VOL. XLIII. No. 11 NOVEMBER 1958

MECCANO MAGAZINE

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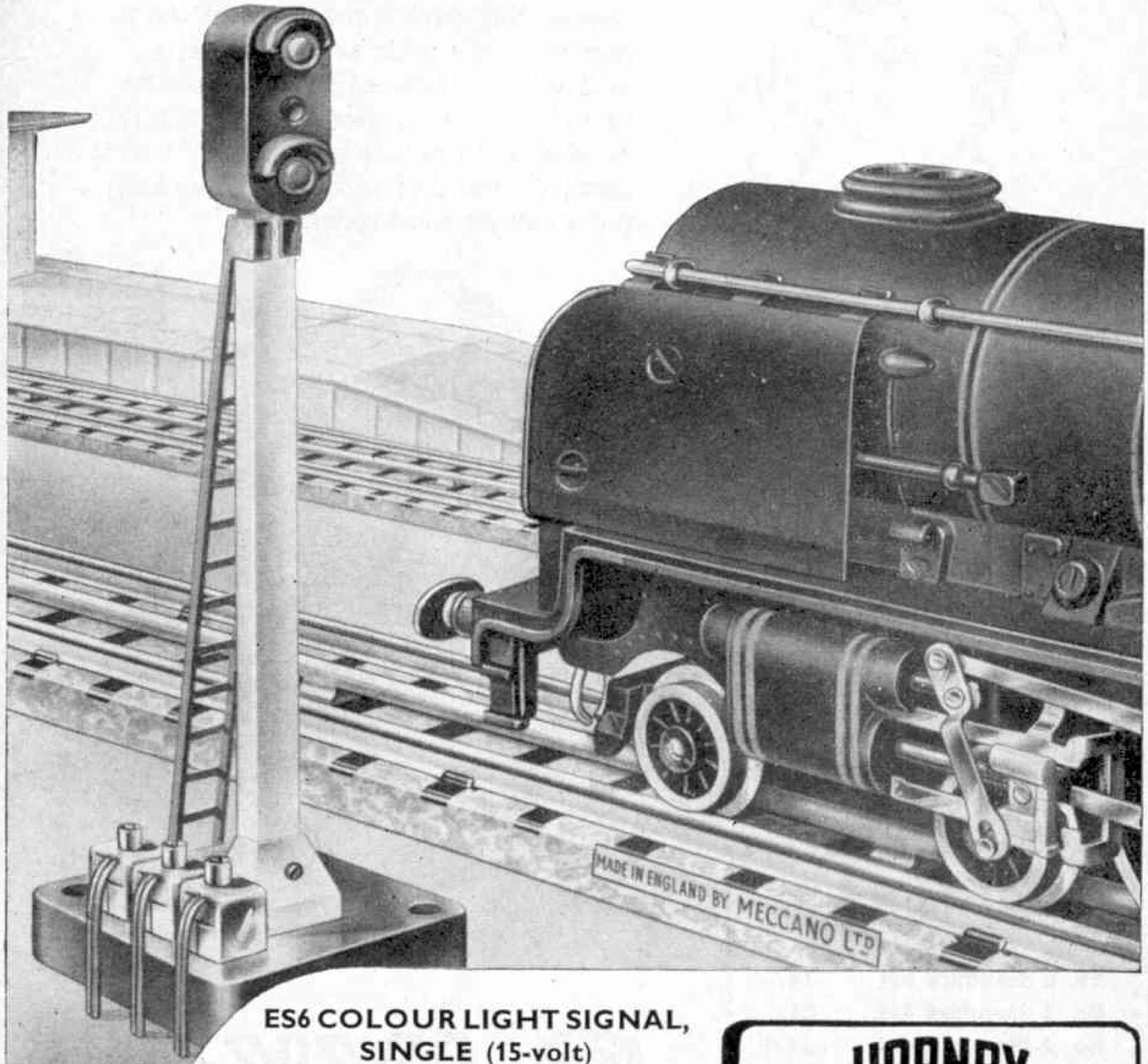

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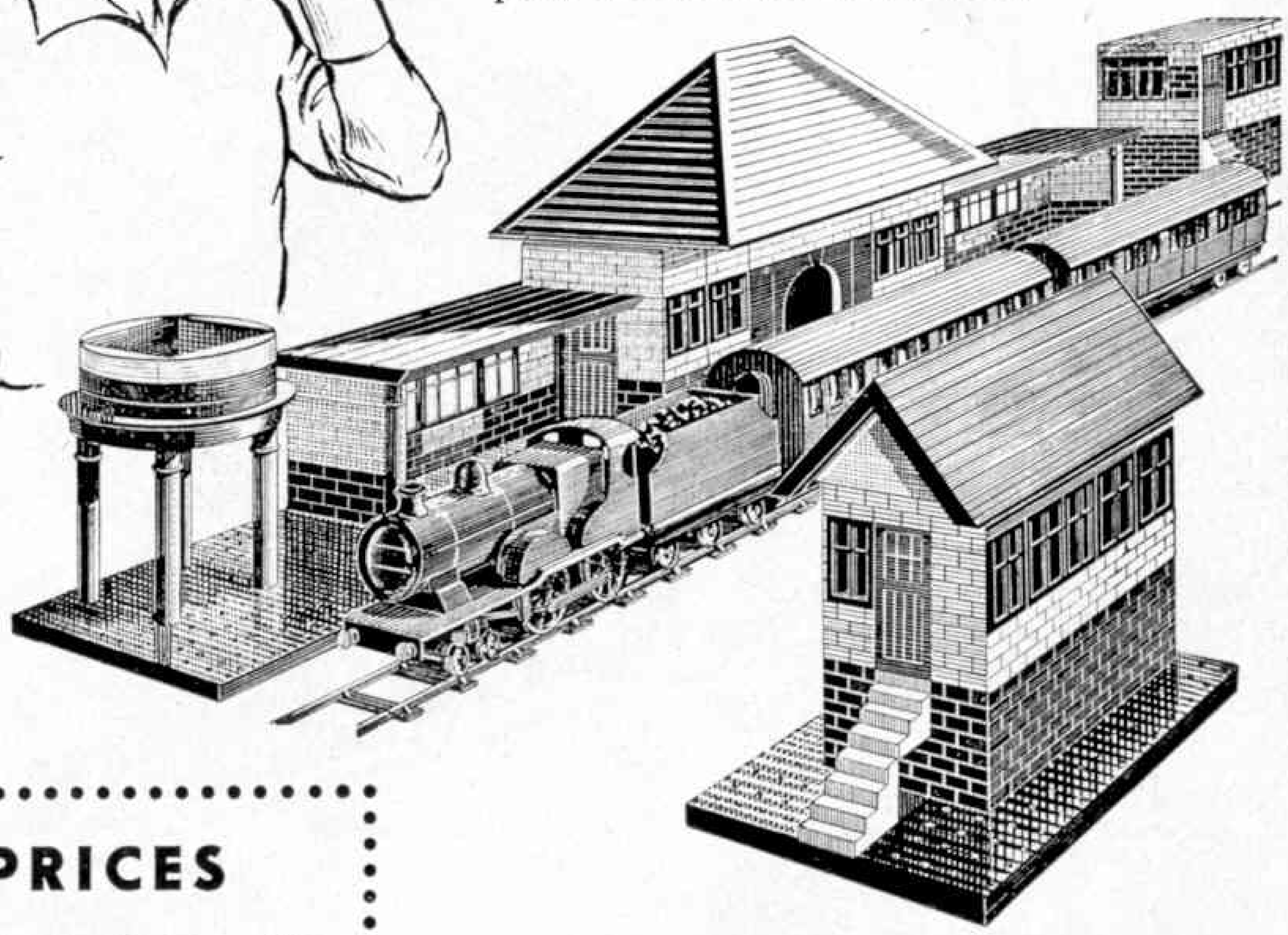

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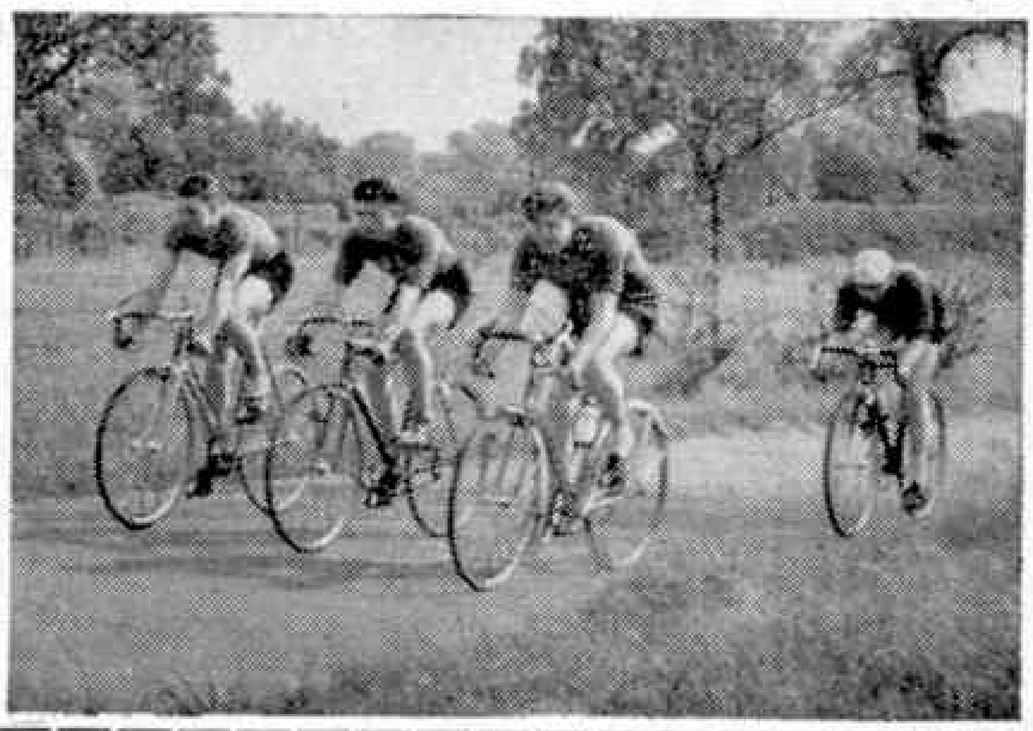

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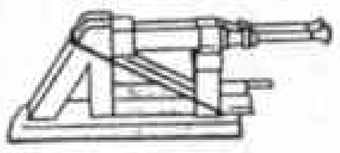

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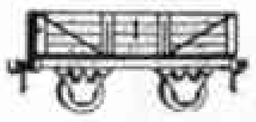
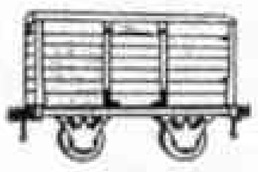


Open Wagon **8/11**



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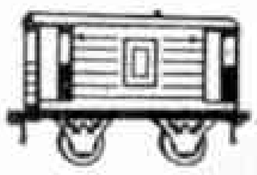

Brake Van **14/–**

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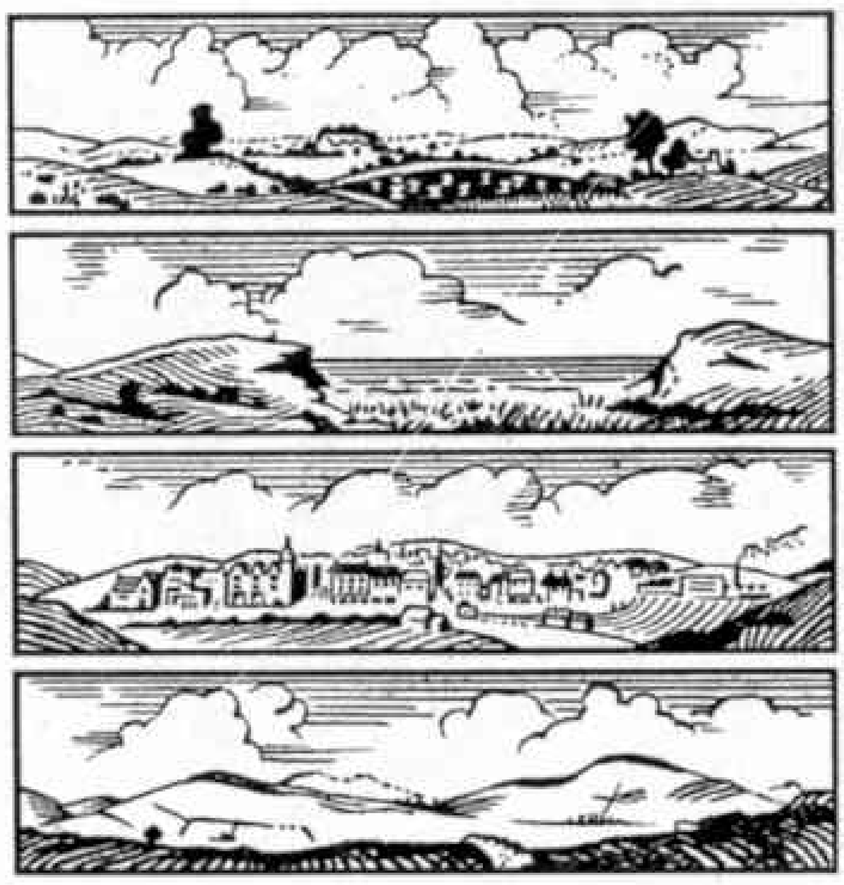

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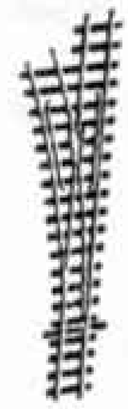

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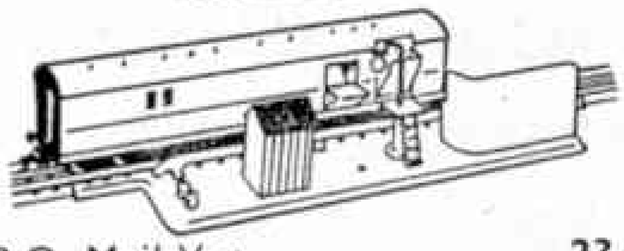

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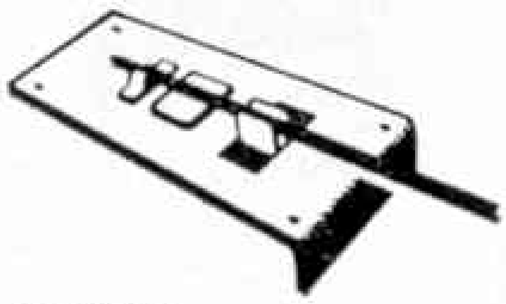

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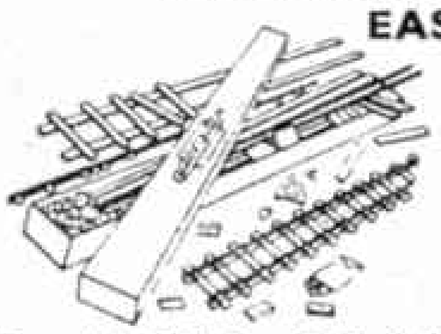

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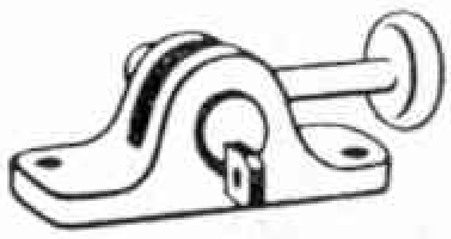

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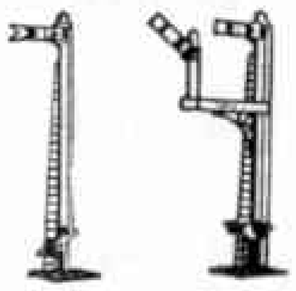

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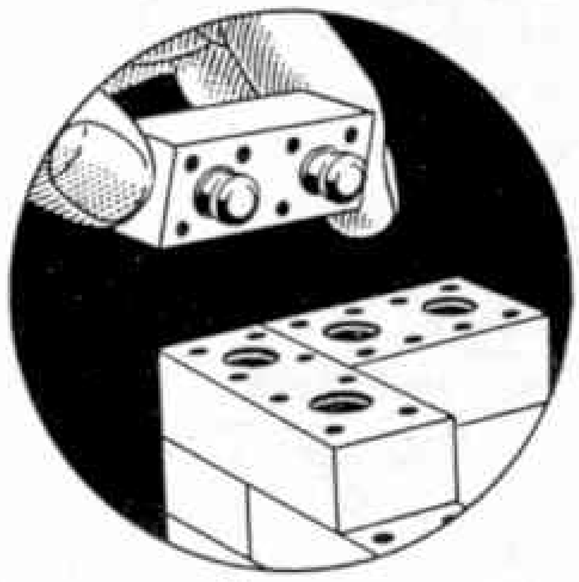

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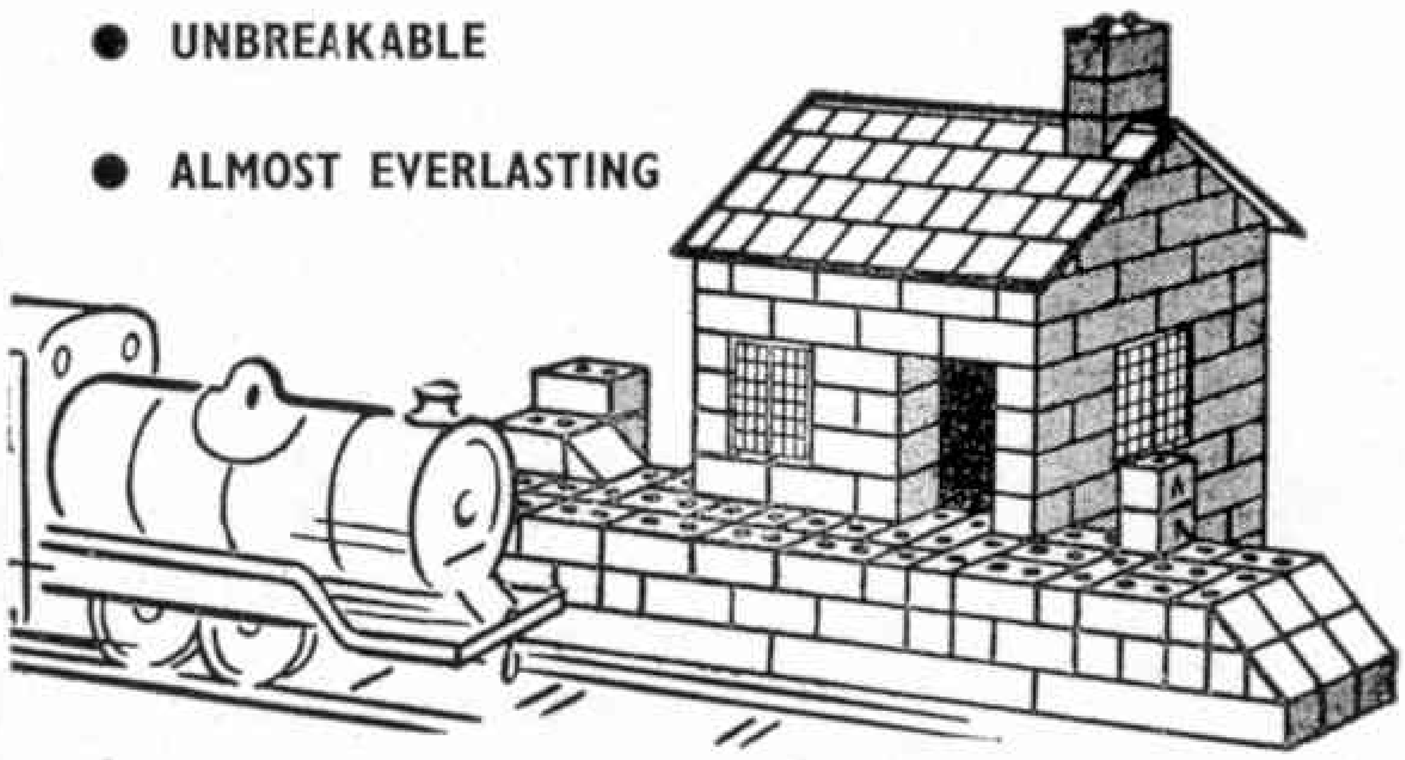

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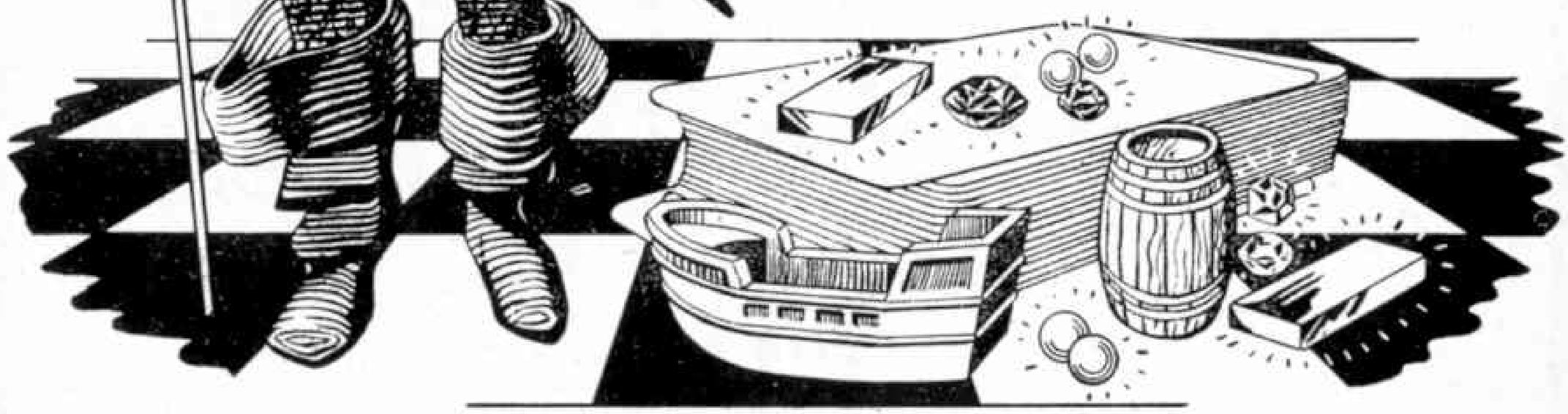

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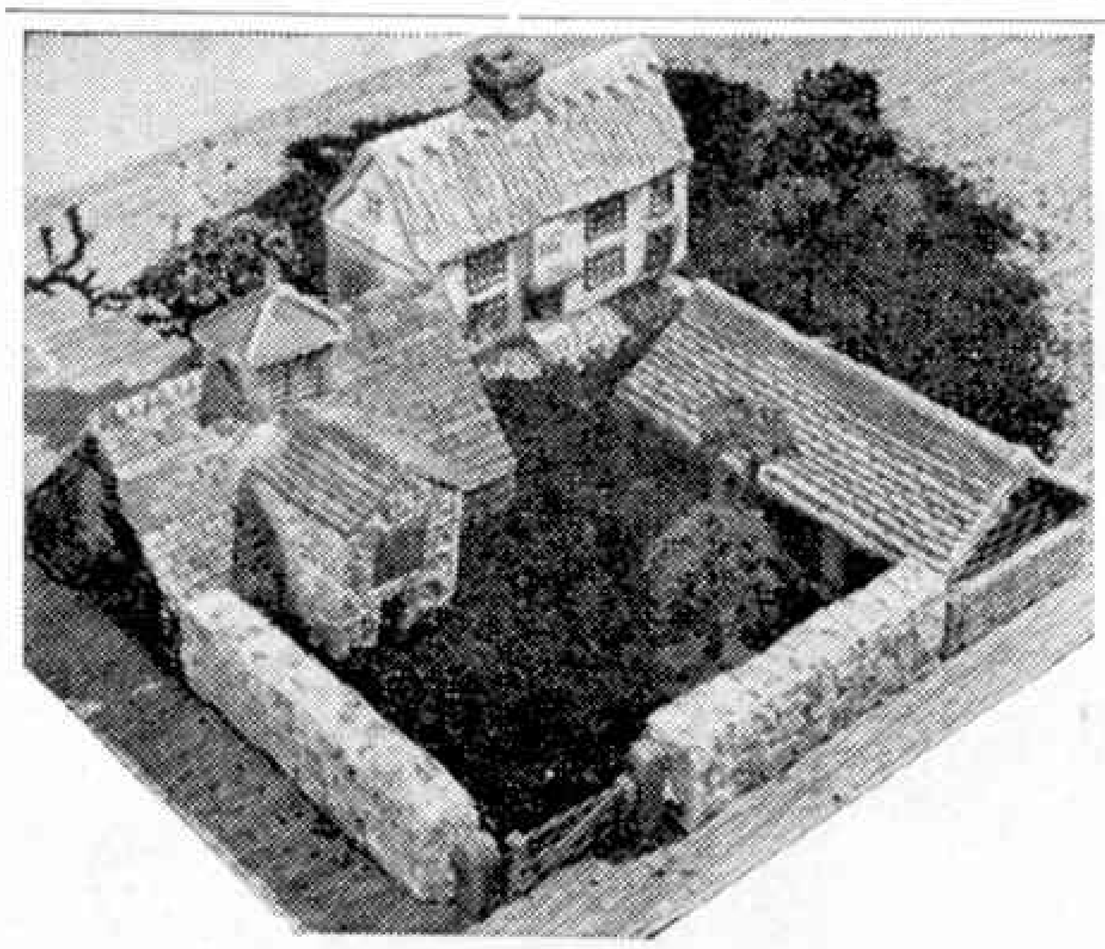

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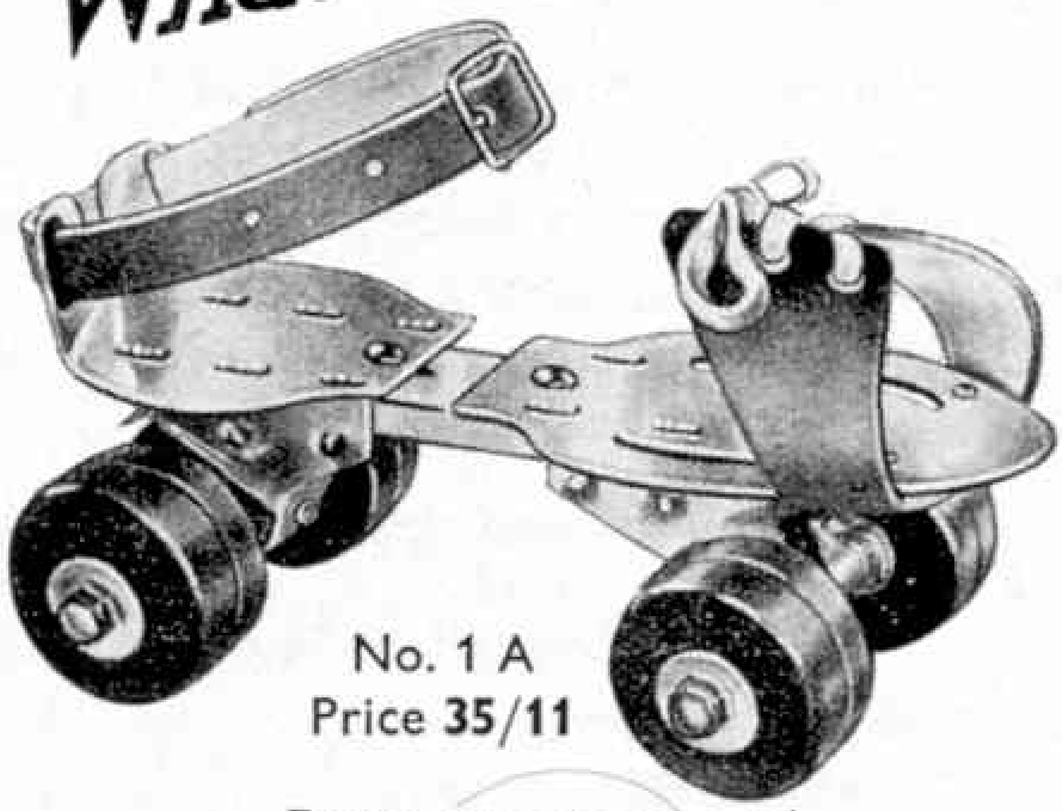

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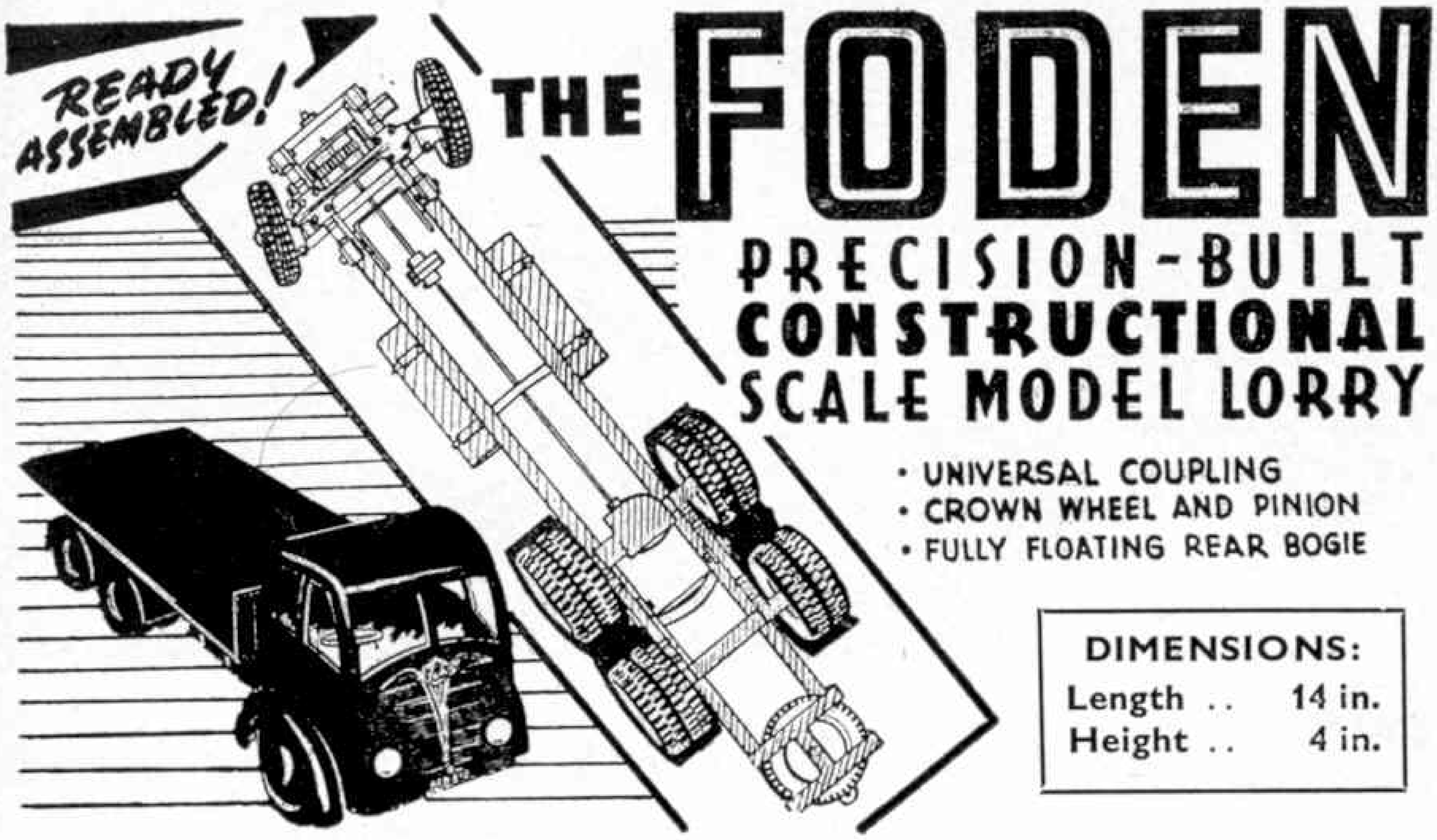

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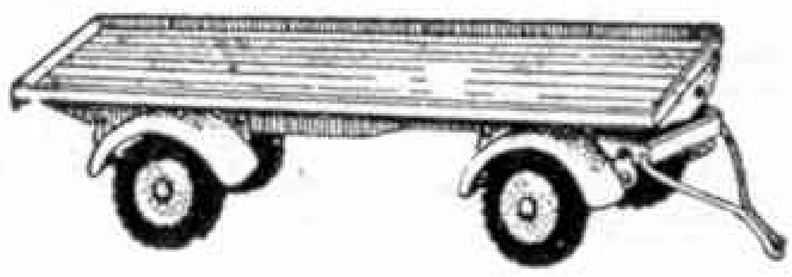

A replica of the
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it couples to the rear of the Foden, or other mechanical Models. **18/9.**
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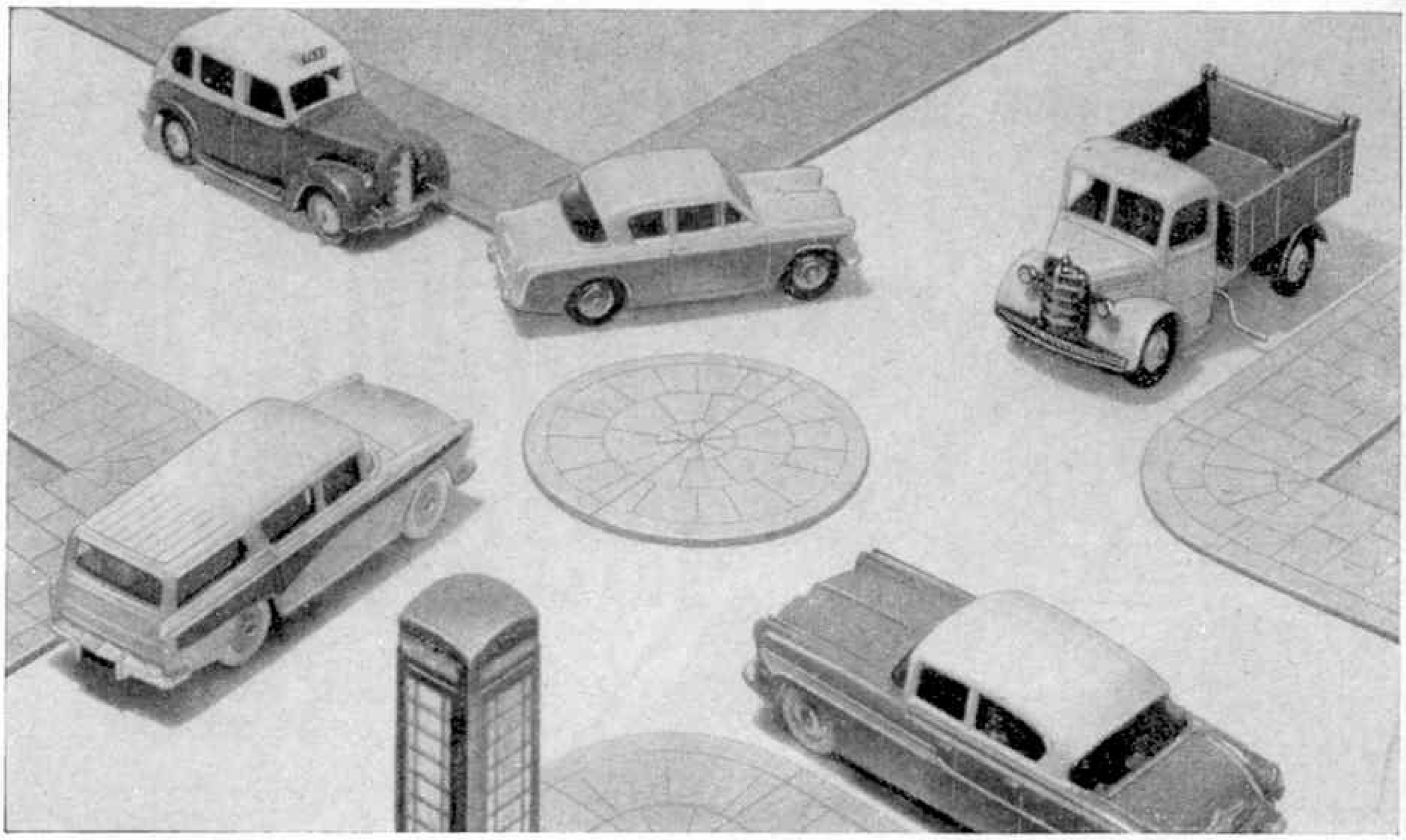

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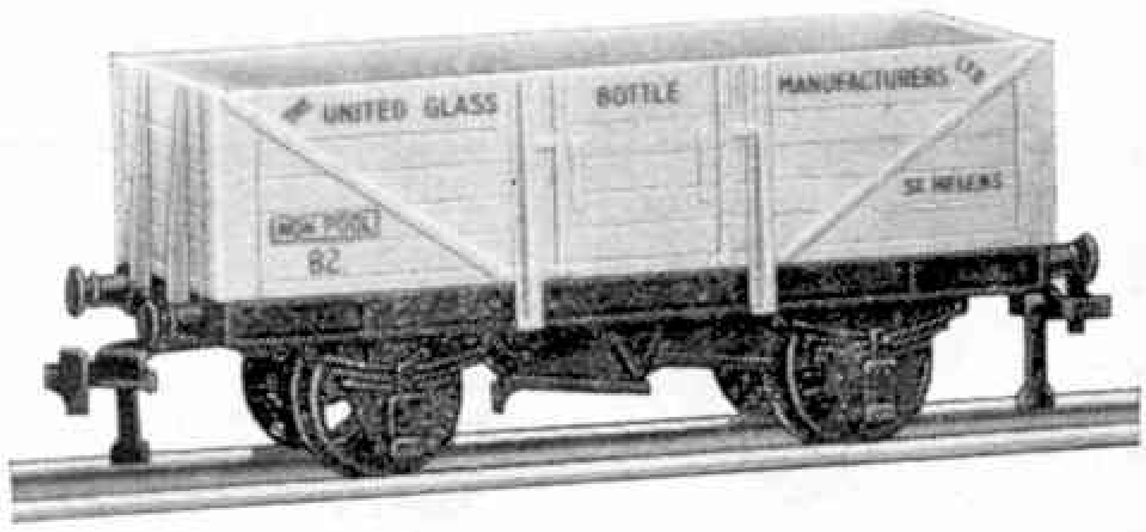

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Next Month: "PLACES IN PANTOMIME" By Arthur Gaunt

MECCANO MAGAZINE

Editorial Office:
Binns Road
Liverpool 13
England

EDITOR : FRANK RILEY, B.Sc.

Vol. XLIII
No. 11
November 1958

Try Out for Size

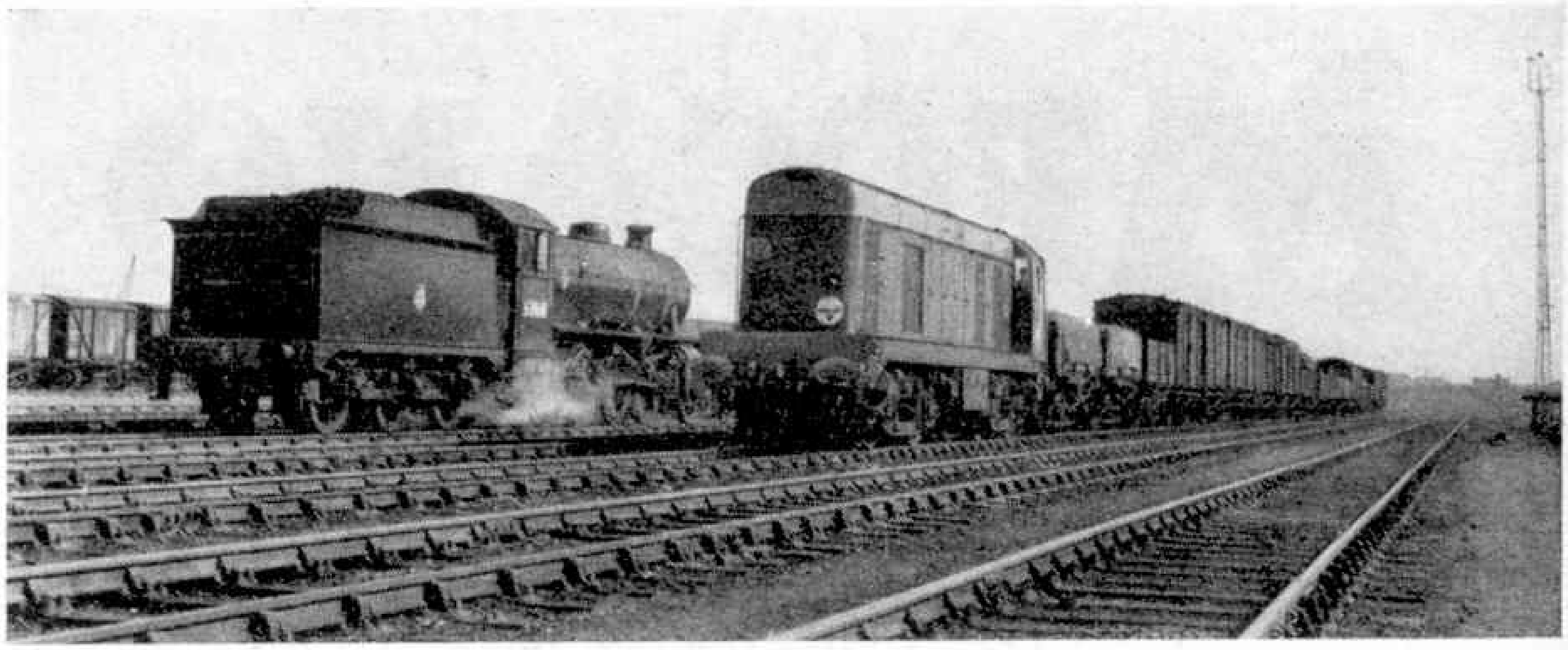
I COULD not resist letting you see the picture I have chosen this month. It has a double interest. In the first place, it is attractive in itself, and I can imagine that all of you would be delighted to have a chance of climbing the front end of *Quicksilver* to fix a train name board on it. The name board was really being "tried out for size," for the photograph was taken in the King's Cross Motive Power Depot a few days before the maiden run of *The Fair Maid* in September of last year. Apparently it fitted quite well, for the locomotive hauling the train carried the headboard throughout the run of *The Fair Maid*, which of course at present is running only as far north as Edinburgh, under the name of *The Talisman*.

The train name headboard for "The Fair Maid" being fitted in position on "Quicksilver" at King's Cross Motive Power Depot before this train made its maiden run to Perth in September 1957. B.R. (E.R.) photograph.

In the second place, the picture derives considerable interest from the recent introduction of train name headboards for locomotives in the Hornby-Dublo series. Now owners of Hornby-Dublo trains will be able, in spirit at least, to "climb up on the front ends" of their Hornby-Dublo locomotives. And they can also "climb up" similarly to put in place name and destination boards on the coaches of their trains, as they will see on reading the article on page 542.

Now I have some good news. The next *M.M.* will be a specially enlarged Christmas issue, but its price will be the same as usual, 1/3. Place an order for your copy with your Meccano dealer or newsagent, if you have not already done so.

The Editor



Diesels at Devons Road

Next month will see the appearance in the Hornby-Dublo system of the first diesel-electric locomotive to be included. This is a miniature of the 1,000 h.p. diesel-electric locomotive built at the Vulcan Foundry Works of the English Electric Company Ltd., and Hornby-Dublo enthusiasts will be interested in the account given in the accompanying article of the engine shed at which the engines were stationed on delivery. This is taken from "Transport Age", from which it is reproduced by kind permission of British Railways, to whom we are indebted also for the illustrations.

DOWN in London's East End, close to the docks at Poplar, an engine shed of modest proportions has been singled out for a place in railway history. It is the London Midland Region's Devons Road (Bow) Motive Power Depot, and it has become the first all-diesel depot on British Railways. Steam engines have "come off shed" for the last time; diesel locomotives now haul much of the cross-London freight traffic on the busy North London line.

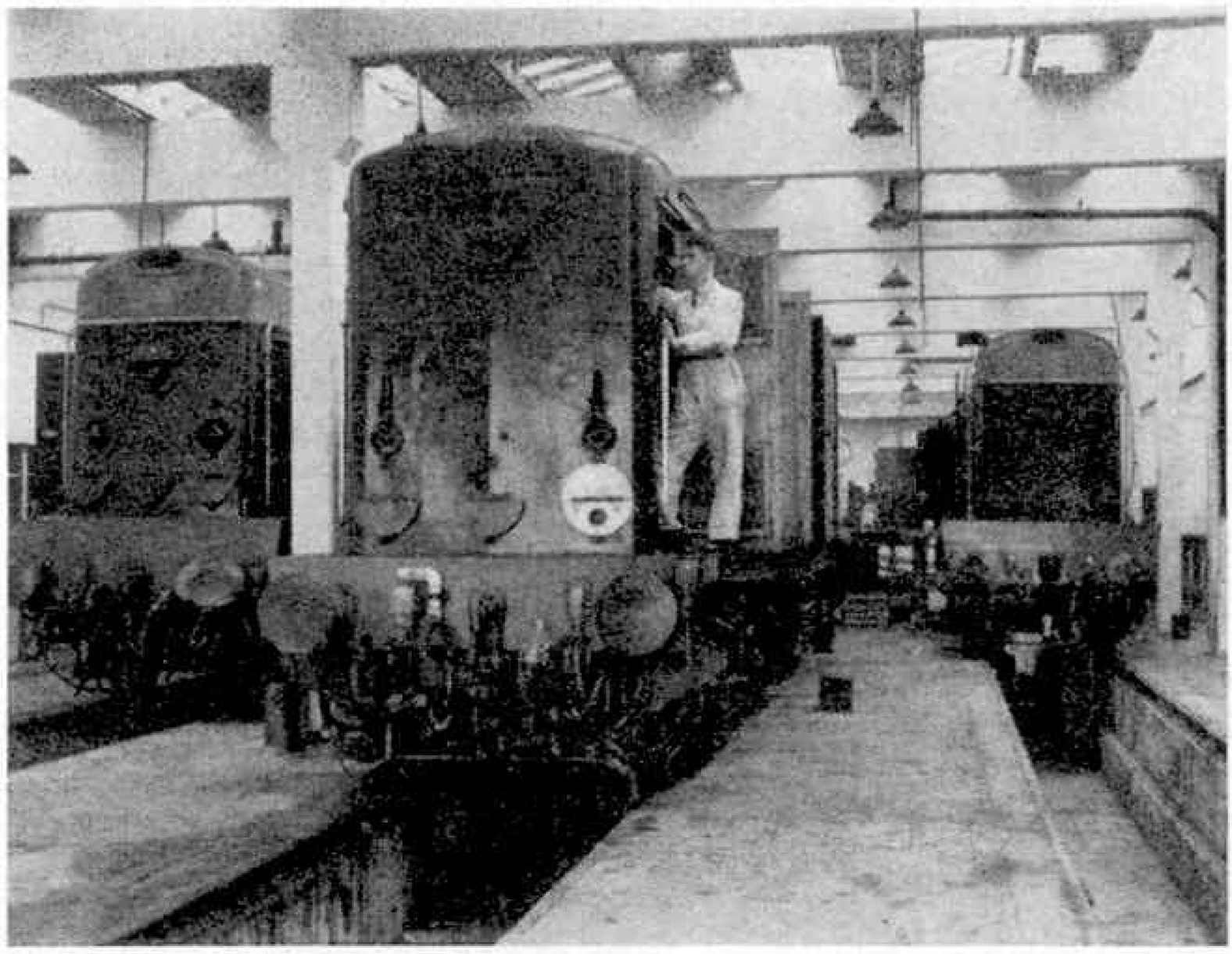
This conversion highlights a momentous step in railway development. Steam, the all-conquering power of the nineteenth century, is being dislodged from a domain which for more than 130 years has been peculiarly its own; no further steam locomotives are to be built. As the present stock runs down it will be replaced by diesel locomotives, 2,500 of which are due to be delivered under the Modernisation Plan. A number is already in service in various parts of the country, sharing shed space with the steam engines they will eventually displace.

The picture at the top of the page illustrates the special use to which the 1,000 h.p. English Electric diesel-electric locomotives at Devons Road have been put—handling exchange freight traffic on the former North London Railway.

But for the moment Devons Road is unique. Nowhere else yet on British Railways is there an engine depot without its coaling appliance and ashpit. Gone from Devons Road are the steam-raisers and boiler-washers, the coaling-plant attendants and ashmen. If some of the romance has gone as well, so has a lot of grime and the need to cope with it; a symbolic feature of the £68,000 conversion programme now nearing completion is the removal of the smoke troughs from the roof.

Dieselisation means cleaner railways for those who use them and those who work on them, and the saving in cleaning and painting costs is not the least of the economies to be derived from the newest form of motive power. The inherent cleanliness of the diesel locomotive can only be exploited to the full in a shed from which steam servicing has been completely eliminated, and there are other factors too.

Devons Road was chosen for the initial



Three tracks at Devons Road, formerly part of the main shed, have been separately enclosed to form the servicing bay for the diesel-electrics.

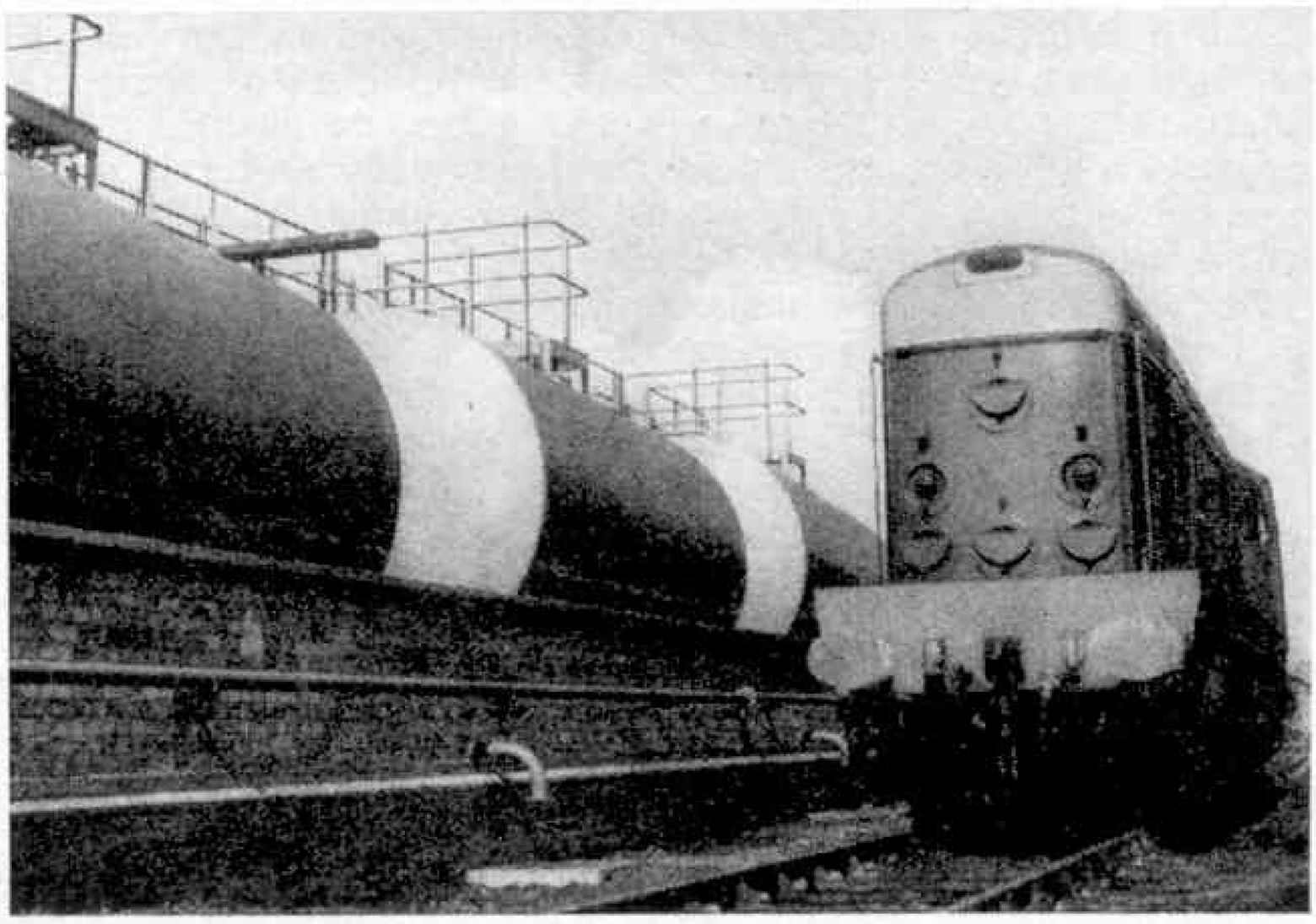
conversion for four main reasons. Firstly, it was self-contained; none of its engines worked into other sheds and no other engines were dealt with there. Secondly, heavy maintenance facilities were available at the adjacent Bow Works of the Chief Mechanical Engineer. Thirdly, the size was right; large enough to avoid the distortions of small-scale evaluation, small enough to make adjustments without serious repercussions as experience is gained. Fourthly, the area will probably become a Smokeless Zone.

The provision of oil-fuel storage and fuelling equipment was a first requirement. An above-ground tank enclosure of 42,000 gallons' capacity, together with its associated standpipes and metering equipment, has been erected outside the shed. The shed itself, which previously spanned nine tracks, has been divided into two separate sections; a running-shed or "garage" of five tracks, and a three-track servicing bay. One track has been lost in the conversion, the extra space being allocated to servicing.

The most striking feature of the conversion is the improvement in working conditions made possible by the banishment of smoke. Modern factory design has been emulated in the clear roof-lighting and pastel-tinted walls, and adequate space heating has been made possible by fitting doors to the wide entrances. Up-to-date electric lighting has been installed.

There is a mass of machinery in the new locomotives which must be regularly examined and adjusted if their built-in reliability is to be maintained. For this reason inspection pits have been deepened and electrically lit, and staging at footplate level, extending about an engine's length from the stop-blocks, has been erected in the servicing bay. Other modifications include the provision of a battery-charging plant, a water-softener (for radiator water) and a lubricating-oil store and dispensary. Outside the shed but opening into it, a workshop has been built in which removable precision components can be overhauled and tested in favourable conditions. A storeroom has also been erected.

Less spectacular has been the renovation of



A 1,000 h.p. diesel-electric locomotive alongside the fuel tanks at Devons Road.

the permanent way and paving, attention to the drainage and other general repairs; the final touches to a good job well done.

Other jobs were well done too—the job of the management to inform the affected staff of their intentions; the job of the staff to accept the upheaval of transition, involving in some cases a change of occupation. Consultation took place at the planning stage, and the loyal co-operation of the staff was pledged. Conversion went forward untroubled by dispute, as a fully informed staff eagerly awaited each new development.

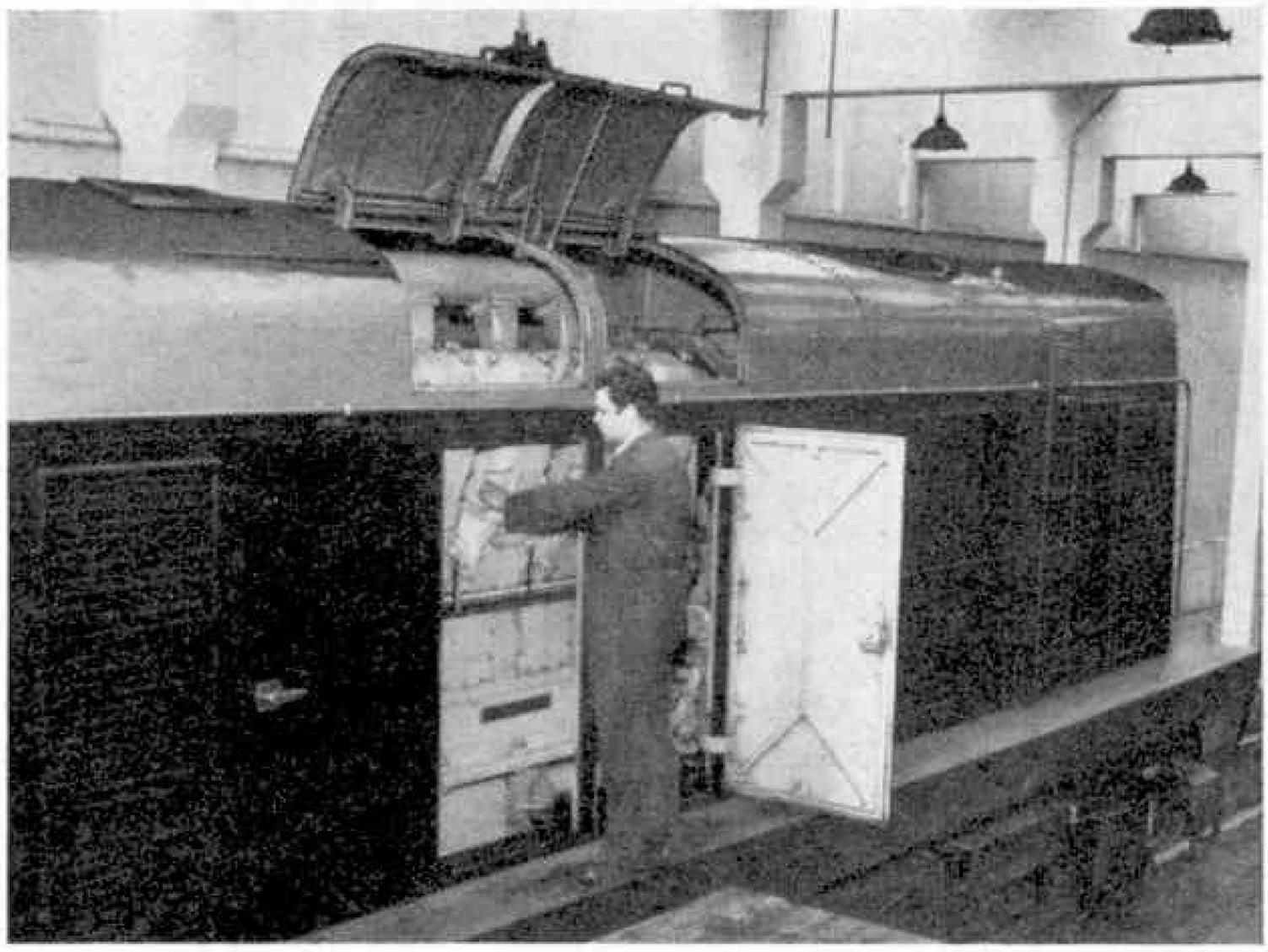
Forty-one steam locomotives, mainly Class 3 six-coupled tanks but including nine Class 4 tender engines, have been displaced by diesels. The new stud of 33 locomotives falls into two principal groups, train engines and shunting units. The larger group of train engines comprises fifteen 1,000 h.p. diesel-electric locomotives constructed by English Electric, and 10 of 800 h.p. from the works of British Thomson-Houston. Both types are "single-ended"—that is, they have only one driving compartment—but the control console is duplicated so that the locomotives can be driven from the left-hand side in either direction. All 25 have been fitted with Automatic Train Control apparatus.

The eight shunting engines in the second group were supplied by North British. Rated at 330 h.p., these four-wheelers have Voith hydraulic transmission.

The pleasing external appearance of the larger locomotives results from consultation between the manufacturers and the British Transport Commission's Design Panel. For more than a century British steam locomotive design has evoked the admiration of the world, and British Railways intend to maintain the standard. The sleek lines of the new locomotives echo the traditional simplicity of their steam-powered forebears, while the adoption of green livery (freight engines were previously black) is a happy omen of the cleaner, brighter future now unfolding.

Conversion courses for drivers are conducted locally, except that the first few drivers were trained in the manufacturers' works. After being passed as competent by a Motive Power Inspector they returned to Devons Road to train their colleagues. Locally-trained men are also tested by an Inspector before being allowed to drive without supervision. No more than a week's instruction is usually necessary; the straightforward control system is a feature of the new locomotives.

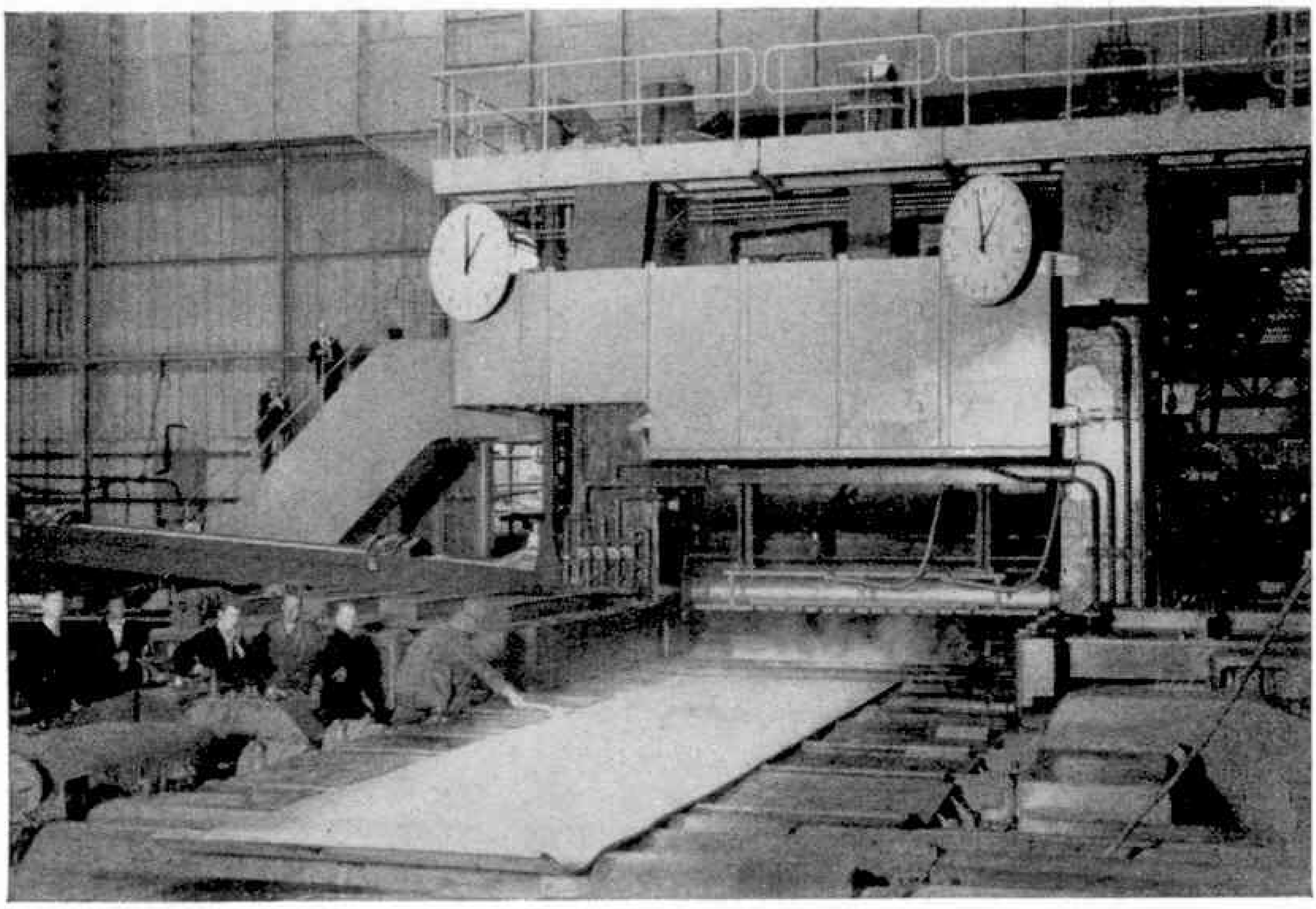
The men are well pleased with their new charges. Complete protection from the weather is indeed an innovation to a man brought up on steam, but not apparently an unmixed blessing to the older drivers, some of whom feel they have given up an open-air life for an indoor occupation. Certainly there is no mistaking the "indoor" appearance of the upholstered seats, the cab heaters and miniature electric cooker, the cream-coloured walls and the ceiling light. But old and young alike appreciate the cleanliness. A young engineman spoke enthusiastically of coming to work in a cricket shirt!



The new locomotives contain a great deal of mechanical equipment that must be examined regularly.

Substantial economies are expected from the conversion. Depot alterations cost under £70,000, against which can be placed an immediate saving of £27,000 a year in manpower and materials. Fewer diesel locomotives are needed, and their full utilisation and economy in operation will outweigh their higher initial cost.

Full utilisation means better service. Already exchange traffic between goods stations in the north of London is benefiting from the better performance of the diesels.



A New Plate Mill Starts Up

STEEL is the key to countless industries, large and small. For instance, steel plate of high quality and in immense quantities is needed for building ships and making motor cars, and in constructional engineering generally.

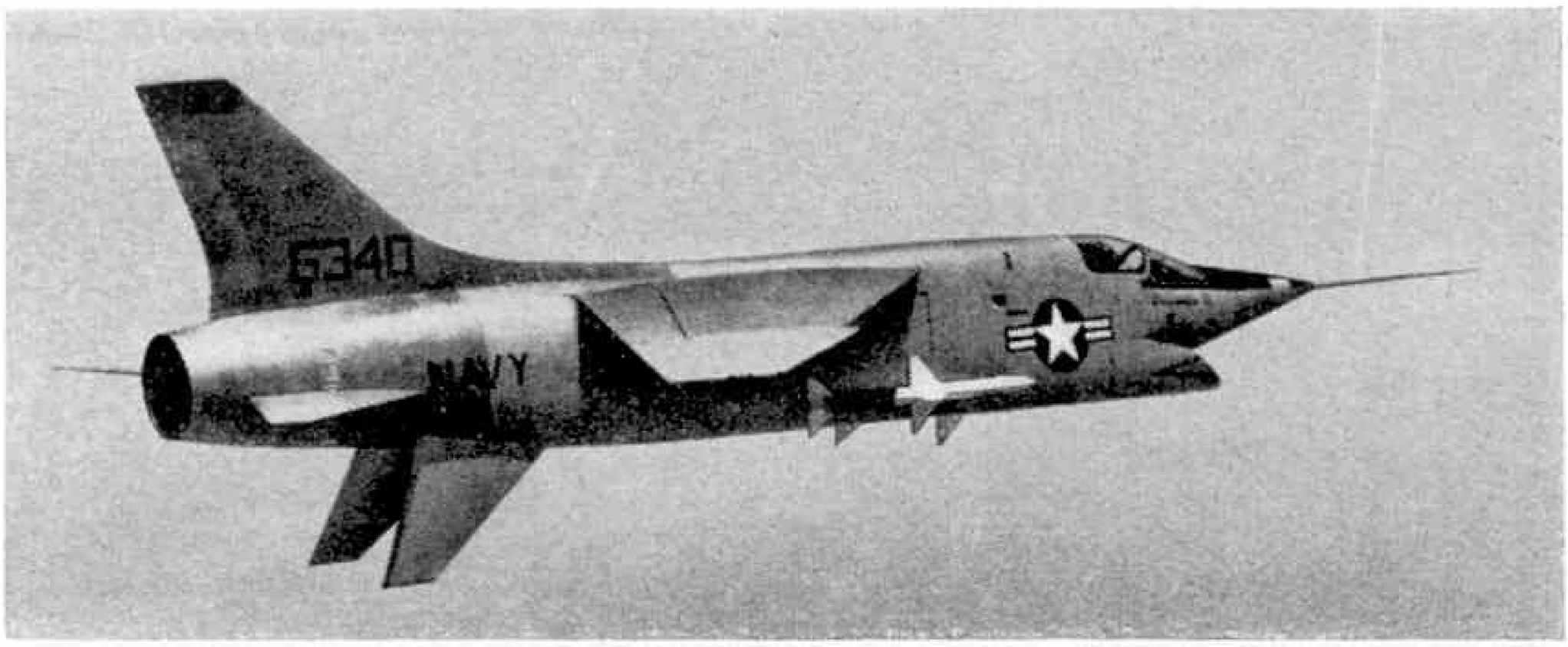
The production of steel plate starts with ingots of steel. These are made white hot and passed through the rollers of what is called a cogging mill, which squeeze the ingot down into a thick slab. This is usually re-heated before being passed through rolling mills, which can be described as giant mangles, and it is fascinating to see the slabs enter them and shoot out on the opposite side, with their thickness reduced and perhaps with steam rising from them as water sprays cool them.

The plate rolling mill seen in operation in the picture on this page has the heaviest rolls yet installed in a plant of this kind in Great Britain. The mill produces about 9,000 tons of steel plate a week and is part of a £6,000,000 scheme for increasing output at the Scunthorpe Works of the Appleby-Frodingham Steel Company.

In a plate mill there are two rolls turning in opposite directions, each backed by a large roll to resist the immense pressure applied. In the mill shown in the picture above, the work rolls weigh 29 tons each, and their back-up rolls 72 tons each. They are indeed the heaviest rolls ever incorporated in a British rolling mill.

The picture shows a historic occasion, for the plate that can be seen emerging from the mill is the first one that it produced. This happened in July last, when the mill was first brought into use on its installation at the Scunthorpe Works of the Appleby-Frodingham Steel Company, which is a branch of the United Steel Company Ltd. The mill cost £500,000 and it will give improved surface finish and greater accuracy in width and thickness, while producing more steel plate than the mill it replaced. Its tremendous rolls are driven by twin 4,000 h.p. D.C. motors, and in spite of its size and the gigantic quantity of steel passing through it, its operation is controlled by one man.

The new plate mill is part of a £6,000,000 development scheme that will increase the output of steel plate still further. Two new slab re-heating furnaces, mechanical shears and other equipment are to be added.



Push-Button Fighter

By John W. R. Taylor

CHANCE VOUGHT'S new F8U-3 Crusader III interceptor, which flew for the first time on 2nd June this year, is one of the most remarkable aeroplanes ever built. At first glance it looks little different from the F8U-1 Crusader, which has been in service on board carriers of the U.S. Navy since early 1957. Its nose is longer and more pointed, it has a swept-forward engine air intake, and there are two additional fins under the rear fuselage; but the most important changes are packed out of sight inside its neat airframe.

As explained in the "Airpass" article in last month's *M.M.*, air forces all over the world are trying to find ways of making the job of the fighter pilot less difficult. They believe, quite rightly, that no ordinary squadron pilot should be expected to fly a 1,300 m.p.h. aeroplane, work out his own navigation, search for the enemy and fire the aircraft's guns or rockets all at the same time.

In the picture above the Chance Vought F8U-3 Crusader III interceptor is shown with Sparrow missiles on the sides of, and under, the fuselage.

Fire control systems like Airpass are able to take over much of the responsibility for finding and firing at the target. The Crusader III has also an advanced electronic flight control system, so that its pilot can go where he wants to go and do what he wants to do largely by pushing buttons.

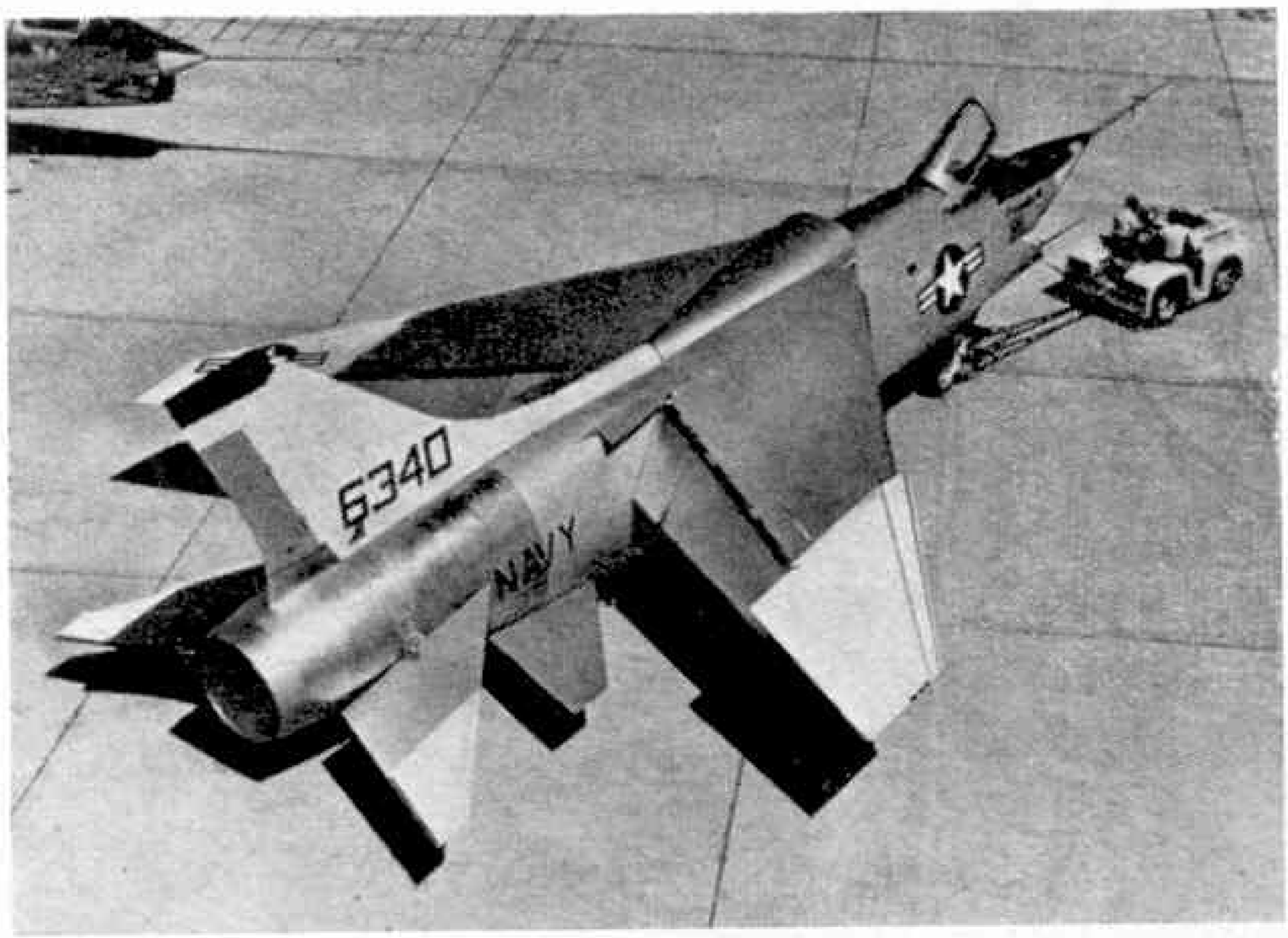
After take-off from a carrier, he need only push a "Mach hold" button and the electronic equipment will ensure that he continues to climb automatically at whatever speed and angle he chooses, without having to move the controls. When he has climbed high enough, he can push an "Altitude hold" button for automatic cruising at that height; and when he has turned towards the target, depression of another button will keep the Crusader pointed in the right direction. To change course, he simply has to dial the direction he wants on a "Heading select indicator".

To circle over any chosen point, the pilot can utilise other push-buttons. There are even electronic devices which calculate in a flash whether a particular manœuvre would impose too much strain on the aircraft and, if necessary, prevent it by limiting the movement of the controls. This is a very worthwhile safety feature in an aircraft designed to fly and fight at twice the speed of sound.

Such high performance is made possible by the installation of a Pratt & Whitney J75 turbojet, giving almost 26,000 lb. of thrust when its afterburner is in use. At top speed, this is equivalent to 90,000 h.p., yet the Crusader III can stay in the air for more than three hours at lower speeds without refuelling or carrying external tanks.

To cram so much power, fuel and electronic equipment into a fighter only 39 ft. 11½ in. in span and 58 ft. 8¾ in. long represents a tremendous achievement, and it has not been done at the expense of stability or safety.

Like the F8U-1, the new version has a two-position, variable-incidence wing. As any aero-modeller knows, the greater the angle at which the wing is set on the fuselage, the greater (up to a certain point) is the lift it produces. As a result, the wings of a carrier-based fighter ought really to be set at a large angle of incidence, because they would then continue to produce plenty of lift at low speeds, enabling the aircraft to come in to land slowly and safely.



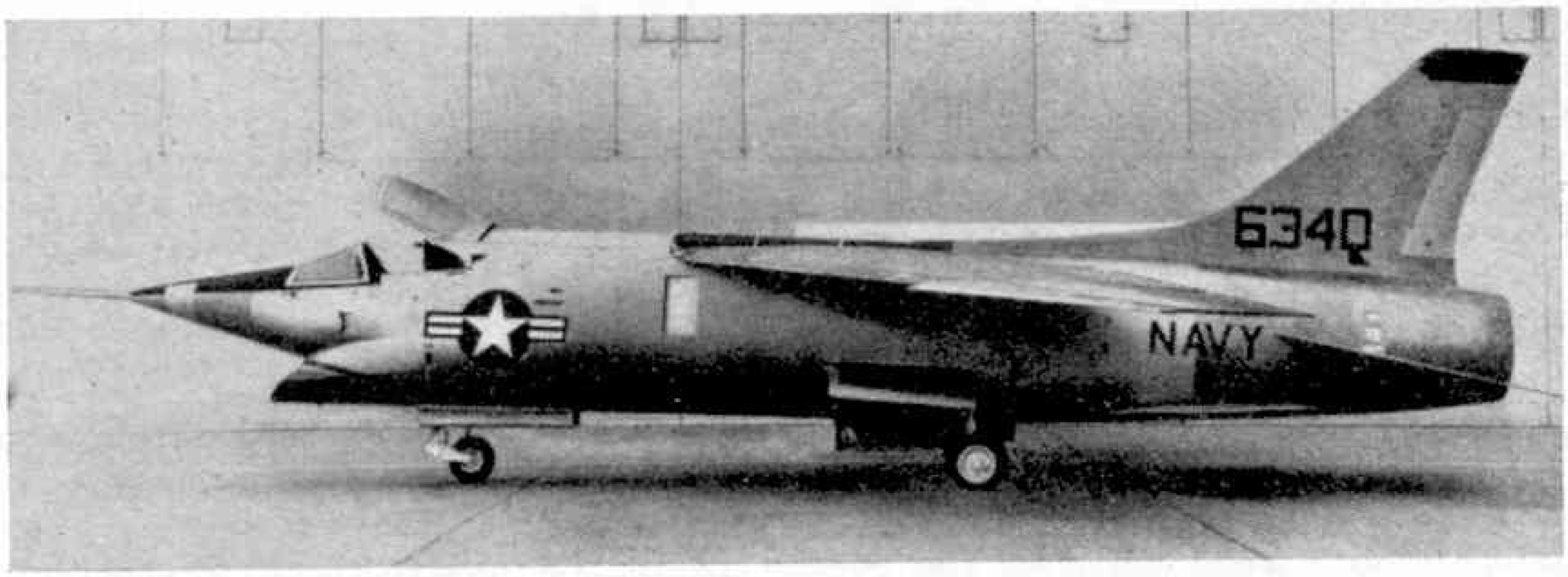
The Crusader III being towed on the ramp at the Chance Vought hangar, Edwards Air Force Base, California, U.S.A. Ventral fins for stability at high speeds are visible below and in front of the tailplane. In flight they are in a vertical position.

Unfortunately, large incidence results in a lot of drag at high speeds and is not normally possible on a supersonic fighter. But Chance Vought have overcome the problem very neatly, by pivoting the Crusader's wing so that it can be set at a large angle of incidence for take-off and landing, as shown in the upper illustration, and returned to a normal low-drag position during flight Still greater lift and better control are ensured on the F8U-3 by a boundary layer control system which blows high-speed air over the wing flaps during landing.

Because of these design features, the F8U-3 is more pleasant to fly at low speeds than many subsonic aircraft; and it does not share the stability problems encountered at high speeds by some other supersonic fighters. The two under-fuselage tail-fins help in this respect. During take-off, low-speed flight and landing they extend horizontally, but can be turned almost vertically downward to give increased stability at high speeds.

There can be little doubt that the F8U-3 is one of the most promising types yet produced for the U.S. Navy. It has sufficient endurance to cruise at high altitude, far from a carrier task force, ready to destroy any attacking bomber, or it can be poised on the ship's catapults, ready to streak toward any enemy detected by radar.

Its armament consists of Sparrow III missiles, infra-red Sidewinder missiles which home on to the heat of an enemy's engines, or a mixture of the two, with a fire control system to seek out the target in all weathers and direct the missiles automatically. It can be adapted to carry special weapons, electronic intelligence equipment, photo-reconnaissance cameras or external fuel tanks.



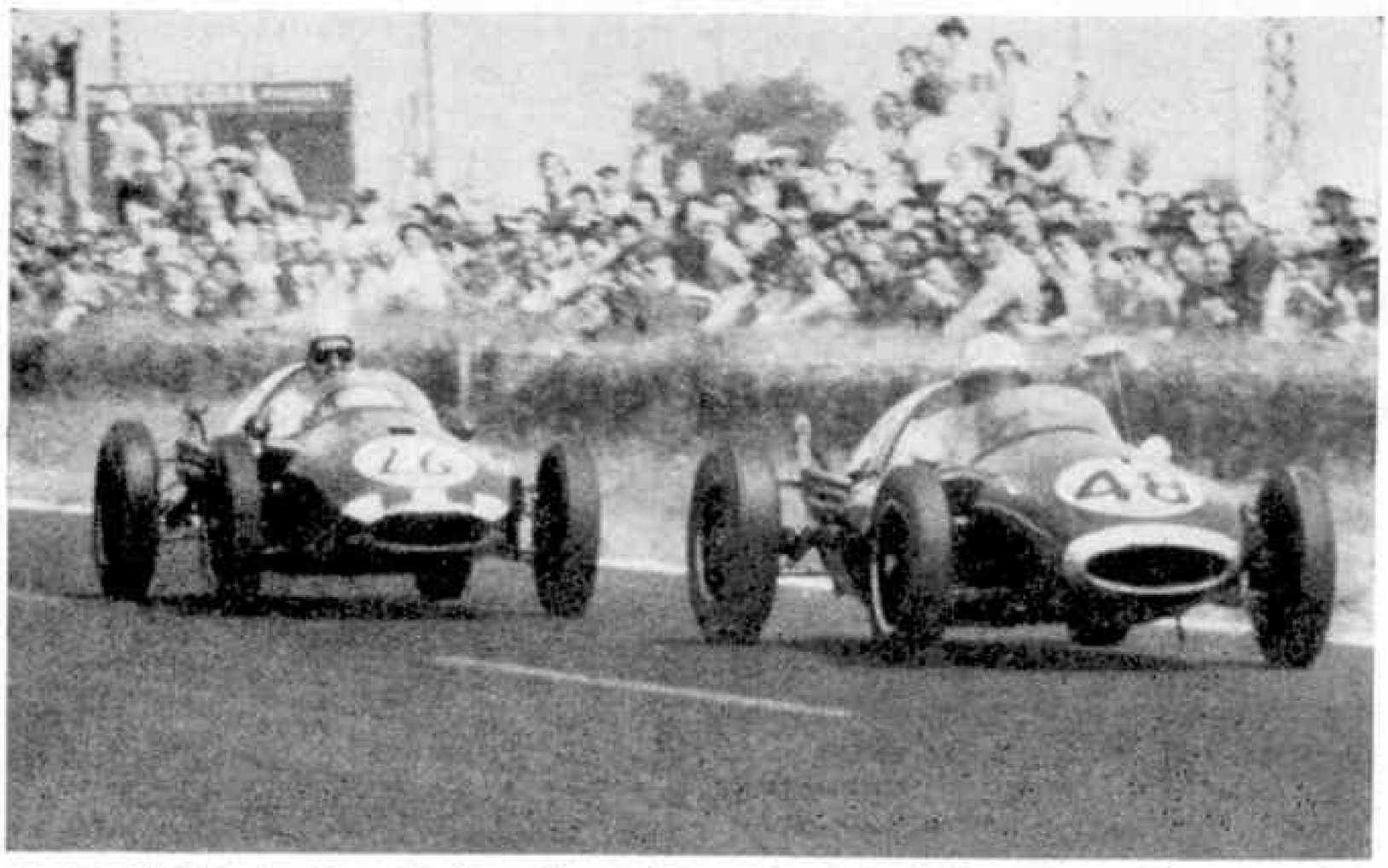
Another view of this new version of the Chance Vought Crusader.

Road and Track

By Peter Lewis

AT the Motor Show no fewer than twenty-five different cars were fitted with Borg-Warner Fully Automatic Transmission, a system so popular that two million are currently in use throughout the world. Recently, the Rootes Group loaned me a Humber Hawk so fitted.

There is no gear lever or clutch, just a selector quadrant, with a lever immediately in front of the steering wheel, on which are indicated—from left to right—five positions: 'P' for Park, 'N' for Neutral, 'D' for Drive, 'R' for Reverse, and 'L' for Lock. The last of these can be engaged at any speed, but preferably below 40 m.p.h. It locks the transmission in the low ratio for such occasions as when sustained engine braking is required in abnormally hilly country.



Bruce McLaren, No. 48, in action with a Formula 2 Cooper on the ultra fast Rheims circuit during the 1958 French G.P.

The engine can only be started in 'P' or 'N', and the driver then moves the lever to 'D'. Under light accelerator pressure the car moves forward, with absolutely no fear of stalling, and it only remains for the driver to steer the car. I can believe the Borg-Warner claim that driving manipulations are cut by 70 per cent., and this means a much less fatigued, accident prone driver on today's jam-packed roads.

Basically, the automatic system consists of an hydraulic torque converter and two epicyclic gear sets in series; there are three forward speeds—low, intermediate and high—as well as reverse. For the low gear the three above-mentioned units operate in series, while for the intermediate gear a multi-disc clutch locks up the front epicyclic gear set so that it rotates as a unit. The drive is then through the torque converter and reduction of the rear epicyclic set only.

For high gear a single plate clutch couples the engine output direct to the gear-box output shaft, giving a direct one-to-one ratio and by-passing both the torque converter and the gear system.

The entire system is hydraulically operated and includes a manually operated selector valve, coupled directly to the selector lever on the steering wheel quadrant, as well as a governor-operated valve that controls the gear changes. In the 'D' for Drive position the governor takes charge and all gear changes, up and down, are made automatically in accordance with the combination of vehicle speed and the position of the accelerator pedal under pressure.

The automatic change from low to intermediate on part throttle takes place at 10 m.p.h., but heavier pressure on the accelerator will produce full throttle conditions and the change will not take place until 35 m.p.h. Thus the change from intermediate to high is at 18 m.p.h. on part throttle, but not until 55 m.p.h. on full throttle. However, by 'kicking down' the accelerator hard, the change to high gear can be delayed until 68 m.p.h.

Engine wear is reduced, for the governor will not allow the engine to labour on hills or over-rev. in the gears, and I found the governor on the Hawk really was the "boss". Even so, I clocked 95 m.p.h. on the

4-cylinder, 2,267 c.c. Hawk, a full six seater motor-car that is not only shapely and luxurious, but is extremely good value in today's market at £1,261 7s. 0d., including P.T. The Borg-Warner fully automatic transmission costs a further £172 10s. 0d., including P.T.

A Humber Hawk—one of an increasing number of cars being fitted with Borg-Warner Fully Automatic Transmission—undergoing tests at the Motor Industry Research Association Testing Ground at Nuneaton.

Alexander Conversions

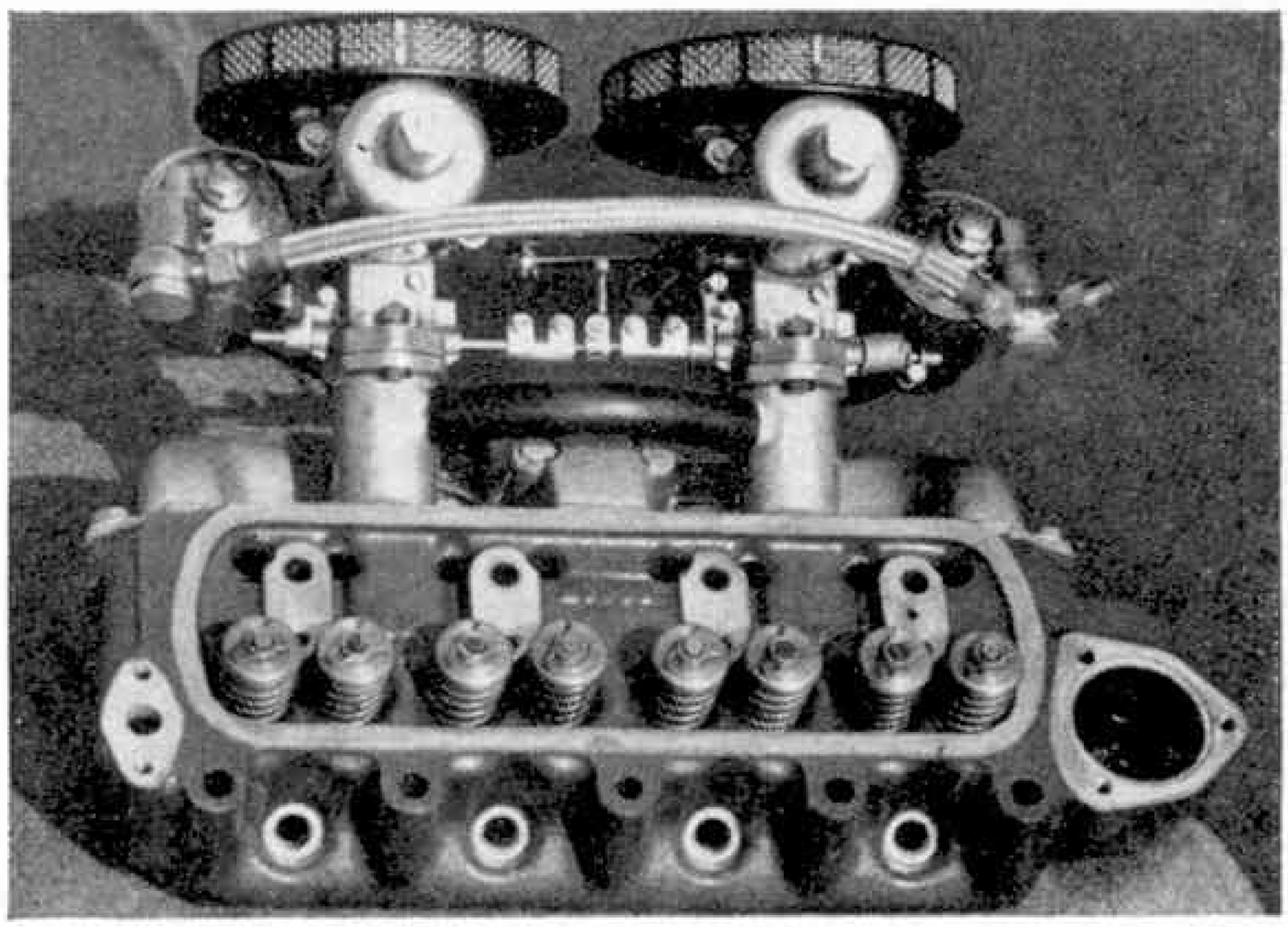
Early in 1954, when I had a Morris Minor, I took it over to Haddenham, Buckinghamshire, one day and called on Michael Christie. He had just started 'converting' Minors into very rapid little motor cars and since then five thousand cars belonging to average drivers have been converted to Alexander specification, including Morris Minors, Hillman Minxes, Standards and no fewer than 365 Z.A. Magnettes prior to the introduction of the current Z.B. model. Today there are over 40 Alexander distributors in the United Kingdom as well as distributors overseas.

Last year the Alexander Minx was introduced with the full backing of the Rootes Group; and the latest development with Rootes is that a customer can order a Sunbeam Rapier, Hillman Minx or Singer Gazelle from any Rootes dealer in any part of the world and specify that it is modified by Alexander before delivery.

Then of course there is the Alexander Sprite, which I drove recently at nearly 100 m.p.h.; the increased performance for this fascinating new B.M.C. model, like all Alexander conversions, has been achieved with no sacrifice whatsoever in flexibility or reliability. In fact, as Michael Christie told me recently: "We have always developed conversions so that we can offer the average driver more pleasant and safer motoring—such as the ability to overtake quickly on the congested roads of today. Maximum speed is a secondary consideration."

Now 41-year old Christie is introducing power brakes in the form of servo-brake conversion kits for the range of cars handled by Alexander, and immediately after the Motor Show the distributors will be able to fit Lockheed, and later Girling kits, in an hour or so.

I have tried several Alexander cars with power brakes and they are most impressive. This move by Christie to provide such advanced braking for the (Cont. on page 552)



An Austin A.35 engine modified by Alexander. It has special high compression pistons, a modified cylinder head with larger valves and springs, and twin carburetters. The conversion gives most impressive acceleration and a cruising speed of over 80 m.p.h.

Logging in Ghana

By the Editor

Lifting logs in Ghana by means of simple but effective tackle for loading on the lorries that take them to the coast for export or to the sawmills. The wood is utile, a hardwood of the mahogany type. The illustrations to this article, and the photograph on which our cover was based, are by J. Allan Cash.

WE have gone to the new state of Ghana, in West Africa, for our cover this month. Until recently this was a British Colony with the name of the Gold Coast. The state with this romantic name is in the Gulf of Guinea, on the west coast of Africa, and covers an area of 92,000 square miles.

There are four constituent parts in the region. The first is the coastal district, long known as the Gold Coast Colony. North of this comes the country of the Ashantis, a famous warrior nation with which several wars were fought in the closing years of the last century, and north again are the Northern Territories. The fourth part is in the east, and was part of what was formerly German Togoland that came under British Mandate after the first World War. Between them these areas have a total population of more than 4,000,000.

The whole area became an independent State within the British Commonwealth on 6th March, 1957, and many readers will no doubt recall television and newspaper pictures of the events that accompanied the change, as well as newspaper reports of them. To most of us the name Ghana was a new one, but it is actually one with historic associations, for centuries ago there was a great West African empire known by the name. This appears to have been founded as early as the fourth century A.D., that is about 1,500 years ago. It actually covered the area of the present French Sudan, to the north of the Gold Coast region. It reached a great height of prosperity about 500 years after its foundation and lingered on until 1203, when its remnants were absorbed by other empires that came into existence.

There is a nice touch of tradition and of the picturesque in the revival of the name Ghana for the independent State that started life in West Africa last year. The territory of course is a tropical one, of great interest, as are the people who live in it. It has a great river, the Volta, running down to the coast from the north, and there are mountains along its eastern frontier, that is in Togoland. In parts of the country where rainfall is ample, it is covered by dense tropical forests. while in others the land is of the savannah type, that is an area of grassland, with scattered trees, where the rainfall is not so heavy.

Rainfall is of special interest in a country such as Ghana, which derives its prosperity from the fertility of its soil. In the drier regions the principal crop is cocoa, a fact that no doubt is known to practically every reader of the Magazine. Ghana indeed

produces two thirds of the entire world supply of this commodity. Other products come from the trees that abound, including of course palm oil, which plays such a great part in modern industry. Mining also plays a great part in the life of the country, gold indeed coming second to cocoa as far as the value of the country's exports are concerned, while other products of this industry are diamonds, manganese and the ore of aluminium known as bauxite.

But perhaps the most picturesque of Ghana's products, as our cover suggests, are the timbers that its forests yield. The timber industry is fully organised, and operations are carried out on a large scale, as the illustration on this page suggests.

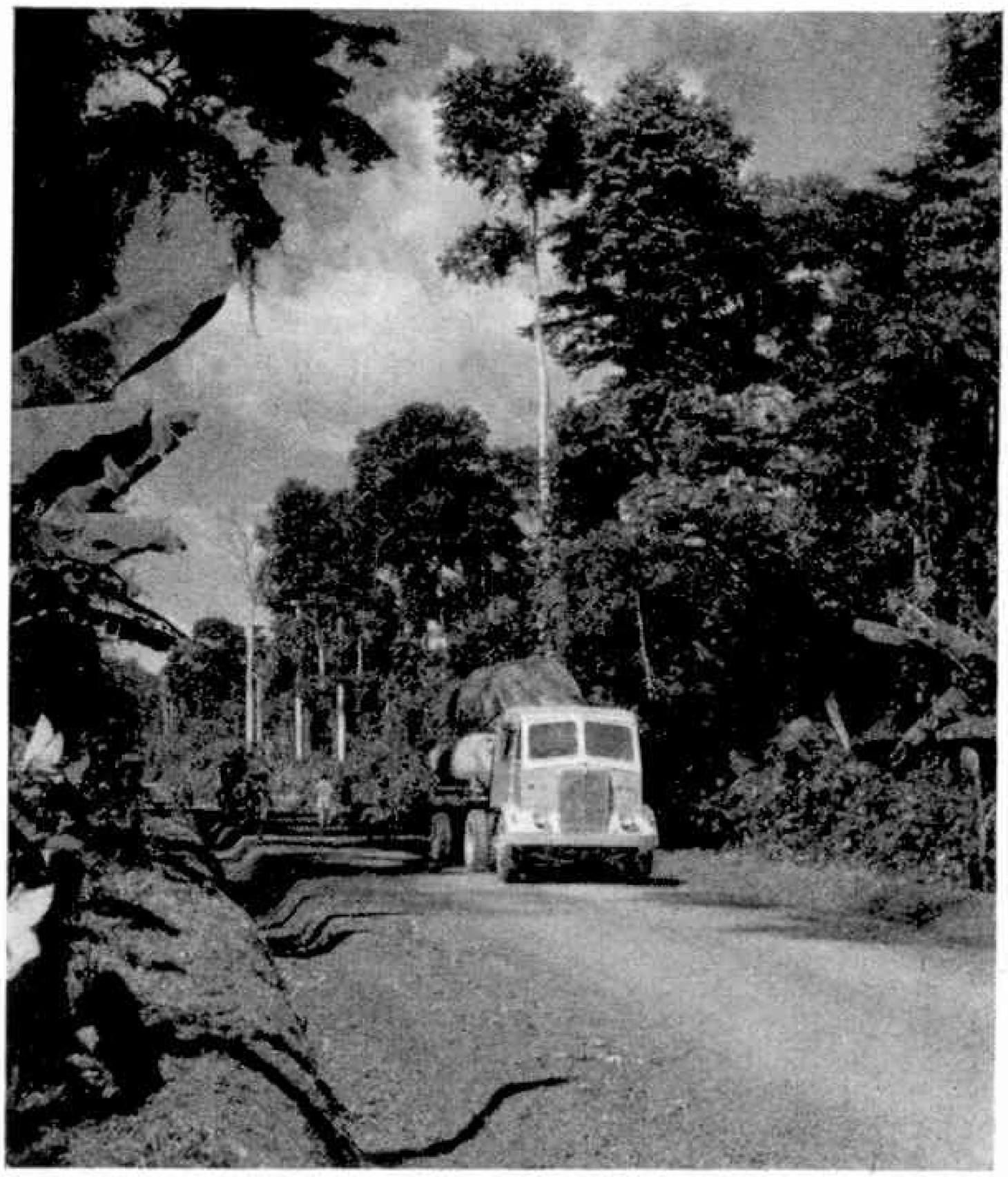
It is interesting to follow the methods by which the timber industry has been expanded. This can be realised from the work that has been done by Gliksten (West Africa) Ltd., a company that has been operating for 10 years or so in a remote part of the western forests of Ghana. There a thriving industrial community has been built up. Its sawmill and headquarters, at Dwinasi, are right in the forest area, where they occupy a site on which formerly there was only a small African village.

Before the forest area was entered, careful surveys and enumerations of the timber content were carried out. Thereafter roads were driven through the heart of the forest, so that large fleets of logging vehicles would be able to penetrate far into the regions where they would take over the logs from the fleet of tractors with creeper tracks that was used to haul the logs from the sites where the felling of trees was in progress. Actually the making of access roads can be regarded as just as important as the felling of trees, for if the timber could not have been easily brought out and taken down to the coast for export, the trade in it could scarcely have developed so quickly.

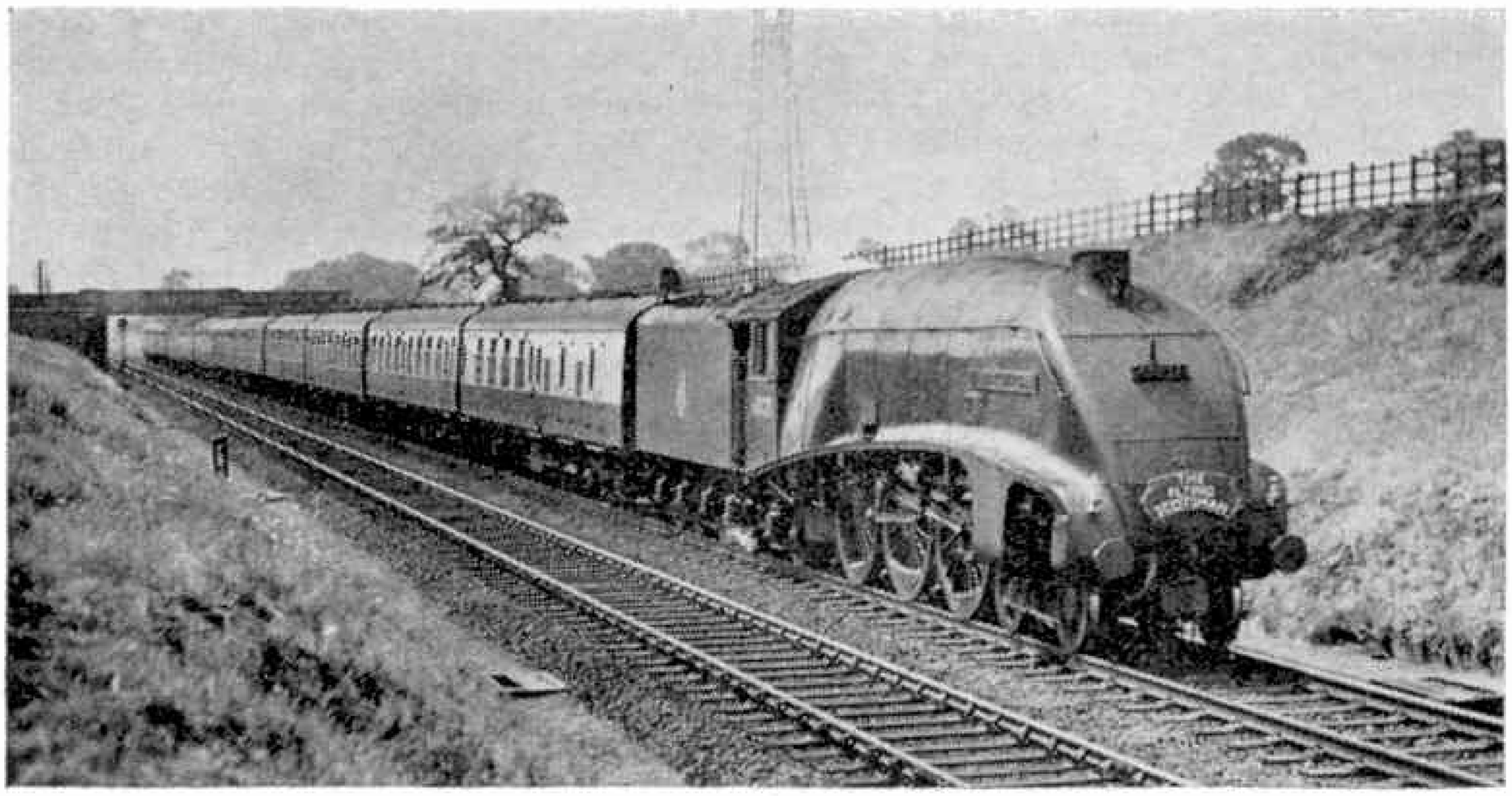
All the vehicles used by Gliksten (West Africa) Ltd. for conveying logs from the tree felling areas are of the well-known British A.E.C. make, as indeed the illustrations on these two pages will show to those who are familiar with the characteristics of British motor lorries. Logs of from 7 to 10 tons in weight are common, and the company is now producing more than 10,000 tons of logs in the forest each month. Part of this output is converted into board timber in high-speed sawmills of the company, and the rest is exported in the form of logs.

Both logs and the lumber from the sawmills are distributed throughout the hardwood importing countries of the world. For shipment abroad the logs are transported to Takoradi where a great port has been built, and large numbers of them are there to be seen floating on the surface of the water in the log pond, prior to being loaded. Logs also reach Takoradi by rail and our cover scene shows a gigantic log on a rail wagon under the crane that handles the big logs.

Naturally Africans comprise the greater part of the staff of the company. They number about 1,500 and are housed in accommodation that is provided by the company.



A lorry load of logs in the western forest region of Ghana on their way to the sawmills.



The down "Flying Scotsman," first stop Newcastle, is shown near Grantham, headed by an A4 Pacific No. 60028 "Walter K. Whigham".

Railway Notes

By R. A. H. Weight

Aboard Cross Country Expresses

Apart from the many excellent steam and other express and long-distance passenger trains operated to and from London, there is a very useful selection of cross-country services providing through carriage facilities between many important cities or towns of Britain. They are not as a rule very fast, but by calling at the majority of principal stations and junctions on their diversified routes, they provide connections to numerous points on other lines, often with only one change.

In a good many cases these trains operate over more than one Region, with interesting examples of engine-changing and of through locomotive running from one Region's tracks to another, part way. Some long journeys are operated alternately; out one day, back the next, by, say, L.M.R. and W.R., E.R. or N.E.R., and Southern, etc., including restaurant cars and their crews. A great deal of railway and other interest is afforded to the observant traveller *en route* on most runs.

Sections of such journeys I have sampled lately included the Birkenhead-Bournemouth joint W.R. and S.R. service; it happened to be the latter's turn to provide the rolling stock and cheery meal service, and it was a well-filled 12-coach train hauled, as per daily routine, from Chester to Oxford, through Shrewsbury and Birmingham (Snow Hill) by W.R. 4-6-0 No. 5025 *Chirk Castle*. On a regular return duty from Bournemouth, penetrating well into W.R. territory, West Country 4-6-2 No. 34040 *Crewkerne* now took over and bowled along a section of the Paddington-Bristol main line by rural stretches of the Thames at speeds up to 68 m.p.h., before diverging round the curve to Reading, West, station, thence on to the secondary W.R. route to Basingstoke, so gaining the S.R. main tracks and proceeding via Winchester and Southampton.

At Oxford I saw King Arthur 4-6-0 No. 783 *Sir Gillemere* arrive with the northbound Bournemouth-York-Newcastle through train. An alteration in the locomotive working for this service recently provided for the southbound express to be hauled by a W.R. 4-6-0 from Oxford to Bournemouth. In another joint L.M.R.-W.R. long-distance train from Manchester to Plymouth, with through carriages to the Torquay line, by way of Crewe-Shrewsbury-Bristol, I travelled behind Britannia Pacific No. 70020 *Mercury*, through grand Welsh borderland scenery past Hereford and Pontypool Road on the way to the Severn Tunnel.

From Brighton every morning by way of Chichester-Southampton go through trains to Bristol and Cardiff (joint with W.R.), and all-S.R. ones to Bournemouth, usually hauled by Schools 4-4-0s, and to Exeter-Plymouth. Two of these normally convey Portsmouth portions west of Fareham, though on a busy day when I was aboard the Brighton-Plymouth train, this section alone consisted of 12 heavy coaches with refreshment car, taken as far as Salisbury by West Country No. 34048 *Crediton*, which returned with the Cardiff train. No. 34047 *Callington* was sharing a similar out-and-back duty. On summer Saturdays many additional services of this kind run, mainly to and from coastal resorts.

New Locomotives

Steam class 9 2-10-0 No. 92196 has been allocated to 36A, Doncaster depot. No. 92230 has gone to 84C, Banbury, and Nos. 92231-4 to 86G, Pontypool Road, with others following. I saw No. 92235 with a south-bound freight from Hereford on 10th September.

Diesel-electric additions are announced as follows: Nos. D5514-5, 1,250 h.p. A1A-A1A, 30A, Stratford; No. D5300, 1,160 h.p. Bo-Bo, class 2 for suburban working, 34B, Hornsey; another of a fresh type, No. D5700 Co-Bo 1,200 h.p., to 17A, Derby; and Nos. D8402-4, Bo-Bo 800 h.p. class 1, to Stratford. All are mixed traffic designs.

Other 1 Co-Co 1 express 2,000 h.p. class 4 locomotives based at Hornsey and working from King's Cross are Nos. 208-9. Six-wheeled shunting diesels are Nos. D3680-2, 30A, Stratford; Nos. D3678-9, 52E, Percy Main, Northumberland; Nos. D3615-8, 36E, Retford; No. D3527 (amended allocation), 88B, Cardiff, East Dock; Nos. D3536-7, 63B, Stirling; and No. D3574, 18A, Toton.

Six-wheeled diesel-mechanical shunting: Nos. D2411, to 60A, Inverness; D2574-5, 68C, Stranraer; D2576-7, 62A, Thornton, Fife. Four-wheeled diesel-hydraulic shunting: Nos. D2725-7, 64A, St. Margarets, Edinburgh.

Down the Great Northern Line, E.R.

During August I was able to observe and record in my notebook customary details of engines, loads, destinations and times, etc., passing through Potters Bar-Hatfield-Welwyn Garden City in afternoon and early evening on an ordinary weekday as well as one of the peak Saturdays. During the former occasion, inward expresses ahead of time included the 3.8 arrival

at King's Cross from Newcastle headed by double-chimney A3 No. 60055 *Woolwinder* (a remarkable performer on heavy, long turns last summer); *The Fair Maid*, 6.6, from Leeds and the 6.40 from Glasgow; worked respectively by streamlined Pacifics: *Miles Beevor*, *Wild Swan*, *Seagull*, *The Northumbrian*, headed by 2,000 h.p. diesel-electric No. D207, *The Flying Scotsman*, in charge of A2 No. 60513, *Dante; The White Rose* with V2 2-6-2 No. 60881.

The Elizabethan was late that day, but the A4 engine No. 60013 *Dominion of New Zealand* appeared in good condition; it made many through London-Edinburgh runs on the "world record non-stop" last season. With an extra coach, 10 on, the northbound *Talisman* topped Potters Bar summit in fine style hauled by A4 *Lord Faringdon*, followed by the sole 4-6-4, No. 60700, on the 4.5 p.m. to York and Hull. Then came B1 No. 61366 with 11 coaches on the 4.15 to Grimsby and Cleethorpes, V2 *Green Arrow* on a York express goods, and B1 No. 61139 and L1 2-6-4T No. 67749 together on an outer suburban residential train in which I travelled from the fine new Potters Bar station to Hatfield.

Recently built 2-10-0s passed on fast and slow freight, also an express parcels train. They have proved their capacity to handle long-distance, as well as semi-fast passenger trains!

On the Saturday, with intensive main line services operating and mostly with fair punctuality, I noted 7 different A4 Pacifics, 10 A3s, 11 A1s and 2 A2s. There were 11 V2 2-6-2s, 3 diesel-electric D200 class express, 9 B1s and 1 B17 4-6-0s, with 1 each K1 and K3 2-6-0s. On shorter and local duty were L1 2-6-4, N2 and N7 0-6-2 tanks, etc.

Winter Timetable Features

Novelties beginning during September included a Pullman service named *The Master Cutler* between King's Cross and Sheffield, involving one journey each way in 2¾ hrs. with a stop at Retford, and one up and down in 2 hr. 55 min. calling also at Peterborough and Grantham. There are also 2-hr. timings in each direction for six trains between Liverpool Street and Norwich calling at Ipswich, including the *Norfolkman*, *Broadsman*, *East Anglian*. These new timings present considerable acceleration, involving high intermediate speeds, and are rostered for haulage by D200 type diesel-electric locomotives. There is no longer a *Master Cutler* on the Marylebone route. The fast each-way morning East Coast services on the Edinburgh-King's Cross run are styled *The Morning Talisman*, instead of *The Fair Maid*; they do not work between Edinburgh and Perth and call additionally at Berwick-on-Tweed.

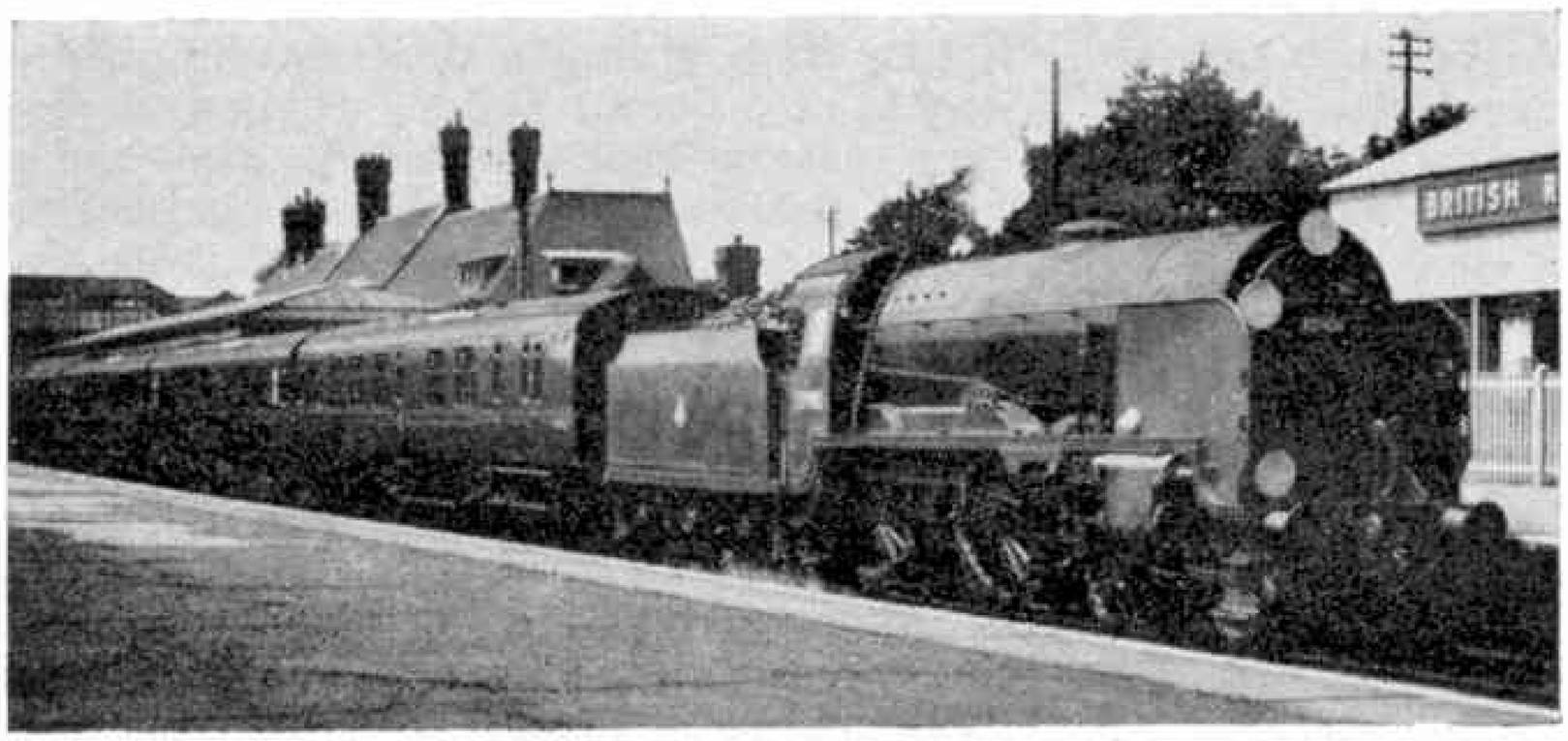
In consequence of heavy track reconditioning, bridge reconstruction and similar work preparatory to electrification, now being put in hand on the L.M.R. main line from Euston, some extra time is allowed at present, with earlier starts in many cases. The extra *Caledonian* high speed London-Glasgow and return trains introduced for the summer have been discontinued as have certain holiday, local or other trains in all Regions. Otherwise for the most part last year's generally improved standard is maintained.

One of the fastest fully-fitted freight trains passing Oakleigh Park on its way from King's Cross to Edinburgh. The Pacific Locomotive No. 60125 "Scottish Union" is working it through to Newcastle. This and the photograph on the opposite page are by Mr. M. W. Earley.

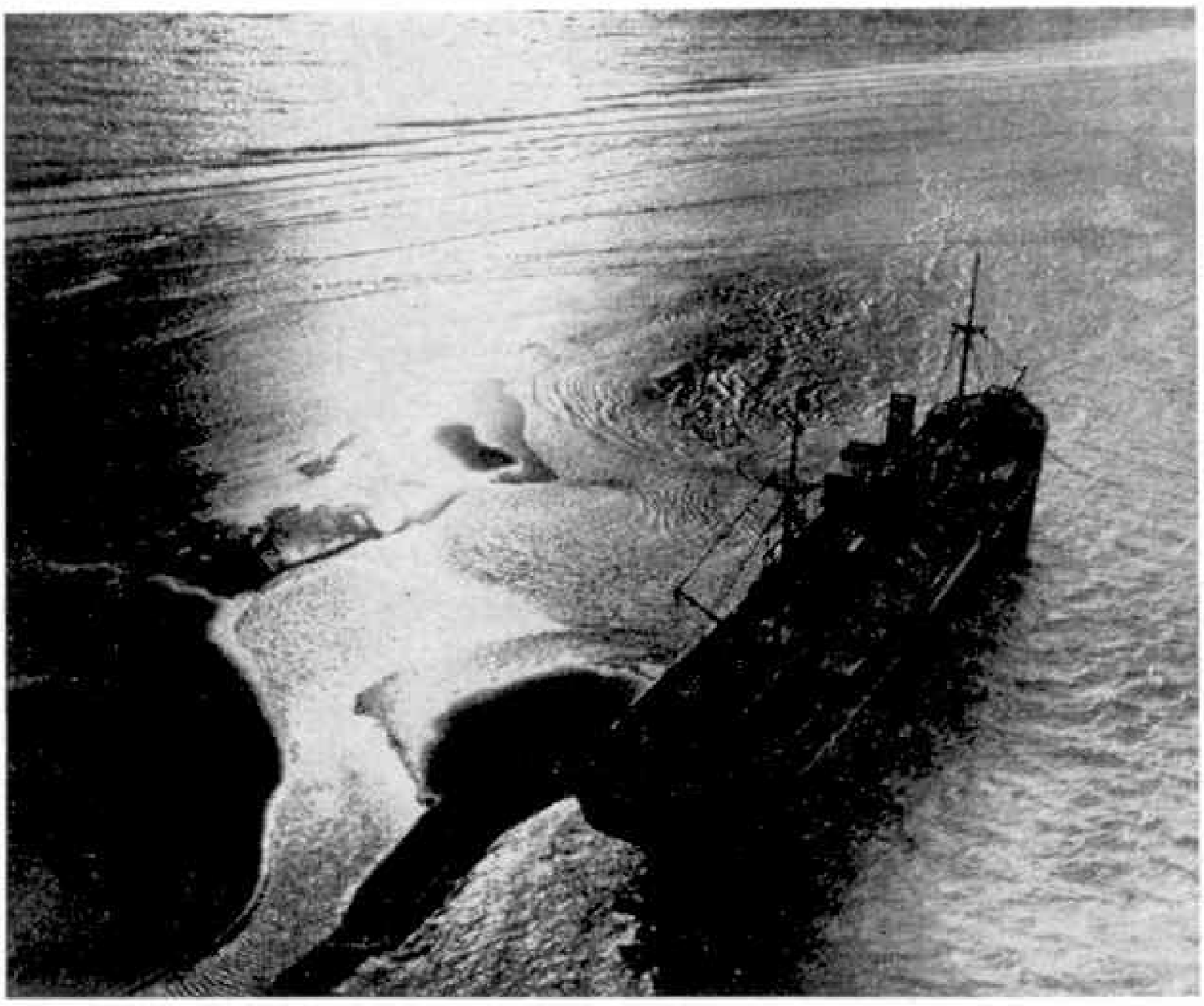
Several of the last remaining slip carriages have been withdrawn by W.R., necessitating one or two added stops. This is the case with the 1.50 p.m. Bristol-Paddington express booked to cover the comparatively short, slightly downhill or level, 41¼-mile start to stop length from Swindon to Reading in 36 min., averaging 68¾ m.p.h., now the fastest schedule in Britain.

Southern Tidings

While at Southampton, Central, on an August Saturday for some hours, I recorded the following locomotives on frequent Bournemouth main line trains, nearly all Waterloo expresses, but including a few running to and from Brockenhurst-Lymington, or Swanage via Wimborne, and three emanating from the W.R. system via Basingstoke; 9 different West Country and 4 Merchant Navy Pacifics, 3 of the latter rebuilt; 6 Lord Nelson, 2 B.R. Class 5 and 3 King Arthur 4-6-0s; 3 Schools 4-4-0s; and 5 B.R. Class 4 and 3 S.R. 2-6-0s.



The pioneer engine of the Southern Schools class, No. 30900 "Eton", on a Bournemouth-Brighton train passing Boscombe. Photograph by G. O. P. Pearce.



A ship lies high and dry on the Goodwin Sands at low water. This wonderful photograph, which illustrates well the character of the Sands, is reproduced by courtesy of the Harbour Master, Dover.

Guarding the Goodwins

By

J. Mannering

THE Goodwin Sands, which lie almost on the threshold of the great port of London, would certainly not have earned such an evil reputation if they had not lain in the way of the busiest shipping route in the world, the Strait of Dover. They are some five miles off the coast of Kent, directly in the route of all traffic bound to and from the Thames or the North Sea, and the English Channel. Parts of the Sands are uncovered at low tide, and cricket matches have been played on them when the weather was fine; but they constitute a danger to big ships at all states of the tide.

The Downs, which is the sheltered stretch of water between the land and the Sands, opposite Deal, was a favourite anchorage in the days of sailing ships, for those waiting for a fair wind. But the proximity of the Goodwins made it a treacherous place in really bad weather, and the approach to and from the anchorage was always imperilled by these dangerous Sands.

Even today, powerful steamers with every modern aid to navigation occasionally make some error in their courses, and in fog or bad weather run on the Sands. If they are lucky enough to go on while the tide is rising, they probably get off without much difficulty, for powerful tugs from Dover, the French ports or even the Dutch coast are always ready with steam up to go to the aid of vessels aground on the Goodwins. But if a ship goes on at or near high water, and remains fast for a tide or two, it generally means her end. The swirling tides sweep the Sands unevenly from her keel, and very soon the ship breaks in two.

The Goodwins are carefully marked with a system of buoys and lightships, and only in the worst condition of prolonged fog, when a ship may have lost account of her position, is there any excuse for making a mistake. And with the additional aids of radar and wireless direction finding, accidents are happily rare.

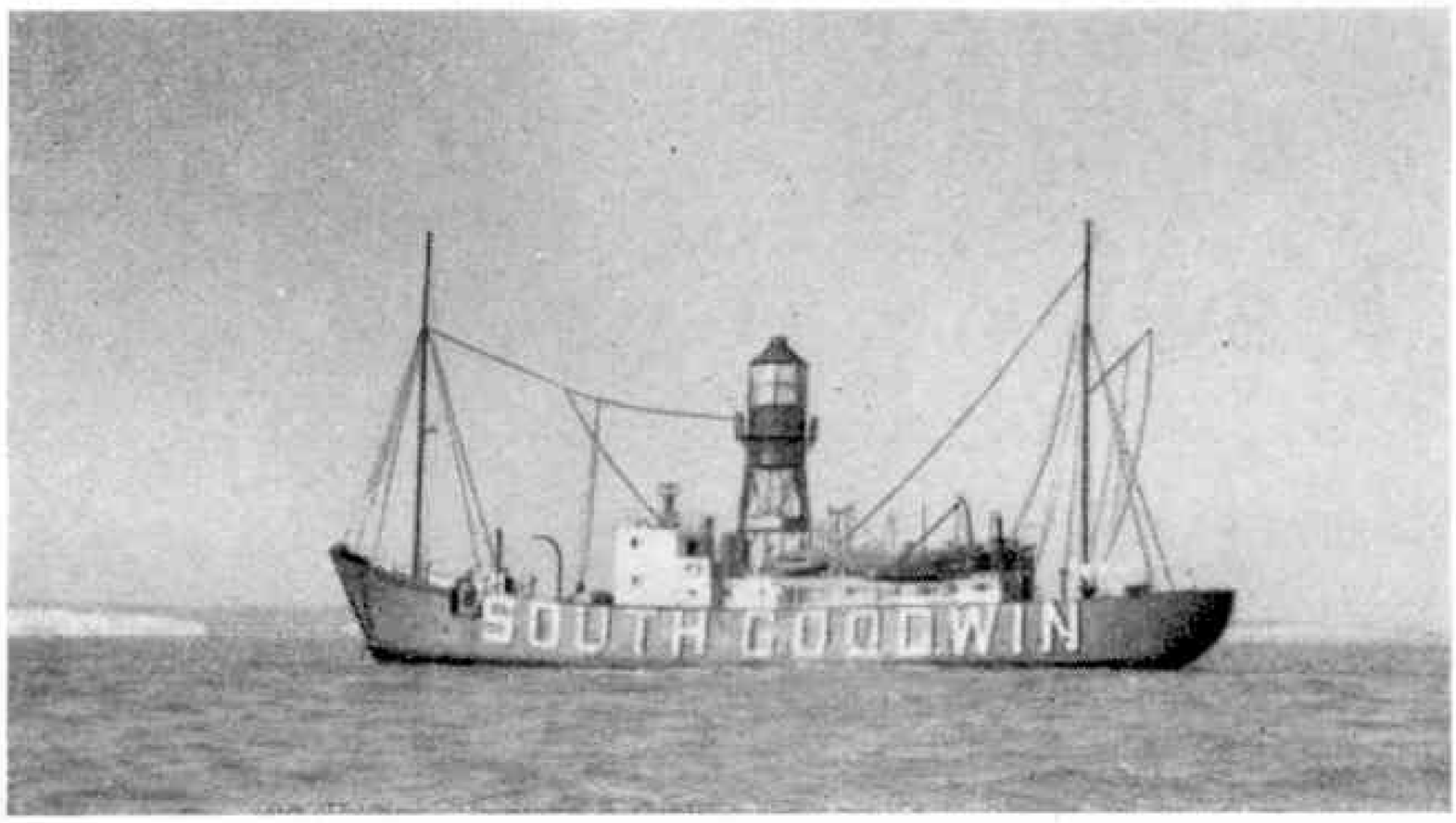
In a fog or poor visibility, the lightships sound a powerful diaphone, or hooter, each giving a different number of blasts every so many seconds. So the captain of a vessel can easily recognise what part of the Sands he is approaching, and can lay a course that will take him away from the danger.

The three lightships guarding the Sands are the South Goodwin, the East Goodwin, and the North Goodwin, each one bearing its name clearly painted in large letters.

By night they show powerful revolving lights, each giving a different number of flashes at different periods of time, so that they may be easily identified. They are so placed that any ship coming up channel has only to pass all the lightships to port, that is, leaving them on her left hand, and she will be led safely past all danger. On passing the North Goodwin, she may turn to port and head for the North Foreland and the approach channels to the Thames estuary.

Similarly ships coming down the North Sea or out of the Thames, leave the Goodwin lightships to starboard.

One of the three Goodwin Sands lightships. The illustrations on this page are from photographs by the author.



There are also some buoys placed between the lightships, so that in conditions of poor visibility, a ship's master may see and identify a buoy before he can see the next lightship.

There is another channel "inside" the Sands, that is, between them and the Kent Coast, which is used by coastal traffic and vessels bound for Dover. This channel lies to the westward of the Goodwin Sands, and is known as the Gull Stream. It is marked by buoys.

All channels on the British coasts are marked in the same manner. In going up a channel, towards a port or estuary, the channel is marked on the starboard hand by conical shaped buoys, painted black, and on the port hand by can shaped buoys, which are flat topped and round, like a huge can, and are marked in a chequered pattern in red and white, or red all over.

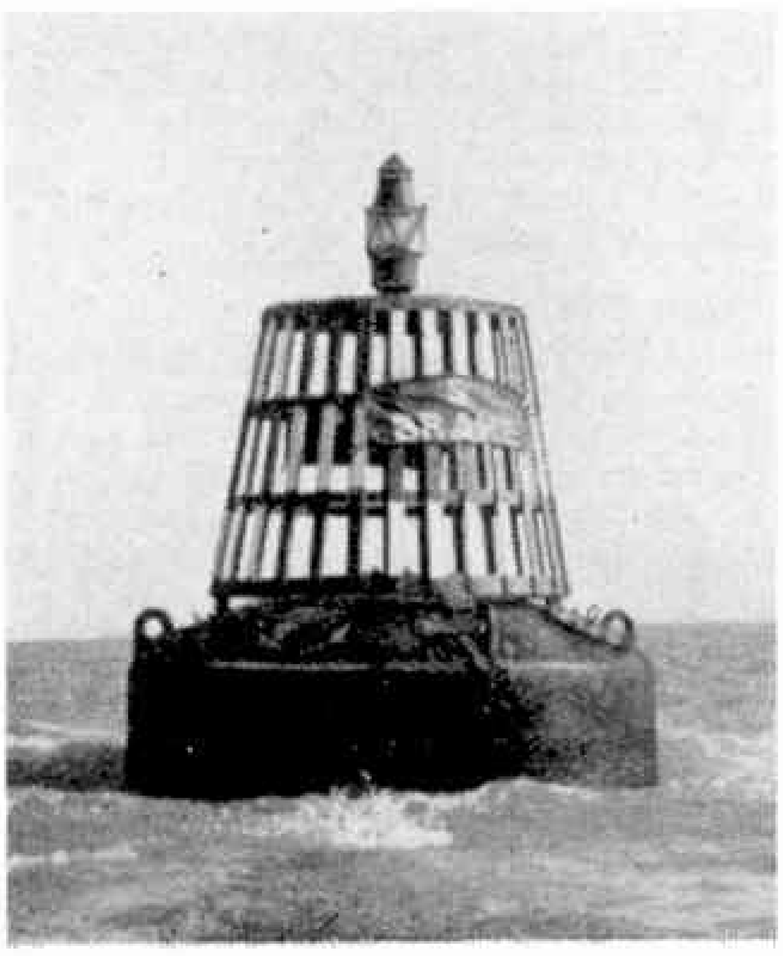
Actually the larger buoys as shown in the illustrations are made of openwork metal, which from a distance gives the appearance of a conical or can shaped buoy. This is done for lightness and buoyancy.

As well as a distinguishing flashing light, the more important buoys have a bell that tolls as the buoy rolls. Or they may be of the type called a whistle buoy, worked by air pressure which is activated by the motion of the buoy. In effect the whistle buoy makes an intermittent low moaning sound, which can be very eerie when heard in a fog.

But a sailor or fisherman, by watching carefully, or listening, can tell as he approaches a buoy which one it is from the information on his chart and in his Nautical Almanac.

Among buoys marking the inside passage past the Sands are the South Brake, a port hand chequered buoy, and the Goodwin Fork, a starboard hand buoy, conical and painted black. The latter is a bell-buoy, and even on the clear sunny day when the photographs illustrating this article were taken, the irregular tolling of this bell was a mournful sound. Out there on the edge of the treacherous Sands, it seemed to be tolling for all the brave men who have met their death on the Goodwins.

But thanks to the men of the lightships and the crews of the vessels that tend the buoys, putting down fresh ones as required, newly painted and stored with gas for their flashing lights, the Goodwin Sands are far less destructive than they were a hundred and fifty years ago, when Nelson's ships and heavily-laden East Indiamen passed by.



The South Brake buoy on the left, and the Goodwin Fork buoy, on the right, mark the inside passage through Gull Stream, between the Sands and the Kent coast. The former is a port hand buoy, marking the left hand side of the passage for vessels proceeding north, and the latter marks the opposite side of the channel.

Air News

By
John W. R. Taylor

The Fairey Rotodyne helicopter in the air, with undercarriage retracted.

Unexpected Aerobatics

The S.B.A.C. Display at Farnborough can always be relied upon to produce something new and spectacular in the way of aerobatics, and this year was no exception.

Most startling of all was the sight of the huge 70-ton Handley Page Victor and Avro Vulcan bombers sweeping up in a half-loop and then rolling off the top like fighter 'planes. This technique is used by small aircraft equipped with the Low Altitude Bombing System (LABS), in order to get away as far as possible from the explosion of their own atomic bombs, but had not previously been demonstrated by aircraft the size of the V-bombers. It involves releasing the bomb during a fast climb, then doing a half-loop and roll-out and streaking for home while the bomb is completing its trajectory.

Nor were such manœuvres restricted to fixed-wing aircraft, because Westland test pilot Roy Bradley persuaded the Wessex anti-submarine helicopter to roll off the top of a half-loop twice daily.

The Big Helicopters

Technically, the helicopters stole the show this year, with the Bristol 192, Fairey Rotodyne, Saunders-Roe P.531 and Westland Westminster all making first appearances.

Big news was that Okanagan Helicopters of Vancouver have placed the first order for a Rotodyne, which they will use on passenger services between city centres in Canada in two or three years time. With a fleet of 54 helicopters, Okanagan are the largest commercial operators of this type of aircraft in the world, and their contract followed news that the Rotodyne will be built also under licence in the United States by the Kaman company.

At Farnborough, the Rotodyne was demonstrated for the first time with its proper retractable undercarriage, and looked very smart as it swept past at about 170 m.p.h. We were not allowed inside it; but there was no need to go on board its competitor, the Westminster, to see the interior, because the prototype "flying crane" version has an uncovered steel-tube fuselage.

Flown by "Slim" Sear, the Westminster took off backwards and showed surprising agility for so large a helicopter, promising a very useful performance when it flies as a nicely-streamlined 45-seat passenger aircraft in due course.

Farewell to B.E.A.'s Elizabethans

British European Airways came a step nearer to being an all-turboprop and jet airline on 30th July, when it operated its last Elizabethan service from Cologne to London.

Altogether 20 Airspeed Ambassadors were built as the Corporation's Elizabethan fleet, and the first of them entered regular service on the London-Paris route on 13th March 1952. They soon became firm favourites with passengers, because of the spacious comfort of their cabins and the uninterrupted view of the ground resulting from their high-wing arrangement. Their reliability and safety were also outstanding, and their two 2,600 h.p. Bristol Centaurus engines could be operated for 1,700 hrs. between major overhauls, which is longer than almost any other engine in the world.

In nearly six and a half years of operation by B.E.A., Elizabethans flew 30 million miles, carrying nearly 2½ million passengers. They will continue to be seen for many years in the insignia of new owners, in places as far away as Australia.

Helicopters Save Cyprus Forests

The main job of the helicopters of No. 284 Squadron of the R.A.F. in Cyprus is to help track down terrorists and transport British soldiers, but they have also played a big part in reducing the destruction by fire of valuable forests on the island.

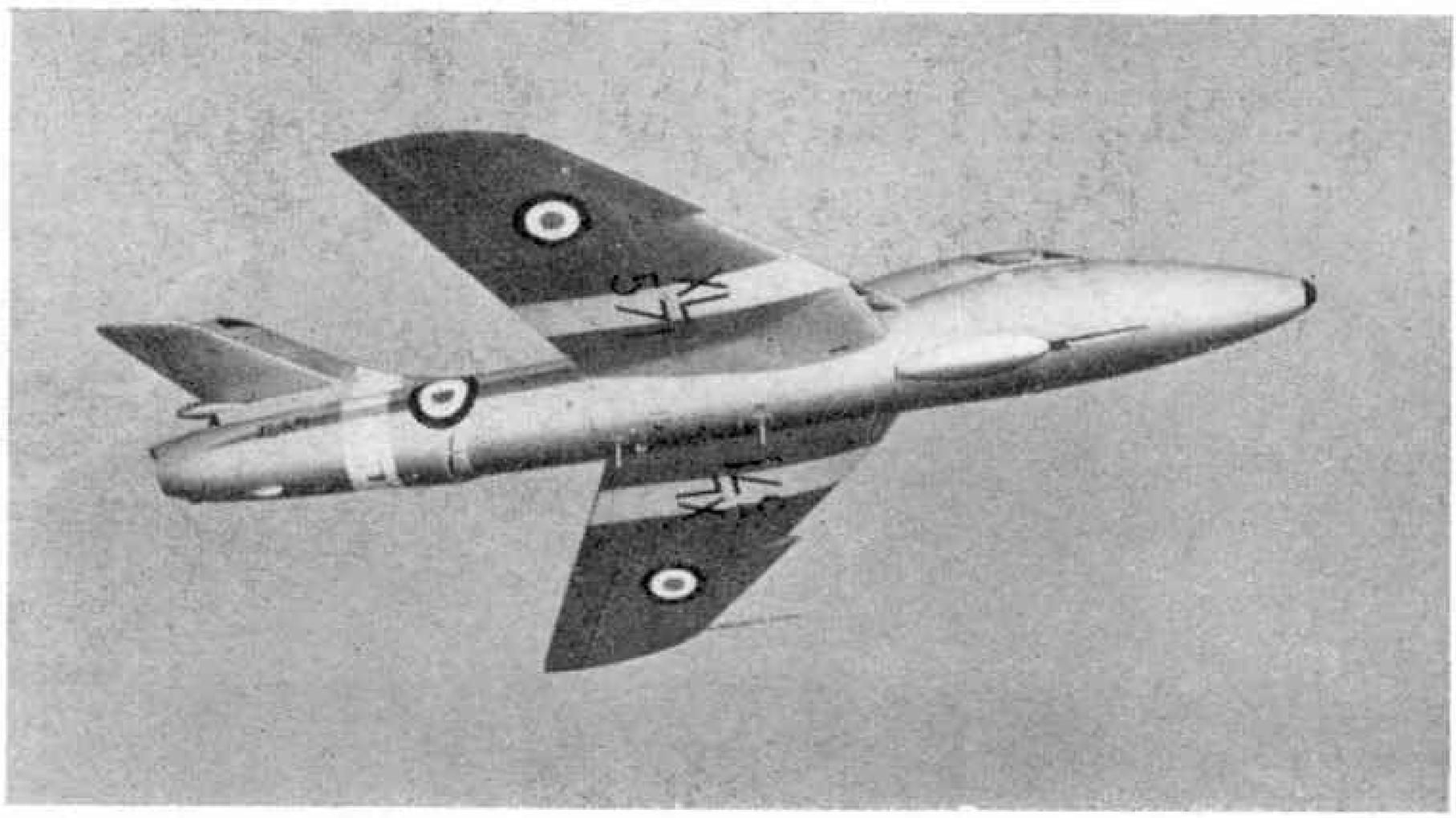
In 1956, forest fires destroyed 30 sq. miles of timber; last year the total was cut to 2½ sq. miles. The reason is that the helicopters can often spot the first flickers of fire whilst skimming over the tree-tops, and are able to report them by radio before they spread. Fire-fighters and equipment are also flown speedily to special helicopter landing sites that have been constructed at strategic points in the forests.

Flying Boats to Madeira

Although Aquila Airways have now ended their flying boat services to Madeira from Southampton and Lisbon the island will not lose its only air link with the outside world. A new company named Artop has bought two flying boats from America, for operation between Lisbon and Madeira until the island's proposed land aerodrome is built.

Britain's Greatest Air Export

Although it is by no means a new aeroplane, the Hawker Hunter remains one of the real stars of Britain's aircraft industry. During the S.B.A.C. Display, No. 111 Squadron of the Royal Air Force put on an unforgettable daily aerobatic display in their Hunter Mk. 6's, including loops by no fewer than



A view of the Hawker Hunter T.7 that shows well the "saw-tooth" wing leading-edges which are a feature of all current Hunters.

22 aircraft in a single formation. In addition, we were reminded that the Hunter has earned more than £180 million in export orders, which is an all-time record for a British aeroplane.

One of the latest versions is the two-seat Mk. 7, shown in the accompanying illustration. This is almost identical with the Mk. 6 fighter, except for the side-by-side seating in its wide cockpit and the removal of all but one of the usual four 30 mm. cannon. It is used by the R.A.F. for training, but it is equally suitable for combat duties, and can carry two 1,000 lb. bombs and two 100-gall. fuel tanks under its wings.

The Hunter Mk. 7 and the naval Mk. 8, which has an arrester hook, are in service with the R.A.F., Royal Navy, and the Air Forces of India, the Netherlands and Denmark.

Supersonic Trainer

A two-seat trainer even faster than the Hunter is the Northrop T-38. Weighing less than 11,000 lb., it combines the performance of a supersonic fighter with small size, simplicity and low costs, and is scheduled for use by the U.S.A.F. Air Training Command.

The prototype T-38 was completed on 15th August, four days ahead of schedule, but will not make its first flight for some months as its two General Electric J85 lightweight turbojets are not yet ready for delivery. It will be followed soon by the N-156F fighter, of which a mock-up can be seen in the background of the lower illustration on this page.

Except for its shorter single-seat fuselage, nose radar and wingtip-mounted missiles, the N-156F is almost identical with the T-38 and is being developed for use from short airfields in forward combat areas. Where no airstrips of any kind are available, it will be able to take off from missile-type launchers with the aid of a booster rocket.

The T-38 spans 25 ft. 2 in., is 44 ft. 1 in. long and is expected to have a top speed of about 850 m.p.h. The N-156F, with afterburners, should be capable of at least 1,300 m.p.h.

Britannia Doubles Business

Since the Israeli airline El Al introduced turboprop Bristol Britannias on to its transatlantic services last December, it has carried more than twice as many passengers. During the first half of 1957, it flew 3,456 persons across the Atlantic in piston-engined Constellations. In the same period this year, using three Britannia 313's, it carried 8,882 passengers.

Business has, in fact, become so good that El Al have ordered a fourth Britannia. Until it is ready for delivery, Bristol have lent them a Britannia 305 to meet traffic demands.

* * * *

Some squadrons of Lockheed F-104 Starfighters of the U.S. Air Force have on their strength a mechanic about 4 ft. tall, whose job is to crawl inside the narrow air intakes and inspect the front of the aircrafts' J79 turbojet engines for damage between flights.

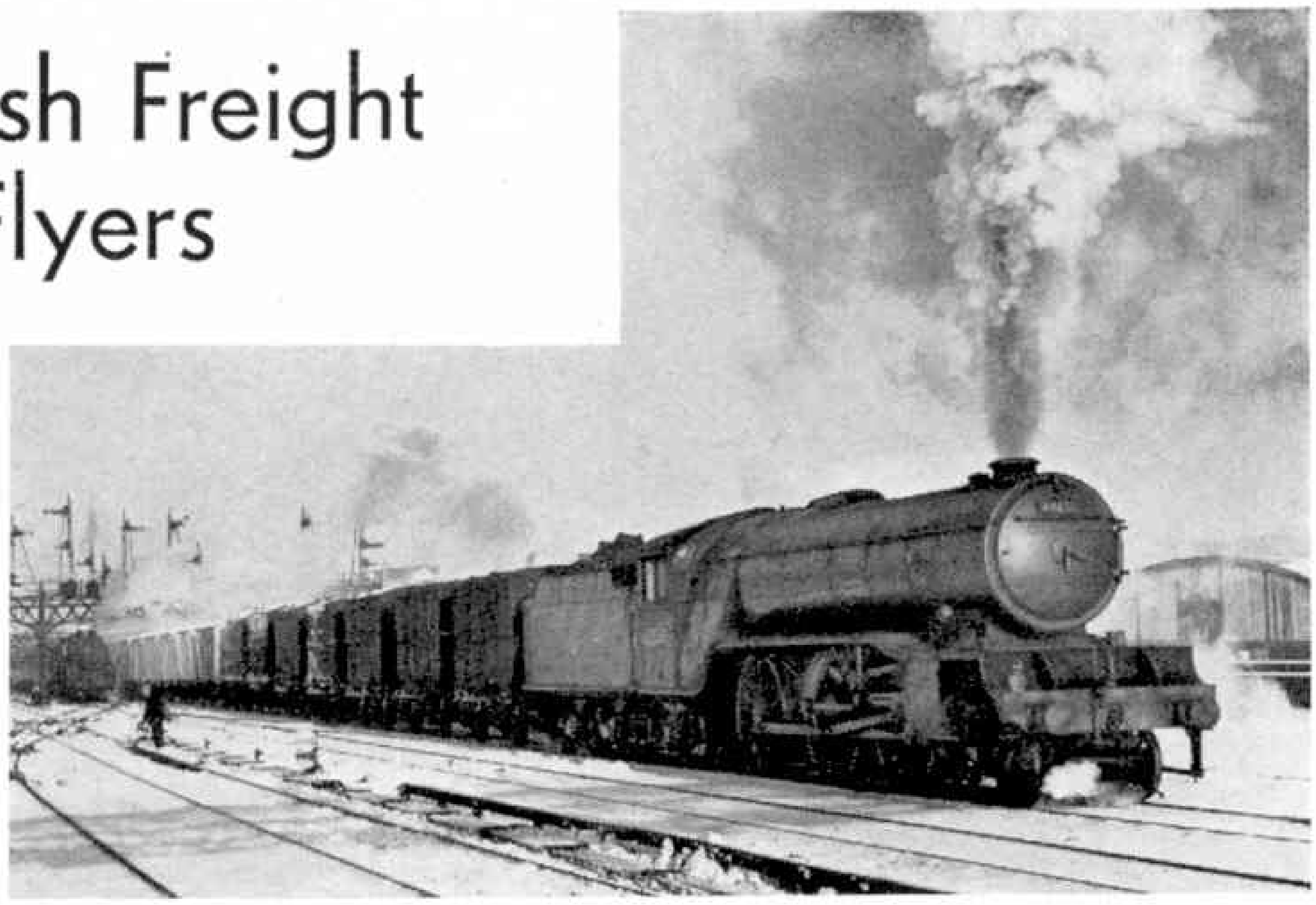
* * * *

After a late start, Britain's aircraft industry is producing some of the finest guided missiles in the world. Sweden has chosen the ramjet-powered Bristol Bloodhound as its standard anti-aircraft missile, and advanced versions may one day offer a defence against the long-range ballistic rocket. No less satisfying is the news that Saunders-Roe's Black Knight research rocket worked perfectly on its first test firing, reaching a record height of 300-400 miles at Woomera.

The first Northrop T–38 supersonic jet trainer awaiting delivery of its two General Electric J85 turbojets. The mock-up aircraft in the background is the N-156F counterair fighter which Northrop is developing for NATO, SEATO and other free allied nations.

Scottish Freight Flyers

By "North Western"



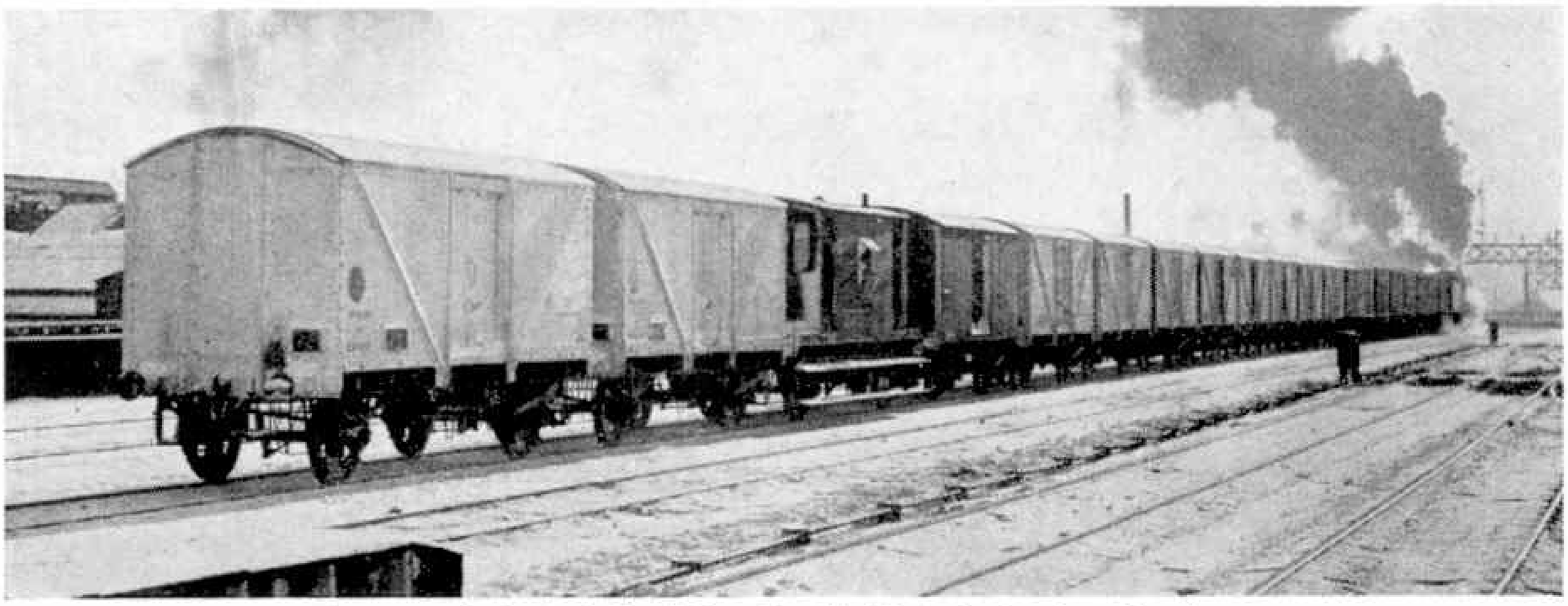
In the picture above No. 60838, a "Green Arrow" 2-6-2, makes a lively start with a fish train bound from Aberdeen to the South. The illustrations to this article and much of the material on which it is based are reproduced by courtesy of Scottish Region, British Railways.

FREIGHT and parcels trains scarcely share the glamour of the important passenger services in the public eye. Many, but not all, of them are night birds, known only to the men that run them and the staff that deal with them at their starting or destination points, and intermediately. But, by night or day, they are important enough to rate a Pacific for haulage at times, as last month's *M.M.* cover reminded us. Particular attention is given to the running of such freight services and one of the most notable developments on British Railways has been the steady increase in the number of the vacuum-braked express freight trains now in service throughout the various Regions. The number of these is certain to increase as more vacuum-fitted vehicles become available, this development being an important part of the overall modernisation plan for British Railways.

As is clear from one of the pictures in "Railway Notes" this month, many of these trains link important centres in England and in Scotland. Some of the Scottish Region trains have their own official names and as much pride is taken in their performance as in the punctuality of the more famous named passenger trains. There is for example *The Hielan' Piper*, operating between Paisley, Inverness and Aberdeen. Then there is *The Killie* between Aberdeen and Kilmarnock and, appropriately, *The Fifer* serving Ayrshire and Fife. Nicknames used by the staff for freight trains are not new, as Western Region enthusiasts well know, but the use of official titles for these Scottish freighters is at least an indication of their importance. The day in, day out regular running of these special express fitted trains, giving an overnight service between the points named, with feeder service connections to adjacent stations, is widely appreciated by traders.

The industrial belt of Scotland benefits a great deal from these services, but Scotland, it must be remembered, is largely agricultural and the greater proportion of the grain and potato production is despatched by rail. Seed potatoes, grown chiefly in the heart of rural Scotland, are brought to the nearest station by the farmer. Individual wagons are collected daily and brought to marshalling yards. From there through trains go to England, particularly to the main growing area of the Wash, Lincoln and Eastern Counties, and within a short space of time their freight is in the hands of the customer wherever he may be. Between 400 and 500 special trains convey potatoes in an average season, and an efficient organisation ensures that they are over the border within 24 hours of being loaded.

Hundreds of thousands of tons of grain are also despatched by rail to the South



A rear end view of the "Blue Spot" fish train leaving Aberdeen.

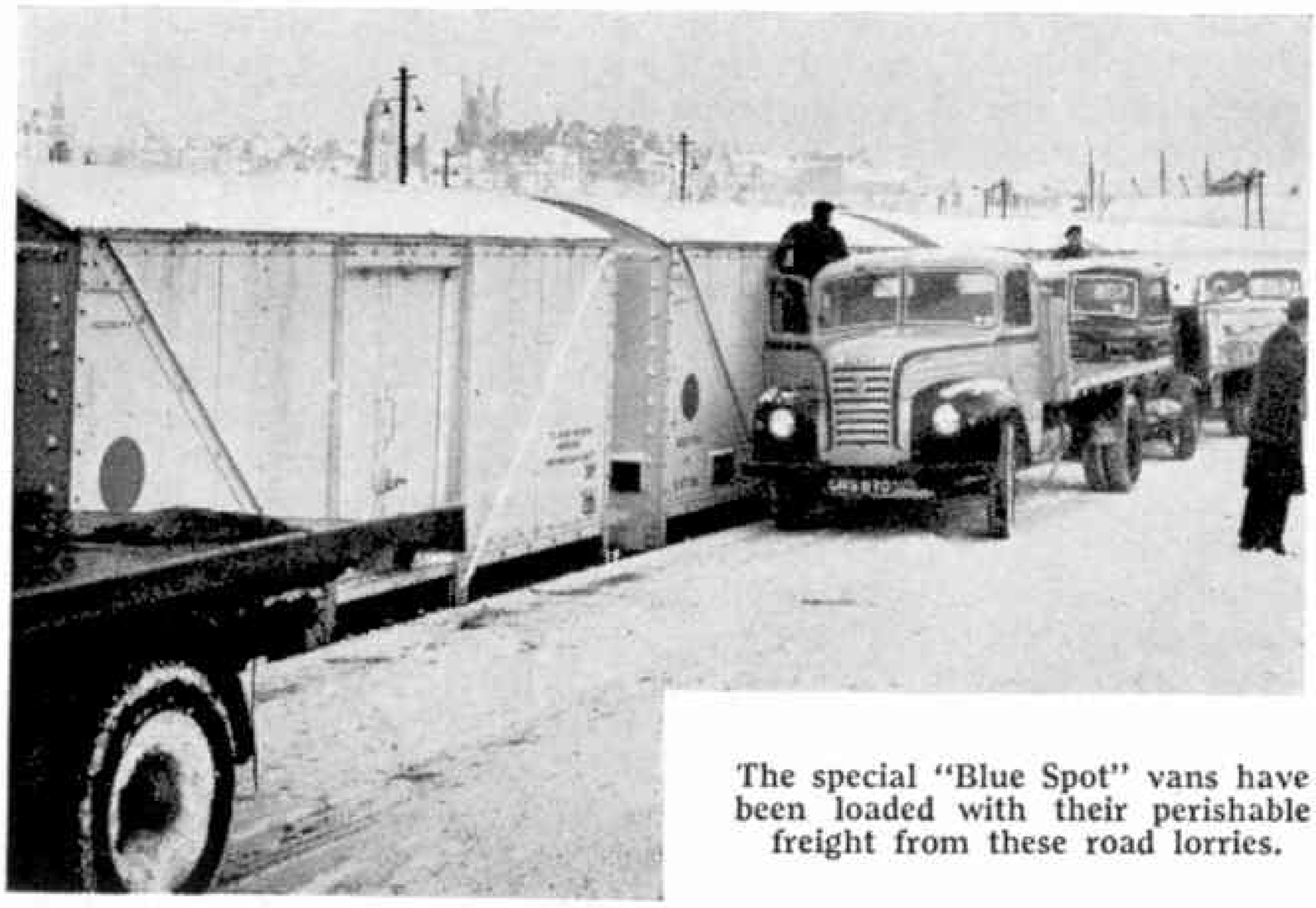
every year. In keeping with the modern trend for new equipment, British Railways have a fleet of 500 bulk grain wagons—a type familiar to all Hornby-Dublo railway owners—and these units are becoming available in increasing numbers every year. Fresh meat is also sent from the North East Coast in considerable quantities daily, mainly to London. Ventilated containers of what is known as the FM type are used to convey the meat thereby ensuring it arrives in prime condition at destination. These through trains, which run daily, maintain a passenger-like schedule so that the meat arrives at the proper time in London for the daily markets.

Another important traffic passing from Scotland, principally the North East, to London and the other main centres of the South, is the carriage of fish. Through trains run daily at passenger schedules, delivering this perishable commodity with the utmost speed to its destination. Vigorous running on "The Fish" has been traditional for years, and so far as Scottish Region is concerned the bustling efforts of such express engines of other days as the North British Atlantics have given place to the smoother progress of modern Pacifics or mixed traffic 2–6–2s, such as No. 60838 shown in one of our pictures.

Similarly the rolling stock used has undergone changes and with the idea of accelerating the existing services, research has been going on for some years with a view to improving the performance of the rolling stock carrying the fish. So in January of this year the first vehicles fitted with roller bearing axle boxes left Aberdeen for King's Cross. This train, known as the "Blue Spot Fish Special", inaugurated a new improved service for the fish traffic from the North East of Scotland to the London markets. British Railways are very conscious of the necessity of providing speedy and reliable transport for fish for long distance markets and, following upon extensive tests by Research and Technical Departments, 275 vans have been fitted with roller bearing axle boxes and are used exclusively on the fish specials between the North East of Scotland and the South. Many of these vehicles were fitted in the Cowlairs (Glasgow) Carriage and Wagon Works of the Scottish Region of British Railways.

The name "Blue Spot" is explained by

(Continued on page 552)



The special "Blue Spot" vans have been loaded with their perishable freight from these road lorries.

Speed Record Story

By

John W. R. Taylor

SOON after a Lockheed F-104A Starfighter of the U.S.A.F. Air Defense Command set up a new height record of 91,249 ft. in May of this year, it was decided to try and break the world air speed record with another aircraft of the same type.

The aim was to beat the existing record of 1,207 m.p.h., held by a McDonnell F-101A Voodoo fighter, so that the new figure could be announced on Armed Forces Day, Saturday, 17th May. But by the time the National Aeronautic Association had set up its official timing equipment, Capt. Walter M. Irwin, the U.S.A.F. pilot chosen for the job, had only Thursday and possibly Friday morning in which to make his attempt.

Nobody doubted that the Starfighter was fast enough. More than three years earlier, on 25th March, 1955, Lockheed test pilot Ray Goudey had flown the XF-104 prototype at 1,150 m.p.h. on the 10,000 lb. thrust of a Wright J65 turbojet. Later the same year, when fitted with a far more powerful General Electric J79 turbojet and afterburner, a Starfighter had reached 1,320 m.p.h.—equivalent to twice the speed of sound.

One of the biggest problems, especially as Capt. Irwin had little time for practising, was that record flying under international rules requires a tremendously high standard of piloting accuracy. For example, he knew he would be disqualified immediately if his height varied by more than 100 metres (328 ft.) at any time during the two runs over the 10.1-mile speed course, 40,000 ft. above the ground near Palmdale Air Force Base, California.

The heat barrier also created difficulties, and Irwin was warned that if he allowed the Starfighter to fly too fast the air slamming into the twin intakes would build up so much heat that it would melt the engine. This meant that he was unable to open the afterburner to full throttle during his speed runs.

At six o'clock on the morning of Thursday, 15th May, he hurtled down the course for the first attempt, only to discover that he had been unable to keep inside the 100 metre "slot". After changing to another Starfighter, he tried again. This time the speed was disappointing.

Captain Walter Irwin, U.S.A.F., climbing from the cockpit of the Lockheed F-104A Starfighter in which he set up the present speed record.

The third attempt looked as if it would produce a splendid record, but as Irwin banked round for the return run, after flying precisely one way at more than 1,500 m.p.h., a wire broke in the afterburner nozzle mechanism. With high cloud moving in over the course, he had to pack up for the day.

At 6.45 a.m. on the following morning, Capt. Irwin took off again. Within 20 min. he was back on the ground with an almost-certain new record of 1,435 m.p.h. to his credit. Unfortunately, it could not be accepted because of a fault in the cameras of the timing equipment. Even worse, mechanics reported that the J79 engine of the Starfighter had blown a gearcase oil seal.

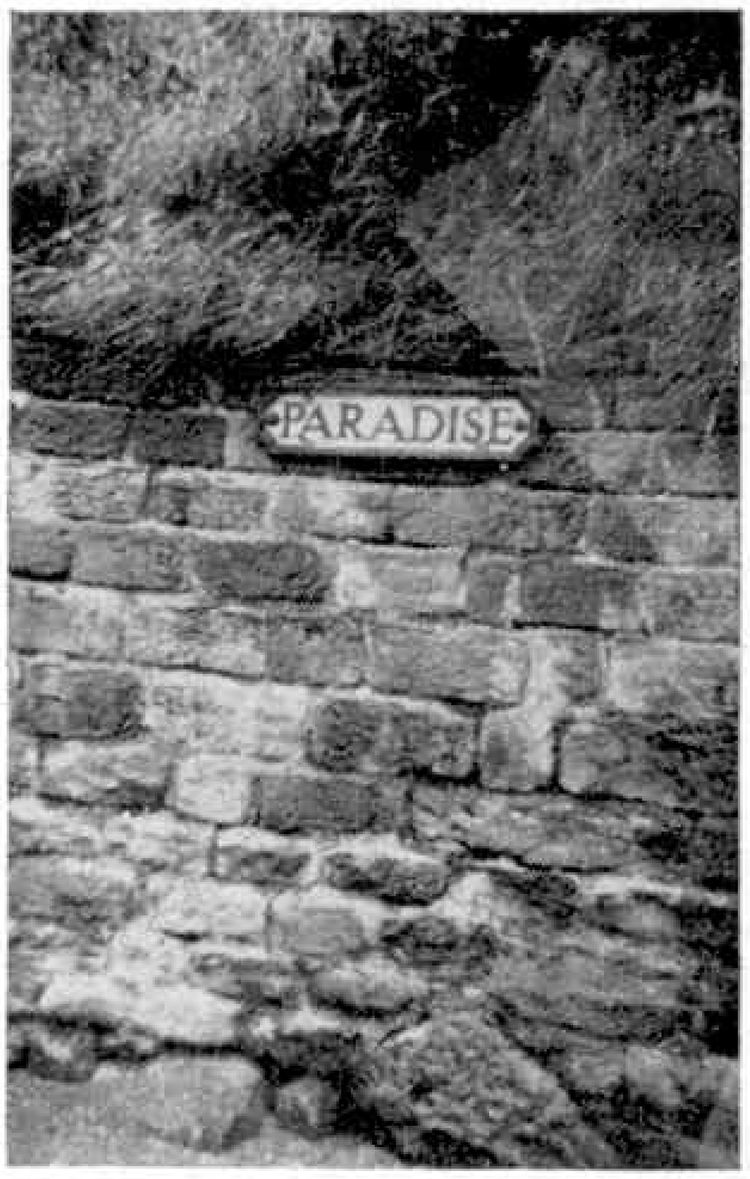
It looked like the end, because this particular aircraft had an improved type of engine which could withstand higher temperatures than earlier models, enabling the machine to be flown at higher speeds; but Irwin decided to make just one more attempt.

Taking off quickly, he completed his downwind run at 1,465.41 m.p.h. and the return at 1,342.97 m.p.h.—and on Armed Forces Day America had its new record, at an average speed of 1,404.19 m.p.h.

MECCANO MAGAZINE

Junior Section

HOW nice it would be to have an address in Paradise! There actually is a narrow street in which that name can be seen, and I think it is worth while adding to the narrow streets already mentioned in the *M.M.* The street itself leads up from the harbour at Scarborough. Raymond Taylor, of Shaw, near Oldham, who sent me the photograph of it on the right, has been unable to find out the significance of the name, which describes a short section of the street, and is wondering if some reader can offer an explanation.



The street leads towards St. Mary's Parish Church, in the graveyard of which the famous novelist Anne Brontë is buried. Higher above it are the ruins of Scarborough Castle, which was built about 800 years ago, and in the yard of the Castle are the remains of what must be one of the oldest buildings in the country, a Roman signal station looking out over the North Sea.

Earlier this year a group of boys and girls of Wollaton, near Nottingham, decided to try to repeat the success they achieved last year with a model railway exhibition that they organised in aid of their Church Funds. They chose Hornby-Dublo for their layout, which was simple in design and easy to construct. In it were nearly 300 ft. of track and 28 points. The buildings were all put together by members, who made good use too of Dinky Toys.

Actually the running of trains supplied real liveliness that greatly delighted the 1,000 people or so who visited this display, which was more successful than the organisers could have hoped for. A large number of locomotives were employed and there were both passenger trains and goods traffic on a large scale, the latter keeping goods yards busy throughout the display. A Hornby Gauge 0 railway also was on view.

On the right is a Hornby-Dublo layout at an exhibition in Wollaton, with some of those who planned and operated it.

Spanner's Special Section for Juniors

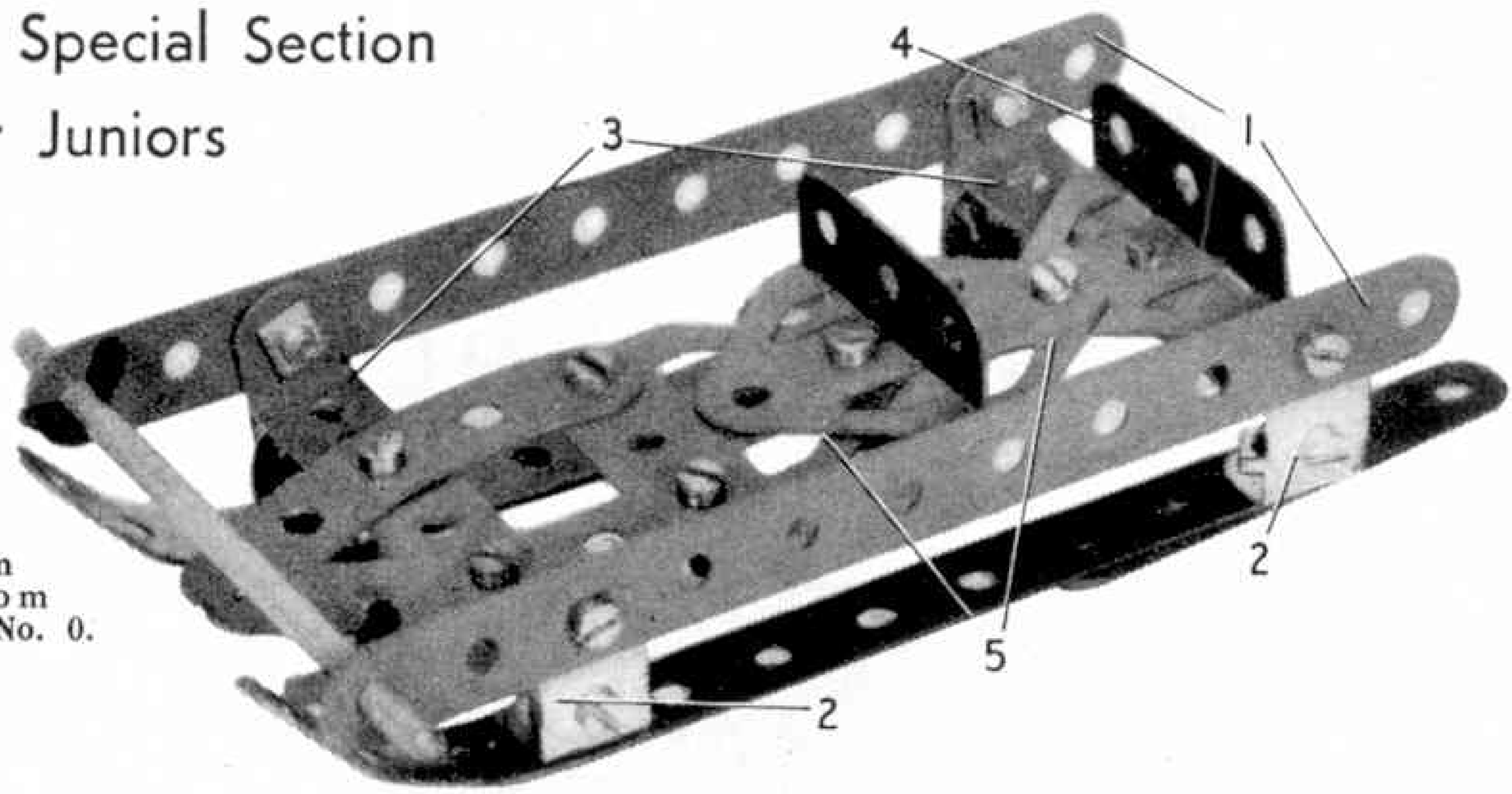


Fig. 1. This simple Sledge can be built from parts in Outfit No. 0.

Easy Model-Building

A Simple Sledge for Outfit No. 0

This model is designed especially for Meccano enthusiasts who possess an Outfit No. 0. A 5½″ Strip 1 and two Fishplates 2 are bolted to each end of two 2½″ × ½″ Double Angle Strips 3. Two more 5½″ Strips are each curved slightly at one end and they are connected by Angle Brackets to the Fishplates. Two 2½″ Strips extend the 5½″ Strips at the rear end. These 5½″ Strips form the runners of the sledge.

A Trunnion 4 is bolted to the rear 2½″ × ½″ Double Angle Strip and to this Trunnion are bolted two Flat Trunnions 5. A Trunnion connected by the same bolt as that which holds the Flat Trunnions 5 together, forms one of the seats of the sledge. Two Curved Stepped Strips, each bolted at one end to the foremost Flat Trunnion, are bolted also to the 2½″ × ½″ Double Angle Strip at the front end of the Sledge. A 3½″ Rod is held in place by Spring Clips in the front holes of the 5½″ Strips that form the sides of the model.

A list of the parts required to build the Sledge is given at the end of this article.

An Articulated Tank Lorry (Outfit No. 3).

The chassis of the tractor unit of the Tank Lorry consists of two 5½″ Strips 1 joined at the rear end by Angle Brackets bolted to a Trunnion 2. A Flat Trunnion at the front end of the model represents the radiator grille and it is bolted by Angle Brackets to the front ends of the 5½″ Strips 1. A second Flat Trunnion completes the grille. The

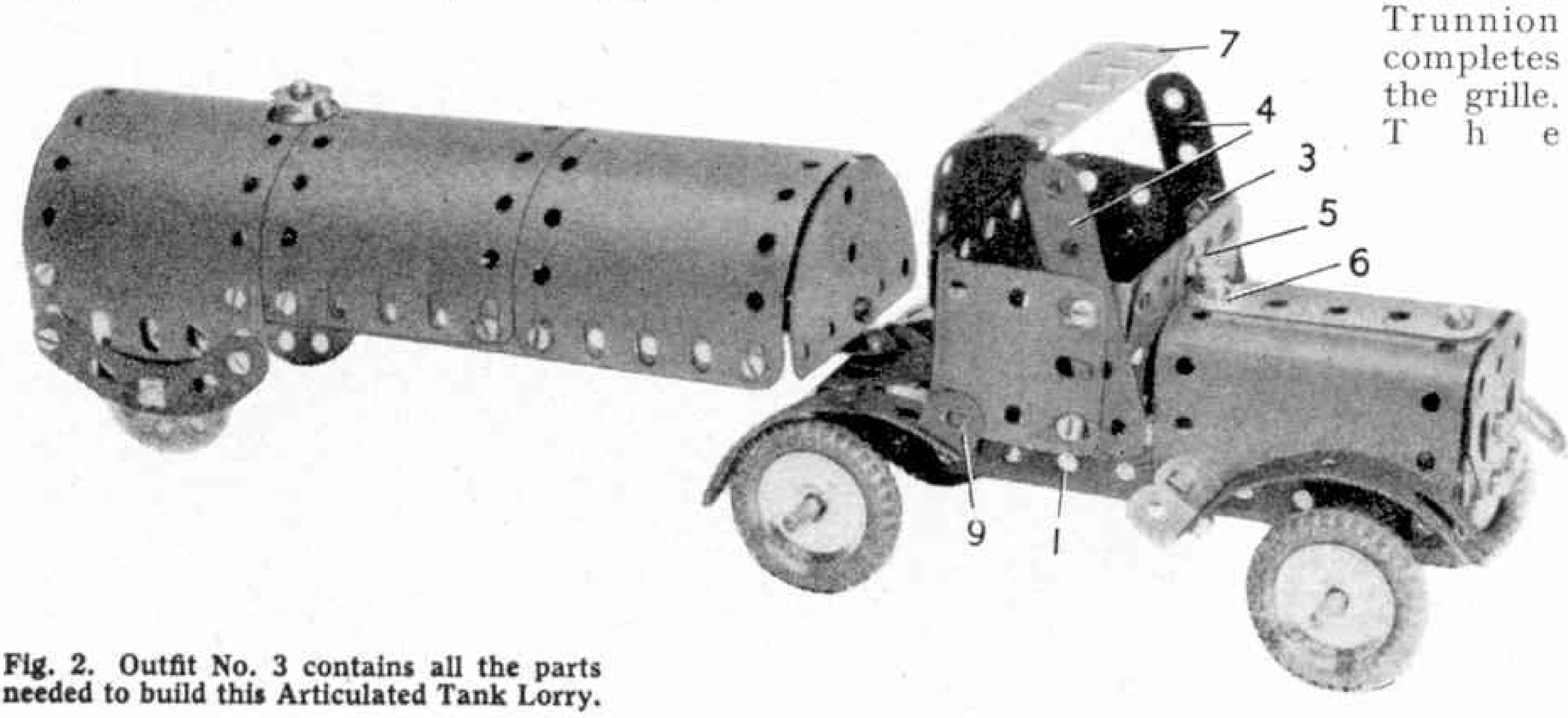


Fig. 2. Outfit No. 3 contains all the parts needed to build this Articulated Tank Lorry.

wheels are 1″ Pulleys with Rubber Tyres, and they are mounted on two 3½″ Rods mounted in Fishplates bolted to the 5½″ Strips 1 as shown.

The bonnet of the model is made of two 2½″ × 2½″ Flexible Plates joined together and bolted to the 5½″ Strips 1 of the chassis.

The back and sides of the cab consist mainly of a 5½″ × 1½″ Flexible Plate curved as shown and connected by a 2½″ × ½″ Double Angle Strip 3, and two 2½″ Strips 4 are also held by the same bolts. A 2½″ × 1½″ Flexible Plate 5 is bolted at each end to the 2½″ × ½″ Double Angle Strip 3 and an Angle Bracket 6 joins it to the bonnet. The back and roof of the cab are formed by a 2½″ × 2½″ Curved Plate 7, which is bolted to the 5½″ × 1½″ Flexible Plate.

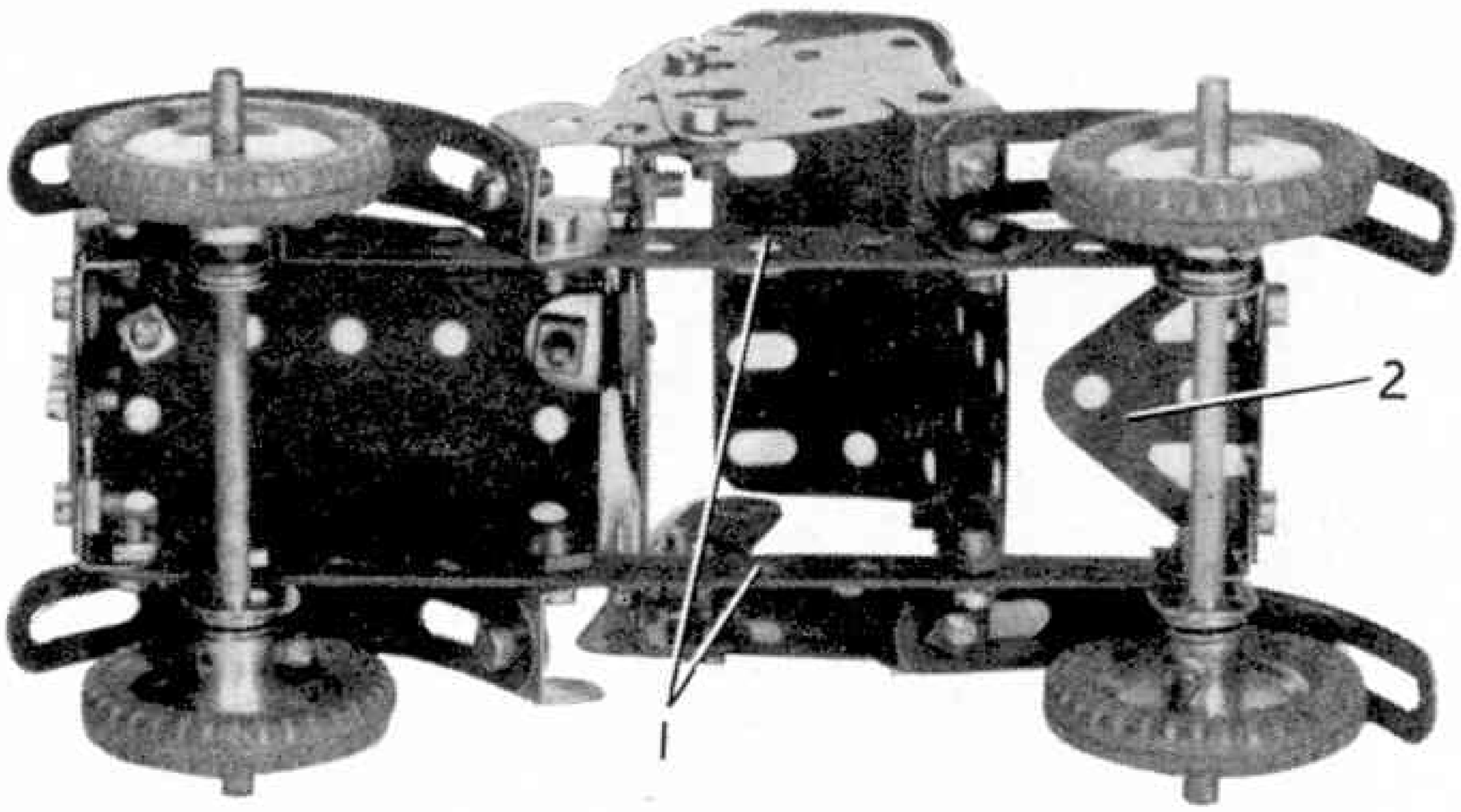


Fig 3. The tractor unit of the Articulated Tank Lorry seen from underneath.

A Reversed Angle Bracket 9 is bolted three holes from the rear end of each of the 5½″ Strips of the chassis and Formed Slotted Strips bolted to them form the rear mudguards. The front mudguards are also Formed Slotted Strips and these are each bolted to a Double Bracket that in turn is bolted to the side of the bonnet.

The Tanker unit is based on a 5½″ × 2½″ Flanged Plate to each side flange of which is bolted a 5½″ Strip that overhangs four holes at the rear end. Two Angle Brackets 8 bolted to the rear end holes of the 5½″ Strips support a Semi-Circular Plate that forms the back of the tank. The rear end of the tank casing is a 5½″ × 2½″ Flexible Plate bolted to the ends of the 5½″ Strips. Two 2½″ Stepped Curved Strips are bolted to each end of this Flexible Plate. The wheels are Wheel Discs mounted freely on ⅜″ Bolts, which are lock-nutted to the centre holes of the Stepped Curved Strips. Two 4½″ × 2½″ Flexible Plates complete the tank casing, and a ½″ Pulley without boss represents the manhole cover. A 2½″ Semi-Circular Plate and an Angle Bracket are bolted to the front end of the tank and a ⅜″ Bolt 10 fixed in the Angle Bracket forms a coupling by means of which the Tanker is hitched to the Tractor unit. The Bolt projects into a hole in the Trunnion 2 of the Tractor Unit.

Model builders who possess a *Magic* Motor will no doubt like to use it to drive the tank lorry. This can be done quite easily, but it may be necessary to modify the Tractor somewhat to accommodate the Motor.

Parts required to build the Articulated Tank Lorry: 4 of No. 2; 2 of No. 5; 4 of No. 10; 2 of No. 11; 8 of No. 12; 2 of No. 16; 4 of No. 22; 1 of No. 23; 2 of No. 24a; 55 of No. 37a; 50 of No. 37b; 8 of No. 38; 2 of No. 48a; 1 of No. 52; 2 of No. 90a; 4 of No. 111c; 2 of No. 125; 2 of No. 126; 1 of No. 126a; 4 of No. 142c; 1 of No. 188; 1 of No. 189; 1 of No. 190; 2 of No. 191; 1 of No. 192; 2 of No. 200; 2 of No. 214; 4 of No. 215.

Parts required to build the Sledge: 4 of No. 2; 2 of No. 5; 4 of No. 10; 4 of No. 12; 1 of No. 16; 2 of No. 35; 19 of No. 37a; 17 of No. 37b; 2 of No. 48a; 2 of No. 90a; 2 of No. 111c; 2 of No. 126; 2 of No. 126a.

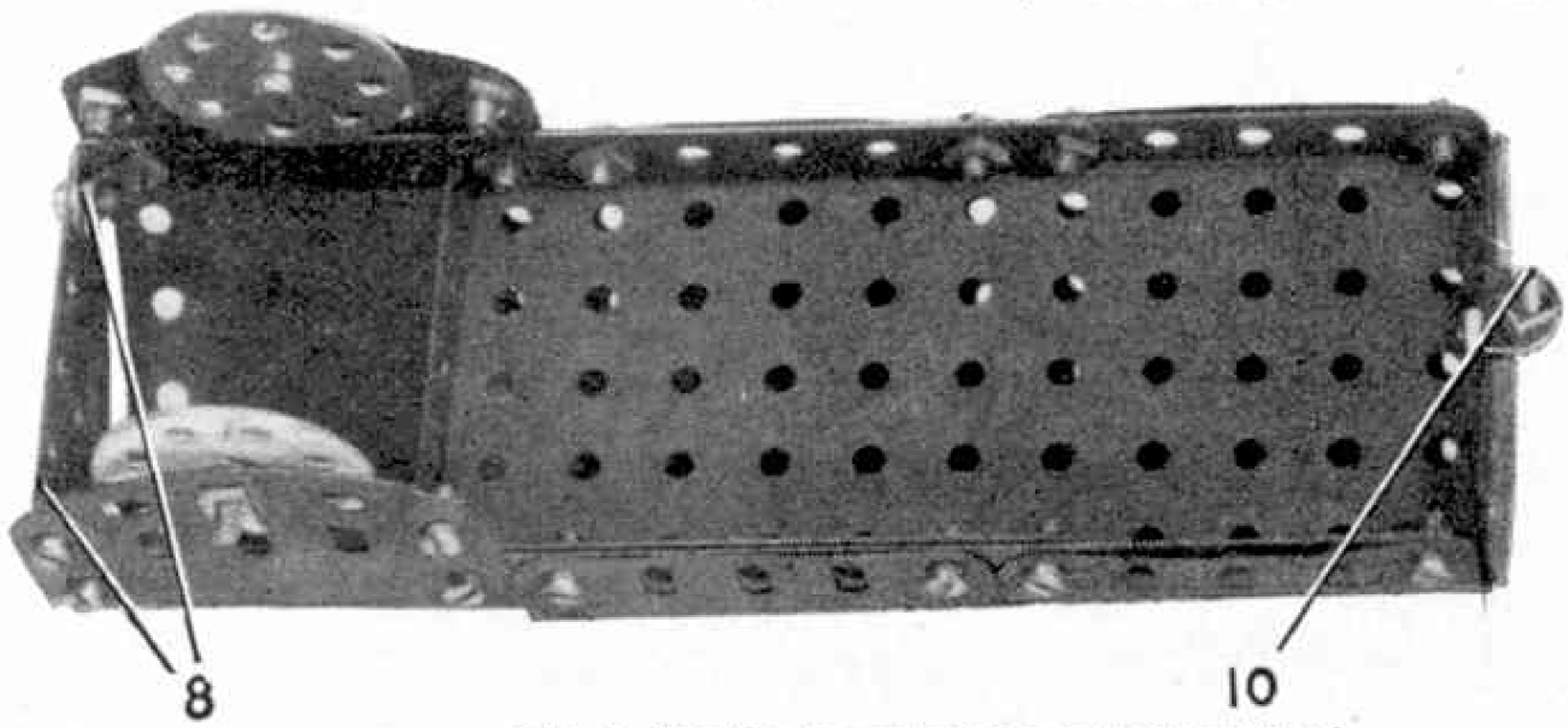


Fig. 4. The Tank unit of the Articulated Tank Lorry.

DINKY TOYS

By **THE TOYMAN**

ONE of the most gratifying things about being associated with the Dinky Toys Club and the manufacture of Dinky Toys is the knowledge of the joy and pleasure they are bringing to young people. It is very satisfying and pleasing to know that in some way one is perhaps helping to bring fun and pleasure into the lives of these boys and girls.

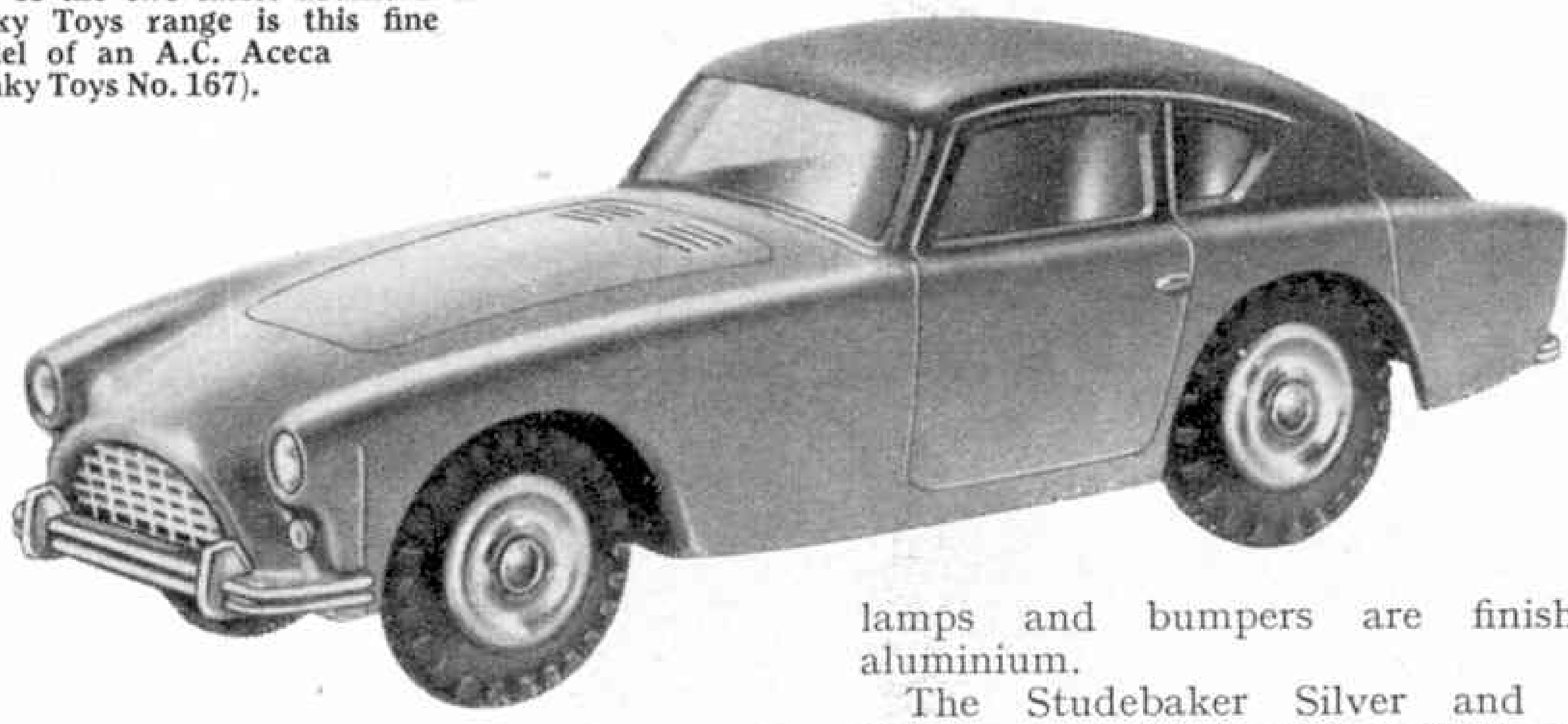
I was reminded of this recently when I received from a member of the British Forces, stationed in trouble-torn Cyprus, a very interesting letter in which he told me of the great pleasure his three young children, all of whom are members of the Club, obtain from their collection of Dinky Toys. The children concerned are Douglas, aged eight, Linda, aged 6½, and David, who is only four, and they are the children of Sgt. B. E. Wilks, R.A.F. The photograph reproduced below shows the children with their fine collection of Dinky Toys and Supertoys and a fine wood garage that was constructed for them by their father. These enthusiastic Club members spend many hours playing with their Toys and their collection numbers over 170 models all different.

Christopher K. Roberts, Wem, Salop, six years old, is the fortunate possessor of over sixty Dinky Toys, which he uses in conjunction with a fine Hornby-Dublo train layout.

Now for this month's newcomers. A fine example of a quality British car, the A.C.

David, Linda and Douglas Wilks, who live in Nicosia, Cyprus, displaying their wonderful collection of Dinky Toys.

One of the two latest additions to the Dinky Toys range is this fine model of an A.C. Aceca (Dinky Toys No. 167).



Aceca Coupe, and another beautiful model, of the fine American Studebaker Golden Hawk, are the two latest additions to the Dinky Toys range. Both of these have now made their appearance in the shops and already are being eagerly bought up by enthusiastic collectors. The A.C. Aceca Coupe is Dinky Toys No. 167 and the Studebaker Golden Hawk is Dinky Toys No. 169, and both are worthy representatives of their originals.

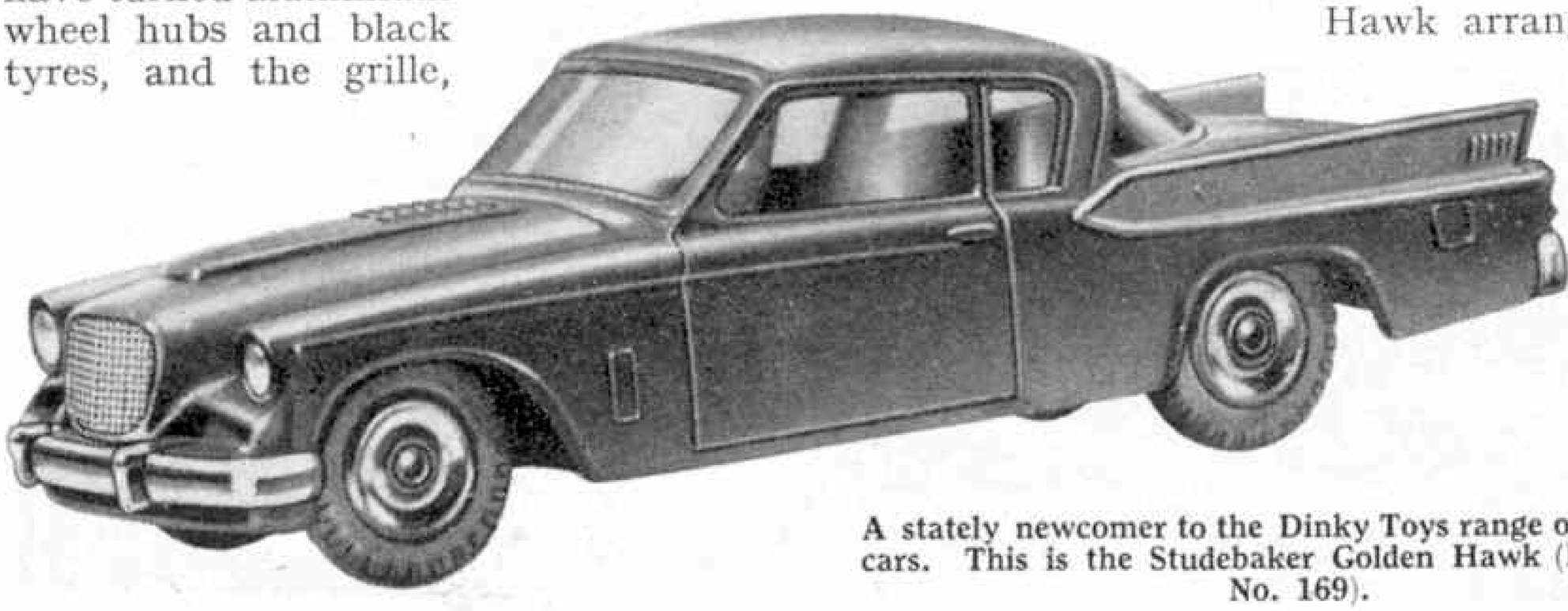
The A.C. Aceca, which is basically the hard-top version of the Ace, comfortably exceeds 100 m.p.h. either with the A.C. engine or the Bristol 2-litre available as an optional extra. All four wheels have independent suspension and transverse laminated springs and wishbones, and disc brakes can be fitted at extra cost. These features, in conjunction with a tubular chassis of remarkable rigidity, contribute greatly to the comfortable road holding qualities of this high performance sports car.

The new Dinky Toys A.C. Aceca Coupe can be obtained with a grey body and red top or with a cream body and top finished in brown. Both models have turned aluminium wheel hubs and black tyres, and the grille, lamps and bumpers are finished in aluminium.

The Studebaker Silver and Golden Hawks, probably best described as family sporting hardtops, accommodate five people quite easily, the bench type seats being spacious by any standards. The Golden Hawk, the faster of the two, has a powerful 8 cyl. 4736 c.c. supercharged engine that develops 275 b.h.p., and is capable of speeds of over 120 m.p.h. Power brakes and steering provide effortless driving. Another distinctive feature is the attractive radiator grille which follows the more conventional type of European styling.

Two very attractive colour schemes are available also for the Studebaker Golden Hawk. In one of these the body is enamelled stone colour with red boot and rear side panels. The rear lights also are red. The headlamps, grille and bumpers, and the edges of the side panels, the door handles and the horizontal beadings are aluminium, and the wheel hubs are turned aluminium. White tyres are fitted. In the second colour scheme, the body is green, with stone coloured boot and rear side panels. The other details are as in the first scheme.

In the upper picture on page 532 you can see the A.C. Aceca and the Golden Hawk arranged in a



A stately newcomer to the Dinky Toys range of American cars. This is the Studebaker Golden Hawk (Dinky Toys No. 169).

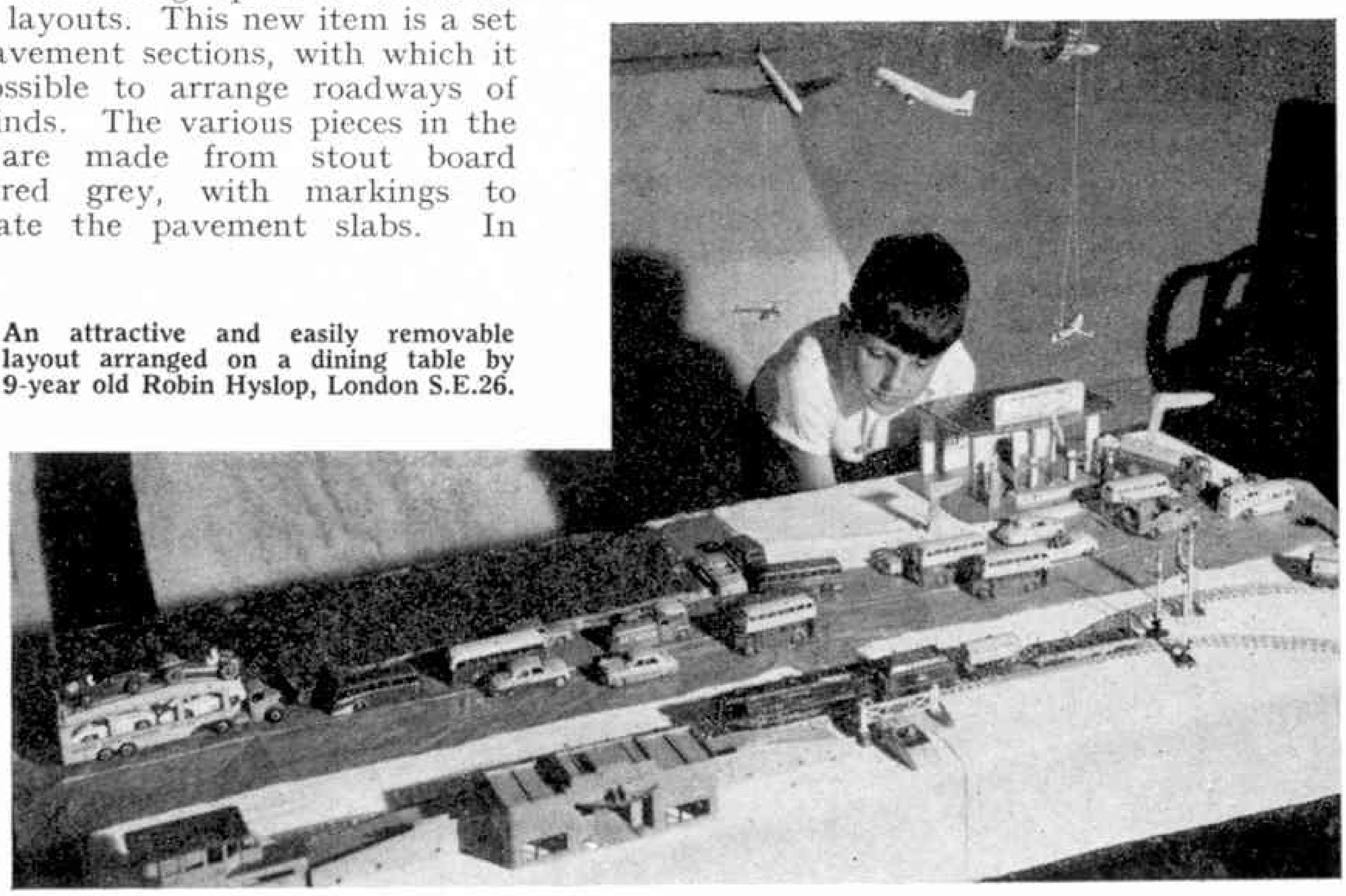
The A.C. Aceca and the Studebaker Golden Hawk featured in an attractive setting.

simple setting and I am sure you will notice the elegance of these two splendid models, and the fine effect given by the new turned aluminium wheel hubs.

There is one other new item this month that I am sure will be eagerly welcomed and which will be found of the greatest value in making up either small or large layouts. This new item is a set of Pavement sections, with which it is possible to arrange roadways of all kinds. The various pieces in the Set are made from stout board coloured grey, with markings to indicate the pavement slabs. In addition to a range of straight sections, there are half and quarter circles and smaller sectors, so that road junctions can be laid down easily. It is possible too with these components to arrange roads at an angle to each other as an alternative to merely right-angle intersections. The new Pavement Set is catalogued under Dinky Toys No. 754.

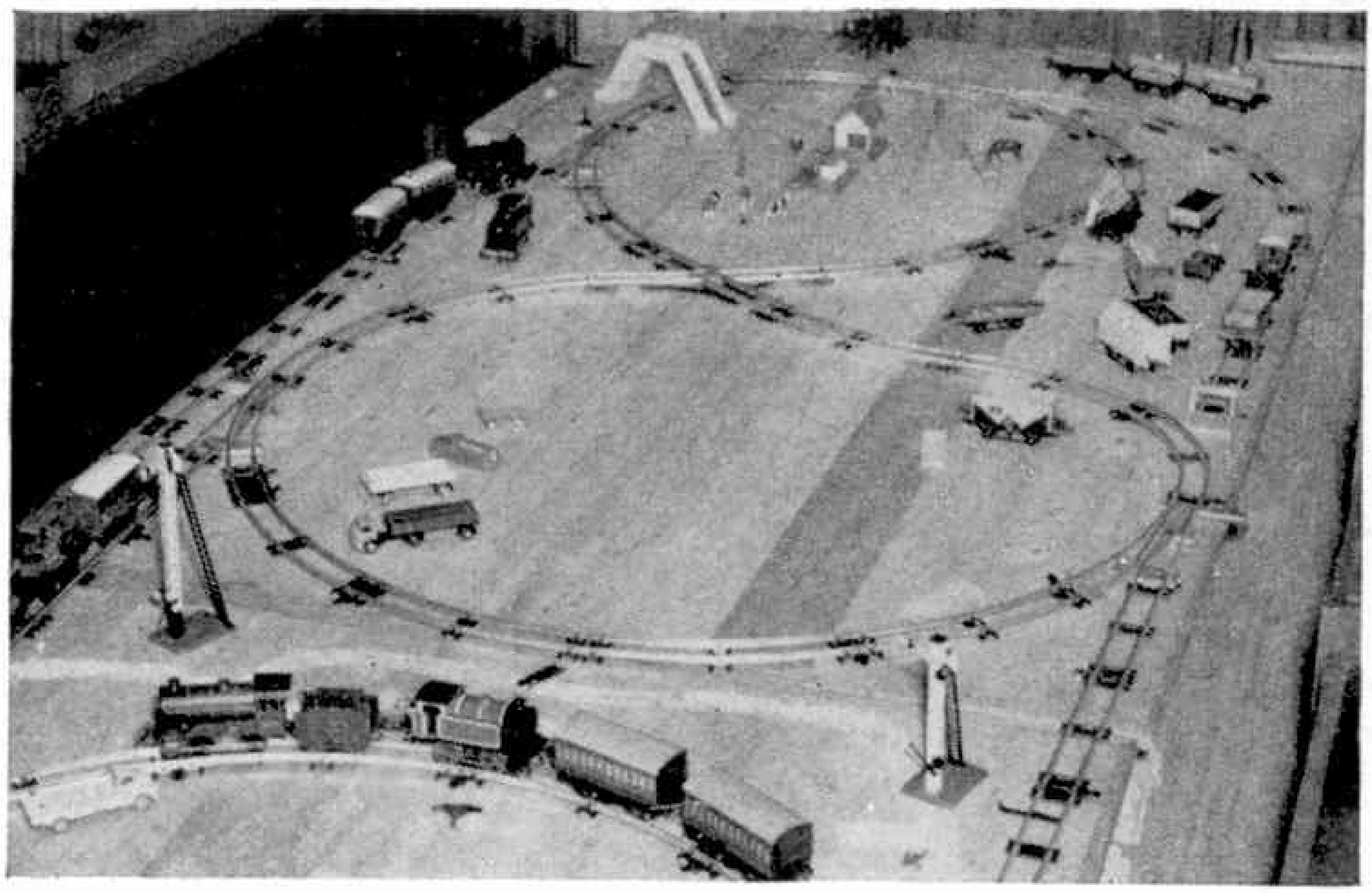
Many of my young friends in the Dinky Toys Club have told me that although they possess lots of Dinky Toys, they are unable to make up road layouts owing to the lack of sufficient space in their homes. While this may appear quite a problem it is really not so difficult to overcome and there are many ways in which a layout can be arranged even in the most cramped of spaces.

As an instance of this, look at the lower picture on this page. This shows a really playable layout that is made up entirely on a dining room table.



An attractive and easily removable layout arranged on a dining table by 9-year old Robin Hyslop, London S.E.26.

"Tommy Dodd" writes about:



Layout and Coupling Tips

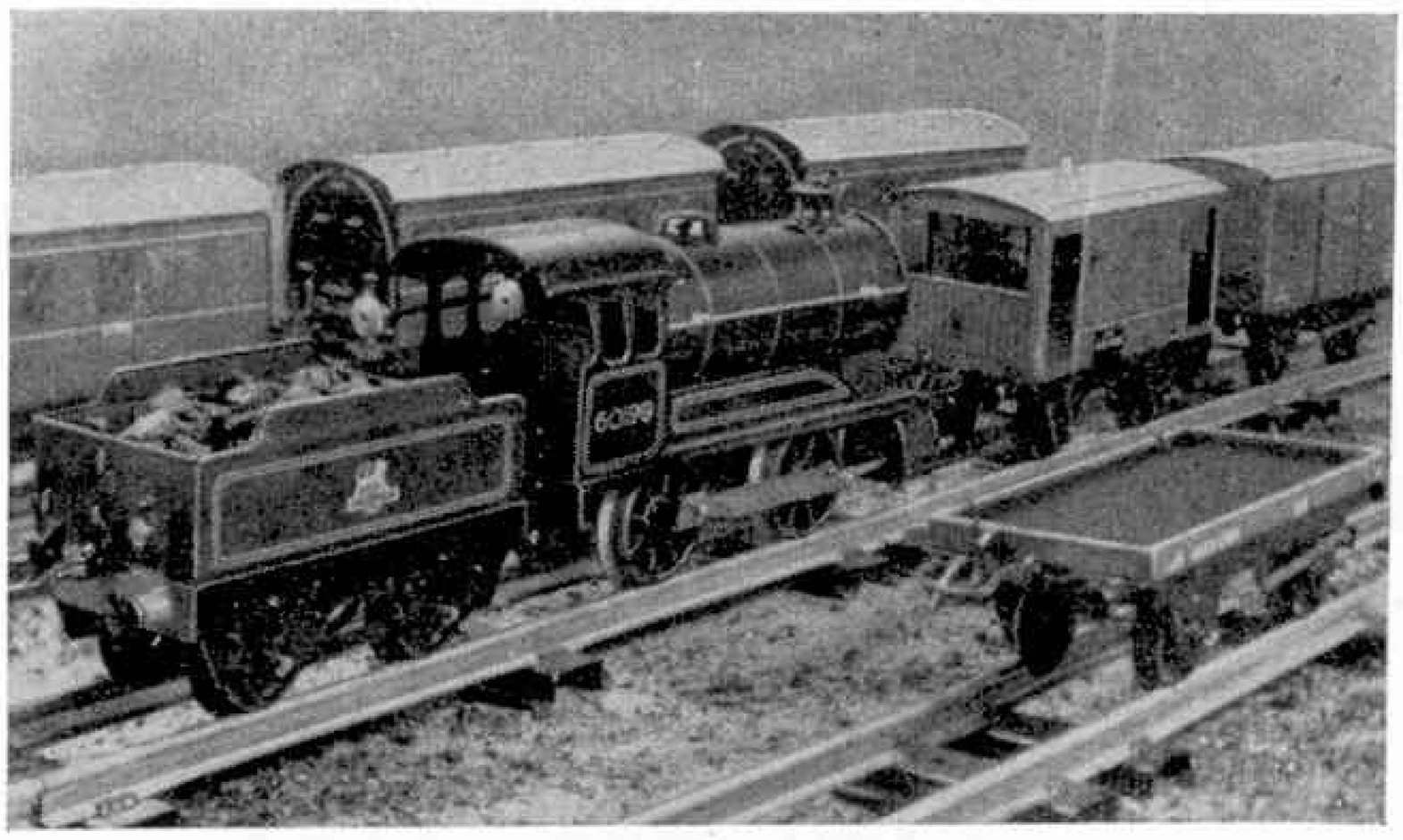
IN recent talks I have mentioned something of the use of Hornby Rails and rolling stock, and as if to illustrate one or two of the points mentioned an *M.M.* reader in New Zealand, Graham Pilgrim, of Palmerston North, has sent the photograph that you see reproduced above. This shows part of a fine display of Hornby railway equipment that was arranged for a special purpose at his school in Palmerston North. There are some other ideas that occur to mind too, and we will come to these later.

Graham Pilgrim, a New Zealand Hornby enthusiast, sent in the picture above showing a special display arranged at his school. The layout is extensive and provides some interesting running possibilities.

Evidently a fair amount of space was available for the railway, at least in the matter of length, which is always a good thing. It means that plenty of straight track can be incorporated between the curved sections that necessarily form the ends of the average oval-shaped railway. Not that there was any shortage of curves either, as the photograph shows. These have been worked in very well in order to provide running loops and alternative routes. In the section that you can see in the centre of the picture they fit up with an Acute Angle Crossing to form a kind of "figure 8" system. This combines with Points in an interesting manner and some useful variations in running are made possible as a result.

Notice how some of the rolling stock, and at least two engines, are standing off the track. This is inevitable when a layout of this kind is being prepared, or is in course of dismantling. Normally we should always try to keep our stock on the rails, assuming that there is siding space specially for it, as there certainly seems to be on the layout shown.

Obviously on the occasion mentioned there were plenty of engines available for running the trains, and there seems to have been some unusual double heading, to judge by the two engines coupled together on the train in the foreground. Here we have a Tender and a Tank Locomotive coupled back to back, an interesting instance of the adaptability of Hornby Clockwork Locomotives. Such a combination would make it necessary for the "driver", or in other words the operator doing the winding up, to remember that one engine would have to be in forward gear and the other in reverse for any



A Hornby No. 50 Locomotive running tender first in what is clearly a busy yard. The Tender carries a lamp on the appropriate bracket.

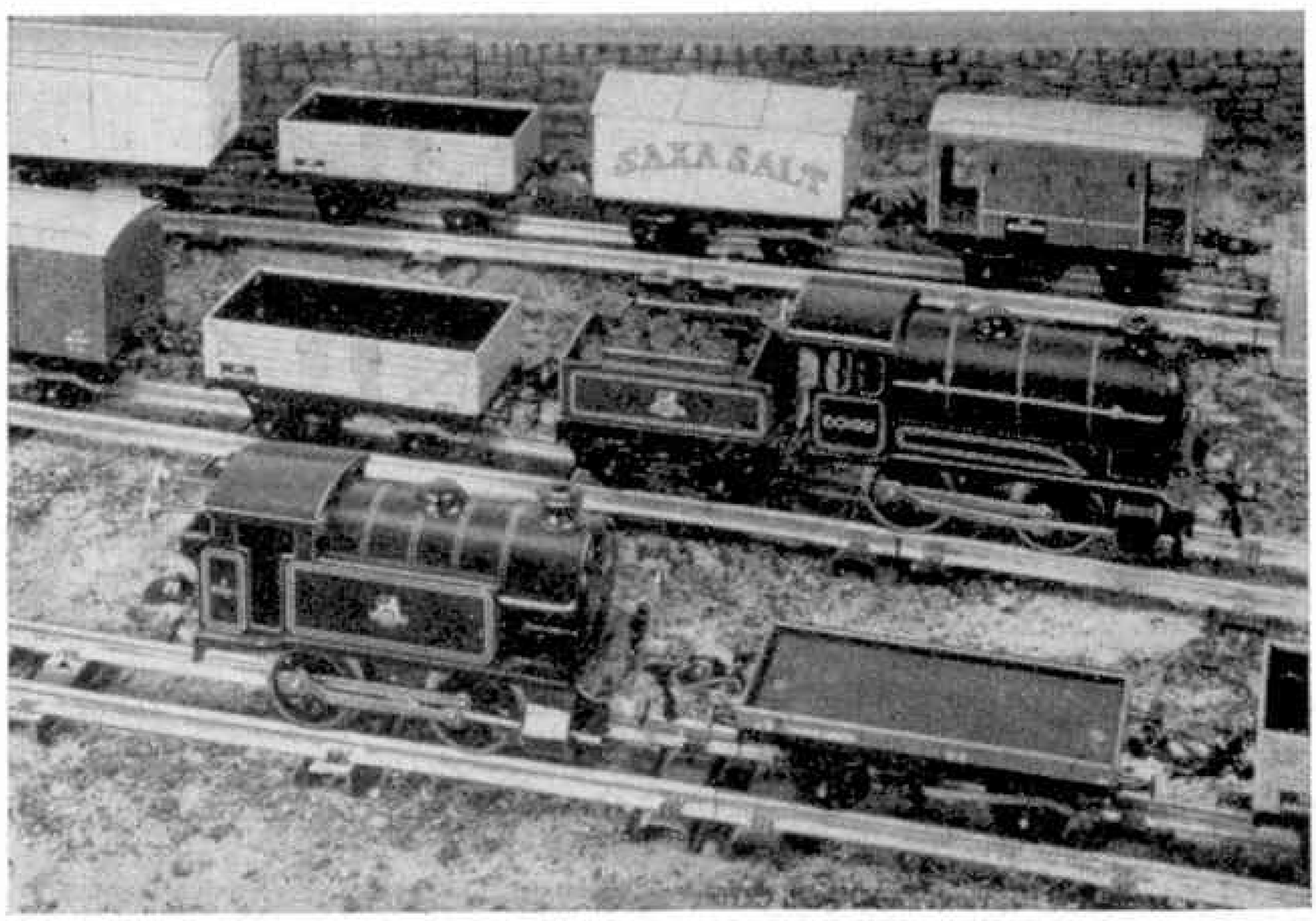
particular movement together.

This management of the two engines coupled together raises a point that is not always clear to the beginner. If he has a reversing engine he knows that it will push its train backward as well as being able to haul it forward. But quite frequently in real practice engines carry out train operations when running tender or bunker first according to their type. So the miniature railwayman wants his engine to do the same. With the exception of the No. 20 Locomotive, which does not reverse, this is readily possible with the engines of the Hornby system and in the upper picture on this page you will see a Hornby No. 50 Locomotive making its way tender first along the track with a local goods train. This tender-first running provides the opportunity of making use of the lamp brackets that are provided on Hornby Locomotive Tenders Nos. 50 and 51.

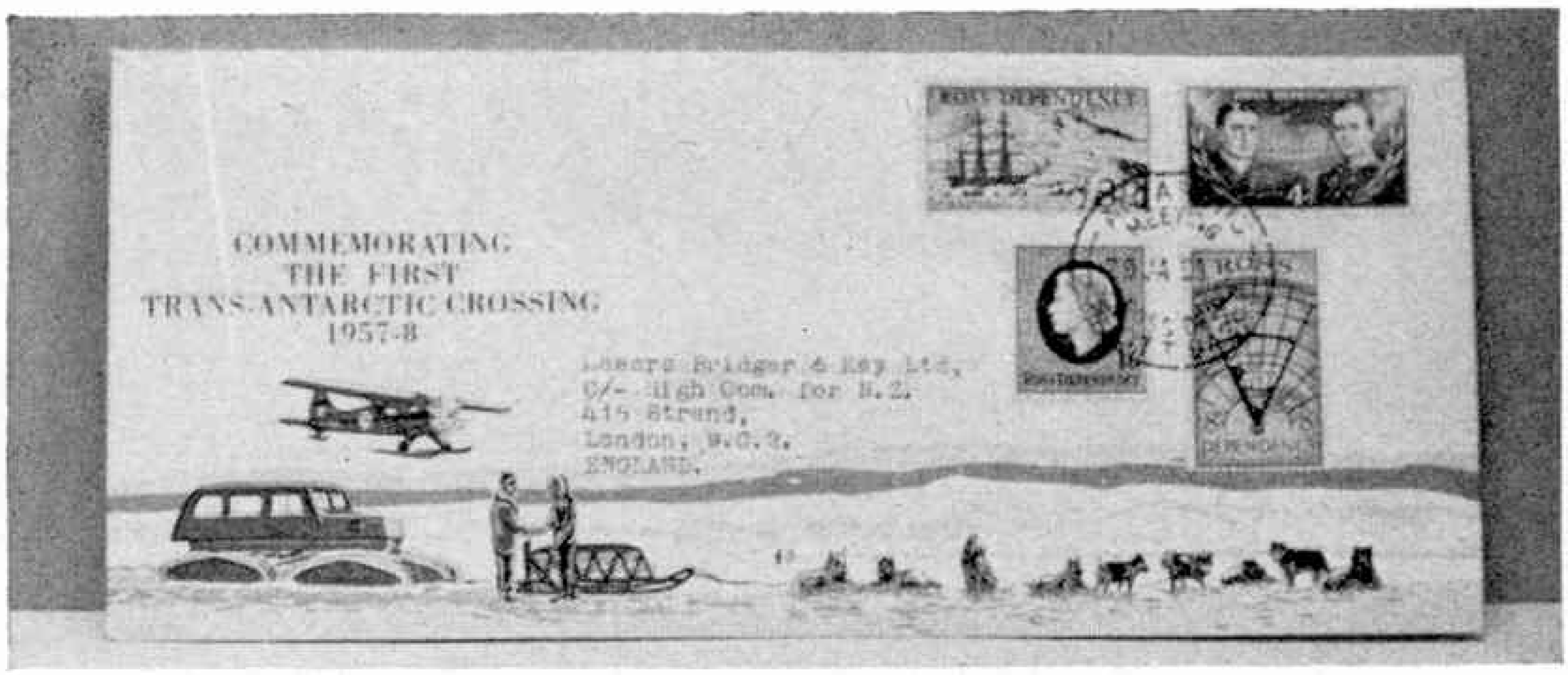
In the lower picture the No. 40 Tank engine looks as though it is hauling a train bunker first. It may be doing so over a short distance, because it is engaged in shunting operations, in which forward and reverse movements are required in turn in order to assemble or separate the different vehicles composing the train. By way of contrast, on the track alongside a No. 50 Tender engine is running in the normal chimney-first direction with its train.

In this lower picture you will notice that the loop of the automatic coupling on the Low-Sided Wagon is placed over the hook at the front of the No. 40 Tank. This is the correct way to do the coupling operation here, as two different types of Couplings are involved. The front ends of Hornby Locomotives are not provided with automatic couplings, but the No. 50 goods vehicles and the corresponding Nos. 41/51 passenger rolling stock do have them. Matters work out quite satisfactorily if the scheme shown is adopted. The link of the engine hook would not fit over the specially shaped nose of the automatic coupling on the Wagon. This note may help those of you who have been faced with this little coupling problem, and have wondered what to do about it.

Such things can occur in real practice, where perhaps coaches with auto-couplers and ordinary screw couplings may come together. Often the auto-coupler is hinged, and can be swung down out of the way to disclose an ordinary hook that can take the screw coupling of the next vehicle.



Two goods trains on a Hornby layout. The Tank engine in the foreground is making a shunting movement.



Of General Interest

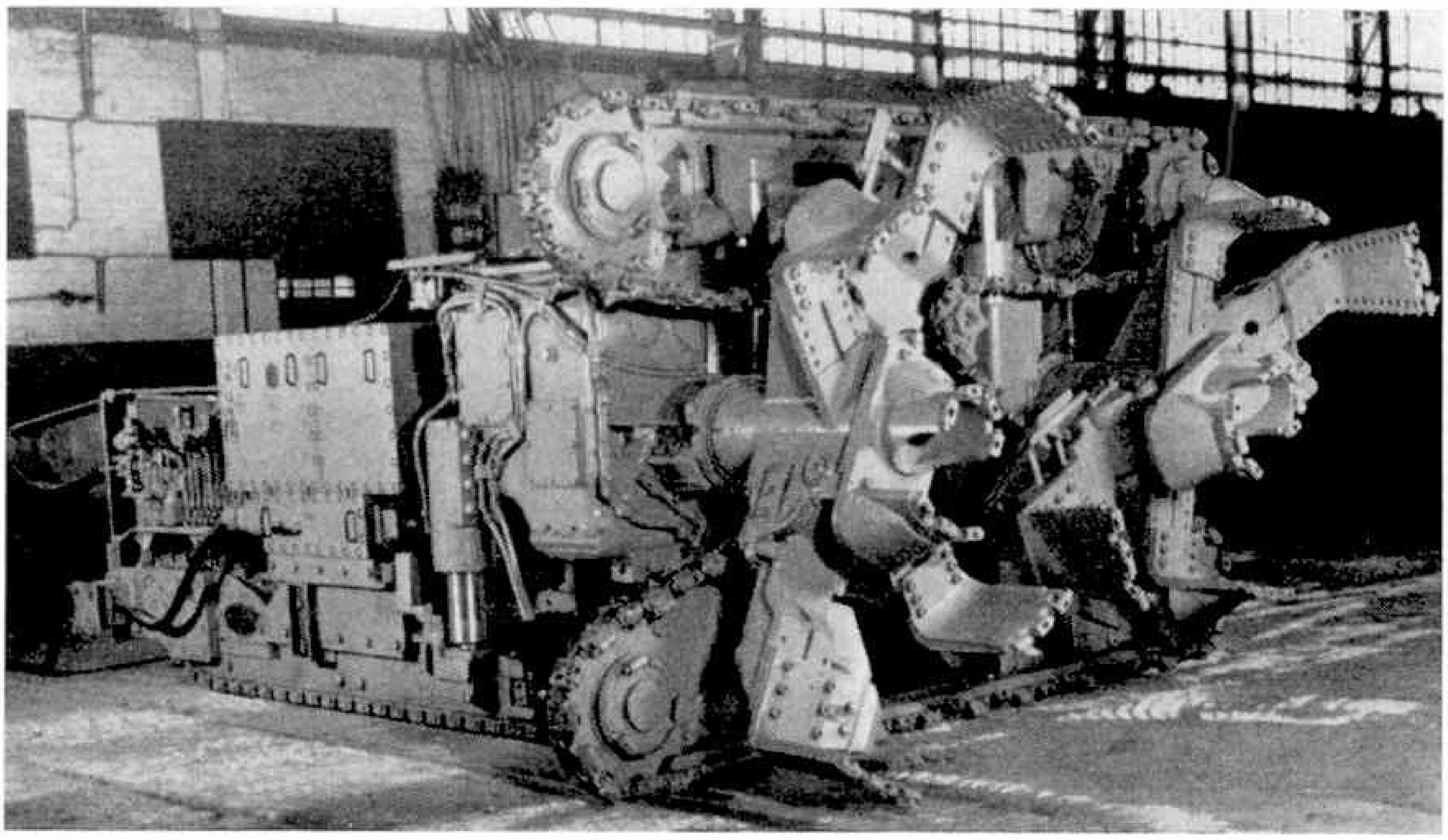
SOON after the appearance of the August *M.M.*, I began to hear of other covers carrying large numbers of stamps. One of them, from J. F. Kennedy, Horsham, establishes a new record, for it has on it no fewer than 103 stamps, the total value in the stamps of Columbia its country of origin, being about £2. All these stamps were on the face of an envelope measuring 13″ × 10″, and the sender remarked that they left little room for more!

There were envelopes distinguished in other ways among those of which I heard. One, sent by S. S. Pethybridge, Newton Abbot, had 23 Queen Victoria 2½d. stamps and 11 5d. stamps of the same reign. Its interest lies in the fact that it was sent towards the end of last century.

With the picture of this envelope Mr. Pethybridge also sent me the photograph reproduced at the head of the page. This cover is not remarkable for its number of stamps, but for its postmark, which reads "*Antarctic Meeting. 20 Ja. 58. Ross Dep., Scott Base.*" All of you of course will realise that the cover marks the historic meeting in the Antarctic of Sir Vivian Fuchs and Sir Edmund Hillary.

Another envelope of which I received a picture, seen below, is remarkable for the number of postmarks it carries. Anyone of course can fill up the face of a letter with stamps, but only postal authorities can get to work with postmarks! This letter was posted in Nairobi and addressed to Albertville in the Belgian Congo, and before it reached its destination it collected 16 postmarks, 3 rubber stamp impressions and 7 endorsements by hand! This must be a record of some kind.

The envelope pictured on the right travelled a long way out of its course. Photograph by E. Teskey-King, Hull.



A Mechanical Miner

Cutting up to 5 Tons of Coal a Minute

THE National Coal Board now has working in a British mine the world's most efficient coal-cutting machine—a continuous miner costing £50,000 that will cut considerably more coal per shift than is obtained from any coal mining machine at present operating in Europe.

This machine is known as the Goodman continuous miner. It has been developed to a high degree of efficiency in the United States from a British coal-cutting machine, and has been assembled in Cumberland by the Distington Engineering Co. Ltd., Workington. It has concluded its trials at the N.C.B. Central Engineering Establishment near Burton-on-Trent, and is now in service at the Pentreclwydan Colliery, in South Wales.

The picture on this page shows the front of the machine, which weighs 32 tons. To many its performance will bring to mind stories they may have read of marvellous machines, something like submarines, that can claw their way through the earth, tunnelling underground at great speed over long distances. It does work by driving straight ahead through the coal seam.

In front of the machine are two large rotating cutter arms, which work in conjunction with a trimming cutter chain round the sides of the head of the machine. As it advances on its crawler tracks, the whirling arms, turning in opposite directions, cut the coal with great speed. This falls in front of the head and is gathered into a central opening from which it is carried backward by a scraper chain conveyor, to be discharged at the rear at any convenient height from 3 ft. to 6 ft. above floor level.

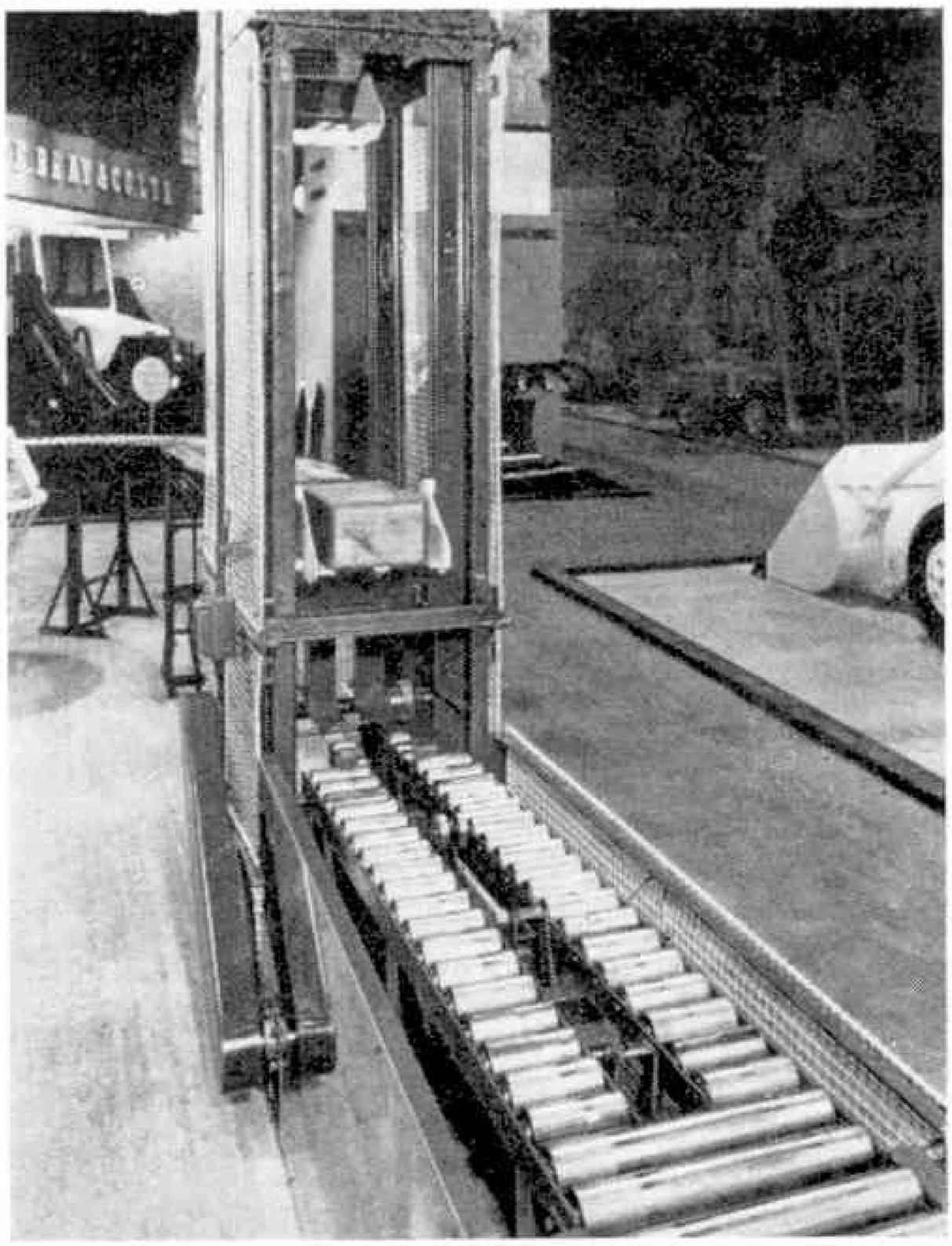
In several years experience of this miner in an American coal mine it has been found capable of producing from 600 to 1,000 tons of clean coal per shift in varying conditions, and it can work 24 hours a day. The output is so large that the usual equipment for conveying coal away from the face cannot keep pace with it, and new means of handling coal cut by it are therefore being sought.

The machine has worked successfully on gradients up to 1 in 4, either rising or dipping.

Most of the coal face is cut and broken by the two rotating units, each of which has two short arms and two long hinged ones that lock in the extended positions. Tungsten carbide tipped cutting picks mounted on the arms cut into the face, and the cores between the cuts are broken out by the shorter arms of the rotors, which are wedge-shaped and direct the coal towards the central conveyor that takes it to the back of the machine. A 150 h.p. A.C. motor drives the cutting assembly.

The VertiVeyor Competition

How to prepare and send in your entry



LAST month we announced the new Competition for models of the VertiVeyor manufactured by J. Collis and Sons Ltd., London. In this contest prizes to a total value of £100 are being offered by Messrs. J. Collis and Sons Ltd., and Meccano Ltd., jointly, for models of the VertiVeyor, an appliance designed for conveying goods from floor to floor in a factory.

The VertiVeyor is designed to take its loads of goods automatically and also to discharge them automatically at pre-determined points. Full mechanical details and illustrations of it were given in the October *M.M.* and a further illustration of the VertiVeyor appears on this page. Full details of the prizes to be offered in the contest are given in the panel below, and the Competition is open to all readers of the Magazine.

The many interesting features of the VertiVeyor can be reproduced in different ways and with a variety of Meccano parts, so that building a model of it offers plenty of scope for ingenuity on the part of individual Meccano constructors. Readers who would like to enter the Competition, and who did not see the original announcement last month, can still obtain copies of the October *Meccano Magazine*, as we have a few left, but they should apply for them immediately.

List of Prizes to be Awarded

	£	s.	d.
Section A			
First Prize, Cheque for	10	0	0
Second Prize, Cheque for	6	0	0
Third Prize, Cheque for	4	0	0
Ten Prizes, each of a Cheque for ...	2	0	0
Section B			
First Prize, Cheque for	16	0	0
Second Prize, Cheque for	9	0	0
Third Prize, Cheque for	5	0	0
Ten Prizes, each of a Cheque for ...	3	0	0

Closing Date for Entries: 31st January, 1959.

How to prepare and send in your entry

The Competition is open to readers of all ages, living in any part of the world, and entries will be divided into two Sections, A and B. Section A will be for model-builders who will be under 15 years of age on 31st January, 1959, and Section B will be confined to model-builders who will be aged 15 or over on that date. A separate and complete set of Cash Prizes will be awarded in each Section.

Actual models must not be sent

Photographs or drawings are all that is required, and although the model itself must be the competitor's own unaided work, the photographs or drawings may be prepared by others if necessary. The competitor's age on the 31st January 1959, together with his full name and address, must be written clearly on the back of *each* photograph or drawing and these should be sent, together with a short description of the mechanical features of the model, to "The VertiVeyor Model-Building Competition, Meccano Ltd., Binns Road, Liverpool 13".

Entries will be judged by Messrs. J. Collis and Sons Ltd., and Meccano Ltd., jointly, and all prizewinners will be notified by post as soon as possible after the closing date.

Among the Model-Builders

By "Spanner"

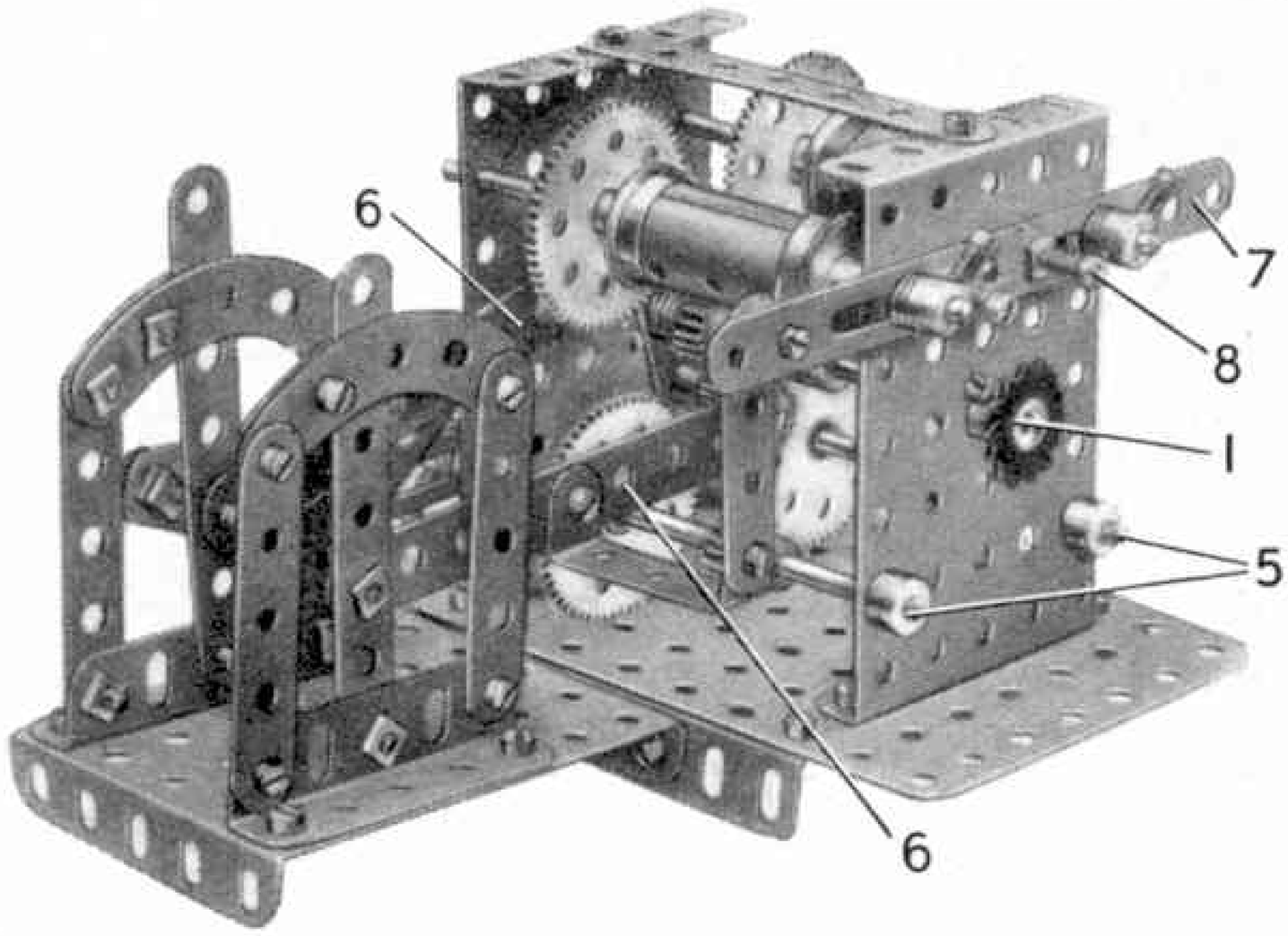


Fig. 1. A modified four movement gear-box with automatic brakes, designed by R. Sutherland, Cupar.

Four Movement Gear-Box with Automatic Brakes

Master R. Sutherland, Cupar, Fife, has sent me details of modifications he made to the four movement gear-box described in the September 1957 *M.M.* These were planned to increase the usefulness of the mechanism by providing an automatic brake for each of the winding shafts. Control is still exercised by using only two levers.

The base consists of a $5\frac{1}{2}'' \times 3\frac{1}{2}''$ Flat Plate strengthened by Angle Girders, with a $3\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate bolted to one of the Girders. Two upright $3\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plates connected by a $3\frac{1}{2}''$ Strip form bearings for the winding shafts.

The input shaft is a Rod 1 fitted with a $\frac{1}{2}''$ Pinion 2 and two Double Arm Cranks 3 and 4. A $\frac{3}{4}''$ Bolt fitted with a loosely mounted $\frac{1}{2}''$ Pinion is attached to each Double Arm Crank by two nuts. The Pinions on the $\frac{3}{4}''$ Bolts mesh with the Pinion 2, and the Double Arm Cranks are free to turn on Rod 1 but are held in place by Collars. By turning the Double Arm Cranks the Pinions can be moved into mesh with 57-Tooth Gears on the output shafts 5. Movement of the Double Arm Cranks is controlled by levers located in quadrants formed by $2\frac{1}{2}''$ Stepped Curved Strips. The levers are connected to the Double Arm Cranks by $4\frac{1}{2}''$ Strips 6, lock-nutted in position.

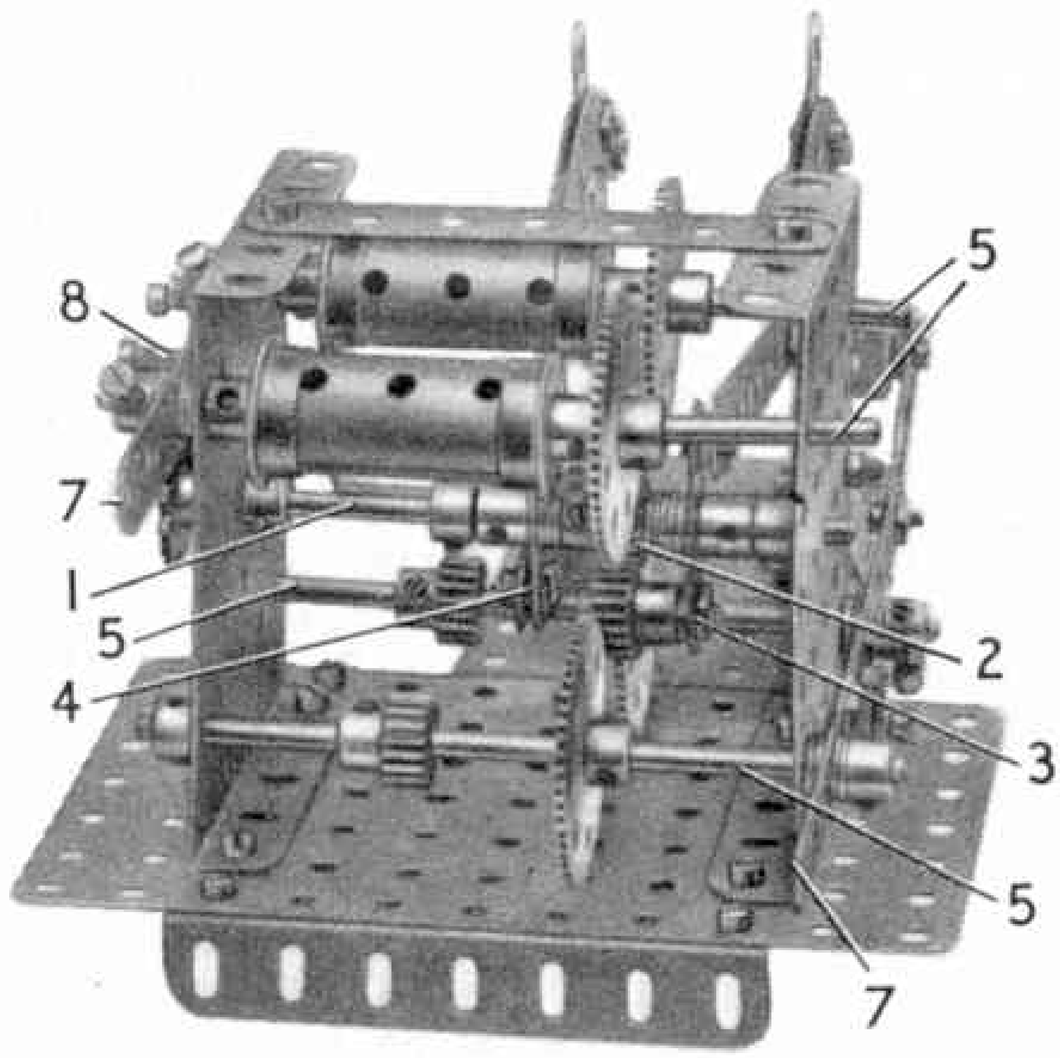


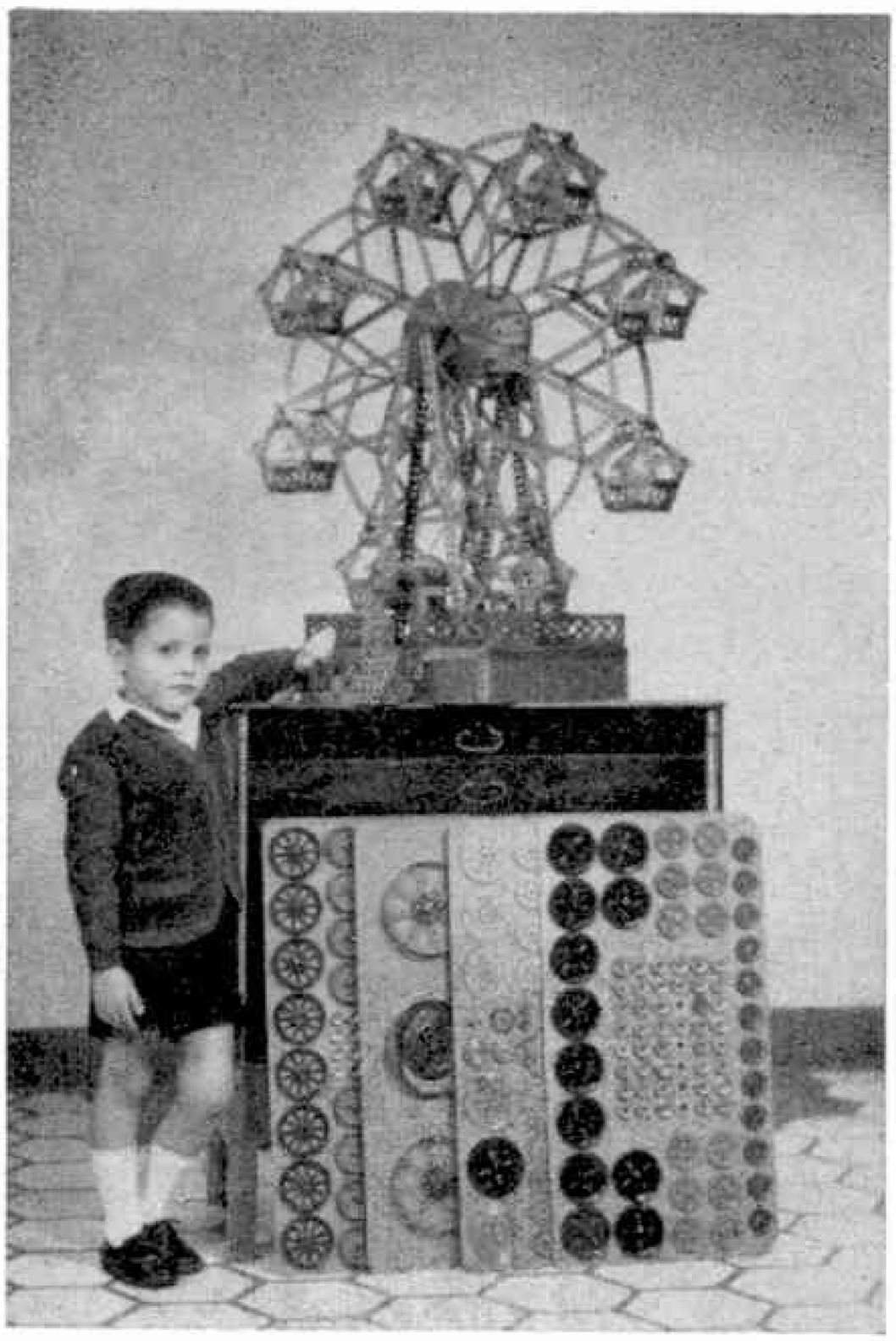
Fig. 2. Another view of the four movement gear-box.

The brake mechanism on each side consists of a $5\frac{1}{2}''$ Slotted Strip 7 arranged with its slotted holes over two of the output shafts. The Slotted Strips are spaced from the Flanged Plates by Washers on the output shafts, and they are held in place by Collars. A $\frac{3}{8}''$ Bolt is screwed into each Collar and a $\frac{1}{2}''$ Bolt 8 is fixed centrally by two nuts in each Slotted Strip. A 2″ Strip is bolted to each Slotted Strip and is connected to the corresponding Strip 6 by a $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip.

The mechanism is arranged so that with the control levers in their central positions, the $\frac{3}{8}''$ Bolts in the Collars engage the Bolts 8 and prevent all the output shafts from turning. Movement of a lever in either direction engages the drive to an output shaft and automatically releases the brake on the same shaft.

Governor for a Clockwork Motor

The device shown in Fig. 3 is a powerful governor designed by H. H. Taylor,



Jose Vich, Zaragoza, Spain, with a fine Big Wheel built for him by his father, from the fine Meccano Outfit that he used in his own young days.

Huddersfield, for the purpose of extending the running time of a Clockwork Motor, in cases where only a light drive is required. It consists of a Wheel Flange 1 fixed to a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip supported at one end by the Motor casing while at the other it is bolted to a $12\frac{1}{2}''$ Angle Girder. A Rod 2 passes through the Wheel Flange and carries a $\frac{1}{2}''$ Bevel Gear driven from a $1\frac{1}{2}''$ Bevel Gear on the Motor output shaft. Fixed near the top of Rod 2 is a Double Arm Crank 3, to which are bolted two 2″ Slotted Strips 4, with their slotted holes at the outer ends.

Two Rods 5 are held in Rod and Strip Connectors mounted freely on a $\frac{3}{8}''$ Bolt passed through the lugs of an End Bearing 6. The End Bearing is fixed on a 1″ Rod held by two Collars in a Double Angle Strip fixed to the $12\frac{1}{2}''$ Angle Girder. The Rods 5 each carry a bob weight consisting of two $1\frac{1}{8}''$ dia. Flanged Wheels, and a Collar near their lower ends, which project into the slotted holes of the Slotted Strips 4.

When the Motor is set in motion Double Arm Crank 3 and Slotted Strips 4 rotate, carrying with them the Rods 5. Centrifugal force causes the Rods 5 to move outward along the slotted holes in the Slotted Strips until the ends of the Rods bear against the flange of the Wheel Flange 1, thus providing an effective speed governing action.

Meccano in Spain

The upper picture on this page shows Jose Vich, the five year old son of Sn. L. Buil Vich, Zaragoza, Spain, with a model of a Big Wheel built for his amusement and entertainment by his father. Sn. Vich was a very keen Meccano enthusiast in his younger days, and he tells me that he derived so much pleasure and instruction from the hobby that now he wants the boy to have the same chance of experiencing its delights as he himself did.

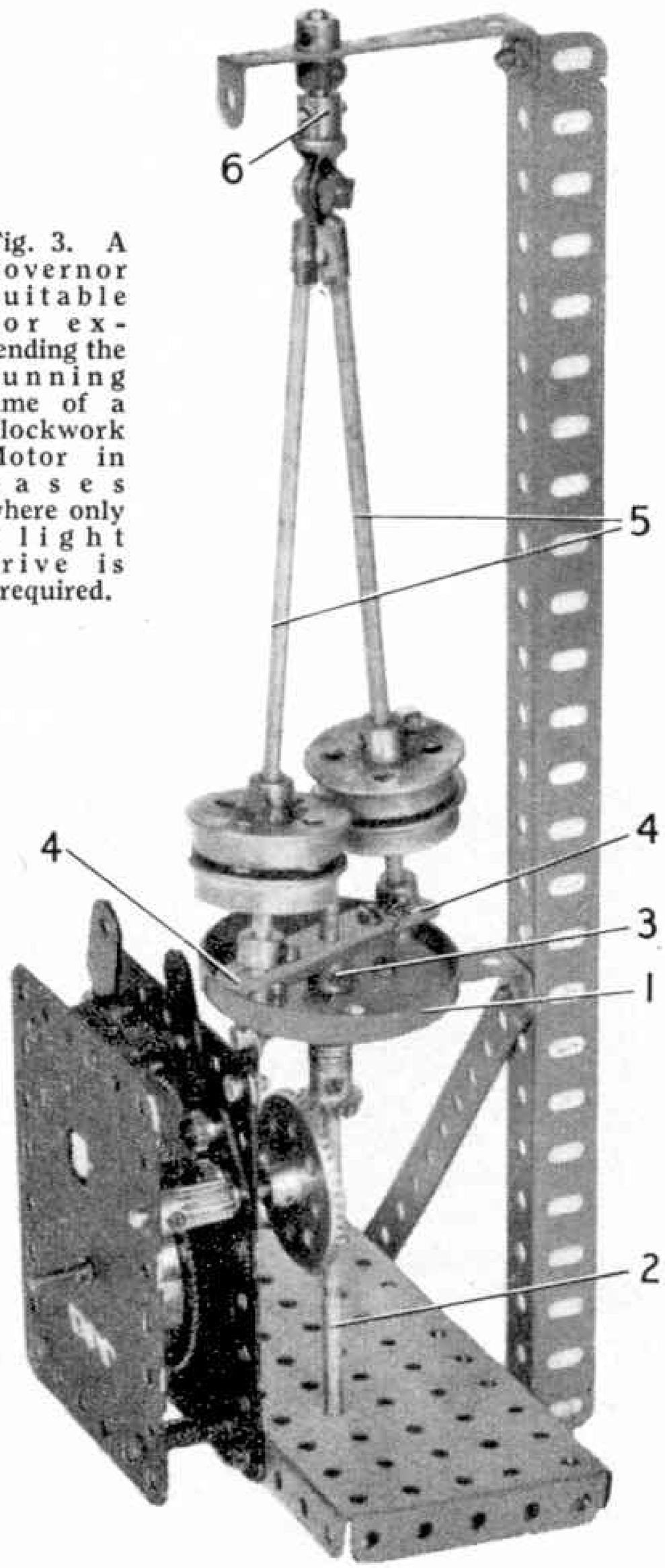


Fig. 3. A governor suitable for extending the running time of a Clockwork Motor in cases where only a light drive is required.

MODEL OF THE MONTH

Adding Machine

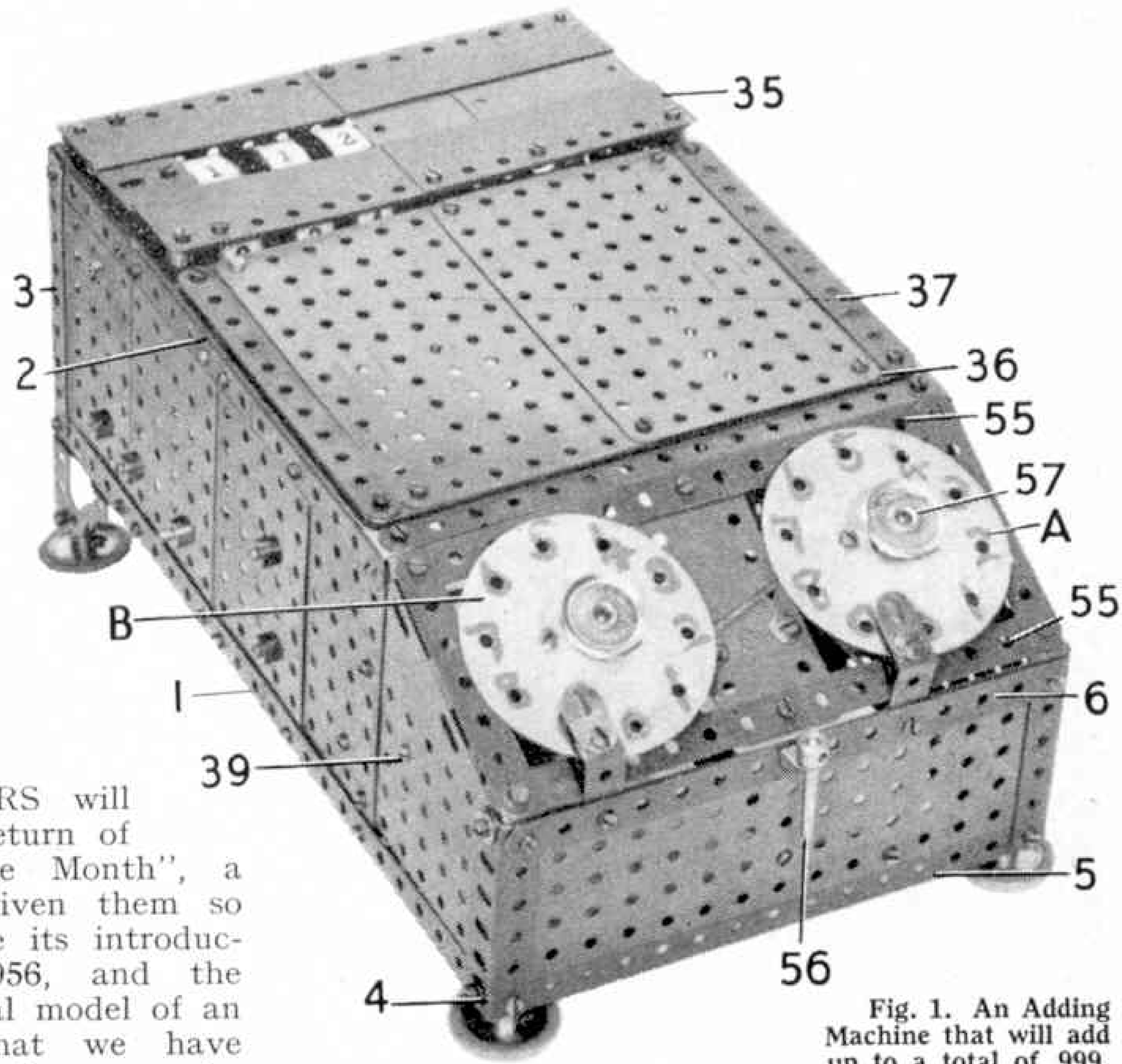


Fig. 1. An Adding Machine that will add up to a total of 999.

MODEL-BUILDERS will welcome the return of the "Model of the Month", a feature that has given them so much pleasure since its introduction in March 1956, and the splendid and unusual model of an adding machine that we have chosen as the first of the new series will be of outstanding interest. This is fully illustrated in the accompanying pictures.

As usual, constructional details for building the model, together with a list of the parts required are available for readers, free of charge apart from postage. To get them just write to the Editor, *Meccano Magazine*, Binns Road, Liverpool 13, enclosing a 2d. stamp. Readers living in

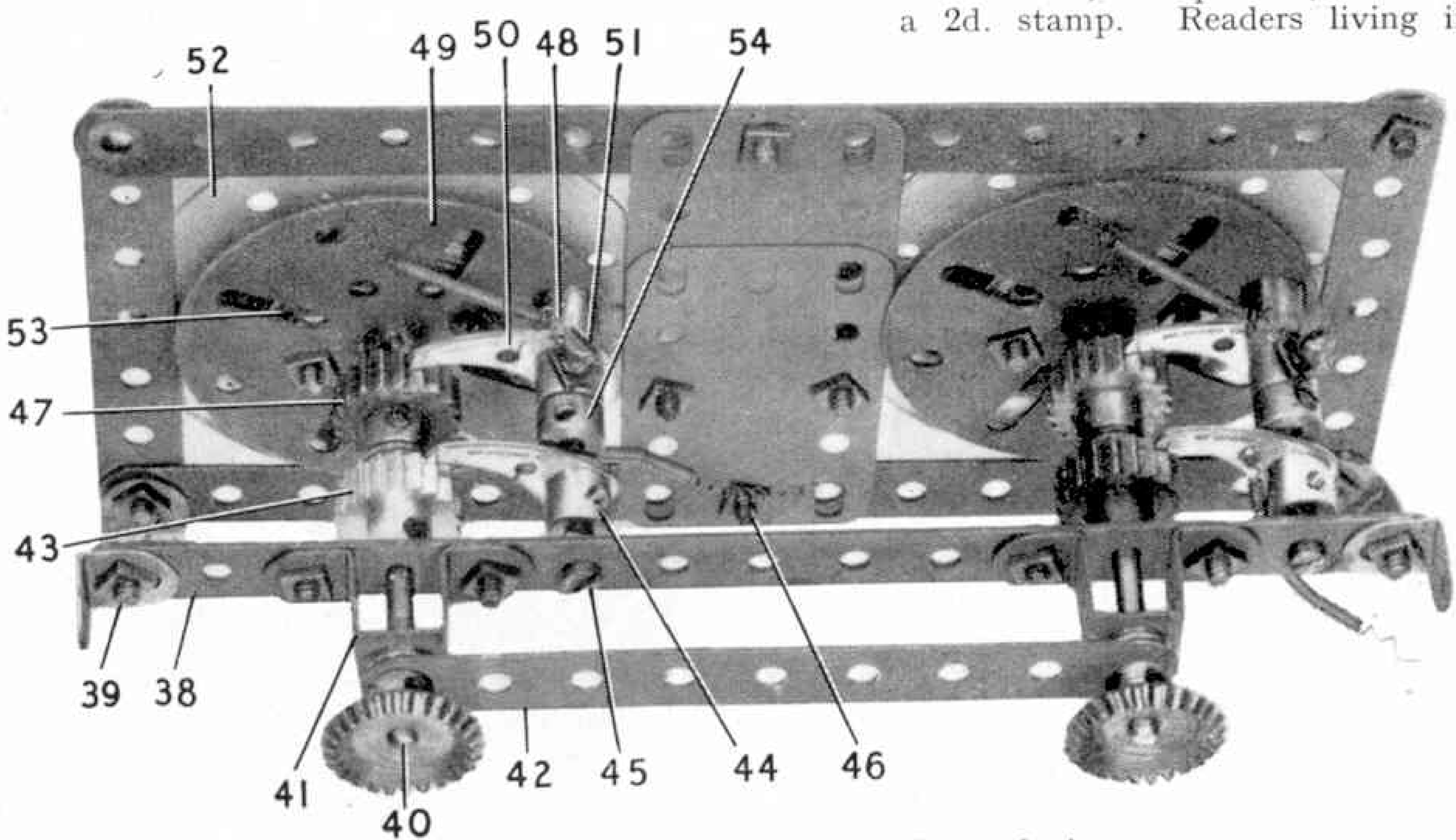


Fig. 2. An underneath view of the dialling mechanism.

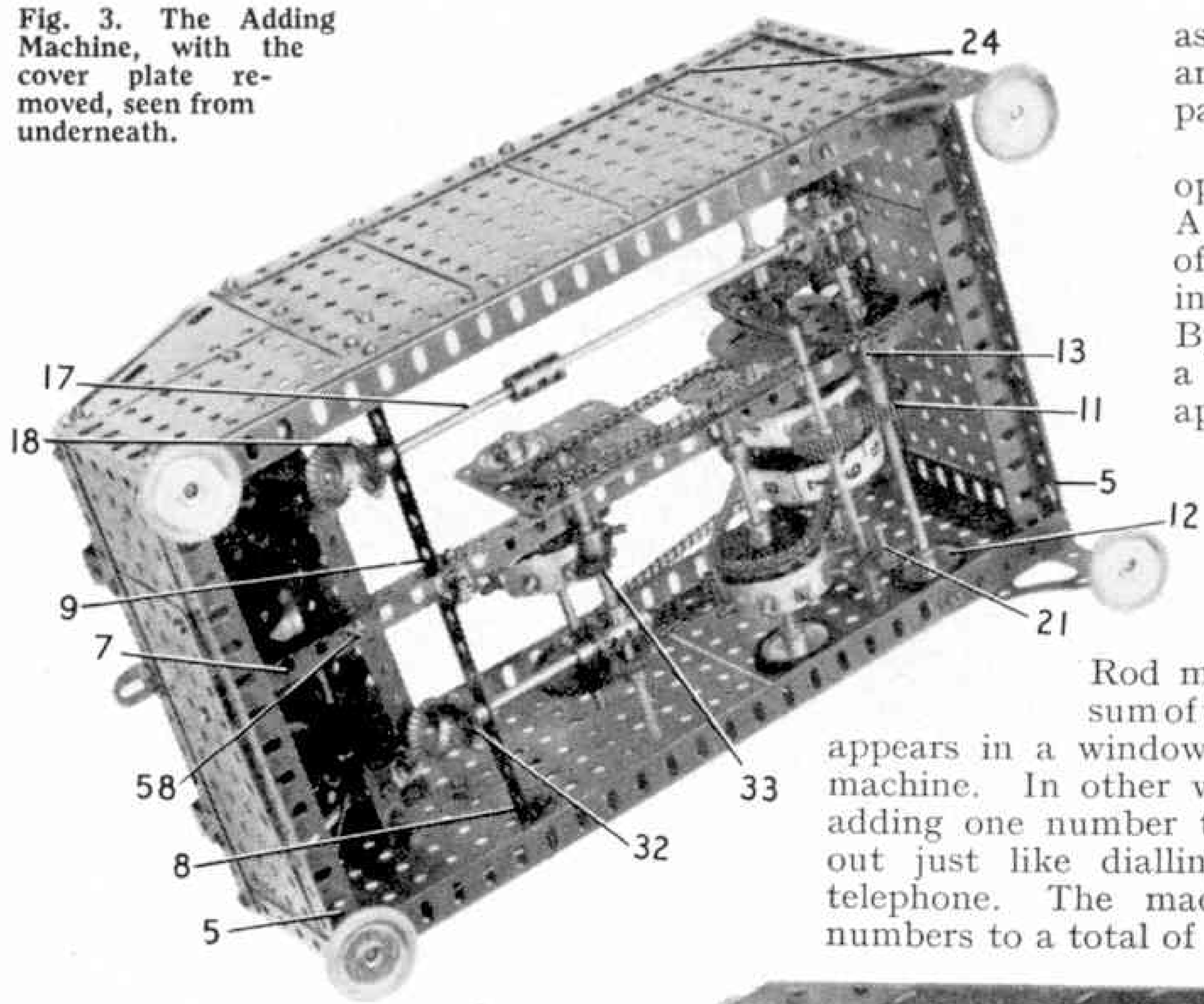


Fig. 3. The Adding Machine, with the cover plate removed, seen from underneath.

assortment of gears and other mechanical parts.

The machine has two operating dials, marked A and B in Fig. 1. Each of these has ten holes in it, numbered 0 to 9. By placing the end of a short Rod in the appropriate hole, first in the right-hand dial, and then in the left-hand one, and in each case pulling the dials around until the Rod meets a dial stop, the sum of the numbers "dialled" appears in a window at the head of the machine. In other words, the process of adding one number to another is carried out just like dialling on an automatic telephone. The machine will add any numbers to a total of 999.

Canada, Australia, New Zealand, South Africa, Ceylon, Italy, Rhodesia and the United States of America, should write to our main agents in those countries for their copies of the current Model of the Month instructions, also, of course, enclosing suitable stamps for postage. Write at once and make sure of your copies.

For the information of new readers, the Model of the Month series deals with models of a more advanced and elaborate type. Several large sectional illustrations are needed to show their construction clearly, and as the space available does not permit us to include both illustrations and constructional details of the model, the latter are published separately.

The Adding Machine that forms the subject for this month's model represents a very interesting aspect of model-building and should appeal strongly to those model-builders who possess a good

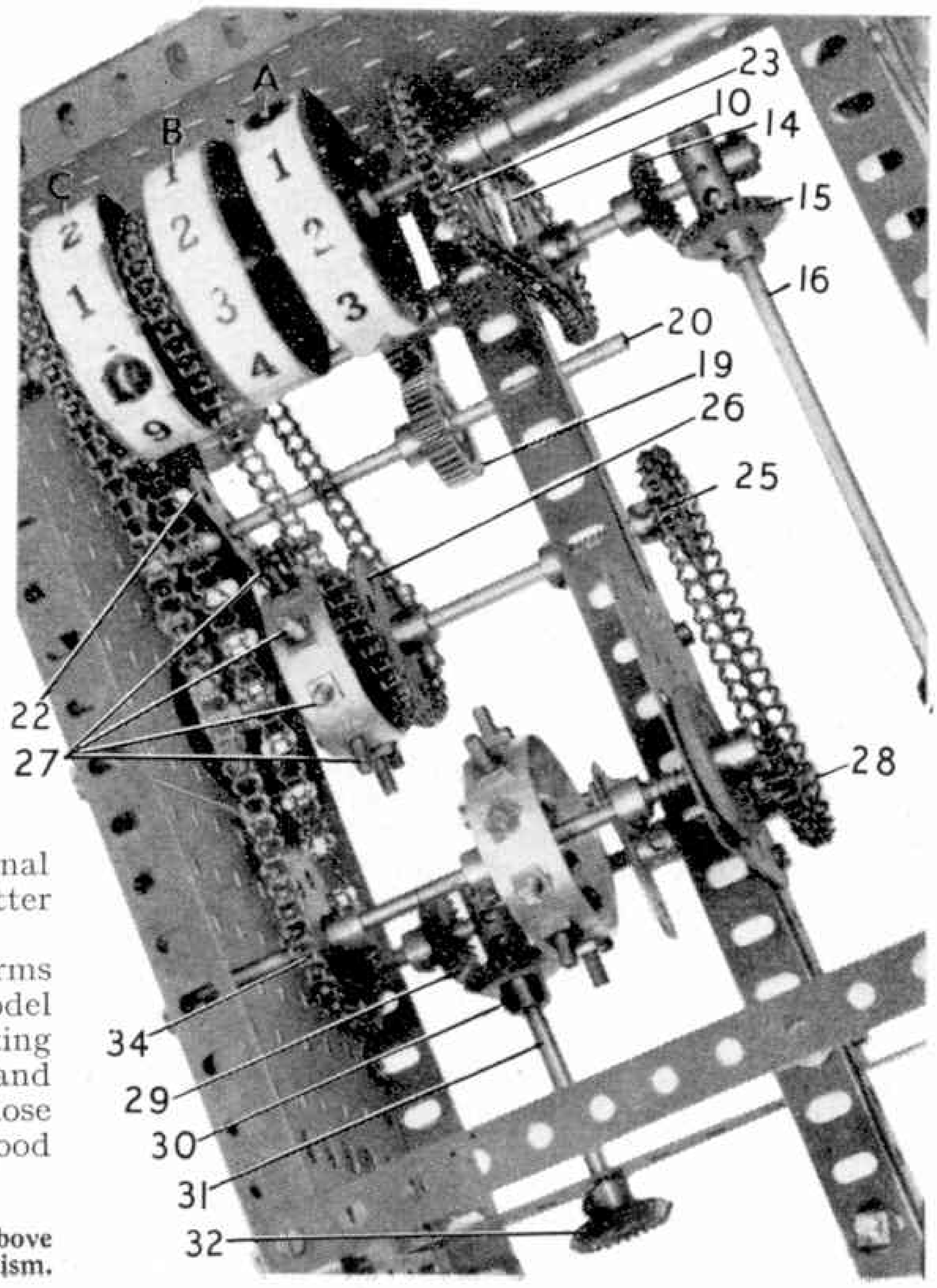
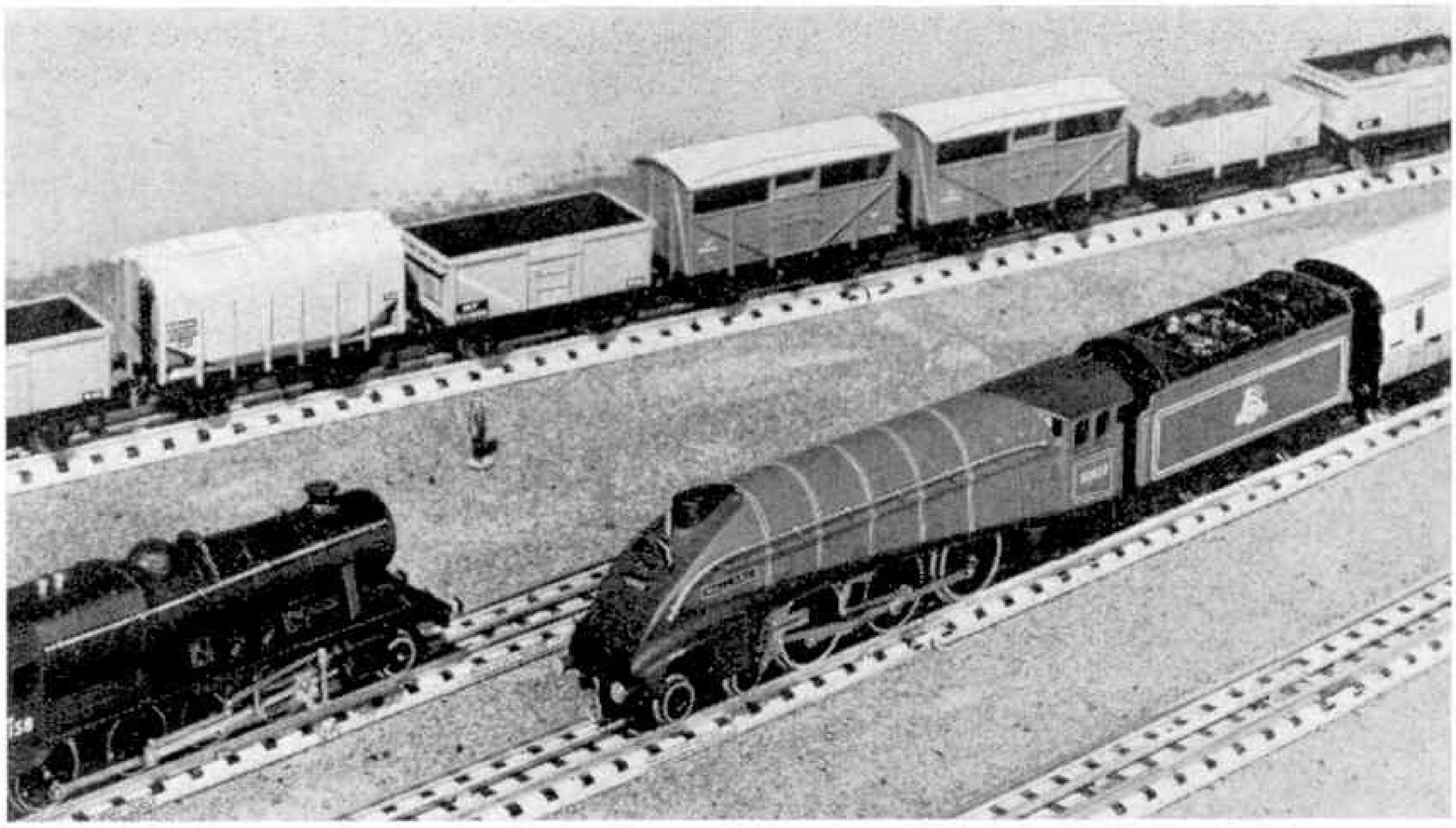


Fig. 4. The Adding Machine seen from above after removal of the dialling mechanism.



HORNBY RAILWAY COMPANY

By the Secretary

Nameboard Talk and More Moulded Vehicles

LAST month I promised to deal more fully than was then possible with the P15 Train Set, now known as *The Flying Scotsman* and provided with Train Name and Destination Board Labels.

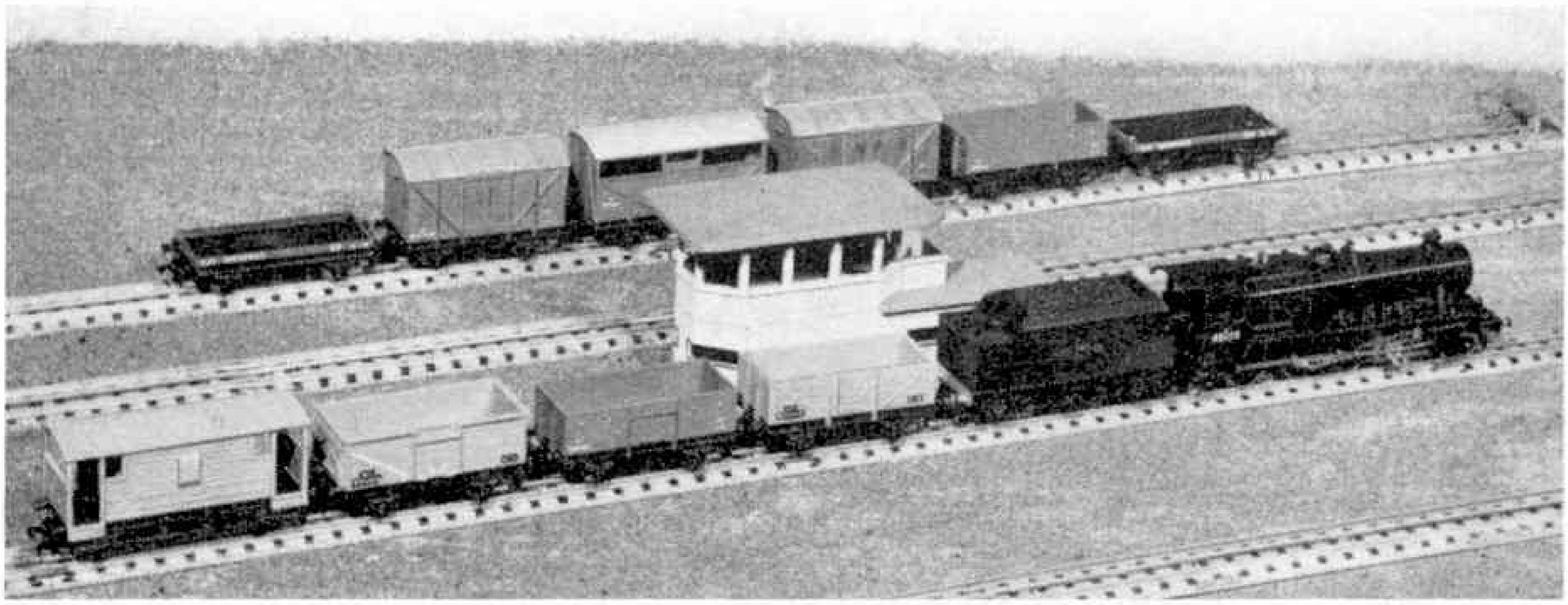
The contents of this Set are basically as they were with the former EDP15 Set, but the A4 class engine now represented is No. 60022 *Mallard*, well known as the engine still holding the maximum speed record for steam traction of 126 m.p.h. From the picture here of the Hornby-Dublo engine you can see that there has been a change in the design of chimney, which now represents the double chimney with twin exhaust outlets familiar for many years on some of the A4s, including *Mallard*, and now being provided on others of the class. Thus the chimney casing is longer and with its greater depth at the front end, because of the sloping front of the streamlined casing, the revised Hornby-Dublo A4 has a bolder look than before and one that reproduces exactly the characteristic appearance of the real thing.

The L15 Locomotive "Mallard", carrying "The Flying Scotsman" Train Name Headboard. The double chimney characteristic of this engine is clearly shown.

That we have chosen a popular engine for the streamlined Pacific in its new form is evident from the fact that when the real *Mallard* was included in an exhibition of railway equipment at Noel Park, Wood Green, in September last, it was officially stated to have been the star of the show, in spite of the competition of other forms of motive power.

In revising the engine the opportunity has been taken to provide, in the model, a slot just above the front number plate, so that the appropriate Hornby-Dublo Locomotive Headboard can be fitted. The "board" itself is a stout metal pressing reproducing accurately the shape of the real standard headboards, and it is provided with a central "tail" that fits into the slot I have mentioned.

The Train Name and Destination Labels already fitted for you on the Coaches in the Set carry the correct titles. Thus, on the 1st/2nd Coach, *The Flying Scotsman* and *Kings Cross–Edinburgh* appear on two separate "boards", but on the Brake 2nd there is only the name of the train. This in general is how the naming of trains is done today; but there are exceptions, as we shall see later.



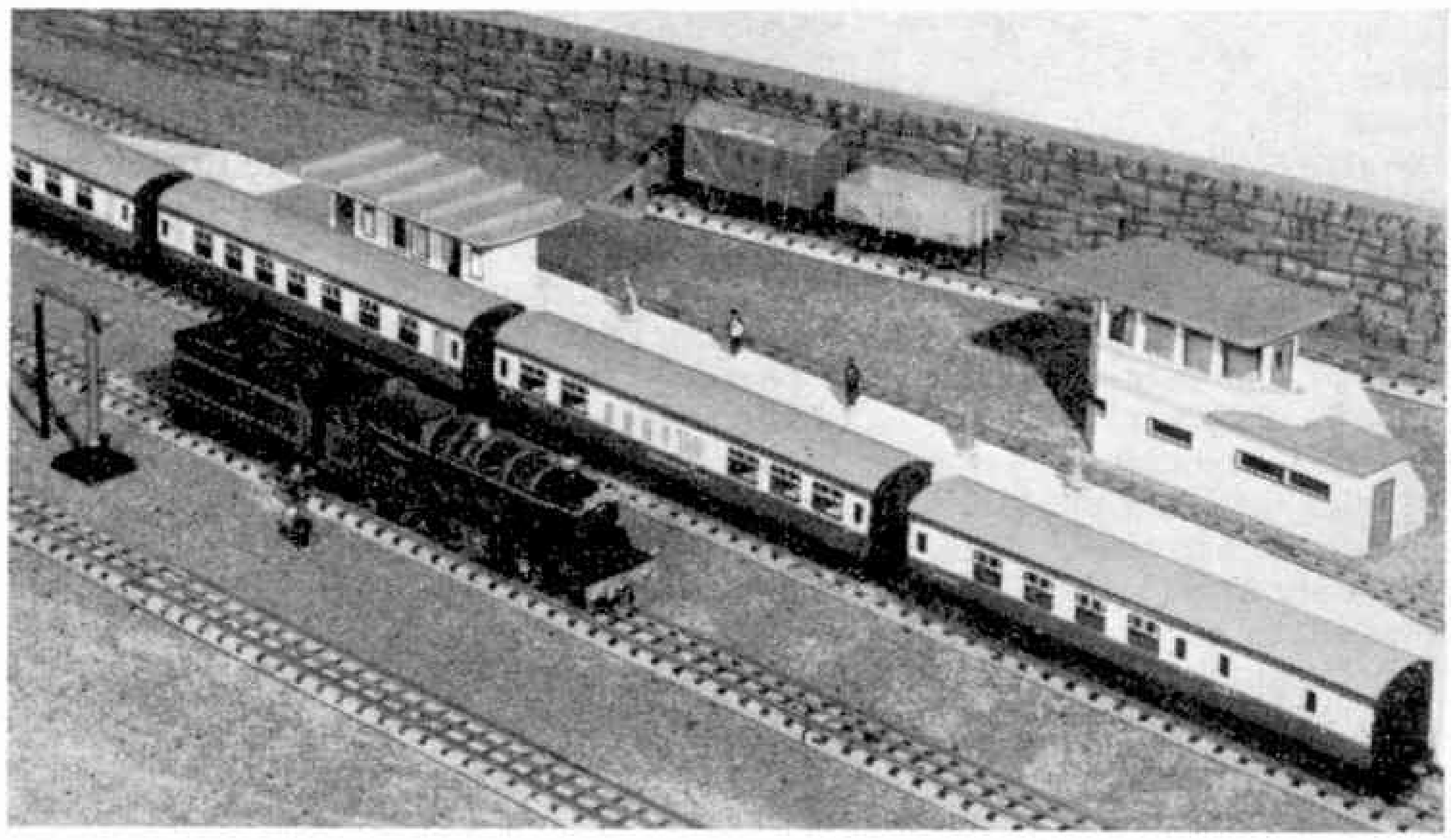
This short Hornby-Dublo freight train is distinguished by the inclusion in the rear of the two most recent vehicles of the SD6 series. These are respectively the Mineral Wagon and the L.M.R. Goods Brake Van.

Other named trains can now be reproduced in Hornby-Dublo in addition to the standard named Sets. Supporters of what is now again the Great Northern route can run a Yorkshire service by using *The White Rose* Train Name Labels, the corresponding destination reading *Kings Cross–Leeds*. Then there is *The Fair Maid*. I scarcely need to tell you that this represents the Kings Cross–Perth service familiar in the timetables until the end of this year's summer service, which is now reverting to its original *Talisman* title and terminating or starting from Edinburgh.

Our second picture introduces Western Region activities in miniature and so brings us to one of the exceptions to the name-and-destination "rule" mentioned before. The train represents the *Cornish Riviera Express* and the label bearing this title appears on the special engine Headboard that I told you about last month. All the Coaches in the train bear the same title, but they do not have Destination Boards. A similar practice is the rule on the *Torbay Express*, for which appropriate Train Name Labels also are available, but the *Bristolian* follows the general standard of carrying Destination Boards as well, except on the Brake 2nd Coaches.

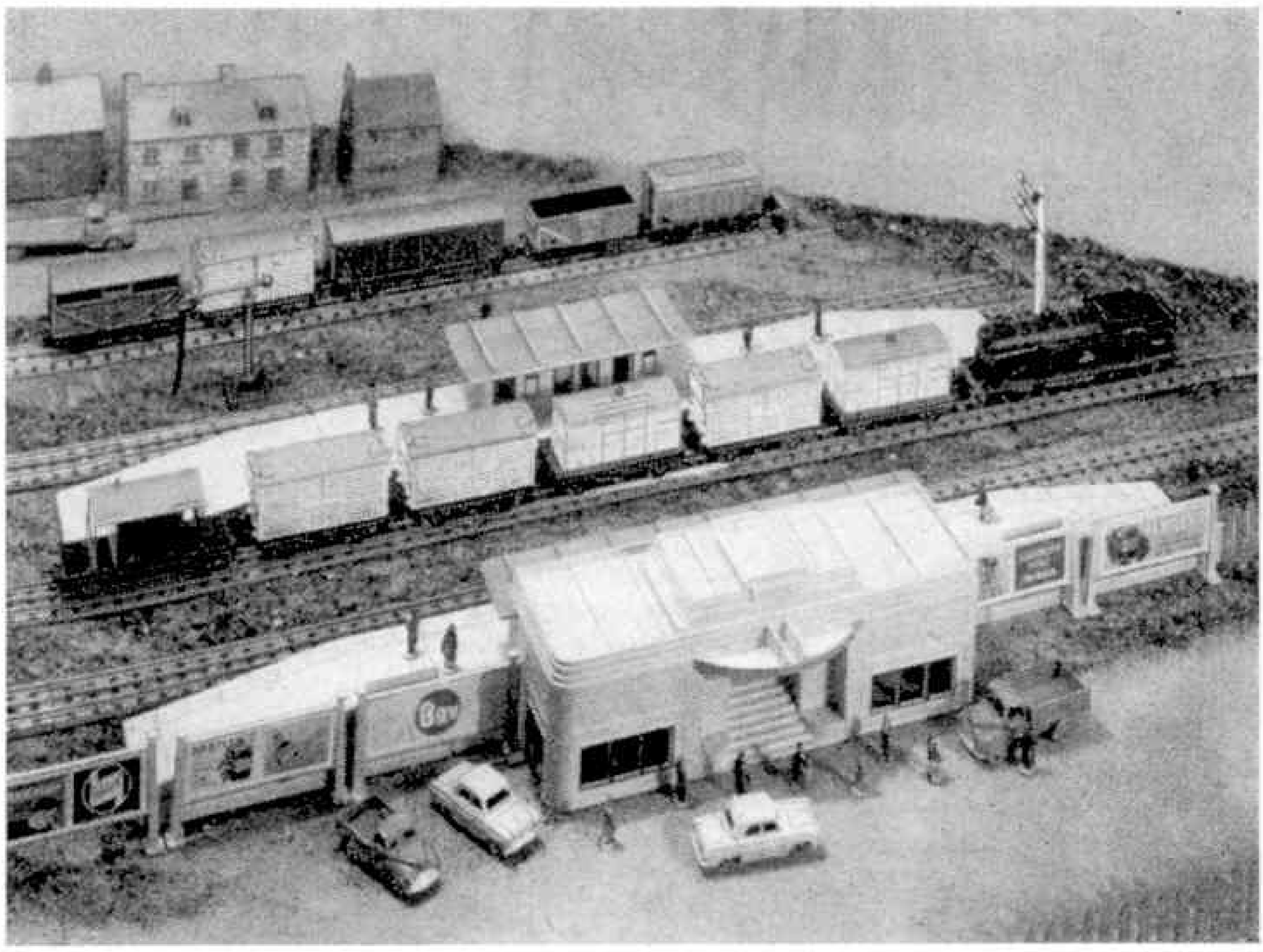
Now for the SD6 Mineral Wagon and the SD6 L.M.R. Goods Brake Van. There is little doubt that the SD6 Mineral Wagon reaches a new high level for neat and realistic detail. The moulded bodywork is of extremely fine quality and a notable feature is the representation of the bottom-discharge doors in the floor.

The SD6 Goods Brake Van incorporates all the well-known features of the 20-ton goods brake so familiar on London Midland routes, in the magnificent style now recognised as characteristic of the SD6 range. Specially notable are the upper steps, by which the guard reaches the deck of his van from the lower footboards.



"Bristol Castle" makes ready to take on the Hornby-Dublo "Cornish Riviera Express" at an engine changing point. The engine displays the appropriate Headboard for this duty.

Dublo Dinky Toys and Your Railway



An attractive Hornby-Dublo Station layout, with Dublo Dinky Toys prominent in the foreground. These miniature vehicles add considerably to the effectiveness of the scene.

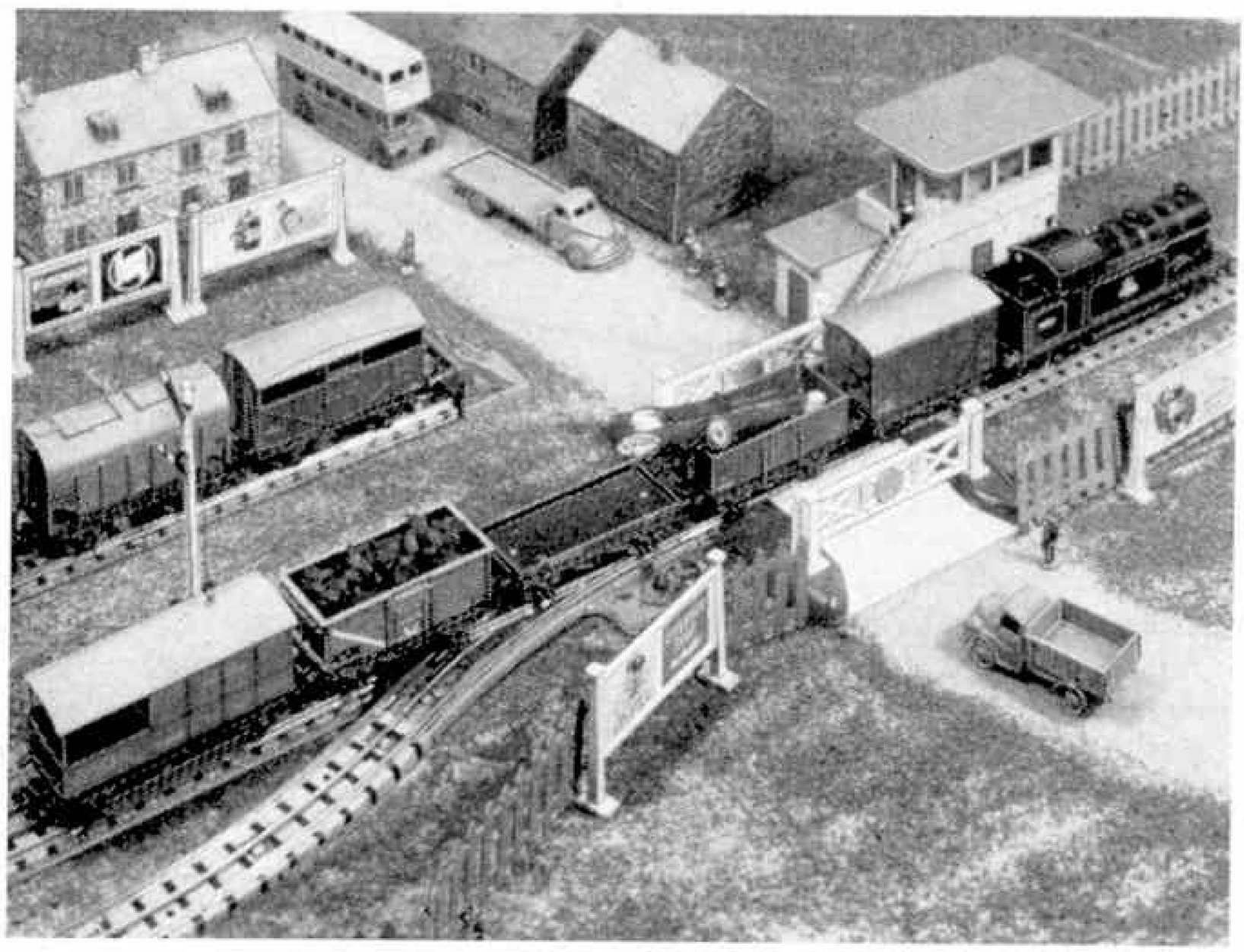
HORNBY-DUBLO owners have always been in the habit of using Dinky Toys in conjunction with their railway systems and there is little doubt that the use of these adds a great deal to the fun and interest of working the line. This has been particularly true since the introduction of the new range of miniatures, known as Dublo Dinky Toys, that have been designed and built specially for Gauge 00 railway purposes. The earlier members of the series were greeted with delight by owners, not only of Hornby-Dublo Railways, but also of Gauge 00 railways of any kind. A glance at the illustrations on these two pages shows why they have become such universal favourites.

The first Dublo Dinky Toys are good and have been well selected, and those that will follow will be equally attractive and useful. The Station scene on this page gives you some idea of the uses to which they can be put. What a difference it makes to the Station approach if one can have one or two motor vehicles of various kinds bringing passengers or goods to the Station, or perhaps waiting for them to arrive! The entire scene becomes really alive when the realism of the railway layout is strengthened by giving the Station approaches the right air.

The two Dublo Dinky passenger vehicles in the picture are Ford Prefects, the only saloon type of car in the series at present, which is as effective here as in real life. The Prefect in the Station forecourt seems to have discharged a passenger and is about to make its way back to the main road again.

The Lorry with the figure standing by it is an Austin, a handy vehicle of short wheelbase well fitted for general road traffic. It is just the thing for collecting and delivering items at the Station that are too bulky to be dealt with by the Morris Pick-Up, one of which you see parked near the poster boards This Pick-Up is a neat little vehicle suitable for runabout work of all kinds, and is quite at home in a Station yard while its driver collects parcels, etc., or hands them in for despatch by rail.

In the Station scene a meat train consisting partly of SD6 Refrigerator Vans is passing through. You will see that two of the vehicles are Low-Sided Wagons and on these are Insulated Containers. The Containers sit comfortably on the rail wagons and they have for some time been popular items in the Hornby-Dublo System. With the advent of Dublo Dinky Toys there is now a really suitable vehicle for 00 Gauge Container traffic, for the Bedford Flat Truck, which appears in the Level Crossing scene on the next page, is exactly



Road traffic is halted while the local goods train moves over the Level Crossing. The projecting load of timber in the second vehicle on the train requires the use of a Low-Sided Wagon next to it as a "runner."

what is needed for the road part of a Container's journey. Its long deck takes the standard Hornby-Dublo Container neatly and the raised end, with the raised sides, known technically as raves, ensure that the Container will not slide off while in transit.

And Dublo Dinky Toys themselves make effective loads by rail. In the last picture you see the Austin Lorry being run on to a Low-Sided Wagon "over the end," and you will find it great fun to add operations like this to the immense variety of working already available.

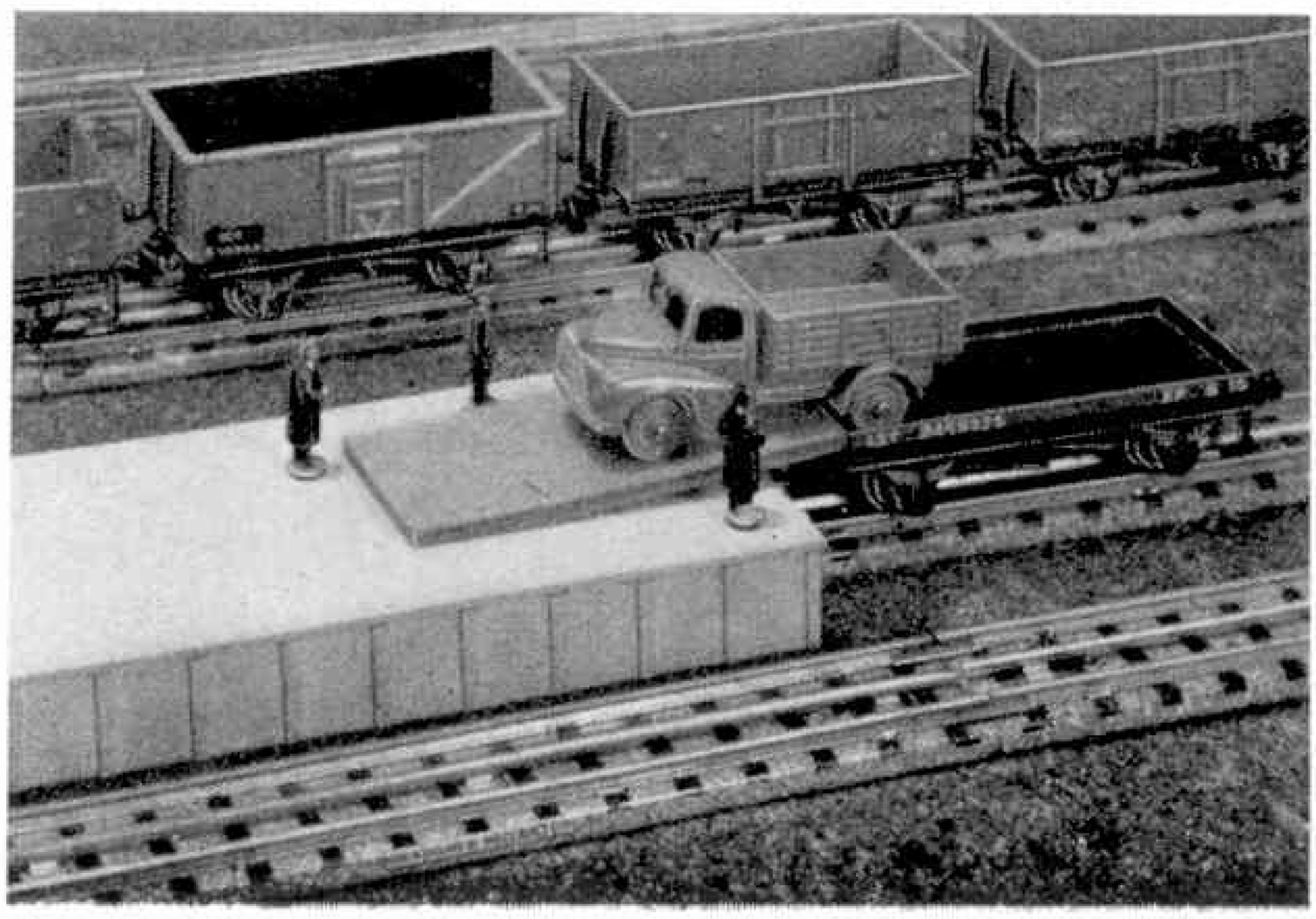
The loading "bank" is formed of an Island Platform Extension, quite a good scheme if you have a spare one handy. For a job like this you need some kind of loading ramp, and here a piece of thin wood, as in the picture, or even stout card, can be used. This can be made to rest on the Wagon buffers quite neatly if you cut out a hole to accommodate the upward projecting part of the Coupling face.

Sometimes complete trains of motor vehicles, mostly on low-sided wagons, are to be seen on real railways. A train of this kind on your railway would look really spectacular, and even a single vehicle so loaded will give satisfaction to the Hornby-Dublo traffic operator.

In addition to the special vehicles of the Dublo Dinky Toys series, some of the standard Dinky Toys can well be used for 00 Gauge railways, as we have often pointed out.

Those who like to operate road transport services in conjunction with their railway can make very good use of that well-tried Dinky Toy No. 290, the Double Deck Bus. This is just right for Hornby-Dublo road purposes and it can be used either for town services, or to represent the country bus with which we are all familiar. And the various Coaches, Dinky Toys Nos. 281, 282 and 283 will make for variety in our miniature road passenger services.

Finally, don't forget Dinky Toys No. 420, Forward Control Lorry. This Leyland is a good road vehicle for general purposes and is as handy for our road system as it is in the goods yard of any 00 Gauge railway.



"Over the end" loading is in progress here. The Austin Lorry is being made ready for rail transport on the Low-Sided Wagon.

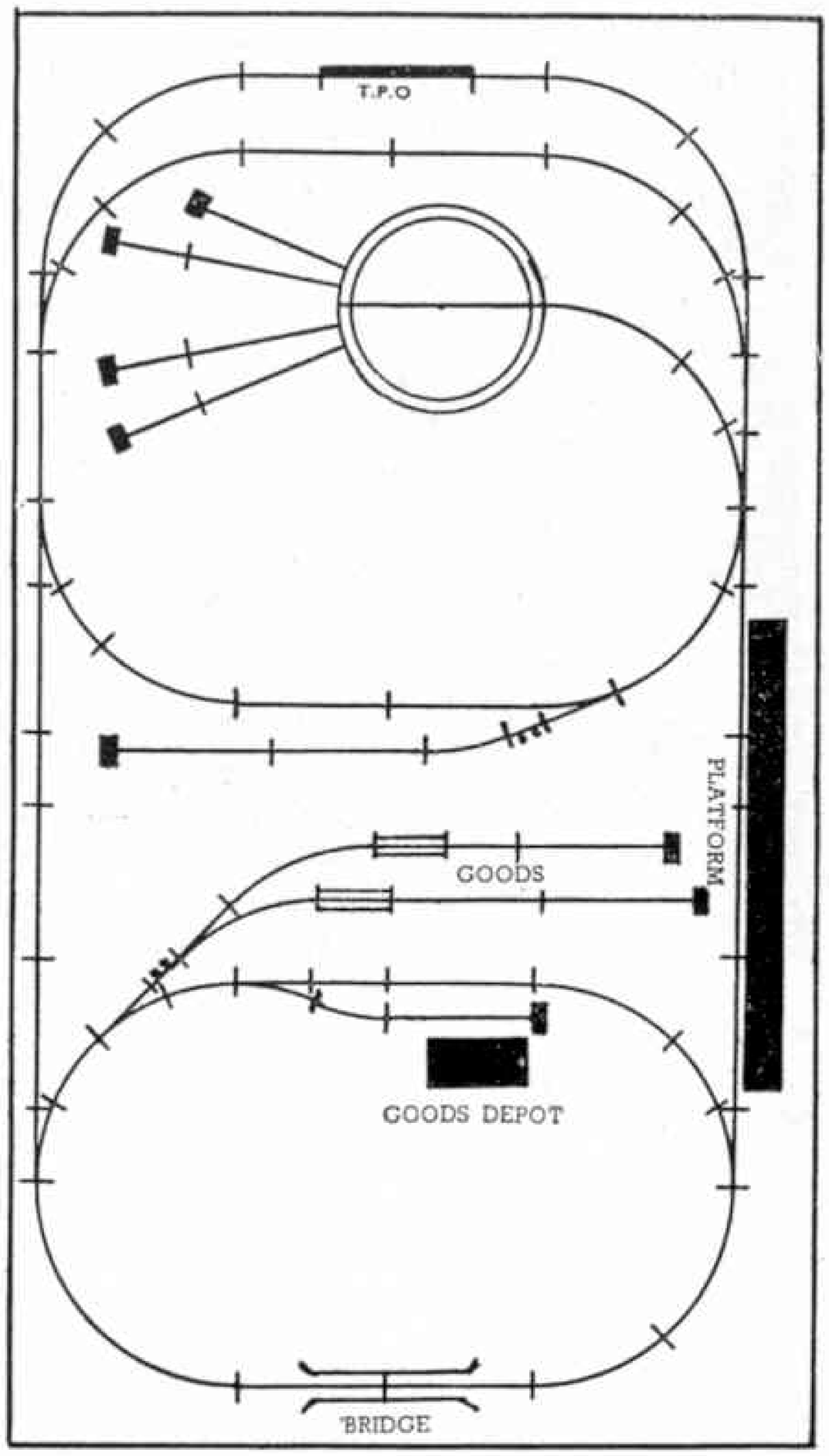
Hornby-Dublo Layout in Queensland

By "Layout Man"

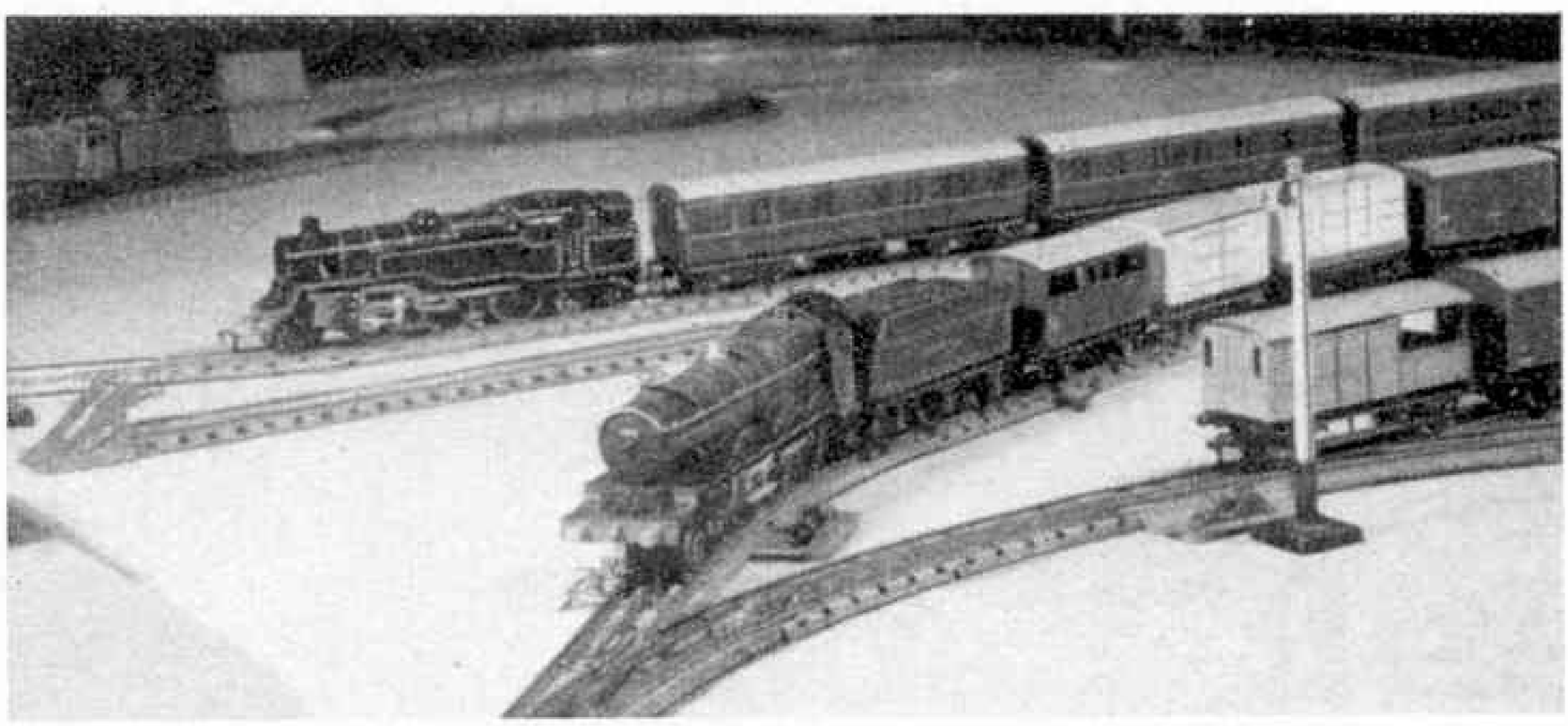
BRIAN KUSS (H.R.C. No. 258358), of Nambour, Queensland, Australia, is developing a Hornby-Dublo layout and the stage that it reached recently is shown by the reproduction on this page of the sketch that he forwarded to H.R.C. Headquarters. Of course the railway is growing, so that although it fits on a board 9 ft. × 5 ft. in its present form some baseboard extension is likely to become necessary sooner or later, particularly if an additional outer track is to be built on to the present circuit.

I must remark that the diagram is a track plan only and does not show the types of Points that are in use. As most Hornby-Dublo owners will realise, connections between the power supply and the track and the arrangement of connections generally depend to some extent on the Points in use on any particular layout.

One thing the diagram does show is that there are some Isolating Rails on the system. And as the layout consists broadly of two separate oval systems connected by lengths of straight track, it would be possible to operate each oval independently of the other by the inclusion of Insulating Tabs in the straight connecting stretches. One could be placed at the rail joint just beyond the upper end of the platform on the right hand side of the diagram, and another in a corresponding position on the opposite side.



Brian has three engines now and with such an arrangement it would be possible for two of them to run at the same time, each on its own circuit, without interfering with one another. The Hornby-Dublo Turntable provides for the isolation of the four off-going tracks that are shown connected to it, so that the third engine could easily be held on a "dead" section for the time being.



Above is the plan of the layout of H.R.C. member Brian Kuss, of Queensland, Australia. On the left, "Bristol Castle" and a 2-6-4T are seen at work on the railway.

Club and Branch News

WITH THE SECRETARY

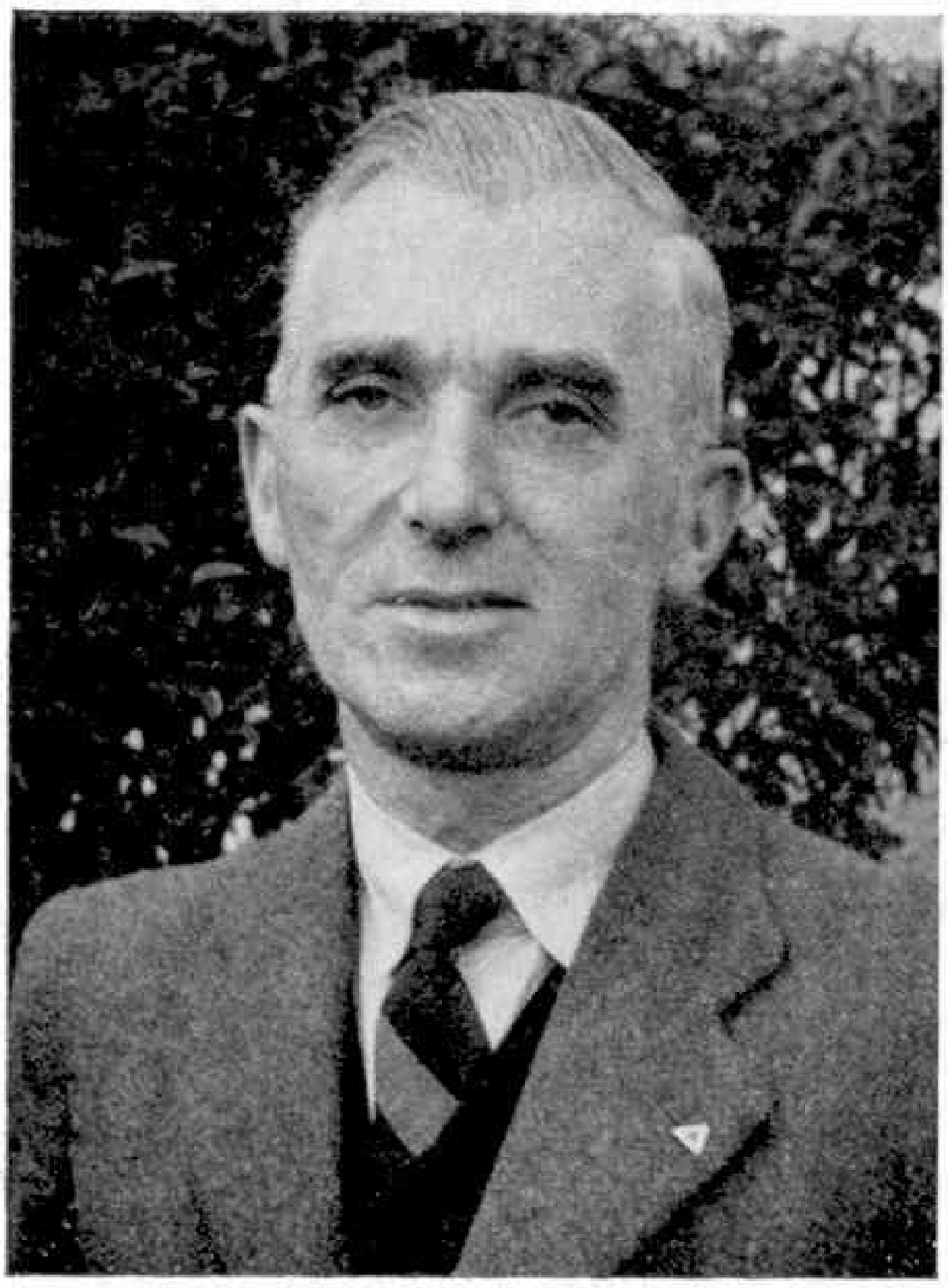
ABOUT REPORTS

This month another new H.R.C. Branch makes its debut on this page. This is Branch No. 569, Silver Road (Norwich), which also has an associated Meccano Club. I look forward to being able to give regular reports of No. 569's progress, as I have in the case of the Featherstone Castle (Haltwhistle) Branch whose activities were first reported in the *M.M.* of April last. It will depend upon the Norwich Branch Secretary keeping me well "posted" about their activities.

Mention of this point gives me an opportunity of reminding other Club and Branch Secretaries that the more details of their model-building and model railway operations they can supply the more I am pleased. Even if there is not room to give their reports in full on this page, the details supplied are a great help to me in visualising what has been accomplished at the meetings.

FORTHCOMING EXHIBITION

A Transport Exhibition organised by the Norbury Transport and Model Railway Club, which includes the Norbury M.C., will be held on Saturday, 29th November, at St. Stephen's Church Hall, Winterbourne Road, Thornton Heath, Surrey. It will be open from 11.0 a.m. until 7.0 p.m. Price of admission 1/-. The display on the ground floor of the Hall will consist of items on all aspects of transport, and on the upper floor there will be a film show of travel films.



Mr. Anthony Bawden, who has been Co-Leader with Mr. B. Tunbridge, of the Launceston M.C., since this very successful Club was formed four and a half years ago.

CLUB NOTES

St. Thomas (Exeter) M.C.—Attendance continues to be good, and more members have been enrolled. Several new models have been completed, two outstanding items being a large bridge and a windmill attached to a granary. *Secretary:* D. Morgan, 33 Cowick Road, St. Thomas, Exeter.

Consett & District Y.M.C.A. M.C.—The outings and visits to places of interest organised during the summer were very successful. The Club and its associated H.R.C. Branch were invited by the Stanley Model Railway and Engineering Club to stage a display at the Stanley Flower Show. They exhibited part of their model industrial layout, several Meccano models—including one of a mechanical shovel—and an 0-6-0 Crane Tank Locomotive mounted on a Meccano stand so that the wheels could revolve, and driven by two electric motors through controls in the cab. Their display was very favourably commented upon by visitors. Members have been busy preparing for the annual Open Day, the main purpose of which is to give parents and friends an insight into the varied activities carried on. Preliminary plans are being drawn up for a large-scale Exhibition in March next year. *Secretary:* D. F. Trout, 66 Sherburn Terrace, Consett, Co. Durham.

INDIA

Mysore M.C.—The Club celebrated its fifth anniversary on 17th July last, when Mr. D. H. Spencer, Regional Representative, The British Council, Madras, was the chief guest. Nearly fifty guests attended the function, and were officially welcomed by the President, after which the Secretary presented a report of the Club's activities and achievements during the past five years. The celebrations included tea, film show, lecture and games. Several sports contests were held, and a model-building competition. Mr. Spencer distributed the prizes and certificates and later addressed the gathering. The Secretary is hoping to obtain the loan of a 16 mm. film projector, so that film shows on educational and scientific topics can be arranged. *Secretary:* Sri. M. N. Radhakrishna, 1096 Chamaraja Puram, Mysore-1, India.

BRANCH NEWS

Silver Road (Norwich).—Meetings are held on Monday evenings in St. Mary Magdalene Parish Hall, from 6.45 until 9.0 p.m., and new or prospective members will be welcomed. The main activity has been completion of the centre section of the baseboard for the Branch layout, and by the time this report appears in print the actual track laying should be well in hand. A layout was constructed by the Branch members as part of a display at the Church Garden Fete. Unfortunately bad weather marred the event, and the number of visitors was less than had been expected. *Secretary:* I. T. Rix, 26 Falcon Road East, Sprowston, Norwich.

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Stamp Collectors' Corner

By F. E. Metcalfe

OUR OWN STAMPS

During the past few months several correspondents have referred to our own British stamps, and one in particular raised a point that set me thinking. He explained that he collected the stamps of several countries, and would like also to take up those of Great Britain. But after examining the catalogue he was afraid that they were quite beyond him, that is taking

all issues, for they seemed so complicated and, to quote him exactly, "In the main they seem so unutterably dull, consisting as they do in dull portraits, and duller frames".

I have to admit that there is substance in that opinion. The current definitive stamps of Great Britain are artistically all that we have a right to expect, and technically they are second to none in the world, considering what they cost to produce. But I am afraid that I have not the same high opinion of our special issues. It is the collecting angle that mostly concerns us here, yet the quality of the stamps we are considering comes into consideration, particularly when my correspondents raise the point of stamp designs, etc. Apart from that, there is the question of the number of issues, and their complication.

Now I think that British collectors should be interested in the stamps of their own country, just as most collectors in other countries are interested in their own issues. I am also aware that there are many readers of the *Meccano Magazine*, who, while interested in stamps in a general way, are not advanced philatelists, or even wish to be. To these I say, take up the collecting of our stamps, from say the reign of King Edward VIII. Collectors and non-collectors literally queued up at post offices when the four stamps issued in that reign were put on sale, and also at stamp dealers where the same stamps, overprinted for use in Morocco, were to be had.

When I look at these stamps I think not only of the rush there was to get them at the time, but also of the neatness of the single design. None of your over

elaborate patternsfor the now Duke of Windsor. He demanded something plain. When people first saw the bare head of the then King on the stamps, they did not like them at all, but they have worn well and are a pleasant contrast to the Coronation stamps that heralded philatelically the following reign, that of King George VI, or the fussy designs of the first definitive stamps of the same period.

But to get back to the KGVI Coronation stamp for a second. Just notice those crosses at each top corner. They came in for a real wigging, for they were supposed to represent Union Jacks. In view of these kind of things, perhaps there was something to be said for the simplicity of the KEVIII stamps. Yes, the Edwardians make a nice start to my suggested collection.

Coming to the first KGVI issue, all the values are available in abundance, and collectors should have no difficulty in picking up nice used copies, with neat postmarks. Mint are getting a bit scarcer and should be snapped up now. In 1950 there was a change in colour of the values up to 2½d., to conform with what were then Universal Postal Union regulations. The idea was that stamps of a certain colour represented standard postal rates, but all that seems to have gone by the board through the multi-coloured stamps now in use in so many countries.

Watermarks should not be overlooked when collecting our modern definitive stamps. Those that come from coils have the watermark sideways (in KGVI 1d., 2d. and 2½d.) and booklet stamps (½d., 1d., 1½d., 2d. and 2½d.) have it inverted. I recently explained how the latter came about, which is quite interesting. This is the reason why they have been listed in the Commonwealth Catalogue, where full details are given. Besides the small stamps going up to 1/- face, there were of course the more elaborate high values, all recess printed, and one at least of these, the 10/- value blue-black, is very scarce mint and not at all common used.

Anyhow, if you get one nice used copy of each of these KGVI definitives, and it should not be a difficult task, then you are getting along quite nicely.

And there are the special issues. I have already referred to the KGVI "Coronation" stamps, and the next issue was to commemorate the centenary of the "Penny Black". Every time I see this latter set I think what little credit it did to the first stamp issued, and to the Postal Administration responsible for it, for never was there a duller and less inspired release. If some of the foreign post offices had had the opportunity to make such an issue, what an artistic treat it would have been. And our own Post Office did its utmost to avoid bringing out a set at all!

The next special issue, a couple of stamps to commemorate Peace, came in 1946 and was followed by another set in 1948 to (*Cont. on page 552*)

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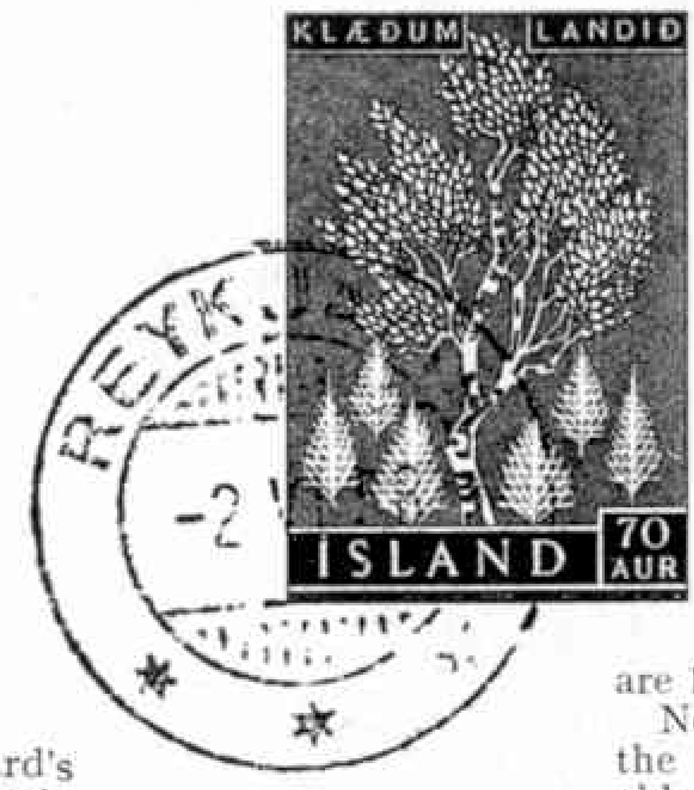
For other Stamp Advertisements see also pages 548 and xxiv

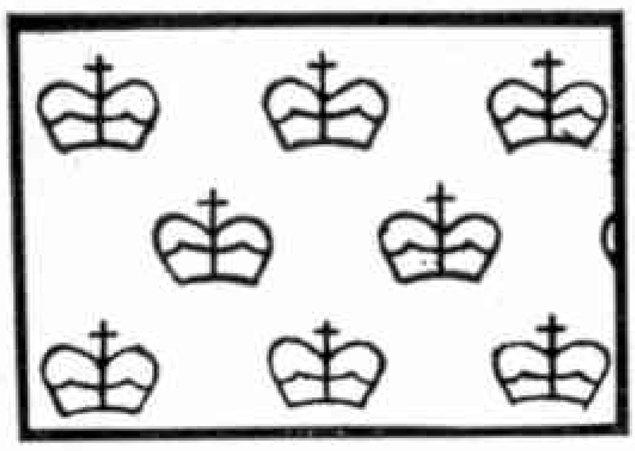
Stamp Gossip



WATERMARKS

It is not so very long since I was writing about a new watermark for British stamps, and now I have to tell you about another. It will be remembered that the first watermark used for Queen Elizabeth stamps had what was called the Tudor Crown. Then the Queen intimated that she would like the design of the crown changed to indicate the St. Edward's Crown. In other words, instead of the outline being in more or less circular form, there was to be a dip at the top. The change was made and it was then that I wrote about it.

It is generally known that some of our Scottish brothers have objected to the title Elizabeth the Second. They claim that as far as Scotland is concerned the present Queen is the first Elizabeth, which of course she is. At present the watermark, besides depicting a crown, also features the inscription E II R. There is the unwanted II. It was later decided that Scotland, Wales, etc., including the Isle of Man, were to have their own postage stamps, and in the case of the first of these countries obviously it would not do to have the watermark showing the II. Perhaps, however, there would be objections from other parts of the U.K. on other grounds.



How was the Post Office to satisfy everybody? The problem has been solved very neatly by omitting the inscription, and now not only are "Regional" stamps to have the watermark as illustrated, but when all the paper in use at the time of writing is used up, ordinary British stamps also will be printed on this new "Crown" watermark paper.

The overprinted stamps of the Persian Gulf (if still current) will also be affected, so what with the "Regional" stamps, and these new watermarked issues, collectors of British stamps are in for quite a time. Make sure of current stamps before there is any change.

WHAT'S IT ALL ABOUT?

I was given a cover recently that had on it the stamp, obviously Japanese, illustrated on this page. The donor said that the design had completely foxed him, and only one of several collectors to whom I showed it could explain the stamp.

The answer is that the stamp was issued in June to commemorate the 50th anniversary of Japanese emigration to Brazil. To explain the design, we see the "Rising Sun" on the ship, which betokens the emigrants going to Brazil, and the futurist silhouette of South America shows the emblem of the Brazilian flag.

MEASURING PERFORATIONS

I have been asked how to find the size of perforation on a stamp. First of all a perforation gauge is needed. The one I use for ordinary jobs is the "Stangib", made of cardboard, which can be supplied by most dealers at 9d. At the bottom end of such a gauge is a black oblong 2 centimetres long. It is this length because when you talk of a stamp being perforated, say 14, you mean there are 14 teeth to a length of 2 cm.

Now get your stamp, place the perforation alongside the oblong, and count the number of teeth there are along the full length of the latter. This will give you a rough estimate of the perforation. Suppose you count fourteen. Try to fit exactly the holes on your stamp between the teeth of that perforation on the gauge. Make certain that the dots on the gauge fit perfectly *all the way along* in the holes on the stamp. When you get the right fitting you can read off your perforation measurement.

Don't forget to measure both long and short sides which may differ. Where two perforations are mentioned the first refers to the top and the second to the sides.

ICELAND

The trouble with this country over fishing rights has provided the necessary publicity to make collectors sit up and take notice of the island's stamps. There is not room here to discuss them thoroughly, but I would like to say that any young collector wanting a new country to take up, one that will not be too difficult and which has attractive stamps, could do worse than consider Iceland. It generally comes to Britain to have its stamps printed, and in turn Britain is providing some very nice stamps, such as the one illustrated.

FIFTY YEARS

It is a tidy stretch from Iceland right down to South America, but I came across a stamp recently, issued by Argentina, that really made me sit up and take notice, for it commemorates the 50th anniversary of the Argentina Aero Club. It hardly seems possible that there were such clubs half a century ago, but of course flying is older than that. I felt so interested in this stamp that I asked our Editor to illustrate it.

TIP OF THE MONTH

A country the stamps of which are much sought after is British Somaliland. Last year two stamps of the current set, 20c. and 1/- were overprinted to commemorate the "Opening of the Legislative Council". They were issued in May and the balance was withdrawn in November. They were never much in the limelight while they were on sale and when they were finally withdrawn it was obvious that very few big stocks, if any, had been put by. I think this pair of stamps will in time appreciate quite a bit, and if bought now should pay well for their keep. Their present price is around 2/6 a pair.

Our First Dinky Toys Licence Visitor

IN the group above is Ian Redhouse, Hornchurch, the first visitor to the Works of Meccano Ltd. under the Dinky Toys Collectors' Licence scheme. The number of his Licence was that selected at the end of August by Stirling Moss from those current at the time, and he, his parents and his sister were thrilled when they learned of their good fortune. Our picture shows them enjoying a talk with Mrs. U. P. Hornby, director of Meccano Limited, and Miss V. Hornby.

Road and Track—(*Continued from page 515*)

masses at a cost of about £20 including fitting is a tremendous contribution to road safety. Briefly they ensure more progressive braking with reduced wheel locking under all conditions and, of course, reduced brake pedal pressure. And they have tremendous stopping power.

Bruce McLaren

A driver who, in my opinion, is going to reach the top flight rapidly is 21 year old New Zealander, Bruce McLaren. At the age of 16 he was already racing an Austin Seven Special in New Zealand and his subsequent performances in that country resulted in the Automobile Club of New Zealand financing his visit to Europe this season, in a similar manner to the sponsorship of Fangio when he first came to Europe from the Argentine in 1948.

Strictly speaking, McLaren is an "independent", but he drove a works Cooper at Montlhery and Rheims and in the Moroccan G.P. at Casablanca. As an independent he put up a remarkably good performance to win the Formula 2 race that was run concurrently with this year's German G.P. In doing so he finished fifth in general classification, only 10 sec. behind the Ferrari of Von Trips in fourth place; and on this tough, exacting Nurburgring circuit he was less than seven minutes behind the winning Vanwall of Tony Brooks.

His performance in the Tourist Trophy at Goodwood, when he kept the 2-litre Lotus of John Coombs in close company with the more powerful Aston-Martins and Lister-Jaguars until he retired with gear-box trouble, introduced him to a large section of the British public for the first time. He plans to return to his own country for the New Zealand G.P. in January, but I shall be very surprised if we do not see him in World Championship events again next year.

Scottish Freight Flyers—(*Continued from page 525*)

the fact that each van has a blue circle 15 in. in dia. painted on a white ground on each side for easy recognition by railway staff, to ensure that all such vehicles are used only for the express shuttle service between North East Scotland and London, thus providing another valuable link between fish merchants in the North East of Scotland and British Railways.

Another new facility recently made possible through the extension of the high speed freight trains services, running strictly to time table, in Scottish Region, is the Export Express Service from a large number of stations throughout Scotland to Glasgow and Grangemouth Docks. The essence of the service is that goods for export overseas may be despatched by rail in the confident knowledge that consignments will be available to the shipping company for loading into their vessel the following day. They are loaded in fitted wagons, and labels fixed to the wagons' sides show in red letters the legend "*Export Express Service*" and name of ship to aid rapid identification. The progress of such consignments is carefully watched during the journey to ensure that delivery is effected in accordance with the assurance given.

Scotland is also served with fast parcels trains and the movement of milk, an important commodity in our daily lives, in train loads daily, principally from the Aberdeen district to creameries in South West Scotland for processing, is yet another service provided by British Railways. This traffic, is, of course, conveyed in tank wagons.

Stamp Collectors' Corner—(*Continued from page 549*)

commemorate the Silver Wedding of King George VI and his Queen. Special sets after that were to mark the London Olympic Games of 1948, the founding of the U.P.U., which appeared in 1949, and finally, as far as the KGVI era was concerned, the pair of stamps to commemorate the Festival of Britain. I have no space to deal more thoroughly with these issues, but full details are to be found in the catalogues.

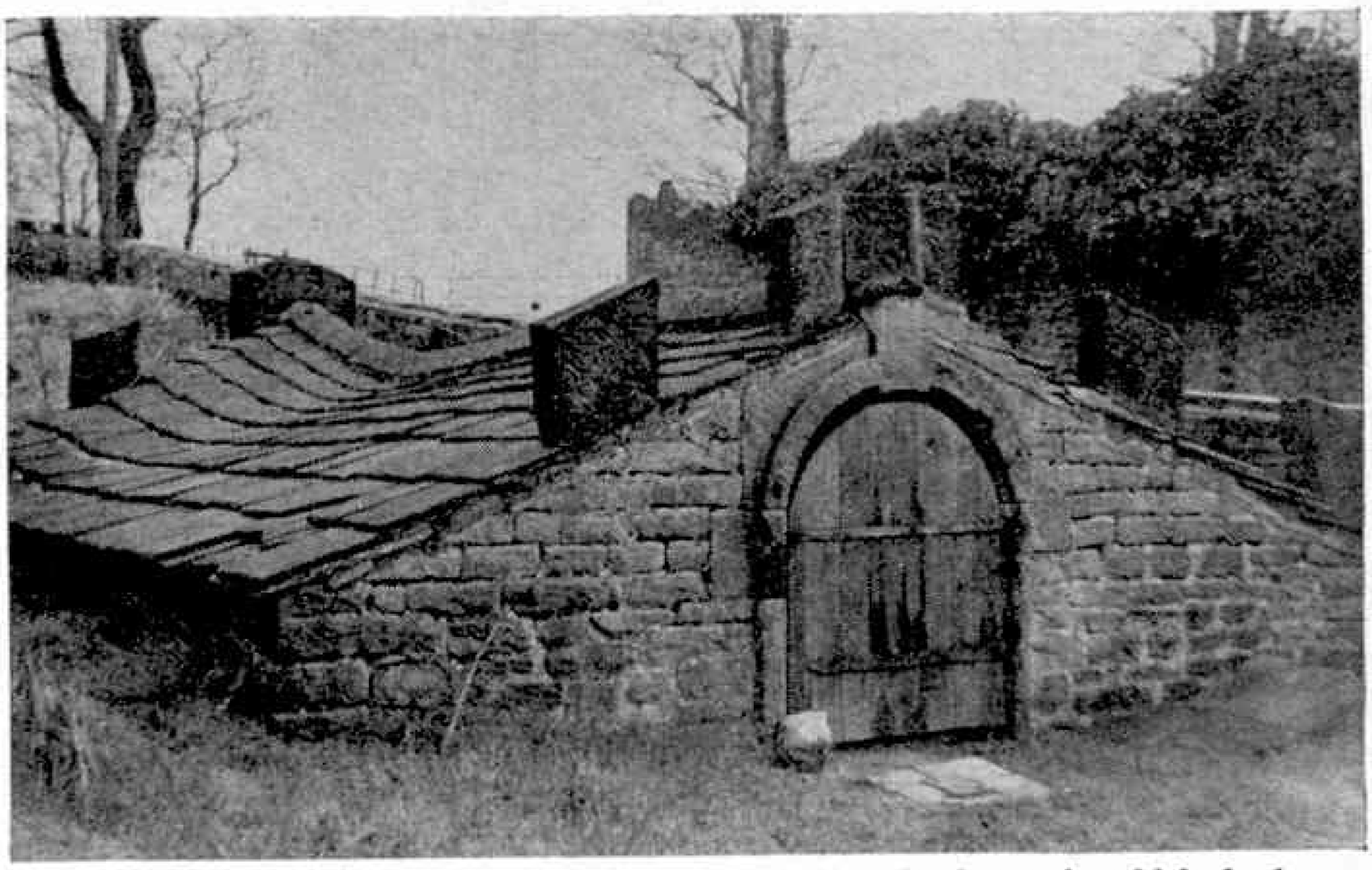
And now we come to the present reign, and again I will have to suggest that the catalogues be studied for details of the Queen Elizabeth issues. Most of the stamps are quite cheap.

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.

An Early Refrigerator

Before the days of the modern refrigerator our grandmothers who were fortunate to live in big houses had their own methods of keeping food fresh for long periods. Near many of the gracious old homes of England are to be found the "ice-houses" in which food was kept for families and staffs, the latter perhaps numbering hundreds.



This building, at St. Ives, Bingley, formerly served as an ice-house in which food was preserved. Photograph by G. Crowther, Keighley.

Some ice-houses were substantial stone buildings, usually of local materials, built partly if not wholly underground, like the one in the accompanying picture. Others were in the shape of a barrel built vertically. When there was ice about the staff was set to gather ice from a lake or pond and haul it to be stacked with the meat or other perishables.

G. Crowther (Keighley)

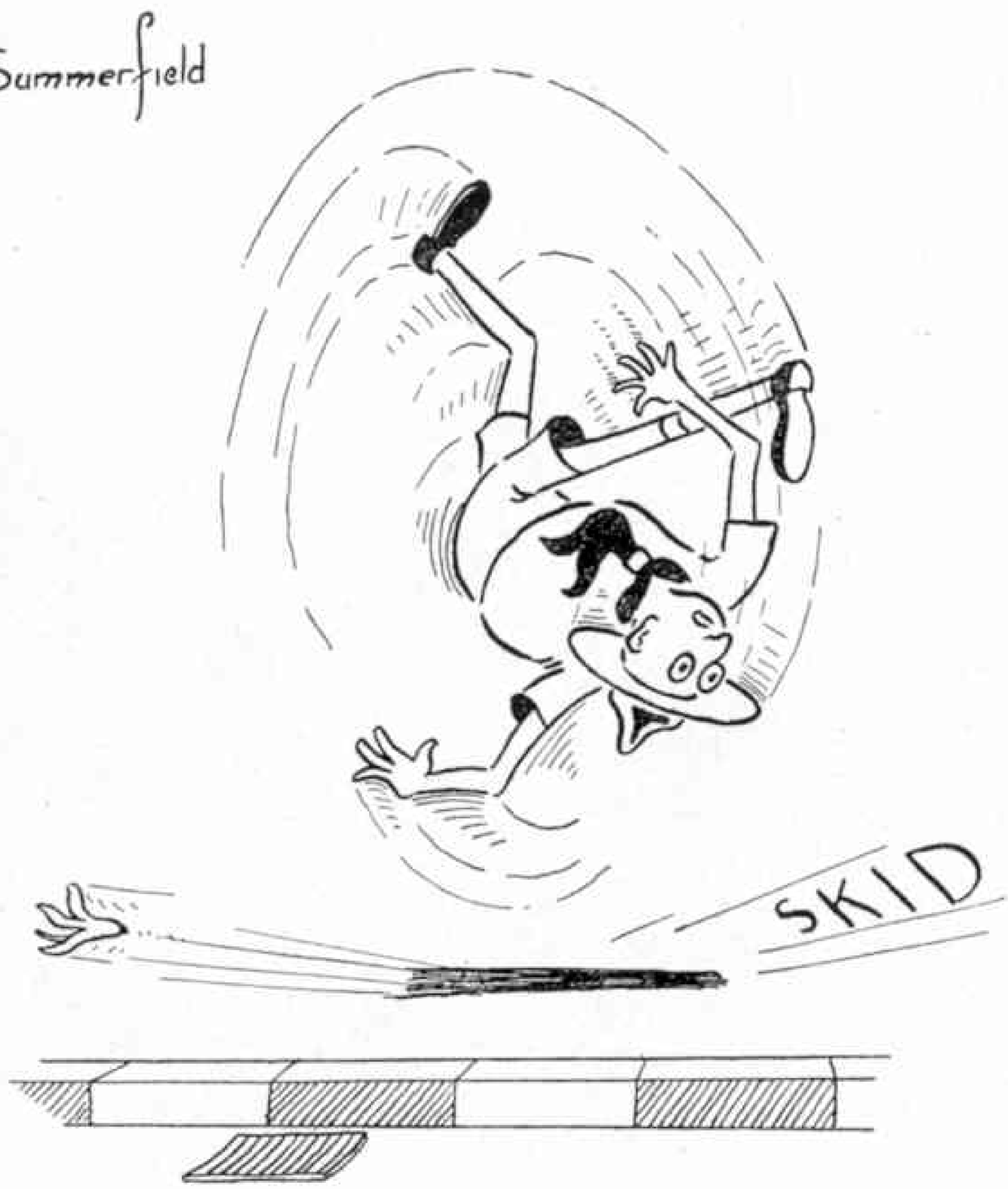
The Church in the Wood at Hollington, Sussex. Photograph by J. A. Fleming, London, N.W.3.

The Church in the Wood

When I am in the vicinity of Hastings, I always make a pilgrimage to the village of Hollington to see its secluded and picturesque old Church, which is dedicated to St. Leonard. This is known as the "Old Church in the Wood". It was probably built in the 13th Century.

According to legend, the Church was originally built out in the open, but the Devil encased it with a wood to prevent the villagers from getting to it for worship.

J. A. Fleming (London N.W.3)



"That reminds me—I hav'nt done my Good Turn to-day!"

"I didn't intend taking a holiday this year, but the boss insisted."
"How long have you got?"
"Until I find another job."

* * *

Housewife: "Do you stock paraffin?"
Grocer: "Yes."
Housewife: "And moth-balls?"
Grocer: "Yes."
Housewife: "And fire-lighters?"
Grocer: "I do."
Housewife: "O.K. Wash your hands and give me a ham sandwich."

* * *

Customer (on the telephone): "Three of those apples you sent me were rotten. I am bringing them back."
Store-keeper: "That's all right, Madam. You needn't bring them back. Your word is as good as the apples."

* * * *

Lady (to tramp): "Why don't you go to work? Don't you know that a rolling stone gathers no moss?"
Tramp: "Madam, I don't wish to evade your question. But may I ask of what practical use is moss to a man in my condition?"

* * * *

A man had been complaining that he had chosen a wet spell for his holiday this year, when a friend interrupted: "It can't have been so bad—you came back sunburned!"
"Sunburn, nothing," he replied, "that was rust!"

Fireside Fun

Jackie: "My father's a doctor. I can be sick for nothing."
Tommy: "Well, mine's a preacher—so I can be good for nothing."

* * * *

"Dad, did you have to learn to write and speak French when you were at school?"
"Yes, my boy—why?"
"Oh, I dunno. To me it seems a waste of time trying to do something the French can do so much better."

* *

First Burglar: "You're looking worried. What's up?"
Second Burglar: "They've built a bungalow where I buried my swag a month ago!"

* * * *

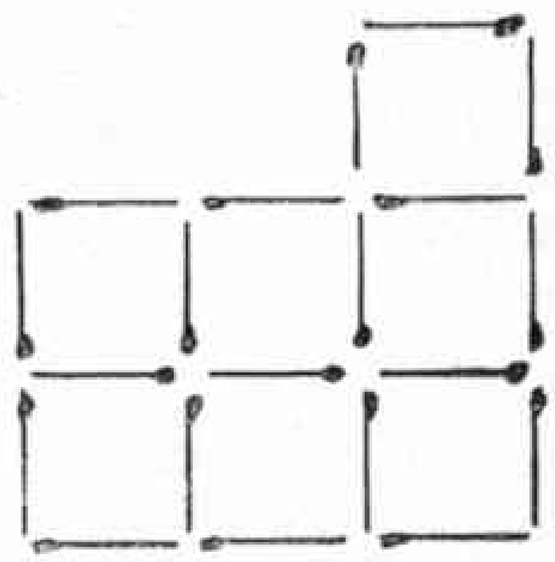
BRAIN TEASERS

A CURIOUS WORD

What common word in the English language reads the same backwards and forwards and upside down?

A MATCH PUZZLE

Arrange 20 matches to form seven adjoining squares as shown in the sketch below. The problem is to move *three* matches and make only *five* adjoining squares.



ANSWERS TO LAST MONTH'S PUZZLES

Code Puzzle

The simple code is A=1, B=2, C=3, and so on. The four-letter word of which the numbers representing the various letters add up to 20 is "cake". The clue was "Easy as a piece of cake".

Magic Square

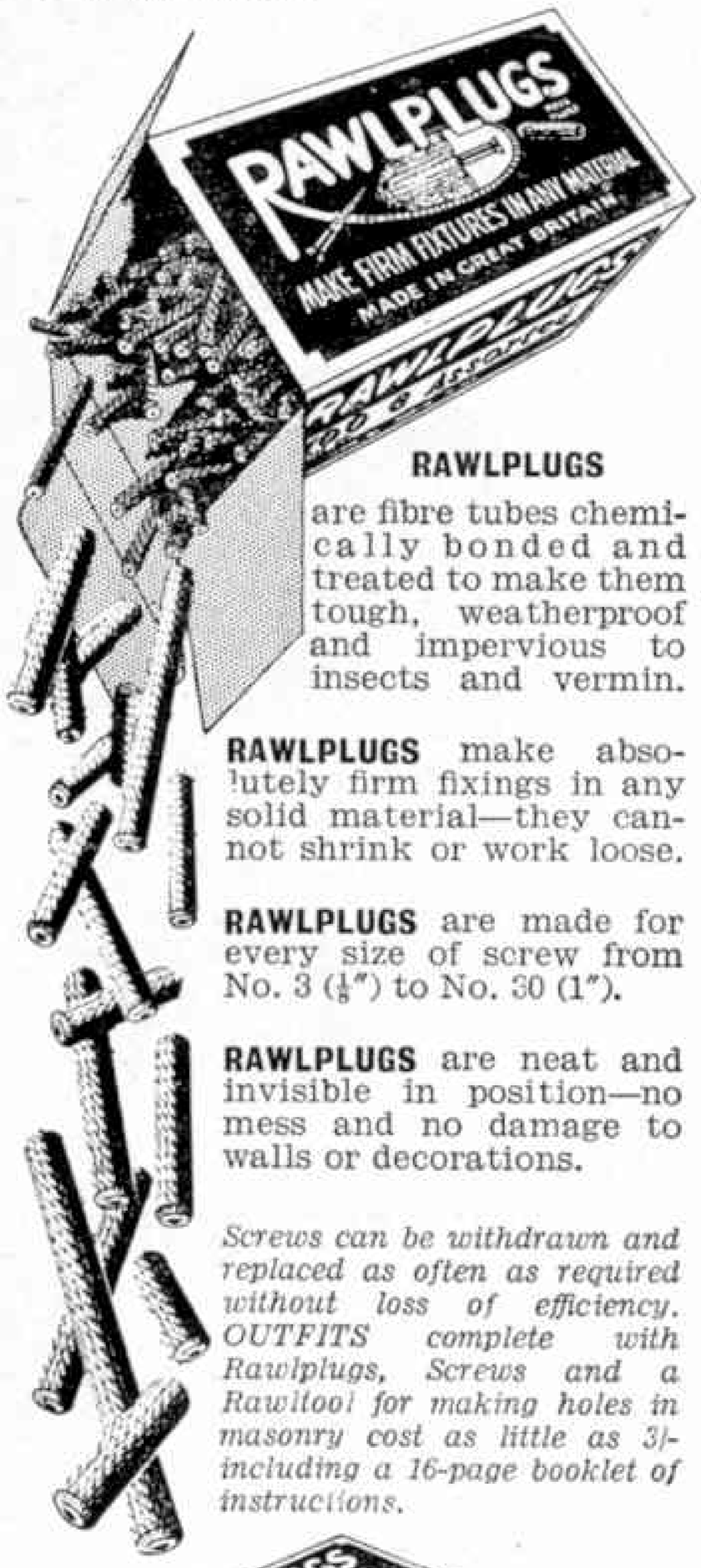
The Magic Square when complete is:

E	C	H	O
C	L	I	P
H	I	R	E
O	P	E	N

Are you a Happy
HOUSEHOLD HANDYMAN?

Happiness comes from that pleasant feeling of jobs well done. Good tools, reliable materials and a simple understanding of "how to do it" are the contributory factors. When you use Rawlplug Fixing Devices, Tools and the Products you know you have bought the best of their kind. By following the instructions for use you can never go wrong.

Still Easier screw Fixing



RAWLPLUGS are fibre tubes chemically bonded and treated to make them tough, weatherproof and impervious to insects and vermin.

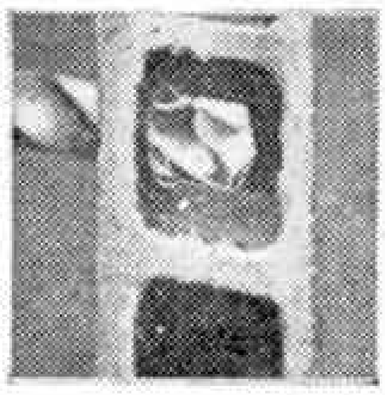
RAWLPLUGS make absolutely firm fixings in any solid material—they cannot shrink or work loose.

RAWLPLUGS are made for every size of screw from No. 3 (⅛") to No. 30 (1").

RAWLPLUGS are neat and invisible in position—no mess and no damage to walls or decorations.

Screws can be withdrawn and replaced as often as required without loss of efficiency. OUTFITS complete with Rawlplugs, Screws and a Rawltool for making holes in masonry cost as little as 3/- including a 16-page booklet of instructions.

If you have a handbrace you must use Durium Drills. You will be amazed at how quickly you can drill clean round holes in the hardest masonry—silently! No fear now of disturbing the neighbours, and, what is more, you do get an absolutely perfect hole for the Rawlplug. Be sure you ask for DURIUM in the bright blue and orange metal container. For your protection the name DURIUM is also stamped on the drill shank, none other is a genuine Durium drill. All sizes from No. 6 (5/32") to No. 30 (1") and in a long series for drilling right through walls.



Note how the Durium tip will make a hole in cavity brick without breaking the inside wall. Tiles and glazed bricks can be drilled with complete safety.

DURIUM tipped—that's the point!

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NOW:—FREE RE-SHARPENING
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Clear, Waterproof, Heat-proof, Insulating All Purpose Adhesive. Large tubes 1/- & 1/6.

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DUROFIX IS AN ALL-BRITISH ADHESIVE.

Commercial tubes 5/- ¼-lb. tins 2/9 1-lb. tins 10/6

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1/-

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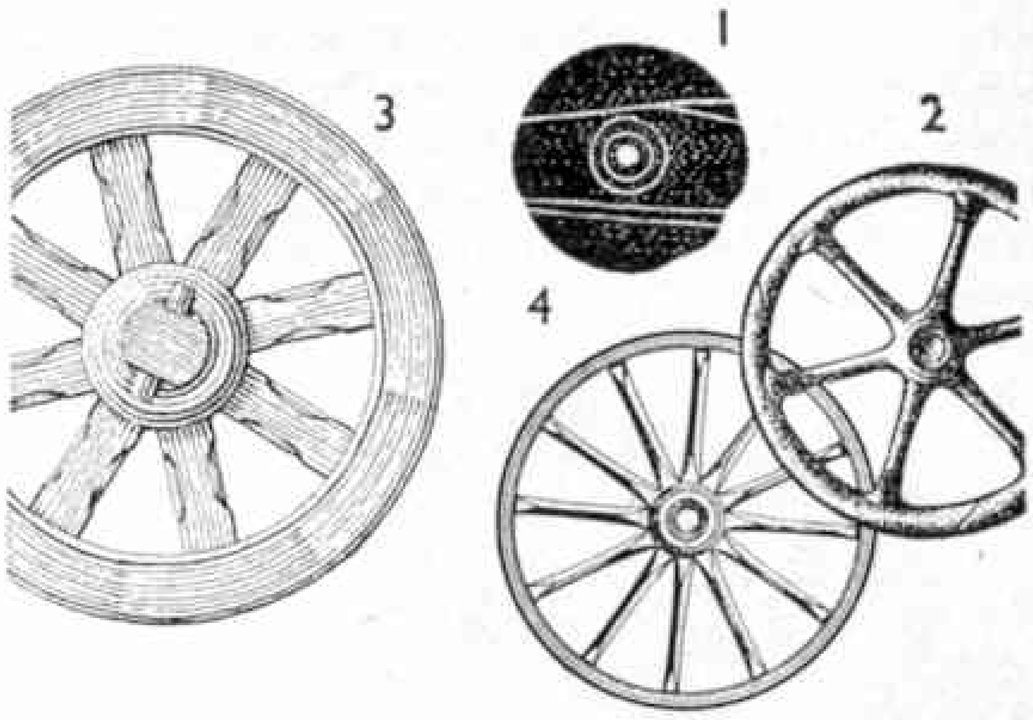

1 An early "3-piece" wheel, about 3,000 B.C.
2 Spoked wheel of war chariot about 2,000 B.C.
3 Medieval wagon wheel.
4 Wheel of post-chaise, 1850.
5 The tyre and wheel of today.

WHY PNEUMATIC TYRES CHANGED THE WORLD?

THE wheel, first used about 3,000 B.C., was invented comparatively late in prehistoric times. Strangely enough, it changed little from its earlier forms until the Dunlop pneumatic tyre came along in 1888, nearly 5,000 years after the wheel was first thought of.

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Today, Dunlop tyres are fitted to cars, bicycles, motor cycles, buses, coaches and commercial vehicles. To aircraft, to agricultural vehicles, tractors, cranes, bulldozers and other earthmoving equipment, to trolleys and fork-lift loaders. There is no end to the different kinds of vehicles which now benefit from the use of pneumatic tyres. For since that great day in 1888, Dunlop have led the field in tyre research, tyre design, tyre construction.

Think of tyres and you think of **DUNLOP**

8H/111

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PLAY SAFE!

ROAD ACCIDENTS CAN BE AVOIDED BY TAKING CARE

Always look to left
and right
Use the crossings,
watch the light!

Guide your bike
with both your hands
Don't hold on to
cars and vans

Games in the park
can be a treat
But never play
in a busy street

E145/P

—AND HERE'S ANOTHER GOOD TIP! Remind Mother that chewing delicious Wrigley's Spearmint Chewing Gum is naturally good for your teeth and won't fill you up between meals. Ask her to buy you some today.

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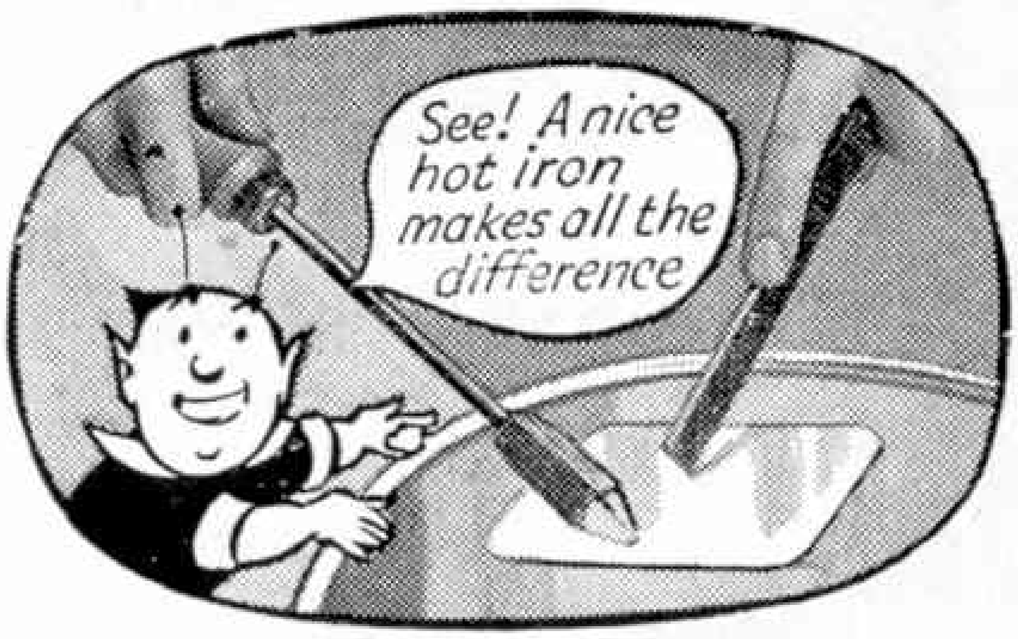

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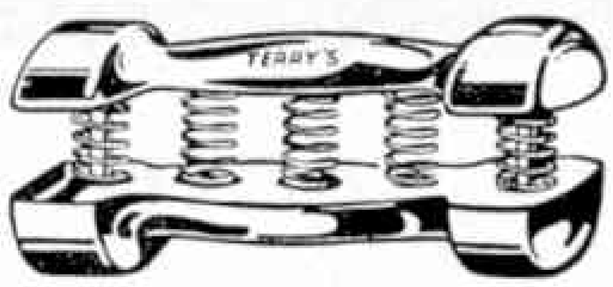

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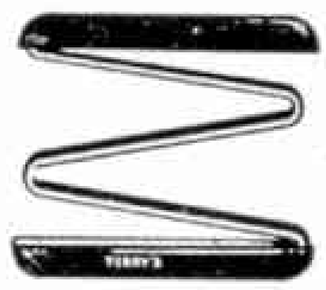

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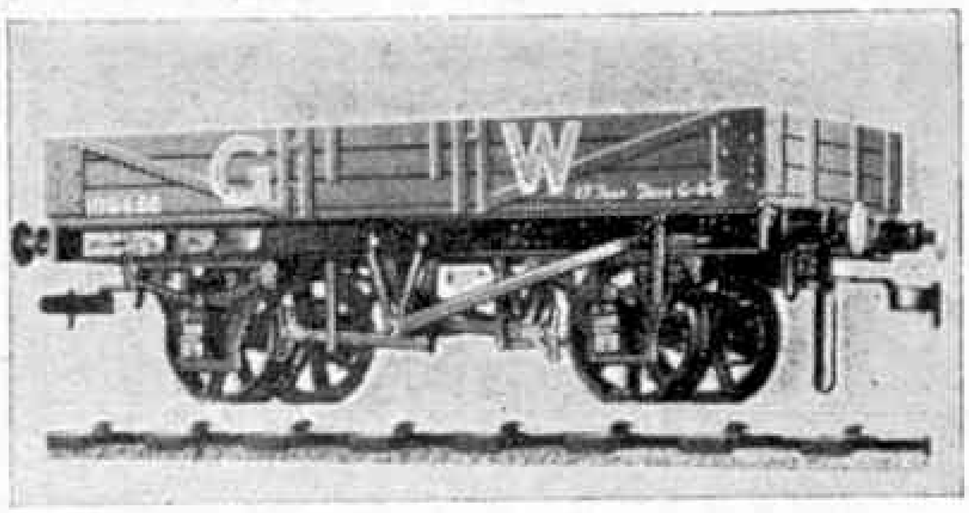

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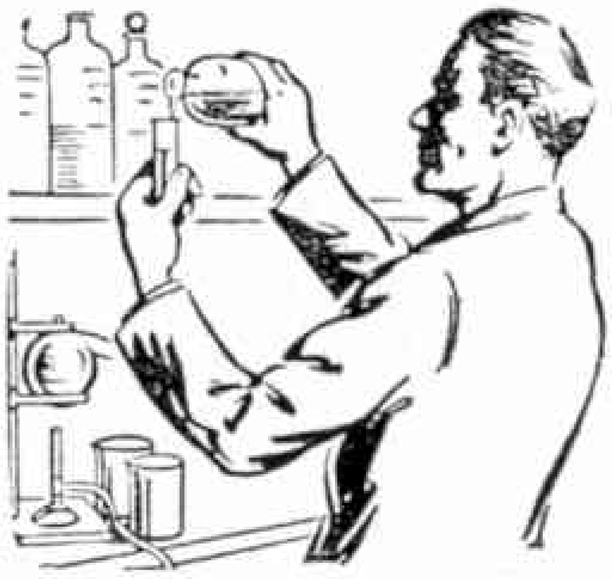

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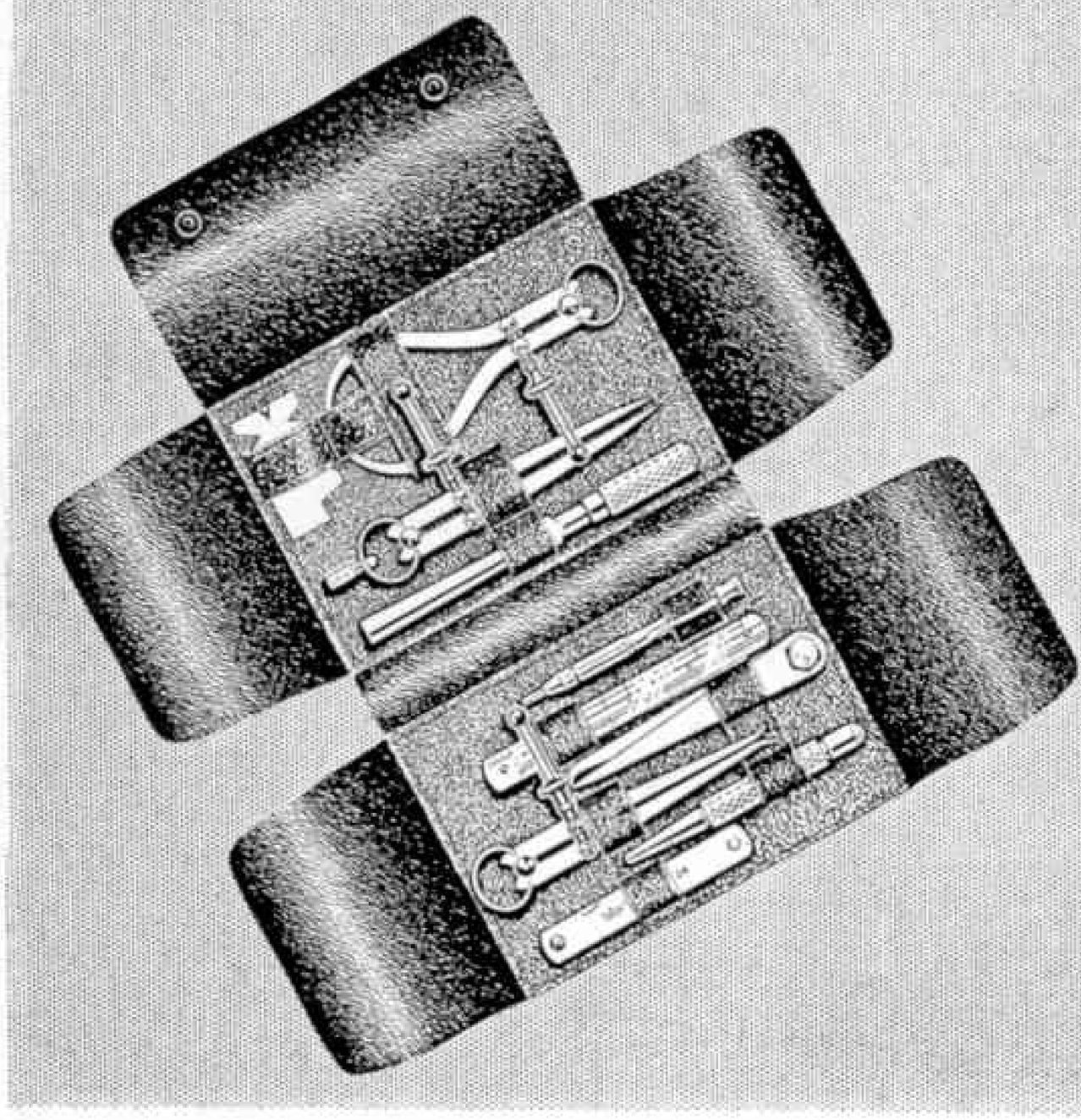

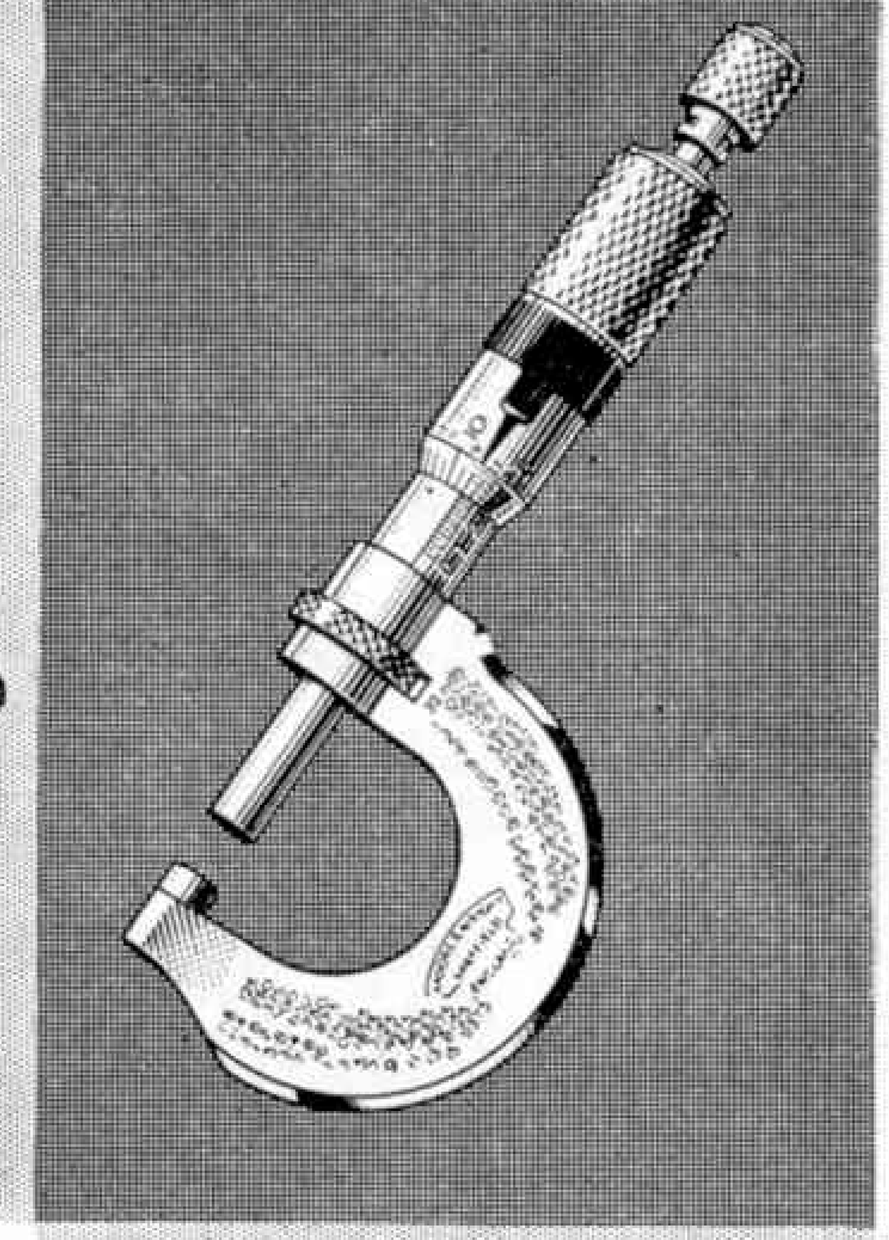

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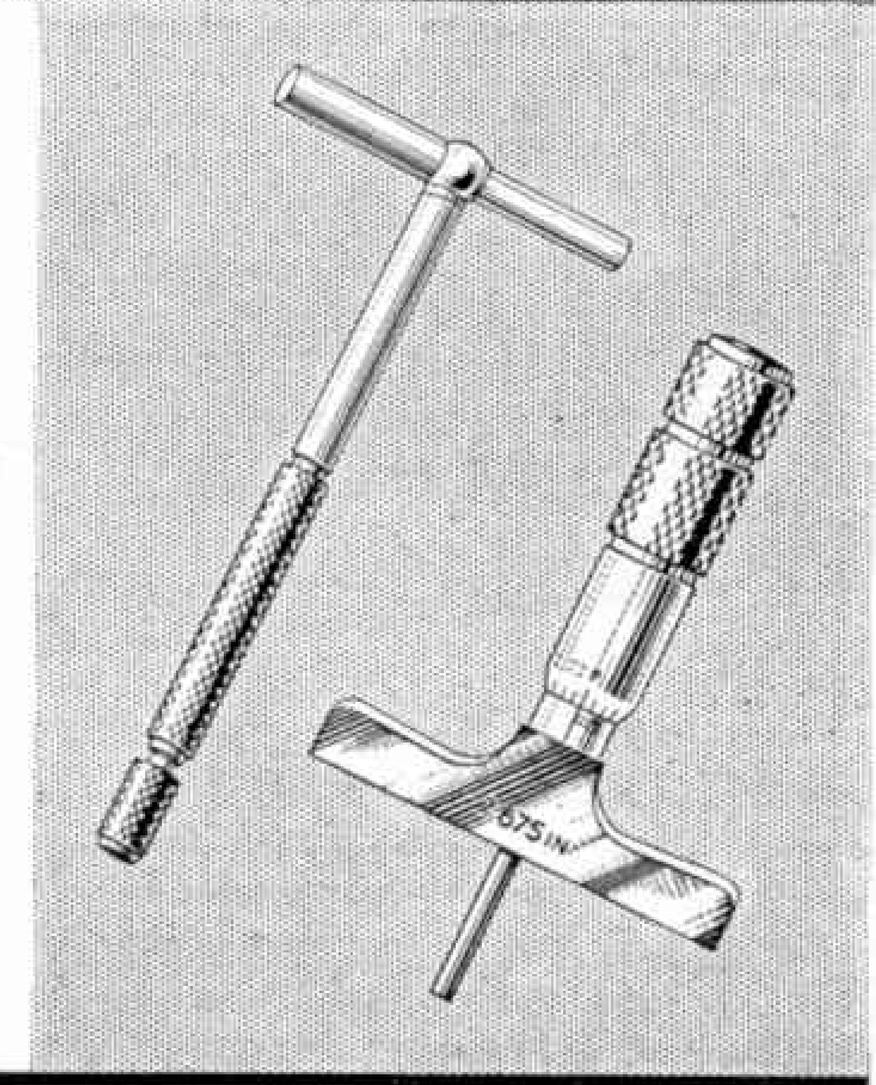

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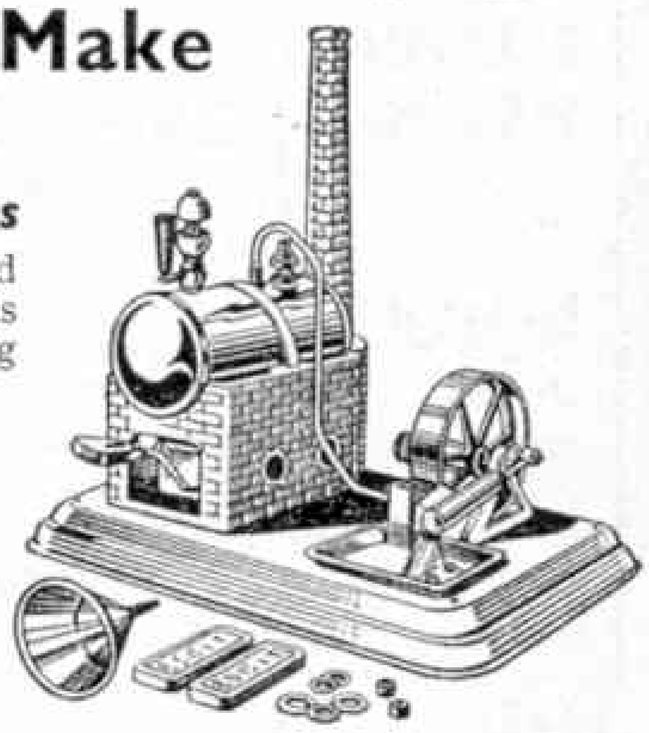

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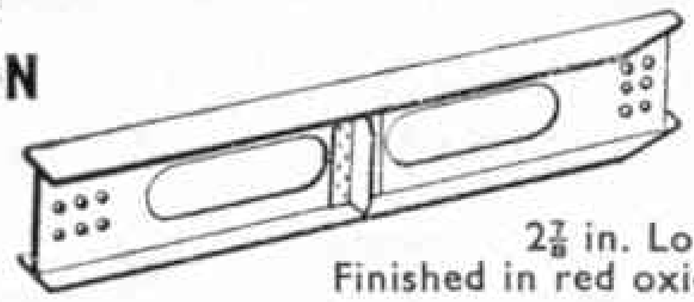

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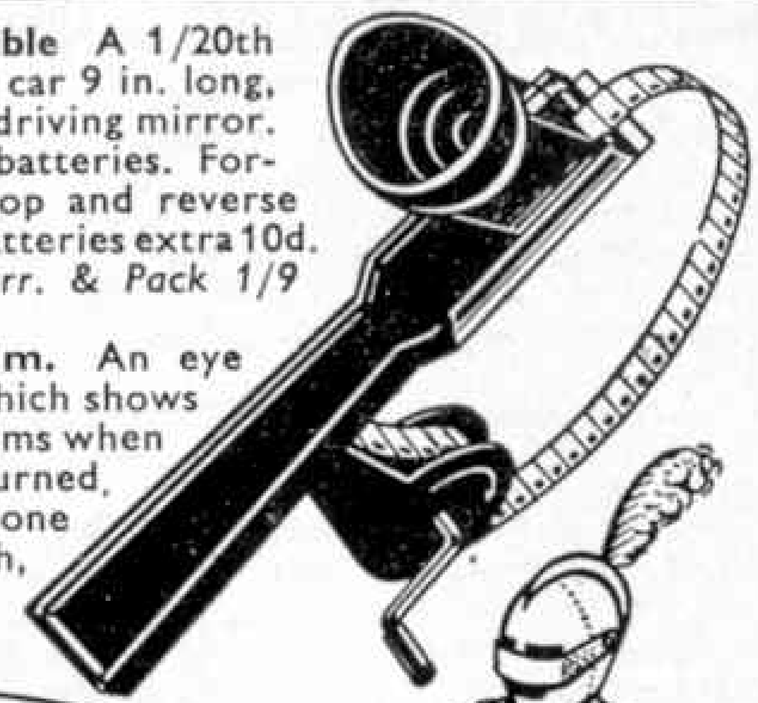

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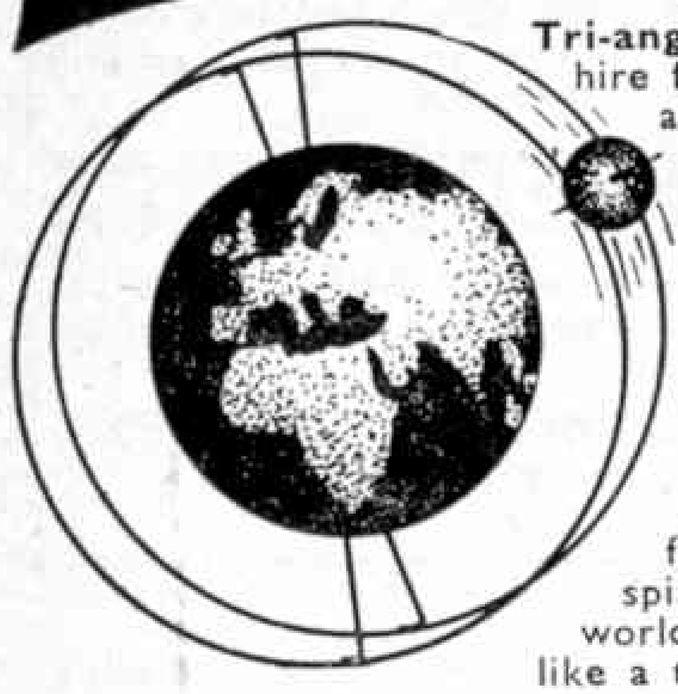

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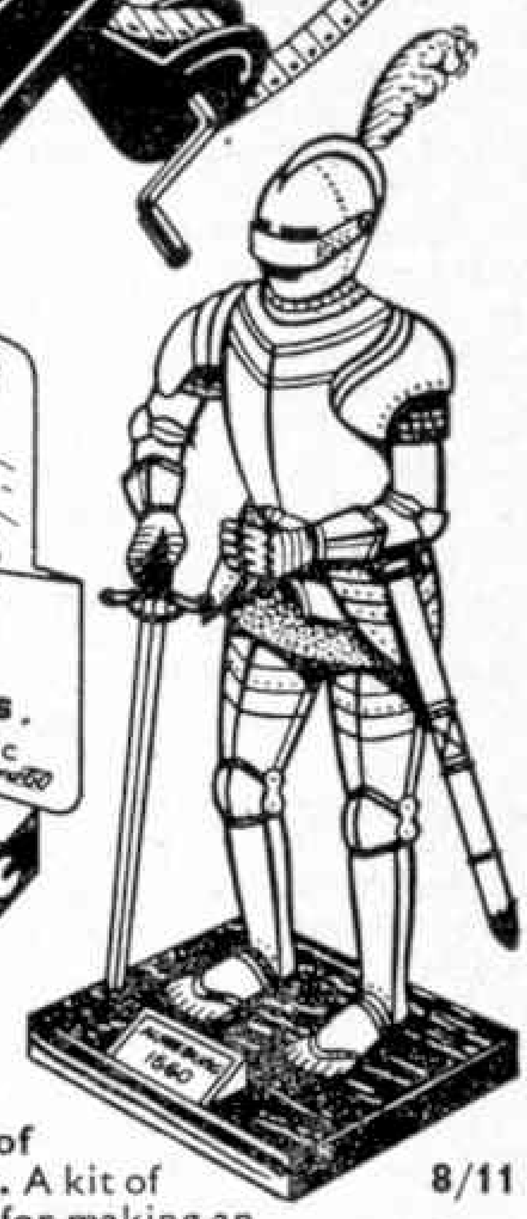

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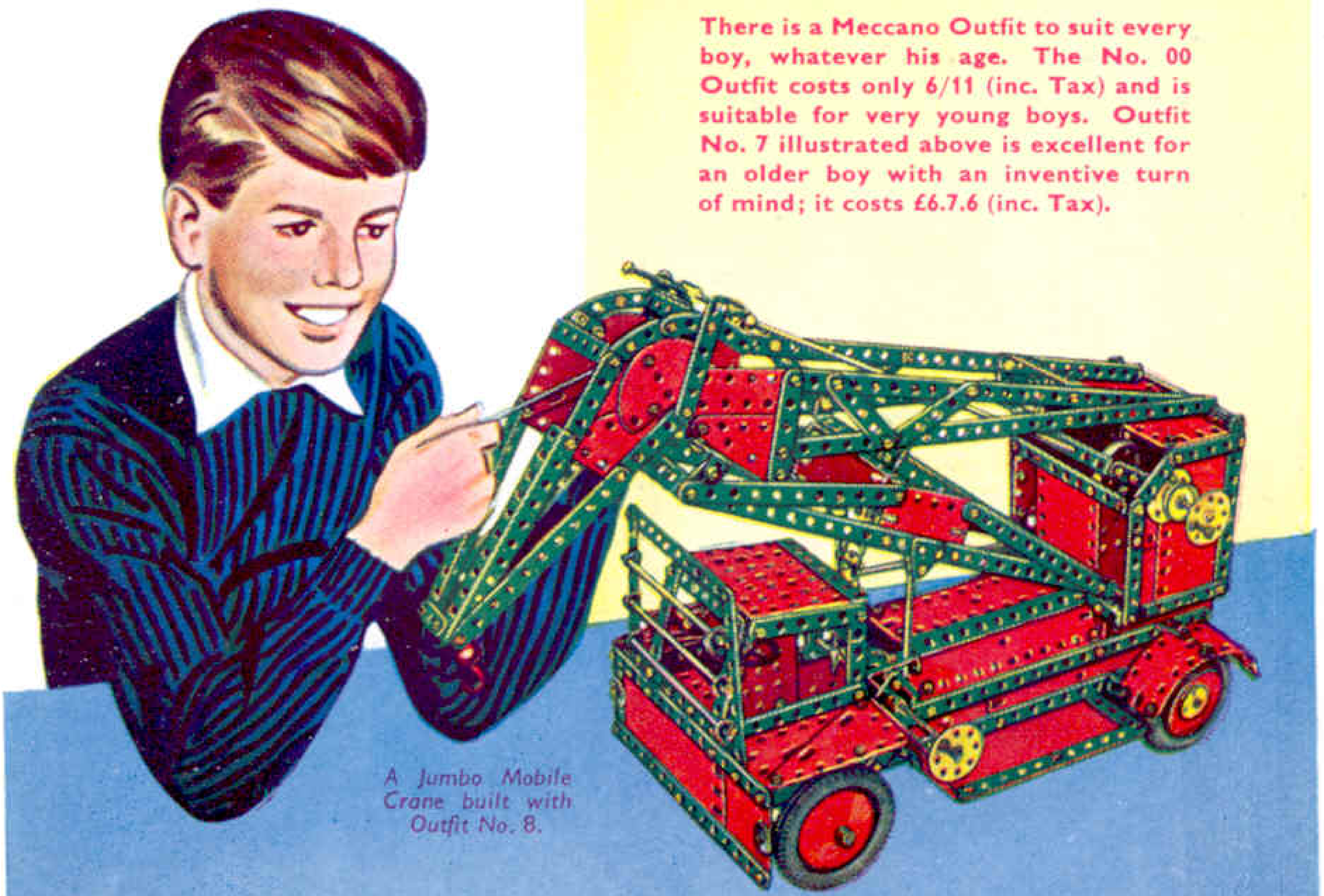

A Jumbo Mobile Crane built with Outfit No. 8.

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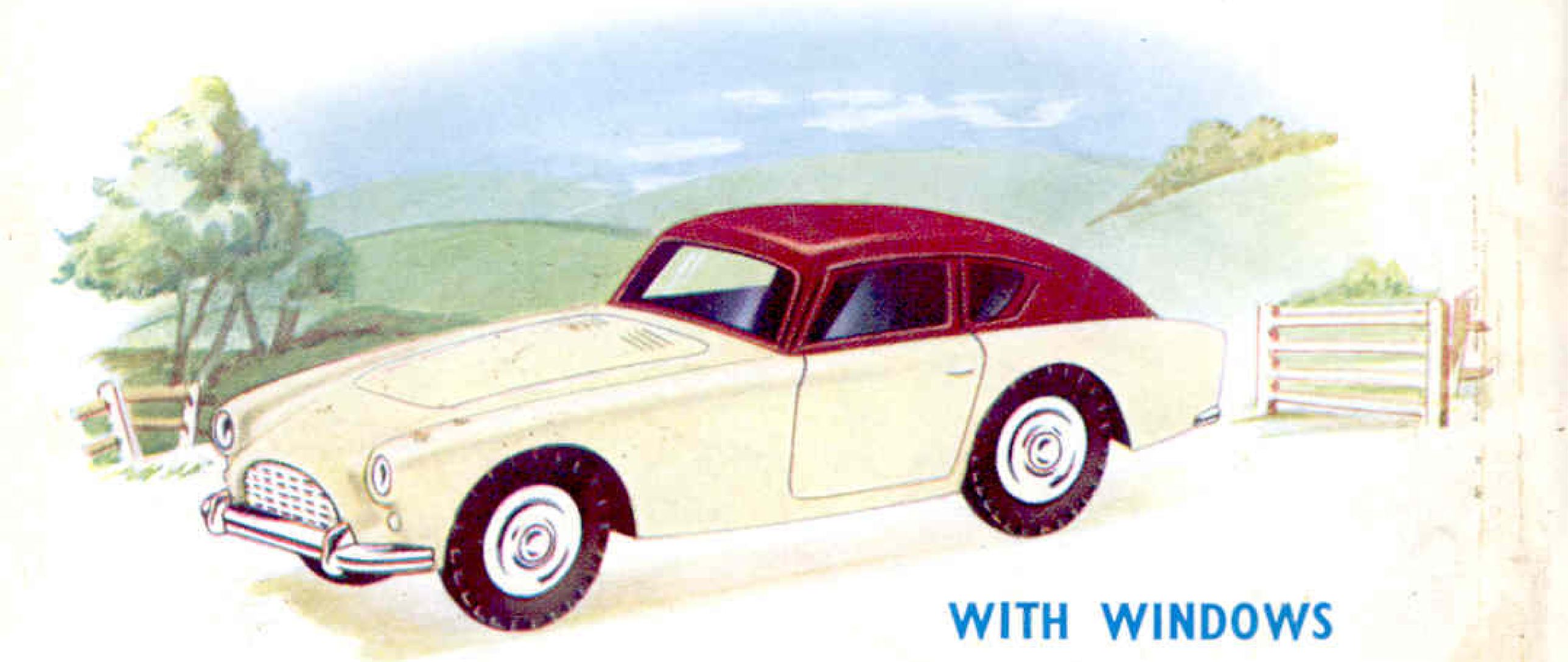

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MODEL OF THE MONTH

ADDING MACHINE

Illustrated in the Meccano Magazine, 1958. (November)

The Casing

Build two similar sides, each consisting of one $12\frac{1}{2}$" (1) one $9\frac{1}{2}$" (2), one $4\frac{1}{2}$" (3), and one 3" Angle Girder, filled in with five $4\frac{1}{2}$" x $2\frac{1}{2}$" Flat Plates, and a 3" x 2" Flexible Triangular Plate. The two sides are then joined together with three $7\frac{1}{2}$" Angle Girders 5, and a $7\frac{1}{2}$" Strip 6. $4\frac{1}{2}$" x $2\frac{1}{2}$" Flat Plates fill in the back, whilst two $5\frac{1}{2}$" x $2\frac{1}{2}$" Flat Plates are bolted to the front. Bolt a $12\frac{1}{2}$" Angle Girder 7 to the end Flat Plates by Angle Brackets and two $3\frac{1}{2}$" x $\frac{1}{2}$" Double Angle Strips 8 and 9 to the Angle Girder and side Plates. Four 1" Pulley Wheels with Rubber Rings, are attached to the base with $\frac{3}{8}$" Bolts and Flanged Brackets.

The Adding Mechanism.

On a $6\frac{1}{2}$" Rod secure a $1\frac{1}{2}$" Sprocket Wheel 10, a 1" Gear Wheel 11 and a 1" Pulley Wheel with Rubber Ring 12. The Rubber Ring should press lightly against the Flat Plate, with a Compression Spring and Collar 13, acting as a brake. A Bevel Wheel 14 drives another Bevel Wheel 15 mounted on a 5" Rod 16 coupled to a $2\frac{1}{2}$" Rod 17 on which is secured a Bevel Wheel 18. The 1" Gear Wheel 11 drives a similar Wheel 19 on a 5" Rod 20. Fasten a Threaded Pin 21 in the elongated hole of a Double Arm Crank secured to Rod 20.

On the rims of three Boiler Ends marked "A", "B", and "C" in the illustrations, stick a $6\frac{1}{2}$" x $\frac{1}{2}$" strip of white paper, marked into ten equal divisions, each approx. 6/10" in length. Obtain from an old calendar the numbers 0 to 10, and stick one in each space. Cover with a length of transparent cellotape.

Two $\frac{3}{4}$" Bolts, with three Nuts hold each Boiler End to a $1\frac{1}{2}$" Sprocket Wheel one of which is seen at 23 placed loosely on an 8" Rod 24, Collars being used to keep it in position. The Sprocket Wheels 10 and 23 are connected by a Chain.

Two more Boiler Ends are treated similarly, and placed on Rod 24, and spaced apart with Collars. It should be noted that the numbers on Boiler End "C" run the opposite way to those on Boiler Ends "A" and "B". The next thing is to build up two units as follows:- Take a $5\frac{1}{2}$" Strip and bend it into a circle overlapping the ends one hole, around a $1\frac{1}{2}$" diameter broom handle. At the joint and also diagonally opposite, a $\frac{1}{2}$" Bolt with a Washer secures an Angle Bracket, to which is bolted a Bush Wheel. In the remaining holes in the Strip, six $\frac{3}{8}$" Bolts are placed, with the edges of the Nuts square with the edges of the Strip. Place one of these units on a 5" Rod 25, together with a $1\frac{1}{2}$" Sprocket Wheel 26, a 1" Pulley

with Rubber Ring, a Compression Spring and Collar. Connect the Sprocket Wheel 26 to the Sprocket Wheel on Boiler End "B" which must be set so that the Threaded Pin 21 strikes one of the Bolts 27 as the number from 9 to 0 is changing on Boiler End "A". A 1" Sprocket Wheel is fixed on a 5" Rod 28, on which is also fastened a Double Arm Crank 33 fitted with a Threaded Pin, and a Bevel Wheel 29. A Bevel Wheel 30 on a 2½" Rod 31 engages with Bevel Wheel 29.

The intermittent drive from the Double Arm Crank 33 to the built-up unit is similar to the drive on shaft 20 and 25. The 1½" Sprocket Wheel 34 is connected by Sprocket Chain with the Sprocket of Boiler End "C".

The Operating Dial Units

A 7½" Strip 38 is attached to the sides of the casing by Angle Brackets and ¾" Bolts 39 on each side. Two Double Bent Strips are bolted to the 7½" Strip 38 and a ½" Bolt 58 holds a 4½" Strip 42.

The operating dials are similar to each other so that a description of one of them will suffice. Each is constructed by securing a Bevel Wheel to a 3½" Rod 40, placed through the Double Bent Strip 41, the 4½" Strip 42 and two Washers. A Ratchet Wheel 43 is fixed to the Rod. A Pawl 44 is pivoted on a ¾" Bolt 45 and a piece of Spring Cord keeps it engaged with the Ratchet Wheel. Another Ratchet Wheel 47 is fastened in position, four Washers being used to space it from the Ratchet Wheel 43. A disc. 3" diameter, cut from stout cardboard or sheet tin has ten equi-distant 3/16" holes pierced in it 1¼" from the centre, and two holes ½" from the centre, diagonally opposite. The centre hole is ⅜" diameter.

The disc 52 is bolted to the Face Plate 49 with the 1½" Pulley 53 between them, care being taken not to damage the elastic band with the rim of the Pulley Wheel. To the 1½" Pulley Wheel, tie a piece of thin elastic (A Driving Band will do) through one of its outside holes, nearest the centre of the machine, to the 1½" Pulley Wheel on the other dial. The rubber band should keep in the groove when the dial is turned, and pull it back to the stop bolt 45. Bolt an Adaptor for Screwed Rod 48 to a Face Plate 49. Fix a Pawl 50 in position with a Collar. A nut and bolt 51 has a piece of Spring Cord attached, the other end being anchored to the Face Plate.

The number "0" on the dial should be arranged to be in the front centre position when the Collar 54 is against the stop bolt 45. The Face Plate is free on the shaft 40, the Pawl 50 transmitting the movement to the shaft. The Pawl 50 should move two teeth over the Ratchet Wheel 47 for every single number movement of the dial (e.g. over four teeth when number 2

is dialled and over 14 teeth when number 7 is dialled) The Pawl 44 locks the Ratchet Wheel 43 immediately behind the tooth.

A frame formed by 7½" Strips 55 and two 3½" Strips is attached to the main casing with Obtuse Angle Brackets. Two 2½" x 1½" Flexible Plates are joined together across the Strips 55. Dial Stops, each consisting of a Fishplate bolted to a 1" x ½" Angle Bracket are attached to the 7½" Strip 6.

Dialling is done by placing the end of a short Rod in the appropriate numbered hole in the dials and pulling the dial around until the rod hits the dial stop, just like dialling on an automatic telephone.

A 1½" Rod fitted with a Collar for a knob, makes a suitable dialling tone and can be kept in a holder at the front of the machine as shown at 56 in the general view illustration of the model.

A 1" Pulley Wheel 57, fixed to Rod 40 can be used to turn the Boiler End "A" back to zero. NOTE. Should the Boiler End "A" be in 8, 9, 0, position the dial operating Boiler End "B" must not be turned. For example, if the number 138 is registered on the Boiler Ends and 26 is required to be added on, the 6 must be dialled first on "A", followed by the 2 on "B".

The Casing Covers.

A cover Plate 35 (see general view illustration) is built by bolting two pairs of Windmill Sails to two 7½" Strips. These are joined together with two 3½" x 2½" Flexible Plates and a 3½" Flat Girder. Four Collars space the cover from the 9½" Angle Girders 2 of the Casing.

A rectangle frame is made from two 7½" Strips 36 and two 5½" Strips 37, using ⅜" Bolts. Two 5½" x 3½" Flat Plates are bolted between the Strips 36 to form a detachable cover plate.

Parts required to build the Adding Machine.

9	of	No.	1b	9	of	No.	22	2 of No. 96
4	"	"	2	2	"	"	24	1 " " 103d
1	"	"	2a	8	"	"	30	2 " " 109
2	"	"	3	2	"	"	31	4 " " 111
3	"	"	8	154	"	"	37a	7 " " 111a
2	"	"	8a	111	"	"	37b	34 " " 111c
3	"	"	8b	46	"	"	38	2 " " 115
2	"	"	9a	2	"	"	45	3 " " 120b
2	"	"	9c	2	"	"	48b	1 " " 139a
2	"	"	10	2	"	"	52a	1 " " 139b
12	"	"	12	13	"	"	53a	4 " " 147a
2	"	"	12b	6	"	"	58	4 " " 148
4	"	"	12c	24	"	"	59	7 " " 155
1	"	"	13a	4	"	"	61	3 " " 162a
1	"	"	14	2	"	"	62b	2 " " 173a
5	"	"	15	3	"	"	63	2 " " 188
2	"	"	16	2	"	"	70	2 " " 190a
2	"	"	16a	1	"	"	72	2 " " 225
1	"	"	18a	2	"	"	94	1 E20R(S) Motor
2	"	"	21	6	"	"	95a	1 Length of Elastic

Two tin or cardboard discs.