearing holds a $1\frac{1}{2}"$ Rod 2, which forms the peg and carries a Handrail Coupling as shown. Two short lengths of Spring Cord 3 are attached at each side to the Triangular Plates and are fastened by a Bolt to the Swivel Bearing. The peg is prevented from swinging down too far by a Bolt 4, which is screwed into the remaining upper tapped bore of the "spider," and engages the end of Rod 2.

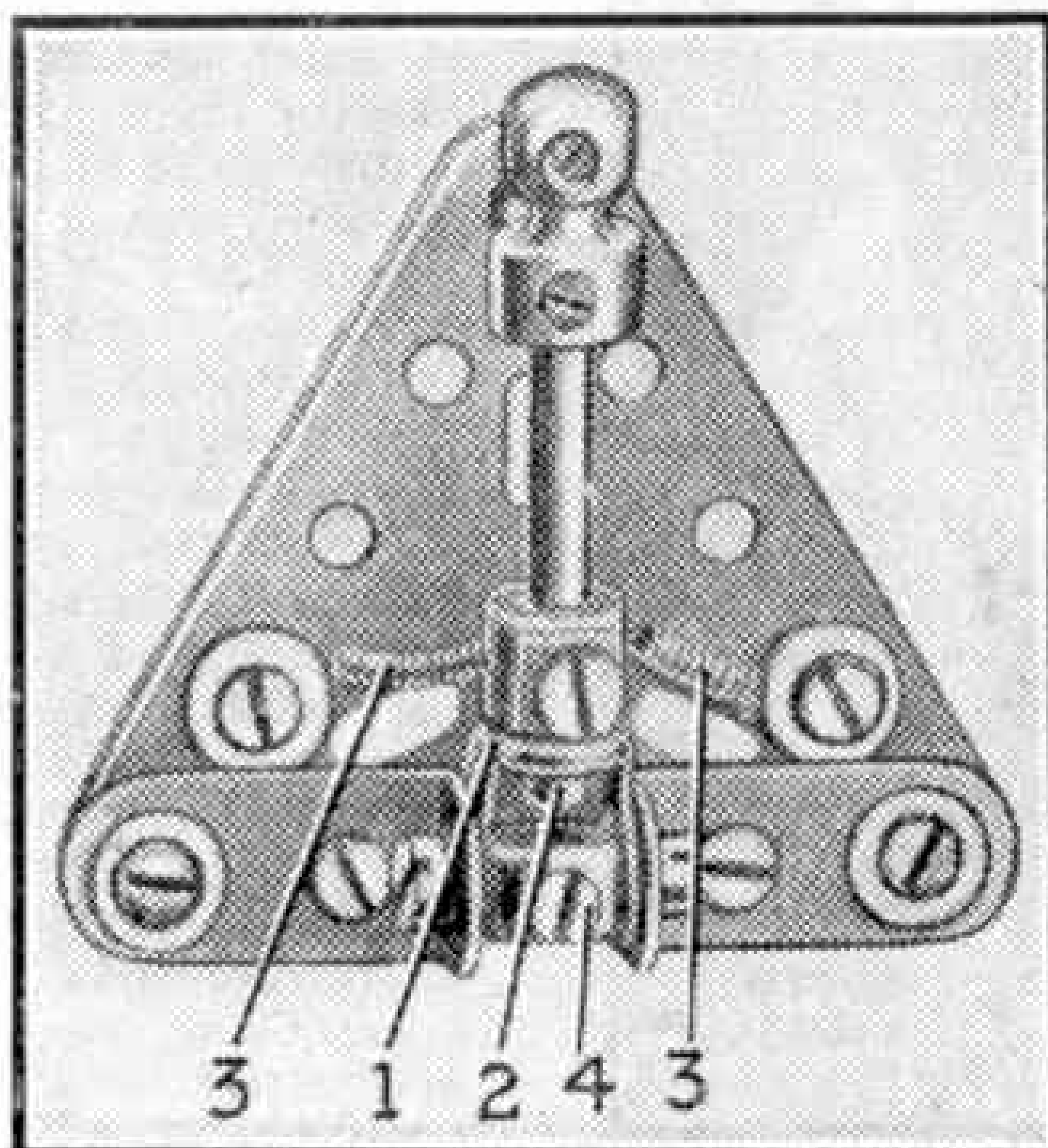
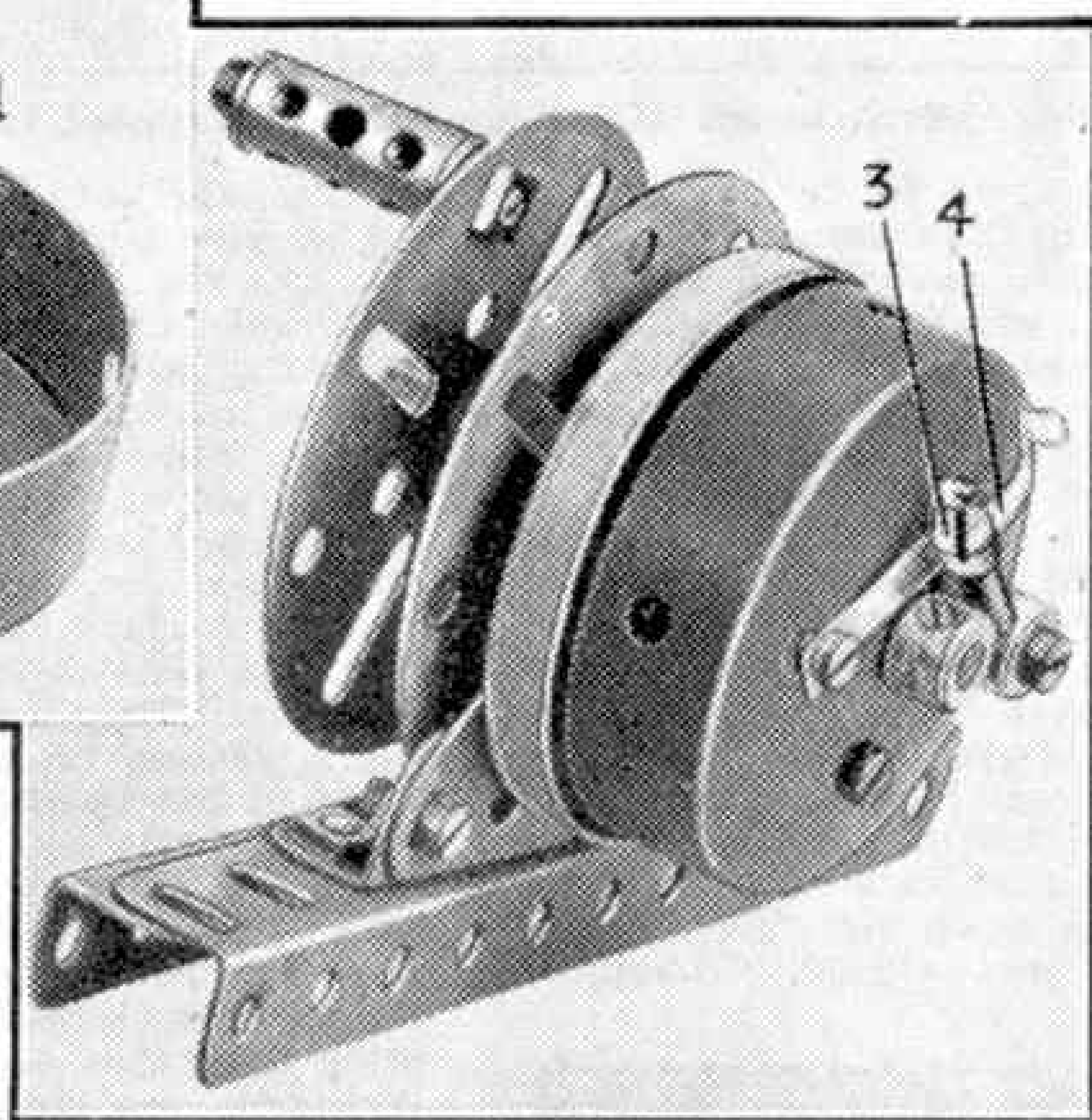


Fig. 574.

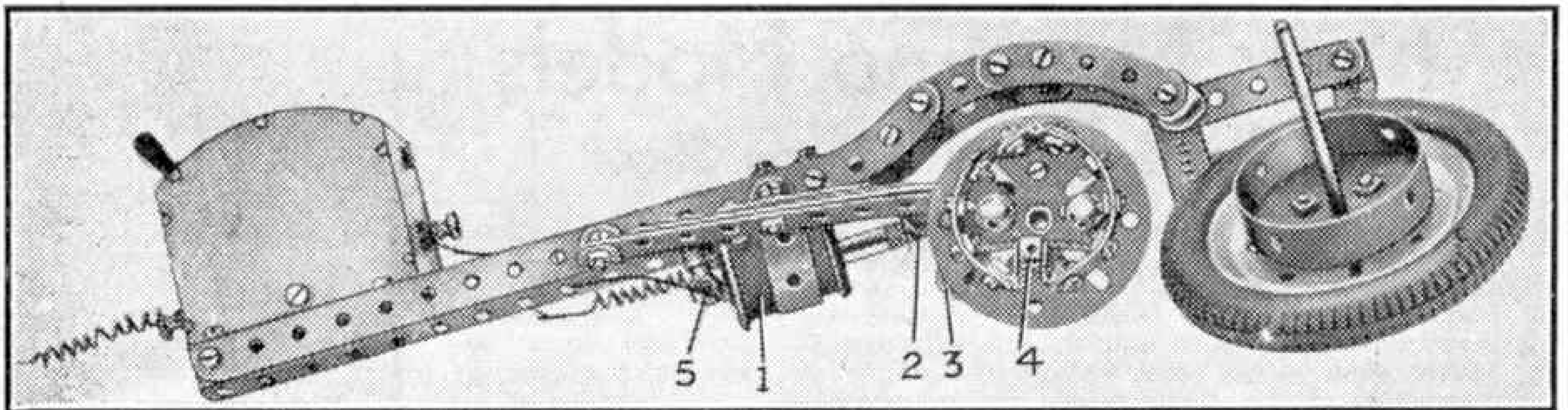


Fig. 575.

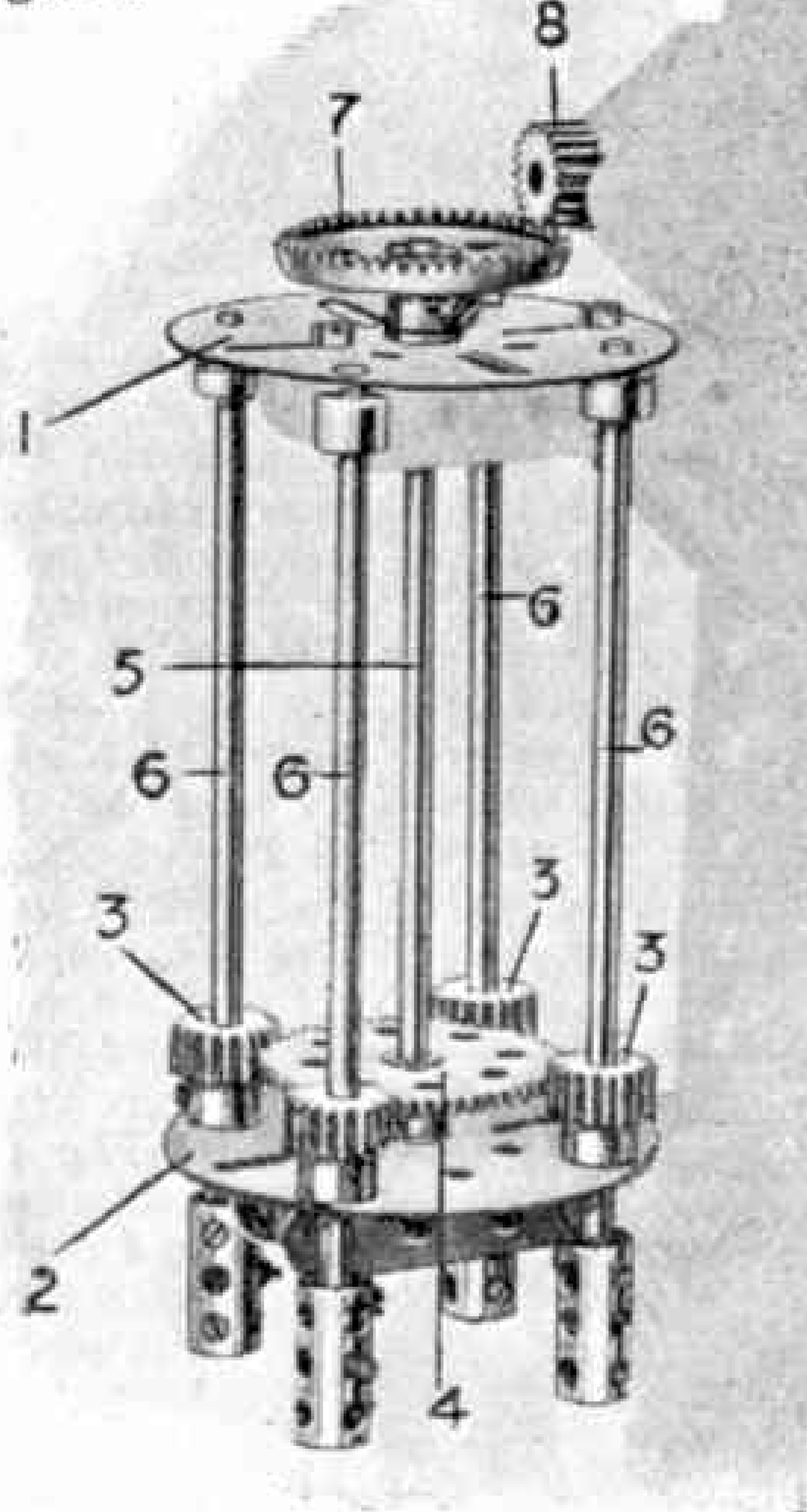
(575) Electrically Operated Brake (G. Woods, Northampton)

Fig. 575 shows a novel brake mechanism suitable for fitting to model heavy road vehicles. It is operated by a solenoid fitted with a sliding core. A Magnet Coil 1 is clamped to the side member of the chassis of the model and is fitted with a Magnet Core, to which is attached a $\frac{1}{2} \times \frac{1}{2}$ Angle Bracket 2. The Angle Bracket is lock-nutted to a Flat Bracket, and to the latter is also lock-nutted the arm of a Boss Bell Crank 3, the other arm of which is bolted to a Crank. The Crank is fixed to the cam 4 of an internal expanding brake. The Magnet Coil is connected to a 6-volt Resistance Controller housed in the engine bonnet or at the rear of the chassis, and is fitted with a Bolt held by a Handrail Support 5 attached to the side member of the chassis at the front of the Coil.

(576) A Novel Multiple Drive Mechanism ("Spanner")

The novel mechanism shown in Fig. 576 is based on an interesting system sometimes used in multiple drilling machines and similar apparatus, where several shafts are required to rotate at the same speed and in the same direction. A vertical Rod 5 carries a $1\frac{1}{2}$ " Contrate Wheel 7, which is driven by a $\frac{1}{2}$ " Pinion 8 fixed to the belt pulley shaft. The Rod 5 is journaled in the bosses of two Face Plates 1 and 2, which are bolted to the upright column of the machine, and carries a 57-teeth Gear Wheel 4. The latter drives four $\frac{1}{2}$ " Pinions 3, each of which is fixed to a countershaft 6. On the

Fig. 576



lower ends of the four countershafts are Couplings, which will serve to hold drills or other tools.

This novel and interesting mechanism is typical of 187 different devices described and illustrated in the Meccano "*Manual of Standard Mechanisms*." Each of these devices has many applications in Meccano models of all kinds, and they include brakes, gear-boxes, differentials, steering gears and screw, belt and pulley mechanisms. Further details of this Manual are given in the advertisement on page ii of this issue.

(577) Sprocket Chain Drives (D. Hughes, B'head)

It is sometimes necessary to use Sprocket Chain drive in a model where it is only possible to arrange the Chain and Sprockets in a horizontal plane. To prevent the Chain slipping off the Sprockets, a Pulley or a similar part should be secured immediately beneath each Sprocket. The Pulley should be of larger diameter than the Sprocket, so that its rim will form a ridge or support on which the Chain can rest while passing round the Sprocket teeth. For example, a $1\frac{1}{2}$ " Pulley could be used in combination with a 1" Sprocket, a 2" Pulley with a $1\frac{1}{2}$ " Sprocket, and so on.

(578) Free Wheel (F. Nicholls, London E.11)

This consists of a Nut locked by a $\frac{7}{32}$ " Grub Screw to a Collar on a Threaded Pin passed through a hole in a 57-teeth Gear. The Nut is spring-loaded and engages with a $\frac{1}{2}$ " Pinion on a Rod inserted in the Gear.

New Meccano Models

Carpet Sweeper—Bacon Slicer

ONE of the most uncommon types of models we have described in "New Models" pages for some months is the neat miniature carpet sweeper shown in Figs. 1 and 2. This model is fitted with an ingeniously designed brush and will actually sweep up crumbs when pushed along a table.

Construction of the model should be commenced with the body, inside which the brush rotates. This comprises two $5\frac{1}{2}$ " Angle Girders bolted to a $5\frac{1}{2}$ " $\times$ $3\frac{1}{2}$ " Flat Plate 1. A $5\frac{1}{2}$ " Flat Girder is joined to each of the $5\frac{1}{2}$ " Angle Girders by Obtuse Angle Brackets, and a $3\frac{1}{2}$ " Flat Girder is attached to each end of the Plate 1 by $\frac{1}{2}$ " $\times$ $\frac{1}{2}$ " Angle Brackets. A Double Arm Crank is then bolted to each $3\frac{1}{2}$ " Flat Girder. The $5\frac{1}{2}$ " Flat Girders are attached to Obtuse Angle Brackets, bolted to four $7\frac{1}{2}$ " Flat Girders 2, which are placed, two at the back and two at the front. The $7\frac{1}{2}$ " Flat Girders are secured to two $5\frac{1}{2}$ " Angle Girders 3. Four $2\frac{1}{2}$ " Angle Girders are also bolted to the Angle Girders 3, and are secured to the $3\frac{1}{2}$ " Flat Girders at each side of Plate 1 by Flat Brackets. Four Trunnions are bolted to the $7\frac{1}{2}$ " Flat Girders 2 and to these are fixed two $5\frac{1}{2}$ " Strips.

An 8" Rod 5, Fig. 2, journalled in the centre holes of the $5\frac{1}{2}$ " Strips carries nine Couplings. Each of these has a small tuft of bristles cut from an old brush gripped in its centre hole by two locked Bolts. The 8" Rod 5 also carries two 1" Pulleys, which are rotated by the $1\frac{1}{2}$ " Pulleys fitted with Motor Tyres. The two $6\frac{1}{2}$ " Rods that carry the $1\frac{1}{2}$ " Pulleys are journalled in Collars that are bolted to $3\frac{1}{2}$ " Strips. These Strips are attached to the Plate 1 by Angle Brackets so that the Motor Tyres of the $1\frac{1}{2}$ " Pulleys engage the 1" Pulleys on Rod 5. A $1"$ $\times$ $\frac{1}{2}"$ Angle Bracket is secured to the Plate 1 by the Bolt 7 and a Nut. A $2\frac{1}{2}"$ Strip is lock-nutted to the Angle Bracket, and a Collar is pivoted to the Strip by a Bolt that also grips a 1" Rod 8, Fig. 1, inserted in the centre transverse bore of the Collar. The Rod 8 is supported in the $5\frac{1}{2}"$ Flat Girder at the front, and a Collar on its outer end forms a foot-pedal for emptying the sweeper. The material collected in the body is thrown on to two plates that consist of three $4\frac{1}{2}"$ Strips bolted at each end to a $1\frac{1}{2}"$ Angle Girder. These plates are pivoted on $\frac{1}{2}"$ Bolts lock-nutted to the $2\frac{1}{2}"$ Angle Girders joined to the $5\frac{1}{2}"$ Angle Girders 3. A Hinge 9 is bolted to each plate, and this is connected by a short length of wire to the foot-pedal, which when pressed causes the plates to open outward to allow the material to be discharged.

Two 5" Rods 10 are bent as shown in Fig. 1 and their ends are inserted in Couplings that are free to pivot on $\frac{1}{2}"$

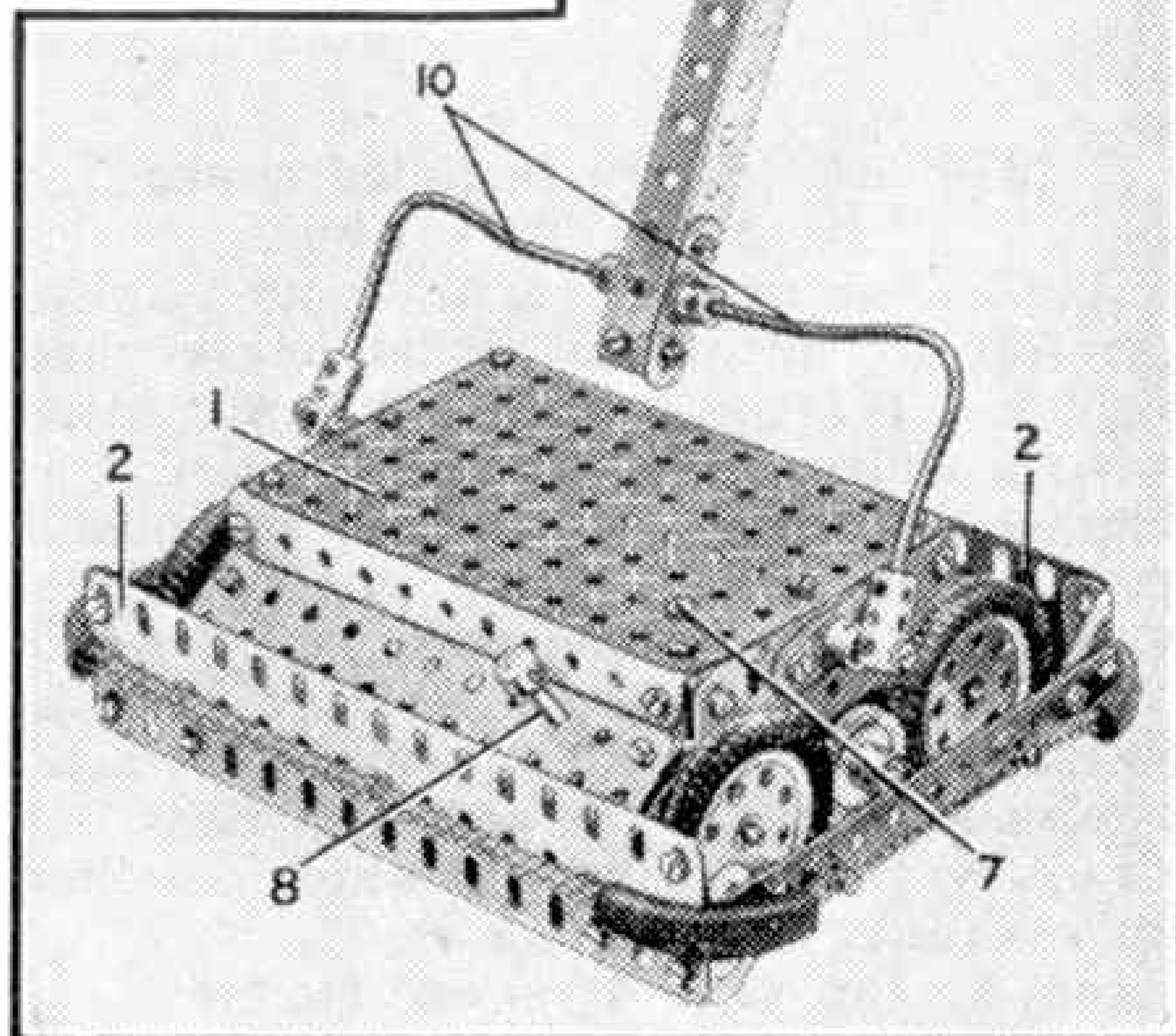


Fig. 1. How to build this handsome and realistic model of a carpet sweeper is explained on this page.

Bolts fixed in the bosses of the Double Arm Cranks. The other ends of the Rods are gripped in the bosses of similar Cranks bolted to four $9\frac{1}{2}"$ Angle Girders, which are joined together to form the handle.

A piece of Sprocket Chain, 26" long, is arranged around the body of the sweeper as shown. Small pieces of rubber tubing placed over the Chain provide buffers at the corners of the body.

Parts required to make model Carpet Sweeper: 2 of No. 2; 6 of No. 2a; 2 of No. 3; 1 of No. 5; 4 of No. 8a; 4 of No. 9; 2 of No. 9b; 4 of No. 9d; 1 of No. 12b; 8 of No. 12c; 1 of No. 13a; 2 of No. 14; 2 of No. 15; 1 of No. 18b; 4 of No. 21; 2 of No. 22; 98 of No. 37a; 109 of No. 37b; 26 of No. 38; 1 of No. 52a; 6 of No. 59; 4 of No. 62b; 11 of No. 63; 1 of No. 94; 2 of No. 103; 2 of No. 103d; 4 of No. 103k; 6 of No. 111; 2 of No. 114; 4 of No. 125; 4 of No. 126; 4 of No. 142d; 4 of Elektron Part No. 1562; 4 of Elektron Part No. 1575.

The model bacon slicer shown in Fig. 3 is designed so that it can be built from the parts in Outfit No. 2. Construction should commence with the base, for which two $5\frac{1}{2}"$ $\times$ $1\frac{1}{2}"$ Flexible Plates and two $2\frac{1}{2}"$ $\times$ $2\frac{1}{2}"$ Flexible Plates are bolted to the flanges of a $5\frac{1}{2}"$ $\times$ $2\frac{1}{2}"$ Flanged Plate 1. Two $5\frac{1}{2}"$ Strips are secured to the lower edges of the Flexible Plates and these in turn are attached to $2\frac{1}{2}"$ Strips that are fixed to the $5\frac{1}{2}"$ $\times$ $1\frac{1}{2}"$ Flexible Plates and the Plate 1. The front of the model consists of two $2\frac{1}{2}"$ $\times$ $1\frac{1}{2}"$ Flexible Plates, which are bolted to the $5\frac{1}{2}"$ Strips and the $5\frac{1}{2}"$ $\times$ $1\frac{1}{2}"$ Flexible Plates of the sides, and to a Flat Trunnion fixed to the Plate 1. The $2\frac{1}{2}"$ Strips bolted to the Plate 1 at the right-hand side of the model are fixed at their upper ends to a $5\frac{1}{2}"$ Strip 2 that is spaced from them by a Nut. This $5\frac{1}{2}"$ Strip and the $2\frac{1}{2}"$ Strip at the left-hand side form guides for the carrier.

A handle for rotating the cutter and moving the carrier backward and forward is inserted

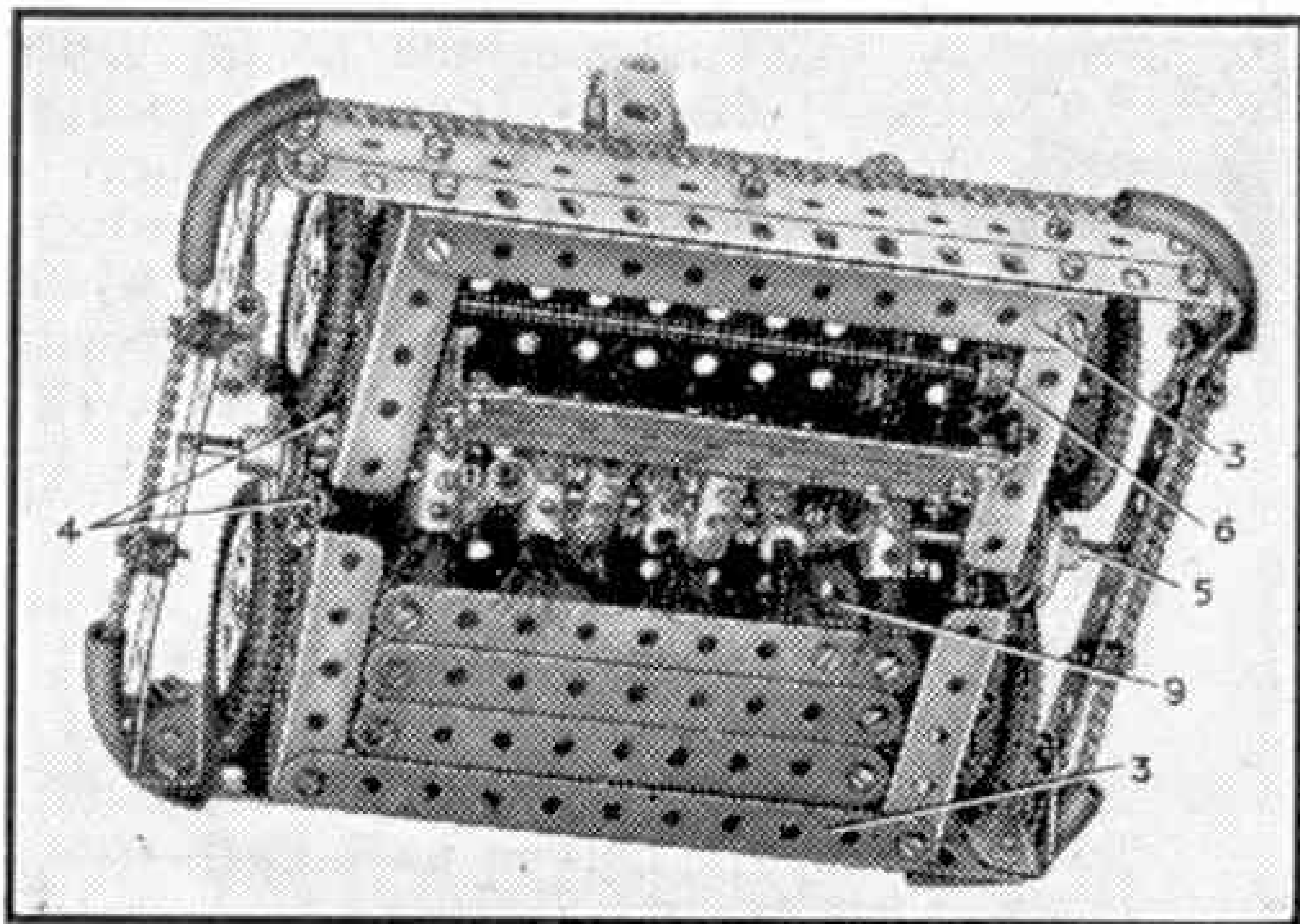


Fig. 2. Underneath view of the Meccano carpet sweeper model.

in the Flat Trunnion at the front and in a Trunnion bolted to the Plate 1. A 1" Pulley fitted with a Rubber Ring is mounted on the end of the Crank Handle; it is spaced from the Trunnion by a Spring Clip and Washer and drives a Bush Wheel 3. The Bush Wheel is fixed on one end of a 2" Rod journalled in a Flat Bracket and an Angle Bracket attached to a $\frac{1}{2}$ " Reversed Angle Bracket. The Reversed Angle Bracket is bolted to the Plate 1, and another Angle Bracket fixed to the Plate 1 is attached to it to make the bearings rigid. A 1" Pulley 4 is fixed on the other end of the 2" Rod, with its boss facing outwards, and a $\frac{1}{2}$ " $\times$ $\frac{1}{2}$ " Angle Bracket 5 is fixed to it by a Bolt spaced by a Nut. A length of Cord is attached to a Bolt lock-nutted in the other hole in the Angle Bracket 5, and another length is attached to a $\frac{1}{4}$ " Bolt inserted in the Bush Wheel 3.

The carrier 6 consists of a $4\frac{1}{2}$ " $\times$ $2\frac{1}{2}$ " Flexible Plate that is bent to shape and bolted to 2 $\frac{1}{2}$ " Strips and 2 $\frac{1}{2}$ " $\times$ $\frac{1}{2}$ " Double Angle Strips. A 2 $\frac{1}{2}$ " Strip is lock-nutted to an Angle Bracket that is fixed to the rear corner of the carrier remote from the cutter, and this holds the "bacon" in place. A handle is formed by bolting a Flat Bracket to the other end of the 2 $\frac{1}{2}$ " Strip.

The carrier is retained in place on the bed of the machine by two Angle Brackets secured to two similar Angle Brackets bolted to the Plate 1 by $\frac{1}{4}$ " Bolts. The ends of the upper Angle Brackets project beyond the Double Angle Strips, and the Cords fastened to the Bush Wheel 3 and Pulley 4 are passed through corresponding holes in the Plate 1 and around the $\frac{1}{4}$ " Bolts of the Angle Brackets. They are then fastened to opposite corners of the carrier. The Bush Wheel 3 and the Pulley 4

should be fixed on the 2" Rod, so that one Cord is drawn in as the other is paid out.

The cutter, a Road Wheel, is mounted on a 3 $\frac{1}{4}$ " Rod that is journalled in the Plate 1, and a Washer is used for spacing purposes. A 2 $\frac{1}{2}$ " Driving Band is placed on the Rod and is also passed around the Pulley 4. A guard for the cutter is provided by a Cranked Curved Strip that is fixed to, but spaced from, the Plate 1 by a Cord Anchoring Spring so that it fits around the rim of the wheel.

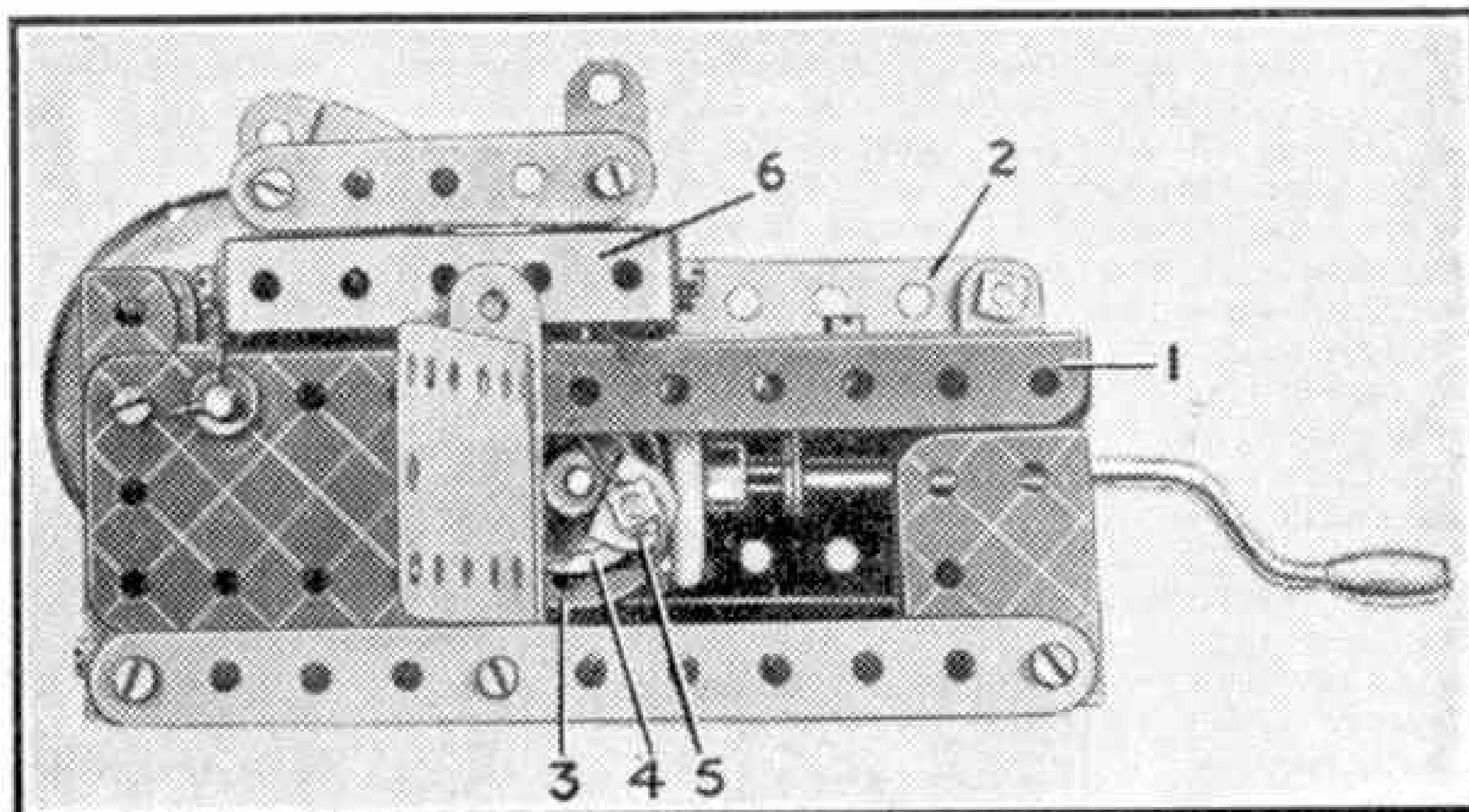


Fig. 4. A Meccano bacon slicer that can be built with the parts included in Outfit No. 2.

Parts required to build model Bacon Slicer: 3 of No. 2; 6 of No. 5; 3 of No. 10; 8 of No. 12; 1 of No. 16; 1 of No. 17; 1 of No. 19g; 2 of No. 22; 1 of No. 24; 2 of No. 35; 46 of No. 37a; 32 of No. 37b; 3 of No. 38; 1 of No. 40; 2 of No. 48a; 1 of No. 52; 1 of No. 90a; 4 of No. 111c; 1 of No. 125; 1 of No. 126; 1 of No. 126a; 1 of No. 155a; 1 of No. 176; 1 of No. 186; 1 of No. 187; 2 of No. 188; 2 of No. 189; 2 of No. 190; 1 of No. 191.

Outfit Model-Building Competition

By "Spanner"

Model-builders still have time in which to plan and build an entry for the great Outfit Model-building Competition announced last month. This has been designed to suit every Meccano owner, for all that is required is that models for entry shall be built from the entrant's Outfit. The owner of even the smallest Outfit has a splendid chance of winning one of the fine prizes offered, although he may not be able to build a model as elaborate as one constructed with a No. 10 Outfit, for the judges will take his age and the size of his Outfit into consideration.

There is no restriction in regard to the kind of model to be entered. It may be driven by a clockwork or electric motor, or it may be one that has no movement incorporated in it; whatever it is if it is good it will have a chance of earning a prize for its builder. Realism in the use of parts, skill in design and originality are the chief points for which the judges will look.

It should be noted that models are not to be sent. Instead, good photographs or drawings should be submitted, with brief explanations where necessary.

Each competitor must write his name and address on his entry, together with his age and the number of his Outfit. Those who have added parts to their original Outfits can make use of these, provided that they give the numbers of the Outfits that contain all the parts included in their entries. They will have no difficulty in this, for lists of contents of Outfits are given in the Manuals.

There are two sections in this contest, for Home and Overseas readers respectively, and in each there will be prizes of £2/2/-, £1/1/-, and 10/6, for the best entries in order of merit, together with consolation prizes of 5/- each. Entries should be addressed "Outfit Model Contest, Meccano Ltd., Binns Road, Liverpool 13." Closing dates: Home section, 31st December; Overseas Section, 30th April, 1943.



Club and Branch News



WITH THE SECRETARY

CHRISTMAS GREETINGS

Once more I have pleasure in wishing all connected with the Guild and with the H.R.C. a happy Christmas. We are now in the fourth year of the war, and many of the good things that in the past have contributed to the enjoyment of Christmas time are no longer available, but confidence in success is higher than ever, and we look forward to a time when peace and goodwill again will prevail throughout the world.

I should like to be sure that each Club and Branch in the country will meet this month, as near Christmas Day as possible, for a happy social evening, and if parents and friends of members can be allowed to share in this so much the better. Above all we must retain and encourage the spirit of comradeship and goodwill. Ordinary meetings contribute their share to this good end, but a special event is even more successful in establishing firmly the bonds of friendship. No elaborate preparation need be undertaken. The best programme for any social evening is one in which all can take part, and it is better for members to sing and play games together than to be merely entertained by others. Wartime refreshments, restricted though they be in range, will take on the guise of first class fare when they are enjoyed in good company.

LOOK OUT FOR RECRUITS

This month too is one in which recruits were traditionally many, since the Meccano and Hornby Train hobbies were invariably taken up by hosts of boys as the result of Christmas gifts. Even now there will be many who are introduced to these pursuits for the first time this month, and the enthusiasm of those who are already familiar with them is heightened at this season, so that now is the time to look out for new members and to introduce them to the delights of Club and Branch meetings. A recruiting campaign therefore should be planned. The best way of obtaining recruits is through the personal efforts of members, and each of these should make up his mind to introduce at least one new member.

Proposed Clubs

DUNDALK—Mr. S. O'Hagan, Bridge Street, Dundalk, Co. Louth, Eire.

WESTON-SUPER-MARE—Mr. M. A. Newberry, 27, Ellesmere Road, Uphill, Weston-Super-Mare.

WHITCHURCH—Mr. R. H. Fooker, Coton Hall, Whitchurch, Shropshire.

MELTON MOWBRAY—Mr. J. Blundy, Police House, Harby, Melton Mowbray.

MORLEY—Mr. A. S. Buckley, 24, Worrall Street, Morley, Leeds.

Club Notes

ACTON M.C.—Track discussion meetings continue to be held, and these result in excellent plans for both track and rolling stock construction. Film Shows

and Musical Evenings are this year being included in the programme. A special fund has been started to provide Club members in the Forces with "extras." Club roll: 13. Secretary: S. W. Simmons, 37, Derwentwater Road, Acton, London W.8.

CAMBRIDGE M.C.—Model-building has been the chief activity. For this purpose members are formed into groups for the construction of special models. A Talk on "Magnets and Magnetism"

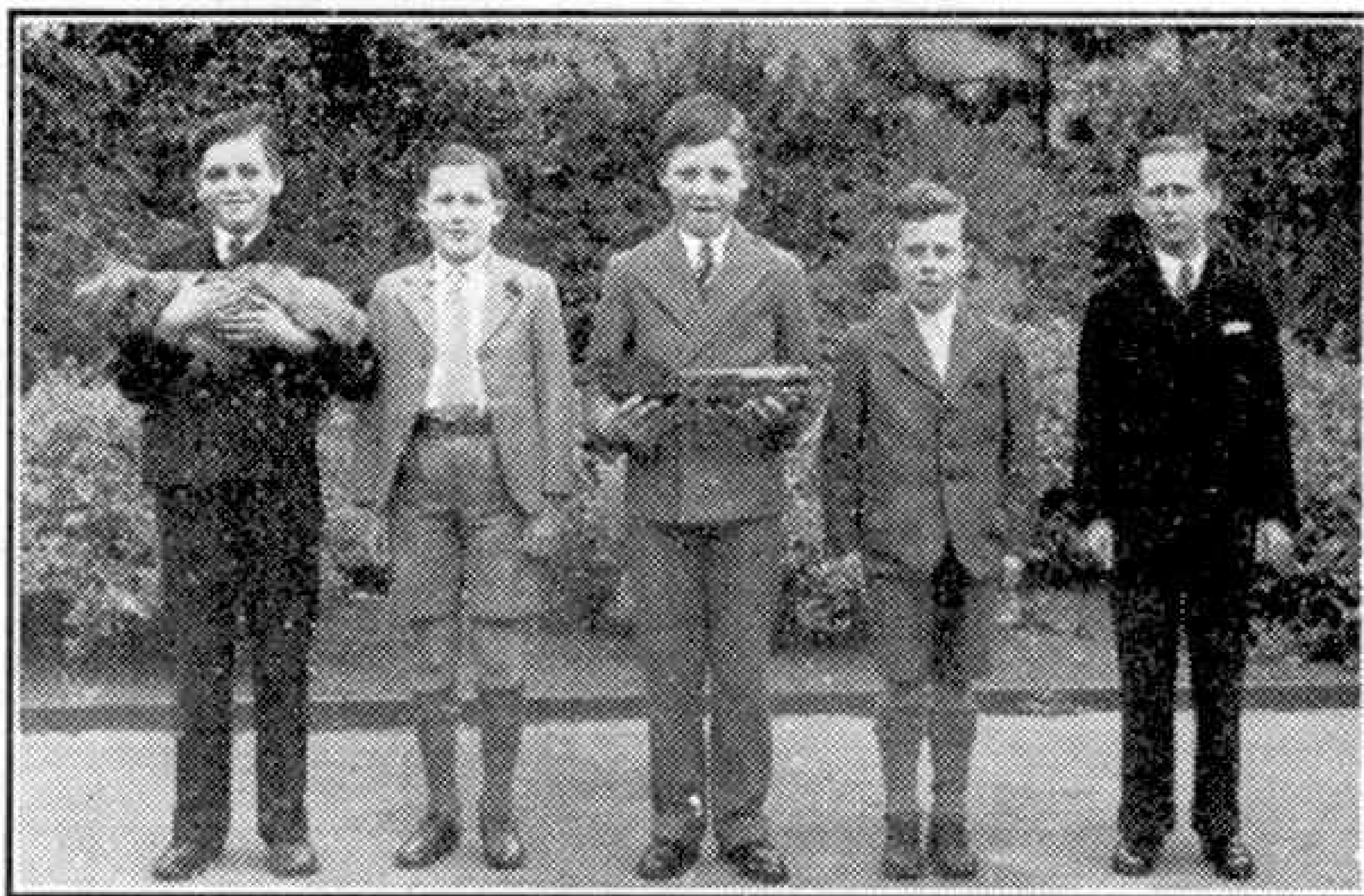
has been given by Mr. R. Allgood. Model-building and Drawing Contests have been held, small prizes being presented to the winners. Special care is taken to keep the Club room tidy. Club roll: 31. Secretary: J. Hughes, 43, Hurst Park Avenue, Cambridge.

HILLSIDE (WHITEFIELD) M.C.—A fine programme has been arranged for the Winter Sessions. It includes Aeroplane Modelling, Ship Modelling, Debates and General Knowledge Competitions. Games also are being played, and all meetings so far have been of great interest and value. Club roll: 10. Secretary: J. S. Hough, 381, Bury New Road, Whitefield, Nr. Manchester.

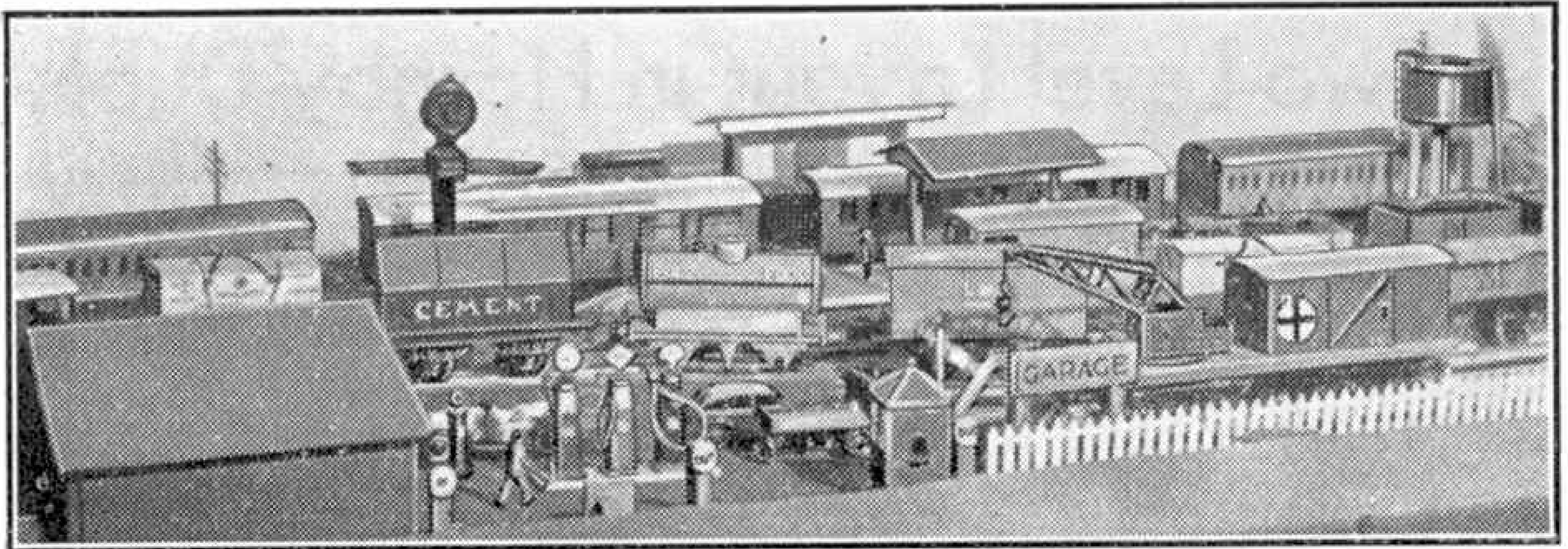
Branch News

FOLKESTONE—Long distance express passenger and heavy goods trains are being run regularly, and shunting operations are carried out in realistic style. Members also have constructed scale model boats and aeroplanes. The track is being doubled, new signals and footbridges being added, and a new station is to be installed. Secretary: Mr. F. E. Saunders, 79, Dover Road, Folkestone.

WITHERNSEA.—Both Senior and Junior Sections are carrying out track operations, and the Seniors are following a course that will bring proficiency in train running. The Section Leader has given a Lecture on "Electric Signals." Models also have been constructed, and running operations during the Winter Sessions have been the subject of a Debate. Secretary: K. Purkins, "Banavie," Hollym Road, WitherNSEA.



Members of the Seaton Delaval Branch, No. 416; Leader, Mr. J. A. O'Donnell; Secretary, S. O. O'Donnell, who is third from the left in our group photograph. The meetings of this Branch have been devoted almost entirely to the active operation of both goods and passenger trains on a well-signalled track.



A view of "Edinburgh," showing the variety of rolling stock employed in the miniature L.N.E.R. system of W. Hurst, Wollaton, described on this page.

A Hornby "East Coast" Main Line

AN interesting example of a combined electric and clockwork layout is the Hornby railway of W. Hurst, of Wollaton, Nottingham, shown in the illustrations on this page. The system occupies a space of 9 ft. by 7 ft. 6 in., and consists principally of three continuous tracks, two laid with electric rails and the other clockwork. The whole system is arranged on a raised baseboard, some 4 ft. high, which is very convenient for handling. There is an open space in the centre of the baseboard for the operator to work in, and the Transformers for the electric tracks are situated on the inner edge of the baseboard.

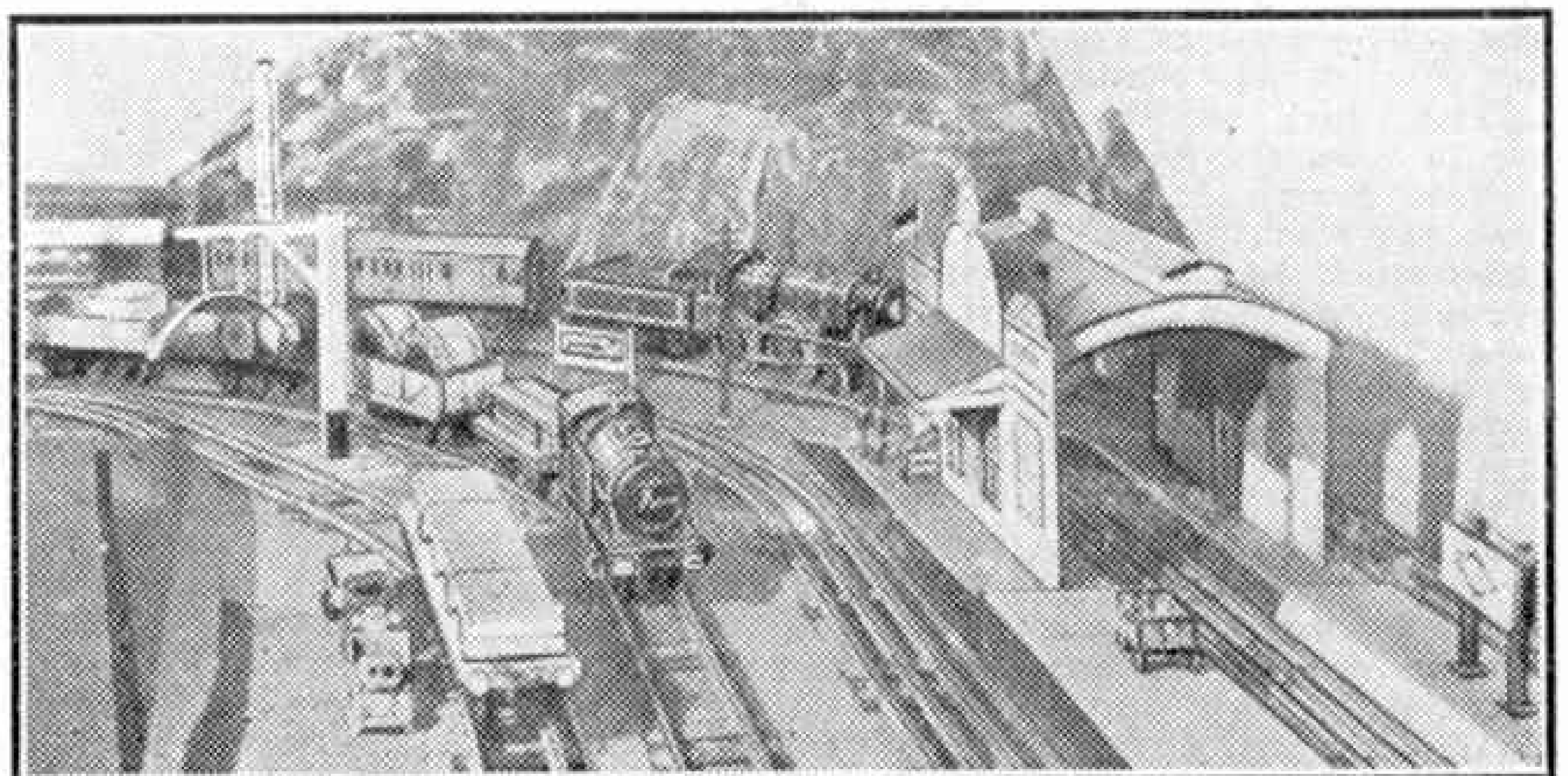
The practice of the L.N.E.R. is followed on the railway, and operations are based on the King's Cross to Edinburgh main line which gives plenty of scope for the running of important trains, both passenger and freight. The miniature "King's Cross" consists of two specially long platforms, and as shown in the lower illustration an arched roof spans one of the tracks. As a result of space restrictions, and the necessarily continuous nature of the layout, the other station, "Edinburgh," represents all other stopping points *en route*, in addition to the Scottish capital, according to the particular service that is being worked. "Edinburgh" consists of two passenger platforms and there is in addition a goods platform.

From "King's Cross" the outer main track passes into a tunnel that represents in a realistic manner the well-known tunnelled exit from the actual station. The model tunnel occupies a corner of the layout so that the track curves through it; it was built up with a wooden framework with paper covering, in the way that has been suggested several times in the "M.M." The track emerges from the tunnel and then passes over a viaduct which, on successive circuits as the train makes its way either north or south, stands for any of the various important structures of the kind that are found on

the "Great Bridges Route," as the East Coast main line is sometimes called.

There follows a curve, and then the line passes under a footbridge and through the other station, "Edinburgh," which, as previously explained, changes its identity according to the requirements of the moment. Further curves with a straight length of track separating them complete the circuit into "King's Cross" again. Notable features at the lineside over this latter stretch of track include a main road and, nearer the station, a signal box situated on a raised bank. At another point on the roadway is a miniature garage staffed by Dinky Toys figures.

At "King's Cross" there is no actual goods yard, but it is possible for road vehicles to back up to railway wagons and vans standing in a siding that is reserved for loading. At "Edinburgh," however, there is a yard connected to the main line in such a way that trains can run straight in or out. Such a difference in the arrangement at the two principal stations, makes for interesting variety in the operations to be carried out in the course of working traffic from point to point. For the conveyance of merchandise by all kinds of trains, from the ordinary pick-up freight to the various "Scotch Goods" of real practice, there are in use about two dozen Hornby Goods Wagons and Vans.

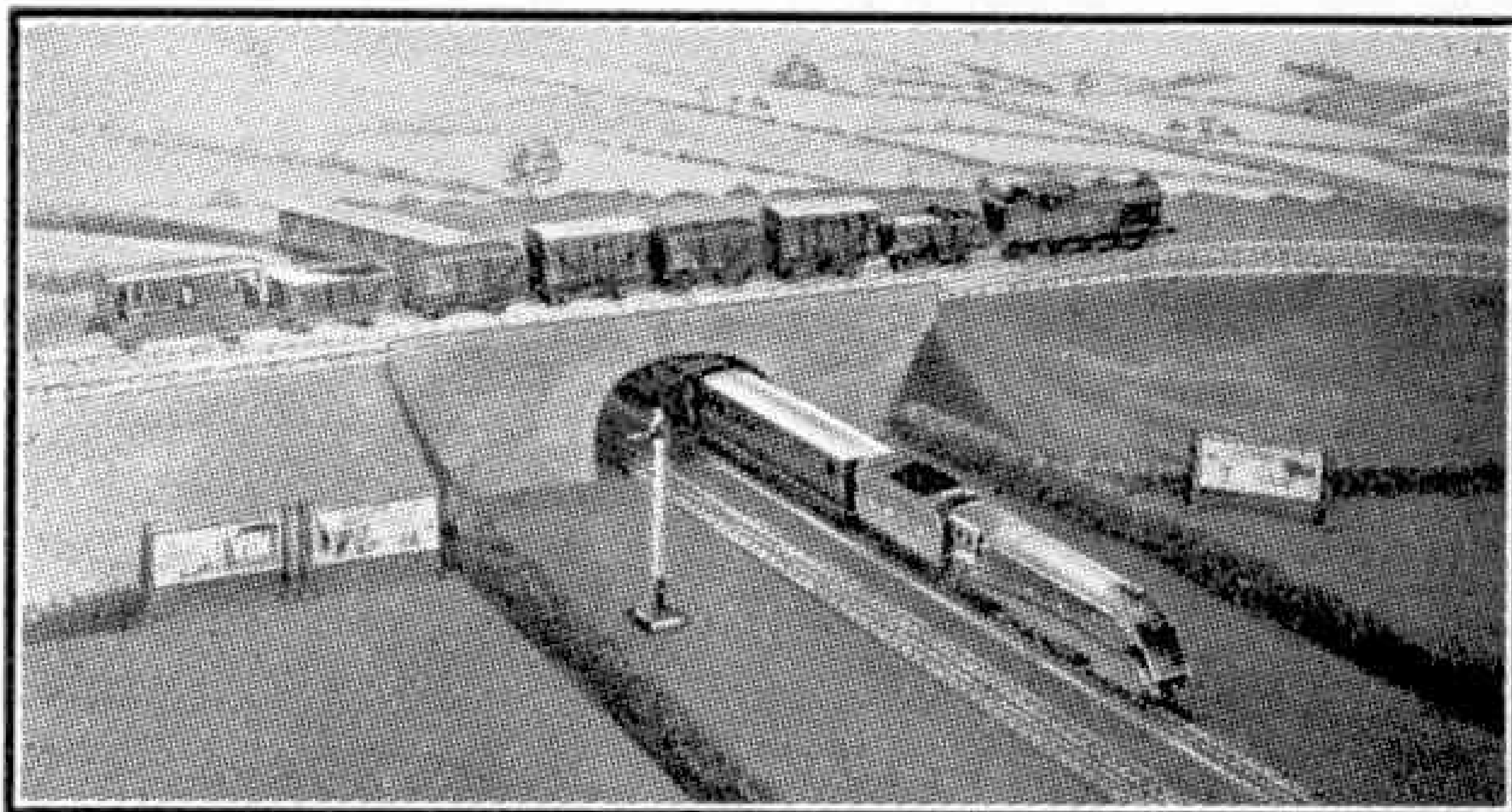


Passenger and goods trains entering "King's Cross."

A Two-Level Layout in Hornby-Dublo

THE layout shown in the diagram on this page is of special interest as it represents an ingenious attempt to break away from the normal all-level type of system. The scheme has been worked out by B and G. Poole, Flixton, Lancs., to suit their own particular needs and ideas. The basis of the whole design is

low level lines are on the actual baseboard of the railway, the rest of the track being laid on a built-up structure that gives plenty of opportunity for the development of realistic embankments and so on. This part of the railway is at present incomplete, but the owners hope to take the fullest advantage that their plan gives them in the matter of lineside effects. Some idea of what can be done in the way of two-level construction is shown in the upper illustration on this page, where a Hornby-Dublo L.M.S. freight train is passing over a main line on which an L.N.E.R. express is speeding along.



An effective scene on a two-level system. A goods train passes over the track of a miniature L.N.E.R. express.

the oval main line track, which is double throughout and at the moment serves only one station, named "Litchford." In the left-hand lower corner of the layout, however, each of the two main tracks has a branch line taken off it, the one from the inner track diverging inside and the other one outside the main lines. These branches continue practically parallel to the main lines right round the curve to the station, but both are on a descending gradient.

Just short of the station platforms the outer branch turns inward, and having reached a sufficient depth below the main lines it passes under them at an angle by means of a bridge, and then meets the inner branch, now also at the lower level. They continue together towards the centre of the system, but just as they are connected by means of crossover points they curve and then run in the same direction as the straight section of the main line. They again pass under the main tracks at the right-hand end of the system, but immediately before doing so also pass below a separate line that serves one side of the station only. The arrangement of the bridgework at this point is most realistic, the use of a separate span for the inner platform line to cross the low-level tracks being a clever device. It keeps the two main lines together in their own viaduct, under which the station road also passes, and makes a much more effective scheme than if all three upper-level lines were carried together across the very wide and somewhat peculiarly-shaped structure that would have been necessary.

"Litchford," therefore, is an adaptation of a typical two-level station, and has platform accommodation for three passenger trains on the high level and room for approximately 20 goods vehicles in the low level sidings. Actually it resembles in a modified form the arrangement at Colwyn Bay on the L.M.S. North Wales coast line, where the goods yard is at a lower level than the main station lines, and the lines leading to the yard pass under the station approach and roadway. On the model system described here the

mail bag hook for the exchange of mails at a lineside ground apparatus.

Separate remote control for each of the station tracks is to be provided, and it is hoped ultimately to provide electrically-operated points and signals, with arrangements to prevent the conflicting of signal and point movements. We shall look forward to hearing of further developments on this railway.

A further point in which the layout differs from many others is the realistically wandering course of the roadway serving the station. As the diagram shows, it passes diagonally across the system; but apart from the main section where it is necessarily parallel to the

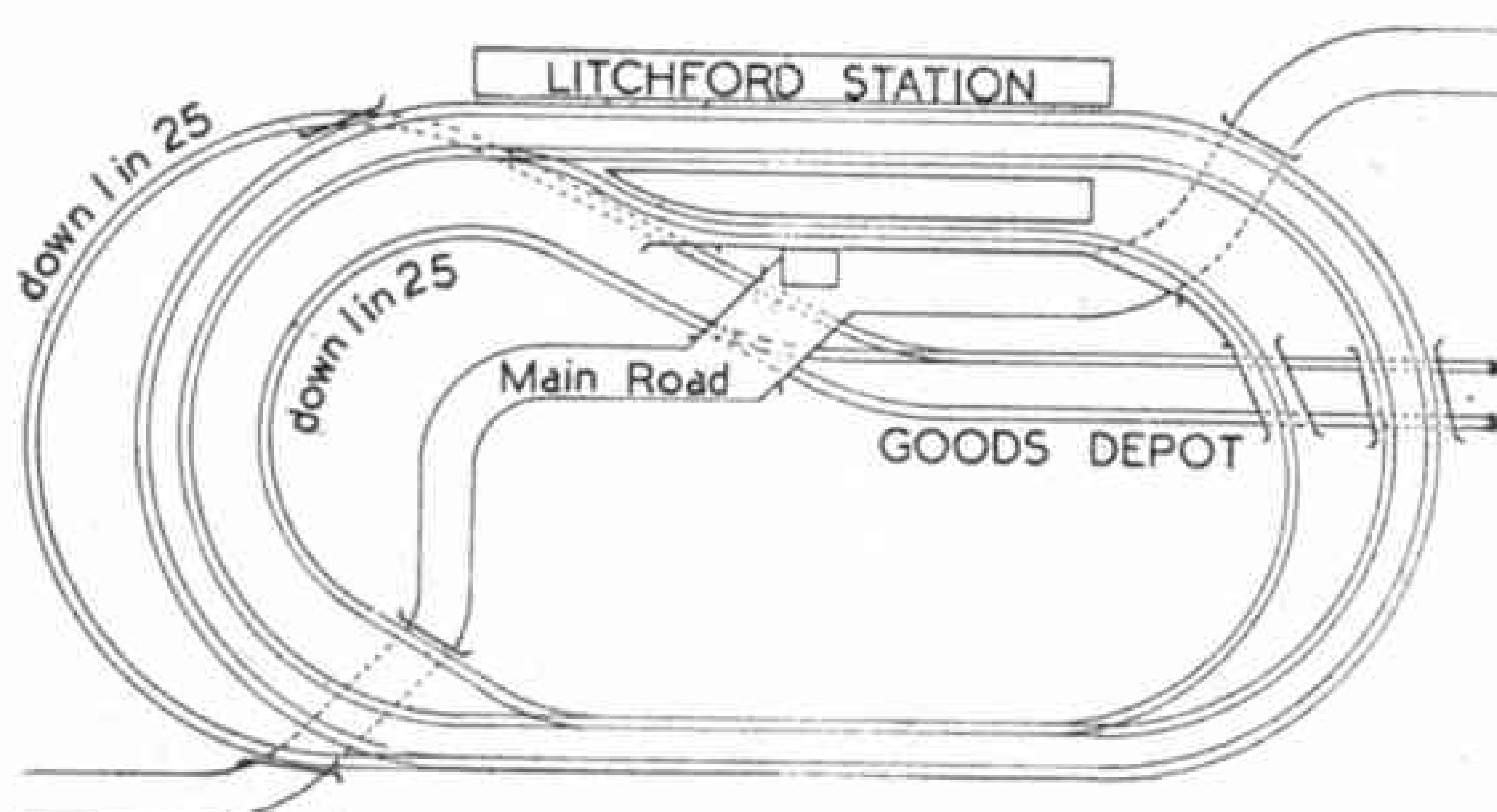
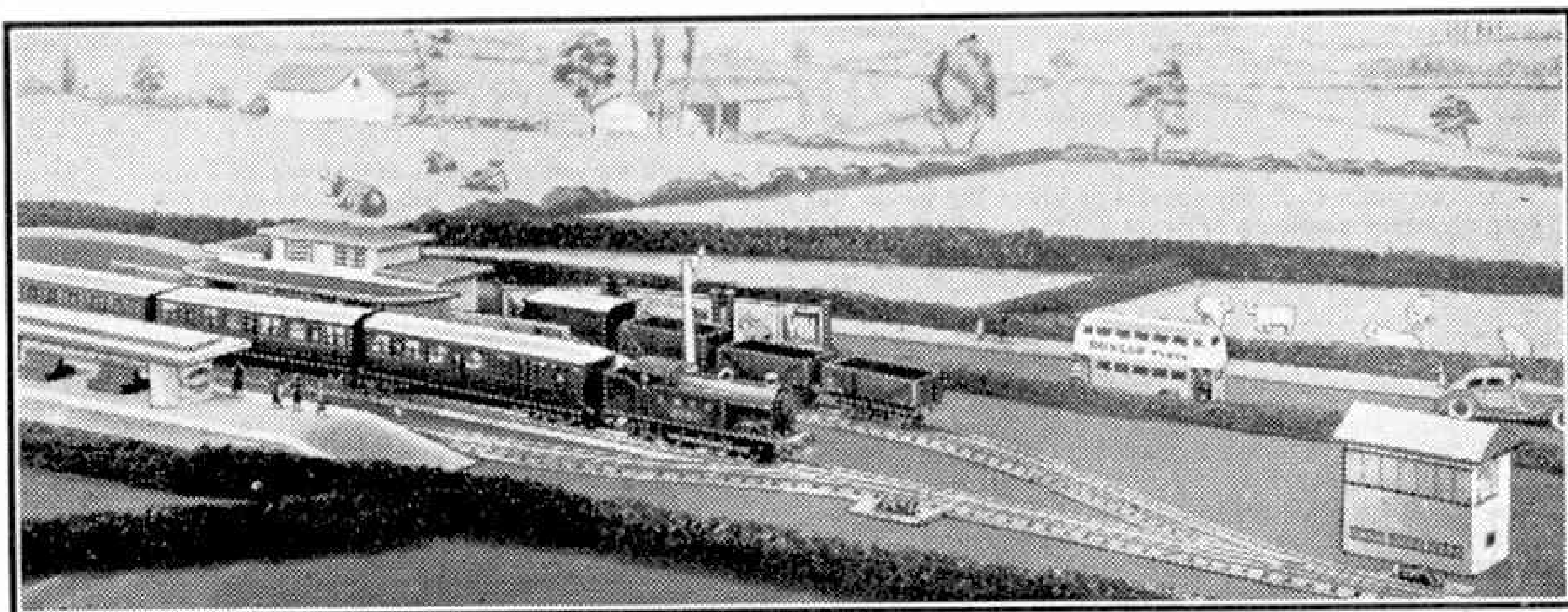


Diagram of the layout of B. and G. Poole, Flixton, Lancs., referred to on this page.

station platforms it winds about in a very natural manner, crossing under the main line twice and passing over the low level goods line. At each end it passes off into the "distance," and no doubt when the owners of the line reach the stage of providing scenery the road will be made to merge into the background quite smoothly. If care is taken with details of this kind a splendid effect of distance can be obtained, particularly when objects are made smaller according to their distance from the railway.



A station scene on the layout described on this page. A stopping train at the platform on one of its journeys round the track.

Trains and Signals on a Simple Dublo Layout

ON this page we show in the lower illustration a diagram of a simple Hornby-Dublo layout on which various interesting operations can be carried out. The many signals increase the realism of the different movements, and show how boys who are fortunate enough to possess these accessories can incorporate them in the correct places and get more fun from their correct working.

The layout consists of the well-tried oval main line, which is single track for most of its length. On the lower straight section, however, is placed a station made up of a standard Main Line Station on the inner side of the track, and an Island Platform on the outer side, in the manner frequently described in these articles. Through the station the track is double, a passing "loop" being taken off the main oval. Opposite to the passing loop is a siding, and here we will assume that a train of coaches is stabled when we commence operations.

Probably our railway is a portable one, so that to test the soundness of our track-laying, and our electrical connections if the layout is electrically operated, we will put our engine on the main line and give it a few turns round the line. Let us suppose that we run it in an anti-clockwise direction finally, and bring it to rest alongside the platform of the Main Line Station, just short of the home type Signal at the platform end. This Signal is actually what is known as the "starting"

signal, and the first operation is to set it at "clear" and so give the engine the right of way past the points. As the engine is required to pick up the train from the siding, it stops a little beyond the siding points, and when these are set it backs into the siding under the watchful eye of the "signalman" in his box close by. He has of course restored the starting signal to "danger" once the engine has passed it.

Now to work our empty train to the station, we can run it directly on to the main line and so round to the station, if we are assuming that it has to be

worked down the line to begin its duties. It is more interesting, however, to assume that its work is to begin at "our" station, so we will do it that way. A starting signal could be provided in the siding if desired, and on being given the "right away" the engine draws its train out as far as the near home type signal. This is located rather more than a train length away from the siding points, and its purpose is to bring to a stand a train that requires to back over the points. This signal is at "danger," therefore, and when the points have been set our train begins to back into the station, where it will pick up its "passengers."

The journey round the track, in an anti-clockwise direction of course, is quite straightforward. The train passes first the starting signal; then the "advance starter," this time showing "line clear" as the train is to pass it. Then on through the tunnel, round the corner until the "home" signal for the station is approached. If the train is to run right through, and the platform starting signal is clear, both semaphores on the Double Arm Signal will be clear too.

If a stop is to be made and the starter is at "danger," then the distant or lower fish-tailed semaphore will be at "danger," although the upper or square-ended home semaphore is clear.

An interesting trip can be made by covering several circuits of the track, sometimes stopping at the station and sometimes passing through. At the end

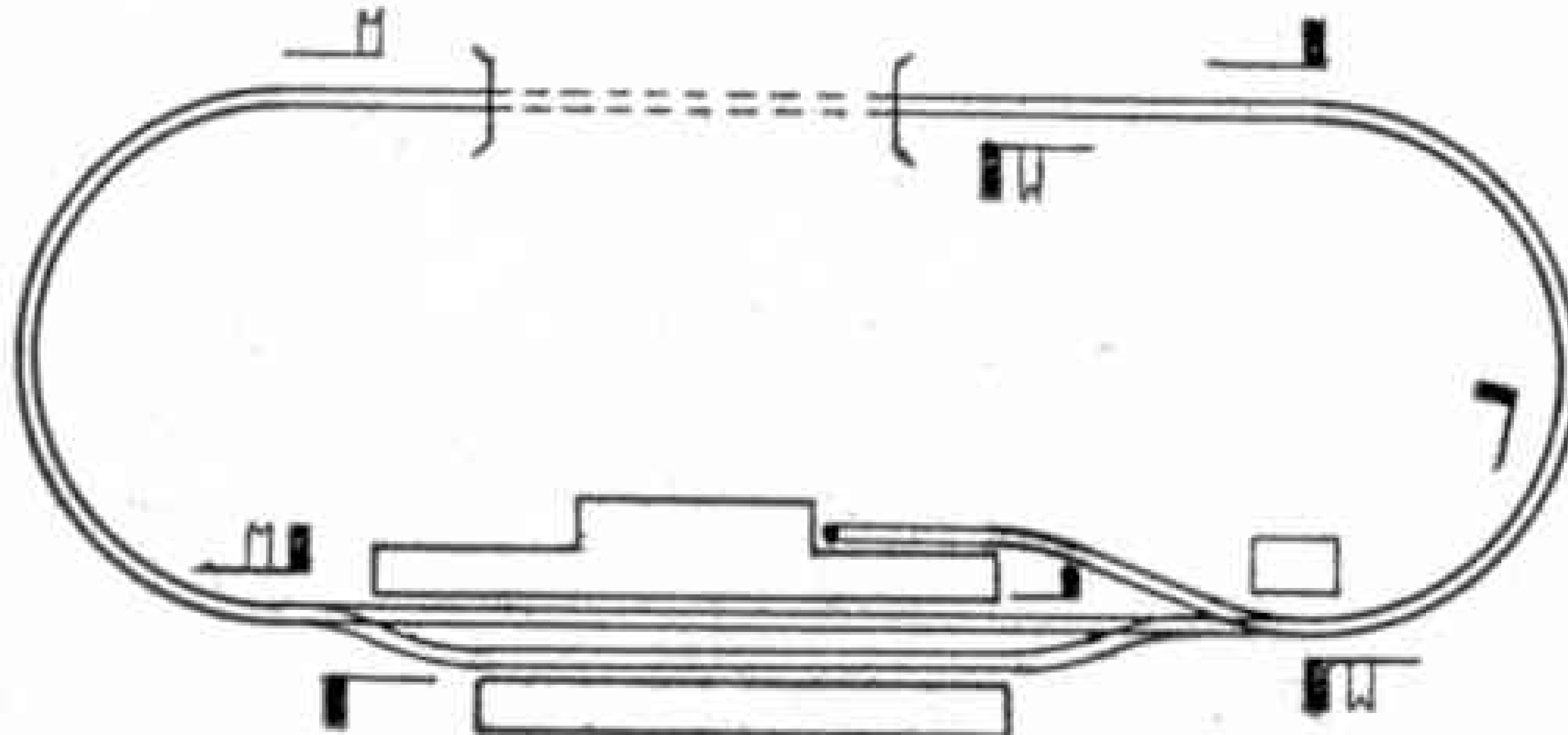


Diagram of the layout illustrated above showing the signals and other components.

of the run the passing loop provides the means of running the engine round the train for its return journey, just as most tank engines on suburban trains do every day in real practice. In addition, if there are two engines available two trains can be run, one in each direction. Thus one stands on its track in the station while the other goes on its way round the main line. In that case on an electrical system Isolating Rails will be needed, so that either of the station tracks can be "cut out." Many other developments are possible, and boys who try out this layout will find that they can have great fun with it.

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied, if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.

THE WOLVERTON AND STONY STRATFORD TRAMWAY

Visitors to Wolverton often ask "Where is the old tram?" This was almost a part of Wolverton and Stony Stratford. It had given an almost unbroken service for 40 years, making as many as 14 journeys each way daily along the 2½ miles of track.

The vehicles were imposing, although the gauge was only 3 ft. 6 in. They were originally painted drab brown and carried advertisements on their sides. Even the locomotives had signs painted on them. When the former L.N.W.R. took over the running of the line, the cars were painted the standard colour and looked very attractive.

Each car had two four-wheeled bogies, and the largest was 42 ft. long and held 100 passengers. On the lower deck, which had glazed lights, lath seats were arranged on each side and passengers sat facing one another. On the upper deck, which was glazed at the ends only, the seats were arranged back to back.

Though the speed was restricted to 8 m.p.h., a ride on the tram was a great thrill for children. From the front of the cars the engine driver could be seen at work, and at each end of the line the operation of bringing the locomotive round a loop line to the front of the cars could be watched. Although the track along the road has disappeared there is still a length of about 200 yds. laid in private grounds.

E. INSTONE (New Bradwell).

A VISIT TO TANGIER

Before the war I spent a month in Tangier. On the way out I called at Gibraltar and there I saw the "Rock" apes, which are the only wild apes in Europe.

The crossing to Tangier took about three hours, and on arrival at the quay dozens of Arabs raced up on to the deck, seized all the luggage they could lay hands on, and rushed off again. Later I went with others to the customs shed to find our luggage piled up on a counter; there it was examined and we were allowed to go.

During our stay we would go down to the market place on Thursdays for the weekly market. There we saw snake-charmers and story tellers, around

whom sat crowds of Arabs, who could neither read nor write and found this was admirable entertainment. There were also such attractions as bread stalls, where the Arabs would test the bread by pushing their thumbs in it; sweet stalls, which were generally covered with wasps; potted meat stalls, where purchases were



Steam tram that ran on the Wolverton and Stony Stratford Tramway. Photograph by E. Instone, New Bradwell.

wrapped up in leaves, and junk stalls where one could buy anything from a spanner to a bicycle frame. We also looked round the charcoal market, which is in the Kasbar, the original walled town. To this market barefooted women bring bags of charcoal from their camps out in the wilds; they are accompanied by their husbands, who ride on donkeys.

J. RAMSBOTTOM (Keighley).

ABOARD "THE DISCOVERY"

Walking along Victoria Embankment near the new Waterloo Bridge I saw "The Discovery," which was built for the National Antarctic Expedition of 1901-1903.

I went on board, first visiting the bows, where there were four of the ship's anchors. Under the bows is a small workshop. Coming on deck again I passed the galley hatch on my way aft, and I scrambled down a companion ladder into a Common Room for the higher ranks, around which were apartments for each man. The doors bore their names, among them Captain Scott, the leader, and Shackleton.

The museum was next visited. This contained about a score of drawings, mostly by Dr. Wilson, and a telescope used by Scott. There was also a photograph of Scott's last entry in his diary, which runs: "... We shall stick it to the end, but we are getting weaker of course, and the end cannot be far It seems a pity, I can write no more."

Near by was the original painting of Captain Oates walking to his death.

I. SHERREN (London N.W.7).



An Arab story teller in the Market at Tangier. Photograph by J. Ramsbottom, Keighley.

Competitions! Open To All Readers

Advertisement Letter Square Puzzle

In the panel on this page there is a square comprising 81 letters. These have been so arranged that in them the names of products advertised in this issue of the "M.M.," or of the firms advertising them, can be read. The names are traced by starting anywhere and passing at each move to the letter to the left or right or to that above or below. No diagonal moves must be made, and every letter of the square must be used at least once. There is no restriction on the number of times that a letter can be included in a name, and indeed many letters appear in more than one name, giving an interlocking effect.

In their solutions competitors must give

S	E	T	T	Z	A	E	K	M
S	D	S	L	O	W	K	C	I
A	N	O	B	N	P	B	E	L
B	C	E	L	A	M	A	H	L
S	T	I	E	C	L	M	R	E
A	R	C	I	C	E	Y	T	I
L	A	S	N	E	A	I	R	L
P	D	I	O	M	N	G	V	A
X	I	R	R	F	R	O	I	T

the names of the advertisers concerned and the numbers of the pages on which the advertisements appear. Their entries should be addressed "*Advertisement Letter Square, Meccano Magazine, Binns Road, Liverpool 13.*"

There will be two sections in the contest, for Home and Overseas readers respectively, and in each prizes of 21/-, 10/6 and 5/- will be awarded, with consolation prizes for other good efforts. The judges will take neatness and novelty into account in making their final decision if there is a tie

for any prize. The closing date in the Home Section is 31st December, and that in the Overseas Section 30th April, 1943. Competitors must not omit their names and addresses on their entries.

Hidden Locomotive Names

This month's competition consists of a short story in which the names of 29 well known British locomotives have been included. Several of these are quite easy to find; for example "*Sunderland*" is mentioned on the indicator; this is the name of No. 2854 of the L.N.E.R. B.17 class. Others may not be found so easily, as they are formed of two or three words, which may be anywhere in the story.

"Recently I had the chance of visiting a great northern seaport city. This gave me an opportunity to see many interesting places. Among those I visited were the docks, where I saw a large vessel named '*Orion*,' the hull of which was being repainted. I was rather amused to see a seagull perched on the top of one of the masts. Presently I came to the river bank, where I saw several ships, including some of the Union Castle line, steaming down stream towards the ocean. After looking at the seaview for several minutes I made my way towards the town, where I was lucky enough to see a military parade. This represented many famous regiments, such as The West Yorkshire Regiment and The Middlesex Regiment, and it was indeed a grand sight.

"While I was visiting the city I thought I would see a football match, but unfortunately there was no big game being played, such as the last game I saw, between Huddersfield Town and Leeds United. This gave me a few hours to spare, so I decided to make a bus journey to a small village a few miles from the city, where lived some friends. While making this journey I passed a large aerodrome, and saw many types of aeroplanes, including a "*Blenheim*," a "*Wellington*" and a "*Hurricane*," on which several members of the Royal Air Force were working. Eventually I reached my destination. On my way back to the bus I had to pass through a wood, where I saw many birds, including a blackbird and a sparrow hawk. I soon reached the main road, and presently the bus arrived and took me from the tranquil countryside to the city.

"It was now nearly time for the express to leave,

so I proceeded to Victoria Station. A green arrow sign indicated the buffet, where I had a sandwich; and as I did not know the platform where the train was, I looked at the indicator. I noted that there were many other trains, going to such places as Blackpool, Sunderland and Middlesbrough.

"Before my train departed I had a look at the locomotive that was to haul the train; this was a large express type named "*Hermit*." This locomotive proved that it was capable of high speeds, because I arrived at my destination, which was London, several minutes early. As the train was an express it only stopped once; this was at Darlington. Many Yorkshire stations were passed at a high speed."

There are two sections in this contest, for Home and Overseas readers respectively, and in each prizes of 21/-, 10/6 and 5/- will be awarded to the senders of the best efforts. Entries should be addressed "*December Hidden Words Contest, Meccano Magazine, Binns Road, Liverpool 13.*" Closing dates: Home Section, 31st December; Overseas Section, 30th April 1943.

December Photographic Contest

This month's photographic contest is the 12th of our 1942 series, and in it, as usual, prizes are offered for the best photographs of any kind submitted. There are two conditions—1, that the photograph must have been taken by the competitor, and 2, that on the back of each print must be stated exactly what the photograph represents. A fancy title may be added if desired.

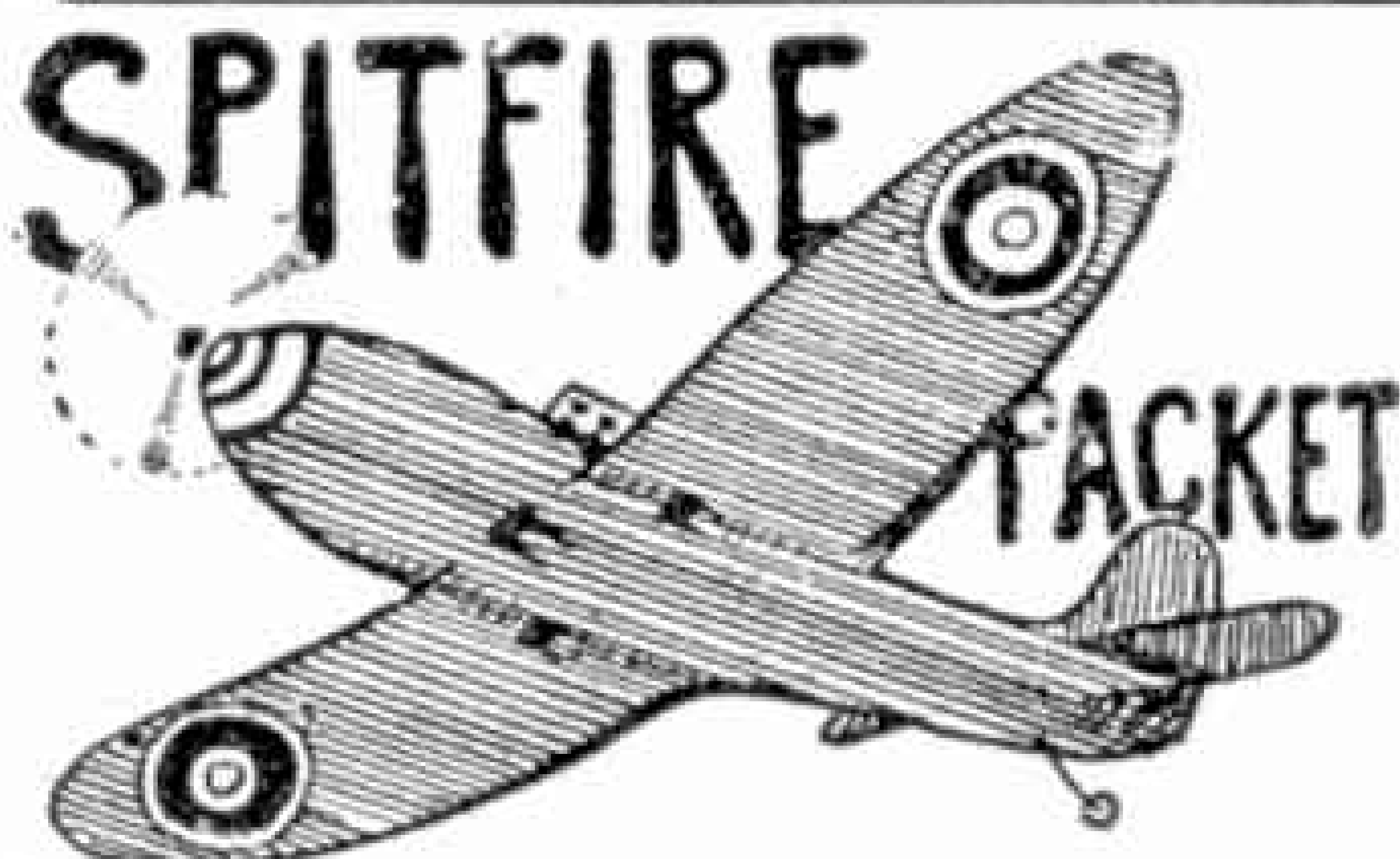
Entries will be divided into two sections, A for readers aged 16 and over, and B for those under 16. They should be addressed "*December Photo. Contest, Meccano Magazine, Binns Road, Liverpool 13.*" There will be separate sections for Overseas readers.

In each section prizes of 15/- and 7/6 will be awarded, together with consolation prizes for good efforts. Closing dates: Home Section, 31st December; Overseas Section, 30th April 1943.

FOR SERIOUS COLLECTORS

Our Bargain "Discount" Approvals contain a fine range of picked Modern and New Issues, Pictorials and Commemoratives, etc., from 1d.—6d. each, less a generous discount (General selections only. No single countries or G.B.). Approvals or details are post free, and we do NOT send again unless requested. State whether you want British Colonials, Foreign or both.

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Stamp Collecting

A "Columbus" Collection

THE 450th anniversary of the landing of Columbus on Watling Island on 12th October 1492 has been celebrated in the Bahamas and in Argentina by the issue of special commemorative stamps. This therefore is a good time to glance at the Columbus stamps of the world. Every American country naturally is interested in Columbus and his voyages, to which they trace their beginning, and Spain too has good reason for celebrating the achievements of the great

navigator. The Columbus stamps issued in these countries are extremely attractive, and tell a fine story. Except for a few of the higher values in certain series, they are of reasonable price and thus within the reach of the young collector, and they can be built up into a very fine special collection of the kind that we have often suggested.

Portraits always play a great part in commemorative issues, and there

are plenty of portraits of Columbus for our collection. Chile leads the way, with many issues from 1853 onward; and indeed the head of no other person than the discoverer of the New World was allowed to appear on this country's postage stamps until 1910. Of the many portrait stamps issued in these years we illustrate on this page the 10 c. value of the issue of 1905-9, and a second, the 3 c. value of the same issue, is reproduced on page 445. The first of the two portraits is to be found on the 20 c. value of the 1939 Colombia issue, and in the 1923 issue of Costa Rica, where it is seen on the 12 c. value with one of the explorer's ships and a map of the New World; the second is on the \$4 value of the United States commemoratives of the 400th anniversary of the discovery of America.

Paraguay and Salvador are other countries that have issued portrait stamps, the Paraguay examples including also ship scenes; and Spain issued an excellent portrait stamp in 1930. Even statues and monuments of the discoverer have been made the subjects of stamps, in Peru and Salvador.

Columbus was born at Genoa, in Italy, in 1535 or 1536. He was more than a mere sailor, for his mind dwelt continuously on the prospect of discoveries in the west, and of making his way to China by sailing in that direction instead of going east. At that time few could believe that the Earth was round, and he was ridiculed and ignored when he set to work to find support for a venture in which he could put his

ideas to the test.

Alternately encouraged and derided, at one stage of his progress he is said to have found himself under the necessity of asking at a Spanish monastery for bread and water for his son Diego, who accompanied him. This incident occurred when he was on his way to France after a rebuff at the court of Spain, and the incident has been seized upon by stamp designers. The



monastery concerned, that of La Rabida in Palos, is to be seen on several values of Spain's "Columbus" air stamp issues of 1930. The 30 c. value of the United States Columbus issue of 1893 showed the explorer and his companion actually in the monastery, with the former eagerly expounding his schemes to the monks, and the same picture is reproduced in a Salvador issue of 1924-25.

After many trials and tribulations, in which the explorer was staunchly supported by Queen Isabella, Columbus got his ships, and what these were like is seen in two handsome representations of the largest, the "Santa Maria," that were included in the Spanish Columbus issue of 1930 and are reproduced on this page. This issue was a very comprehensive one. It

included a third triangular stamp showing the explorer's tiny fleet, and illustrated also the scene at Palos when he was rowed out from shore to board his ship for his daring voyage.

A fifth design shows the arrival in America. With this issue went two others, all air stamps, for use in Europe and between Spain and America respectively, and these stamps should be in our collection.

With this Spanish issue we have Columbus leaving the Old World, and for the results of his daring venture we can turn to the stamps of the New World. The most comprehensive American series is that issued

in 1893 in the United States, to which we have already referred. It celebrated the 400th anniversary of the great discovery, and comprised 16 values. We have mentioned the 30 c. value of this, in which Columbus is seen at La Rabida, and two others, the 5 c. and the \$1 values, show respectively the explorer asking Queen Isabella for aid and the Queen pledging her jewels for his benefit. The great part played in the venture by this Queen is also exemplified by the inclusion of her portrait with that of Columbus on the \$4 value.

Other stamps of this issue deal with the great voyages of the discoverer. On the 1 c. value, reproduced on page 445, Columbus is seen in sight of land, and the 2 c. stamp on this page shows his landing on 12th October 1492. It is now generally believed that the island on (Continued on page 445)



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Stamp Gossip and Notes on New Issues

A Lord Nelson Stamp

We wonder how many readers know that Nelson, Britain's greatest admiral, figures on a stamp. In most countries such a national hero as Nelson would have been the subject for commemoratives, but the



practice of issuing stamps of this kind on every possible occasion is not followed in Great Britain, and for the Nelson stamp we have to go to Barbados, the West Indian Island. In 1805 Nelson crossed the Atlantic in chase of the French Fleet under Admiral Villeneuve, whose mission was to lure him away so as to leave Britain's shores open for Napoleon's anticipated invasion. He paid a flying

visit to Barbados, before turning back to European waters, a move that ended with the overwhelming victory of Trafalgar in October of the same year. Soon after the battle, Bridgetown, the capital and port of the island, had its Trafalgar square and its Nelson statue, and this statue was reproduced on a special Barbados issue of 1906, celebrating the centenary of the visit and of the battle. The values ranged from ½d. to 1/-, and the 1d. value is reproduced on this page.

It is worth noting that the lowest value in this and other Barbados issued was ½d., an unusual one for postage stamps. The first ½d. stamp appeared in the island in 1892, and most succeeding issues up to that for 1925-35 included a stamp of this low value.

Free French Air Stamps

The already large number of Free French issues has



been increased by the appearance of air stamp series in the Cameroons, French Equatorial Africa, the French Indian Settlements, New Caledonia and the Oceanic Settlements, which are in the Pacific, and in St. Pierre and Miquelon, the islands off Newfoundland that were seized by Free French Forces some time ago. All these issues are of the same design, and except for those of the Indian Settlements, they

are of the same values and colours. These are as follows: 1 f., red-orange; 1 f. 50, scarlet; 5 f. red-brown; 10 f., black; 25 f., ultramarine; 50 f., green; 100 f., claret. The Indian Settlements issue includes values of 4 f., 1 r., 2 r., 5 r., 8 r. and 10 r., the highest value thus being omitted, and the colours in order are the same as those of the first six of the stamps of the remaining issues.

The design is a handsome one, showing a modern

four-engined aeroplane, with the Cross of Lorraine on a white shield on the left, and the words "France Libre" surmounting the shield. We illustrate the 1 f. value of the Cameroons issue. The total number of stamps in the six issues is 41.

We illustrate on this page a stamp issued in the Argentine Republic to celebrate the centenary of the birth of Josa Manuel Estrada. A special first day cover, dated 13th July 1942, was provided for this issue, and on it Estrada is described as a patriot and educationalist, and an inspired orator. As our illustration shows, the stamp is a large one, and it is purple in colour, the value being 5 c.



A "Columbus" Collection—(Cont. from page 443)

which he first set foot was Watling Island, in the Bahamas, and this, the first known contact between the two halves of the world, has been commemorated also on stamps of Salvador and of Venezuela that appeared in 1892 and 1893 respectively, as well as

in the United States issue. The Bahamas stamps already referred to are overprinted "1492 Landfall of Columbus 1942" in commemoration of this event.

When Columbus returned to Spain he was given a triumphant reception, which is shown in the 6 c. value of the United States 1893 issue; the 15 c. and 10 c. stamps of

the same issue show Columbus announcing his discovery to the King and Queen of Spain and presenting natives to them.

The stamp story of this issue does not end here, for we can follow Columbus through his later voyages to his recall to meet accusations of misgovernment, on the 50 c. value of the U.S. 1892 issue, and his voyage in chains across the Atlantic, on the \$2 value. On reaching Spain he was immediately freed from his fetters and restored to favour, a touching event that is shown on the 8 c. value; and on the \$3 value there is a fine picture of Columbus describing his third voyage of discovery, in the course of which he first sighted continental America.

We have not been able to deal at length with all the Columbus stamps that are available, but enough has been written to show how numerous and interesting they are. Readers who set out to see how they tell the story of Columbus and the discovery of the New World will find the search for the stamps extremely interesting.



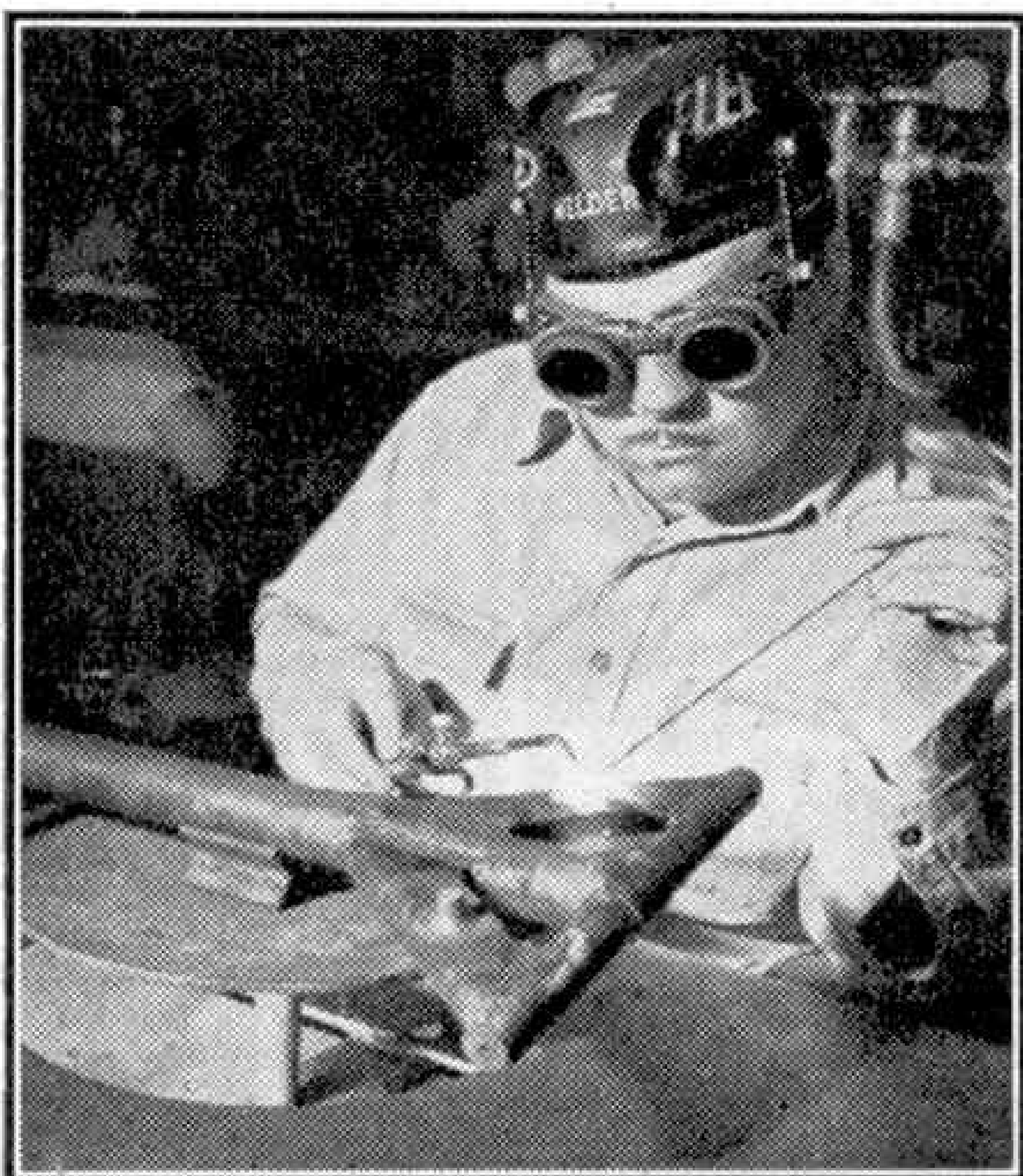
CHINS UP AT MALTA, G.C.

The announcement of the British and American landings on the North African coast filled us all with excitement and enthusiasm, but it is not easy for us to realise the tremendous thrill that the news must have given to gallant little Malta, the "Unsinkable Aircraft Carrier." A hint of it came in the following cable to us, dated 11th November, from Azzopardi and Company, enthusiastic Meccano dealers in the island: "Malta's chins higher than ever at grand news."

"Mickey Mouse" Goes to War—

(Continued from page 423)

sides of war aircraft from Burbank to Cairo, from the Russian front to deep in the heart of Australia. Only recently two bombers roared into the Far East bearing replicas of "Donald" the duck. In one the duck was strangling a Jap, in the other warning: "Close-e-Trap-e, Fool-e Jap-e." At the studio, a crew of five artists keep busy turning out such insignia, which are



A welder at work on heat-treated tubing for a Lockheed military aeroplane. The turntable on which the tubing is supported is rotated by means of a foot wheel. Photograph by courtesy of the Lockheed Aircraft Corporation, U.S.A.

presented to the fighting units. Yes, "Mickey's" gone all-out for victory, and his influence is being felt by fighting men and civilians alike, from the Canadian Arctic to the tip of Chile.

OUR NATIONAL FOLKLORE AS A HOBBY

The Folklore Fellowship are most anxious to stimulate interest in our national heritage of folklore and tradition, so that everyone may more abundantly enjoy our British countryside when conditions become more normal and a greater period of leisure can be allowed. To readers who enclose a stamped-addressed envelope Mr. S. Jackson Coleman, F.R.G.S., F.R.A.I., the Hon. Administrator of the Folklore Fellowship, Bay View, Cemaes Bay, Anglesey, offers to send ways and means by which this hobby may be pursued with facility and personal enjoyment, as well as details of the prizes and certificates offered for essays bearing on our countryside and its lore.

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"HISTORIC CAVALCADE"

By DOROTHY MARGARET STUART
(Harrap. Price 8/6 net)

This is on similar lines to the author's "*A Child's Day Through the Ages*" reviewed in the "*M.M.*" for January last. There are stories of incidents in the lives of well-known figures in history, from the Pharaohs of Egypt, King Nebuchadnezzar and Alexander the Great, through the centuries to St. Francis of Assisi, Pepys and others, and on to Abraham Lincoln and generals of the Great War. Each story gives a complete picture of the life of the period in the interesting and delightful way that Miss Stuart has made her own. There are many black and white illustrations.

"JUAN: SON OF THE FISHERMAN"

By ISABEL DE PALENCIA (Harrap. Price 3/6 net)

This is a delightful story of a small boy who lived with his grandmother in a tiny fishing village in Spain. His father had been the owner of the "*Santa Maria*" fishing boat and Juan hoped to own it one day. In the meantime, his grandmother, having no money left, took him to stay with his cousins inland. The story gives an excellent idea of life in Spain to-day.

"PETER AND THE PANDAS"

By CECIL ADAIR (Harrap. Price 6/- net)

This book is delightfully produced with coloured illustrations. Peter is a small boy to whom animals come when he plays on his pipe, and he can understand their language. The story tells of his promise to Ming the Panda at the Zoo to find her a companion, and how he discovered a Panda family and brought them to England.

COMPETITION RESULTS

August Hidden Names Contest.—1. A. B. Partridge, Northampton. 2. M. R. Davies, Weston-Super-Mare. 3. P. D. Ede, Calne. Consolation Prizes: J. B. Walker, Glasgow C.3; J. Garner, Manchester; J. K. Bagshaw, Groby, Nr. Leicester.

August Shunting Puzzle Contest.—1. M. R. Davies, Weston-Super-Mare. 2. A. B. Partridge, Northampton. 3. K. H. King, Wallasey. Consolation Prizes: W. N. Tonkyn, South Croydon; G. Orchard, Reading; G. J. Faulkner, Bristol 3.

August Photographic Contest.—1st Prizes, Section A: B. Chulindra, Wadebridge; Section B: C. J. Dawson, London. 2nd Prizes, Section A: J. T. Temple, Edinburgh; Section B: P. C. Fletcher, Leicester. Consolation Prizes: M. Emerson, Mitcham; L. Chinnside, Slyne, Nr. Lancaster; B. R. De F. Gahan, Rathfarnham; D. Green, Esher.

September Names Puzzle Contest.—1. E. C. Oliver, Yeovil. 2. M. R. Davies, Weston-Super-Mare. 3. B. J. Stokes, West Thurrock. Consolation Prizes: M. Scrimgeour, Fordoun; T. T. White, Glasgow S.4.; A. M. Johnston, Glasgow W.2.

September Pointword Contest.—1. M. R. Davies, Weston-Super-Mare. 2. B. Mitchell, London S.W.19. 3. S. Adams, Walsall. Consolation Prizes: R. Williamson, Purley; H. Reid, Leyland; F. O. J. Otway, Farnham.

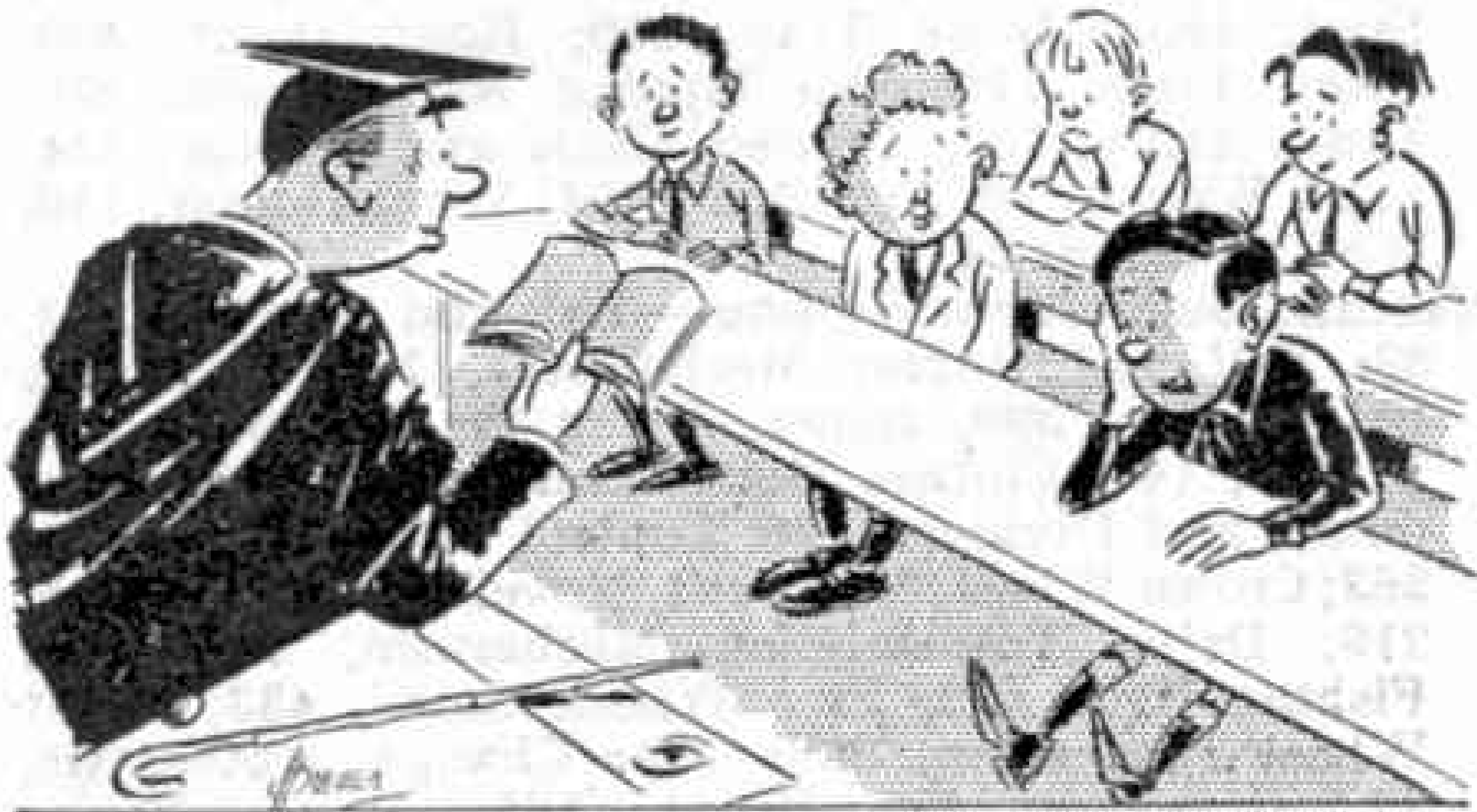
September Photographic Contest.—1st Prizes, Section A: G. Gemmil, Burnley; Section B: J. B. Alker, Standish. 2nd Prizes, Section A: F. Barr, Birkenhead; Section B: P. Parkinson, New Malden. Consolation Prizes: M. Emerson, Mitcham; R. Ray, Wadebridge; J. Bridger, Aldingbourn; P. C. Fletcher, Leicester.

October Crossword Puzzle.—1. G. Roberts, Liverpool 11. 2. W. K. Cocking, Ilfracombe. 3. C. E. Wrayford, Bovey Tracey.

October Photographic Contest.—1st Prizes, Section A: R. Atkins, Eccles; Section B: J. B. Alker, Standish. 2nd Prizes, Section A: M. Catleugh, London S.W.20; Section B: T. Bird, Luton.

Fireside Fun

Officer: "What is your name?"
 Recruit: "Erbert 'Awkins."
 Officer: "Say 'Sir' when you speak to me. Now again. What is your name?"
 Recruit: "Sir 'Erbert 'Awkins."



Teacher: "Just think of it, boys. The light that comes to us from the Sun travels all the way at nearly 200,000 miles a second. Isn't it wonderful?"
 Bert: "Not very, it's downhill all the way."

Doctor: "You need only take this medicine three times a day, Mrs. Newrich."
 Mrs. Newrich: "But, doctor, I can afford to take it far more often than that, you know."

"Is there no room inside the bus?"
 "Full up inside."
 "You can squeeze one in upstairs surely."
 "No, full up."
 "Then what about a roof spotter?"

Doctor: "I don't like the look of your husband at all, Mrs. Jones."
 Mrs. Jones: "None of us does, sir, but he has always been kind to all of us."

The vicar had called to see one of his parishioners who had not been at church for some time. Hurriedly she hid behind a door curtain after telling her little boy to say she was out.

"Well, Johnny," said the vicar on entering. "Where is your mother to-day?"

"She's gone shopping, sir," was the reply.

"Oh!" replied the vicar, who had been looking round the room. "Well, tell her I called, and say that next time she goes shopping she will find her feet as useful as her money."

Teacher: "Now, Smith, what can you tell me about Nero?"

Smith: "He was a musical fire-watcher, sir."



"Now let me see, it was you who knocked me out on the football field when we were at school, wasn't it?"

Host: "And this, Sally, is Mr. Ware."
 Sally: "Oh, Mr. Ware, I am pleased to meet you. I've heard a lot about you, we have some furniture stored in one of your houses now."

BRAIN TEASERS

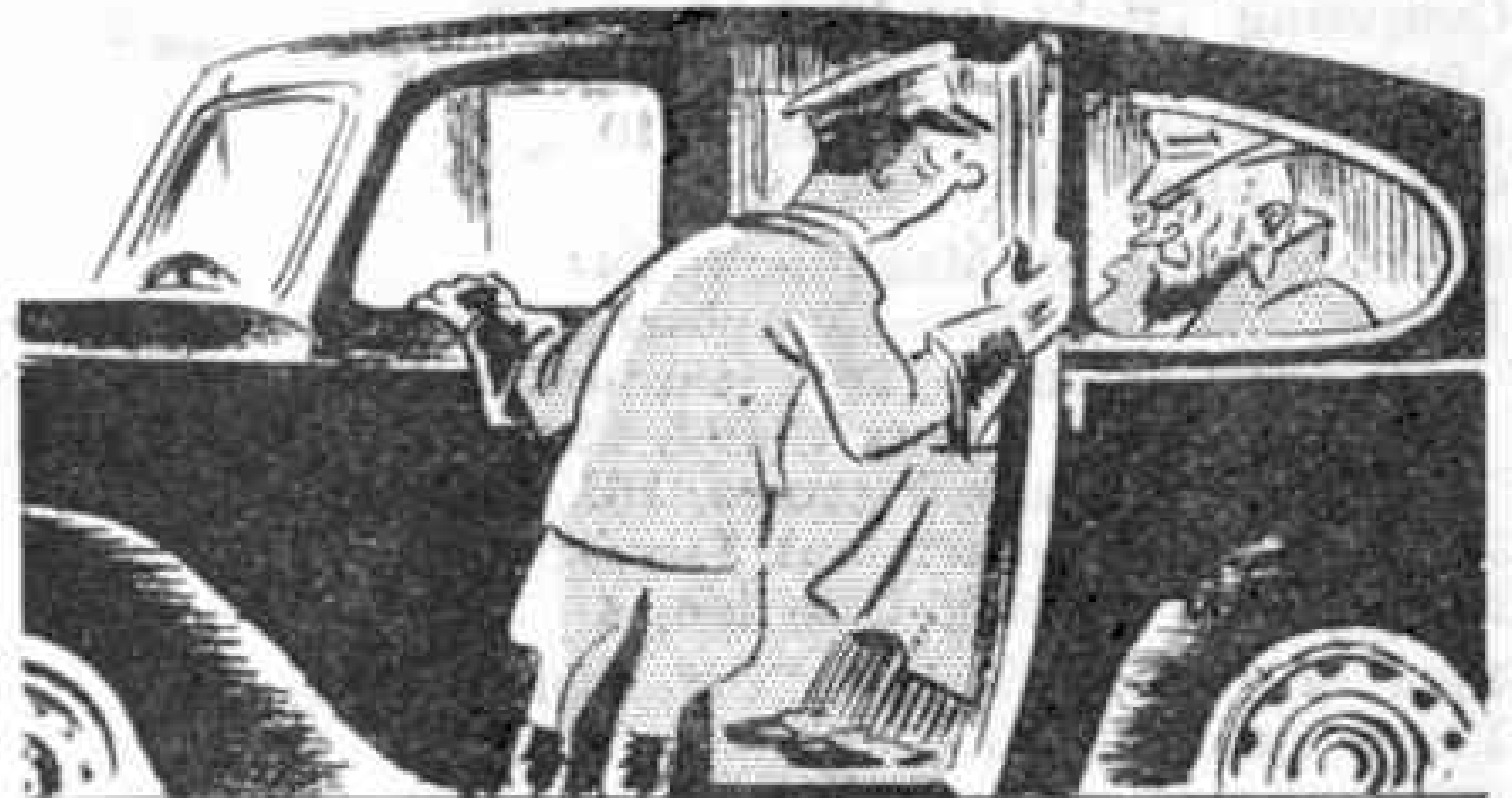
A passenger express train travelling at 60 m.p.h., took 3 sec. to pass a "local," half its own length and going in the opposite direction. The local had a speed of only 45 m.p.h. Can you find from this how long the trains were, and in how many seconds the faster train would have passed the other if they had been travelling in the same direction?

ANSWER THIS IN ONE SECOND

When you have solved our first puzzle you will think this a very easy one; but be careful with it! If 15 monkeys were arranged in Indian file, and each took hold of the tail of the one in front, how many of the monkeys could say that he had a tail in his hand? (T.K.C.)

A "TWISTY" ONE

This may "tie you in knots." How many minutes to 7 o'clock is it if 10 minutes ago it was nine times as many minutes past 4 o'clock? (T.K.C.)



"Where to, sir?"
 "Drive off a cliff, James, I'm committing suicide!"

DETECTIVE WORK

Lastly, here is a puzzle in a very simple code. Can you read it, and what is the answer?

Z ozwb zg z kzigb ivnzpww gszg svi sfhyzwm'h
 ztv dzh ivkivhvmgyw yb gsv urthvh lu svi ztv
 ivevihvw, zmw gszg gsv wruuvivmxv yvgdvvm gsvri
 ztvh dzh lmv-vovevms lu gsvri hfn. Sld low dviv
 gsvb? (T.K.C.)

SOLUTIONS TO LAST MONTH'S PUZZLES

It is not difficult to calculate the distance that the rabbit ran in our log rolling puzzle. If the log had remained stationary the rabbit would have travelled 30 ft.; if the rabbit had remained at the same position on the log, simply keeping on top as the log rolled, it would have travelled 40 ft. down the hill. In effect therefore it would move across the third side of a right angled triangle with sides of 30 ft. and 40 ft. Therefore it travelled 50 ft. The circumference of the log has nothing to do with the rabbit; it was only there as a distraction!

The aeroplanes represented in our jumble are as follows: "Harvard"; "Beaufighter"; "Whitley"; "Walrus"; "Albacore"; and "Hudson."

In our third problem it would have been much simpler to weigh a brick than to work out such a fanciful way of telling us how much it weighed. The answer is 3 lb., so that a gross would weigh 432 lb.

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Advertising: A means of getting rid of anything except your troubles.

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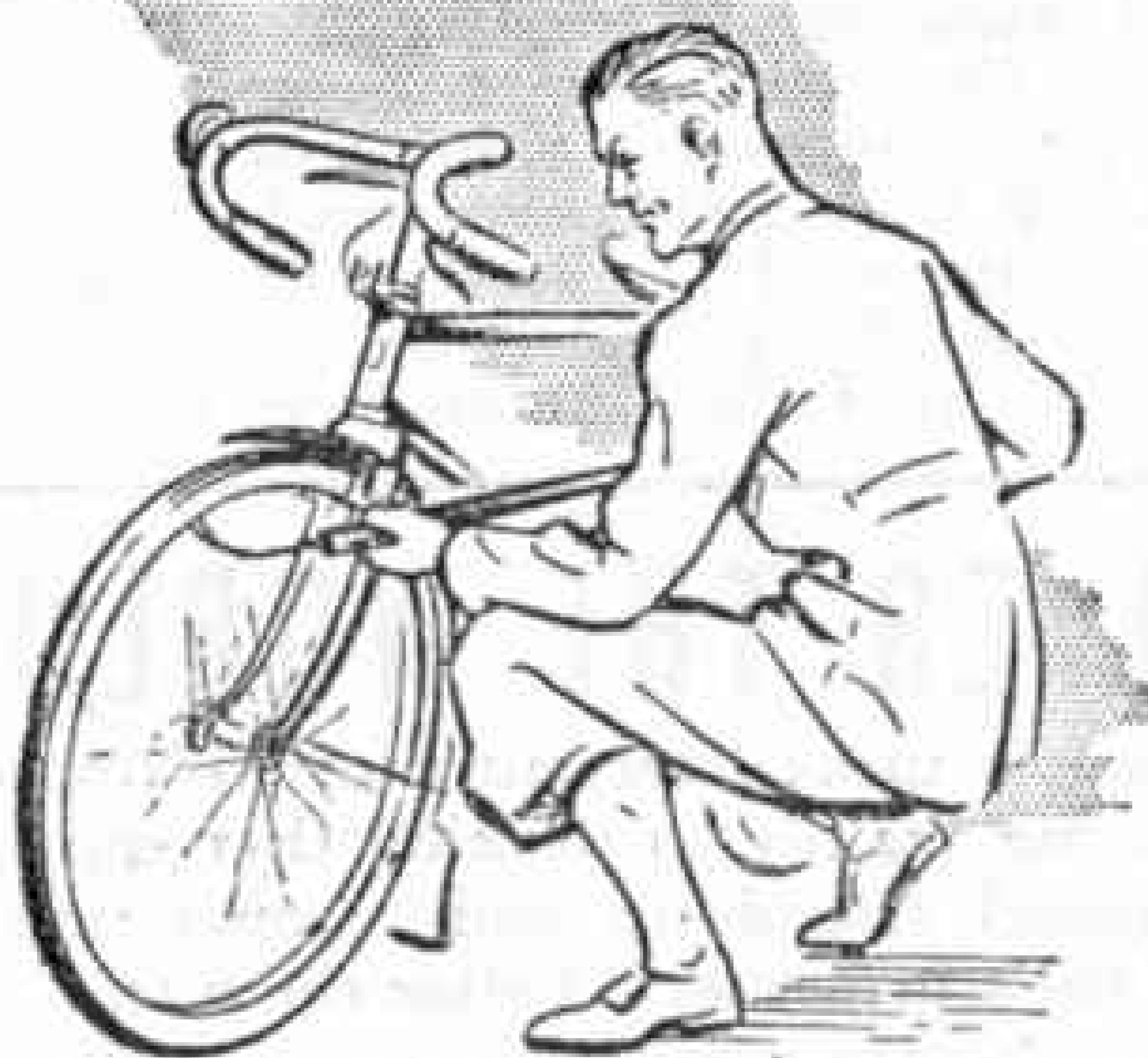
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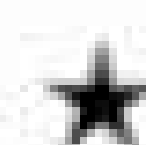
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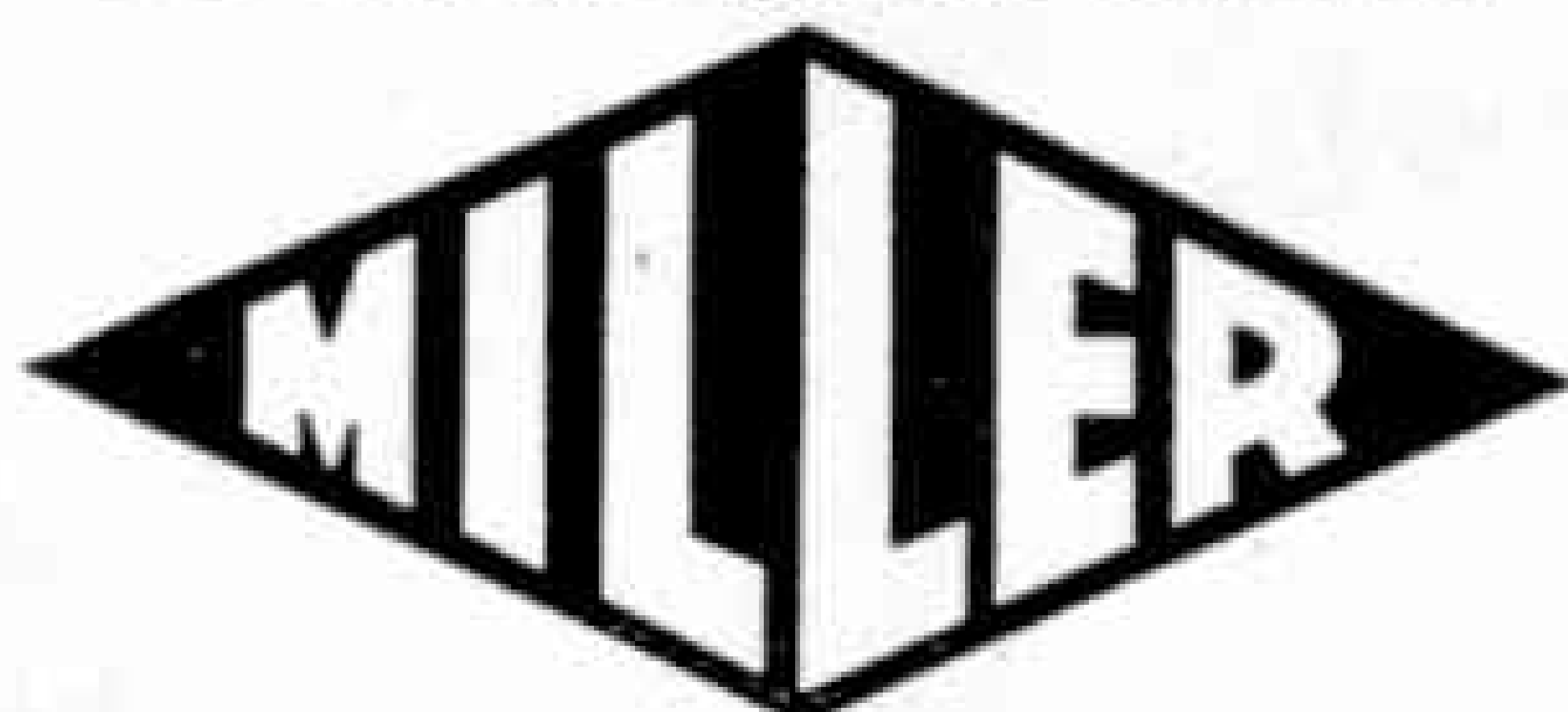
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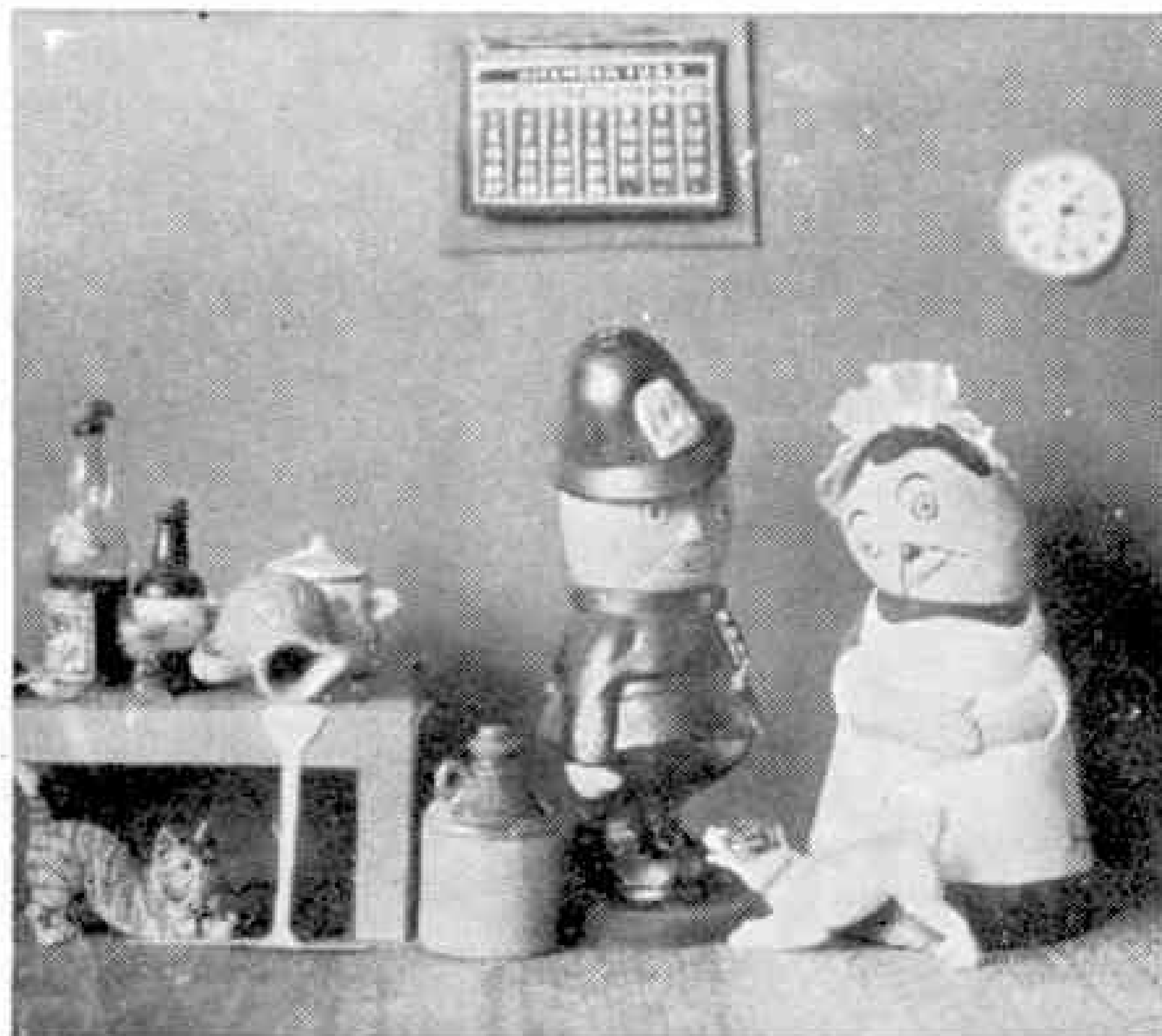


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