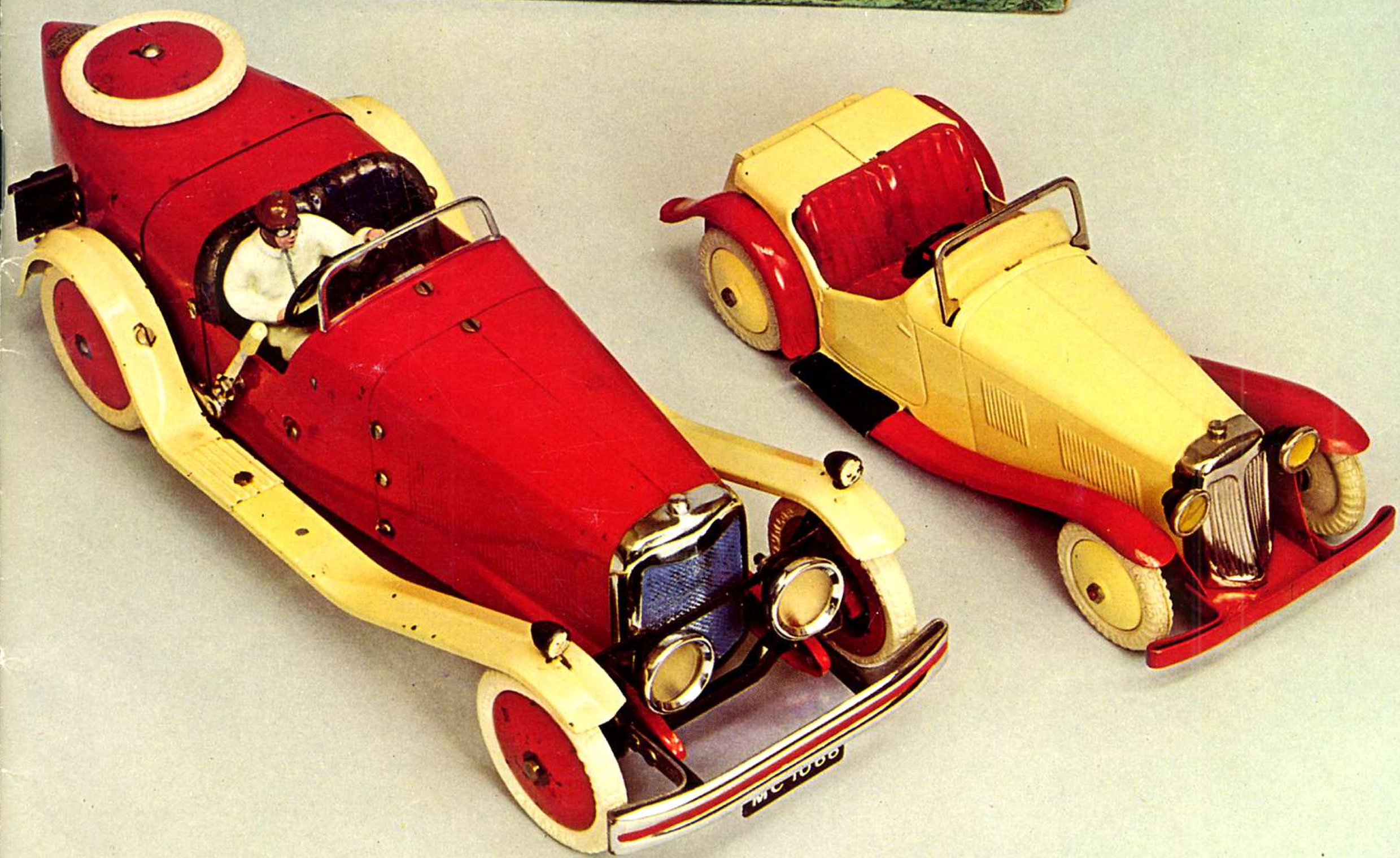
MECCANO MAGAZINE

Incorporating
MECCANO ENGINEER
& MECCANOMAN'S JOURNAL

1977 JANUARY • 50p

SIXTY-FIRST YEAR OF PUBLICATION

Vol 62 Nº 1



SPECIAL COLOUR FEATURE INSIDE – THE MECCANO MOTOR CAR

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We must stress that our main business is the supply of Meccano Extra Parts; we are very conscious of the shortcomings in our service in recent years, due to production shortages at the Factory. The situation is now much improved, and we hope to give much better service in the future.

'SKIN PACK CARDED' EXTRA PARTS

About a hundred of the 'best selling' Meccano Extra Parts have been selected for a new scheme for self-selection by the retail customer. However, Meccano's policy is to supply us most of the parts concerned in the old-style wrapping for the time being (at the new prices!)

ARGENTINE MECCANO PARTS

ZINC PLATED

1c Perforated Strip 24½"	56
1d Perforated Strip 18½"	41
9g Angle Girder 1"	11
103m Flat Girder 1"	11
103r Flat Girder 24½"	84
103s Flat Girder 18½"	62
215a Flat Slotted Strip 3"	13

BRASS

26g Pinion, 22-teeth, ½"Face	50
A30a/c Machined Bevel Gears, [pair]	2.14

BLACK RUBBER

A142b 3"Motor Tyre	67

SOUTH AFRICAN PARTS

132 Flywheel; red, blue, or black	3.50
203 Headlamp; black	1.50

AUSTRALIAN WRI PARTS

We are sorry for recent shortages (our fault!), we hope to be fully-stocked shortly. In passing, Part 101, Heald for Loom, will not after all be made.

POWER SUPPLIES

We are sorry that we have been unable to supply suitable 15-volt AC units for the E15R Motor, due to production shortages. We are now making arrangements to stock Hammant & Morgan products for the purpose instead.

BOOKS

We have acquired all remaining publisher's stocks of:

Meccano Constructors' Guide	1.25
Frank Hornby who made $ 1m.	1.20

We also have all remaining stocks of: Meccano 1969-series Manuals,
MAP *Meccano Magazine* back numbers
Meccano Magazine Q'ly back numbers
Meccano Engineer back numbers.

NEW CAVENDISH BOOKS intend publishing a series of books concerning Meccano Ltd's many products over the years, and we will of course stock these. We also stock, from time to time, other books for collectors from this source, and have at present:

The Art of the Tin Toy, by David Pressland 19.50

Uniform with:

A Century of Model Trains by Allen Levy 16.50

Now available in hard-back edition: *The Great Toys of Georges Carette* 9.00

New from OXFORD PUBLISHING Co: *Along Hornby Lines*, a pictorial review of the famous '0'-gauge railway system, with much fresh information on the early history of the Meccano Factory . . . 3.60

MECCANO MAGAZINE

If you require a direct subscription with the publishers, your request and remittance *must be sent to:* **Meccano Magazine, 18 Reading Road, Henley-on-Thames, Oxon., RG9 1AG, England.**

If however, you would like to have the new magazine through our existing 'magazine account' service, your instructions should be sent to us at our usual address below.

IT IS IMPORTANT that no direct subscriptions (or any other material for the *MM*) are sent to us (MW Models), nor should any orders or correspondence intended for us be sent via the *Meccano Magazine* offices.

LISTS AND NEWSLETTERS

No news is good news!

Due to unforseen delay in Meccano changing over our supplies to the new 'Skin Pack Carded' presentation, our Autumn Newsletter and Lists had to be cancelled. However, our loss was your gain, because, with few exceptions, we have continued to trade at the prices published in our 'Spring/Summer' 1976 Lists.

For Winter Lists & Newsletter, UK: Send stamped, addressed 9"X4" envelope. Overseas: Send three reply coupons.

We wish you all the best of Meccano Modelling in this New Year, and thank you for the many Christmas Cards we received from all over the world.

PACK PARTS

In view of the introduction of the new 'Skin Pack Carded' packs, we have withdrawn our special concessions for 'Pack Parts' orders. When the changeover is complete, new arrangements will be announced.

UK

All orders totalling £5 or more are NOW POST FREE

All MECCANO SETS AND MOTORS STILL POST FREE

For all other orders under £5, we have standardized Post & Packing charges:

Orders up to £1	please add 15p
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£2.01 to £3	please add 35p
£3.01 to £4.99	please add 45p

OVERSEAS

Sorry! 'Post Free' services do not apply to overseas customers, but all items are sent free of UK Value Added Tax, which saves you approximately 7%, except on literature, which is not taxed.

EVERYTHING MECCANO (MW Models) *The* Meccano Specialists,
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ISSN 0309-1376

1977 JANUARY

MECCANO MAGAZINE

ON THE COVER: A whiff of nostalgia; the original 1932 Meccano Motor Car Constructor (lower left) and the very rare Non-Constructional Meccano Car (right). In the background is the box for the latter, which is supporting a Hornby Poster Board complete with Car Constructor Poster, a Nut & Bolt box from a No 2 Car Constructor Outfit, and the legendary 'K'-Type Meccano Oilcan. The items were kindly supplied by Roy Hallsworth, and the photograph was specially taken for Meccano Magazine by George Bushell & Son, Henley-on-Thames.

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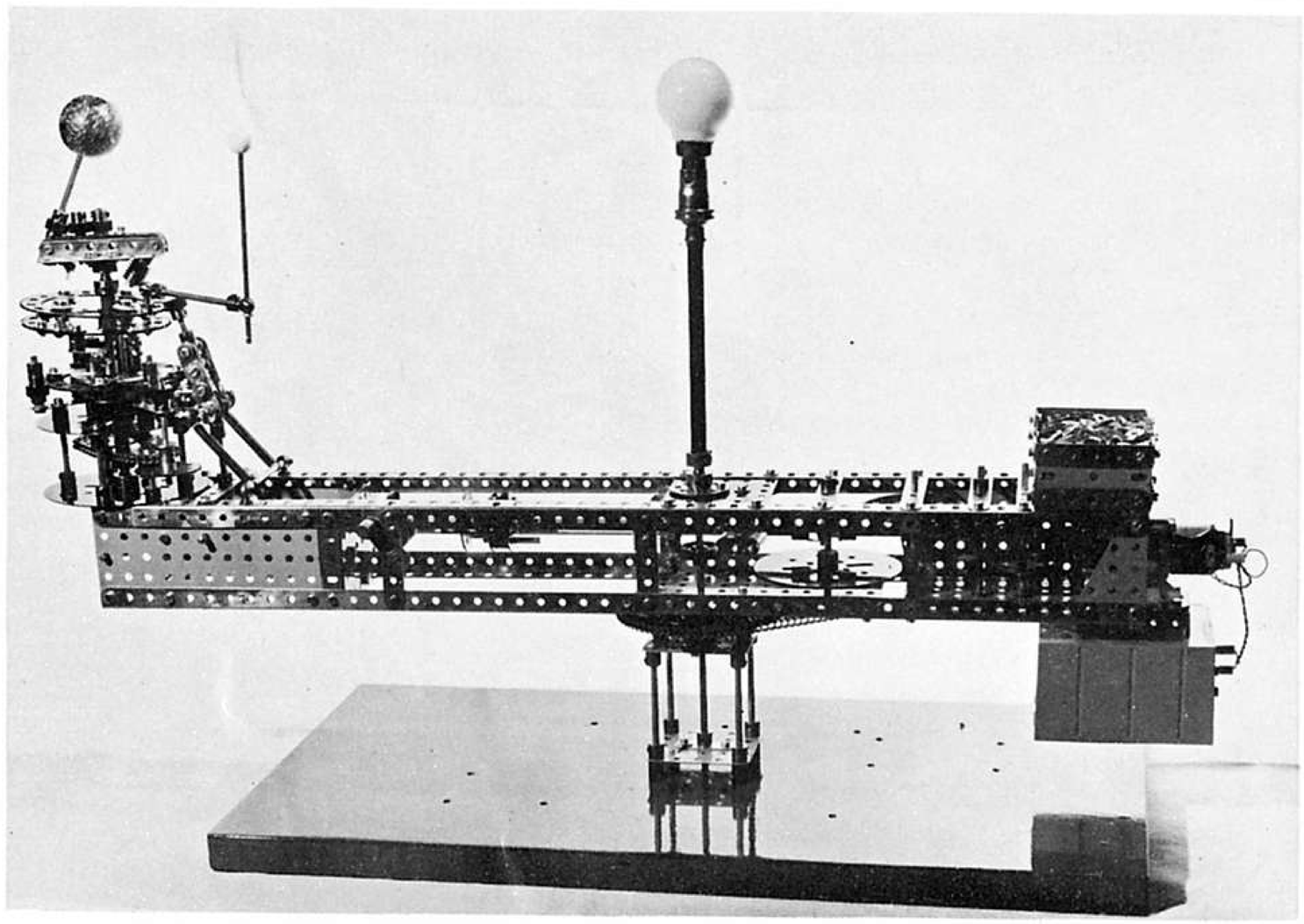

PHOTOGRAPH ABOVE: A Meccano Orrery designed and built by Bert Love. The inspiration for this neat model came from Alan Partridge's design published as Modelplan 59. Bert was determined to simplify the published design without detracting from the accuracy.

EDITORIAL

Dear Reader,

You hold in your hand the new *Meccano Magazine*. Within these pages you will find things familiar and new. If you have been a reader of *Meccano Magazine Quarterly*, *Meccano Engineer*, or *Meccanoman's Journal*, or if you are an entirely new reader, our message is the same:

WELCOME!

We are pleased to contribute to the life story of the magazine that has become an international institution, and we are only sorry that, due to many circumstances — including a complete change of offices — we have had much less time than we would have liked to prepare this issue. However, we hope that we have made a good first impression despite the rush.

Whilst no firm decision has yet been taken, the revertion to monthly publication is definitely on the cards for the near future. Meanwhile, we shall continue on a quarterly basis.

NEW ADDRESS

A point that has emerged from recent correspondence, and one which needs clarification, is that *Meccano Magazine*, (and, for that matter, Delta Graphics too) has no connexion whatsoever with MW Models of Henley-on-Thames. We can not accept letters or orders for that firm enclosed with material mailed to us; likewise, they can not be expected to 'pass on' to us *MM* material enclosed in their mail. **Items incorrectly directed are bound to be delayed.** The address of the new *MM* offices is as follows:

Meccano Magazine
18 Reading Road
Henley-on-Thames
Oxon RG9 1AG
England

This is the address to which *all* correspondence and material should be sent. Subscriptions should be clearly marked 'Subscriptions Department', and all other material should be clearly marked 'For the attention of the Editor'.

THANKS

May I take this opportunity to thank all those who have written to express their good wishes to the 'new crew', I am sorry that I have been unable personally to reply to all the letters, but the choice was: the magazine or individual replies!

Our thanks must also be extended to Chris Jelley and his team at Liverpool for keeping the Magazine going these past few years, because without them, we would not be here now.

But enough of this editorial chitchat — on with the Magazine that, given your continuing support, will grow from strength to strength in the months ahead.

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MECCANO® NEWS

BY THE EDITOR

As this is written, toy manufacturers everywhere are planning a convergence on Birmingham, England, where the first Toy Fair of 1977 is to be opened on January 22nd.

As regular readers of *MM* and *Meccano Engineer* will know, this Toy Fair (previously held at Brighton, England) is the launch pad for Meccano Ltd's new introductions for the coming year.

Lack of time precludes a complete review of the Company's innovations, (this is being written on January 8th!), but I will cover the important points here, leaving the detail to our next edition.

NEW PACKAGING FOR MECCANO

Meccano will have a new look in the shops this year. Bright, attractive new lids have been produced for the range of standard Sets from 1 to 6, as well as the 3M and 4M Motorized Sets.

Using full-colour photographic illustrations, the new packaging has been specially designed for maximum impact by showing boys and girls 'having fun' with Meccano; and let's face it, however seriously we take our cherished hobby, Meccano *is* a 'fun' product — ie, one that provides enjoyment, — and in the modern world, it appeals to girls as well as boys. The new approach shoots the message home at a glance.

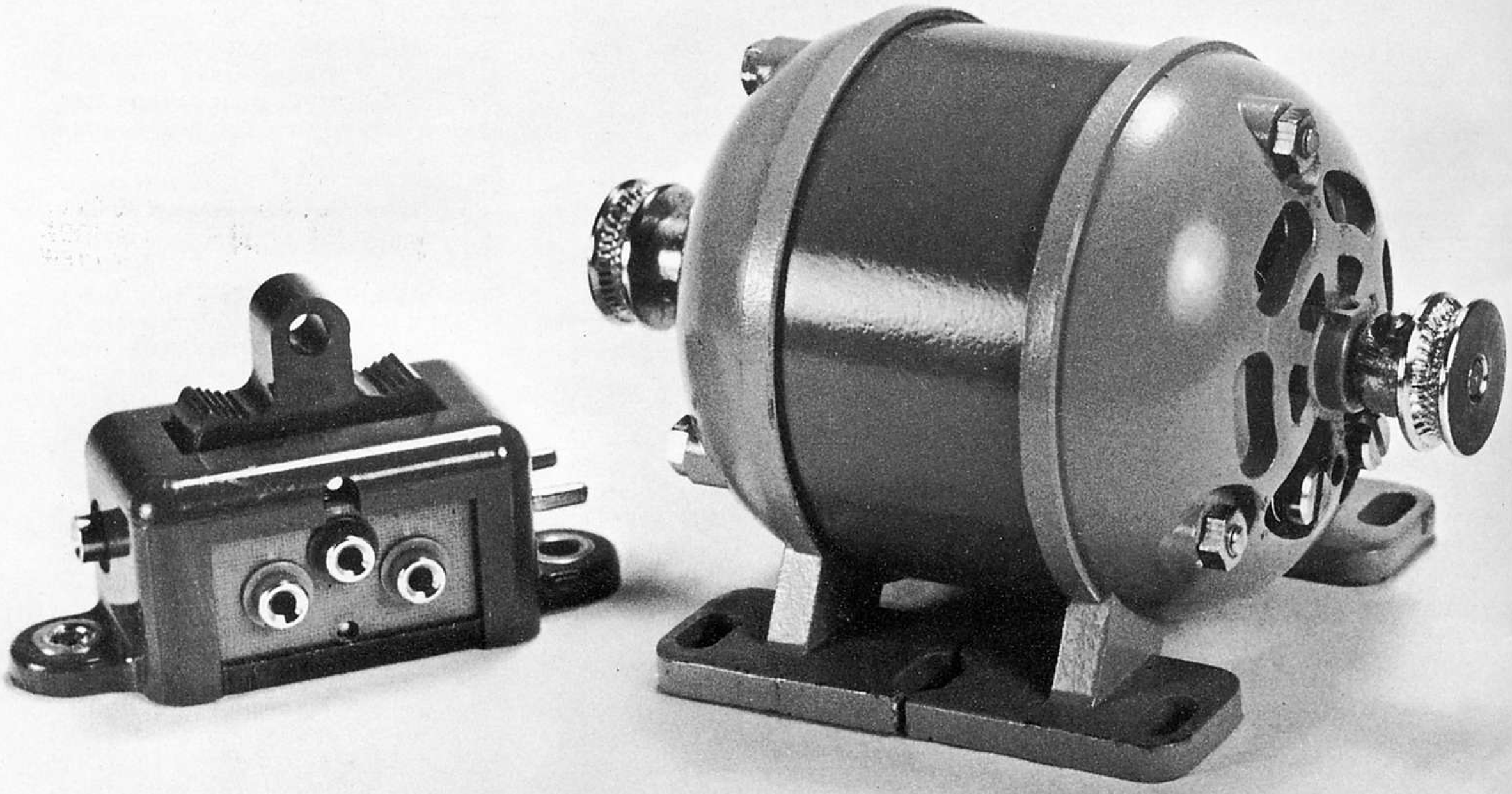
NEW MOTORS

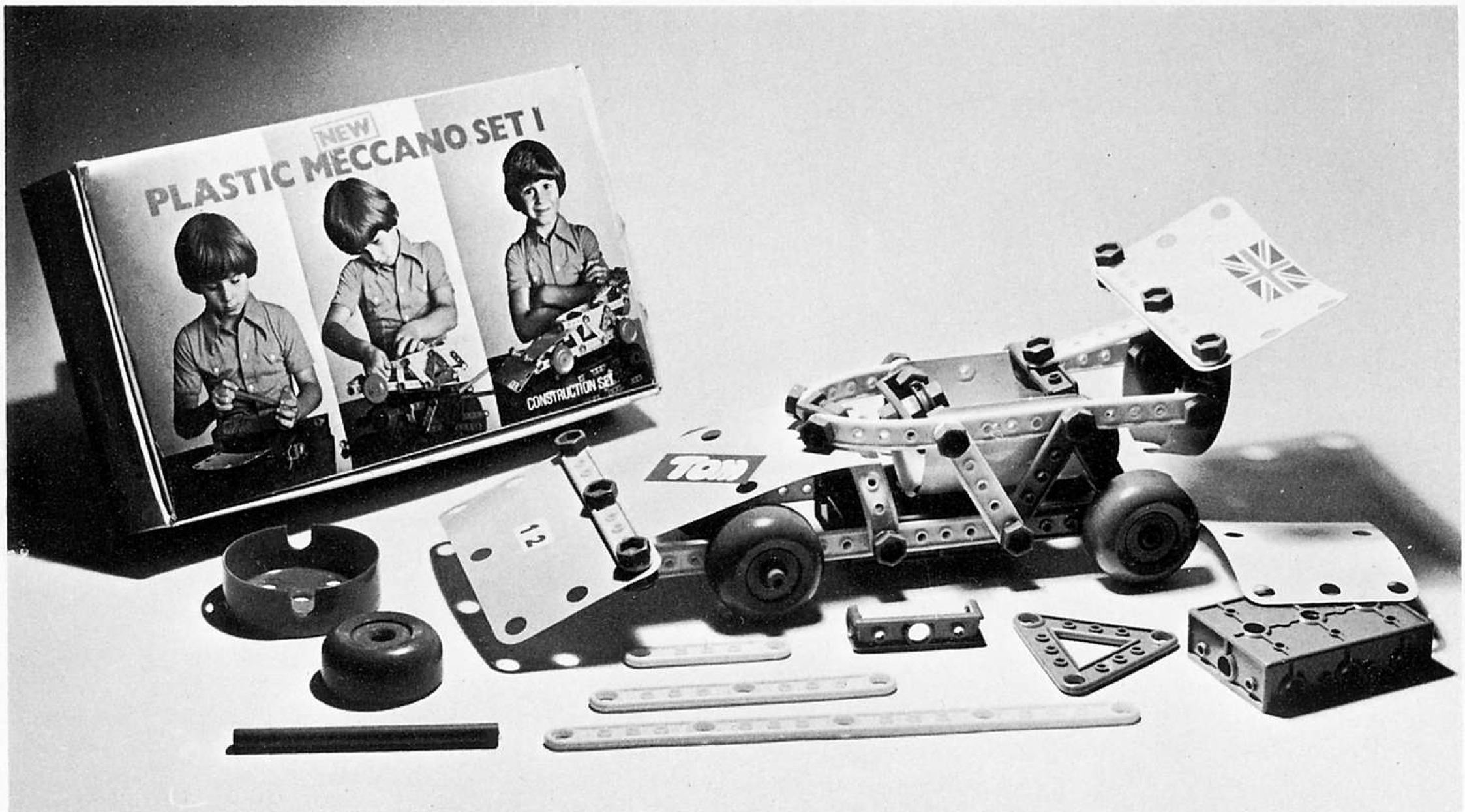
The big news, as far as the enthusiast is concerned, is that two powerful new Electric Motors have been introduced to the system.

Available as separate-sale accessories, both units are universal motors, operating from 8—16 volts AC, or 8—14 volts DC. The EU1071 Motor, with a built-in reversing switch, is the smaller of the two, while the EU1072 Motor is the larger, this coming complete with a separate reversing switch. Both are tough, metal-built units giving high power-outputs, ideal for driving Meccano models (see photograph).

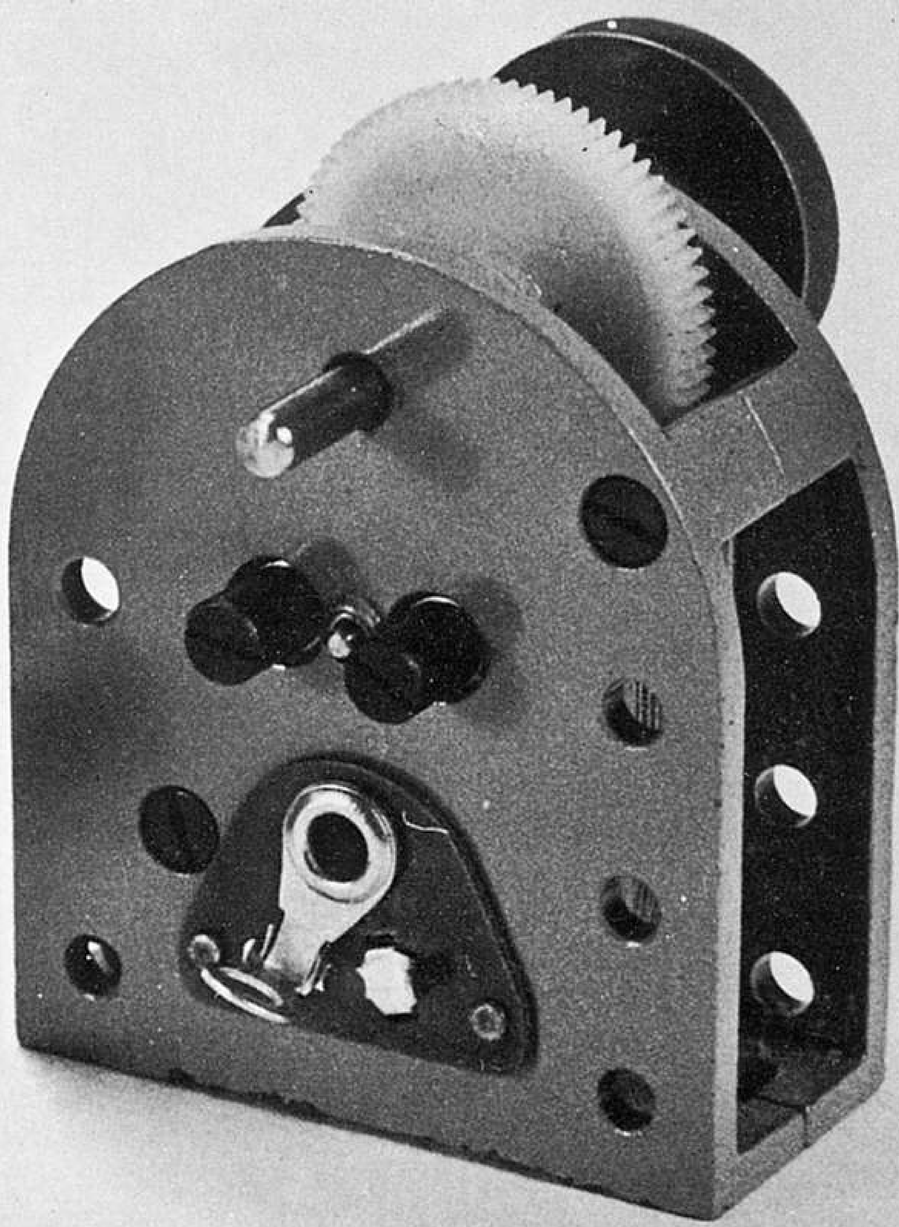
The Motors are made by Gebr Märklin & Cie GMBH for Meccano Limited, for sale only in UK and countries outside Europe.

In addition to the new Motors, the existing 1.5—4.5 volt DC Motor, introduced last year in the Multikit Crane-Building Set, is now available for separate sale, identified as Nº 11053 Junior Power Drive Motor Mk 2. With a remarkably high power-to-size ratio, the Motor has already proved itself ideal for driving smaller models, and the separate-sale demand for it from modellers has been considerable.





ABOVE: The new look for Plastic Meccano. Note the use of 'Prima' Wheels, the new Flexible Plates, and the Flanged Disc.



LEFT: The new Meccano Motors manufactured by Marklin. At the far left is the reversing switch that is supplied with the EU1072 Motor which is seen in the centre of the picture. To the right is the EU1071, which has a built-in reversing switch.

NEW PLASTIC MECCANO

Plastic Meccano has been completely revised for 1977. Following a 'big pieces for little hands' theme, the components have been recollated into a whole new range of versatile outfits.

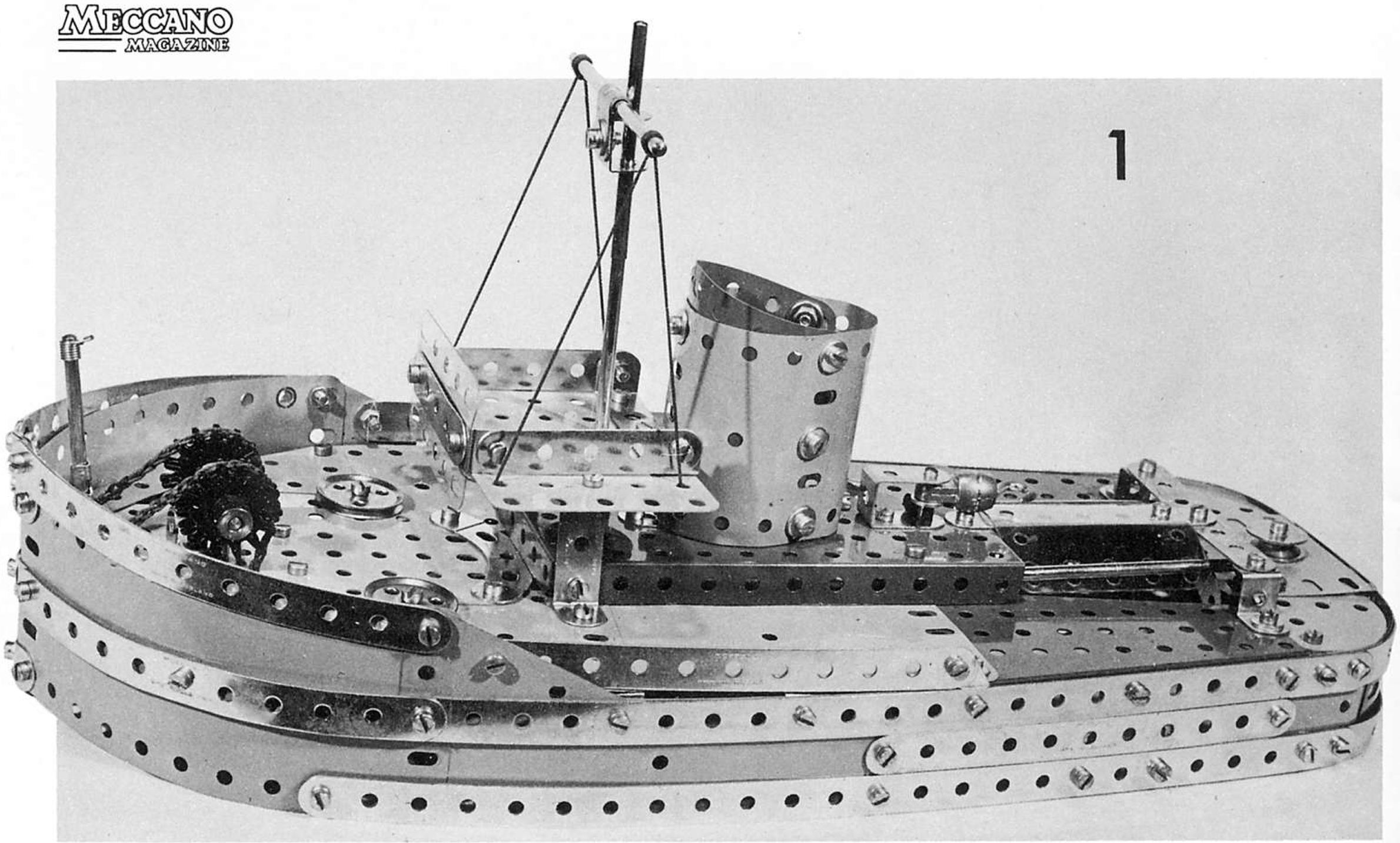
In addition to all the existing parts, some valuable new components have been introduced, including a Flexible Plate — of similar material to the metal Meccano system's Plastic Plates, and two different-sized Flanged Discs, all of which greatly increase the realism of the assembled models. (See photograph.)

As with metal Meccano, new Plastic Meccano is a 'progressive' system consisting of three main Outfits, Set Nº 1, Set Nº 2, and Set Nº 3, each set progressively larger than the one before it. Two Conversion Sets are also available, the 1A Set, and the 2A Set, the former converting Set 1 into Set 2, and the latter, Set 2 into Set 3.

Outside the progressive system, there is a new Play Pack, designed to introduce boys and girls to the pleasures of Plastic Meccano modelling, and the two accessory packs of Nuts and Bolts, and the Track Pack for fitting crawler tracks to appropriate models remain in the system.

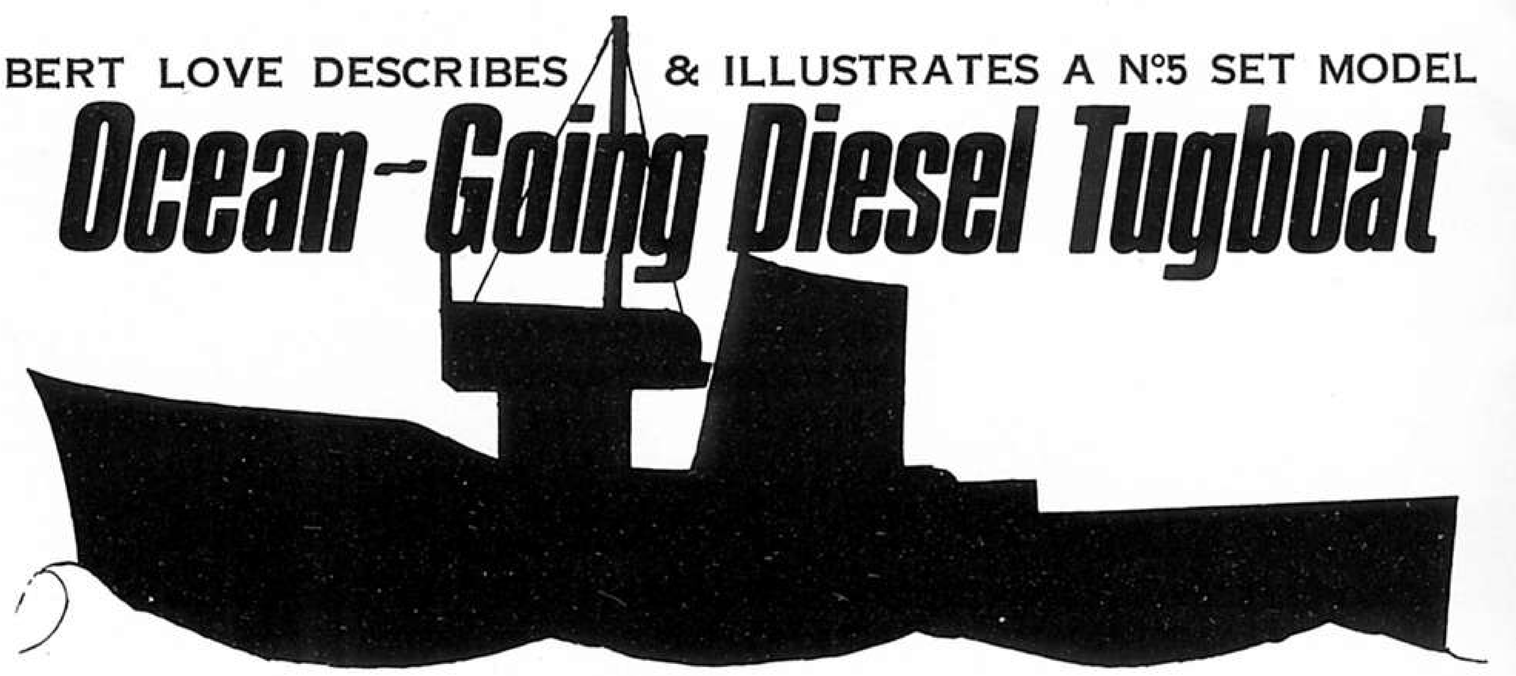
The new Plastic Meccano Outfits are packed in up-to-date boxes with full-colour photo-illustrations of children with models.

Further details of the new Meccano products, and news of interesting innovations by other toy and hobby manufacturers will appear in a review of the Toy Fair in the next edition of *Meccano Magazine*.



BERT LOVE DESCRIBES & ILLUSTRATES A Nº5 SET MODEL

Ocean-Going Diesel Tugboat



THERE IS NO MISTAKING the rugged outlines of the Ocean-Going Tugboat illustrated in Figs.1 & 2. This model was designed to complement the Nº 10 Set Cargo/Passenger Ship [Special Leaflet], and scales quite nicely alongside it.

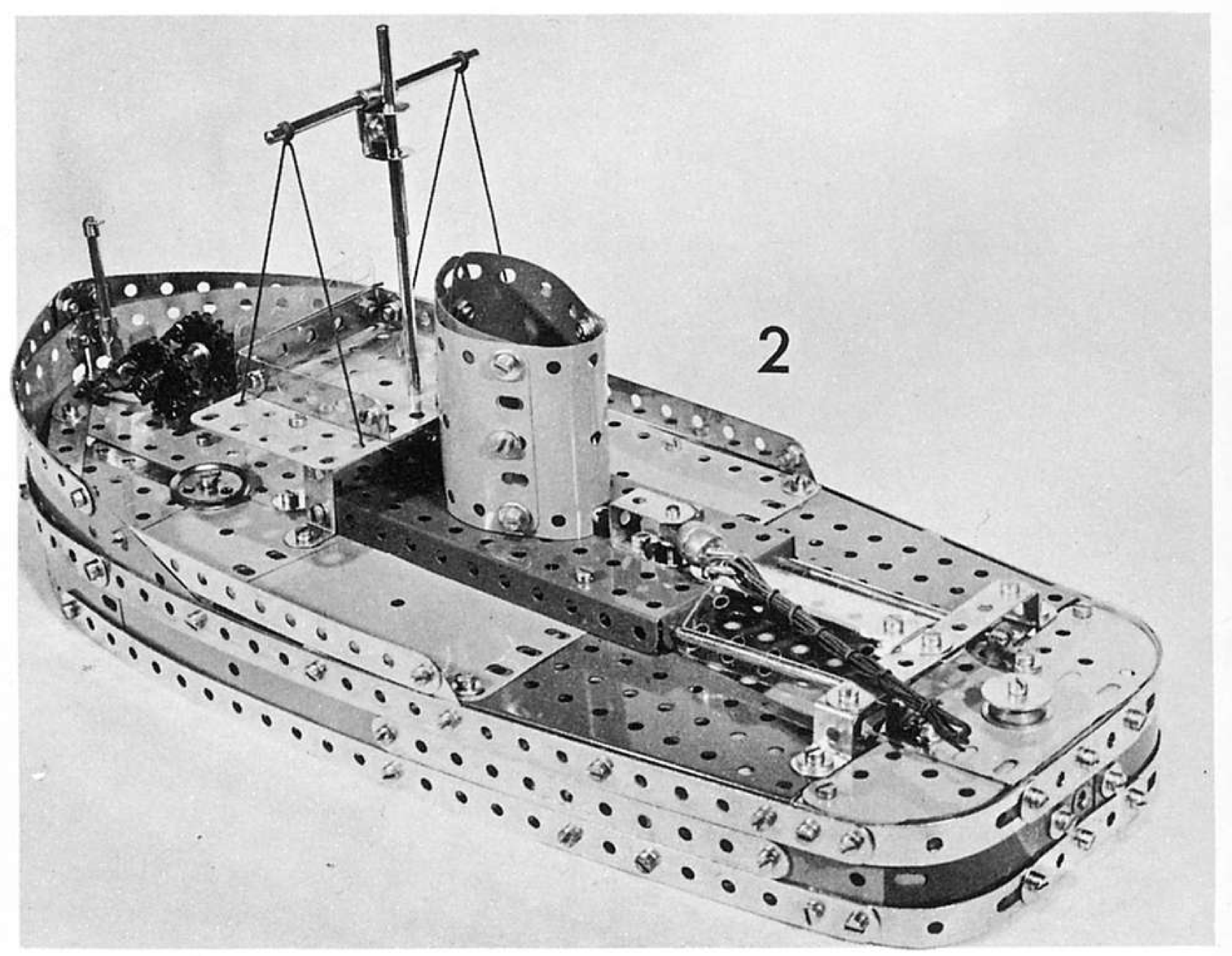
Construction is straightforward, and should be evident from the photographs.

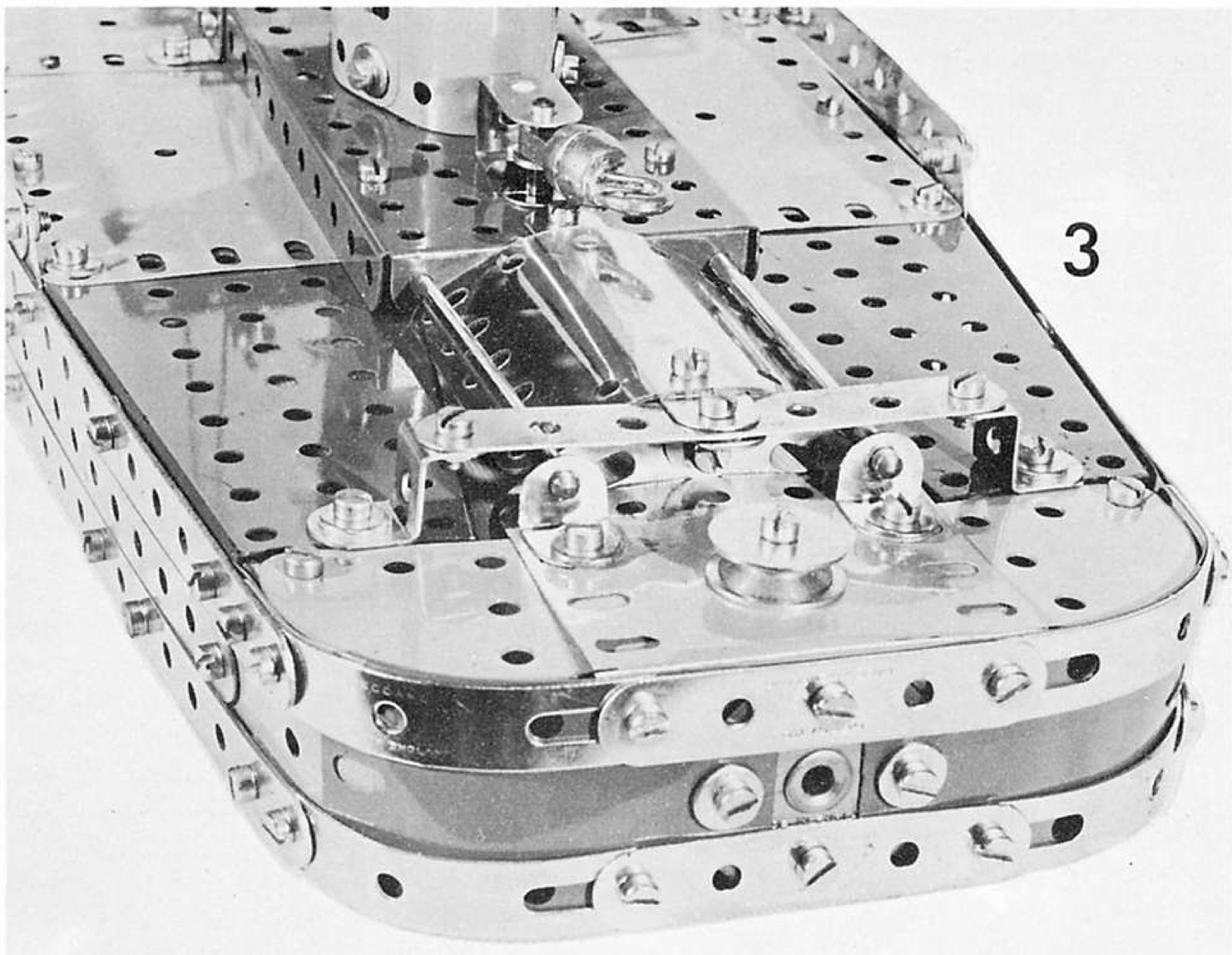
HULL

Start by building an identical pair of sides from Flexible Plates and Perforated Strips as seen in Figs.1 & 2. Working from the tug's stem (pointed end), a 5½"× 2½"Flexible Plate is bolted to a 5½"× 1½"Flexible Plate, the reduction in depth being tapered by a 2½"× 1½" Triangular Flexible Plate as shown in Fig.1.

At waterline level, a 12½"Strip is overlaid three holes on to the 5½"× 2½"Plate, and extends to the rear as part of the stern (blunt end). A second 12½"Strip is similarly attached to the tug's side at deck level but, where this is placed three holes forward on the bow plating, it is also overlaid with a 5½"Strip in which a gentle curve has been set for shaping the curvature of the bow plate. This Strip is stood off by a Washer at its halfway point, and by an Obtuse Angle Bracket at the stem where the bow plates join. As such, it forms a rubbing strake when the tug is engaged in the pushing ahead mode.

A second 5½"Strip, also gently curved, runs round from the top of the Triangular Plate to the peak of





the stem at a rising angle, and is secured by another Obtuse Angle Bracket raised one hole from the peak by Fishplates. The remaining gap in the stern side plating is filled by a third 5½"Strip and a 2½"× 1½" Flexible Plate. Final rounding of the stern section is left until the decking and superstructure are completed.

DECK AND SUPERSTRUCTURE

Start by setting two ¾"Bolts on each side of the rear end of the 5½"× 2½"Flanged Plate, on top and three holes in. These Bolts are secured by one Nut each.

Place a 4½"× 2½" Flexible Plate over the broad end of a Flanged Sector Plate, and pass the ¾"Bolt previously mentioned through the lapped Plates as shown in all four illustrations. A second Nut should first be put on the Bolt shanks before making this joint, so that the Sector Plate is spaced exactly the depth of the flange below the surface of the Flanged Plate. A third Nut then secures the assembly.

Make the funnel next from one 2½"□ Flexible Plate, one Curved 2½"□ Flexible Plate, and one 'U'-Shaped Flexible Plate. Construction is clear from Figs.1 & 2. A modern-style cowling to the diesel funnel is provided by a pair of 2½"□ Blue Plastic Plates, curved inside the funnel and set up at the angle shown. It is important to use Washers here for firm construction and appearance. One Angle Bracket inside the funnel at the rear, and a second at the front, but with its long lug slid forward under the base of the funnel, are used to secure it to the Flanged Plate in the position shown.

A heavy-duty towing hook is made by securing the 1"× ½" Double Angle Bracket to the Flanged Plate, just abaft (to the rear of) the funnel, using one Nut and Bolt. Attach the large Loaded Hook, using a 1"Axle Rod, one Washer and one Spring Clip in the second holes of the Double Bracket. In the finished model, a Hank of Meccano Cord simulates the hemp towing 'spring' used by tugs to take out the 'snatch' in a wire hawser when taking up the tow. Fig.2 shows the 'spring' in place. The 'spring' is made from left-over Cord after the anchor cables have been produced (see below).

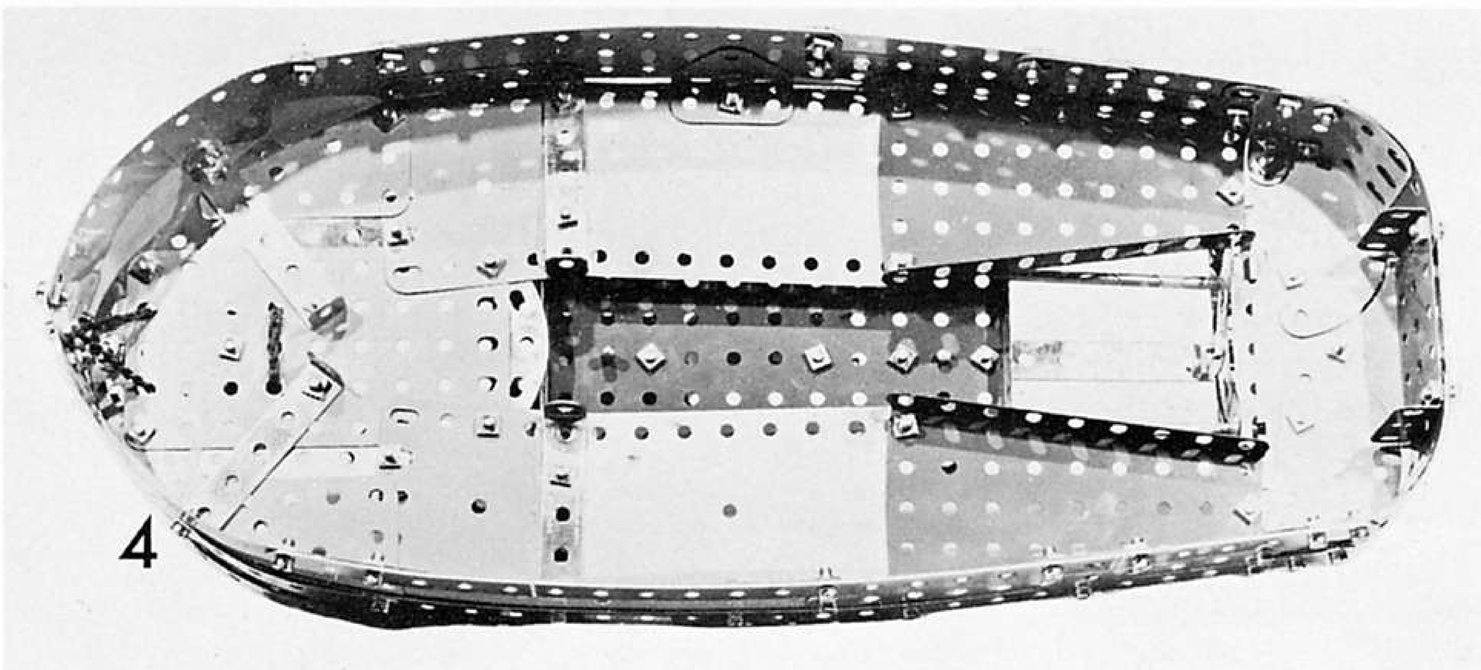
Forward deck plating is continued on each side with a 2½"□ Flexible Plate, using its slotted holes to give an inwards taper, and this can be clearly seen in the underneath view of Fig.4. A pair of Double Angle Strips bolted to the forward end of the Flanged Plate act as vertical supports for the bridge deck, and securing points for this next piece of main decking. At this stage, the decking can be joined to the partially-finished hull.

Side flanges on the Sector Plate are bolted directly to the ship's side and an internal Flat Trunnion on each side helps to secure the hull Strips together, just at the point half-way along each Sector Plate. The forward end of each Sector Plate is also secured to the side Strips, but a Fishplate is sandwiched here by its round hole and tilted slightly forward to allow a fourth 5½"Strip to be bolted to the Triangular Flexible Plate as shown, thus continuing the shelter rail from the bow section.

Slight tapering of the tug's stern is formed by the angles of the Sector Plates, and these are set for critical spacing by the towing beam mounted across the stern. Two ½" Reversed Angle Brackets form the supports, and the beam itself is a 3½"Strip. This carries a second 3½" Strip at its centre which, in turn, runs forward to be attached to the rear top centre hole of the Flanged Plate. In this position, it provides bracing for the towing beam, and a ridge for the engine room ventilation hatch.

A 2½"□ Transparent Flexible Plate provides the hatch windows, and this is curved as shown, and trapped by a pair of 3½"Axle Rods secured by Spring Clips under the Flanged Plate, and set into Angle Brackets under the towing beam shown clearly in Fig.3. A third Angle Bracket under the centre of the towing beam holds a 2½"Stepped Curved Strip lodged between the ends of the Sector Plate flanges to act as an end filling for the engine room hatch (see Fig.3).

Stern decking is made from a 2½" Semi-Circular Plate at each side, secured by Angle Brackets to the tug's side, and Formed Slotted Strips are bolted under the 12½" Strips of the hull to outline the stern plating. This is completed by



lapping a pair of 2½"×1½"Blue Plastic Plates over the existing 2½"×1½"Flexible Plates bolted to the side Strips.

The central stern gap is filled by a Bush Wheel as shown in Fig.3, but the construction seen in the underneath view of Fig.4 shows the alternative use of the small Flanged Plate for this purpose.

Stern Decking is completed by folding a ½" lip at right-angles on a 2½"□ Flexible Plate. This can easily be done by first trapping the Plate between a pair of Girders or Strips by means of Nuts and Bolts. Secure this Plate to the upper pair of Formed Slotted Strips, and overlay with a 2½"Strip. Bolt the third-holes-in from the bend in the Plate to the fourth holes of the Semi-Circular Plates, at the same time attaching ½"Angle Brackets as shown in Fig.3 for the purpose of holding the Axle Rods which trap the engine room hatch in place. A ½"Bolt, and two ¾"Washers sandwiching the ½"Plastic Pulley make the rear capstan.

FO'C'S'LE DECKING

Continue the forward deck plating as shown in the general views, with particular reference to Fig.4. Note that 2½"×1½"Double Angle Strips are used as bracing for the fo'c's'le decking at four points underneath.

A 4½"×2½"Flat Plate runs centrally to meet the bow plates, and at its forward end it is fitted with a 2½"Stepped Curved Strip which is secured by Nuts and Bolts carrying 2½"Strips at either side, running inside the bow plates and close to them. Fig.2 shows their position and that of the other pair of Triangular Flexible Plates in the Nº 5 Meccano Set, these being bolted to the outside corners of the two 2½"□ Flexible Plates, and trapped by the forward pair of 2½"Double Angle Strips as is clearly illustrated in Fig.4. The fo'c's'le decking is completed by a pair of 2½"Strips bolted in the gap between the Triangular Plates and the 4½"Flat Plate.

A 3/8"Bolt holds the 2½"Strip in place, but also secures a 1" loose Pulley on the deck on each side of the fo'c's'le to act as accommodation hatches. Some patience and a firm grip is required to marry-up the curvature of the bow plating and the fo'c's'le decking, but the two forward 2½"Double Angle Strips bolted to the middle hole of the bow plates and the central holes of the 4½"Flat Plate will assist this part of the assembly.

BRIDGE AND DECK FITTINGS

Two 2½"Strips and two 2½"Double Angle Strips form the bridge screen, and these are bolted to the 4½"×2½" Flat Plate forming the bridge deck as shown in Figs.1 & 5. A third 2½"Strip traps a 2½"×1½"Transparent Plastic Plate in place to form the bridge windbreak.

The mast is made from a 4"Axle Rod extended via a Rod Connector by a 2"Axle Rod. A ½"×½"Double Bracket is slipped over the top of the mast and rests on the Rod Connector, where it is locked in place by the Bolt shank holding a Right-Angle Rod and Strip Connector tightly pressed against the 2"Rod.

Bolt a Bush Wheel under the front end of the Flanged Plate carrying the funnel, and just two holes farther forward. Secure the bridge decking centrally to the two vertical 1½"×½"Double Angle Strips previously mounted on the front end of the Flanged Plate, and then pass the mast down through the bridge and secure it in the Bush Wheel below. If the small Flanged Plate has been used for the stern plating, a second Bush Wheel is available for bolting to the mast just below the bridge decking for additional stability.

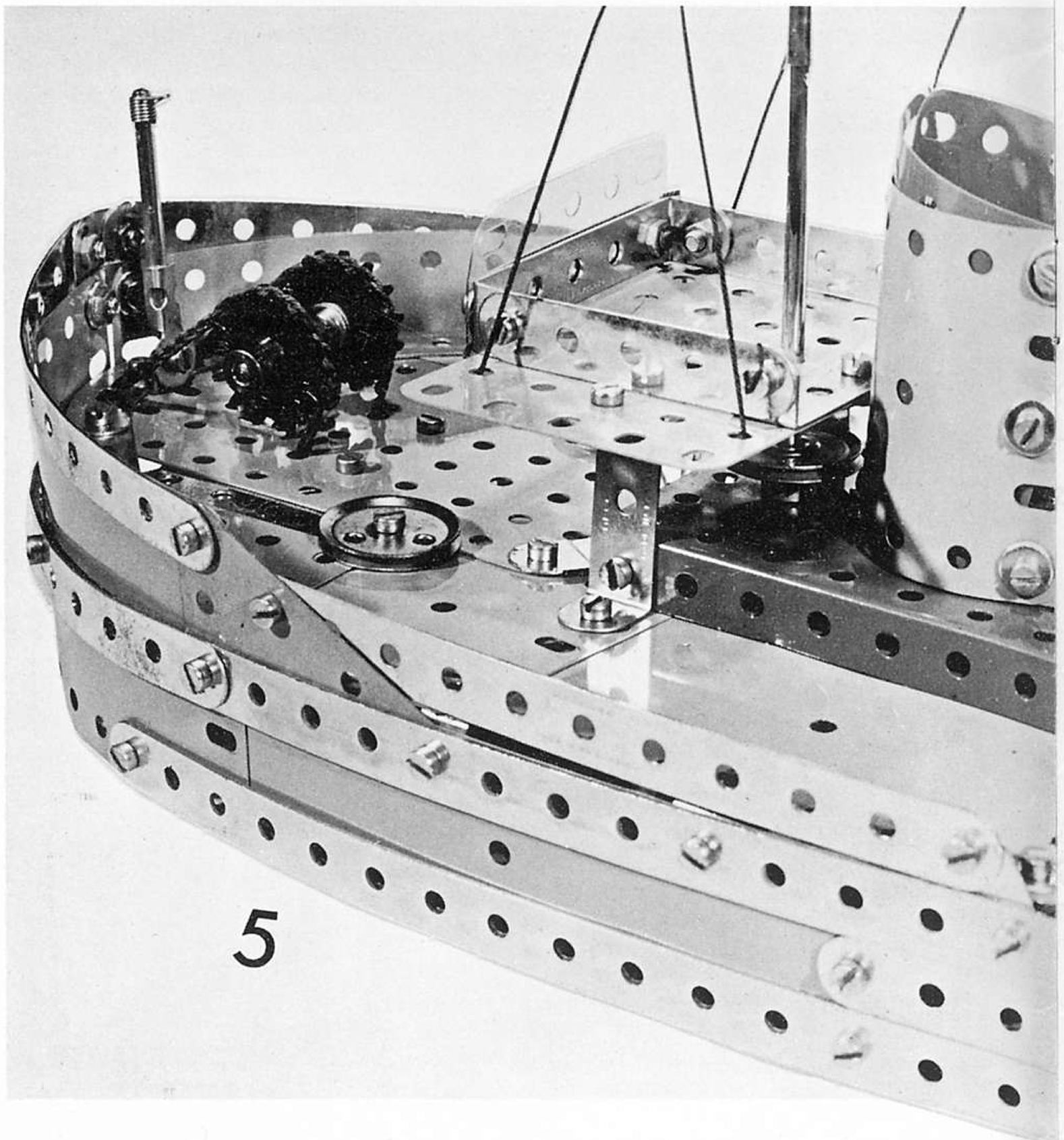
Meccano Cord lacing provides stays for the yard-arm, which is a 3½"Axle Rod fixed in the Right-Angle Rod Connector.

Fig.5 shows the cable winches on the fo'c's'le, and these are two Multi-Purpose Gear Wheels mounted on a 2"Axle Rod passed through another Right-Angle Rod and Strip Connector, which is in turn bolted to one lug of a ½"×½"Double Bracket fixed three holes back from the front end of the 4½"Flat Plate. Washers are placed on the 2"Axle Rod to ensure free movement of the Multi-Purpose Gears.

About 500mm of Meccano Cord is plaited-up to simulate the anchor cables, and secured as shown in the underneath view of Fig.4. The remainder of the Cord is made-up into a hank for use as the towing 'spring' previously mentioned.

A jackstaff is fitted in the bow by a ½"Angle Bracket in the centre of the 2½"Curved Strip at that position. The staff is a 1½"Rod fitted with a Cord Anchoring Spring, and a normal Rod and Strip Connector.

Additional details can be added by lashing the 1"Flexible Rings on the stem of the tug, to act as bow fenders, and the 1"Tyres can be laced to the ship's side for additional fenders, although this would reduce the ocean-going scale appearance somewhat. Alternatively, the 1"Pulleys and Tyres could be employed below, with a few additional parts, to make it a push-along model.



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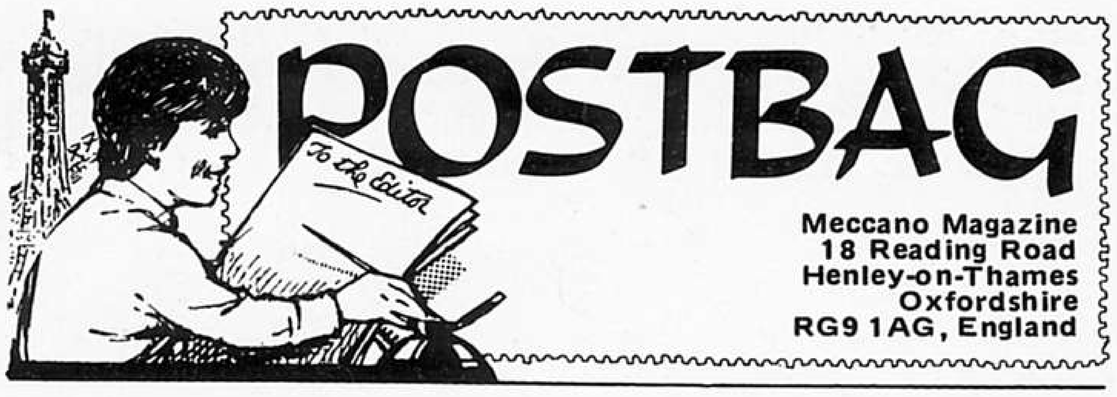


NEW PARTS, TRUE PARTS, AND PARTS FROM FOREIGN PARTS

From Dr Keith Cameron

Dear Mike and Paul:

I have just received the first newsletter of the Southern California Meccano Club, of which I am proud to be a member – although I am not much nearer them than Henley-on-Thames! Here again is an example of the value to the Meccano enthusiast of *communication*. People speak (with some truth) of the 1930s as the 'halcyon years' of Meccano. But I do not remember then such a wealth of information available so widely, read so avidly, prepared with such erudition, illustrated so fully, written so concisely, and bringing information to so many. I speak particularly of the *Meccano Engineer*, but the personal letters and newsletters also ensure an ever heightening interest that would inevitably lag in my isolation.

I was amused to read one of Adrian Ashford's Parts suggestions [page 49 of *ME12*], ie, the 3½"diameter Hub Disc. Dare I (Oh!, dare I) draw attention to the despised Marklin #10395 which is 95mm in diameter, and (except for the groove) makes an excellent 'Hub Disc'. If Marklin parts #10914 (Multi-Purpose Gear), and #11787 (Cam) became 'respectable' Meccano parts without any fanfare, fuss, flummery or folderol, why cannot part #10395 be introduced officially into the system, 'as is', complete with *16* holes in the outer circumference, and let Meccano drill *16* holes (as suggested by Adrian) in Part 146a to match, and thus allow *fixing of sixteen spokes?* Amen. So be it. I have spoken. May I be forgiven, Oh Spirit of Frank Hornby!

Regarding large gears – again in reference to Adrian's seminal suggestions – I have the following reservations:

a] Gear wheels larger than 3½" would have too limited a sale to be profitable to Meccano Ltd, and would thus come under the same ban as the ill-fated 167.

b] Gear wheels larger than 3½" with *standard* teeth would have to be made with more precision (eg, no eccenticity whatsoever) than is at present the Liverpool standard.

c] Larger gear wheels therefore might (as Adrian suggested) benefit from sharing mesh design with the Large-Tooth Quadrant and thus be additions to a new system of gearing. They would however, be relatively heavy and clumsy.

d] Large gear wheels of excellent design are already available in 3 sizes in Plastic Meccano. The range is limited and their use is made space-consuming by the shoulder-and-collet nut design, but I have modified Plastic Gears to adapt them to sweet-running and powerful drive mechanisms, with the construction also of a gear ring to slip over a Hub Disc.

I would suggest that here lies one solution. If Meccano France has modified the Plastic Road Wheel, surely Meccano could modify their Plastic Gear Wheels by selling them without the shoulder. They should (or could) still retain their 9.5mm centre hole in which a boss of a Wheel Disc could be inserted, another Wheel Disc (boss out) being fitted on the other side of the Gear. Special holes would have to be provided for fixing the Gear to the Wheel Disc. The larger Gear [P80] could be provided with a different centre construction with some open space to allow its use as a differential and for other purposes.

To the despisers of plastic, I would say that these Gears offer several advantages:

a] They are cheap to produce, yet good-looking, not cheap-looking.

b] They are quiet.

c] They have quite accurate involute design.

d] The im-purist can modify them easily. (They positively throw temptation at you in this respect, and all sorts of interesting possibilities have occurred to me, but I restrain myself for obvious reasons!)

e] They offer insulation to the electrical builder.

One *disadvantage:* Fixture of the P82 to a Bush Wheel leaves a rim higher than the valleys between the teeth, thus causing some problems, especially if sliding sideways is to be allowed. This can be overcome by using a specially-lathed Bush Wheel of 32mm diameter, or an Elektrikit [1"] Bush Wheel (in which case, the holes are non-standard spacing and are very near the centre hole).

I would suggest therefore, a new set of Gears, based on the Plastic ones now available, with facilities for fitting them to standard parts such as Bush Wheels, and with slightly different sizing to make them adaptable to Meccano spacing when meshing, and with the addition of a ring, to be slipped over the Hub Disc. (Of course, I originally got the idea of my plastic ring from the Marklin #10992 (*Zahnkranz*), but I wouldn't mention *that*! By the way – the Meccano plastic rings that I have made for the Hub Disc are far and away superior to the Marklin system of Gear Rings (#10918 - 10992) retaining the involute design, accurate, positive mesh, quiet, strong, and realistic in appearance.

I have many more ideas (for example, what about Rack Strips in various tooth meshes?) but must get back to my doctoring.

As ever
Keith.

Homeplace Clinic
Ary Kentucky
USA

From Dr Clyde Suttle

Dear Mike

When my copy of *ME 12* arrived, I automatically turned to the *'Opinion'* section and read HJ (Bert) Halliday's opinion.

I must respect this opinion, but he is welcome to keep it. Not all the world is fortunate enough to live in England where one can run down to the corner store and buy genuine Liverpool Meccano parts, or write and have them delivered within a few days; or know a nearby Meccano enthusiast who has the parts and will be willing to lend them until the shop receives a delivery.

I live in the Los Angeles basin, and the nearest shop carrying Meccano parts is in Palo Alto near San Francisco – a day's drive *each way*.

I could order from England and receive the parts two years later (which has happened in this area), or I could make do with the Meccano that I have on hand and end up with a sun-and-planet like Watt's steam engine, or I could use any part that was handy, such as Erector, Marklin, Stokys, Trix, American Model Builder, or Structo that would fit the need. Meccano 'purism' of the Halliday type is a luxury practiceable only for a few in *this* country.

Mr Halliday's statement "...Marklin is a descendant of Meccano ... but it's not Meccano now ..." brings up two questions in my mind:

1] When is Meccano Meccano?

2] When is Meccano not Meccano?

I have a complete 1914 Meccano Set N°4 and I made a comparison with the current Meccano system and the current Marklin system. The 1914 set is the one that the Marklin Brothers bought out in Germany. Both systems have retained certain parts and have deviated in other parts. Both are mature construction systems with many excellent features, even though both have diverged from each other in other features. Even identical twins separate and diverge as they mature. Marklin is not *Liverpool* Meccano – I agree with Mr Halliday on that, but that it is not Meccano is a different matter.

We have Meccano on the market made in different countries under license by firms with a name other than Meccano. These parts and sets seem to be perfectly acceptable as Meccano, so the name of the firm does not seem to be a criterion.

In my collection of metal construction sets, I have a set identical with the Meccano Set illustrated on page 941 of *MJ 32* [1973 July], with one exception – the name of the set, – and I am enclosing a copy of the manual that accompanies this set to let you note this exception. These sets were not too common, but at least they prove that Meccano can be Meccano even when it is not Meccano!

I am quite sure however, that *Mr Halliday's* answer to my first question – when is Meccano Meccano – would be, "When Meccano is made in Liverpool", and his answer to the second question – when is Meccano not Meccano – "When Meccano is not made in Liverpool".

Therefore, I maintain that Mr Halliday is welcome to his opinion, but it cannot be one to which I subscribe, as it is much too narrow to fit facts. His purism is commendable and as such should be encouraged, but it is a luxury that not all model builders are able to follow.

Sincerely
Clyde Suttle

6062 Cerulean Avenue
Garden Grove
California 92645
USA

From J A Fuller

Dear Sirs

Further to Adrian Ashford's letter and your comments thereon in *ME 12*.

I agree that a smaller-diameter Circular Girder would be useful, and that the Narrow Strip range could be extended, but a more pressing need seems to be a properly-proportioned Road Wheel – cheaper than private venture low-profile tyres.

Perhaps a moulded plastic outer wheel to be bolted to, say, a Bush Wheel would be an answer.

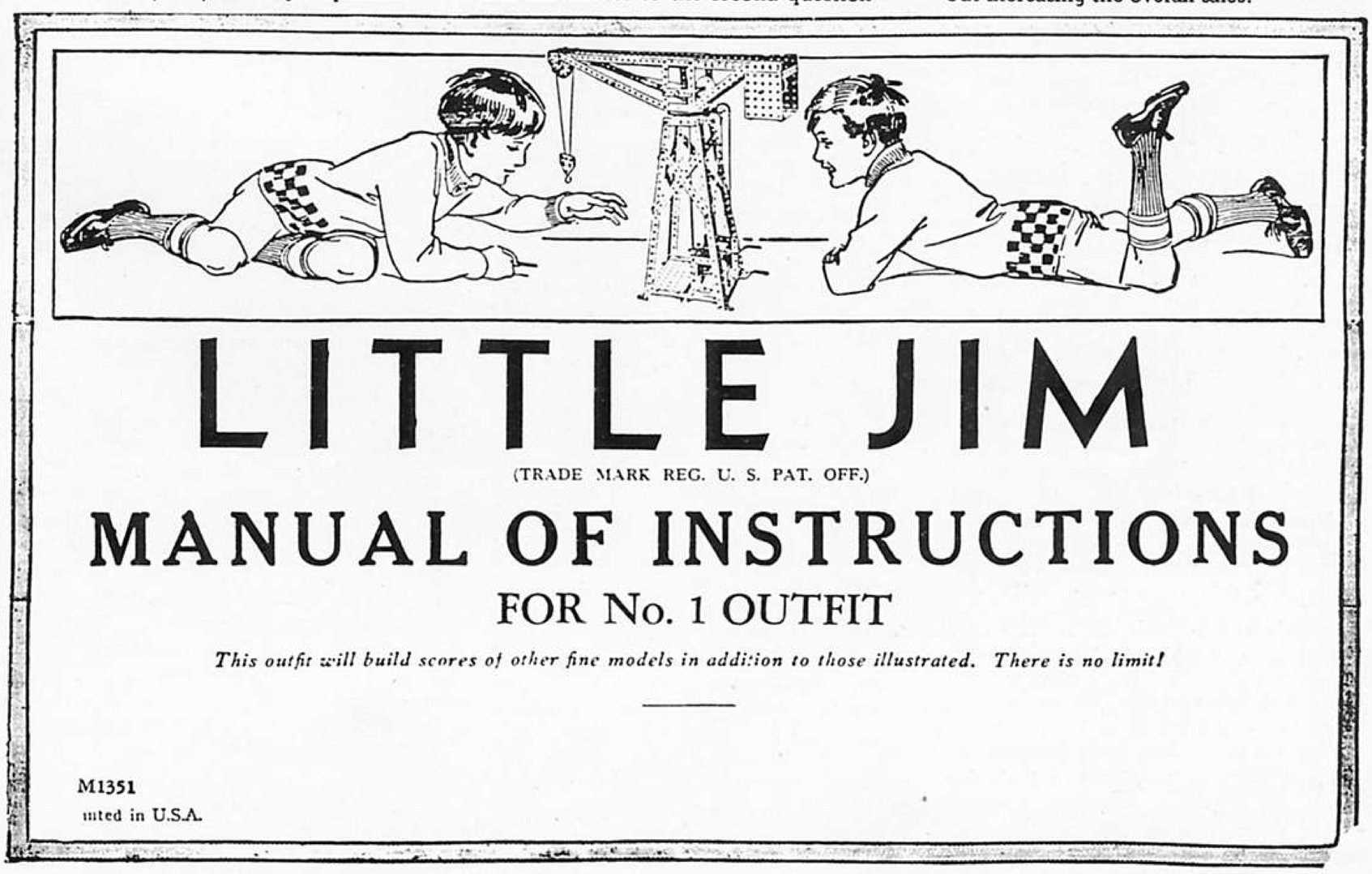
On a more personal note, I find it almost impossible to construct a true roller bearing (for the top of a crane tower). The best I could manage was a 168a [Ball Race Flanged Disc] as an inner race, and for the outer race, a 143 [Circular Girder] with fourteen ¾"Flanged Wheels as rolling elements spaced by 1½"Strips as cage members. The bearing axis of course was vertical, and the rollers ran on the lips of their flanges. The whole was a bit sloppy, but could be improved by sticking some self-adhesive tape inside the Circular Girder flange to reduce clearance.

Another way is with packs of 4"dia Circular Plates and Circular Strips as races with Cone Pulleys as rolling elements, but the narrow contact area is not ideal.

Introducing a plain roller of similar diameter would solve the problem. It could be made of plastic, with boss, and about 9.5mm across the face. This would fill a noticeable gap, as there is no true roller between the Adaptor for Screwed Rod and the Wheel Flange.

In some situations, flanges and sharp rims are embarrassing, and if we do get a smaller-diameter Circular Girder, perhaps someone would keep in mind this roller bearing point and make the inner diameter capable of running with, say, a Face Plate as inner race and ½"Pulleys as rollers.

I am not sure about filling in the gaps at the upper ends of Strip and Angle Girder ranges, as I feel that it would reduce the sales of shorter lengths without increasing the overall sales.



Is Meccano not Meccano even when it is Meccano? . . . . . See the letter from Dr Clyde Suttle, above

NO! a 12-tooth Bevel to mate with the existing 48-tooth Bevel is fundamentally unsound since mating cone angles, numbers of teeth, and diametral pitch are interrelated. It would be more practicable to introduce a 60-tooth Contrate. This would be drilled, for maximum versatility, with 12 holes!

This leads on to the obvious thought of how alternative or extra drillings could improve existing parts. May I suggest a Plate (say, 3½"X1½") drilled with holes at ¼" pitch for the more complex gearboxes?

No doubt one could go on for ever, but one has to conclude that an infinite variety of standard parts is a contradiction in terms, and can never be achieved, even if it was really *desirable!*

To conclude, I must unfortunately censure Meccano Ltd for reducing the versatility of Threaded Pins by these current under-Rod-sized diameters. No longer will Rod and Strip Connectors, Clips, etc, function properly; and why can't we have Angle Girders at true right-angles any more? The ones produced for some years now are bent at about 92° which is an infernal nuisance!

I do not know if these comments will be of value, but at least I have got them clean out of my system.

Yours faithfully,

J A Fuller — 27 Allesley Hall Drive, Coventry, England.

From D J Faux

Thoughts on Strips:

Meccano Strips have several distinct uses, the main ones being, as I see them, working pieces, strengtheners, packers, and decorative pieces.

Meccano Ltd have supplied us with a good variety of Strip sizes. I am not one of those who would advocate the production of such potentially small-runners as 4", 5", or even 6½" or 10½" Strips; let someone make out a case for the large-scale use of these items if he can! Nor do I see the necessity – although I appreciate the curiosity value – of the 18½" and 24½" bendy monsters turned out occasionally by our good friends in Argentina. Only the way-out fanatic or non-building collector is going to stock them!

Nevertheless, the usually undemanding, easy-going model builder like myself has his occasional wishes and wants. One thing that hurts me most painfully is the sight of the mutilated 2"Strip, which for years now has appeared gored through the middle. This little bit of surgery, which was a fine idea to meet the infrequent need for a midpoint journal hole, has unalterably disfigured the piece in my eyes, and it languishes in fair numbers in one corner of my storage box, from where I seldom summon it forth. Not only are its strengthening properties sadly lessened by the extra hole, but as a decorative piece it fails miserably, liable to stick out like a sore thumb on any model!

I was fascinated, though a little saddened, by the new-look 2½"Strips illustrated in the October 1976 *MMQ*. It is a pity that well-loved shapes have to change to satisfy production needs, but I applaud any cost saving to the Company. The problem is, for a good while they will look *different* from our other Strips, subtly altering the decorative qualities about which I was talking. Nevertheless, we might gain on the swings, because when Meccano Ltd eventually tool-up for new-style 2"Strips, they may listen to my plea for a 4-hole instead of the 5-hole variety, to restore the Strip range to its former pristine beauty.

Meanwhile, does *anyone* feel like making some old-fashioned 2"Strips to please me?

Thoughts on tools:

All sorts of experienced model-makers have contributed to the columns of the various magazines hitherto available for the Meccano enthusiast, and the subject of tools has often been aired. From what I read, very few of the hardy 'professionals' pick up a standard Meccano Spanner or wield a 36 or even a 36a or b! Most of them wouldn't be seen dead with the Super Tool Set cluttering up their tool box, but I'm still a dumb purist at the moment, and doggedly use the lot!

Almost as soon as I unpacked my first Meccano set (a N°.8), I accidentally stumbled on my most useful 'extra' tool. Somehow my 36b got itself magnetized, and I now use it endlessly (specially labelled to distinguish it from other, non-magnetized, Screwdrivers) to retrieve those annoyingly elusive Nuts, Bolts, and Washers which fall down into inaccessible places. I also use it to hold Grub Screws, and guide them into gearboxes to secure Wheels and Pinions. So far I haven't read about anyone using this device, but it surely must be widely known.

The only tool with which I cannot get on, and I'm prepared to believe that it's my ignorance or awkwardness, is the 34b Box Spanner. However I hold it, the Nut falls out causing more frustration than fiddling about with my fingers. Perhaps someone would care to instruct me?[1]

Having said all this, I should add that much of the criticism levelled at the traditional tools as made today is by no means unjustified, but, in my judgement, all that it needs is Meccano Ltd to spend a little more care (and expense) making the tools more snug-fitting and durable, rather than churning out thousands of easily mangled units.[2]

D J Faux — 39 Fairmeadow, Winslow, Buckingham MK18 3JB, England

1 The Box Spanner's usefulness can be extended by lengthening its slot right out to the end — rather in the manner of the Super Tool Set Nut Holder — and slightly bending in the two parts of the 'fork' so formed. This enables a Nut to be gripped and carried into place on the Bolt, after which the Spanner can be withdrawn. This idea was shown to me by Niels Gottlob during a recent visit.

2 To give Meccano Ltd their due, they are primarily in business to sell the Meccano system as a toy — if they did not take this attitude, they would perish — and, whilst respecting the feelings of adult enthusiasts (as few, if any, other 'hobby manufacturers' care to do) they must be aware that engineering-standard tools are available from other sources for those who find the 'toy tools' unacceptable. Ed

From R Watson

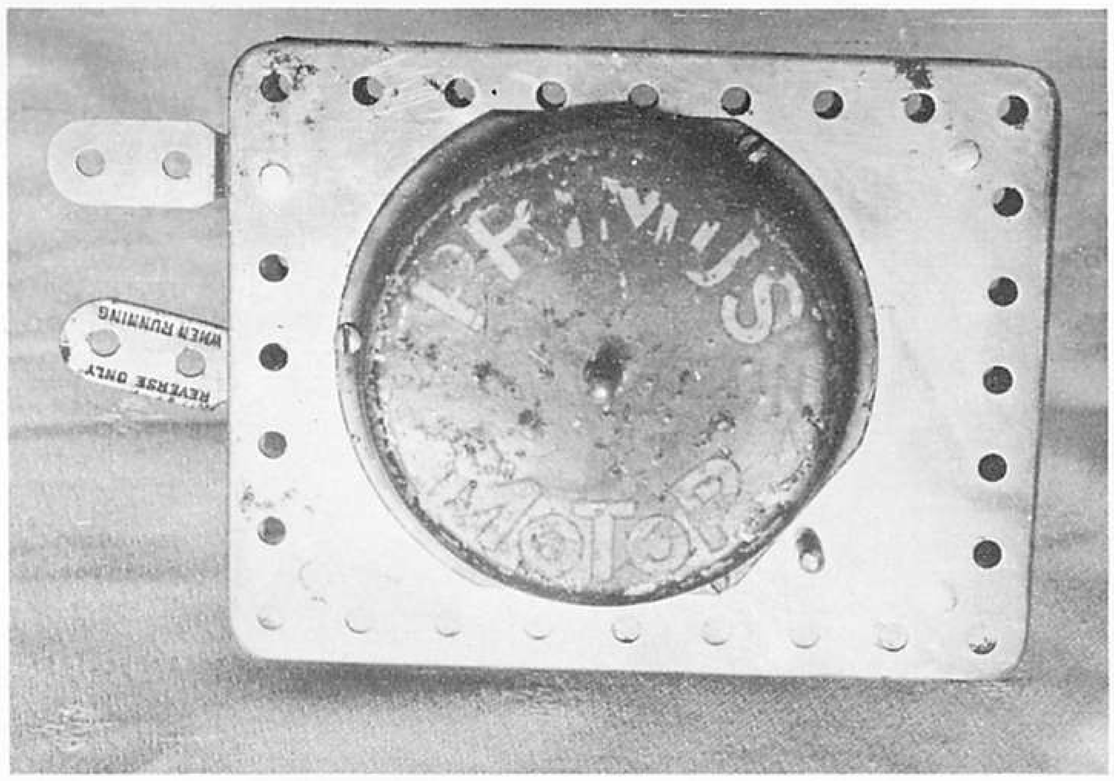
I have just received the very interesting *ME 12* and would like to make a few comments.

Mr Love's article on Part 167 seems to explain the curious design of Part 168 with its horizontal chain drive and 73 teeth.[1] It was apparently intended to mesh as a gear with a 1"Sprocket. Unfortunately, when there is a real load to shift, the poor tooth shape causes trouble. One must congratulate Mr Love for getting Meccano Ltd to make the tools for the more useful Large-Tooth Quadrant when they could have had a supply of the old 167 stamped out.

Suggestions for new parts are always interesting, but I doubt if extra Strips and Flexible Plates are of great value. Only rarely will compound parts be really unsatisfactory. Fussy people can always get to work with a hacksaw and file. 6" and 6½"Strips have already an ephemeral existence so could well be sold. The suggestion for a 12-tooth Wheel to mesh with the existing 48-tooth Wheel would no doubt work well enough for most purposes but is shocking engineering, and should not occur in a system intended to be of educational value (the shafts would be at 85°).

A smaller Hub Disc might well be 111mm in diameter to form as 'Ring Frame' when using Hub Discs as races. Part 168a [Ball Race Flanged Disc] (perhaps doubled) serves most of the uses of a 3½"diameter part. A Circular Strip of this size would, I am sure, have many interesting uses.

Extra holes in the large circular parts would be valuable. I would put them at 15° intervals rather than 22½°. 32 holes round the circumference of Part 167b would be particularly useful, not for the people wanting to use 32 rollers in Part 167, but to enable one to bolt the relatively common 5½"X2½"Flexible Plates around the outside, instead of the rarer 4½"X2½". A centre-holed 3" Strip is now available – part 215a from Argentina, and very useful it is. It is a little longer than 3" and so can be used for bracing when an ordinary 3"Strip will not quite fit.



Primus Clockwork Motor. See the letter from R Watson.

Now for some suggestions of my own:

1] A transverse Rod-sized hole in the Threaded Boss [Part 64]. This would enable this part to be used as a substitute for parts 136 and 136a [Handrail Support and Coupling] as well as for some uses of the Threaded Coupling.

2] A Right-Angle Rod and Strip Connector – rather like Part 213a, but with its two arms rotated to form a T. These two arms in line would be shortened and the clips formed on the opposite side from those on the long arm. This would enable one Rod to pass to the rear of another to form a cross. The part would be useful for many purposes in a small outfit, and a handy substitute for couplings, etc in a medium-sized one.

A limited system using 9.5mm diameter Rods. These would be the same size as an ordinary boss and therefore compatible with a number of existing parts. Each large Rod would be drilled, say, for ½" at each end to take a standard Rod and tapped to take a Grub Screw. The shortest could be drilled right through.

Four Rods would probably suffice, together with a Washer, a Collar, a Bush Wheel, and a 'Bearing Plate'. The latter would be a 1½"strip of 16SWG steel, with a lateral bulge in the middle to accommodate the 9.5mm diameter hole. Such a part would have other uses, eg, as a cage for a Ball [Part 168d].

These heavy-huty Rods would solve many of the problems encountered with large models.[2]

I particularly endorse Mr Ashford's suggestion for a 2"Narrow Strip (which must appear soon) and the longer Pivot Bolts (I use a Long Threaded Pin rather than a Bolt as substitute at present).

Finally, on a different subject, I enclose a photograph of a Primus Clock-Work Motor which I acquired recently (in pieces). Two bits are missing, but I hope to get substitutes and get it going again. The spring fits in the [red] circular box, and the gearing is between the nickeled sideplates, which are closer together than those of Meccano Motors. A feature of considerable interest is that the holes appear to be made to suit $^{5}/_{32}$" diameter Rods – not 8SWG. A check on other Primus parts showed that they had slightly larger holes, but rather smaller than Meccano holes of the same vintage. The presence of the appropriate size of drill suggested that the bosses of my Primus Wheels have been drilled out to Meccano Size. I would like to hear the comments of more serious collectors on this point.[3]

Yours sincerely

R Watson — 24 South Drive, Manchester M21 2DY, England

1 This was not implied in Bert Love's article, nor does it necessarily follow.

2 See ME 7 1978 p122.

3 I have seen many Primus Flanged Wheels with oversized boss-holes that have been fitted with a rather crude sleeve to reduce the diameter of the bore. This could have been a modification as you suggest, but they have come from too many sources to have all been the work of a single 'mutilator'. Ed

From Mike Pashley

Dear Mike,

In answer to your request to hear from readers on their views re new Meccano parts [*ME 12*] as mentioned by Adrian Ashford.

Adrian mentioned a large Gear Wheel of about 6" diameter, I would say 4½" and 5½", as in this day of super models of cranes and excavators, the 3½"Gear severely limits the scale of the model with regard to machinery layout.

The Narrow Fishplate and Angle Bracket would definitely be useful.

My own modification suggestion concerns the 20-tooth Plastic Sprocket. The Nut and collet means of fastening to a Coupling is far too bulky when used on metal Meccano models, so could not the part be made alternatively without the boss? Six or eight holes in the web would then enable the ensuing part to be bolted to a Bush Wheel or Gear.

Thanking you

M Pashley — 10 Nether Avenue, Killamarsh, Sheffield, England

PRESERVING THE CONTINUITY

From Alan Dimmock

Dear Mike,

I was very pleased to see from the October *MMQ* that you are taking on the job of producing the official *MM*. The merger of all three magazines into one is not unexpected and I look forward very much to seeing the January issue in due course.

In order to preserve continuity, I hope you will carry on with the *Meccano Magazine* numbering, ie, Vol 62 N° 1 for the January 1977 edition, (I think the longevity of the journal is something of which to be proud).[1] I'm also pleased to note that *'Dinky Toys News'* will continue to be included;[2] new Mogul and other Meccano products should also be mentioned I feel – the *MMQ* didn't always have space to include every new item (Sovereign Figures, for instance). From the collector's point of view, the *MM* has been of enormous benefit in helping to date products (as I am sure you know), but in recent years the coverage has not been complete.[3]

May I wish you every success, and hope that the eventual aim of a return to monthly publication will not take too long to accomplish.

Yours sincerely,

Alan Dimmock — 'Ravello', 1a Oak View, Cilfrew, Neath, West Glamorgan, SA10 8LO, England

1 The new team agree wholeheartedly!

2 Dinky Toys News does not appear in this edition, due to the lack of news! There will however, be at least a page in the April edition.

3 We hope to provide complete coverage of ALL meccano products, as was our policy in Meccano Engineer Ed

MECCANO LOCOMOTIVE CLUB?

From J N Broadley

Sir,

Ver much I am liking to read your magazine and verpleased concerning new editorial board and improved content.

How much good is Mr R Ford's beautiful Beyer-Garratt.[1]

I am so content that willingly will become nucleus of speziale Meccano Club for locomotive builders using standard Meccano parts. Once in York MPD have I seeing this engine and know quite well Mr Ford's intense skill gerepresented here.

Please all you builders of railway engines in Meccano to correspond to me with at least a photograph of your model large enough to show the scale which Mr Ford does understand verwell clearly optimum.

Compared with the Baltic tank of Adrian Ashford what awful travelsty is Schools (?) Class engine from Nummer 10 Instruction Book.

Best Wishes to *Meccano Magazine* from

J N Broadley — Kalmoesstraat 181, Zeivenhuizen, Apeldoorn, Nederlands

1 MMQ 1976 October p112

POSSIBLE PUBLICATIONS

From Brian Williams

Dear Editors:

On the heels of your success with *'The Life Story of Meccano'*, and amid rumours of reprints of the *SMLs*, I'd like to suggest a publishing venture that occurred to me some years ago: the reprinting of *just* the Meccano items in the old *MMs*. This could be done on a chronological basis, and I think that this would be a great success especially among overseas enthusiasts with very limited access to genuine literature. Even people with a complete collection of *MMs* would probably like to have a 'working copy' of the Meccano items.

Offset lithography of many copies would surely be a lot cheaper and of higher quality than the photocopies usual now, and I shouldn't have to mention the advantage re the price demanded for original *MMs* today!

Might I suggest a chronological basis, 20 or so pages at a time, every 2–3 months, with people 'subscribing' to the reprints.

Perhaps it would be worth mentioning the idea in the *Meccano Magazine* to gauge the response.

Yours sincerely

Brian Williams — 80 Kennedy Street West, Aurora, Ontario, Canada L4G 2L5

RAYMOND FRANCEUSE

On p45 of last September's edition of Meccano Engineer, we had the sad task of reporting the death of the French enthusiast Raymond Franceuse. Our rather hurredly-produced obituary contained little information regarding Raymond's Meccano activities, and no photograph. To set the record straight, we are indebted to PAUL BELGODERE for the following letter and accompanying photograph.

I have translated Paul's letter myself, and I apologize for any slight inaccuracies due to my rather limited French. Ed

Raymond Franceuse died on the 7th of April 1976, aged 51, weakened by an illness which made him excessively corpulent.

Raymond was the founder, compiler and publisher of the amateur magazine *Fanzines*, of which he produced 96 editions between April 1966 and March 1974. Principally, Raymond was interested in collecting and maintaining model-building information and obsolete literature, but in recent years he also came to understand and love the Meccano system.

He was a reader of *Meccano Engineer*, and both the French and British editions of *Meccano Magazine*. He also collected the publications and photocopies of the Meccanoman's Club, and in 1972, he was one of the first Frenchmen to make the 'pilgrimage' to M W Models in Henley-on-Thames, England.

He was interested in the adaptation to the Meccano system of motors and electrical accessories from other constructional systems, and he communicated his findings and suggestions to his many friends.

Raymond will long be remembered, as the contacts he originated amongst his friends are still maintained.

Paul Belgodere — 56 Rue Monge, 75005 Paris, France

THE ALL-IN-ONE ANSWER?

From Claire Voyant — **1976 October 3**

Dear Mike & Paul,

Geoff Wright inherited GMM's *Meccanoman's Journal*; with some misgivings I should imagine. Then *MJ41* appeared (I haven't seen an *MJ42*)[1], which showed a tremendous advance in the standard of presentation and general quality over previous issues.

Now you are producing the *ME*, and every issue is an improvement on its predecessor in nearly every respect: size, quality of paper, print, photos, copy, layout, editing of material sent in for, say, *'Viewpoint'* (I refer to *'How to Make a Maltese Cross'* June–September 1976), use of small sketches, vignettes, etc, to head the various items humourously and aptly, width of coverage, overseas news, high standard of journalism and writing, correct English usage, minimal occurrence of errors, then only small ones.

I find it hard to speak too gloriously in praise of *ME* and its progress from Septembers 1973, and this brings me to my main point.

There is now no need for prolonging the life of the *MJ*. Its scope is more and more being covered by the *ME* and the later issues of *MMQ*. Here is an opportunity to unlumber your editorial staff of such a spread burden, to disengage yourselves from what could almost be duplication or repetition.

It would not surprise me if the *ME* became the definitive, officially-recognized journal of the Meccano scene, and Binns Road were to hand your magazine the accolade of being the 'house journal'. I can only guess that your readership is becoming world-wide, and that this is reflected in the number of copies printed.

Congratulations & good wishes!

Ian Newton — 74 Grove Hill Road, Tunbridge Wells, Kent, TN1 1SP, England

1 You aren't the only one! — Ed

SUPER SUPERMODELS

From Dr Keith Cameron

Dear Mike:

I could not help thinking of John Z Dimech's dilemma over the dearth of large models[1] when I studied the instruction manual for a N° 12 Erector of 1929 vintage (loaned me by Dr Clyde Suttle).

I enclose a copy of the Giant Double-Cylinder Engine in case you are not familiar with these rather gross models.

The idea seems to have been simply to make a larger edition of one of the smaller models in the system without the added realism and detail that are often incorporated into Meccano models of large size. This is one of the major challenges of big models – the accurate, knowledgeable super-detailing (not over-fussy) that *makes* the perfect large supermodel.

Well, at least the young man in 'knickerbockers' seems thrilled, but that was years ago – now Erector is sadly reduced, and our young friend sits with his eyes glued to the 'telly'.

Warmest greetings,

Keith — Homeplace Clinic, Ary, Kentucky 41712, USA

1 ME 12 1976 September p51

A CHALLENGE

From Colin Hoare

Dear Mike & Paul,

I would like to give some support to your Maltese correspondent Mr John Dimech[1] and his suggestion that a group of photographs of a selected model be published in the Magazine, with a view to giving other constructors, particularly the overseas members of this fraternity, an opportunity to have a try at recreating the model themselves. Mind you, the 4 to 8 N°.10 Sets that he advocates is a bit excessive in my opinion – in point of fact, my major criticism of *Modelplan 58 'Automatic Elevator'* is the excessive number of Elektrikit parts, many of which, the average constructor would never use again in the quantities required to build this model.

To return to the original theme however, I would even like to suggest a title for such a model, ie, one described in photographs exclusively (unless a wiring diagram is essential), to wit:

MECCANO CHALLENGE

Personally. I don't think a list of parts would be necessary, although I would appreciate being advised if a large number of less-frequently-used parts is essential for the completion of the model.

There are certainly plenty of good models, the construction of which I would like to attempt. In the July *MMQ*, for example, there were at least three models that caught my eye which were on display at the Clitheroe show, that could be reproduced if sufficient photographs were available.

No matter what you decide with respect to this subject, keep up your efforts, believe me, they are appreciated by Meccano enthusiasts throughout the world.

Best wishes,

Your's sincerely

Colin G D Hoare — 108 Devon Road, Beaconsfield, P Q H9W 4K8 Canada

How about tackling Eric Taylor's Tractor shown elsewhere in this edition? Ed

1 ME 12 1976 September p50

MORE ON THE G R B

From Alf Hindmarsh

Dear Viewpoint,

After reading the article *'Birth of a Turntable'* in *ME 12*, I feel that there are some points worth mentioning.

The first time the Geared Roller Bearing was introduced to *Meccano Magazine* readers was in the issue for June 1928 on page 522 in the accessory parts list.

The other 'new' parts 168 [Ball Thrust Race] and 169 [Digger Bucket] were also listed. I wonder what visions the enthusiasts of the day conjured up whilst waiting to see the illustrations!

The first production Geared Roller Bearings were different to the later ones, as the Flanged Wheels had larger rims ($^{31}/_{32}$"), and the roller races had deeper dishing ($^{9}/_{64}$" on the outside). Early colour schemes were grey with nickel-plated teeth.

On 21st October 1940, the day that purchase tax came into operation, I see that the 167 had increased in price to 22/6 (27/6 with P T). On january 1941, it was further increased to 24/– (30/– with P T), and on the last list I have, it had increased to 30/9 (37/6 with P T).

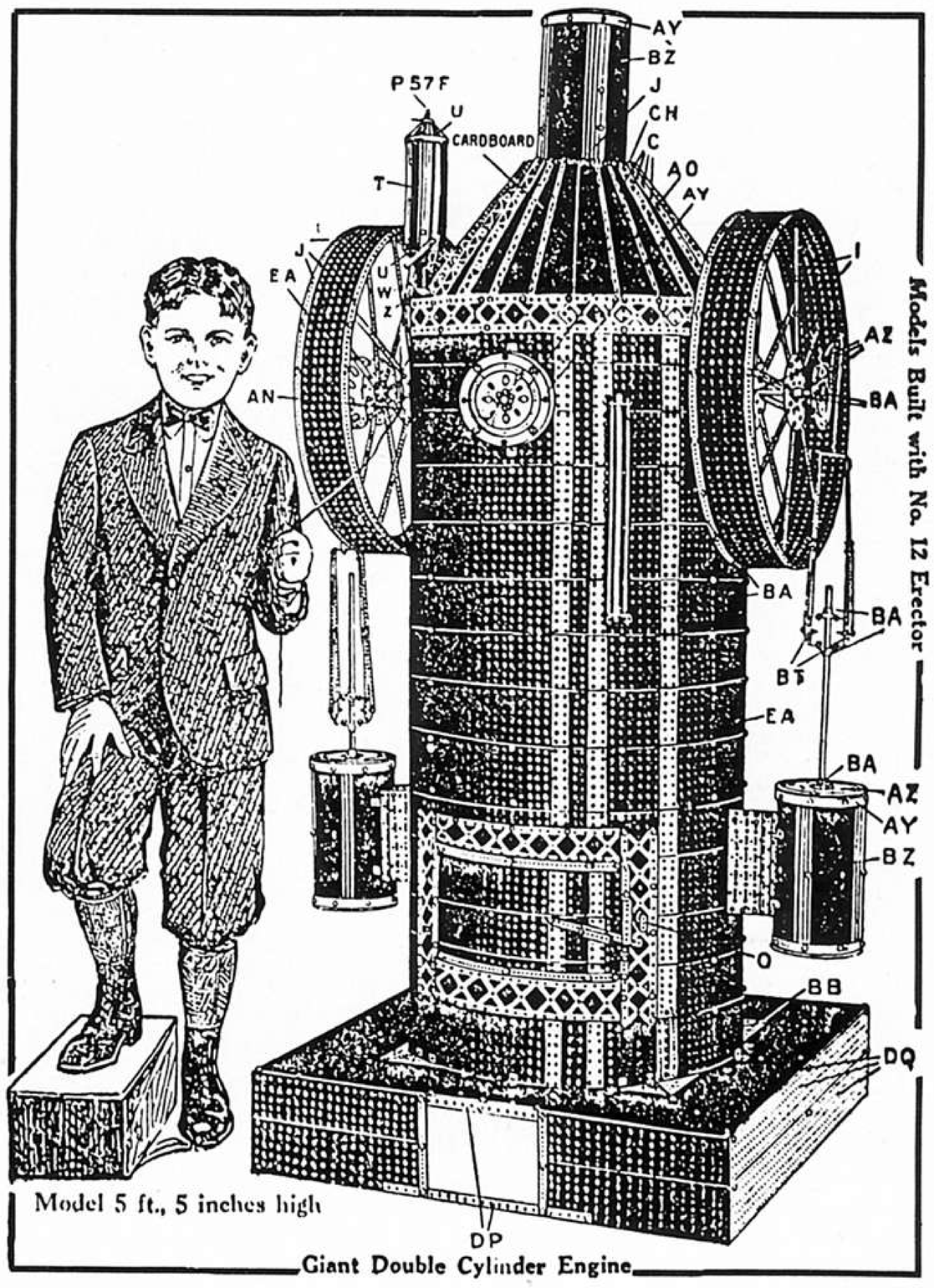
Illustrations of the Giant Block-Setting Crane appeared on the front cover of the *1928 'Book of New Models'* showing the original Roller , this was also illustrated in the *Meccano Magazine* during 1928, namely, on p172 of the February edition; p258 of the March edition; p348 of the April edition; and on p438 of the May.

In the *'Meccano Book of Engineering'*, there is an illustration of the Giant Block-Setter showing the original GRB on p16, as well as p20, but on p17, the Block-Setter appears in a similar pose but showing the *production* GRB! The Giant Dragline is illustrated on p13, also showing a production GRB fitted.

Yours sincerely,

Alf Hindmarsh. — 2 Archer Street, off Portland Street, Lincoln, England

Large, but still simple. . . . . Picture of 1929 Erector No.12 Set model



DARLINGTON REVIEW

A PICTORIAL REPORT OF THE NORTH EASTERN MECCANO SOCIETY'S RECENT EXHIBITION OF MECCANO MODELS IN DARLINGTON. LACK OF SPACE HAS RESTRICTED THE NUMBER OF PICTURES IN THE REPORT; HOWEVER, TWO MORE PHOTOGRAPHS APPEAR IN THE 'CLUB NOTES' SECTION, PP 29/30.

At last it's all over! What a splendid show it was too, many of the exhibitors travelling vast distances to support the NEMS in our first effort in the public exhibition world. There were no less than 55 models! ranging from tiny miniatures to massive mind-stretching structures containing thousands of parts, skilfully blended into a wide variety of fine models.

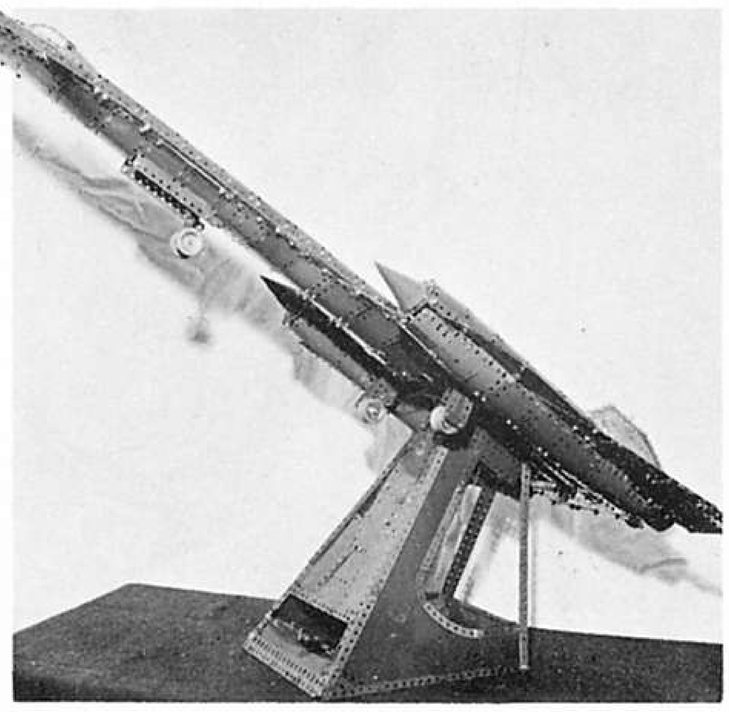
There would have been many more models had the North West Meccano Guild not had eleventh hour transport problems, as an exasperated Michael Walker apologetically told me over the 'phone the morning after.

The show served to put Meccano on the map in a hitherto untouched area of the British Isles, as no Meccano exhibition has been staged in the North East in 75 years, to my knowledge. We certainly achieved the aim to a degree, of letting the man in the street (or exhibition) know that Meccano is alive and kicking (or ticking) in this day and age.

Frank Beadle (NEMS Sec)

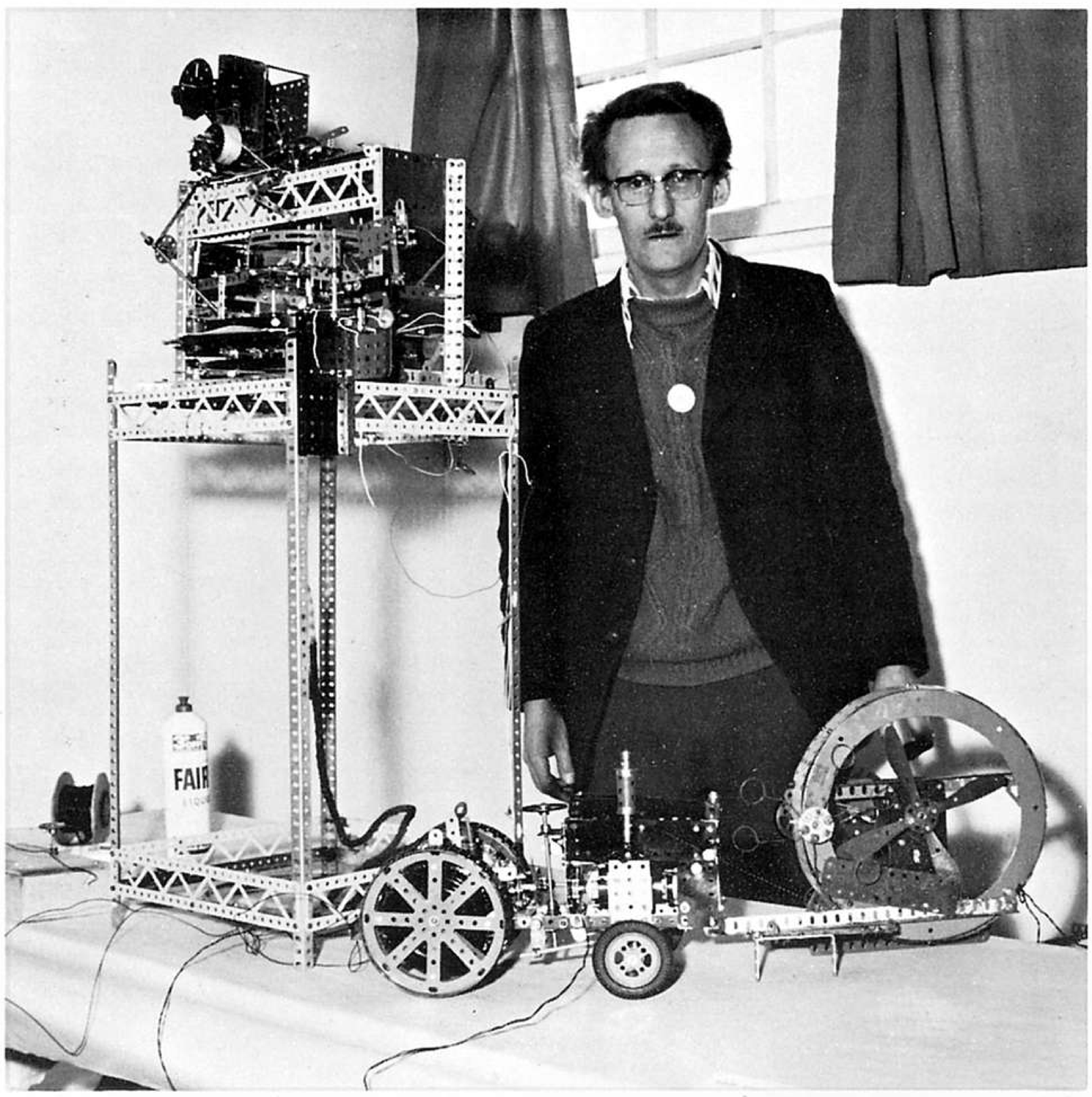
Bryan Reay presented a Bubble-Blowing machine! The liquid was picked up by six arms which rotated very slowly and passed through the bath, then before a fan composed of Propeller Blades which blew the bubbles over the spectators. Brian also showed his French-Knitting Machine of freelance design, a very complicated mechanism the movements of which were in strict sequence around a Large-Toothed Quadrant ring. The completed knitting was dispensed below the model. Under the table was Brian's Racing Car Circuit, in which the car became a blur as it travelled at 36km/h on a control line on its wooden base. Still not satisfied, he completed his display with a neat Farm Tractor, incorporating 3-speed 'H'-type gearbox, clutch, rear brakes and differential.

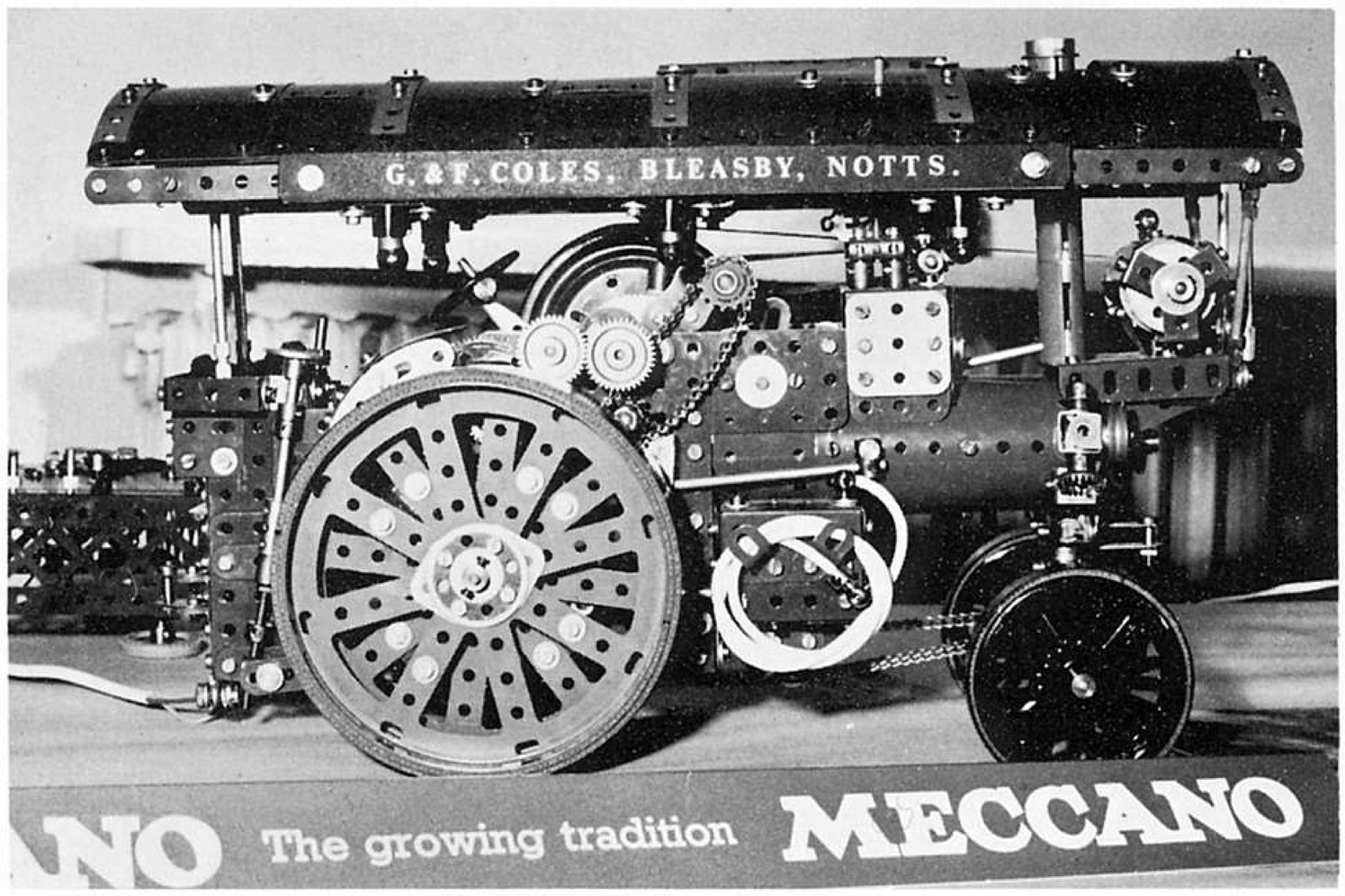
Frank Beadle displayed a 1.5m-long SR 71 'Blackbird' (Mach 3) American Aeroplane, raked at an impressive 45° angle in a power climb. The three wheels retracted, and it included seventy-two 2½"□Flexible Plates.

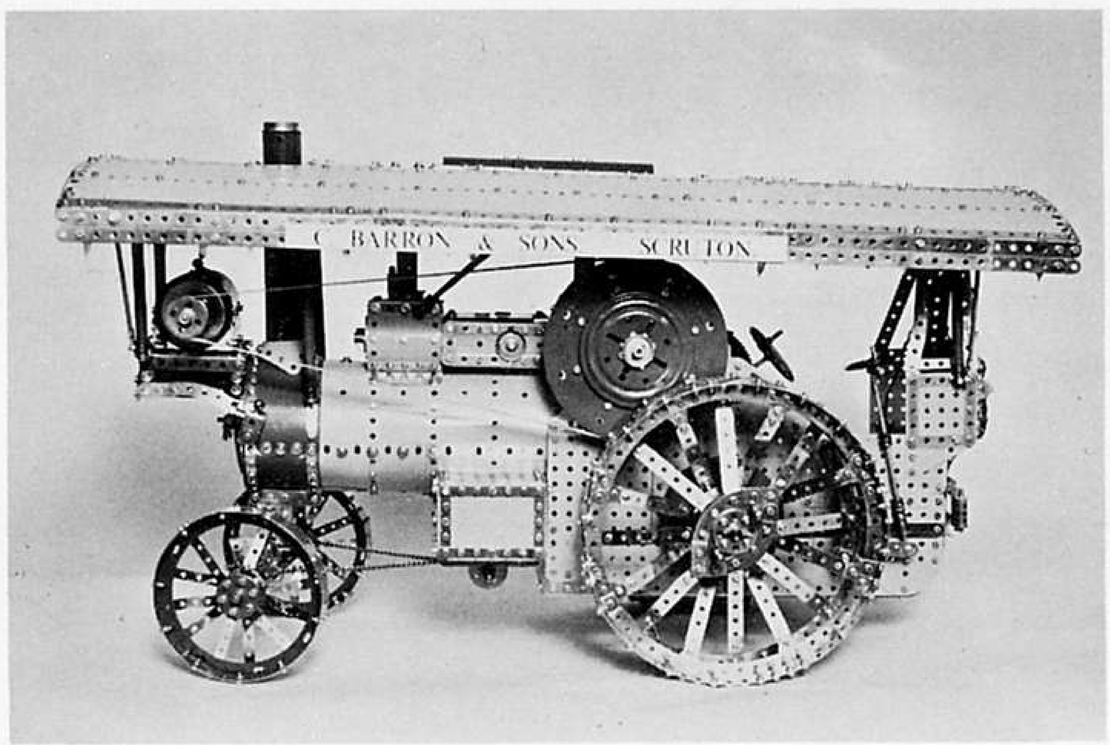


Geoff Coles displayed a well-proportioned Showman's Engine of the Foster LR Class twin type, complete with 2-speed gearbox, working valves, and a host of fine detail.

Geoff Coles (see also below) showed a Fairground Roundabout in red/green, which looked very impressive in operation. It included eight horses and eight cars rotated by a planetary motion, in unison with two other movements ▶



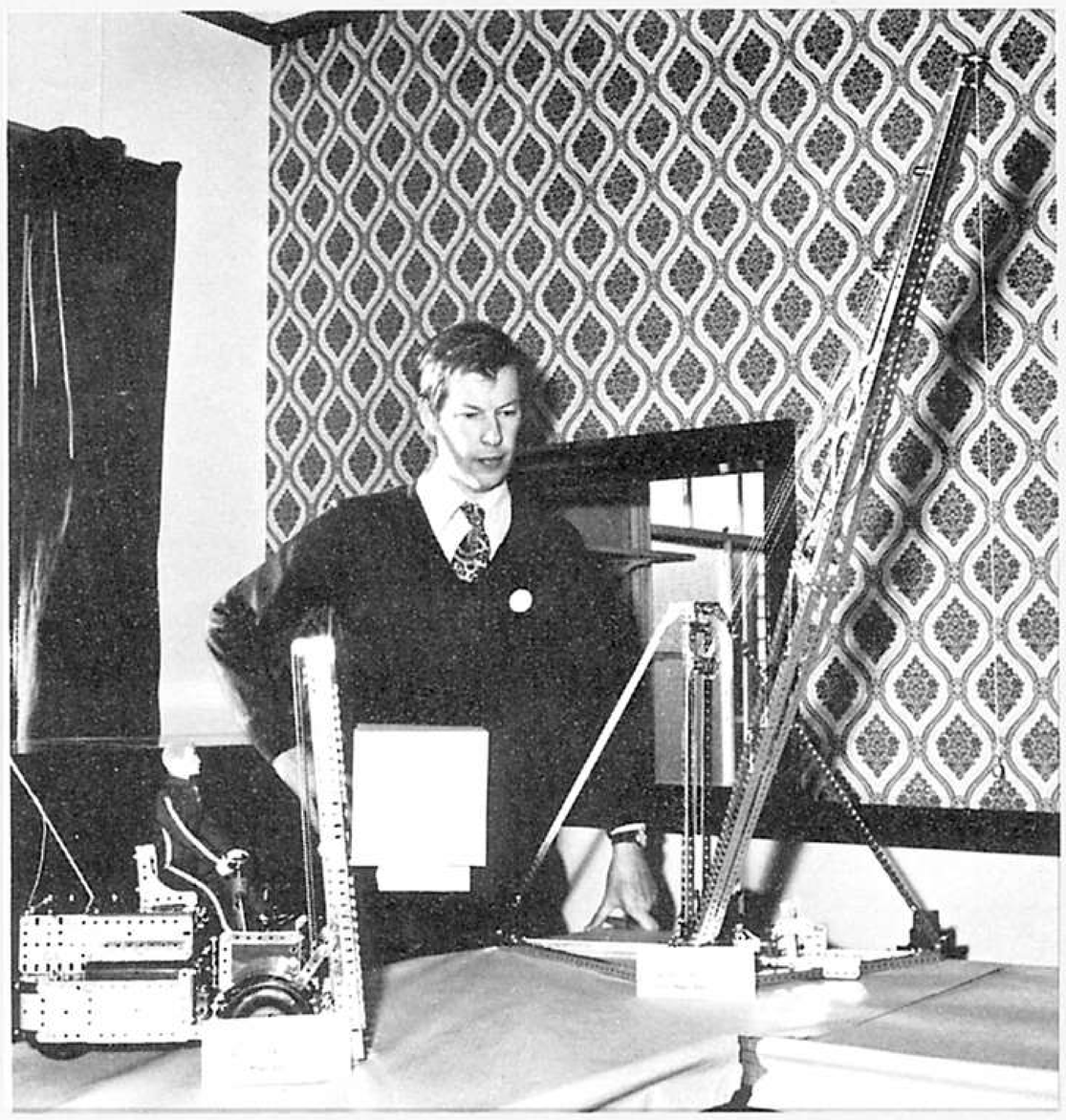




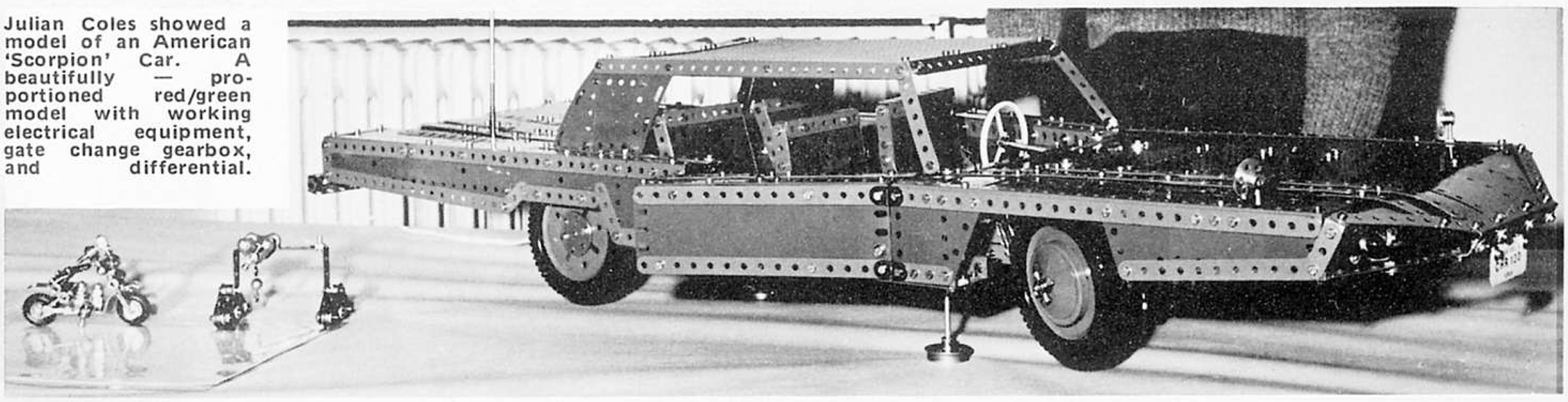
Chris Barron showed a beautiful Burrel Showman's Engine of the compound type, complete with all decorative lighting and the pulsating movement associated with these machines.

Joe Etheridge had, as his main exhibit, a Tower Crane which almost touched the ceiling as it hovered above spectators. This part-freelance model was remote-controlled as Joe sat nearby.

Michael Allen Filled quite a space with his Steam-Driven Derrick Crane in current colours. The boom was 1.2m long, and the model was powered by a Meccano Steam Engine. Michael also fascinated people all day with his radio-controlled, battery-powered Fork Lift Truck.

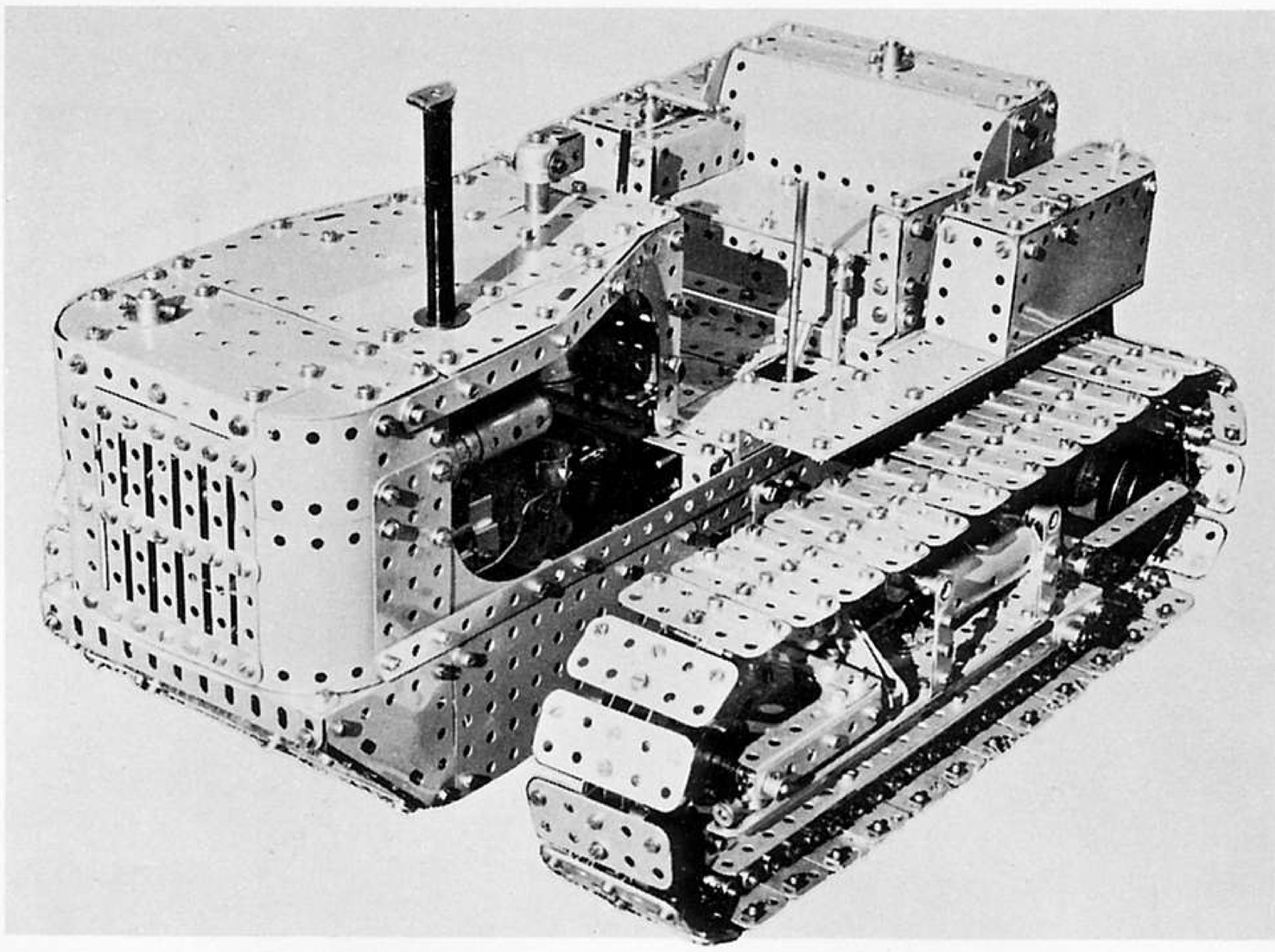


Julian Coles showed a model of an American 'Scorpion' Car. A beautifully — proportioned red/green model with working electrical equipment, gate change gearbox, and differential.



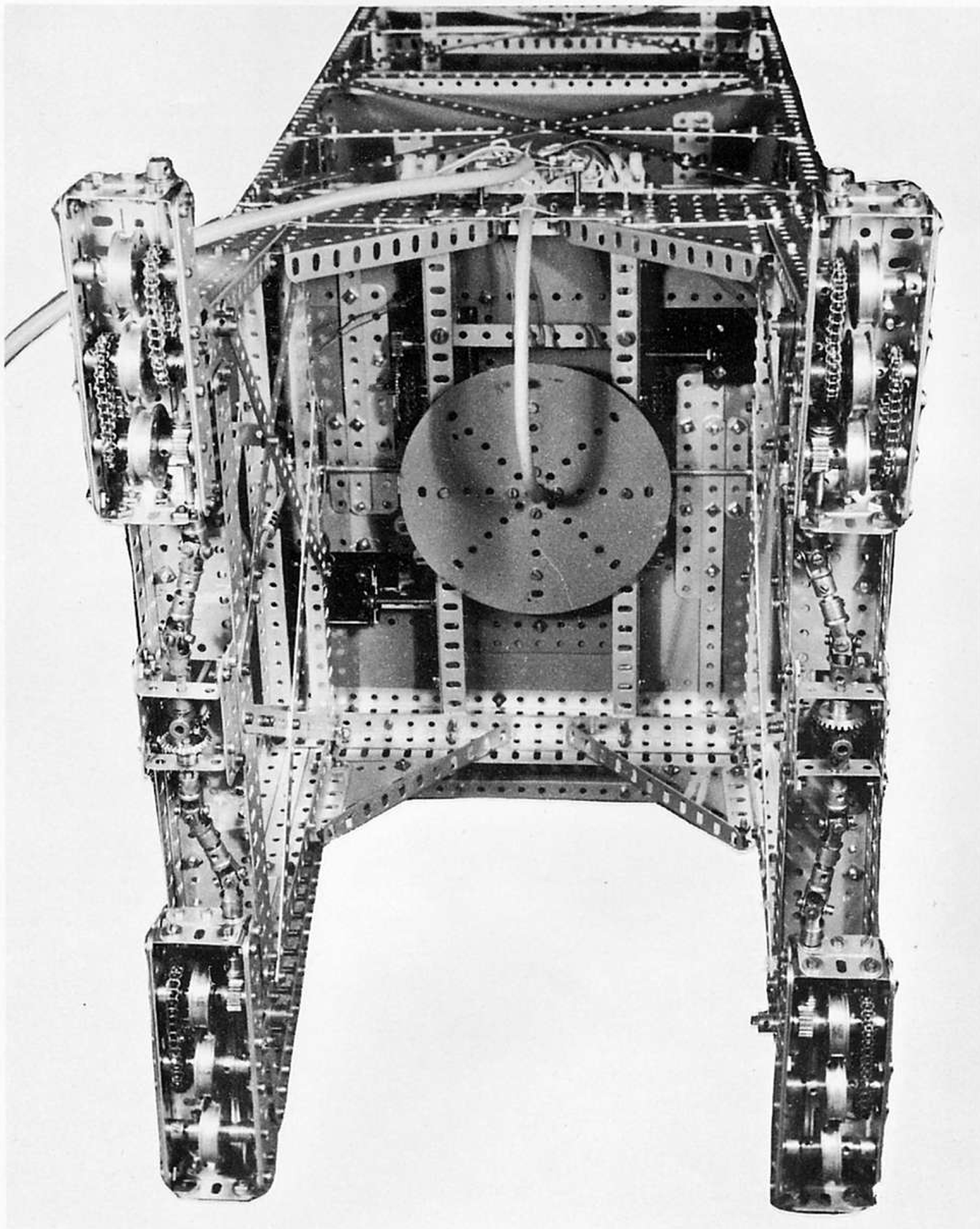
THE TAYLOR TOUCH

A COMMEMORATIVE ARTICLE DEDICATED TO THE LATE ERIC TAYLOR ▪ BY BERT LOVE



BELOW: An underside view of the late Eric Taylor's Giant Level-Luffing Crane. Elegant but sturdy portals supported the Crane on four power-driven floating bogies. All movements from the four independent motors were remotely controlled via a trailing 12-core cable.

ABOVE: A general view of Eric Taylor's Heavy Duty Crawler Tractor, in which all four gears were reversible, the tracks were spring-loaded for tension, and the track frames were compensated for chassis tilt by an ingenious equalizing beam mechanism.



At a time when the fortunes of Meccano Ltd were going through a sticky patch some ten years ago, a few adult enthusiasts exchanged letters with a view to injecting some new interest in the hobby. After a nervous start, when many an adult was wondering if he might be considered either childish or senile for getting out his long-cherished Meccano Outfit, the Midlands Meccano Guild was formed at Stratford-On-Avon, in 1968.

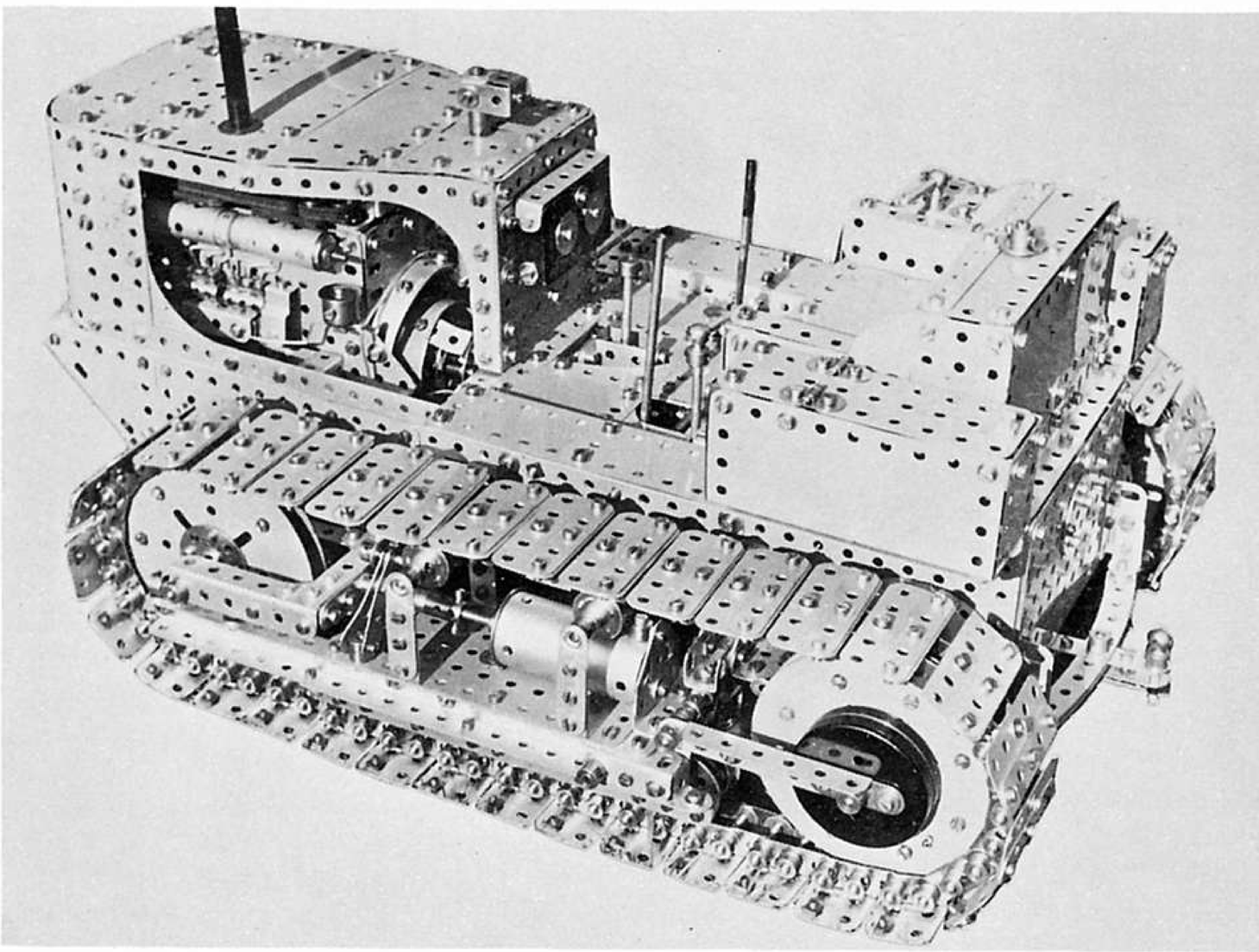
One of the founder members of this Guild was Eric Taylor of Nuneaton in Warwickshire, and I will never forget his breezy reply to my invitation to attend the inaugural meeting: "*. . . be delighted to attend, . . . quite handy with a broom, putting up tables etc . . . I'll bring a model along, but it's nothing very special . . .*" Eric's 'nothing very special' model turned out to be the focus of the meeting, giving us all a lesson in how to build a model along engineering lines.

It was, of course, his well-known (now world wide) Giant Level-Luffing Crane. Its general outlines were taken from a thumbnail picture appearing on the cover of an old French magazine, but its construction was all Eric Taylor.

Before seeing the crane erected and operating, one enthusiast was foolish enough to remark in Eric's hearing that good supermodels could no longer be built because all the best parts were obsolete. When Eric put his crane through its paces, he soundly disproved such fallacies with his own model, making the case for obsolete parts so ridiculous that the unfortunate enthusiast concerned still has a red ear to this day!

Even a gentle wigging for the use of the occasional non-standard part brought a ready reply from Eric, who would sketch an alternative section of the model using only standard parts, and anyone with the patience to test this, soon found that he knew what he was saying.

As a trained engineer, Eric could



cope with anything from a model maker's specimen off the lathe to the control of a complete heavy earth-moving plant, so when he turned up with the equally well-known Heavy Duty Crawler Tractor at the next Guild meeting, it too was soundly designed on engineering principles.

His models reflected his personal philosophy of usefulness and purpose, ruggedness and reliability; he was not a man who suffered fools gladly.

It was a privilege for me to visit Eric's home, as I did quite frequently with my camera gear, to put his work on record stage by stage; and every challenge of mine as to why he had used a particular part, mechanism or method of construction was met with a precise and logical answer. As each model was stripped before the camera, a lifetime's skill was revealed in Eric's approach to his design and construction. The experience was something like sitting at the feet of Plato.

Building instructions for these first two models were drawn up by Eric and printed by the author in response to a wide demand, following the publishing of mere glimpses of the Crane and Tractor in the *Meccano Magazine*, and literally hundreds of copies of the original photographs were sent to Meccano enthusiasts in all corners of the globe.

The impact of Eric's models on the Meccano scene was almost electric. Model-building standards at subsequent meetings rose rapidly to a very high level. Some members stood back in awe, almost thunderstruck by the precision of this new-era Meccano modelling, but the inspiration for the fainthearted was there, and what is more, those who thought that they knew a thing or two had to look to their laurels.

Those who had previously been entrenched in the notion that the pre-war Supermodels were the acme of perfection, had to revise their opinions pretty smartly. At the same time, other Guild members showed their mettle by producing very sophisticated models, and underlined the versatility of the system in so doing.

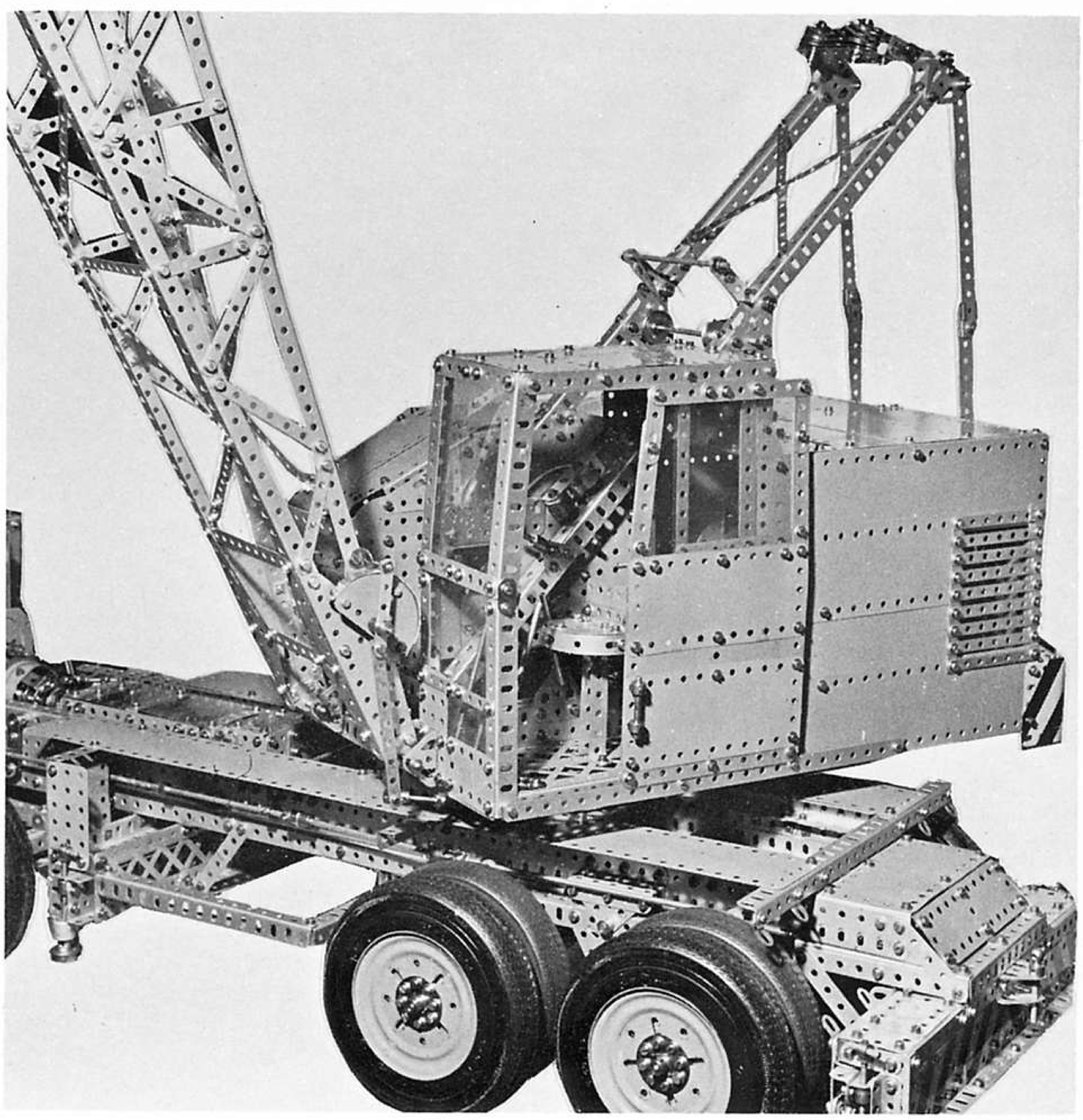
Any illusions that men were playing with childrens' toys were soon dispersed as the Guild increased its membership and broadened its range of modelling topics. Any enthusiast with a real eye for the possibilities of the Meccano system can see how far we have come just by a brief visit to Henley-on-Thames at Meccano Exhibition time, or to the country-wide exhibitions where the new traditions of superb Meccano modelling are clearly in evidence.

One good picture is worth a thousand words I am told, so I will continue my tribute to Eric Taylor by asking readers to take a close look at the four illustrations accompanying this article.

Eric's death is a sad loss to the Meccano Fraternity, but the recreation of his Crane, Tractor, and Giant Lorry-Mounted Crane at Meccano Meetings around the world is a great tribute to his example.

ABOVE: A side view of Eric Taylor's Heavy Duty Crawler Tractor showing rollers, sprockets and tension ram in the track frame. Some engine details can be seen, and the position of the gear, steering, and reverse levers. Note the swinging tow-bar pin and quadrant.

BELOW: A partial rear section of Eric Taylor's Giant Lorry Mounted Crane. Main and auxiliary gear boxes were fitted to the chassis. The machinery cab had self-erecting 'A'-frames, captive ball race, and anti-fouling luffing ropes. Additional features included tandem steering, brakes on all four wheels, twin rear differentials, on-beam coupled axles, and outrigger stabilizers.



AMONG THE MODEL-BUILDERS with 'Spanner'

DRAWING ATTENTION

In *'Among The Model Builders'* for this 'new look' *MM*, we have items ranging from a design for a simple sliding drive mechanism, to an electronic speed control for motors. First on the list this quarter, Niels Gottlob of Langs Hegnet 18, Kgs. Lyngby, Denmark, has written enclosing samples of his vast set of detailed, dimensioned, full-size drawings of Meccano parts.

Niels tells us that he has, over the past nine years or so, made over 400 drawings, and that a few are still to be made, due to the fact that he has not yet handled the original parts. The old Disc Weights and Dynometers, Collecting Shoe [Part 149], Shafting Standards, and several Lighting and Mechanised Army parts are among these drawings yet to come.

All the newer Clock Kit, Elektrikit and Multikit parts are included, but Niels does not plan to draw Motor Car Constructor, Aeroplane, Elektron, Dinky Builder, Kemex, or Plastic Meccano parts, except insofar as they are used in conjunction with ordinary Meccano parts. Thus, parts such as the Aeroplane Collar and Pivot Bolt, Motor Car Constructor Collar (with cone), plastic parts from Multikits, etc, have been included.

The drawings are very fine indeed, and I am reproducing one here (reduced in size — the originals are 140×200mm), and Neils asks readers if they would like to acquire a complete set of (very good-quality) photocopies of his drawings.

Those interested should contact him at the above address. If the demand is sufficient, it may be possible to produce the set of drawings as a book.

Anyone interested?

SPUR GEAR DIFFERENTIAL

The differential is a popular and useful subject for Meccano mechanism constructors, and has received a good deal of attention in these columns in the past.

John Mercer of Reading, England, has sent in a design for a heavy-duty spur differential. He writes:

"Modellers may have found that the differentials normally used with Meccano models either involve the use of Bevel Gears or Contrate Gears. Experience has taught me that Contrate Gears are apt to slip and become distorted very easily; they tend to wear the Pinions rather quickly. In real engineering, the practice of using Contrate Gears is never seen, and for this reason, we often use Bevel Gears in differentials. However, I find that after I have built most of the model and I come to build a differential, I have no Bevel Gears left. To buy more is, as we are all aware, quite expensive, so I have designed a differential using only spur Gears.

"This has the advantage that it can be built with more common Meccano parts, and that it can be more rigidly made than can the Contrate-style differential. It can also handle heavier loads without distortion of the frame, which is what always seems to happen to mechanism N° 20 from the Meccano Mechanisms Set.

"The diagram shows how the Gears are used. A and B represent the frame to hold the mechanism. This may take any form the constructor wishes, and can be as strong as necessary, as it does not rotate as do the main-frames of other differentials.

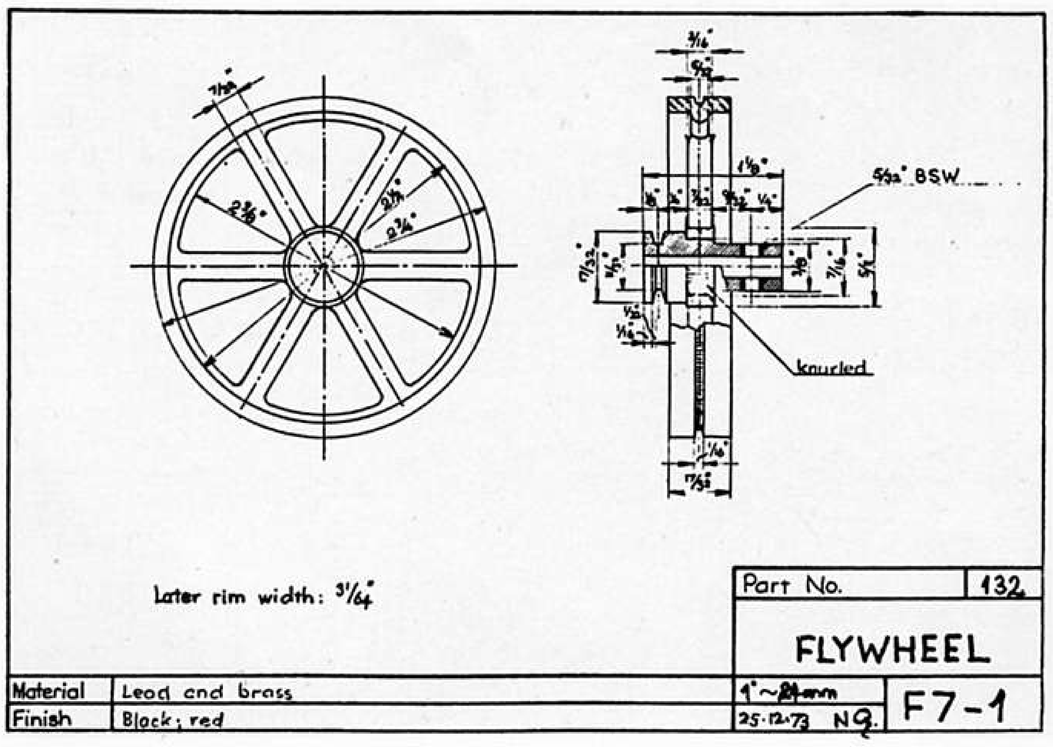
"Once the frame has been constructed, put one Collar and a Washer onto a 3½"Rod, pass this through the frame and slide on three Washers, followed by a Gear Wheel [27a, 27b, or 27c — depending on the speed of rotation required for the rear axle]. This Gear is **free** on the Rod. After this, put another Washer and a ½"Pinion on the Rod.

"Repeat this procedure at the other side of the frame, but using an 8-Hole Bush Wheel instead of the large Gear. Once this has been set up, take two 3"Rods, each holding three Collars, four Washers, a ½"Pinion, and a 1"Gear Wheel, as shown in the diagram. This should turn freely. Repeat the procedure in the other direction with the other Rod.

"The Rods are mounted in opposite holes of the Gear and Bush Wheel.

"All Gears are fixed on the Rods, except 27a (b or c) and the Bush Wheel. The drive is taken to the Gear just mentioned via a Worm or Pinion. The differential is now useable.

"If you find that the system is not rigid enough, it is easy to double the Bush Wheel and the large Gear so that the 3"Rods have more positive support, but I will leave it to the modeller to adapt the idea as necessary."

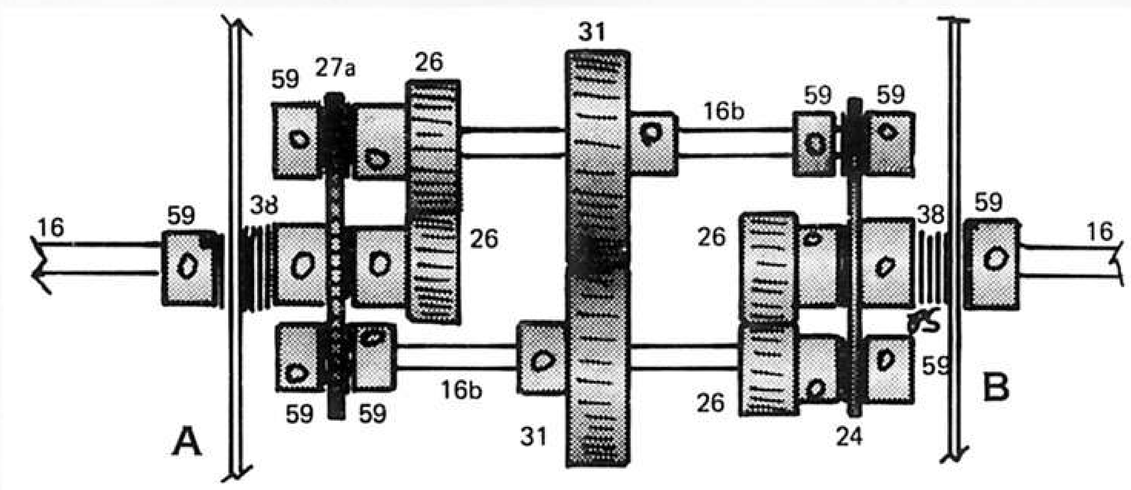


LEFT: One of Niels Gottlob's drawings of Meccano parts — see first item above.

BELOW: The Spur Gear Differential described on this page

SLIDING DRIVE MECHANISM

Mike Coterill of Skegness, has written briefly with details of a mechanism that he has designed to transfer a drive to a sliding shaft in line

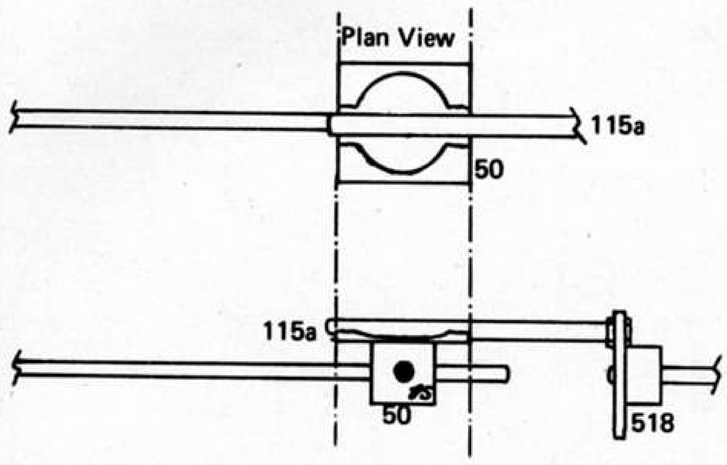


with the driving shaft.

He says: "This is often done with two pins on two ordinary Bush Wheels. This gives problems if:

1] any shafts are bent.

2] the pins are not exactly parallel.



3] either Bush Wheel does not run true, under which circumstances, the sliding shaft is often unable to slide fully.

"One disadvantage of the alternative design shown in the diagram is that some slack is present; this is, however, only important if the shafts have to reverse frequently or precisely."

SIDERIAL TIME MECHANISM

Think of Meccano clocks, and the chances are that the name of Pat Briggs of Wollaton, England will spring to mind. Always a cornucopia of Meccano clocks and their mechanisms, Pat can be relied upon at all times to come up with something new.

Pat has sent us the details of a Siderial (Star Time) Mechanism, which contains the means of building up sprocket wheels to your own specification. He writes:

"A simple means of obtaining siderial (or star) time is achieved by speeding up mean solar time by the ratio $^{366}/_{365}$; this will be accurate to within 57 seconds per year.

"$^{366}/_{365}$ will factorize to give the simple gear train $^{61}/_{73} \times {}^{60}/_{50}$, and 50-tooth, 60-tooth, and 73-tooth are all available in the system (the latter will be recognized as the Toothed Disc of the Ball Thrust Race [Part 168]. But how do we get 61 teeth?

'This problem can be solved by building up a wheel-plate on which are bolted six ¾"Sprocket Wheels. A loop of Chain with 61 links is used to set the Sprockets at the correct distance and radial position to ensure a smooth mesh with the Chain.

"At intermediate positions between the Sprockets are positioned Threaded Pins or ½"Bolts, so that the made-up unit has a near-circular form. The Chain loop is then removed, leaving us with an effective 61-tooth sprocket.

"In this way, wheels can be built up with tooth numbers over a wide range.

'It is conceded that the drive will be slightly cyclic, and a 'jocky' will be needed to deal with the varying Chain slack."

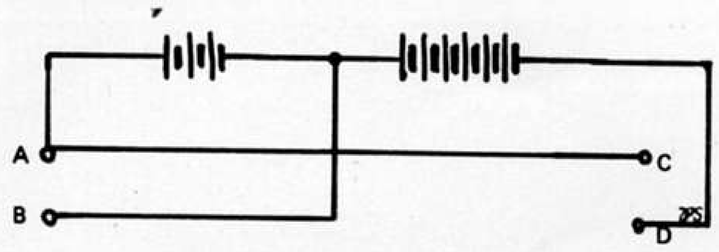
BATTERY BOX VOLTAGES

Mrs (Granny) Bakker of Holland, has written concerning the internal connexions of the (original 12/4.5v) Meccano Battery Box. She writes:

"Happy circumstances made me the owner of a voltmeter, and at that moment I remember something that had been 'Rounded-Up' in *JME 6* of December 1974, regarding the possibilities of the Battery Box contained in the outfit of many a one.

"To my surprise, the Battery Box gave 4.5v reverse in this position: ← ←, and not in the → → position, where I got no current, a 'stop position'.

Playing with my voltmeter, I concluded that the scheme of the Box could be:



Then I used the other two sockets (left under and right up):

Switches:	←	→	12v
	→	→	9v
	→	←	4.5v reverse
	←	←	no current.

Using the upper sockets:

Switches:	→	→	12v
	←	→	9v
	←	←	4.5v reverse
	→	←	no current

Using the lower sockets:

Switches:	←	←	12v
	→	←	9v
	→	→	4.5v reverse
	←	→	no current.

It's true: with Meccano, everything is possible!"

YELLOW PAINT

Michael Edwards of Watford, England, has written to tell us of a paint suitable for retouching Meccano yellow-painted parts. The paint is Humbrol MC2 — Yellow Fairings, and should be available from any good model shop.

The paint is a matt finish, and as such, will need a subsequent coat of varnish.

Michael enclosed a sample of the paint with his letter, and I can affirm that it is a good match for *some* yellow parts, but slightly too light for others, due to the variations of hue between paint runs at the Factory.

For more information on paints for retouching Meccano parts, see: *JME 5* 1974 September, and *ME 9* 1975 September.

ELECTRONIC MOTOR CONTROL

Dr Keith W Cameron of Ary, Kentucky, USA, writes to say that he has just built up a simple electronic gadget, familiar to most model railway fans, but possibly not so well-known to Meccanomen, to whom it may be of use. The device is a motor speed control with built-in starting, coasting and braking effects, all automatic, and easily built from two transistors, three resistors, a potentiometer, and a capacitor.

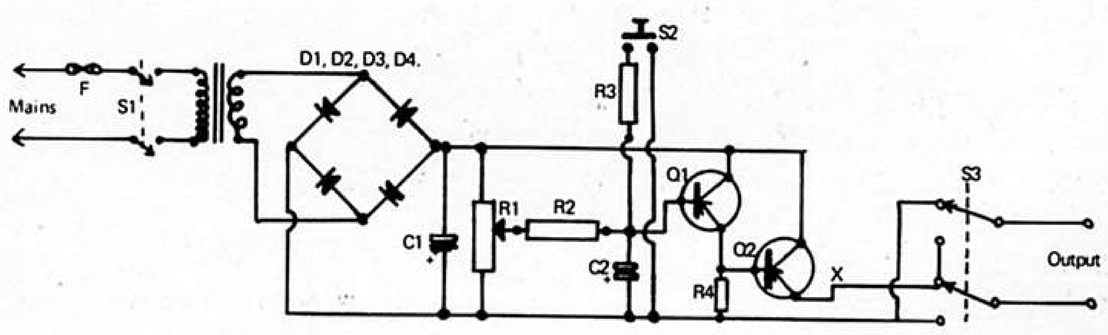
The device uses a resistance—capacitor time delay, which is applied to the base of a small general-purpose transistor, coupled to an output power transistor in cascade.

Those who use this unit to control trains and the like will have no problem fiddling with the control knob on hills either up or down; and, on shutting off the 'throttle', the engine will come to a realistic, gradual halt, for all the world as if it were 'free-wheeling'. The basic circuit can be built on a small piece of perforated circuit board 50mm×25mm, the heat sink for the power transistor can be mounted on one flange of a 3½"×2½" Flanged Plate, with the control mounted in a small piece of formica on the other flange.

The circuit diagram is as shown. The power transistor must be mounted on as heat sink. Keith

COMPONENTS REQUIRED:

C1	2 000 µf 25v electrolytic capacitor.
C2	150 µf 15v electrolytic capacitor.
D1→D4	Silicon rectifiers — can be full-wave bridge rectifier.
F	½-amp Fuse.
Q1	p-n-p Transistor, small signal, 2N137D or equivalent.
Q2	p-n-p power Transistor, HEP200, or equivalent.
R1	1 000Ω 1W Linear potentiometer
R2	33K Resistor.
R3	100Ω Resistor.
R4	1K Resistor.
S1	On/off Switch.
S2	SPST (Single pole - single throw) press on/release off Switch.
S3	DPDT (Double pole - double throw) reversing switch.
X	Insert a high-current automobile bulb here, and you have a short-circuit-proof overload protection device.



RIGHT: Dr Keith W Cameron's electronic motor-control circuit.

mounted two, one n-p-n, and the other p-n-p, insulated from the sink, but with heat sink compound added. In this way, he has two circuits, and the ability to use them back-to-back for easy reversing.

Closing **S2** defeats the 'free-wheel' effect and has the effect of an emergency brake. The circuit will not give accurate 'spot control' for cranes and similar models, but for operating Meccano locos and other moving vehicles, it has intriguing possibilities.

A CURE FOR BENT RODS, STEERING WHEEL WHEELS, & SHOWMAN'S ENGINE DYNAMO

Next this quarter, Brian Rowe of Newton Abbot, England, has written on several Meccano subjects. He writes:

"I have managed to get round some of the problems of bent Axles (only those over 3½" in length). The necessary requirements are a 5½"×2½" Flanged Plate and a small hammer.

"For the shorter lengths, place the Axles in the 2½" width of the upturned Flanged Plate and rotate with the fingers. You will soon notice where the bows and bends are, and a few light taps with the hammer will straighten them. Use the hammer on the 'high' parts, and do it carefully.

"Similarly, the longer Rods can be placed in the 5½" upturned flanges and treated in the same way. Where the ends of the Axles are contorted, it is a better idea to place each offending Rod on a **flat** piece of metal, rotate, and gently tap the ends of the Rod."

On Steering Wheels [Parts 185 & 185a]:

"By bending up the tabs on the coverplates and removing the covers, you have the means of making an 8-spoked front wheel for a small Traction Engine. Use two wheels butted together with the spokes offset. This is a good scale for the use of Spoked Wheels [Part 19a] as rear wheels (again, two butted together with spokes offset).

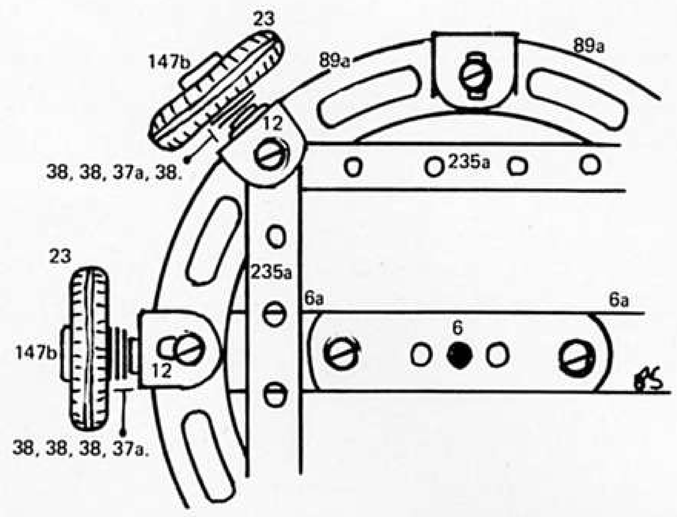
"A rubber tread enhances the effect, and is easily fitted over the twin rims. The 2½"Steering Wheel gives a 6-spoke layout as above, but rear wheels are difficult to fit to this scale (3"Curved Strips are about the nearest for rear wheels).

"I am in the process of designing a Showman's Engine dynamo, built around the new Meccano 4.5v Crane Motor (as suggested on p21 of *ME11*), and it is hoped that this will provide the power for the engine (with Hub Disc rear wheels) as a whole. The 2"Strip with centre hole will be most useful in this respect, as I intend to use Boiler Ends as a basic scale. More details will follow later."

Brian ends his letter by commenting on Clock Kit Pendulum Rods [Part 252]:

"These are very expensive to buy, but they have some good constructional points in their favour. They are extremely light, and are invariably true and straight. They also polish-up well, and look good in bracing and cross-ties."

We look forward to hearing the results of Brian's labours.



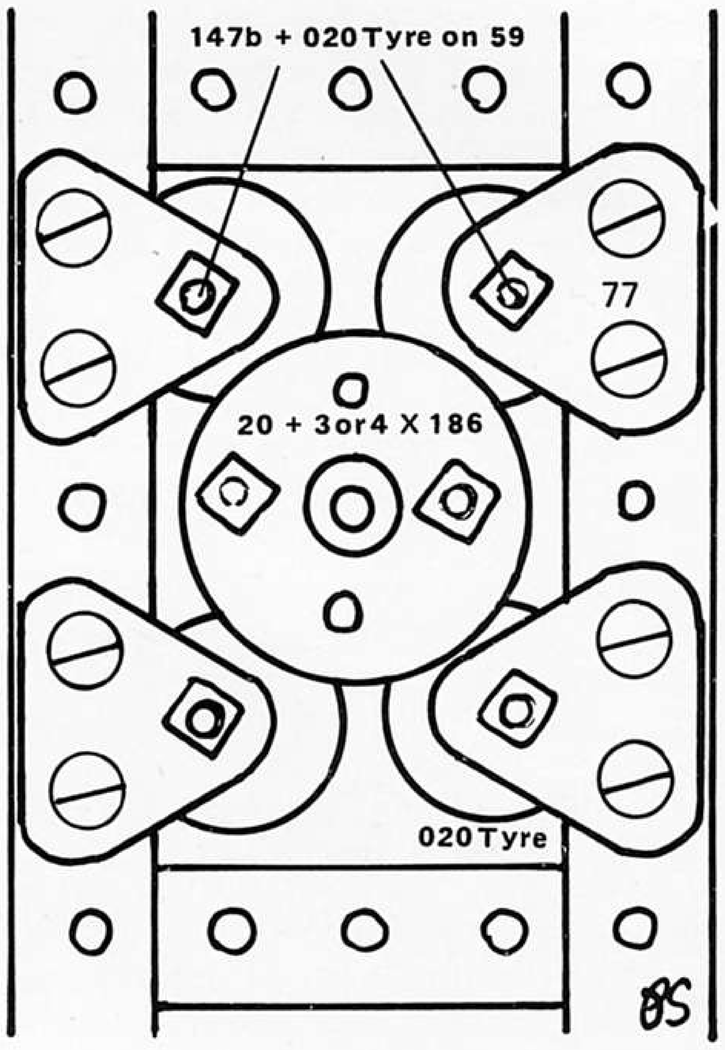
ROLLER BEARINGS AND CAMS

Now, a number of items from Pierre Couroble of Tourcoing, France.

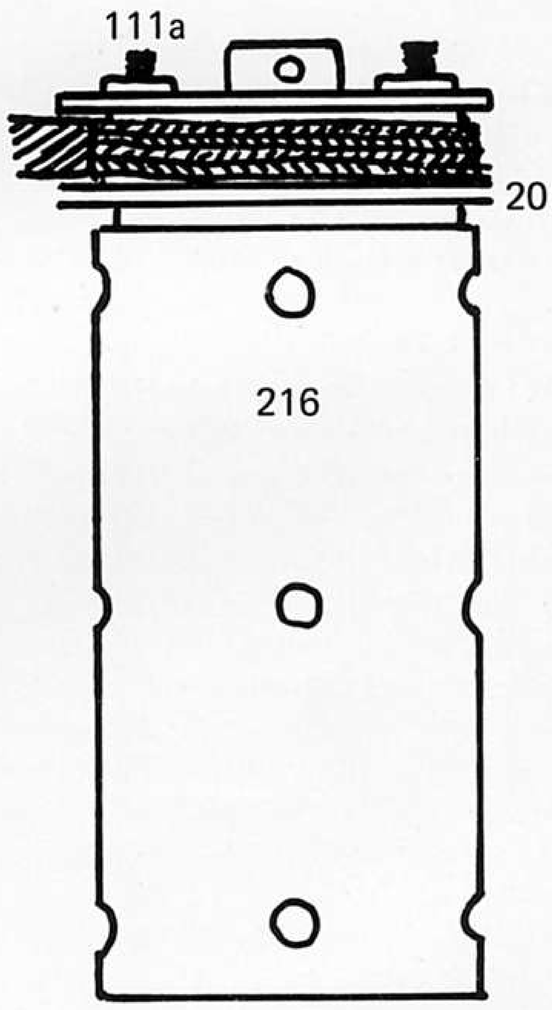
First, a design for a roller bearing that utilizes Hub Discs and ½"Tyres. The Hub Discs act as the roller races; no Bolts should be passed through the flanges or the circumference.

The roller ring is built up from four Stepped Curved Strips [Part 89a], four 3"Narrow Strips, and a compound strip made up of one 1½", and two 2"Strips. Eight ½" Angle Brackets, bolted alternately by their round and elongated holes, hold the Pivot Bolts on which the rollers are mounted. These rollers are ½" loose Pulleys fitted with ½" Tyres [Part 452 or equivalent].

Pierre has also sent designs for a hollow spindle for large cranes, and for various built-up cams. All are reproduced here.

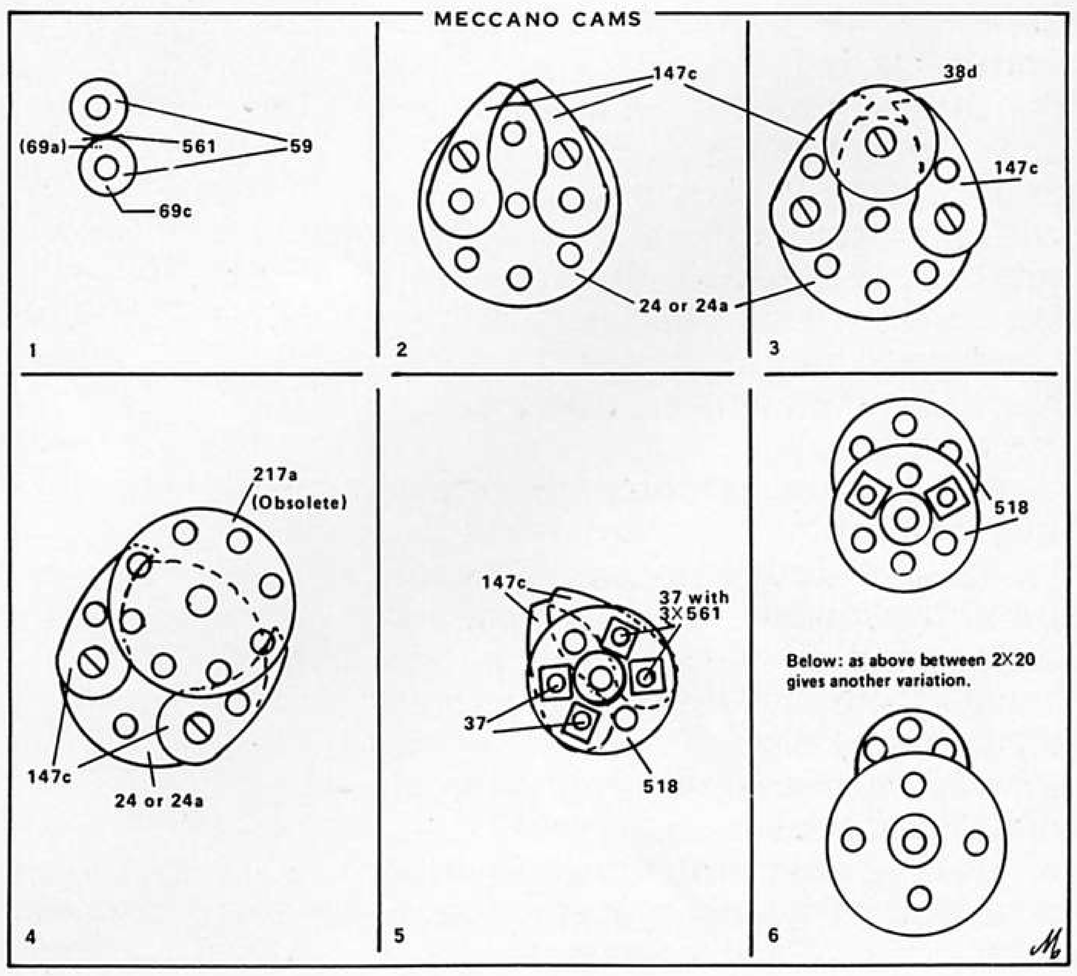


1: ROTATING SUPERSTRUCTURE
2: SPINDLE

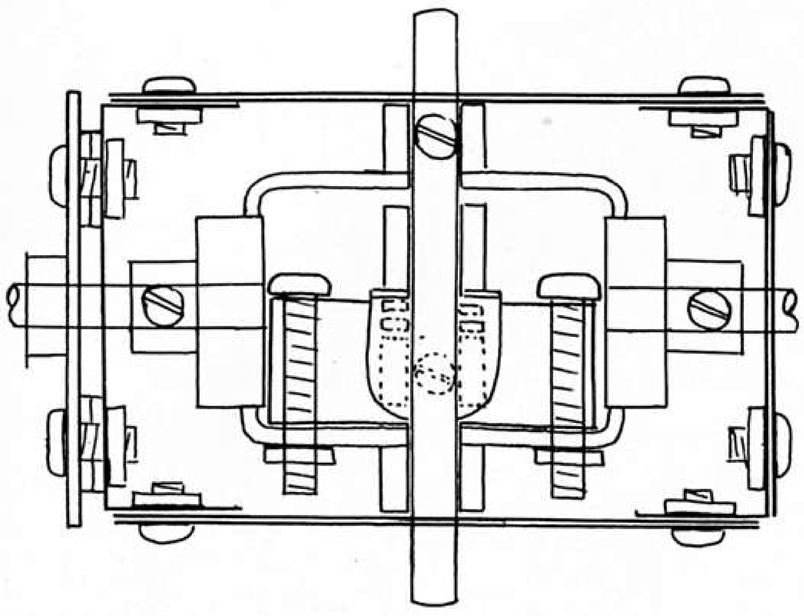


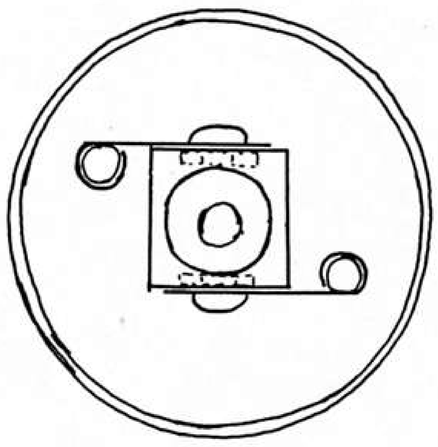
TOP CENTRE: Pierre Couroble's Roller Bearing design.

TOP RIGHT: Pierre's Hollow Spindle for large crane models.



RIGHT: Pierre's Cams.





LOW-FRICTION DIFFERENTIAL

This, the second differential design this quarter, comes from Alan Partridge of Sutton Coldfield, England.

"The differential mechanism as ordinarily made", writes Alan, "can be a source of a considerable power loss. As used in an automobile, there is not much of a problem, because most of the time the two half-shafts rotate together, and even when the vehicle is going round a gentle curve, the movement of the Bevels in the cage is much less than the movement of the cage itself.

"However, when the differential is used in combining or adjusting arrangements, with the Bevels moving continually, power loss can be serious. Tooth pressure forces all four Bevels out against the cage, causing increased friction at four points. If, as is common in Meccano, the mechanism is made of two Contrates and two Pinions, tooth pressure still tends to force the Contrates apart.

"Moreover, if the Pinions are on the half-shafts and the Contrates on Pivot Bolts in the cage, the teeth overhang the area of support, and any minor error in construction of the Contrates or the cage may produce a tendency for a Contrate to slew, producing greatly increased friction.

"A further problem is that it may be difficult to get the Bevels or Contrates fully meshed but not binding. Washers thinner than Meccano standard ones may be needed.

"As the writer is making an advanced Orrery (for which *Modelplan 59* was merely a design exercise!) containing about 20 differentials, an early move was to design a layout in which power losses are reduced as far as possible.

"Construction is shown in the accompanying diagram.

"A loose Contrate has a Large Fork Piece joined to it by two Right-Angle Rod and Strip Connectors. The inner ends of the Bolts — and even the Nuts perhaps — which join the Connectors to the Fork Piece need filing to clear a central Collar. This Collar has a $^{7}/_{64}$"Grub Screw, and any shoulders to the tapped holes must be filed down.

"The side Strips are doubled to assist oil retention. One Double Angle Strip has a Wheel Disc or Strip bolted to it for the same purpose.

"The side Strips are *not* in contact with the bosses of the Contrates. They may need bending out slightly, or Washers put under their ends according to the sizes of the Double Angle Strips and the bosses of the Contrates.

"The input and output shafts carry Pinions (not Bevels or Contrates) so there is no lengthwise tooth pressure on them. Their positions, and that of the cage, need to be stabilized by Washers, which are not shown.

"Each Contrate rotates on pivots which are as far apart as possible. The loose Contrate has the Large Fork Piece to extend its support. The other Contrate is fast on the transverse shaft which is pivoted at the two sides of the cage.

"Tooth pressure is all taken at a single point, between the Large Fork Piece and the central Collar which is fast on the transverse shaft, with Washers between. The transverse shaft is free in the cage. Pressure is automatically equalized at all four points of contact between the two Contrates and the two Pinions. The central Collar, or the fast Contrate, can be set at exactly the position needed to produce good tooth contact and free running."

MECCANO RAILWAY ADVERT

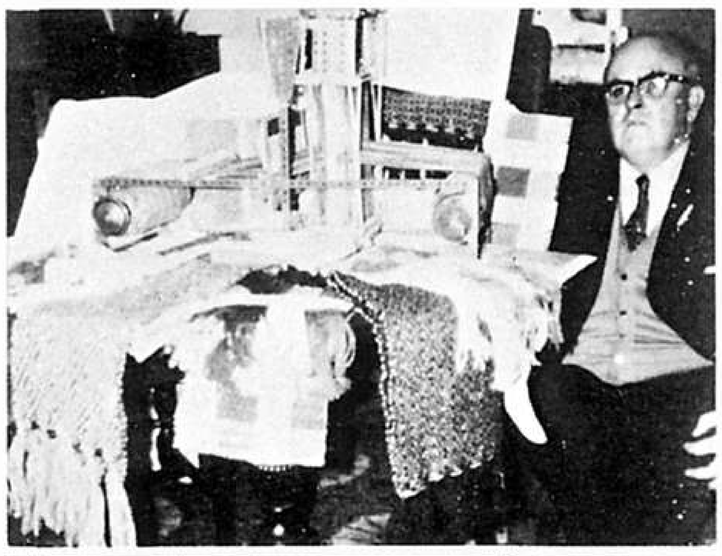
From Andreas Konkoly of Budapest, Hungary, here is a picture of his Meccano Advertising Railway (Special Model N°. 12).

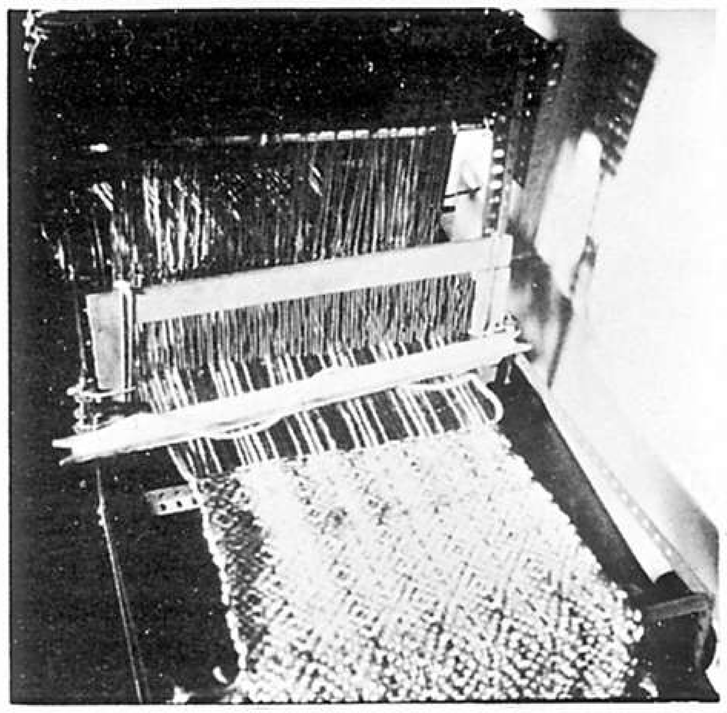
"The model runs", says Andreas, "from left to right and vice-versa, controlled by an Automatic Direction-Change Mechanism. In the meantime the Meccano Advertisement turns; when the railway runs to the left a bell is rung loudly by two hammers".

Andreas is the contributor of the article *'Design for Joy'* in this issue.

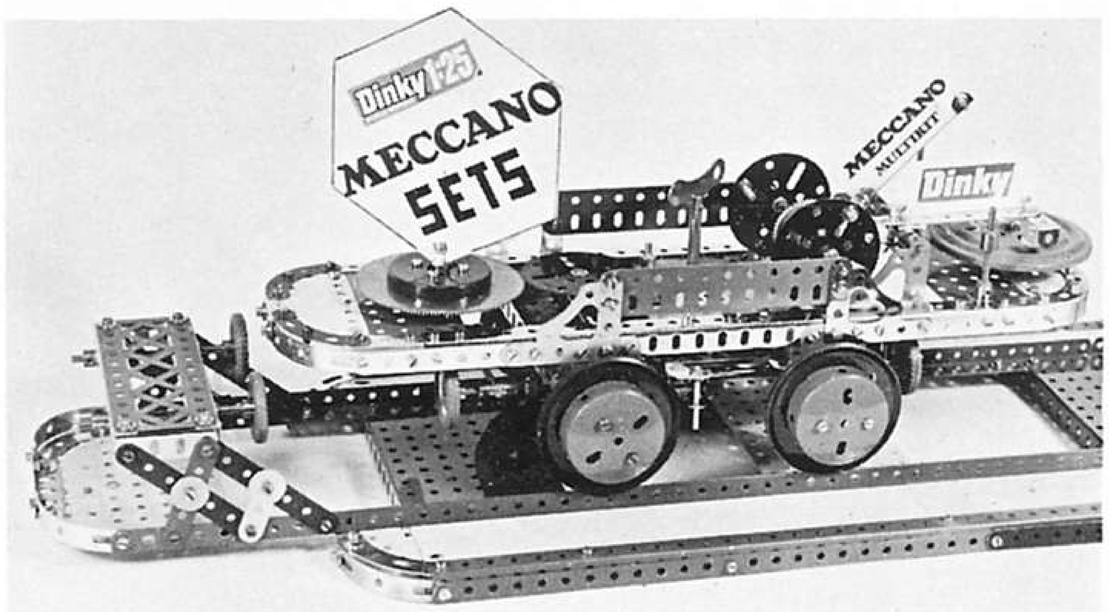
A PRACTICAL WEAVING LOOM

Richard Callaghan of Cheshire, England, has sent us some (colour) photographs of his loom. He uses the (hand) loom to weave scarves and other useful items, as may be seen from the pictures. Although Meccano parts play a large rôle in this model, Richard has also made extensive use of non-Meccano items.





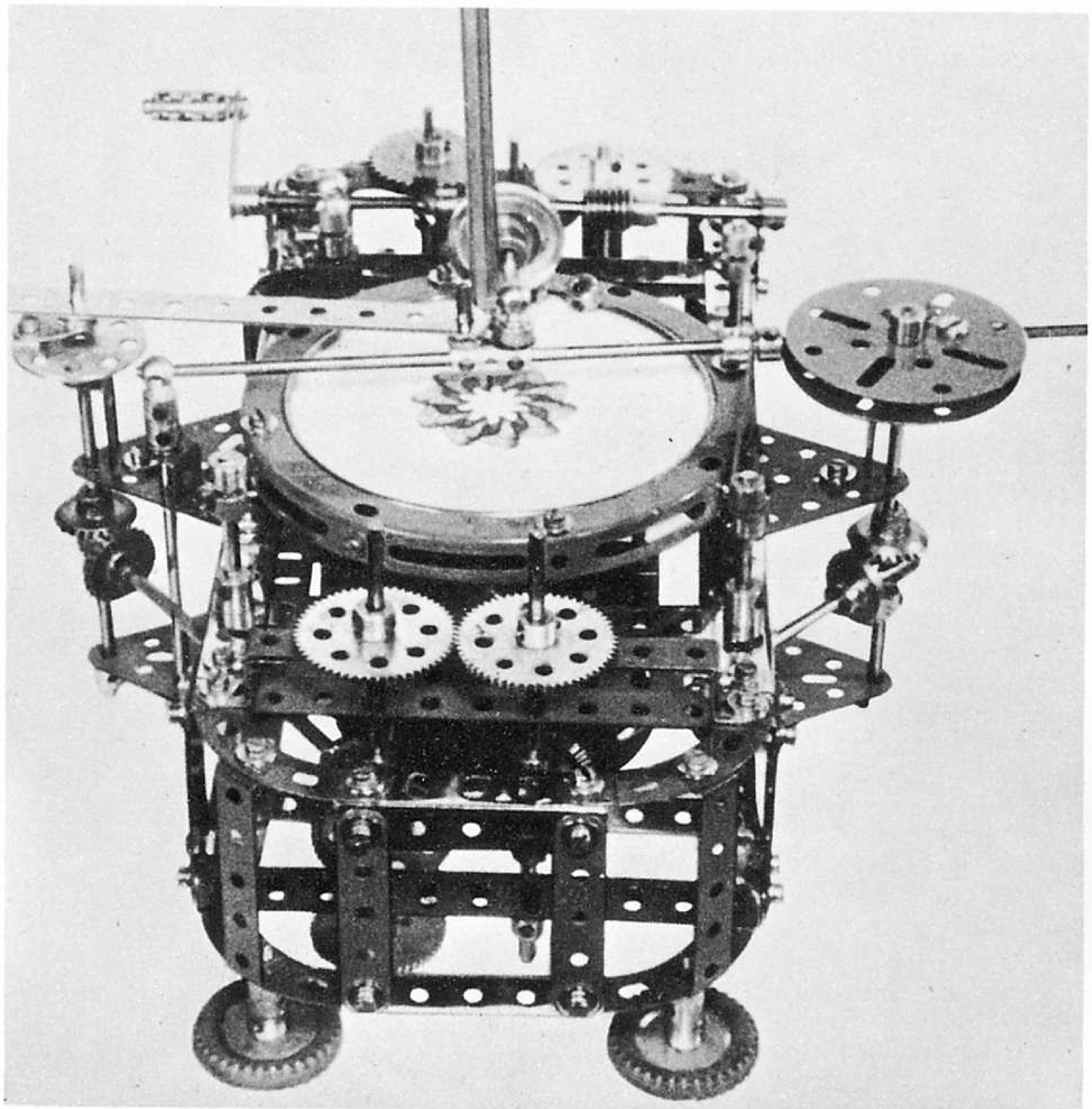
May we here make a plea for readers to send **black-and-white** photographs for reproduction in the magazine. Our number of colour pages being severely limited at this point due to the sheer expense of the process, we have no choice but to print photographs in black-and-white. Colour originals are very difficult to reproduce well in monochrome (and almost impossible to reproduce well in **colour**, unless they are of the highest professional quality).



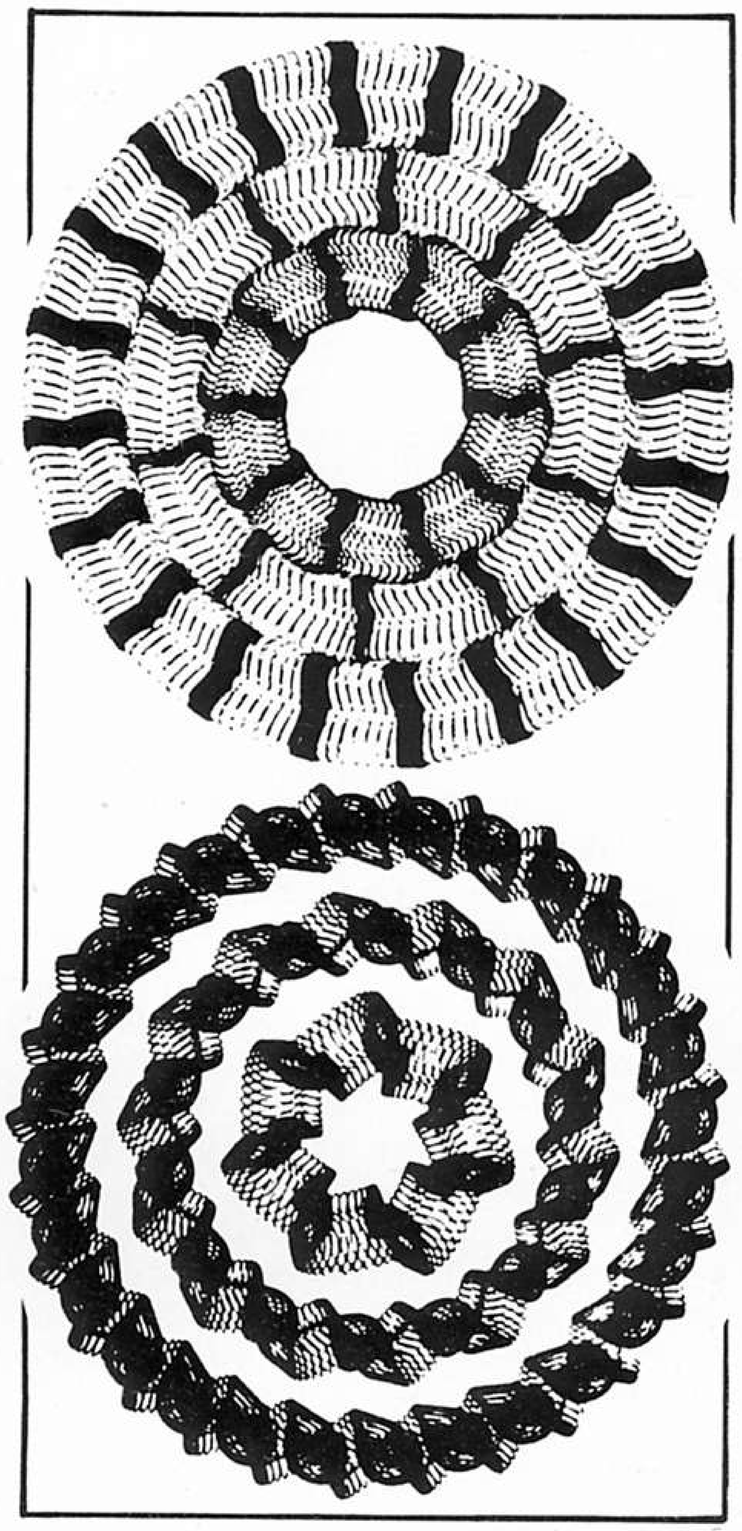
RIGHT: Andreas Konkoly's advertising railway model.

Design for Joy by Andreas Konkoly

CONTINUED FROM MECCANO ENGINEER



'Super Universal Design Maker' was developed from the first Meccanograph to break with tradition



Two patterns illustrating the work of the SUDM

THE STORY OF KONKOLY'S DESIGNING MACHINES AND MOST AMAZING PATTERNS OF THEM PART 2

UNIVERSAL AND SUPER UNIVERSAL DESIGN MAKERS

The first Meccanograph to break with the traditional 'long arms' and 'trembled' circular patterns system was the simple Universal Design Maker. The machine drew not only elliptical patterns, but 3, 4, 5, and 7 - sided samples as well. Later, I developed this model and re-named it the Super Universal Design Maker, being the most creative drawing Meccano construction. Millions of different splendid designs can be made with the greatest ease on this machine. It appeals to a wide age-range, and both boys and girls can create original designs.

The model provides a sense of accomplishment, and there is food in plenty for the little artist! Although it is simple to operate, the drawings that it produces are very intricate, and are ideal for colouring.

The model is truly a family toy, and with the SUDM you can create enchanting designs that also have adult appeal for the technical expert and engineer.

The mechanisms of the SUDM mark a turning point and a revolution in the history of Meccanographs.

It is true that the wobbling of the shafts in the holes of Meccano parts limit the possibilities of complicating the model by building in more gears to increase the variations of the patterns, but on the other hand, the wobbling tends to render the patterns more beautiful and interesting.

The Super Universal machine makes not only circular, but also 2, 3, 4, 5, 6, 7, 8, 10, and 14 - sided patterns of exceptional beauty which outsiders can not believe are made from *one single line*. Towards the insides and outsides of patterns, the line becomes unprecedentedly complex, and in each drawing, the single line can ne 30 to 40 metres long!

The *Meccano Magazine* for August 1965 featured the Super Universal Design Maker model, and 'Spanner' called it a "Magnificent Meccanograph".

By simplifying the design of the SUDM and using fewer gears, we can create a machine that can draw 'traditional' samples *and* enchanting modern designs, as well as longitudinal patterns. The simplified machine is called:

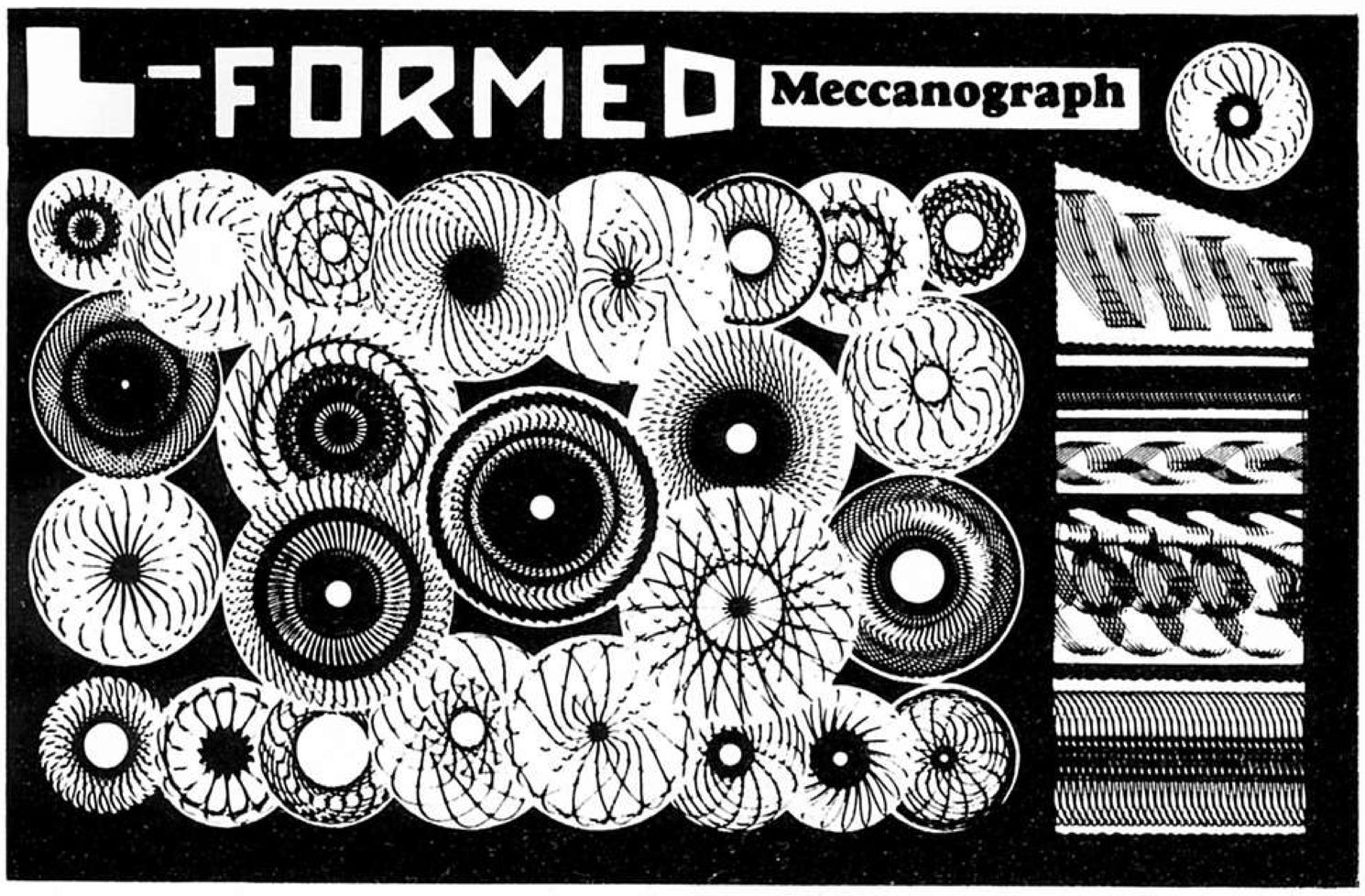
THE ALL KNOWS DESIGNING MACHINE

which makes circular 2, 3, 6, 8, 9, 12, and 16 - way drawings, and as a relaxation, I made an excursion into the world of traditional Meccanographs, simplified and developed the principle, and produced the:

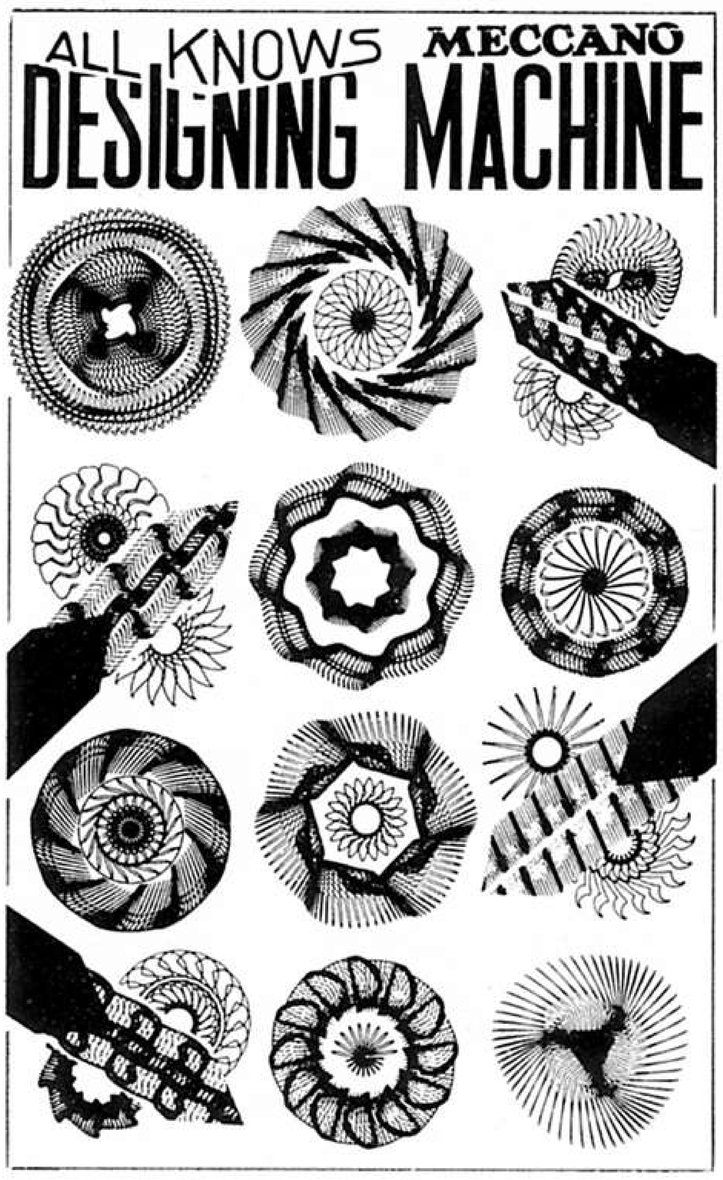
L-FORM MECCANOGRAPH

The model is a representative member of the populous Meccanograph family. It makes circular 15, 20, 30, 60, 120, 180, and 240 - way very variegated traditional Meccanograph samples and longitudinal designs.

The machine, which really is 'L'-



ABOVE: patterns drawn by the 'L'-Form Meccanograph, a simplified and developed Meccanograph of the traditional pattern



RIGHT: Patterns from the 'All-Knows' machine

shaped, has new mechanisms which are visible during operation. It works with incredible accuracy and produces many enchanting forms.

Mr Oveges, the most famous professor of physics in Hungary, has delivered more than two hundred physics lectures (with models) to young persons, and I was very glad when I was asked to participate eight times. During the programmes, I introduced the Universal Design Maker, the Carpetdesign Maker, Maltese Cross Mechanism, The Weather Prophet, A Lunar Craft Vehicle, The Walking Nurse [all freelance Meccano models that I have designed], together with *Meccano Magazines*. At the same time, I demonstrated some American physical instruments, which included Moire patterns and a wonderful Perpetuum Mobile that spun — seemingly without energy — whilst I talked for fifteen minutes. It was actually driven by the heat from the lights!

SPIRALOGRAPH

"More than a Meccanograph, fascinating to build, and even more fascinating to operate, the Meccano 'Spiralograph' produces complex spiral patterns to order. You can set the machine to produce a variety of different designs", said 'Spanner' in the *Meccano Magazine* for January 1967.

Spiralograph is very similar to a Meccanograph, except that, instead of drawing regular patterns which end at their starting point, it draws a pattern that gradually spirals into the centre. This is a complete departure from the normal run of things, and results in some very interesting and unusual designs. Any number of different designs can be produced, although it takes a bit of practice to obtain the best combinations.

The Spiralograph was shown working on the *Meccano Magazine* stand at the Daily Mail Boys' and Girls' Exhibition at Olympia in London, England during January 1967.

Although Meccano Ltd have not informed me officially, some friends of mine wrote to me to say that, in recent years, Meccano Ltd have shown some designing machines of mine at toy fairs in Milan, Italy, and at Nuremburg in Germany.

MINIGRAPH TOY

It was an old dream of mine to invent a small, but high-capacity toy designing machine *having a very simple mechanism*. Finally, I developed the Minigraph — with only *four* gears! The model was not buildable with Meccano parts, so I had a plastic prototype made which was shown at the International Fair at Budapest in 1970, and at the Invention Exhibition in Brussels in 1971, where it won a gold medal.

The Minigraph toy is currently the best toy tracer in the world, and despite its simple structure, it can produce millions of very nice circular patterns with absolute ease in black, in colour, or multi-coloured.

It is suitable for the composition of illustrations for picture books, toy cards, patterns for the furniture in the childrens' room, for covers and curtains, for dress materials, handkerchiefs, billfolds, purses, belts, beach dresses, slippers, sandals, balls, inflatable rubber toys and animal figures, ribbons and laces in one or many colours.

In the next part of this series, I shall introduce to you: The MECCANO VARIOGRAPH, The SUPER VARIOGRAPH, and the PINE-NEEDLE VARIO TOY DESIGNING MACHINE.

The author (right) with Professor Josef Oveges in the Budapest television studios in 1965

High power Drive.

Ackermann Steering Gear.

Internal-Expanding Brakes.

Solid Die-cast Wheels fitted with rubber tyres.

Chromium-plated lamps, radiator & bumper.

THE MECCANO MOTOR CAR CONSTRUCTOR

AN EXPERIENCE RE-LIVED BY **Roy Hallsworth**

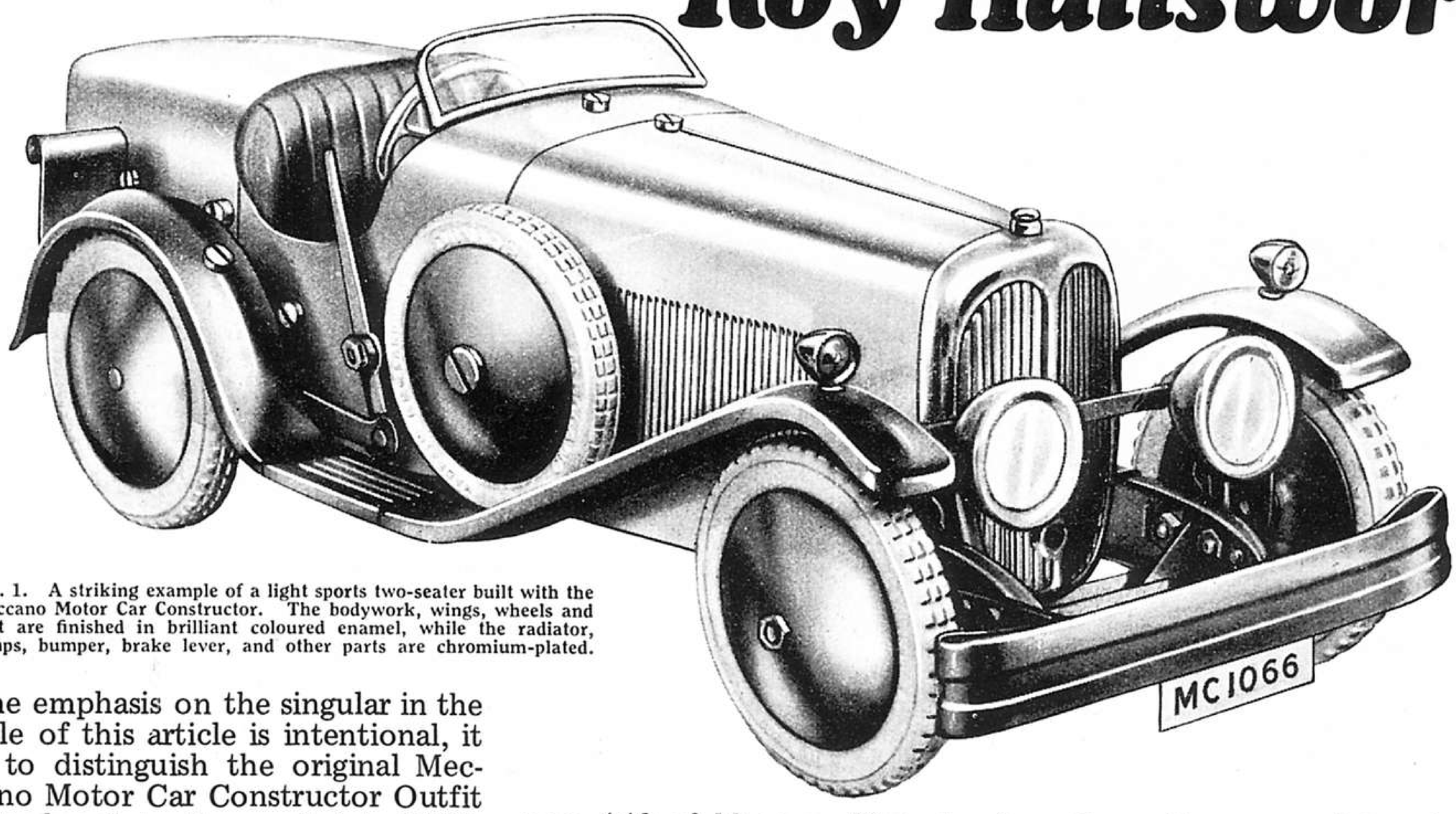


Fig. 1. A striking example of a light sports two-seater built with the Meccano Motor Car Constructor. The bodywork, wings, wheels and seat are finished in brilliant coloured enamel, while the radiator, lamps, bumper, brake lever, and other parts are chromium-plated.

The emphasis on the singular in the title of this article is intentional, it is to distinguish the original Meccano Motor Car Constructor Outfit introduced to the market in 1932. There were no alternative Car Constructor Sets in the Meccano range in that year — these came later.

The illustration at the top of page 23 shows an original 1932 car. together with the first Instruction Leaflet for it on the left, and the advertisement page inside-back-cover of the *Meccano Magazine* of October 1932, on the right. The only incongruous feature in the picture is the driver. He did not belong to this car, no provision being made for him, as he was not introduced until more than a year later, when he was described on page 149 of *Meccano Magazine* for February 1934 as part Nº A1100, price 6d.

An introductory article on pages 776 and 777 of the *Meccano Magazine* for October 1932 (from which the motor car pictures in this article are reproduced) makes the first announcement of these newly-marketed outfits under the title: 'Building Your Own Motor Cars! — The New Meccano Constructional Outfit'.

This outfit, which came packed in the usual exciting Meccano box — in this case blue — contained 176 items from 61 separate listed parts. From these, a variety of different-style cars could be built. To provide scope for variations, two types of radiator shell, two tail sections of different form, and mudguards of both the cycle type and the long running-board variety, were included. The instruction sheet for the set illustrated only four basic models, these were designated: Model Nº M 1 — Sports Tourer (Fig.2), Model Nº M 2 — Light Six-Cylinder Speed Machine, Model Nº M 3 — Light Sports Two-Seater (Fig.1), Model Nº M 4 — Grand Prix Special (Fig.3).

Special features claimed in the advertisement page for the Meccano

Motor Car Constructor Models included High-Power Drive, giving 45.5m run on one winding; Ackermann Steering Gear; Internal-expanding Rear Wheel Brakes; Solid Die-cast Wheels fitted with Rubber Tyres; and Chromium-plated Lamps, Radiator and Bumper. Colour choice was limited to Red, Blue, or Green for the body pressings, Cream for the mudguards, Vermillion or Blue for the wheel discs; and the price for all this was 25/-.

Only these first-year production sets contained five die-cast wheels and rubber tyres, the fifth wheel and tyre was replaced a little more than a year later with a pressed-steel imitation wheel-cover disc — Part Nº A 1060 price 4d, announced on page 149 of the *Meccano Magazine* for February 1934. All outfits marketed with this item were designated 'Nº 2 Motor Car Constructor'.

These Car Constructor Outfits were markedly different from anything that Meccano had offered before — including the bolt-together Hornby engines and wagons of the 1920s. One of the main differences was the size and type of nut and bolt employed. These were 6BA, and the nuts were hexagonal. For the non-technical, 6BA is about half the linear size of the standard Meccano Nut and Bolt, but only a quarter of the handling volume. This means that they are four times more fiddling than the Nut and Bolt supplied with the ordinary and very familiar Meccano Sets.

Another significant difference is the form of the parts. These are very complete units with holes only where they are intended to be bolted to the adjoining components. The main body shapes are pressed from 0.432mm steel – much thinner than Meccano Strips and Plates. Their strength is derived from the carefully designed shapes.

It will be seen from the open box set at the top of page 22, that the components seem to be few in number, and arranged in a manner suggesting one of the models for construction. In fact, one of the two radiators supplied is actually fitted to the bonnet section.

This was the picture and impression which I got when I opened my present in the early hours of Christmas morning 1932, and first set eyes on a Meccano Motor Car Constructor Outfit. The very fine sight must have generated quite a lot of noise, for it brought 'father christmas' from an adjoining room with orders to stop waking the household at five in the morning, and to go back to sleep. No orders were more futile, no ears more deaf.

I wasted no time in getting to grips with the blue string, and very soon had the parts out of the box, on to the eiderdown, and under assembly. This operation absorbed me so completely in silent concentration until 'father christmas' made another appearance at around half past eight to announce that it was time to get up. By then I was proudly able to show him one model car almost complete. Later in the day, the model was shown to, and admired by, grandparents and other relatives in the usual way of these things.

As a young boy, I was particularly fortunate with everything to do with Meccano and Hornby products. My grandfather was a contemporary of Frank Hornby. The one had his business in Manchester, the other in Liverpool. Grandfather had contact with Manchester and Liverpool stores where Frank Hornby was trying to sell his 'Mechanics Made Easy' — later Meccano — at the beginning of the century. He also had four sons, my father being the youngest, and was always on the lookout for things to keep his boys occupied and out of mischief. Meccano was an early solution, and there was plenty of it in that Edwardian household until all four sons, laid it aside for the King's shilling in 1914.

That war ended, and my father married. When I appeared later, he found an excuse for re-awakening his interest in Meccano. His choice of wife was also fortunate for me, because this union provided me with an uncle who also

[continued on page 26

CENTRE-PAGE SPREAD OVERLEAF: Examples of Meccano Motor Cars from Eric Morgan's remarkable collection, showing some of the permutations of colours and body styles that were possible using Outfits 1 and 2. Note the box lid designed for the Italian market, the original wooden display stand for the No 2 Car, the optional lighting set, the 'K'-Type Oilcan by the Instrument Board, the rare No 3 Car sitting on its original box, with the price ticket still in place, and the very purposeful-looking, short-chassis Sports Car, built from a No 2 set and using the non-standard yellow body panels. (A few of the Cars shown here have been repainted).

PHOTO by ROB INGLIS from 'THE ART OF THE TIN TOY' — published by NEW CAVENDISH BOOKS — see review on page 39.

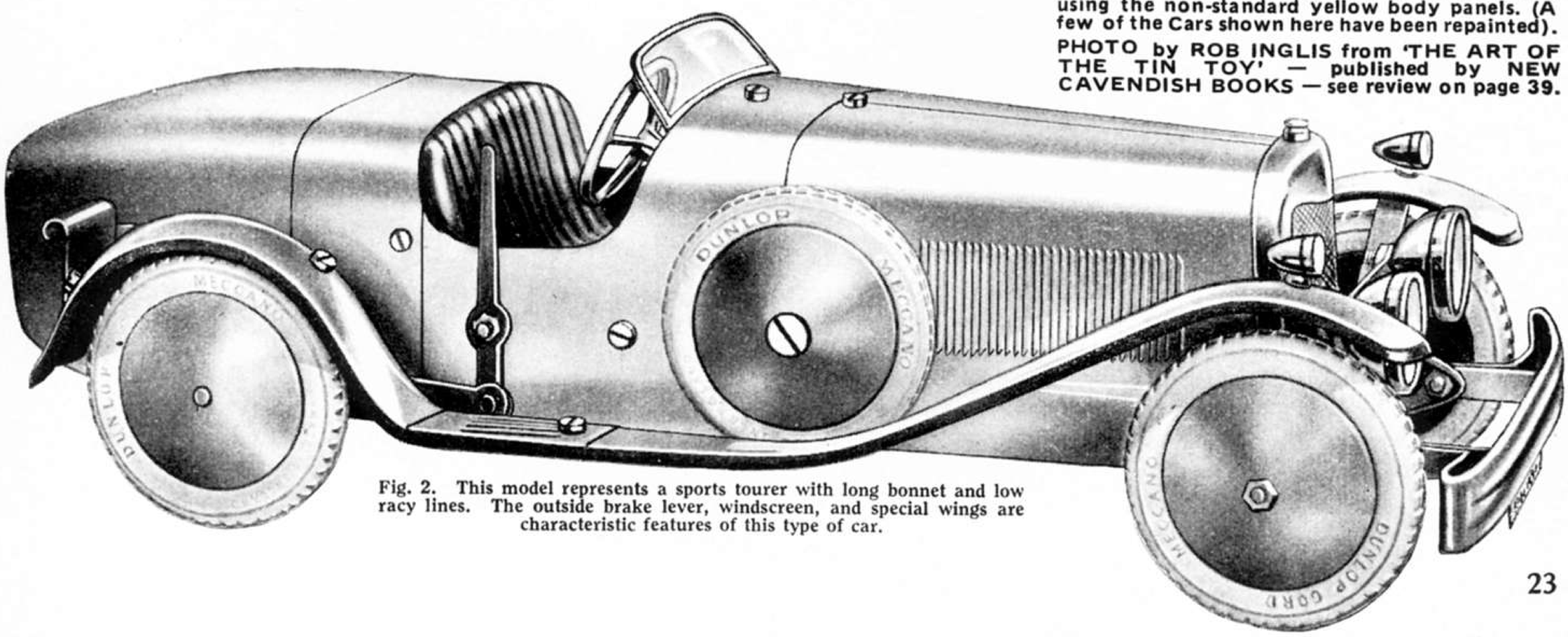


Fig. 2. This model represents a sports tourer with long bonnet and low racy lines. The outside brake lever, windscreen, and special wings are characteristic features of this type of car.

Collection, Eric Morgan Photo, Rob Inglis

Taken from *THE ART OF THE TIN TOY* published by New Cavendish Books

The most attractive toy ever produced

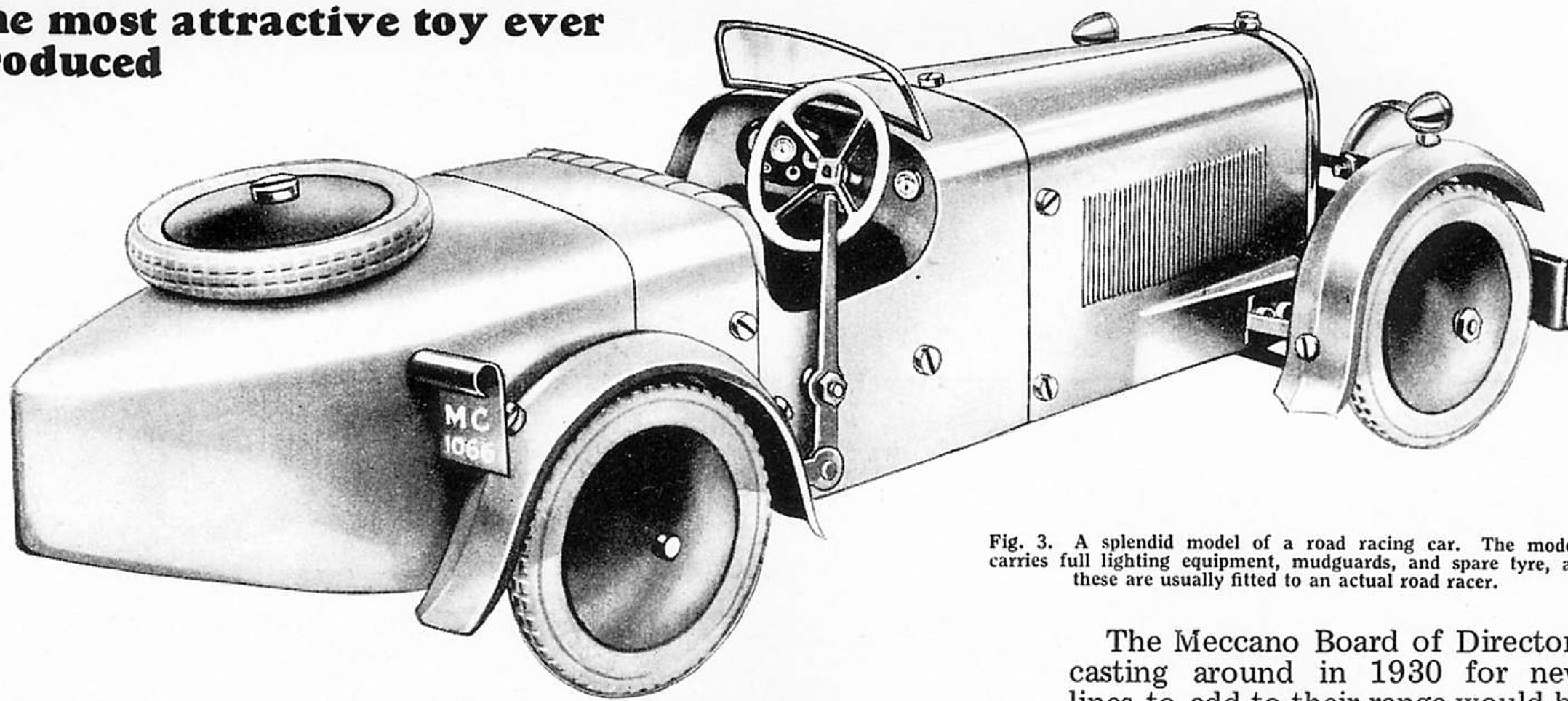


Fig. 3. A splendid model of a road racing car. The model carries full lighting equipment, mudguards, and spare tyre, as these are usually fitted to an actual road racer.

happened to be a keen Meccano enthusiast from Edwardian times, and was then an engineer. Between the two of them I enjoyed the benefits of getting Meccano and Hornby products hot off the presses as soon as they were announced.

Somehow though, I always had the feeling that these new presents were coming to me 'second-hand'; and that the real reason for buying them was to satisfy the long-standing old 'Meccano Boy's' enthusiasm, and capture some of the magic of past days. Perhaps this is why I got my Meccano Car Constructor.

Another war, a career in precision engineering, travel displacement and business, have all served to separate me from most of my early Meccano and Hornby, but not from the interest and appreciation, which have grown with the years, as has my collection.

Two or three years ago, another original 1932 Meccano Car Constructor came my way, this time ready-assembled, but in need of some slight restoration. It was the first time I had handled one of these cars in more than thirty-six years, and I approached the task with great care and boundless enthusiasm. This car is red and cream, my early one was blue and cream. Each nut and bolt was removed with something akin to a scientific investigation. Every part closely examined for condition, identified, and graded in order of degree of restoration needed. All the parts were there save two — the windscreen, and the split-pin from the Ackermann steering gear.

I will leave aside the details of the restoration, as they would fill a whole article in themselves.

In spite of its forty-four years, the car was in astonishingly good condition, and needed very little to bring it back to a pristine glow. The result can be seen at the top of page 23, and in colour on the cover of this magazine, sporting a windscreen kindly lent for the photographs by fellow enthusiast Jim Gamble of Nottingham, England.

Re-assembly was the most interesting operation — Christmas 1932 all over again, but with a difference. No longer the nine-years-old boy tackling the job with the glee of Christmas, but the long-time engineer scrutinizing every component and operation critically, and wondering what had prompted Frank Hornby and his Board of Directors, sometime in 1930 (or maybe 1929) to decide upon production of a motor car constructor outfit; what persuaded Meccano Ltd to abandon, in this case, the nut and bolt that had been standard throughout for the previous thirty years!

With experience of product development, costing, tooling, and marketing to draw upon; what decision would I have reached sitting at that boardroom table listening to the points of discussion on this project all those years ago? All this went through my mind as re-assembly of the car progressed. Was this fine precision-engineered product really meant for young boys to assemble? One thing is sure, I certainly made a quicker job of it the first time than I was making now, but now I was analyzing every step.

It may be that the answers to all these many questions lay elsewhere. Frank Hornby was a man always keenly looking out for new ideas and products. It did not necessarily matter that a particular idea was not new, his way of interpreting it would be new, and endowed with the fine quality of all his products. In this way, his Meccano products would be different to and better than any competitor.

The Meccano Board of Directors casting around in 1930 for new lines to add to their range would be bound to notice the many other motor car construction sets already on the market in the UK and abroad. Not a few of these had been in existence for some years. One was the Structo Auto-Builder. Three examples of this were advertised on page 789 of the *Meccano Magazine* for December 1926. These were: Nº 12 De Luxe Motor Car, Nº 8 Racing Car, and Nº 14 Giant Tip Lorry, but they were not cheap. Priced at 52/6 for Nºs 12 and 14, and 28/6 for Nº 8.

An even more sophisticated car constructor was produced in 1929 by the Citroën Car Company of France. This — 'Les Jouets Citroën —Le Chassis C6 Demontable' — came complete and strung down in a box reminiscent of the later Meccano Car Constructors. This product probably played a greater part than any other in showing the possibilities.

The Citroën C6 Chassis builds up into a car almost a third larger at 413mm overall than the Meccano Car's 330mm. An interesting point in the Citroën is that the nuts and bolts are of hexagon form, but not so neat as the special 6BA chosen by Meccano.

Although Frank Hornby did not give his car all the fiddly details available on the Citroën, he managed a lot of the essential features and embodied them in a product of greater refinement and flexibility than the French, and — all important — offered it at a price well below his competitors. He thereby enabled more boys to enjoy his products, and at a level of quality that would last for years and years. Such was the genius of Frank Hornby. Many men and boys today have very good reason to be thankful for it.

I hope to continue the fascinating story of the Meccano Motor Car in a future edition.

VINTAGE·VELOCITY

NEGATIVES BY JORGE CATELLA, PHOTOGRAPHIC PRINTS BY BERT LOVE

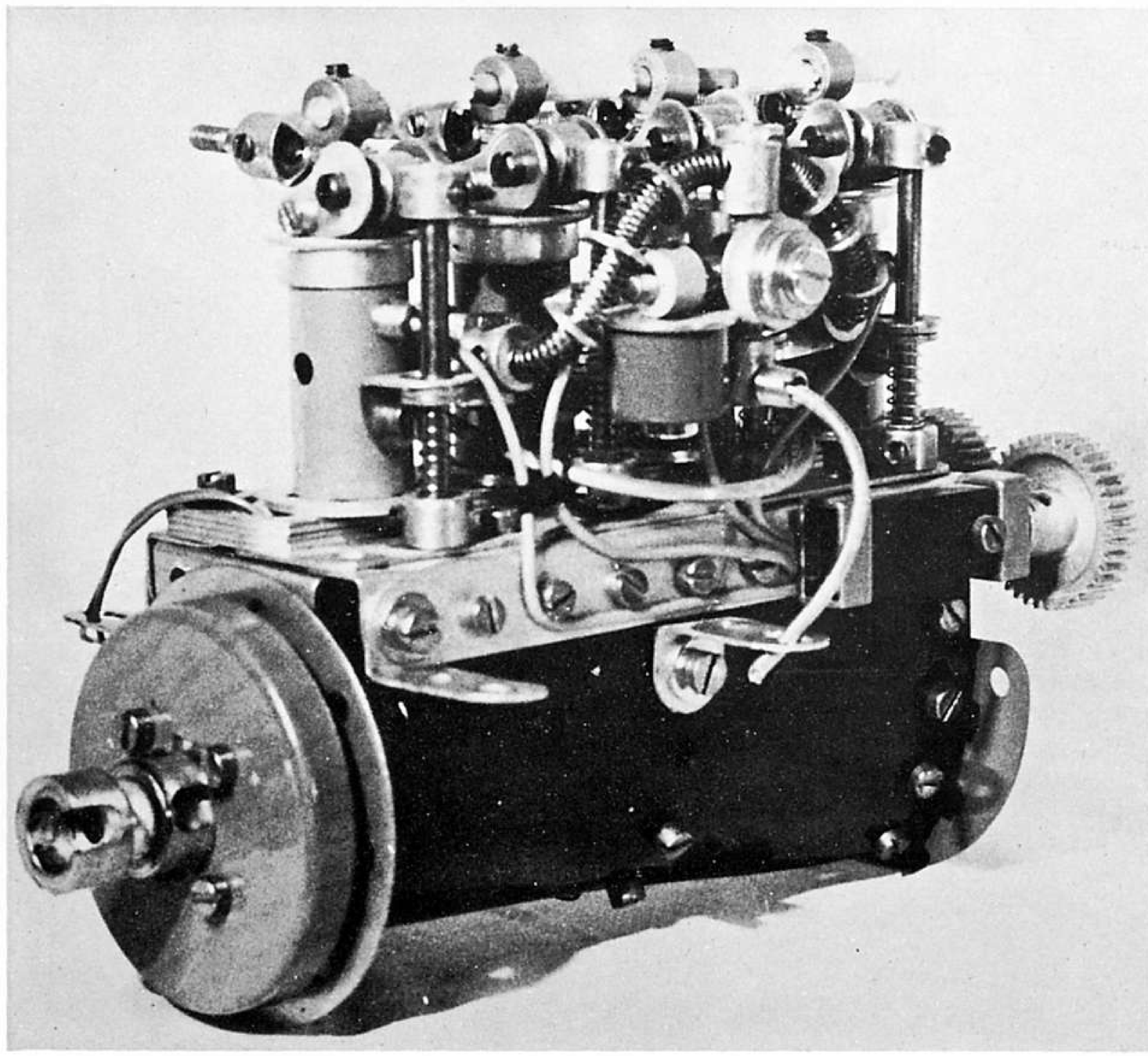
Another fine effort by Dr Jorge Catella of Buenos Aires, Argentina. *Meccano Engineer* 12 (1976 June — September) showed Jorge's 1905 Rolls Royce, and we have the pleasure of seeing here his Fiat F - 2 Sports Car. This model is an excellent interpretation of the 97kW (130HP) monster which was made especially for the Grand Prix de France.

Alongside is the fully-detailed engine, reproduced in Meccano parts by Jorge, the whole model being to a scale of approximately 1:8.

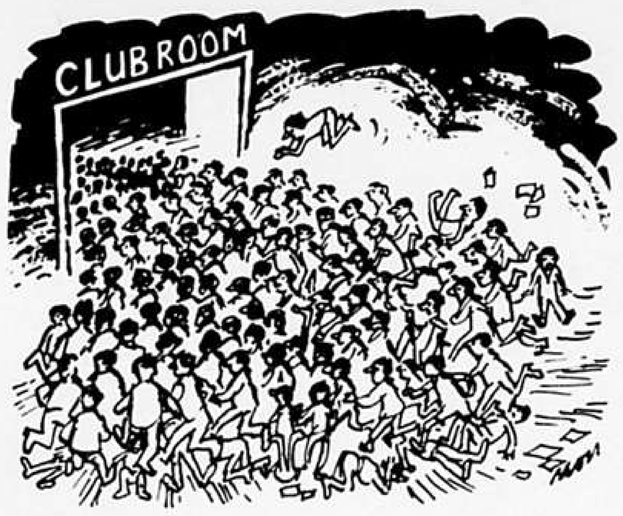
The transmission and gearbox are included in the reproduction with a standard-type rear differential feeding second-stage half-shafts fitted with sprocket and chain drive to the rear wheels.

Clever use of often-neglected Meccano Electrical Parts has enabled Jorge to put in some detail work on the engine and bonnet.

A footbrake operates on the transmission shaft, and a handbrake on the rear wheels. The original car is in the Torino Museum in Italy.



CLUB NOTES



THE CHILEAN MECCANO CLUB

In our Chilean Meccano Club, we number 9 members, four in their late forties like myself, and five in their mid-teens. I was appointed president, a mostly honorary title as, because of my work, I have to make frequent trips out of town.

Our secretary is George Zalazar, who has a remarkable collection of old Meccanos.

What should be especially remarked is the fact that, while 8 of us are in Santiago, our member Carmelo Nizza lives in Concepcion, some 650km to the south. He has been twice to visit us; otherwise, he still manages to participate actively through the mail.

We have generally managed to meet once a week at one of the members' homes. We have pooled our Meccanos as we are short of some parts. We particularly lack some parts that appeared after the yellow/silver period began, and we have to use Marklin motors, as we are unable to get Meccano ones.

We have not made public displays, but have managed to invite quite a number of good friends and neighbours to see our work: all have been much impressed. Unfortunately, none could get Meccanos as it is not on the market.

We use sets brought by persons returned from abroad or bought before the war. I am the only one with new parts (silver, yellow, blue) which I bought when I returned to Chile in early 1975.

Next year we expect to mount perhaps a couple of shows, if not more, at the schools of our younger members.

Because of our inexperience in the obscure science of photography, we have not yet been able to get a photo of the club members that would allow you to recognize them properly as members of the human race, but we keep trying. Soon we hope to come up with a truly decent photo, then you shall see our faces. We are not beautiful, but we do not scare people!

Raul Gatica
PO Box 549 Santiago, Chile.

MECCANO IN IOWA, USA

Enthusiasts interested in getting together with other Meccano folk, with a view to holding meetings and/or exhibitions in the central Iowa area, should contact Bob Bowley, 3916 — 78th Street, Iowa, 50322 USA

THE HOLY TRINITY MECCANO CLUB

The 18th meeting of the Club opened at 12.30pm on 13th of November 1976 at Hildenborough. A good display of models was soon set up, and after a tour of the models, the AGM commenced at 3pm. The agenda and statement of accounts were distributed to members present. The secretary gave his report; briefly, the number of members remained the same, and the financial situation remained sound. The officers were re-elected en bloc, President Tony Homden, Chairman Michael Martin, Secretary/Treasurer Frank Palin.

With the AGM out of the way, tea was served at 4.30pm, and the following models were demonstrated:

1] Phil Bradley's model of a 250-tonne Hammerhead Crane used in Hamburg shipyards pre-1914. This model gave a massive but true picture of the original, with six Motors remotely controlled.

2] Michael Martin brought along a 1:24-scale model of the 70-tonne Royal Tiger German Tank built from one Army and one Combat Multikit. Internally, standard parts were used, while many black Pulleys, Gears, and Electrical Parts were used externally for realism.

The Motor-with-Gearbox, supplied from four nickel-cadmium cells, drove the tracks through a spur differential, so that steering was possible. The turret was also motorized, and the gun could elevate by remote control.

3] Tony Homden brought along his model of the massive German 800mm *'Gustaf'* — the largest gun ever built. Tony has progressively improved this model, and now has a semi-automatic sequence of operations triggered by limit switches arranged to operate the seven Motors used in the model. Using some 4 000 Nuts and Bolts, 46m of wiring, and weighing 42kg, this model was up to Tony's usual 'big model' standard.

4] Bob Ford showed his 1:12-scale LMS Beyer-Garratt 2—6—0+0—6—2 Locomotive. This model is an amazing piece of work and illustrates the versatility of the Meccano system.

5] Adrian Ashford produced an LBSCR 4—6—4 Tank Loco. One feature was that the screw reverse operated the valve gear and, at the right moment, reversed the Motor. The regulator handle in the cab controlled the speed of the Motor. Working brakes were also fitted. The fittings were neatly modelled — altogether a beautiful model.

The other models exhibited included:

Adrian Ashford	'Ding Ding' Tramcar
Geoff Davison	Clockwork Traction Engine (from the October 1949 MM)
Jim Dowswell	Giant Ferris Wheel, Contra-Rotating Roundabout, Fairground Octopus (Penny-in-the-slot operated)
Michael Edwards	'K'-Type Bus & Austin 7
Stuart Field	Demonstration Relay & Computer memory
Bert Halliday	4—6—2T Express 'O'gauge Loco & Rubber-Powered Dragster
Peter & Bill Roberts	Motor Chassis, Trench Digger, Tracked Chassis, Collar-Cutting M/c
Eric Schoolar	2 Half-Track Vehicles
Michael Stocks	Fork Lift Truck
Noel Ta'Bois	Dividing Head for marking out clockwheel spokes
Chris Warrall	1891 Portsmouth Tramcar
Geoff Wright	Compact Strip-Bending M/c

The Stuart Wilson cup was won by Adrian Ashford for his Baltic Tank Loco.

The next meeting will be at Hildenborough on the 30th of April 1977. Frank Palin
22 Highfield Close, Pembury, Tunbridge Wells, Kent, TN2 4HQ.

MIDLANDS MECCANO GUILD

The 19th meeting of the MMG was held at the Greig Hall, Alcester, Warwicks, on Saturday 25th of September 1976 at 2.00pm.

The doors were opened at 10.00 am by David Goodman and Ernest Chandler, and members from far and wide were soon arriving and setting up their models, meeting old friends, and really having a grand 'chin wag' about their mutual subject.

The meeting started at 2.00pm, after the usual first brew and biscuits, with the President welcoming all present and introducing four new members. Some 37 members were present with 43 models, 8 members having sent apologies.

There followed a tour of the models with each member giving a brief description of his own masterpiece. This took 2 hours, and then tea break was called.

The AGM followed at 5.15pm. The Chairman asked all to stand in silence in memory of two members who had passed away since the last meeting. Geoff Wright was asked to present Alan Partridge with his prize — Alan had won the N°. 10 Set competition at the Henley Exhibition with his model of the Jodrell Bank Radio Telescope.

The four new members were voted into the Guild, they were: Michael Edwards, Edgar Whalley, Chris Lester, and Robin Schoolar. Brian Rowe had asked to join earlier, and was accepted as a postal member.

The format of future meetings was discussed at great length, and the agreed agenda to be used at the March meeting. The Treasurer's report was very encouraging, with a sufficient bank balance to keep us solvent. Members attending the meeting reaped the benefit of a reduced meeting fee, namely 50p this time. The balance sheet was accepted, and a sincere vote of thanks was passed to our worthy treasurer.

The question of insurance was raised again, and the Treasurer was asked to make further enquiries re the financial outlay required. The subscriptions remain the same as at present, £2 for adults, £1 for juniors under 18 years, and £2.50 for overseas members.

Hon. Secretary's Report:

During the previous 12 months, the committee had issued two meeting reports, two newsheets, and an extra newsheet with the meeting notice. The membership stands at 55. Members attended exhibitions at Stratford-on-Avon, Clitheroe, Stoneleigh, and Henley. All these shows were well-received by the public.

Two models built by Guild members had been accepted by Meccano Ltd for display models under their N°. 10 Set Model scheme, these were Alan Partridge's Jodrell Bank Radio Telescope and Roger Wallis' Leyland Service Bus.

Thanks were expressed to the organizers of the model section of the Stoneleigh Town & Country Festival, and to the organizers of the Henley Exhibition and the Clitheroe exhibition. These three events put Meccano on the map countrywide. A letter of thanks to the Hall Committee for allowing us the use of the hall and its facilities at a low rent was requested by all members.

The Guild proposes to meet again on March 26th and September 24th, 1977, at the same venue. Ernest Chandler
86 Clopton Rd, Stratford-on-Avon, Warwicks, CV37 6SN, England.

NORTH EASTERN MECCANO SOCIETY

Meetings during the autumn were very well attended, full of interest, with an encouraging growth in adult membership. The question of a Junior Section has been discussed, with the result that is is inevitable that something will have to be started in this direction very soon, as well as larger premises in which to meet, due to increased membership.

A welcome was extended to Fred Foster from Carlisle who, with Brian Reay, travels 129km [80 miles] to meetings. Barry Wilkinson and John Lythgoe, both from Northallerton were also welcomed to the meetings. The September, October, and November meetings dealt with finalizing the December exhibition arrangements.

The exhibition should be just a pleasant memory by the time this is read [see report elsewhere in this edition], leaving the Society in a settled financial state to launch a further and more ambitious show this year.

Models brought to meetings are always the main feature, with the autumn meetings being no exception to this. Brian Reay demonstrated an intricate French-Knitting Machine of freelance design, which was fascinating to watch. Barry Wilkinson brought along a fine Showman's Traction Engine, whilst Chris Barron exhibited another Showman's Engine of fine proportion at the following meeting. Fred Foster demonstrated the tractor unit of an Articulated Car Transporter, and Joe Etheridge filled the room with an immense Fairground Roundabout over 1.2m in diameter.

Many models were on display during the year in various window displays, and some requests had to be declined, as we quite often found ourselves with no Meccano at home. There were times when one could not build for weeks on end because material was sitting in window displays.

There is always a welcome exchange of views at meetings, individual discussion of problems encountered, exchange of parts from one colour to another, coupled with the endless items of historic interest which appear at most meetings. Frank Beadle
'Greytyles', Yoredale Avenue, Darlington, DL3 9AN, England.

NORTH WEST MECCANO GUILD

Between Meccano exhibitions in Clitheroe, the North West Meccano Guild makes every attempt to support other Meccano functions during the year, and this season has been no exception, with NWMG representatives at every organized Meccano exhibition, display, and private meeting north of the Midlands!

Norman Mason made an outstanding contribution to Guild publicity with a huge display at the local school in Standish; all the more remarkable as, on the day, Norman was unaided by any other member. A gratifying response was Norman's reward for his efforts!

Barry Wilkinson presented a 2.5m WALKING DRAGLINE at the NEMS Darlington exhibition

Ernest Keighly proudly showed two of his excellent looms at the Melior Festival in June, assisted by the secretary with an American Car model. Hal Hussey deserves special mention as the NWMG's chief Meccanograph designer; his latest examples were on view to a fascinated audience at the Yeadon Scouts' Hobbies Exhibition in September.

The NWMG's own meeting on October 9th was attended by all the following Meccanomen with their models, the extra attractions included an unusual Overtype Steam Engine driven by a Motor-with-Gearbox, built by Frank Swindells. The Chairman, Sidney Whiteside, again proved his mastery of the fairground with a Power Swingboats and a Roundabout. Both models were very large and complex, and their efficiency was proved by the fact that either could be run off the highest resistance-setting of the transformer.

David Cowgill proudly displayed a wide variety of vehicles, one of which was a High-Speed Dragster, all set to 'burn up' any track!

Mike Pashley's Trench Digger on a mobile base was again in the supermodel class, the sides being omitted to reveal the fabulously-complex interior. Graham Brown performed near-miracles by getting so many action features into his 'Super 700 Motor Grader' at only 395mm long. The driver's cab in this model fairly bristled with levers to operate the many devices such as grader blade angle and tilt. John Bader's Grandmother Clock boasted a motor-driven rewind for the clock weight. To save power, the Motor switched itself on only when required to do so by the weight reaching the bottom of the casing.

These, and other models, assisted at the correct time by the usual refreshments, made yet another success of the NWMG's AGM for 1976. We can look back with pride on a thoroughly satisfactory 75th year in the Meccano world, the only certainty of the future is that things will definitely get even better! Michael J Walker
31 Carus Avenue, Hoddlesden, Darwen, Lancashire, England.

PENNINE MECCANO GUILD

The Guild has been extremely active in the autumn months, having been envolved in two large model exhibitions in addition to its usual meeting. The latter, the PMG's 5th meeting, was held in Huddersfield on the 30th of October. Just about every member was present, and the clubroom quickly filled with advanced models of every kind.

Excavator enthusiasts were well catered for, John Hornsby's RB61 Crawler Crane base was displayed next to Mike Pashley's RB150 Face Shovel, both models were to be seen in completed form later in the year at Bradford Model Railway Show. A third Crawler Crane of smaller scale was shown by Stephen Pashley.

A Walking Dragline, familiar to many enthusiasts as the cover model of many of the 1950s series manuals, was the exhibit of John Russel. With the finishing touches still to be applied, the model was very impressive in mint red/green. Another Crane with manual connexions was Tim Kimberley's N°. 10 Set Railway Breakdown Crane, smart in modern livery!

Two American-style cars vied for our admiration: Michael Walker's convertable, now rigged for remote-control running, and Julian Cole's sleek red/green model with a silk-smooth gearbox equipped with a very positive gate change.

Geoff Cole brought his Fairground Roundabout complete with a gaily-striped cloth canopy. A neat small-scale Showman's Road Locomotive accompanied the ride. Francine Cole had built the nicely-proportioned *MMQ* Jumbo Crane.

Chairman of the PMG, Norman Chapman, demonstrated a rotary version of Newton's Cradle, Meccano Balls in a circular race of Large Flanged Rings, rotated by a mains motor. A very early version of the famous Meccanograph provided simple but effective patterns, built (I think) by David Fairbanks. Norman Mason's SML Horizontal Steam Engine and John Bader's Self-Winding Clock completed the display.

Most of the models already mentioned were also to be seen at the Airedale Scout Group's annual Model Exhibition at Yeadon on September 18th. In addition, a mini exhibition was mounted by HH Taylor of Huddersfield. Mr Taylor's name will be familiar to *Meccano Magazine* readers of the 1950s, he is an expert on looms, and had brought a fascinating and faultless Ribbon Loom. As if that were not enough, he also had brought a Giant Block-Setting Crane and numerous smaller models utilizing metal, Plastic, and Prima Meccano.

The Guild's third outing was at the Bradford Model Railway Show on November 13th and 14th, where a small display was mounted. John Hornsby's RB61 towered over the stand, over 3.5m high from tracks to fly-jib. Mike Pashley's RB150, now finished-out in Ruston's colours of red and yellow, was a joy to watch. Alan Grimshaw had built the SML Horizontal Steam Engine and a Double Big-Wheel fairground ride. Norman Chapman's Baltic Tank Loco, Tim Kimberley's Railway Breakdown Crane, and David Wilkinson's Excavator were also on the stand.

The whole of Geoff and Julian Cole's display was seen again at Bradford, along with a realistic walking Robot, motivated by a Hand Generator, and presided over by the charming ladies of the Cole family.

A fabulous weekend, and one that the Guild will look back upon with pleasure for a long time to come. Bill Charleson
5 Kirkstone Drive, Gomersal, Cleckheaton, West Yorks, BD19 4QG

SOUTHERN CALIFORNIA MECCANO CLUB

The Fall meeting of the Club was held at the residence of Clyde Suttle in Garden Grove, California, on Saturday September 25th, 1976, between 1.00 and 6.00pm.

By consensus, the meeting schedule for the coming year was set up for the following dates: January 8, March 26, June 25, and September 24. Keith LaBar will host the January meeting, Clyde Easterly the March meeting, and Clyde Suttle the September meeting. The Club Secretary will mail out notices of the meeting time and place to members in the Los Angeles—Orange County area, and to those indicating a desire to attend.

Dr Keith Cameron of Ary, Kentucky was admitted as a new member.

A draft copy of the first issue of the Club Newsletter was circularized and discussed.

Clyde Suttle displayed the 1929 Erector Zeppelin model on its mooring mast[see *ME 11* p3-5]. He also displayed Meccano sets and parts available in the United States in 1911, 1914, 1916, 1924, 1927, 1928, 1930, 1961, 1965, and 1969, and current sets, along with electric Motors available from 1919 through 1930. Conspicuously absent were sets of the period 1931 through 1960.

Anton Calleia displayed a $^{1}/_{20}$-scale model Walker 'Bulldog' light Tank with dual engines and a remote-control device. Also of note was the method devised to remove the turret and superstructure for access to the motor section.

Ed Marzola displayed a very neat Steam Locomotive. Some time was spent in discussing how to improve the operation and realism of the model.

The stars of the models shown were those of John Edwards. His three major exhibitions were a 1.5m 'Ferris Wheel', a fairground Tilt-A-Whirl, and a Truck-Mounted Crane. The Ferris Wheel was excellent with twin seats, flashing lights, and entrance stand. Another authentic feature was the model's capability of being readily assembled and disassembled with the sections folding up for transportation in the same manner and units used by the carnival shows.

John's Tilt-A-Whirl was an authentic reproduction with entrance stand, side railings, and movements. The seats would serve to swing back and forth on the plates as they circled the up and down track. It is an outstanding example of Meccano modelling.

His Truck-Mounted Crane with clam shell bucket is a masterpiece. All details and movements were faithfully reproduced with some very ingenious mechanisms to provide very realistic action. Five Motors were used with a cable remote-control system.
Clyde T Suttle, 6062 Cerulean Ave, Garden Grove, California, 92645, United States of America.

STEVENAGE MECCANO CLUB

Like most Clubs, we regard the Henley Meccano Exhibition as an event not to be missed, and on 4th September 1976, 45 of our members descended on that now-famous Town Hall with, as usual, more models than the organizers could accommodate.

Stevenage Meccano Club's 100th member, BARRY INGARFILL

Roger Le Rolland was in his best form again, and his Celebration Cake lent a festive touch to our display. This four-tier creation was baked (sorry, built) as a wedding cake, but it was also an appropriate item on the menu of any Meccano occasion in view of the recent jubilee celebrations.

Other models tabled by the SMC ranged from the simple to the advanced, and the Secretary (Dennis Higginson) thanks all members, including our outside members, for showing the range of expertise that can bring enjoyment from Meccano building.

The day was certainly a red-letter one for 6-years-old Mark Warder, our youngest member, whose Plastic/Prima Locomotive model won him a N°. 2 Meccano Set. Mark was not able to collect his prize at Henley, but his headmistress arranged a quite splendid presentation at his school, and Mark has shown his true appreciation of this new possession by using it practically every minute of his spare time ever since.

Our Secretary was delighted to be able to chat to the leaders of the new Bristol and Solent Meccano Clubs, and we send them our best wishes from the SMC.

At the Dunstable School for Handicapped Children on 15th of October 1976, Luton member Geoff Pratt again put on a film show to the delight of the children *and* their parents. The Club has been asked to put on a display of Meccano models at the school on 18th of June 1977, any Meccano enthusiast who would like to help in this rewarding undertaking may contact our Secretary at the address below. Don't be surprised if, as a result of helping with this display, you are given life-long outside membership of the Stevenage Meccano Club. For those too impatient to write, Dennis can be telephoned on Stevenage (STD 0438) 53392.

An Arts and Crafts Exhibition at Roe Croft School, Stotfold, Herts was held on 16th of October last, and included 27 models from the Stevenage Club. During a very interesting afternoon and evening, club members were able to answer a myriad questions about the Meccano hobby and the models on show. Special thanks go to A Webb, his boys Mark and David, and to Stephen Kuc, A Ogden and Mark Wadeson for their help at this display. We have been asked to mount another in 1977.

Our outside members have been busy, especially Jack Farrington of Newport, Gwent, who exhibited his models at the Third South Wales Model Show at Bridgend, Mid Glam, on the 11th and 12th of September 1976.

On October 30th, Dick Barton (our special agent) took some '00'-gauge railway material to an exhibition organized by the Battle of Britain Locomotive Society at Letchworth. The main batch of SMC members couldn't get along there, but Terry Pope and his young squadron from Wellingborough flew the flag. Well done lads — never has so much . . . etc.

Our 100th member has been enrolled, and for being in that lucky position, 8-years-old Barry Ingarfill has been presented with a Pocket Meccano Set. Others to join recently, with less ceremony but equal enthusiasm, were Darren Fenn (8), and Kevin Kebble (12), from Stevenage and Letchworth respectively.

Finally, Dennis reddens our countenances by thanking the group leaders for their 'efforts' in 1976. I'm sure I speak for us all when I say that it has been a real pleasure. Bernard Dunkley.
SMC, 7 Buckthorne Avenue, Stevenage, Herts, SG1 1TT, England

WELLINGBOROUGH & DISTRICT MECCANO CLUB

Since our last club report, we have been to several exhibitions. The annual Meccano Exhibition at Henley-on-Thames, which all members thoroughly enjoyed, was the Club's first visit, and incidentally, our first outing together. The following members exhibited models: Richard Fisher, a Dragster; Michael Lawrence, a Motor Bike and an Army Jeep; Paul Dickin, a Dockyard Crane; Stephen Burgess, a Strongman with Dumbells.

In early October, we were invited to display our models at Irchester Model Railway Exhibition. This, our first local event, proved very successful and created much interest. My father and I had built the Ship Coaler from the 1928 SML, a most fascinating model to operate. Our club chairman, Ivor Dickin, replaced the grab with an electro-magnet, and little eyes watched spellbound as Meccano Strips were hoisted aloft, then dropped into the truck, which in turn despatched them through the hopper. A Tower Crane with automatic grab by Paul Gautry was also on show, as was a Drop Hammer and Grinding Wheel by Matthew Traxton.

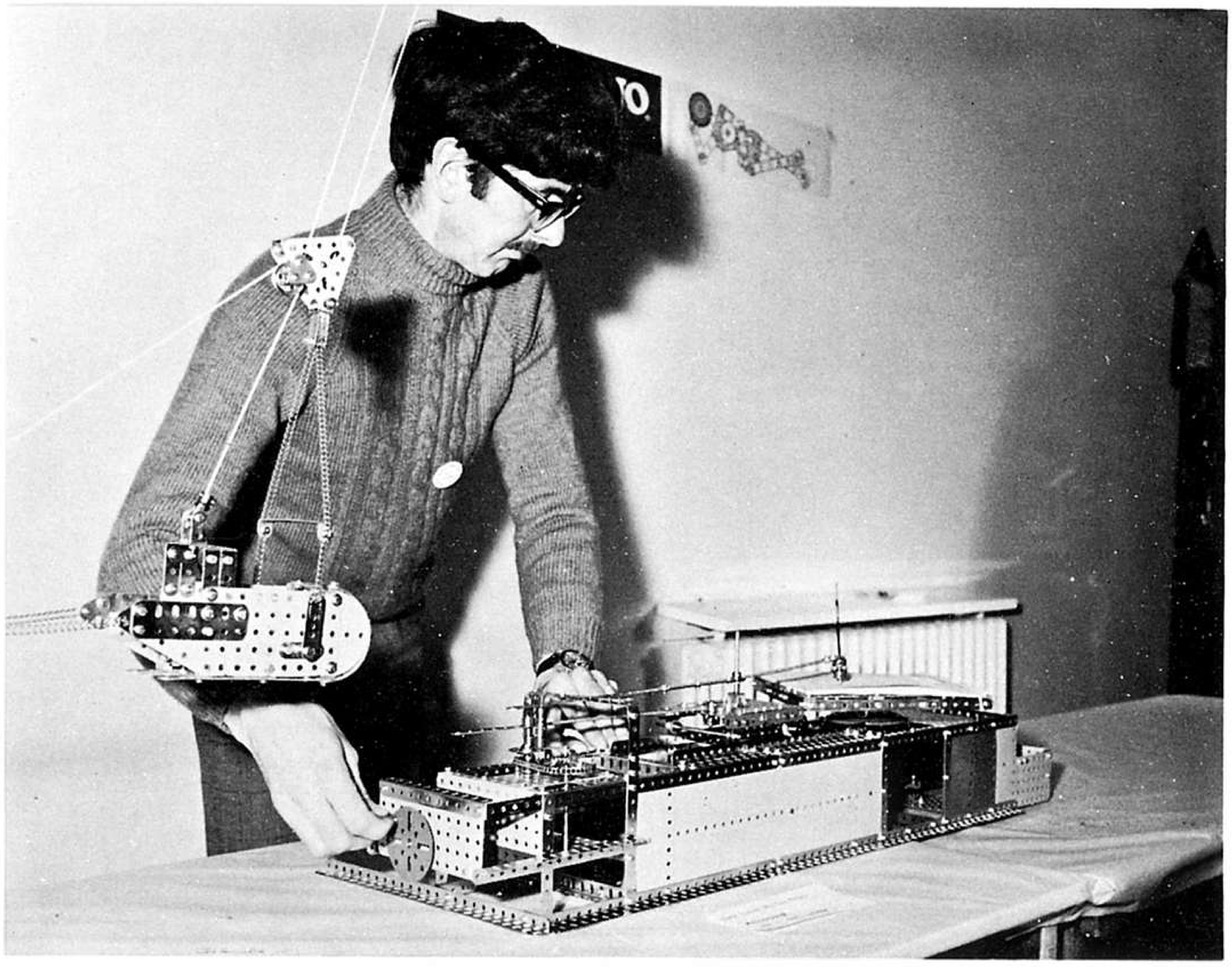
Later in October, we responded to an invitation from the '92 Squadron' to join in their exhibition at Letchworth. Here I displayed my own models, the Beyer-Garratt Locomotive, and the Double Decker Bus with complete working chassis. Various small models from our younger members made up the display.

One new member has been enrolled, and we welcome David Lack of Wollaston.

Terry Pope
16, Princess Way, Wellingborough, Northants, NN8 2HJ, England.

MECCANO IN TASMANIA

An enthusiast in Tasmania has written to us in the hope of contacting Meccano enthusiasts in his part of the world. He writes: *"I would like to join a Meccano Club in Australia, but I do not know of the whereabouts. I am anxious to get in touch with other enthusiasts, as Meccano is nowhere near as big a hobby here as in England, with parts hard to get, and no exhibitions held"*. Meccano enthusiasts able to contact our correspondent are urged to do so; his name and address are as follows: G E Duncan 42 Lavender Grove, Launceston, Tasmania, Australia, 7250.



JOHN LYTHGOE demonstrated his freelance Meccanograph at the NEMS Darlington exhibition

POSSIBLE NEW MECCANO CLUB

P Tonges of Emmastraat 3, Trommenie, in the Netherlands would like to hear from any of his countrymen interested in forming a Meccano Club.

All Meccano Clubs are invited to submit reports (and photographs if possible) for these pages. Reports should be approximately 350 words long, and should reach us by the end of the second month before publication. Ed

South-Seeking Chariot · by Terry Morris

MANY ENCYCLOPAEDIAS attribute the discovery of the magnetic compass to the Ancient Chinese, but there is a school of thought which says that the navigational aid used by the Chinese was not magnetic, but mechanical!

The South-Seeking Chariot is interesting because it contains a differential gear, the same concept as that found in the back axles of motor vehicles, but used in a rather different way so as to direct a pointer to the true South point of the compass irrespective of the way in which the chariot is manœvered. I baulk at the difficulty of explaining how it works. Build it and find out!

The model is not difficult to build, but care must be taken at each stage to ensure that bolt holes are in line so that all Axle Rods revolve smoothly.

BUILDING INSTRUCTIONS

THE FRAMEWORK

The framework is commenced by building two rectangular sections, each constructed by bolting two 1½"Strips 1 to two ½"×½"Double Brackets 2. Two of the sides of the Nuts used should be parallel to the edges of the 1½"Strips to give the maximum space between them. The two rectangular segments are joined by two further 1½"Strips 3, the Bolts also securing 1"Corner Brackets 4, only one of which can be seen in the photographs. The centre holes of each of these latter 1½" Strips carries a 3½"Strip 5 on a 3/8" Bolt. The 3½"Strips are separated from the 1½"Strips by three Washers. The 3½"Strips are also bolted by 3/8"Bolts to the remaining holes in the Corner Brackets and separated by three Washers, the Bolts also carrying 1½"×½" Double Angle Strip 6 separated from each corner Bracket by a Washer.

A 3½"×½"Double Angle Strip is fixed as shown, and carries a Rod Socket containing a 2"Rod which forms the stand.

THE WHEELS

The Spoked Wheels are mounted with Grub Screws on 1½"Axle Rods journalled in the 1½"Strips 1. These Rods are held in place by ¾" Pinions. One Pinion, 7, has its boss outwards, and the other, 8, inwards. Each Pinion is prevented from excessive lateral movement by a Washer on the Rods. Sufficient room at the inside ends of the 1½" Rods should be allowed for another Rod to pass between them.

THE DIFFERENTIAL

At this point, the differential should be built. A Bush Wheel and

a 1½"Contrate Wheel 9 are joined by two 1½"×½"Double Angle Strips which are each separated from the Contrate Wheel by a Collar. A ¾"Contrate, 10, is fixed on a 2"Rod mounted in Contrate Wheel 9. The Contrate Wheels are separated by a Washer. A further ¾"Contrate 11 is mounted on a 1½"Rod journalled in the Bush Wheel, and is separated from it by a Washer. A further 1½" Rod carries two ½"Pinions and a Collar. These Pinions mesh with Contrates 10 and 11. One Pinion is fixed on the Rod, the other is loose, but held in place by the Collar.

Three Washers are now placed on the 2"Rod which is inserted into the centre hole of Double Angle Strip 6. The Washers rest on the inner Strips 1, and raise the Contrate Wheel 9 above them slightly. This Rod also carries a ¾"Contrate 12, which meshes with Pinion 7. The Contrate Wheel 9 meshes with Pinion 8.

The other end of the differential mechanism is journalled in a 2½"×½" Double Angle Strip 13, bolted to the top ends of Strip 5, and separated from them by four Washers. The 1½"Rod carries a ¾" Pinion 14, which meshes with a 1¼"Gear Wheel 15, mounted loose on a Threaded Pin attached to Double Angle Strip 13, and raised from it by two Washers.

COMPLETION AND OPERATION

The Spoked Wheels should now be adjusted so that they are *exactly* the same distance from the centre of the model, and spaced apart a distance *exactly* equal to their diameter.

All that now remains is to attach a 'Chinaman', made of 'Plasticine' or card *(or Meccano)*, to Gear Wheel 15. When the model is correctly adjusted, he will point in the same direction regardless of whether the chariot is moved forwards, backwards, or round in circles.

Dashed clever these Chinese!

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4 of No 18a	15 of No 37b	1 of No 115
2 of No 19a	24 of No 37c	2 of No 133a
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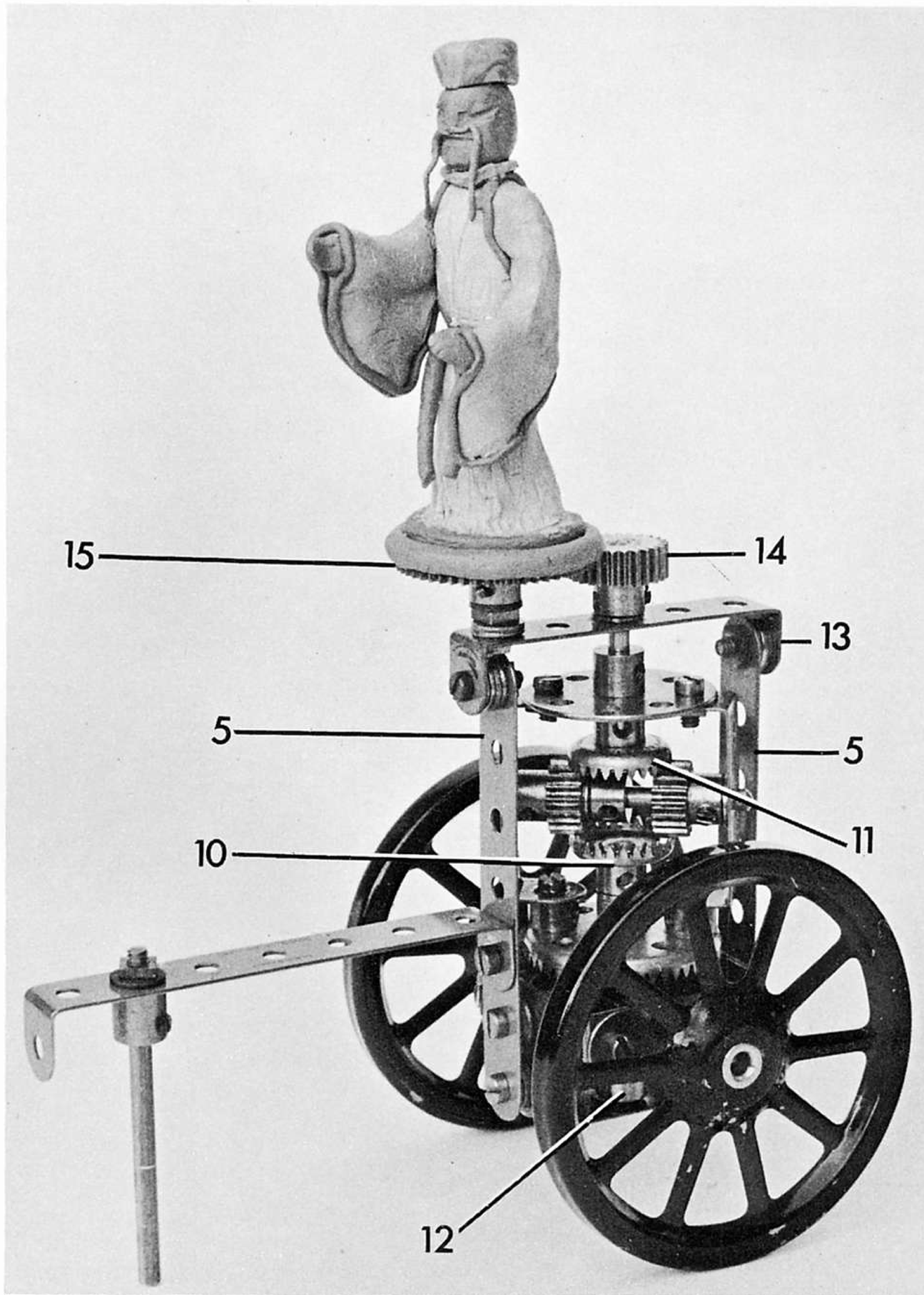
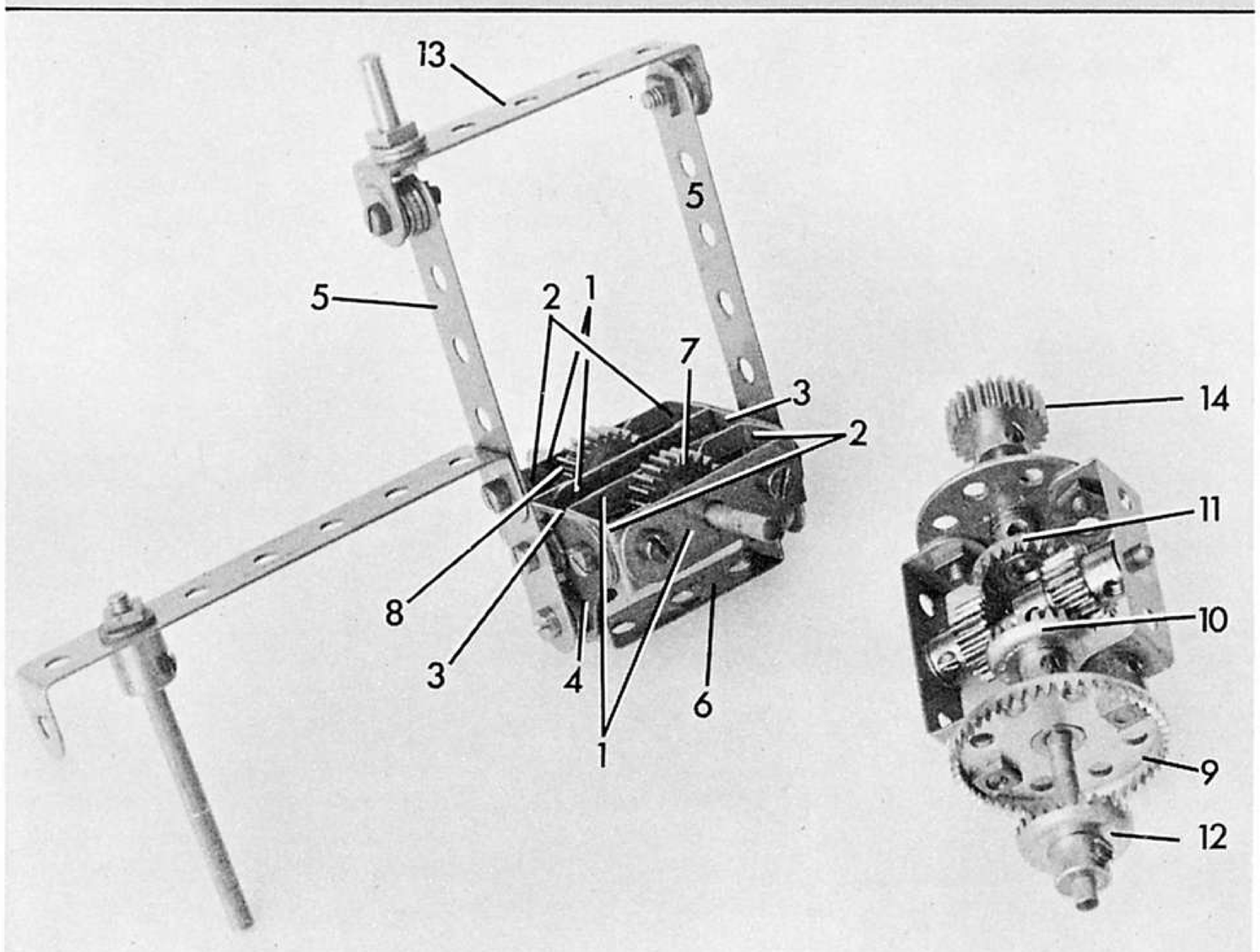
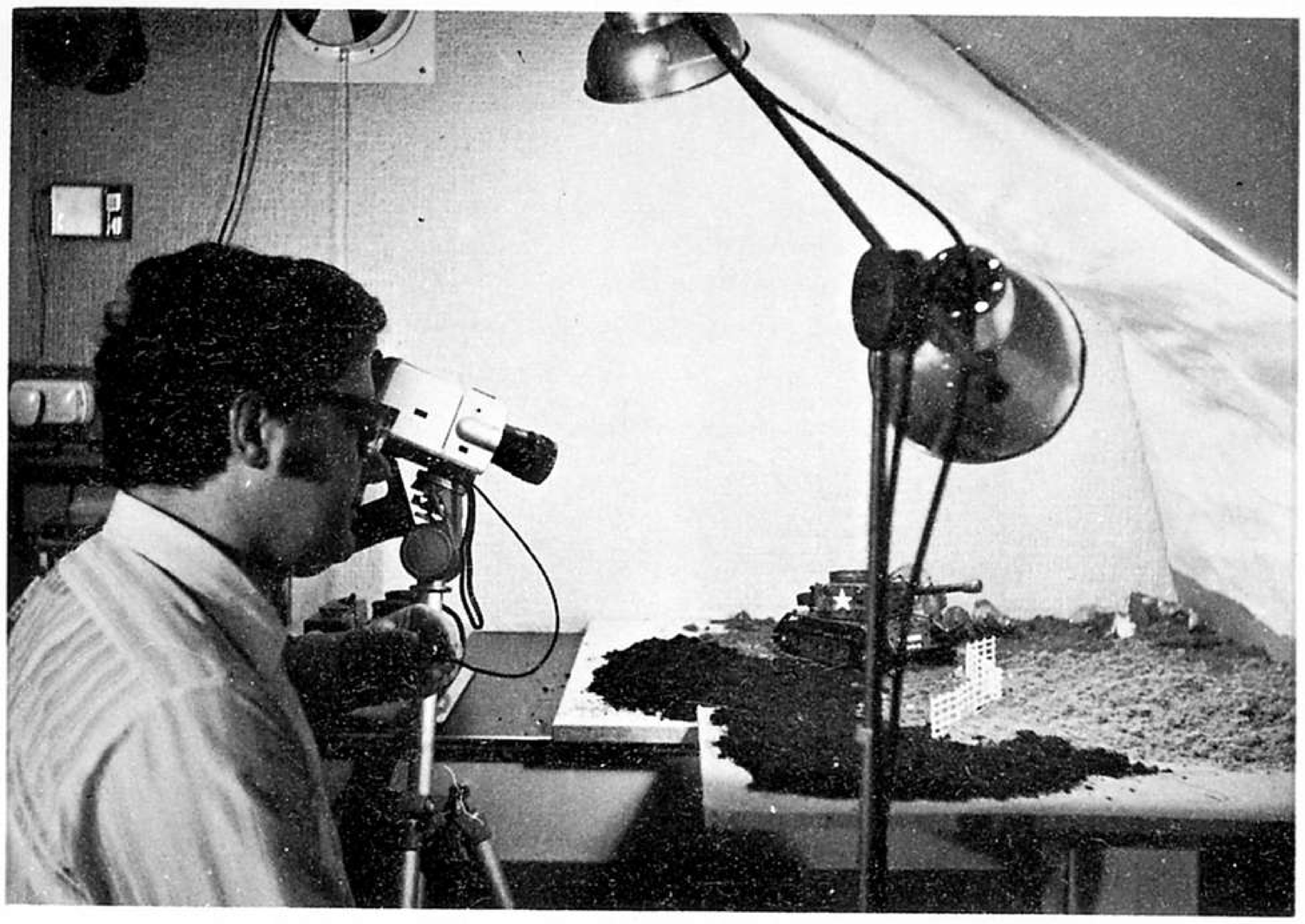




ABOVE RIGHT: The completed model of the South-Seeking Chariot, complete with 'Plasticine' Chinaman on top!

RIGHT: A close-up of the mechanism of the Chariot, showing the construction of the differential and the axle unit.



The author in action animating a Meccano tank in a 'table-top' setting

Let Your Models Live — Part 5

Putting Movement in

GOING THROUGH THE MOTIONS

An essential feature of films is that there must be *movement* -- hence the term 'movies'. A film without movement is dead, motion gives it life.

In *MMQ* 1976 April, we saw how — by various camera movements -- even an inanimate object, such as a model building or bridge, could be filmed in such a way as to impart movement. But most Meccano models are *working* models, and working means movement.

Indiscriminate, or too much camera movement can be disturbing to an audience. It is better for most shots that the subject itself should move. This is where the working model is ideal.

Advanced model builders are in their element here. A Large Block-Setting Crane, a fully-detailed Fork Lift Truck, an Automated Ship-Coaling Plant, are all models that have a great scope for building-in plenty of movements. Furthermore, depending on the degree of expertise of the modeller, the movements may well be partially or fully remote-controlled or even radio controlled.

This kind of model is the easiest to film, as the operator's hands need not appear in the picture at all. But many Meccanoists have neither the resources nor the skill necessary to construct such a model.

In *MMQ* 1976 April, we saw how a non-remote-controlled model could be filmed without hands appearing in the picture — by 'stop motion'. Now we can advance a step farther, and put movement into non-motorized models, or models where not all the movements are motorized. This is the process known as **animation.**

ANIMATION

This is, in essence, a cine camera technique borrowed from cartoon films (see also *ME 10* 1975 December). The animation of cartoon drawings to produce any imaginable movement is greatly simplified when a three-dimensional object is used. If you have watched any of BBCTV's *'Magic Roundabout'* or *'Paddington Bear'* series, you will know how effective the animation of solid objects can be. Whether the animation is of drawings or models, the basic principle remains the same — the creation of the illusion of artificial movement.

If you examine a strip of cine film of a moving object, you can see that it consists of a series of still pictures. The object is seen in each picture to have progressed through its motion stage by stage, each successive picture depicting the object in a more advanced stage of the action. In projecting the film, each still picture is shown one after the other in rapid succession — 24 different pictures a second on sound film, 18 pictures a second on most types of 'domestic' cine cameras.

The human eye has the ability to retain, for a brief time, an image of a picture flashed before it. This 'persistance of vision' smooths the transition from one projected picture to the next so that the individual pictures are blended together to give the illusion of movement.

WHAT DO I NEED?

As in animation, we must photograph each stage of the action individually, the first requirement is a camera with **single-frame exposure.** The release trigger or button normally starts the camera filming at 18 frames per second. The 'single-frame' setting enables us to expose only one frame at a time. It is sometimes set by rotating a control knob and then operating the normal camera release button, or there may be a special socket on the side of the camera into which a **cable release** must be fitted. For animation work, the single-frame facility is a must, and fortunately most cameras have it built-in.

The second requirement is **patience.** The piece of film that lasts a few seconds on the screen may, in some cases, take several hours to film. It is a slow process, and cannot be hurried. The model must be set to a new position for each exposure, which means setting the model perhaps 18 times for each second of screen time. I make this point at the outset, so that you are under no illusions about it. You certainly need patience, but then is patience not an essential ingredient in building Meccano models?

Thirdly, you will need a *really* firm support for your camera. A good tripod is usually sufficient, but it must be rock steady. Particular care is needed when filming, so that you do not inadvertantly kick one of the tripod legs. A slight knock in the middle of filming a scene, will cause a jump in the finished film.

Good, solid tripods are not cheap, but an effective substitute that is not likely to be tripped over is a 'mini-tripod' or camera clamp. This is, in effect, a cramp for fixing to some convenient point, such as a bench-top, chair back, fence, etc, and has a ball-and-socket head, on which the camera is mounted, thus enabling it to be pointed in the required direction.

You could manufacture a stand from Meccano. Fixing the camera to the stand is no great problem, as the base of most cameras have a ¼" Whitworth tripod bush incorporated, so the use of a ¼"Whitworth bolt with a ¾"diameter washer under its head solves the problem, as such a bolt can be passed through the centre holes of a pair of 4"Circular Plates. The Circular Plates can then form the starting point from which the camera mount is developed.

by Geoff Pratt

nt into Your Models

In conjunction with the tripod or stand, it is important to use a **cable release** to operate the camera. This little device — in principle a Bowden cable — is very useful, as it enables the camera to be triggered without accidentally moving it. A short cable release is useless, get a usefully long one that will allow hand movement without jerking the camera. About 250 to 300mm is quite suitable.

The scene as viewed by the camera in the 'table-top' set-up

GETTING ORGANIZED

Because you will be filming for comparatively long periods, it is wise to see that, as far as possible, you are undisturbed. The intrusion of a younger member of the family, or even the family pet, can wreak havoc in the middle of an animation session. The ideal situation is one in which you have a separate room where a model can be set up and left undisturbed; then if you are interrupted, or find that you cannot complete a shot in one session, you can leave everything set up, and resume filming at some other time. Many of us cannot achieve this ideal, so a compromise must be made. We must select a time to fit in best with domestic routine — a time when we can expect to be disturbed the least.

Comfort when filming in animation is most important — personal comfort, I mean. Working indoors in the summer for long periods with photofloods is no joke! Beleive me, the heat generated by photographic lights is quite considerable, so make sure the room is well-ventilated.

Make sure also that you can move from model to camera easily, with the minimum of bending, stretching, or stepping over things such as legs of lighting stands, tripod, cables, etc. Just remember that for every second of screen time you will move from camera to model, set model to its new position, move back to camera, operate floodlights, operate camera, and switch off floodlights *18 times!* These repeated movements can be tiring, and it is all too easy accidentally to kick over the camera tripod or a light stand, if they are awkwardly placed. It is best to see that everything is arranged tidily, and if possible have the model placed at about waist level to avoid having to stoop repeatedly. (This latter point is perhaps not so important with younger readers, but for some of us it is quite a problem!)

LIGHTING FOR ANIMATION

The big difficulty with filming animation work out-of-doors is lighting. Our British weather is notoriously changeable. During a 2- or 3-hour filming session, the weather can change quite dramatically. Shadows may change, or the sun may disappear behind clouds, or the light can fade so slowly as to be unnoticed. Unless the exposure setting is adjusted to compensate, the fading light is seen in the finished film as a very rapid and noticeable change.

For convenience then, it is generally better to film indoors under artificial lighting (ie, floodlights). It is advisable to have a spare set of floodlamp bulbs. If you are part-way through a filming session and a lamp 'blows', you can then continue filming with a replacement bulb. As I pointed out in my article on lighting in *MMQ* 1976 July, the life of these lamps is comparatively brief, and they get very hot. If left on for long periods they will over-heat and possibly even cause damage to the lampholders, so a wise precaution is to switch them off between exposures.

On the other hand, repeated switching on and off will also shorten the life of any lamp — especially an over-run lamp such as a photoflood. The best safeguard is to make up (or have made up for you) a **series/parallel switchboard** (Fig.1). The board shown has two separate circuits, so that a total of four photofloods can be used. Each circuit consists of a series/parallel switch and two 3-pin sockets. A photoflood is plugged into each socket, and the unit is plugged into the mains.

The switch is initially in the centre 'off' position. On switching to the 'series' position, the two lamps are lit, but being connected in series, they only come on at a quarter of their normal power; this allows them to warm up before switching to 'parallel', where both lamps will be connected directly to the mains, and therefore attain their full brightness (see wiring diagram Fig.2). By this means, photofloods can be switched on and off hundreds of times without premature failure.

In case of difficulty in obtaining series/parallel switches, write to SRB Film Service, 286 Leagrave Road, Luton, Bedfordshire, England, who will be able to help. A further alternative is to buy the ready-made unit marketed by Malham Photographic Ltd, which should be obtainable to special order from your local friendly photographic dealer.

ANIMATING THE MODEL

In order to simplify the actual process of animation, we can divide the actions required into a number of separate simple movements. You may have noticed that in present-day cartoon films, a character seldom does two things at once. He will move his head, stop, speak, stop, move an arm, stop, move his head, stop, and so on; this makes the animation process much simpler.

Similarly, if we have, say, a tank to animate, we can make it first of all move over grass or earth, then stop, turn, stop, move forward,

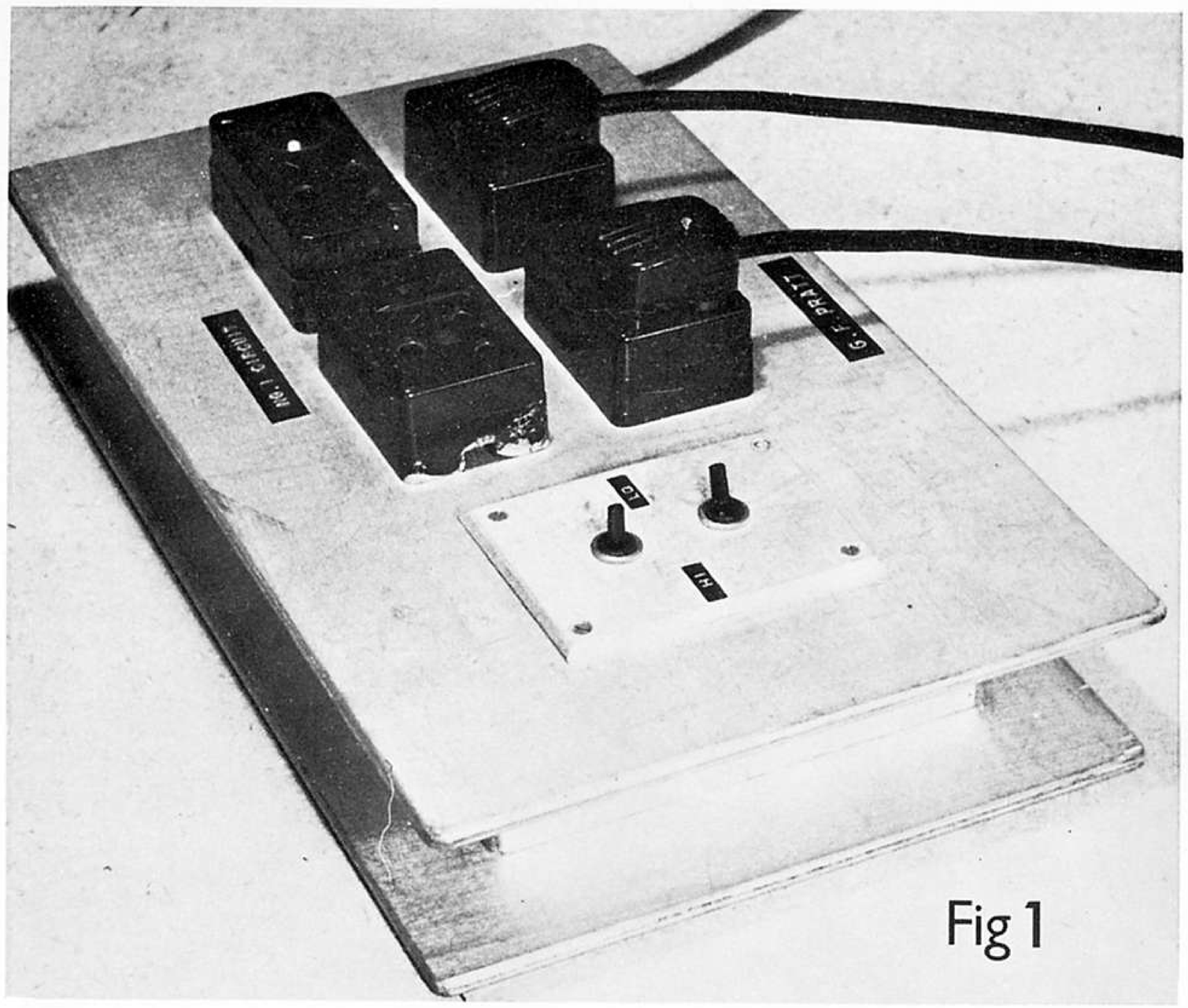


Fig 1

stop, elevate gun, stop, rotate turret, stop, fire, stop, and move again. If we approach the subject in this way — at least until we have gained some experience in animation — we can avoid becoming too complicated in the early stages.

Taking one movement then, let us consider the forward motion of the above mentioned tank. Firstly, we must estimate how fast it should move, taking its size into account. If we move it by hand along a set distance at a speed that 'looks right' for its scale, we can time it and find out how far it will move in one second.

For example, for a distance of 1.5 metres to be traversed in 24 seconds, the model will move at a speed of:

$$\frac{\text{1.5 meters}}{\text{24 seconds}}$$

which equals 62.5mm per second. Now, for each second of screen time, the camera must have exposed 18 frames, so the 62.5mm must now be divided into 18 individual movements for each film frame, ie:

$$\frac{\text{62.5 millimetres}}{\text{18 frames per second}}$$

which equals 3.472mm (call it 3.5mm) movement per frame.

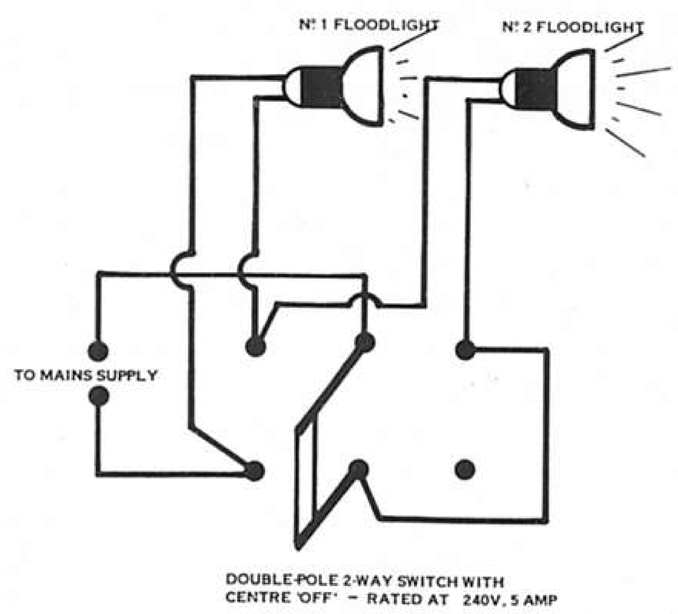
When animating, we can very often save a great deal of time by exposing not one but *two* frames of film at a time, and only moving the model *nine* times per second of screen time. If we do this, we must move it twice as far as for a single frame, and by this means, we halve the amount of work envolved. Where no rapid movement is to take place, we can always use this dodge without detracting from the effectiveness of the animation.

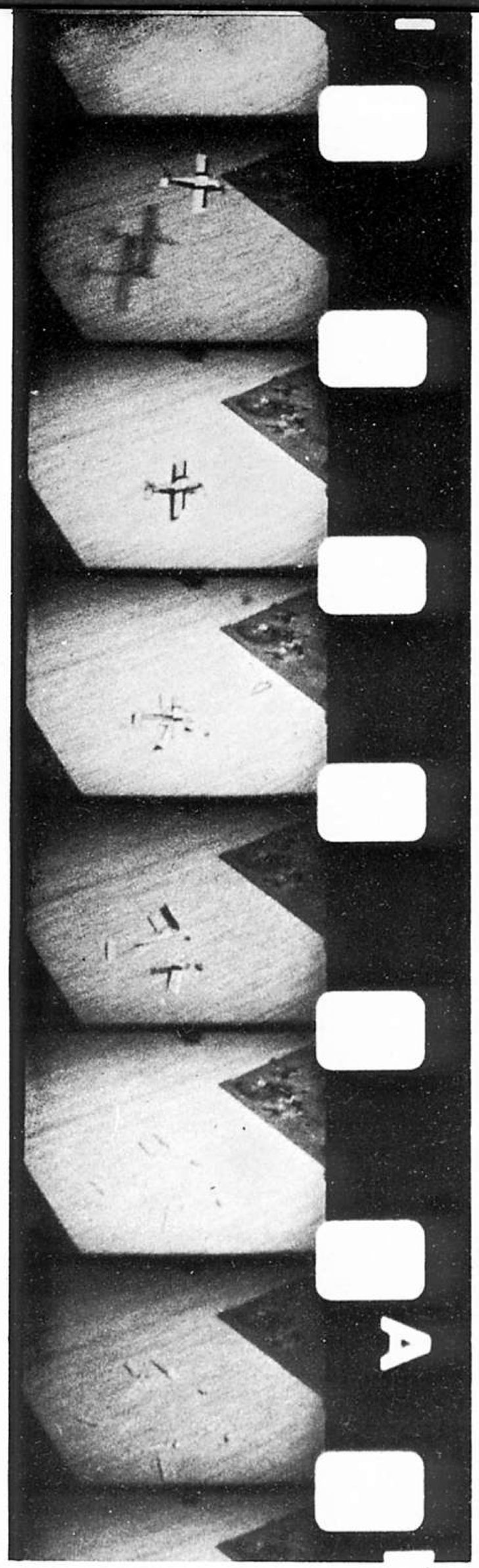
In the above example, where a model tank is to move across the screen, its movement can be divided into nine individual movements per second, exposing two frames per movement. Then the model must be moved not 3.5mm, but 7mm at a time. For a long-distance shot this would be perfectly adequate and will still give smooth movement.

The proceedure for actually filming it is as follows:

First, arrange the model in its starting position, then set up the camera with the model suitably framed in the viewfinder — making due allowance for the intended movement of the model — so that it will still be in sight at the end of its movement. If necessary, try positioning it as it will be at the end of its movement, and ensure that it looks right in the viewfinder.

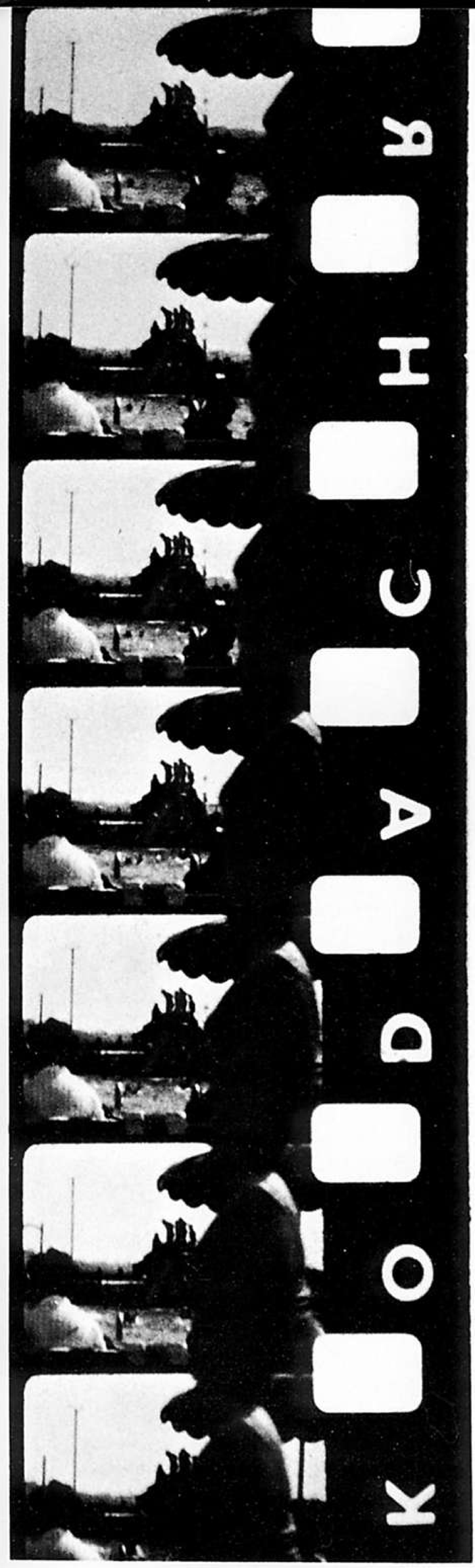
Fig 2





Remember that at this stage the camera will be fixed, and will not be able to pan to follow the model's movements. Adjust the focus so that the model will be in focus throughout the action. Adjust the floodlighting to cover the scene as required, ensuring that the entire area of action is evenly lit.

With the model at the starting position, adjust the camera exposure setting to suit the lighting conditions, or switch on the automatic exposure control. Set the camera to 'single-frame' exposure and expose two frames. Move the model forward by the distance calculated (7mm in the example above) and expose two more frames. Move the model forward and expose two more frames; and so on until the entire travel distance has been covered. Remember when



ABOVE LEFT: A series/parallel switchboard for the control of filming lights.

BELOW LEFT: The circuit diagram for the control box.

CENTRE: A comparison of live action filming and animation. The film on the left shows a plastic aeroplane falling to the floor by animation — the model is sharp in each picture, despite the supposed high speed of motion. In comparison, the lady walking past in the live action film on the right is blurred.

RIGHT: An animation 'dope sheet', for the animation of the firing of the gun of a Meccano Tank.

Fig 3

ANIMATION DOPE SHEET

FILM TITLE Meccano Tank PAGE NO. 21

TIME	FRAME NO.	SOUND TRACK	DETAILS 1 Travel.	2 Turret	3 Gun.	REMARKS
1m10s	1260	b.g. noise ↓				
	1261	Gun effect	move back 1/4"		add cotton wool	gun fires
	1262		back 1/4"		to muzzle	and
	1263		back 1/4"			recoils
	1264		back 1/4"			
	1265		back 1/4"			
	1266				Remove wool.	
	1267					
	1268				Wool gone	

moving the tank forward to *wheel* it along as if it were actually being driven, in this way the tank tracks and wheels will be properly animated.

The finished result on the screen will give a good impression of a smooth forward motion. If the model moves towards the camera either directly or at an angle, rather than across the field of vision, the smoothness of the action will be even better.

When filming the subject in close-up, or in cases where the movement is relatively fast, the amount that the model moves at each stage becomes too great for the eye to accept, and the movement is 'unsympathetic', ie jerky.

In normal filming, the images in each frame are blurred by the movement, and this helps to smooth over the action; but we are now photographing a series of *static poses* of our model, so there will be no blurring due to movement. In this instance there is no alternative but to expose the film one frame at a time, and move the model half as much for every frame.

Our model has now reached the end of its forward motion and we want it to turn, say, to the left. After filming the first part, you will have discovered how far the tracks need to rotate for each exposure. To make a left turn, hold the left-hand track to stop it rotating, and rotate the right-hand track only. When doing this, allow the tank to follow its natural inclination to swivel to the left by a small amount. Expose two frames.

Repeat the turning motion and expose two more frames each time until the turn is completed. You can now resume the forward motion until you reach the point where the gun is fired.

The tank is now static, and you can elevate the gun step by step, exposing two frames at a time until full elevation is reached. Decide how long the movement should take on the screen, and divide the total amount of movement into a number of equal steps — nine steps for each second of screen time. Move the gun one step for each two frames. The swivelling action of the turret is treated in the same way.

To make the gun fire, we can resort to a little more trickery. With the gun elevated and positioned ready for firing, expose about 18 frames without any movement. Then add a little puff of cotton wool 'smoke' to the muzzle, and expose one more frame. Add more cotton wool and expose another frame. Repeat this for a total of 5 or 6 frames, meanwhile moving the tank backwards slightly for each frame to simulate the recoil effect. For the next few frames, remove the cotton wool and then proceed with whatever action is planned.

All your animation can be done in the same basic way by dividing the action into individual movements and treating each movement separately.

When you have gained a little experience, you can try combining movements, moving two or more details at a time. Then you need to be really methodical to avoid forgetting just where you are in the overall plan of action.

Try to develop a standard order of movements so that you do not inadvertently omit some important detail. Where a complicated series of movements is planned, it is best to prepare a **dope sheet** (Fig.3) beforehand. This will indicate which item is to be moved for each frame, and how far.

Animating a model of a warship would be just such a subject, involving not only forward movement but also numerous gun activities, radar aerials, perhaps aircraft, not to mention escort ships as well. As each frame is exposed, the corresponding line on the dope sheet is ticked off. In the event of having to break off in the middle of a session, it is a simple matter to resume at the point where you left off.

Camera movements such as panning, zooming, tilting, or tracking are best avoided in animation; although they can be done if care is taken to make a slight movement for each two frames exposure. A camera mount can be made from Meccano, incorporating a geared pan and tilt head. This will enable you to make the really smooth camera movements that are so essential for a good movie.

9-Speed and Reverse Gearbox

Described by the Editor Designed by **Andreas Konkoly**

This model published in 1959 April the French Meccano Magazine firstly. They Called in French: 'Boite á 12 Vitesses'. It is incredible: how pass away the time! Andreas Konkoly

HEAVY-DUTY VEHICLES, machine tools, drilling machines, etc, all need a wide range of speeds. It was with this special need in mind that this mechanism was designed. The ratios provided are:

FORWARD			REVERSE
12:1	2:1	2:3	2:1
8:1	1:1	1:3	1:3
3:1	4:3	1:9	3:1

BUILDING INSTRUCTIONS

THE GEAR SHAFTS

A 3½"Perforated Strip is bent at a right-angle between holes 2 & 3, and is secured by two Bolts to the 5½"×2½"Flanged Plate (Figs.2 & 4).

Refering to Fig.4, place between the two 2½"□ Flat Plates the following parts:

Above from left to right: a Rod-with-Keyway is extended by a 2"Rod attached to it with a Coupling. The order of the Gears — all of which are fitted with Key Bolts — is then: a ½"Pinion, a 1½" Gear, and a ¾"Pinion; these are followed by a Collar without its Grub Screw. The next item on the Rod is the end hole of the right-angled Strip mentioned above, which is followed by a Washer, a 60-tooth Gear fixed to the Keyway Rod by its Grub Screw, a ½"Pinion, a Coupling, a 1"Gear, another ½" Pinion, and finally, a Washer.

Below from left to right: a 3½"Rod is freely journalled in the bore of a ½"Pulley-with-Boss, which is fixed by its boss section only to the end of the other Keyway Rod. The order of the parts on the Rod is then: a ¾"Sprocket Wheel, two Collars, three Washers, two more Collars, another Washer, the 2½"□ Flat Plate, and a further Washer. These are followed by a 1½"Gear Wheel, a ½"Pinion, a 1¼" Gear Wheel, a Washer, a ½"Pulley-with-Boss, and a Washer; all four bossed parts just mentioned are fixed to the Rod by their Grub Screws. The Rod then passes through the right-angled Strip, after which the following parts — all with Key Bolts — are fitted: a 15-tooth Pinion, a 1½"Gear Wheel, a 1"Gear, and a ½"Pinion. These are followed by a Collar, the other 2½"□ Flat Plate, and finally, a small Fork Piece.

THE REVERSING LAYSHAFT

Between the upper and lower gear shafts, the ½"Pinion which serves as the reversing idler, runs on a ¾"Bolt.

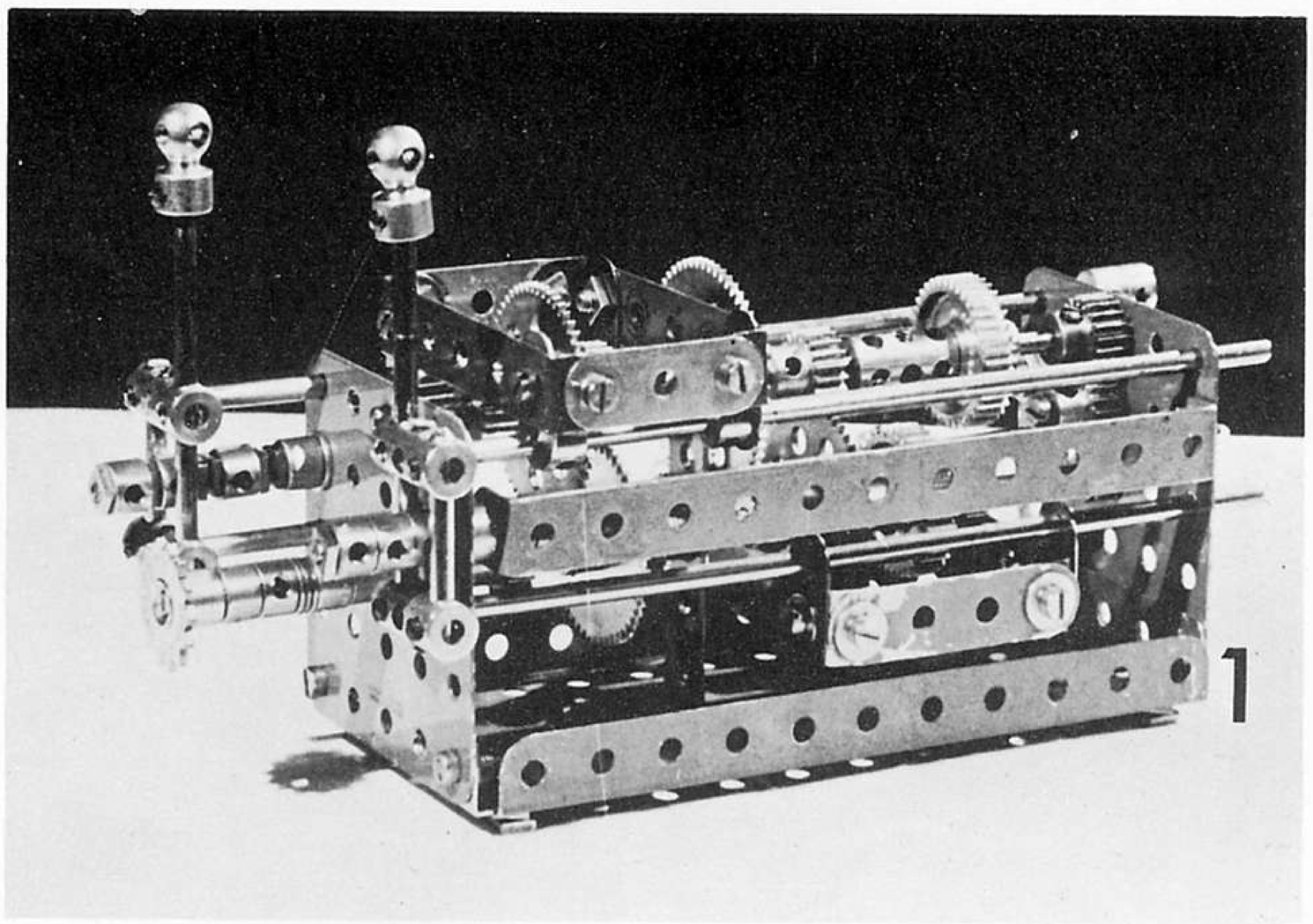
THE SHIFT LINKAGE

The above-mentioned Gears with Key Bolts are slid along the Keyway Rods by means of the frames shown in Fig.5. The frames are actuated by the gear shift levers seen at the right of that picture.

The frames are situated on shafts as shown in Fig.5, the nearer pair being 8"Rods, and the farther pair 6½"Rods. The upper frame is fixed to the upper 6½"Rod by two Collars, and the lower frame is similarly fixed to the lower 8"Rod.

The gear shift levers (Figs.1 & 5) are each composed of two Couplings joined as shown by a 3" and a 1½"Rod. A pair of Handrail Couplings form the knobs.

Between both Coupling units there is a specially-constructed shaft composed of Collars and Washers locked to a 2"Screwed Rod by Nuts. The exact order of



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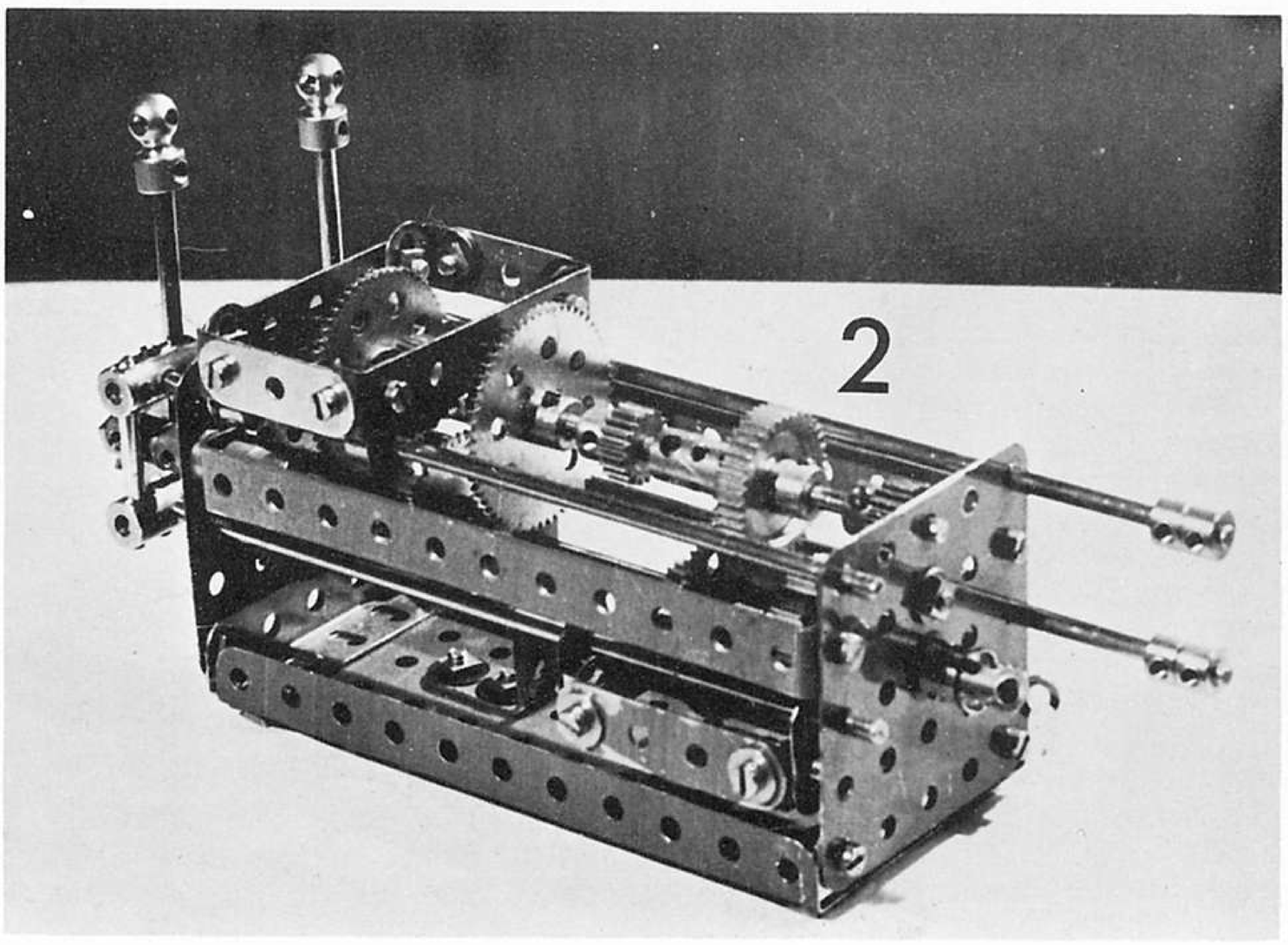

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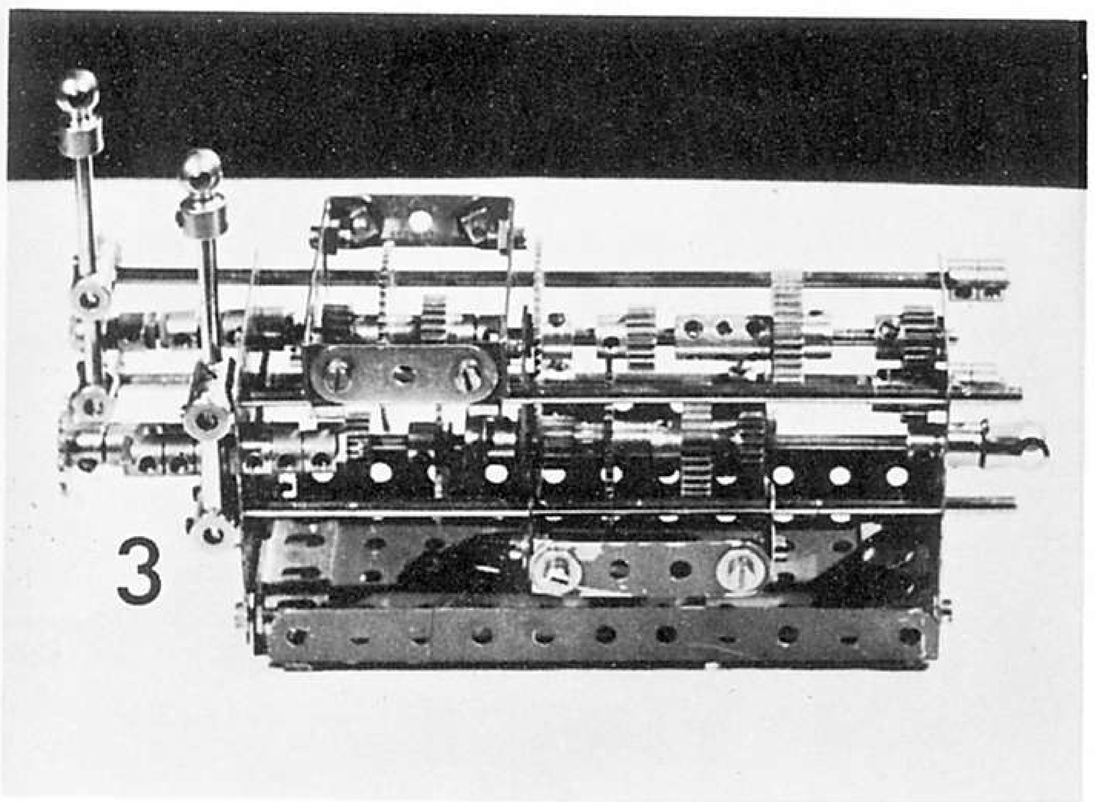
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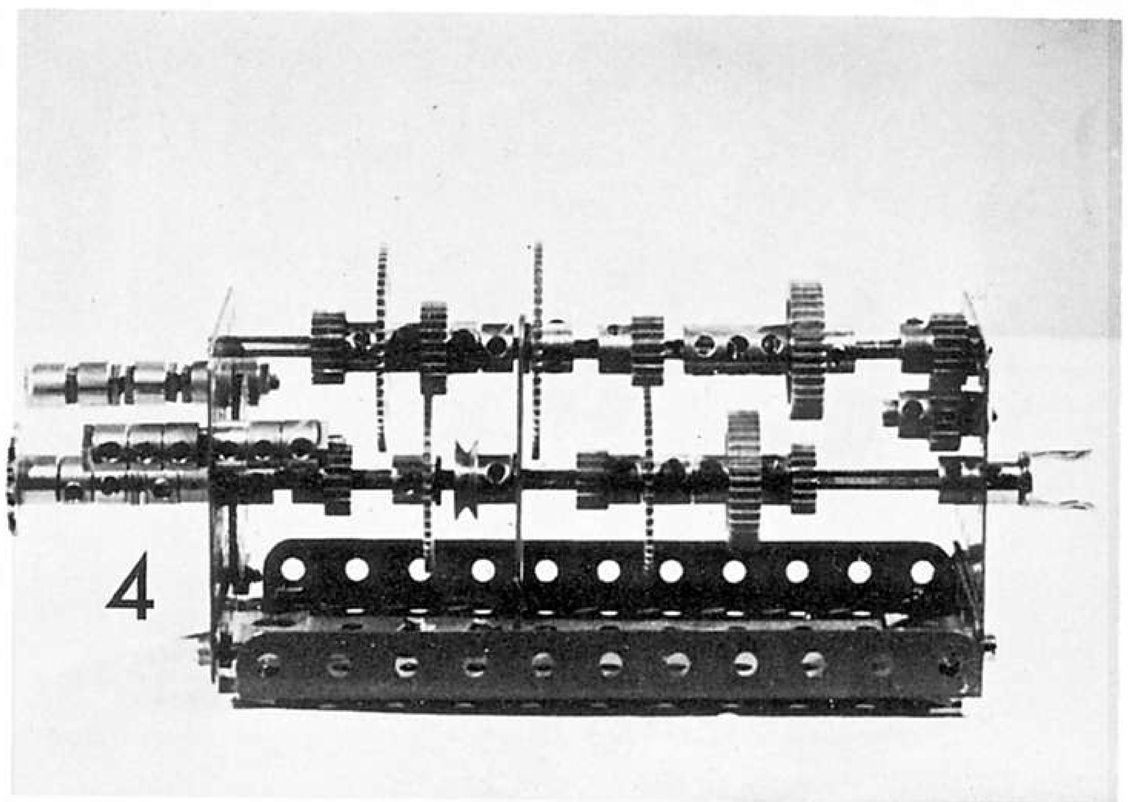
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parts on these Rods is as follows:

The Collar row on the **left**:
Nut, Collar, Nut, Collar, 2 Nuts, Collar, 2 Nuts, Collar, Washer, 2½"□ Flat Plate, end lug of a 5½" Double Angle Strip, and finally, a Nut.

The Collar row on the **right**:
Nut, 3 Collars, Nut, 2½"□ Flat Plate, Collar, end lug of another 5½"Double Angle Strip, 2 Collars, and a final Nut.

COMPLETION AND OPERATION

The other lugs of the Double Angle Strips are fixed to the other Flat Plate as shown in the illustrations.

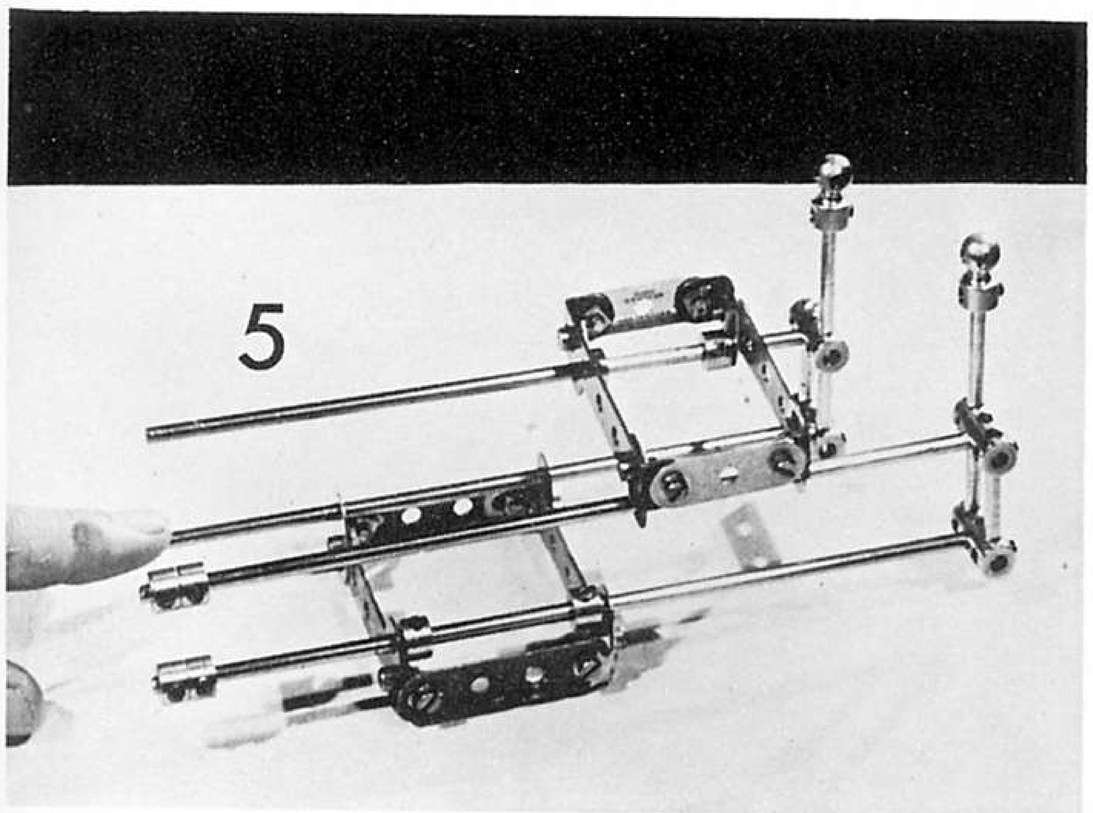
The required ratio is set with the two levers. The levers are slid so that the Couplings on them run along the Collar rows.

If it is required to change gear *with one lever only*, reference should be made to Fig.6, where it will be seen that a 5"Rod has been fitted with a Large Fork Piece, which is in turn fitted to the *second* Collar of the lower gear shaft with two Nuts and Bolts.

A Coupling is fixed to the Rod as shown, and to this are firmly fixed two Small Fork Pieces by means of ¾"Bolts. The single lever is then swung in an arc so that the required Collar (replacing the Handrail Couplings) is located in its respective Fork before sliding the selected linkage into gear.

PARTS LIST

1 of No 3	1 of No 17	2 of No 48d
2 of No 5	2 of No 18a	1 of No 52
2 of No 6	2 of No 23a	26 of No 59
2 of No 6a	1 of No 25	6 of No 63
8 of No 10	6 of No 26	2 of No 72
2 of No 9d	1 of No 26c	2 of No 81
4 of No 12	1 of No 27	1 of No 96a
2 of No 13a	3 of No 27a	1 of No 111
2 of No 14	1 of No 27d	2 of No 111a
1 of No 15	2 of No 31	1 of No 116
1 of No 16	30 of No 37b	3 of No 116a
2 of No 16a	45 of No 37c	2 of No 136a
2 of No 16b	21 of No 38	2 of No 230
	2 of No 48a	7 of No 231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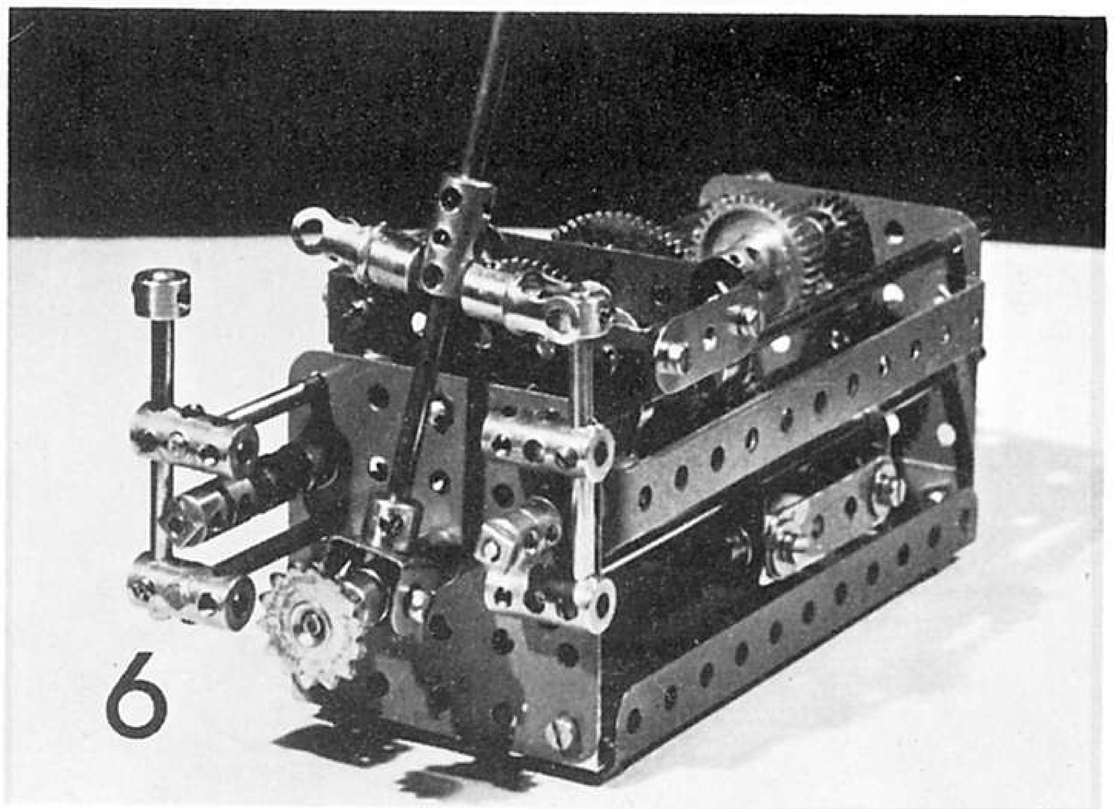
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MM COMPETITION

A MECCANO CONSTRUCTION PUZZLE
DEVISED BY ALAN PARTRIDGE

WIN A 1.5 - 4.5 v Mk 2 JUNIOR POWERDRIVE MECCANO ('CRANE') MOTOR

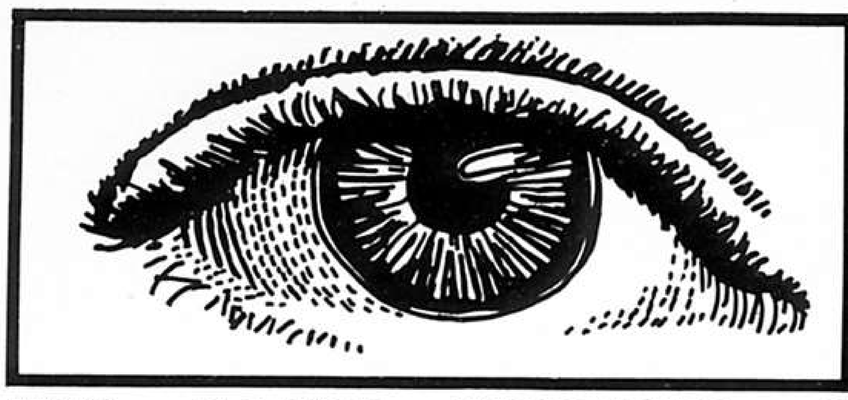
Can you build a differential mechanism, which would serve to connect the propeller shaft of a motor vehicle to the half-shafts carrying the rear wheels, using only *four* toothed parts?

The crown wheel and its driver, or equivalent, are included in the total of four, and only standard Meccano parts are to be used, without mutilation, and in conventional alignments. The drive is to be completely positive: no cords or frictional devices are allowed.

The first correct answer (described on paper please) **that we receive, wins the Motor.**

Alan Partridge assures us that it is possible, and that he will reveal the solution in time for us to print it and announce the winner in the next *MM*. Meanwhile, he asks distracted readers not to send a strong-arm squad to the Midlands, as the drawing is in his bank, and he himself, like any good mechanism, will not squeal!

The competition (which is not open to Alan Partridge!) **closes on March 1st.**



In View

NEW FRENCH MECCAKITS

In *ME 7*, I described the three Meccano France Multikit-type outfits, called *Meccakits*, which had recently been introduced. Now two more have been added to the range: MT200, and MG400. These were first mentioned in *ME 8* but now an MT200 Manual and an MG400 Outfit are to hand, so some more details can be given. It should be noted however, that due to a trading agreement between Liverpool and Paris, the products of Meccano France SA are not available for retail sale in England.

The 'MT' sets are akin to the Multikit Highway series, and the MT200 is a simplified version of the original MT300. It contains slightly fewer parts, and has only four Road Wheels instead of the six in the larger set; Flexible Track is still included. The manual is in the same style as that of the MT300, but contains six models, as against twelve, and each of these is a simplified version of an MT300 model. From the manual, it appears — as might be expected — that the design and finish of the parts is the same in the two outfits.

The 'MG' of MG400 stands for Meccakit Grues (grue = crane), and the 400 indicates that this set is the largest of the Meccakit range. As its name suggests, the theme is cranes, and of course the last British Multikit to be introduced is a crane set too; but there the similarity between the two ends, and whereas earlier Meccakits were more or less comparable with Multikits, the concept of the two crane kits is very different.

The Meccakit contains many more Strips and Girders, including two 18½" and twelve 12½" Angle Girders, and the models are appreciably larger. On the other hand, they are less interesting mechanically, there being no motor or gears as in the Multikit.

Another very noticeable difference is in the colour schemes: the Multikit parts are virtually all yellow or, for small pieces, gold; in the new Meccakit, the standard parts follow the normal Meccano France colours, except that the

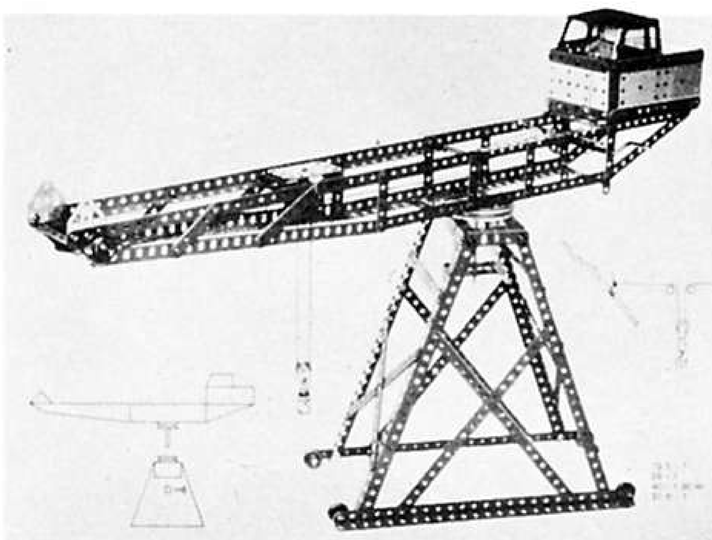


Illustration reproduced by kind permission of Meccano France SA

Flanged Plates and 3"Pulleys are finished in the same light shade of yellow as the Flexible Plates. The Fishplates are the brass-plated, polished ones that are used in the MT300 set. The only non-standard parts included are a Cab Upper, painted in 'french' red, and complete with Window unit; and six of the 22mm diameter push-on plastic Wheels as used in the French Pocket Meccano. In this case though, these are moulded in grey plastic, and have been allocated the part number 306.

The manual shows a step-by-step method of construction, with clear, reasonably-sized black-and-white photographs; and I found several of the six models described rather attractive. The use of the upper part of the lorry Cab as the top of the crane control cabin gives the cranes a 'modern' appearance, and is about the right size for most of them.

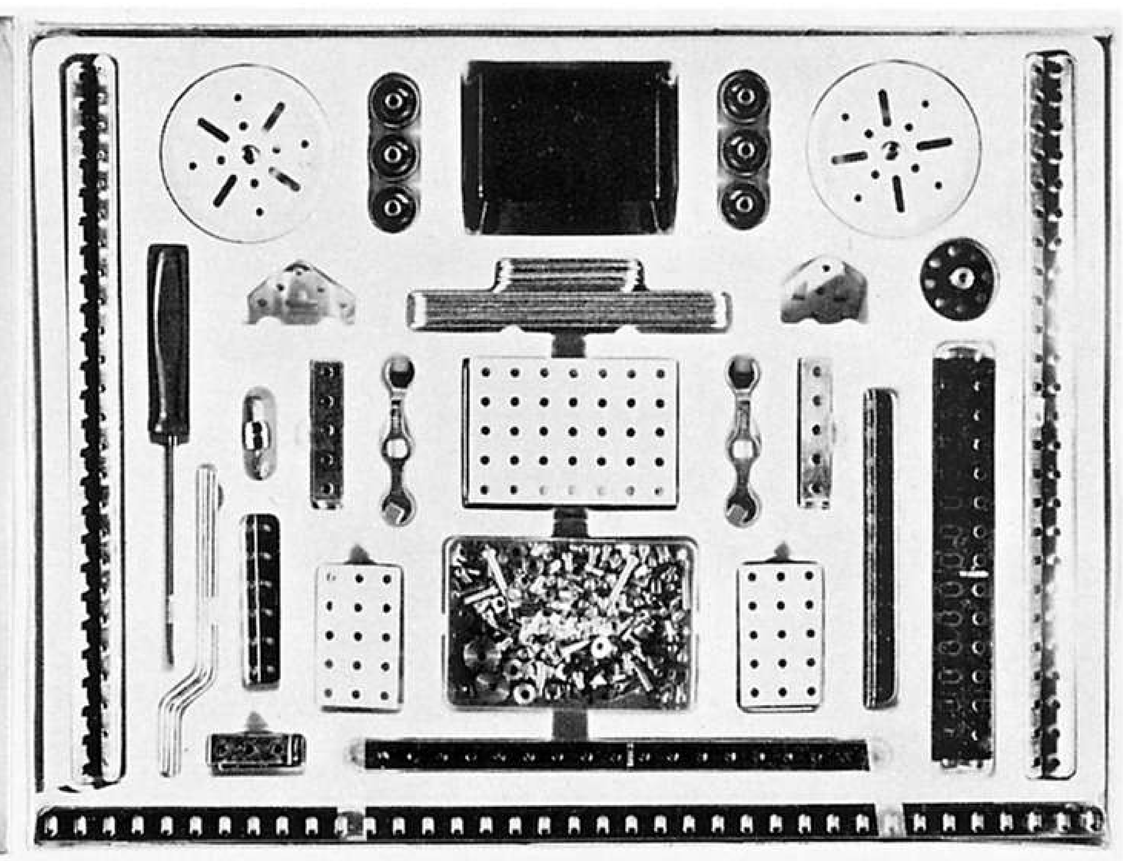
Finally, I would like to mention and commend to Meccano Liverpool, the Bolt-heads used by Meccano France. Although they are only slightly smaller in diameter than ours, this together with a slight taper gives a much neater appearance which would go well with the recently-adopted hexagonal Nut.

The French Bolts also have shorter shanks — about 5.5mm long — and this again gives a tidy appearance, although for general use it can be too short in some applications particularly if two Washers have to be used.

Ideally, we should have this length available *in addition to* our present one.

Whilst on this subject, the Washers in the MG400 outfit are non-standard, they are considerably thinner than normal, and are about 9mm in diameter. This seems to me to be a step in the right direction, certainly the present standard Washer appears unnecessarily thick and, although it may be argued that it is desirable to keep the diameter the same as that of bosses, Collars, etc, I would personally prefer to have a smaller diameter as well.

Tony Knowles



0-GAUGE PICKFORDS WAGON

By TINPLATE DESIGN REVIVALS
11 Boscome Rd, Southend-on-Sea, Essex.

Among the many pleasures of collecting tinplate toys, two qualities seem to stand out. Firstly, the robust and practical construction which has preserved many vintage specimens for us today, in spite of over-enthusiastic handling in the past. Secondly, the naïve vigour of the tinprinting or painting, and the graphic work which interprets in Toyland the spirit of the real world of design and industry.

Hornby gauge '0' Trains, for more than forty years, supplied these two virtues in abundance. New tin toys are still to be bought, though not often in the form of trains, and the intelligent collector will keep his eyes open for opportunities to spot the 'antiques of the future'.

If this same collector's eyes were to light upon the new offering from Tinplate Design Revivals, I am afraid that he may be disappointed; your reviewer certainly is.

The 'N°. 1 Private Owner Van — 'Pickfords'' meets neither of the standards just described, nor does it seem to make much original contribution by way of compensation. As this item is clearly an imitation of a vintage Hornby Van, a comparison with the 'real thing' is appropriate, in fact, unavoidable.

The dimensions and construction closely follow the standard Hornby product. The design of the chassis is similar, but with a curious 'edgy' look to the pressing, the worst feature being a weak point where the horizontal bar linking the axleguards meets the brake hanger. Compared with the smooth flow of the Hornby pressing, this both looks and feels unsatisfactory. Indeed, the model has sharp bits all over. Tags inside are over-large and roughly finished, and those on the corner of the body are imperfectly pressed down — a vulnerable feature. The corners themselves seem to have received special attention, because the metal straps of the prototype, which Hornby pressed integral with his van sides, are here actually separate pieces of tinplate, presumably soldered on. This might have been an attribute had not one been cut crooked, and another so ill-formed as to buckle the corner.

The wheels are white metal with a very noticeable flaw in the casting of the flange and, for turned jobs, they are just not good enough. It is true that the original Hornby tinplate wheels left much to be desired, but the Hornby cast wheel was very good.

The couplings look splendid, until you discover that they too are white metal castings, as is the tail lamp, in which the hole is so small that it falls off the peg.

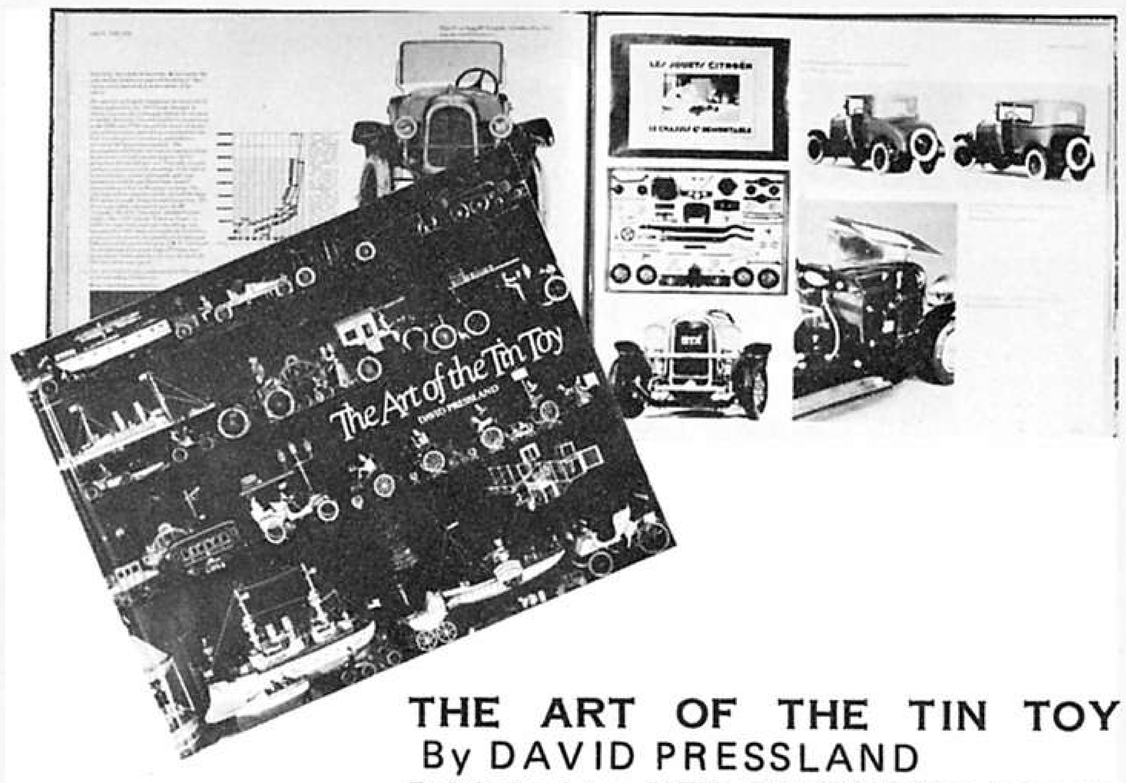
The most extraordinary feature is the roof, in which the drip rail seems to be *impressed* rather than embossed. Close inspection reveals that the roof is made of a double thickness of tinplate with a slot cut into the upper layer to suggest the drip rail. Not at all a happy feature.

The colour is a good representation of Pickfords' blue, with a white roof; though the paint is thin, and looks it, and, on the specimen under review, one door cannot be opened without scratching the paint. All this, and more besides, you can have for £8.35.

It seems to me that here is a good idea; and that there is a market for a limited run of new tinplate models in gauge '0' (this specimen is N°. 65 in an edition of 2 000). It is a pity that Tinplate Design Revivals invites so much comparison with a product which did it so much better 40 years ago.

An opportunity has been missed to create an entirely new range of tinplate toys of original design. For my money, I'd rather get a Hornby Van in need of respray, and a sheet of 'Letraset', and have cash left over: and I'd get *my* lettering straight.

Alf Reeve



THE ART OF THE TIN TOY

By DAVID PRESSLAND
Published by NEW CAVENDISH BOOKS
Price £19.50

The Art of the Tin Toy (uniform with *A Century of Model Trains*, reviewed in *ME 11*) is a sumptuous production well worth every penny of its price, and is a collector's item in its own right.

Bound in very colourful hard covers, and with an additional printed and laminated stiff card outer case, the presentation is superb.

Measuring 340×270mm, and weighing 2.5kg, the contents of such massive proportions can well be imagined. 224 pages contain over 640 illustrations, of which 240 are in full colour. The photography is both excellent in quality and imaginative in setting: just what we have come to expect from this publisher. The colour printing (by Smeets of the Netherlands — the organization responsible for the colour work in this magazine) is of peerless quality. The clarity of the colour pictures makes them jump from the page, and anyone questioning the price of this work should compare this quality with cheaper books: if you want the very best, it's bound to cost more.

The contents themselves treat the reader to a mouth-watering cascade of models and toys of the tinplate era, from 1825 to 1975. This is represented in four parts: part 1 covers 1825 — 95, part 2 1895 — 1914, part 3 1918 — 39, and part 4 1945 — 75. In addition to the examples of tin toys and associated ephemera; original labels, boxes, books, instruction sheets and catalogues are also included, in a highly pleasing way. The designer of the book (John B Cooper) is to be congratulated for making the layout aesthetically pleasing from cover to cover; it must have been a mammoth task.

All periods are well covered. It may surprise many who study this book, to discover that so much from the distant past is still around, and has survived so well as to be

available to be included in this work. This is due in no small measure to both the quality of the originals, and to the care, preservation, and delicate restoration by an enthusiastic body of dedicated collectors.

The book's author, David Pressland (a veterinary surgeon by profession) has been a student and collector of tin toys for many years. One of his life-long ambitions being to own the best 100 tin toys from the years before the first world war. That he has succeeded so magnificently to bring so much of his own collection and the many examples of other collections into one volume, is a task the story of which would make another interesting book.

Roy Hallsworth

ALONG HORNBY LINES

By BERNARD HUNTINGDON
Published by OXFORD PUBLISHING Co
Price: £3.60

'Along Hornby Lines' is not an attractive book visually. The dust jacket is somewhat overloaded with colour shots, presumably because there are no colour pages inside the book, and this is therefore the only place to show the Hornby items in their full glory.

Inside, after some nice, but strangely obtrusive, reproduction adverts on the endpapers, the book begins with a photograph of an astonishingly ugly bust of Mr Hornby; but it is in the pages that follow that the design of the book becomes very uncomfortable.

The narrow columns of text with their ragged right-hand edge constantly jostle for position with the photographs and (mostly irritating) sketches. All through the book, one is aware of the untidiness of the layout, which distracts the reader from the text.

This is a pity, because the text itself is spiced with fascinating anecdotes about Binns Road and Mr Hornby himself, and if one can get past the stumbling blocks in the grammar and punctuation, the narrative is absorbing.

Whether or not the book will be useful to collectors, or those wishing to learn about Hornby Trains is uncertain, this reviewer beleives that it is not exhaustive enough to be *really* useful in this respect.

In the end, despite the aforementioned reservations, this book emerges as a jolly good read, and the author has added several pages to the slowly-accumulating book of Meccano history.

For me, the most valuable parts of this present work are not the enthusiastic pages of Hornby Train information, but the nuggets of intimate information that they contain that have been hiding all these years; and I for one thank Mr Huntingdon for uncovering them.

A 'must' for the bookshelf of every Hornby Train enthusiast, and Meccano Historian.

Mike Nicholls

NEW REPLICA PARTS

Part 120a Spring Buffer

The Spring Buffer[1] was introduced into the Meccano system in 1922. Apart from its obvious use on railway models, Part 120a could be used as a sprung electrical contact.

The recently-introduced replica Spring Buffer from the Wellingborough and District Meccano Club is a beautiful reproduction, exactly following the lines of the Liverpool original. It would be facile indeed to compare here the calipered measurements of the original and replica as, in all cases but one on the sample reviewed, these agree to within 0.01mm. The one case where this is not so is the thread length on the buffer shaft, where the original Liverpool allotment of 5mm has been extended to a more generous and useful 7mm

The main, central buffer section of the replica is turned from one piece of steel and, at a small extra charge, can be supplied finished in immaculate bright nickel-plate; whilst the sleeve section is turned from brass rod: both sections thereby matching the finish of the original 1922 part. Supplied as two-part items, each replica Spring Buffer requires only the addition of a Part 120b Compression Spring and a standard Nut from the purchaser's outfit to make it complete.

Wellingborough and District MC are to be congratulated on the production of a first-class, highly accurate — not to say beautiful — component, to a quality that would have won the approval of Frank Hornby himself.

Mike Nicholls

1 See 'The Railway Parts' JME4 1974 June.

Provisional Prices: Minimum order of 4 Buffers 45p per Buffer (50p each Buffer with centre section plated — on which delivery will take longer) Postage extra on both types.
Availability: ONLY from M J Burgess, Wellingborough & District MC, 56 Park Road, Kettering, Northants, NN16 9LL, England.

Part 203 Headlamp

Part 203 (finished in red) was introduced in 1934 in the Meccano Lighting Set[1], and was also available in black for fitting to Meccano Motor Car Constructor vehicles. The Headlamp was composed of four separate parts, a rim, a body, a celluloid 'glass' and a 6BA nut.

Having been so ebullient in my praise of the Spring Buffer, it is a pity that I can find little — if indeed anything — to commend the headlamp recently introduced by the Transvaal Meccano Guild. As a headlamp it is a bit haphazard, but as a *replica Meccano Headlamp* — as it has been advertised — it is a complete disaster.

The Oxford English Dictionary is quite precise in its definition of 'replica': a facsimile — an exact copy, and by this token, this recent headlamp is not a replica.

The body is too shallow, it has the wrong curve, and too large a slot for the wire. The threaded portion at the end of the body is fitted with a nut that is 4.7mm across the flats instead of 6.5, and complemented by a washer of obscure specification where no washer should be.

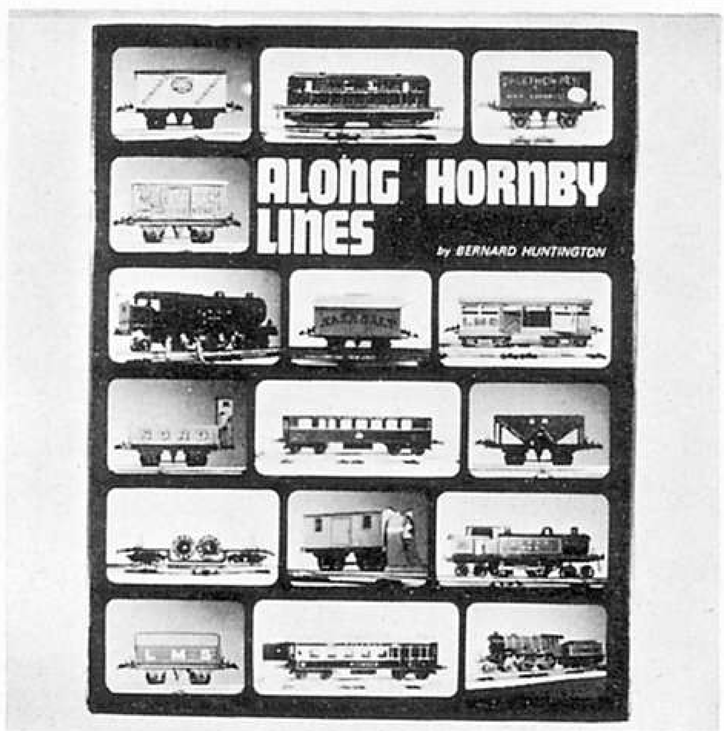
The plastic disc that forms the headlamp 'glass' should be 'beaded' on one side: it is not, neither is it the correct diameter. The front rim is entirely the wrong shape; it should fit the body snugly and continue the curve therefrom; it does neither, it just sits there incongruously.

When the parts are fitted together, all the inaccuracies add up to form an ugly lop-sided affair that no collector would happily attach to a Meccano Motor Car; which is a pity, as this was presumably the market for which the manufacturers were aiming when they finished the items (rather badly) in black paint.

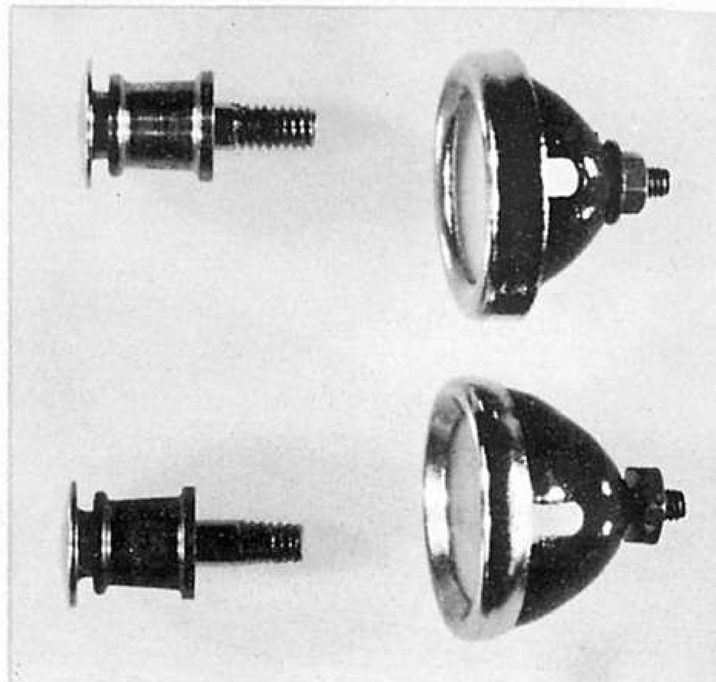
Mike Nicholls

1 See JME4 1974 June

Price: 1.50 Rand (South African) per headlamp complete.
Availability: P Matthews, The Transvaal Meccano Guild, 119 Vorster Avenue, Glenada South, Johannesburg, South Africa, 2001. Also: MW Models; see advertisement page 2.



BELOW LEFT: Buffers, replica and original.
BELOW RIGHT: Headlamps, new and old.



Two (or more) for the price of One

ALAN PARTRIDGE DESCRIBES DRIVE-SPLITTING ARRANGEMENTS FOR USE IN CLOCKS

"If there are two winding holes in the dial, it will be a striking clock .... but if there is only one hole, it will be a simple timekeeper."

So said a guide to old clocks. Being an awkward cuss, my mental response was: "Does it have to be so?", followed (with — you'll never guess — differential gears in mind) by: "No, it doesn't!"

A line to the Meccano Clock expert, Pat Briggs, elicited a lot of information, including confirmation that differential gears have occasionally been used as drive splitters in non-Meccano clocks. He should not however, be held responsible for any of the details of the following Pat-Pourri or Hotch-Partridge!

There are four reasons why a drive shaft in a clock should be wanted to turn:

a] to drive the timekeeping movement. A falling weight is better than a spring because it exerts a uniform force. In clocks with hands exposed out-of-doors, which have to drive against wind, ice, and pigeons, the amount of energy required is more than one could conceivably store in clock springs.

b] to drive striking gear: at each hour, a number of strokes equal to the hour.

c] to drive chiming gear: a musical tune is played at every hour before the strike, and possibly increasing fractions of the tune at successive quarter hours.

d] to rewind any of the above. If this is done between the hours (and quarters) there is no interference with the function of the striking and chiming gear; but for the timekeeping movement, *any* interruption is undesirable. In Meccano Clock Kits, the weights can be raised by hand in a few seconds, and the interruption is not serious, but many long-case clocks take ¼ to ½ a minute to wind by a handle, and architectural clocks much longer. In these it is desirable to include a 'maintaining gear', in which the driving force is maintained even while the weight is being raised. A maintaining gear also prevents the tendency to drive the escapement in reverse whilst rewinding: this may jam or even permanently damage the escapement.

Examples of maintaining gear are given in a note by Noel Ta'Bois in *MM* 1952 October p465; in Bert Love's Grandfather Clock *MMQ* 1973 October Supplement p3; and in Pat Briggs' Astronomical Clock, *GMM Supermodel* Nº 6. In each case, the winding drum is part of the cage of an epicyclic gear.

Before this line is further persued, it should be mentioned that a single falling weight can power two drives (timekeeping and auxiliary) by a continuous cord or chain — see Fig.1. A cord needs to be wrapped more than one turn, as in the Clock Kits, so chain is better.

If the auxiliary drive passes through a ratchet wheel, the same shaft can be used for winding. Provided winding is completed between the hours (or quarters), there is no interference with either drive — this is then also a 'maintaining gear'. If two separate drive shafts are wanted for striking and chiming, the auxiliary drive must be split with a differential: there is no way of getting more than two drives from one falling weight by cords and pulleys alone without an inordinate waste of height.

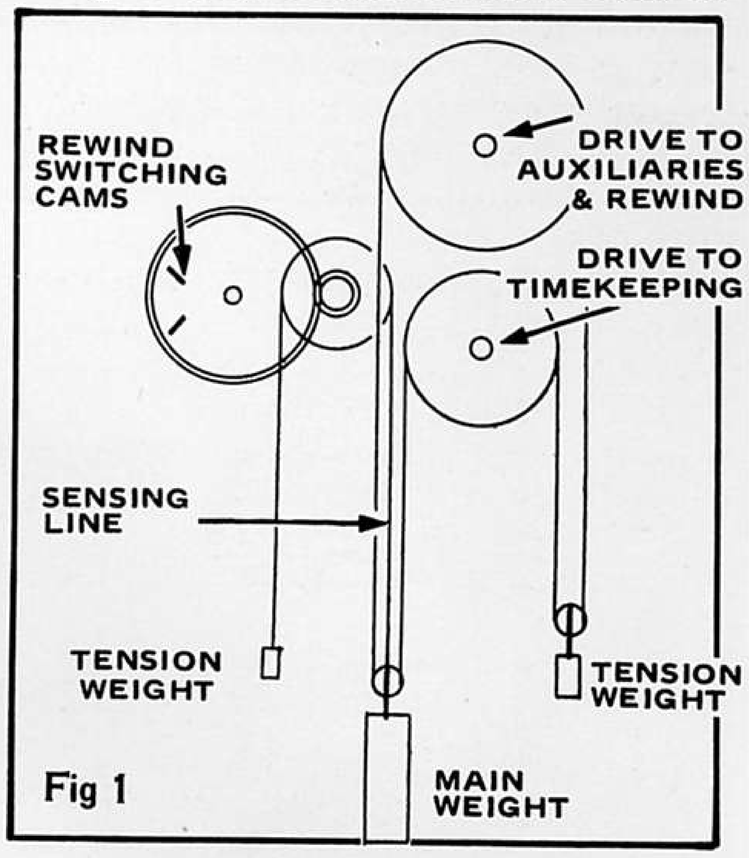


Fig 1

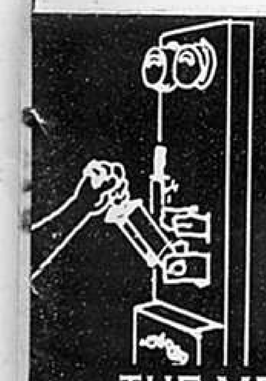
Back then to the epicyclic gear. This is, in these cases, practically the same as the spur-gear differential , and in Fig.2 the details of the differentials have been left blank — it doesn't matter whether you think of them as spur or bevel geared.

Fig.2 shows how the drive from one weight can be split, first between timekeeping and auxiliaries, then between two auxiliaries, and yet again to provide rewind which does not need a ratchet, and which can be operated even during the striking and chiming sequences.

Fig.3 shows a design to replace the epicyclic winding drum — it is a spur-gear differential using the largest available gears, the 1"Gear [Part 31], to reduce friction, and a Gear Ring [Part 180] bolted to the cage, driving a ½"Pinion [Part 26] as the beginning of the timekeeping drive.

The penalty for combining the drives is that the single weight has to be as heavy as the sum of the separate weights, or have a fall as long as the sum of their separate falls. Anyone who has had to wind an 8-day long-case clock, or a church clock, will know that transferring the handle from one winding shaft to another provides a welcome breather. An electric motor however, does not need a tea-break! The real advantage of a combination drive is found when the rewind is electrified, for then only a single motor and a single set of contacts are needed.

The only remaining question is where to put the contacts. these must complete the circuit for the winding motor when the weight is nearly down, and open the circuit when the weight is up. If the striking and chiming sequences lower the weight faster than the rewind raises it, the rewind must start at a point where there is →



STOP PRESS

THE MECCANOMAN'S JOURNAL
A MESSAGE FROM GEOFF WRIGHT

Although a fresh start with the Journal was made using offset lithography, circulation was small, and new contributions few; so a decision was made to amalgamate with the new Meccano Magazine.

I was however, most grateful to those who did send in material, which will be passed on for possible publication in MM, and thus be read by thousands, rather than hundreds, of readers.

I hope personally to contribute articles, and, to maintain continuity, shall in future sign myself:

'Meccanoman'

IRISH MECCANO CLUB NEWS

Dear Ed.

The Harvest meeting of the Irish Meccano Club was not held, as too many of the members had previous commitments. The next meeting will be held in the Lake County Hotel, Mullingar, on Saturday March 26th 1977 at about 2pm, and anyone is welcome, provided they are interested in, or curious about, Meccano.

I hope that you can include this appeal, we have only 7 members yet, so any increase will be very welcome.

Terry McCabe.

enough drop remaining to run the difference through the 12-o'clock sequence. Trip levers can be placed where the weight itself will strike them, but more elegant solutions are possible.

If a step-down drive is taken from the winding drum to a shaft which revolves less than one whole turn in a full descent of the weight, this shaft can do the switching. This could be by a Flat Commutator [Part 551] and three Wiper Arms, but as the movement is extremely slow, this may not work well. It is better to use a snap switch, as in Noel Ta'Bois' mechanism, opened and closed by two cams.

If a continuous chain drive as shown in Fig.1 is to be fitted with an automatic rewind, modifications are required at two points.

Firstly, as there is no winding drum to drive a contact shaft, either the weight must trigger the rewind motor directly, or a sensing line can be put on the weight, as shown. Such a line must always be chain, otherwise errors will eventually creep in.

Secondly, the drive to auxiliaries must not be merely through a ratchet, but through a differential with the rewind as the third shaft, as in Fig.2. Since the worm and pinion will not back drive, the pinion shaft is immobilized except when the motor is running.

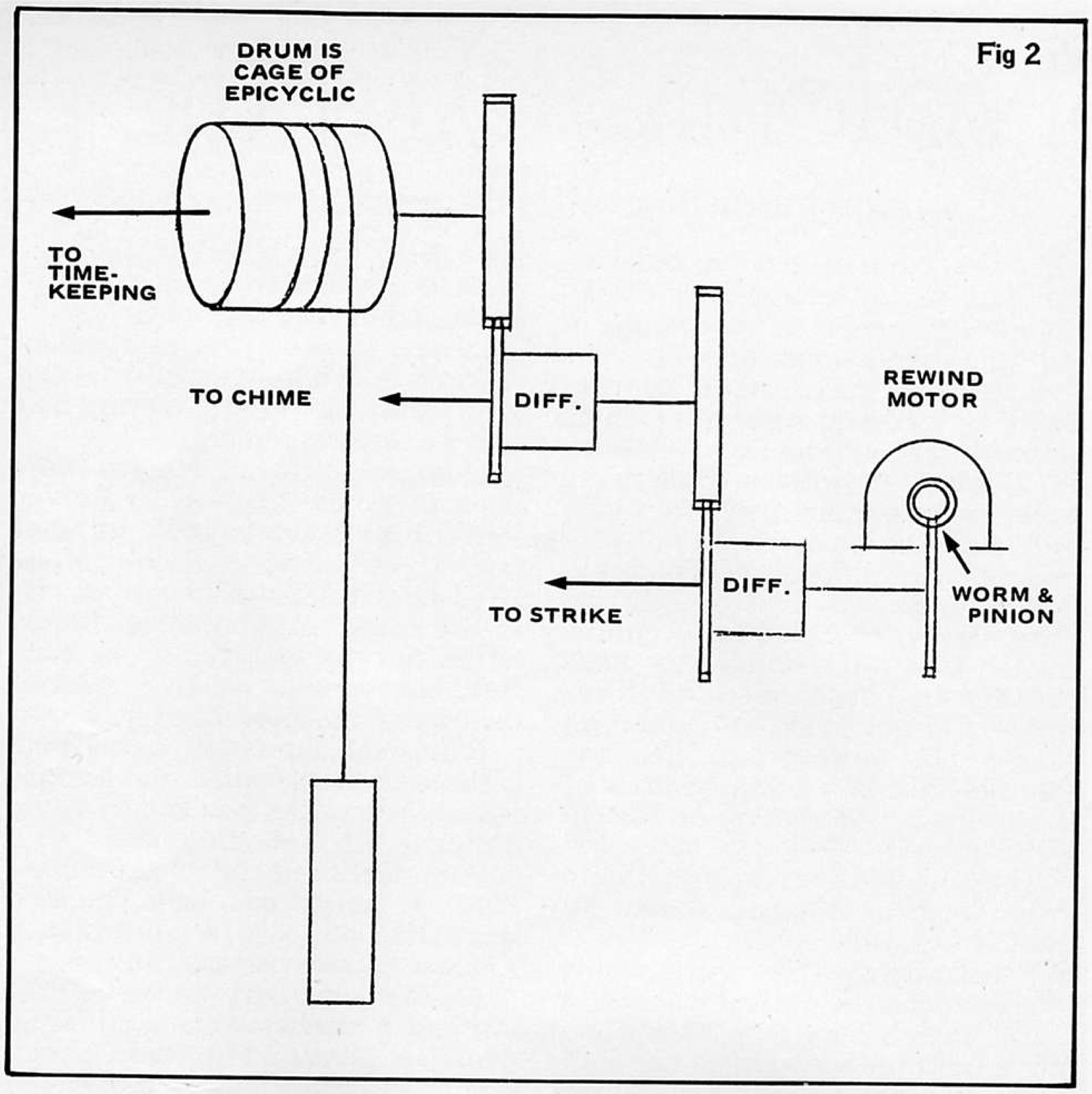


Fig 2

A NOTE ON SPRING DRIVES

If you de-function the winding ratchet of a Meccano Clockwork Motor, you can use the ordinary drive for timekeeping, and the winding shaft to drive auxiliaries. A ratchet [Part 147 + 148] must be put in the auxiliary train to allow rewinding. But NB — before starting to dismantle a Clockwork Motor, wind it just enough to lift the spring off the frame stops (or next spindle) and wrap two separate loops of strong wire around it. If you are thinking of releasing the spring from these wires to clean and lubricate it:

a] Think again! — Or:

b] Be prepared for a tedious re-wind, reefing in on wires as you go, before it will fit back in the Motor.

c] Do the whole thing in a shed, wearing a motorcycle helmet with the visor down, or with eyes closed *and* head turned away — a spring breaking loose can do a lot of damage to ornaments, wallpaper, nervous pets, or your eyes!

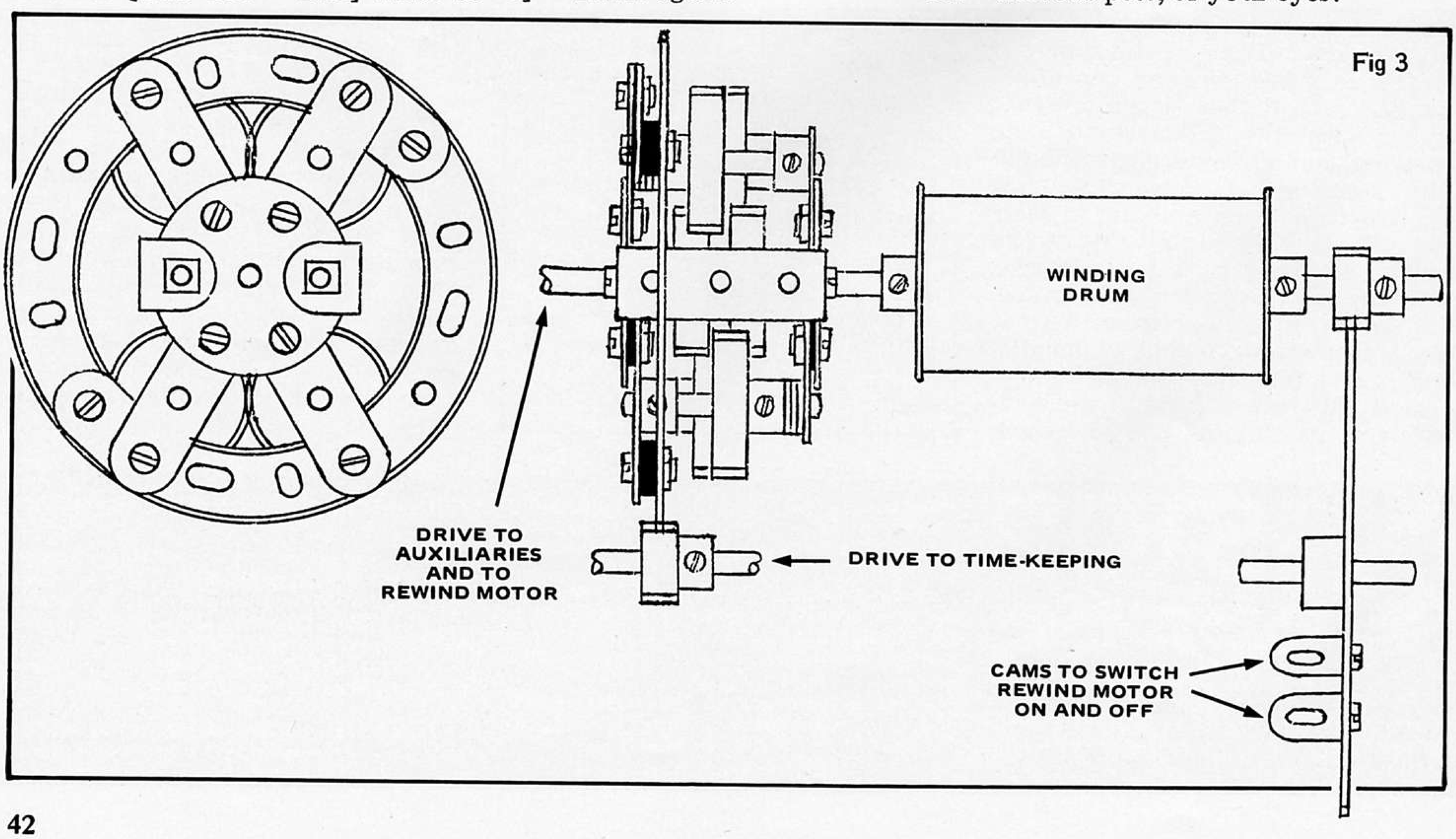


Fig 3

NORTH WEST FRONTIER

by MICHAEL J WALKER

Secretary of the North West Meccano Guild

All machines, whether 'real life' or model, have a fundamental requirement for a source of motive power.

In the Meccano world, we are exceptionally well catered for in terms of different power sources; Meccano Ltd market a wide range of clockwork, electric, and even steam power units with which we can drive our models. It's simply a matter of choosing the most suitable motor or engine for the model one wishes to drive. *Or is it?*

From his earliest days with the Meccano hobby, the enthusiast learns that only a certain limited amount of power is available from any one motor. For example, in the case of the 'Magic' Clockwork Motor, one could only use this for powering light models, as the tiny casing of the unit permits only a slender mainspring, storing a small amount of energy.

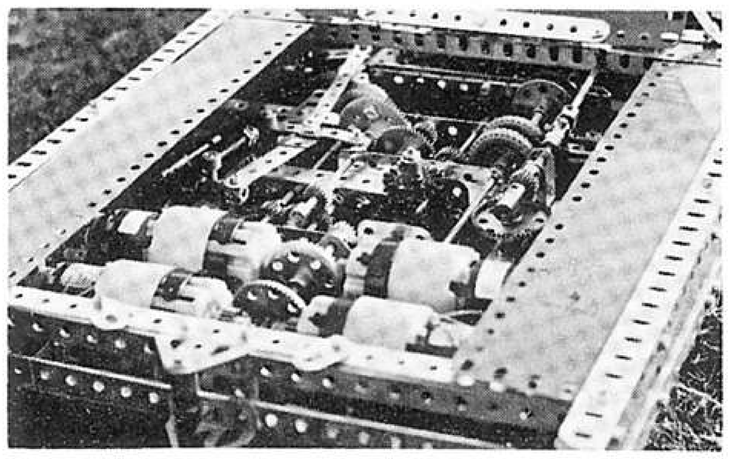
In the mainstream of Meccano modelling, more powerful motors are required which can also run for long periods without attention. Here, the electric type scores over the clockwork and steam-driven units.

In an ideal world, everyone would install electric motors in their models, and that would be that. Alas, the world is not ideal, neither are Meccano motors — electric ones included. No sooner have we installed one than we encounter the problem with which we started out: only a limited amount of power is available.

On occasions, I have come across models of wheeled vehicles that operated flawlessly when mounted on a plinth, but have been unable to propel themselves once placed on the floor! Of course, extra gearing could be introduced into the transmission to increase the power, but the resultant decrease in speed may not be acceptable.

It would appear then that, in some cases, the electric motors available to Meccanomen at the time of writing (1976 September) are inadequate for driving some of the extra-large wheeled models considered the 'norm' by many modellers. How do we solve this problem whilst remaining loyal to Meccano by employing only Meccano-marketed motors?

Multi-motor combinations, ie, two or more motors used together to double, triple, or even quadruple the usual amount of power can be an effective solution to the problem.



In this ¾-view of a Meccano model of an American Car, the bonnet (hood) is shown in the raised position to reveal the engine detail. The 4 Motors-with-Gearbox can clearly be seen in the forward part of the engine compartment.

The American Car models that I frequently construct, demand great power with two other important requirements: lightness and compactness.

Under these circumstances, the Motor-with-Gearbox used in double and quadruple combinations has proved to be the long-term answer to my power, compact size, and light-weight requirements. I anticipate the questions of those who will ask whether it is good practice to commit two or more motors to a common layshaft; is this mechanically correct?

[Continued on page 45

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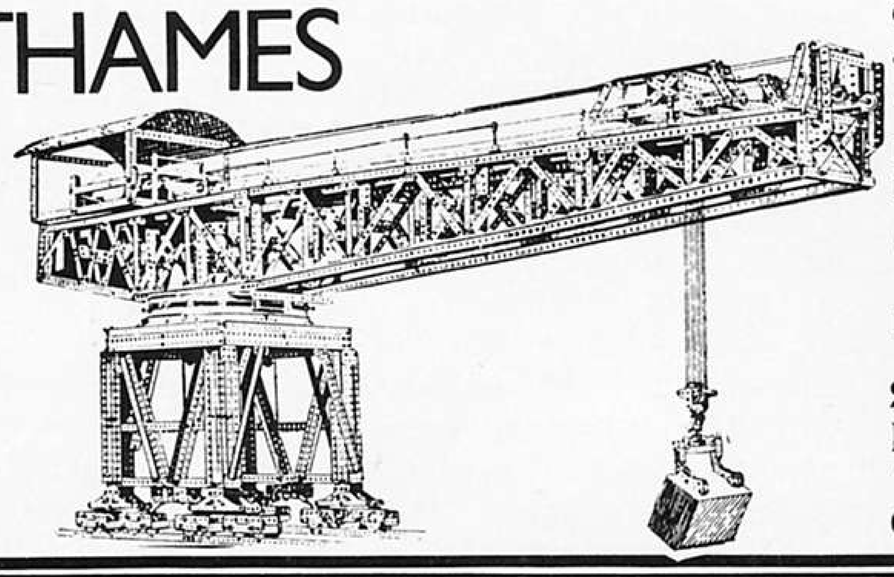
2nd & 3rd September 1977



Friday is the special enthusiast's day when readers of *Meccano Magazine*, Club members, Meccano modellers generally and their families, are invited to meet each other and display their work. On Saturday the Exhibition will also open to the general public.

COMPETITIONS Open to *all* – age taken into account.

- Meccano model, *to weigh not more than one kilogram (2.2 lb)*. Meccano parts of all types may be used.
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JUNIOR MODELLERS' COMPETITION

Saturday 2nd April 1977

Due to the huge success of last year's show, larger premises have been booked again for 1977. The *North West Meccano Guild* extends its usual cordial welcome to all Meccano enthusiasts to display their latest masterpieces to the public! (Meccano models only, of course!)

Further details from the secretary: Michael J Walker
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Rates charged in this section are as follows: Private: 2p per word; Trade: 3p per word. Please send advertisements, with remittance, to: Meccano Magazine, Classified Advertisements, 18 Reading Road, Henley-on-Thames, Oxon, RG9 1AG England

WANTED Constructor requires Meccano E020 Motor in good working order. D Carson, 37 Castlegreen Street, Dumbarton, Dumbartonshire, G82 1JB, Scotland.

FOR SALE Two genuine complete Geared Roller Bearings. Open to offers. • As-new parts at two-thirds list price. • Meccano Magazines most years. • Overseas letters awaited. 37 Lashbrooks Road, Uckfield, Sussex, England. [Meccano Magazine wishes to apologize for a typographical error which occurred in the above advertisement in MMQ for October 1976]

WANTED Meccano Aeroplane Constructor and Car Constructor Outfits, Manuals, Parts. — Brian Williams, 7 Thorndike Road, Southampton, Hants, England.

FOR SALE 19 MMs (1929 — 1934) • Manuals 1912 — 1924. • Some obsolete parts and replicas of 120a [Spring Buffer] and 306 [Terminals]. Mr Toon, 24 Park Street, Luton, Bedfordshire, England.

FOR SALE Comprehensive Meccano collection in excellent condition. Approximately, but not exactly, equivalent to Set 10 plus extra parts. Also obsolete parts. Send SAE for list to: BOOTH, 2 Mere Lane, Herwall, Merseyside England.

FOR SALE Quantity of repaintable Meccano parts, many ex-9a, to be sold as a lot or separately. SAE to M F Shutler, 9 Cumberlands, Kenley, Surrey, CR2 5DX, England. (Subject unsold)

FOR SALE Locking, stainless steel surgical forceps. 8" or 7", straight or curved jaws, unused. £4 per pair post paid. Cotterill, 37 Park Avenue, Skegness, Lincolnshire, England

FOR SALE Unused red—green No.10 Meccano. All parts still tied in place in original cabinet. Dated about 1955. Full instructions (mint). Offers to: 11 Stothard Road, Manchester, M32 9HA, England

NORTH - WEST FRONTIER

Continued from page 43

Technically, I admit that it isn't absolutely correct; but the very slight variations in shaft speed of two, say, Motors-with-Gearbox bought at the same time and fed identical voltage, does not warrant any concern when meshing both units on to a common drive rod. This has been my long-term observation. Indeed, as in the accompanying illustration, I have combined four Motors-with-Gearbox with great success in a past model car.

When trying out these exotic motor combinations for the first time, make sure that:

1] All power leads and reversing switches (if any) are set to the correct polarity.

2] If using Motors-with-Gearbox, that all gearboxes are set to the same ratio.

3] A transformer giving twice the usual amperage in the case of a 2-up combination, four times in the case of 4-up, etc. is used.

4] You have thoroughly tested all mechanical and electrical functions before committing your motors.

As so much power is available, a friction clutch installed as near to the motors as possible will reduce to a minimum any damage caused by a fault in the transmission.

If you are willing to go to the trouble of installing this extra power potential in your models, particularly of the motor car or lorry type, stand by for an exciting experience! Even in the case of many other types of model, a doubling of power wouldn't do any harm at all. It might even give your heavy Road Locomotive 'sports car performance'!

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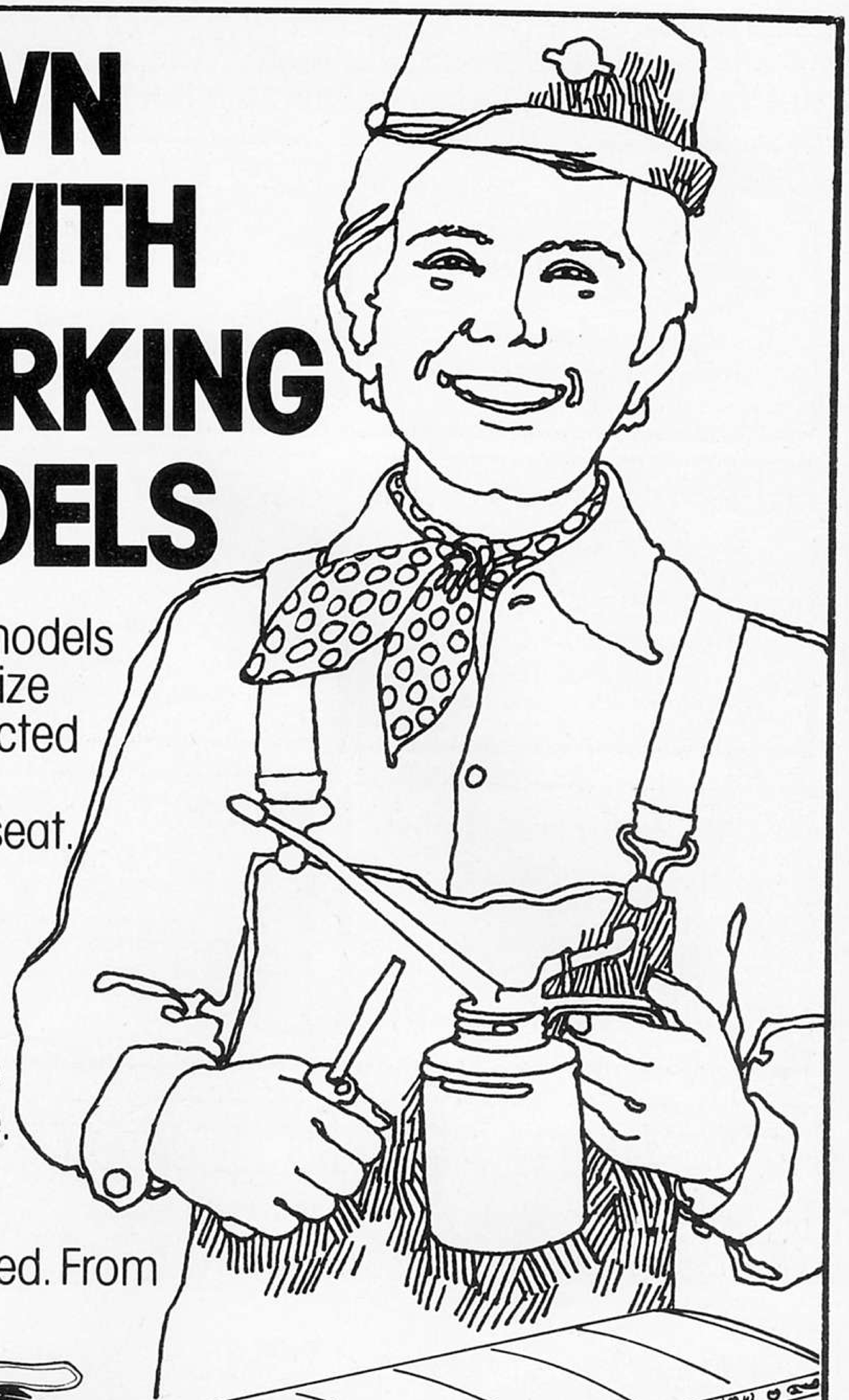

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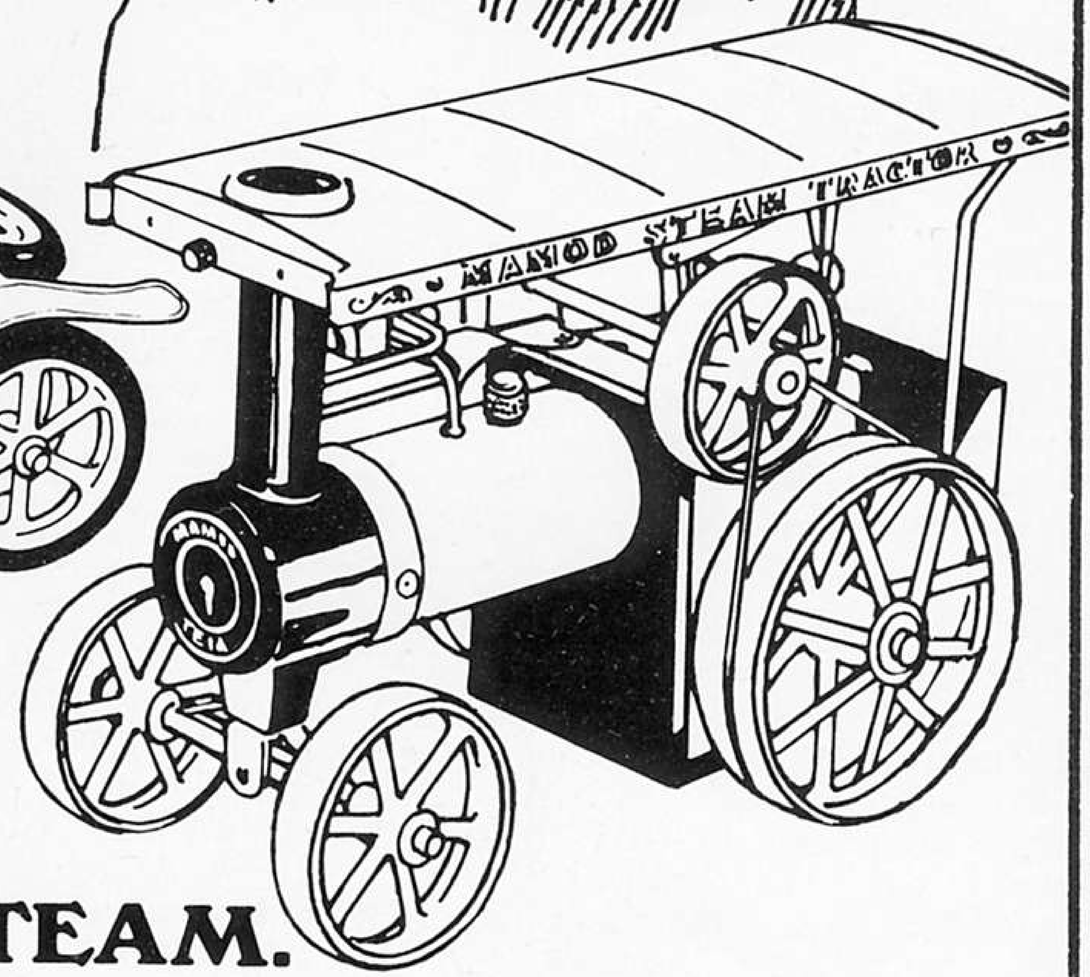

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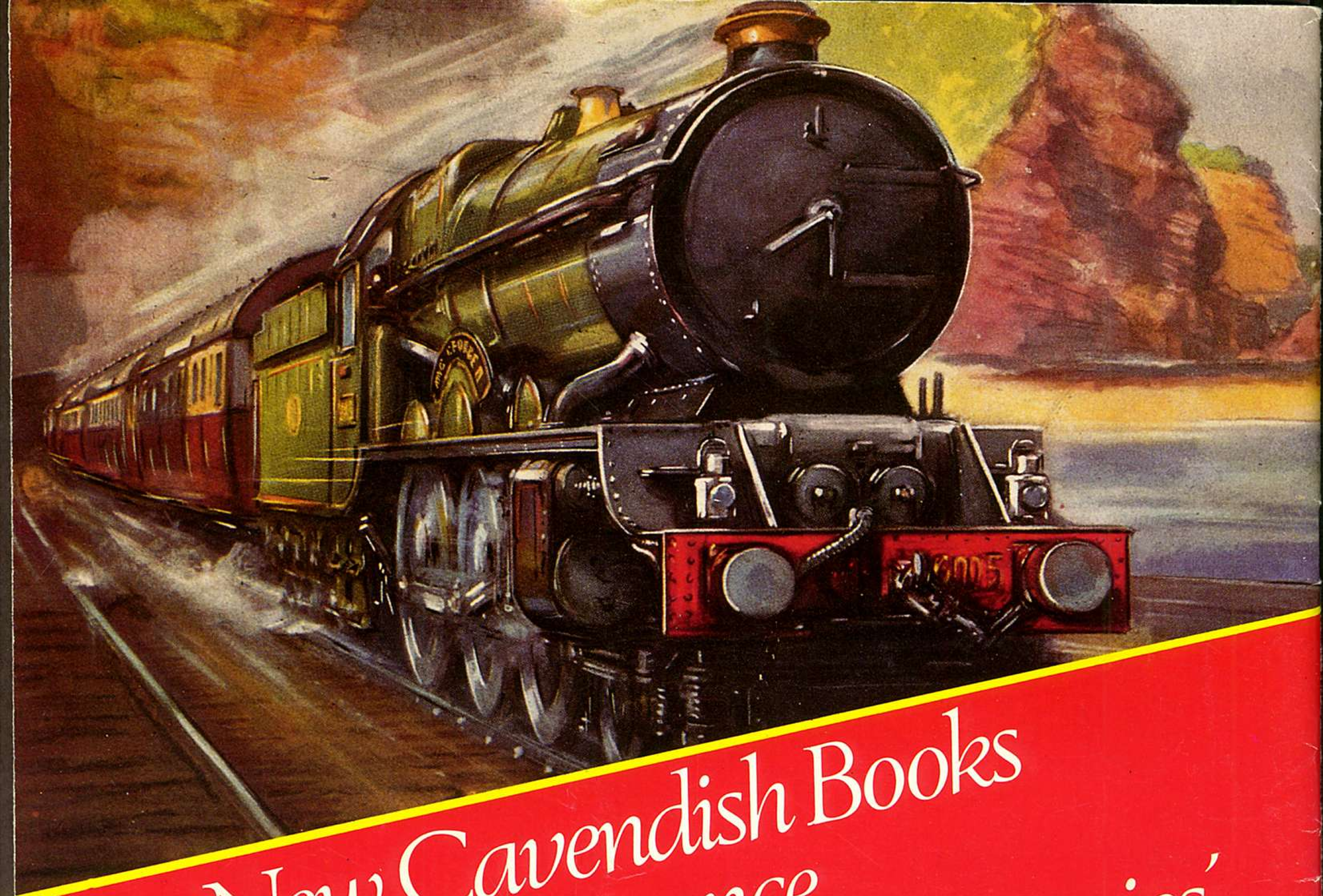

New Cavendish Books Announce 'The Hornby Companion Series'

The Hornby Companion Series will comprise a unique library of seven books dealing with the product history of the legendary Meccano Company founded by Frank Hornby in 1908. The series will be published over the next few years, each volume conforming to an overall size but varying in page and colour content. In an endeavour to make this series as definitive as possible, each volume will be written and compiled by acknowledged experts. The consultant Editor of the series is Mike Nicholls, currently editor of Meccano Magazine. The publishers have access to the finest archival material on the subject, and all this coupled with the standard of quality that has become synonymous with New Cavendish Books, will ensure that these volumes will offer enormous value and pleasure to the readers. It is hoped that over the years they may become as cherished as the products they illustrate.

The Hornby Companion Series: VOLUME 1
The Products of Binns Road – A General Survey – Peter Randall – ISBN 0 904568 06 7. 224 pp, 102 pages full colour, 209 x 292 mm landscape. To be published Spring 1977, at £12.50.

This will form the master Volume to the series and outlines virtually all the products issuing from the various Meccano factories. It includes, for the first time ever, full colour reproductions of the extremely rare Meccano Book of Products – 1934/35, together with a similar reproduction of the Hornby Book of Trains for 1938/39. A full colour extract from the 1939/40 book of trains is also included, dealing with the introduction of Hornby Dublo. In addition to an excellent text, touching on the development of virtually all Meccano's products, the book is profusely illustrated with over 170 black and white reproductions taken mainly from the original Company's literature. The book also includes an invaluable diary of commercial and industrial events.

VOLUME 2: The Meccano Super Models – Geoff Wright. ISBN 0 904568 07 5. Autumn 1977.

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