

# TABLE-TOP BLOCK-SETTER

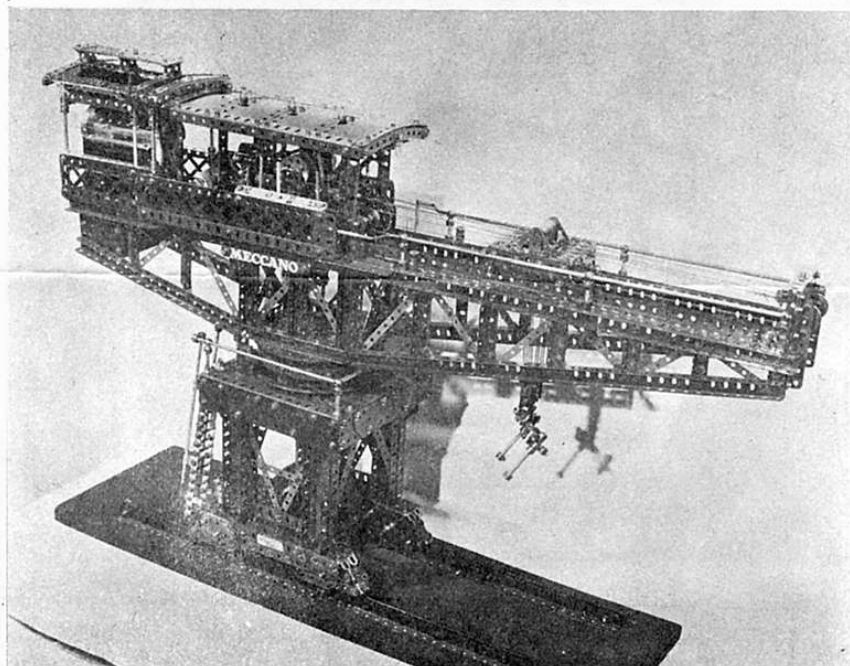
by MICHAEL MARTIN

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**Assembly notes  
for the cup winning  
Crane featured in  
the Jan.'75 MMQ**

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These assembly notes are intended for use in conjunction with the photographs of the Blocksetting Crane appearing in the January 1975 issue of Meccano Magazine Quarterly.



GIANT BLOCK-SETTING cranes have always been popular in Meccano, but advanced models have usually been powered by electric motors. It seemed a good idea therefore to try to drive such a crane entirely from a single Meccano Steam Engine.

It has been said times without number that, with complex models, it is essential that all moving parts run freely. This crane weighs 30 lbs and, unless every gear, pinion and axle runs freely when installed, there will not be sufficient power at the track for the crane to move. It is no good hoping that a binding gear will loosen up; it won't, and will be difficult to trace once it becomes just a part of the whole train. Incidentally, the Steam Engine used was modified to enable it to run repeatedly at exhibitions, without causing rusting to its supporting structures, and was placed in an aluminium tray to restrain condensed water, but this is not essential.

## GANTRY BOOM

Each side of the boom consists at the top of 'U' girders formed from two 24½" Angle Girders bolted

together by the slotted holes and butt-jointed by Strips to two 9½" Angle Girders similarly joined at the rear (see Fig.1). The bottom 'U' girders are likewise constructed, the forward end from 18½" Angle Girders, the middle from 5½" and the rear from 9½" Angle Girders. Top and bottom of the boom are connected at the front by 1½" Angle Girders facing inwards; along the centre section by three equally-spaced pairs of 3½" Angle Girders, arranged to form three 'U' girders and secured by Flat Trunnions top and bottom and, at the rear, by the outer edge of a 2½" x 2½" Flexible Plate which forms the end plate of the ballast box. The top 'U' girder projects one hold beyond this Plate. The rest of the vertical bracing can now be put in, using single Angle Girders attached at the back by 2" Slotted Strips and 1" Triangular Plates. At the front end 1½" and 2" Strips are used with Angle Brackets bolted to them to simulate girders. Cross bracings are Narrow Strips, with Fishplates being used where necessary to adjust for length.

On completion, the side frames should be compared and matched. They are spaced apart by two 3½" Angle Girders top and bottom at the

front and by three 3½" x 2½" Flanged Plates at the rear, the latter bolted around the 2½" x 2½" Plates mentioned above to form an open-topped box for the counterweight. Each side frame has a 4½" Angle Girder bolted along the back of both the front and the rear vertical 'U' girders and the two side frames are joined top and bottom by four more 3½" Angle Girders. At both front and rear of the centre section, 5½" Strips are bolted diagonally from the top of each side across to the bottom of the other side, thus forming a rigid box above the turntable. Flat Girders, projecting inwards, are fixed, end to end, all along both sides of the top and, to these, are attached 18½" Angle Girders at the front to form the trolley rails (see Fig.2).

## ENGINE MOUNTING

After putting sufficient ballast in the ballast box to counterbalance the front end of the boom, the Meccano Steam Engine is bolted to the rear end, with a 4½" x 2½" Flat Plate in front to form the bottom of the gearbox. The gearbox sides each consist of 3" x 1½" Flat Plates, fixed to the Steam Engine

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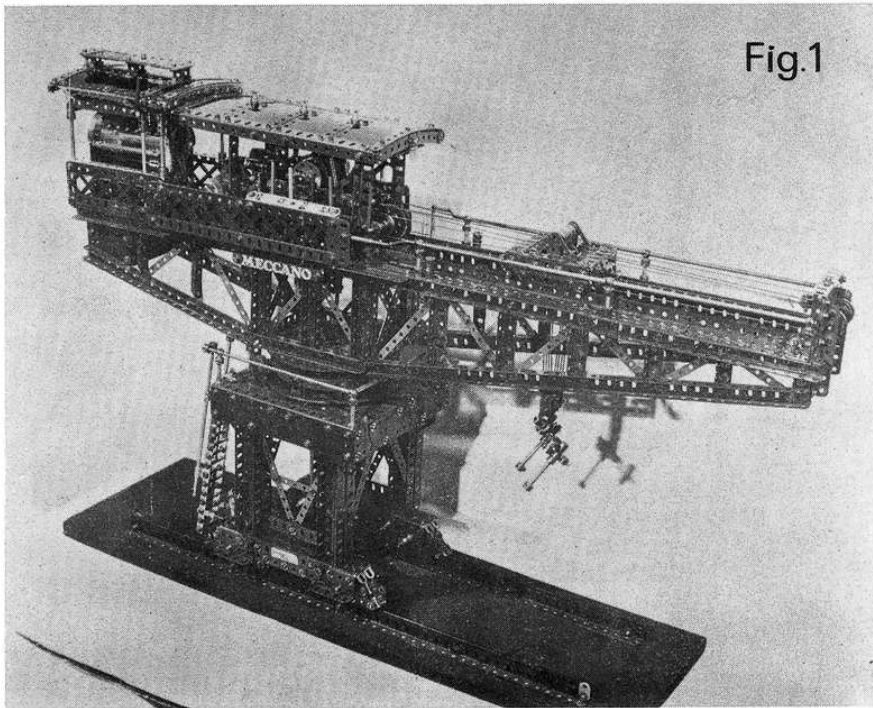


Fig.1

**The superb steam-driven Crane with which MICHAEL MARTIN won the Meccano Cup at the 1974 Model Engineer Exhibition.**

VISIT ANY Meccano Exhibition and the chances are you will spot at least one Giant Block-setting Crane. In fact, some of them are like old soldiers – they never die and hardly ever fade away!

One of the drawbacks of such giants, however, is the abnormal

amount of space they take up in the home and this is something which MICHAEL MARTIN – MMQ reader and advanced modeller of long-standing – had very much in mind when he settled down to build a new Block-setter of his own. The result was the superb 'table-top' model

illustrated here. The table-top description, however, should not be misunderstood; although smaller than some other Block-setting Cranes that have been built in the past, Michael's version is still a large and advanced model of excellent detail and proportion. Indeed, so good is it that it

Fig. 1 (above), the finished Block-setter by Michael Martin. All motions work from a single Steam Engine. Fig. 2, close-up of gearbox. Fig. 3, mid-section of crane gantry showing the four operating levers.

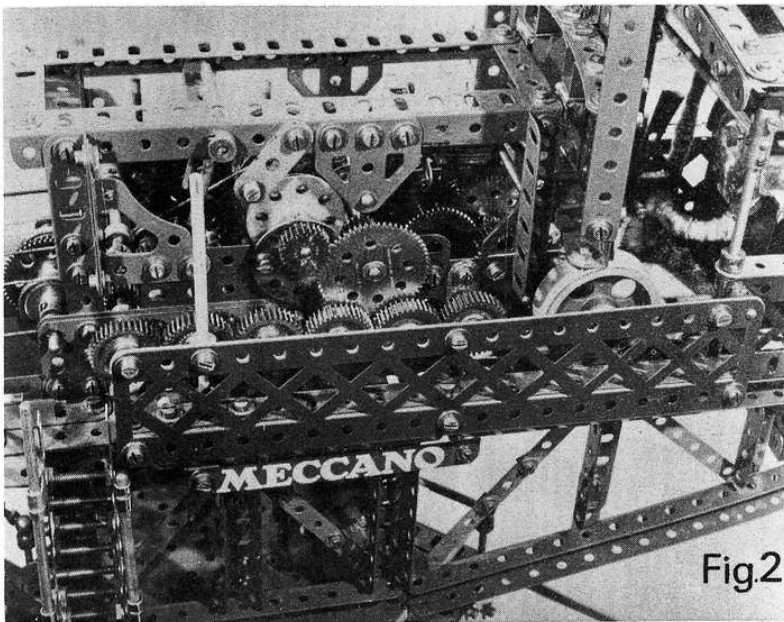


Fig.2

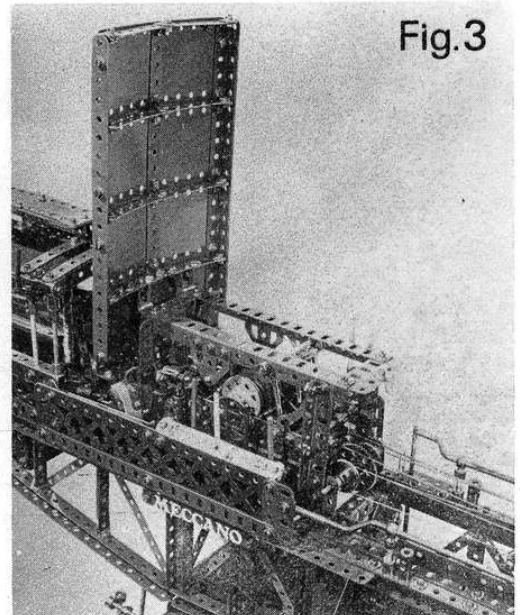
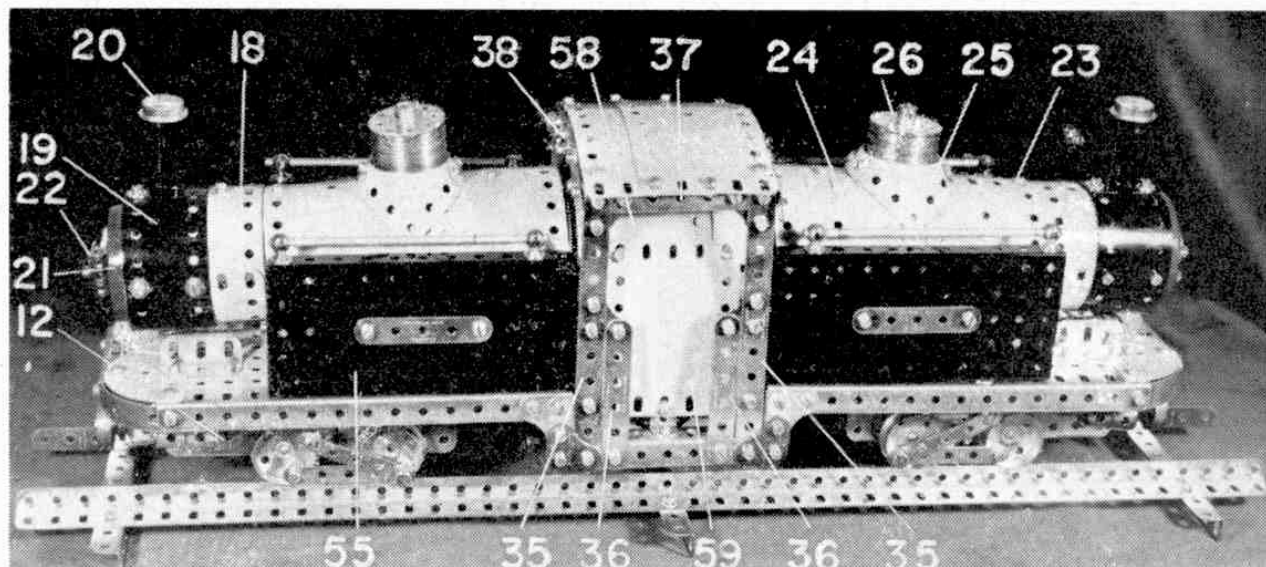


Fig.3



# STEAM LOCO WITH A DIFFERENCE

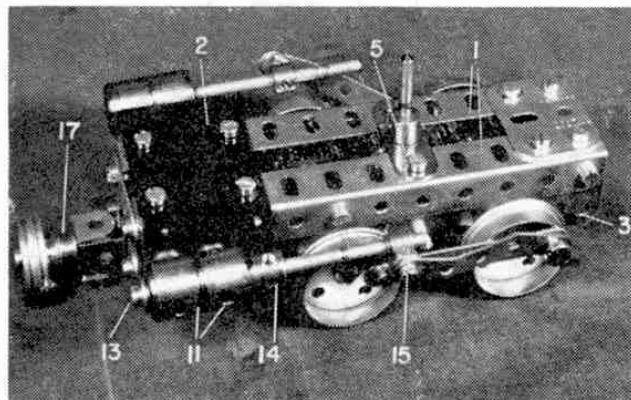
by Spanner

**R**AILWAY LOCOMOTIVES or, more particularly, steam railway locomotives have always held a fascination for me. The trouble is, however, that steam locomotives—at least in Britain—are virtually things of the past. You just don't see them any more, except on very rare occasions, unless, that is, you live near one of the privately-owned, narrow-gauge lines that have been specially preserved by independent organisations.

These small lines deserve our undying gratitude. They are undoubtedly the last bastions of steam in this country and I firmly believe that they have every intention of continuing with steam-power as long as they remain in existence. Their fame, though, is not due to their use of steam power alone. Even before the final withdrawal of steam services by British Rail, the independent narrow-gauge railways had long been tourist attractions, not only because they were "independent narrow-gauge railways", but particularly

because they nearly all use unique equipment and rolling stock. Most unique of all, however, are the two highly distinctive, double-ended locomotives operated by the Festiniog Railway in North Wales.

Known as a "Double Fairlie" each of these two locomotives is a genuine "double-ender" with two complete boilers and smoke boxes separated by a single centrally-situated cab. The cab itself is fitted with two sets of controls—one for each boiler—so that, no matter which way the engine is working, it is always pointing in the right direction! Frankly, for a long time now I have been intrigued by "Iarll Meirionnyd" (Earl of Merioneth) and "Merddin Emrys", as the two locomotives are named and so I was particularly pleased when I received details and photographs of a first-class Meccano model, based on these splendid machines. It had been built by M.M. reader **Dr. Stephen Lacey**, of Hinckley, Leicestershire, and I left bound to include it in the M.M. The following article was supplied by Dr. Lacey, himself, while Bert Love of Birmingham took the photos.



A close-up view of one of the bogies showing its strong framework and imitation pistons. The pistons themselves are fixed but a moving effect is obtained by Coupling 15 sliding on its Rod.

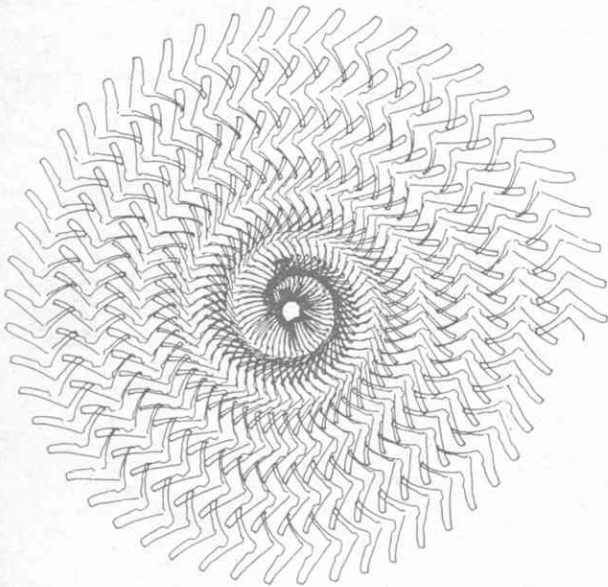
## Festiniog Double Fairlie

This model is based on the two locomotives "Iarll Meirionnyd" and "Merddin Emrys", owned by the Festiniog Railway in North Wales. Built more than 80 years ago at the Railway's own Boston Lodge Works, both locomotives are still very much in use today, working on the 9½-mile narrow gauge line now running from Portmadoc to Ddaullt, although, until a year or so ago, the line was only open between Portmadoc and Tan-y-Bwlch—a distance of some 7½ miles. The model, for ease of assembly, is built in five separate units: two power bogies, two boiler-smokeboxes and one main frame with cab and side-tanks.

## Power bogies

Beginning with the power bogies, two 5½ in. Angle

# 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.**

FEW Meccano models are more fascinating than those amazing mechanical pattern-producing machines which, for many years, we have identified by the name 'Meccanograph'. I suppose most enthusiasts with enough parts at their disposal have, at some time or another, had a shot at building one of these captivating gadgets, but few designers have managed to produce anything quite so successful and yet so compact as the machines invented by Mr. Andreas Konkoly of Budapest, Hungary. Mr. Konkoly is now a past master of the Meccanograph, having built examples of many shapes and sizes.

He has been written about in Hungarian magazines and has even appeared with his creations on Hungarian television.

Not least, he has provided the M.M. with some very useful material. In August 1965, for example, we published an article entitled 'A Magnificent Meccanograph'. As you will have guessed, the model featured was designed by Mr. Konkoly. Now he has sent us details of another model—this time of a machine he aptly describes as a 'Spiralograph'. Generally speaking, it's very similar to a Meccanograph except that, instead of drawing a regular pattern which ends at its 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 patterns can be produced, in fact, although it takes a bit of practice to obtain the best combinations. Once we had mastered the operation of the model, we were so impressed with it that we decided to show it—working—on the Meccano Magazine stand at the Daily Mail Boys and Girls Exhibition which will be held at Olympia from December 27, 1966 to January 10, 1967 inclusive. If you pop along we'll be delighted to see you.

Construction of the model is not difficult, but great care must be taken to see that the framework is quite rigid and that all gears and other moving parts run perfectly freely. To begin with a strong framework is built up from two 12½ in. Angle Girders 1 connected through their first, fifth and eighteenth holes by three 5½ in. Angle Girders 2, 3 and 4, and through their twenty-fourth holes by a 5½ in. by ½ in. Double Angle Strip 5.

Bolted to the vertical flange of each Angle Girder 1 are two Flat Trunnions 6, while bolted to each horizontal flange are two Double Brackets 7 and a ½ in. by ½ in. Reversed Angle Bracket 8. Fixed to Double Brackets 7 is a 5½ in. by 2½ in. Flat Plate 9, whereas a 5½ in. Strip 10 is fixed to Reversed Angle Brackets 8. A 1 in. by ½ in. Angle Bracket 11 is secured by Bolts 11 through its long lug to the inside of each Flat Trunnion 6, then two 5½ in. Strips 12 and 13 are fixed one to the short lugs of each pair of these Angle Brackets by a ¾ in. Bolt that also carries a 1 in. fixed Pulley with Motor Tyre 14 and a Collar.

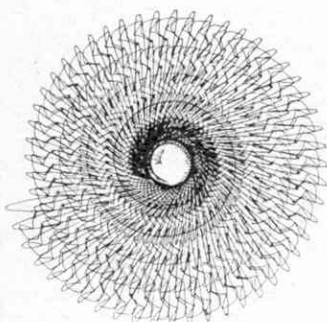
## GEARING

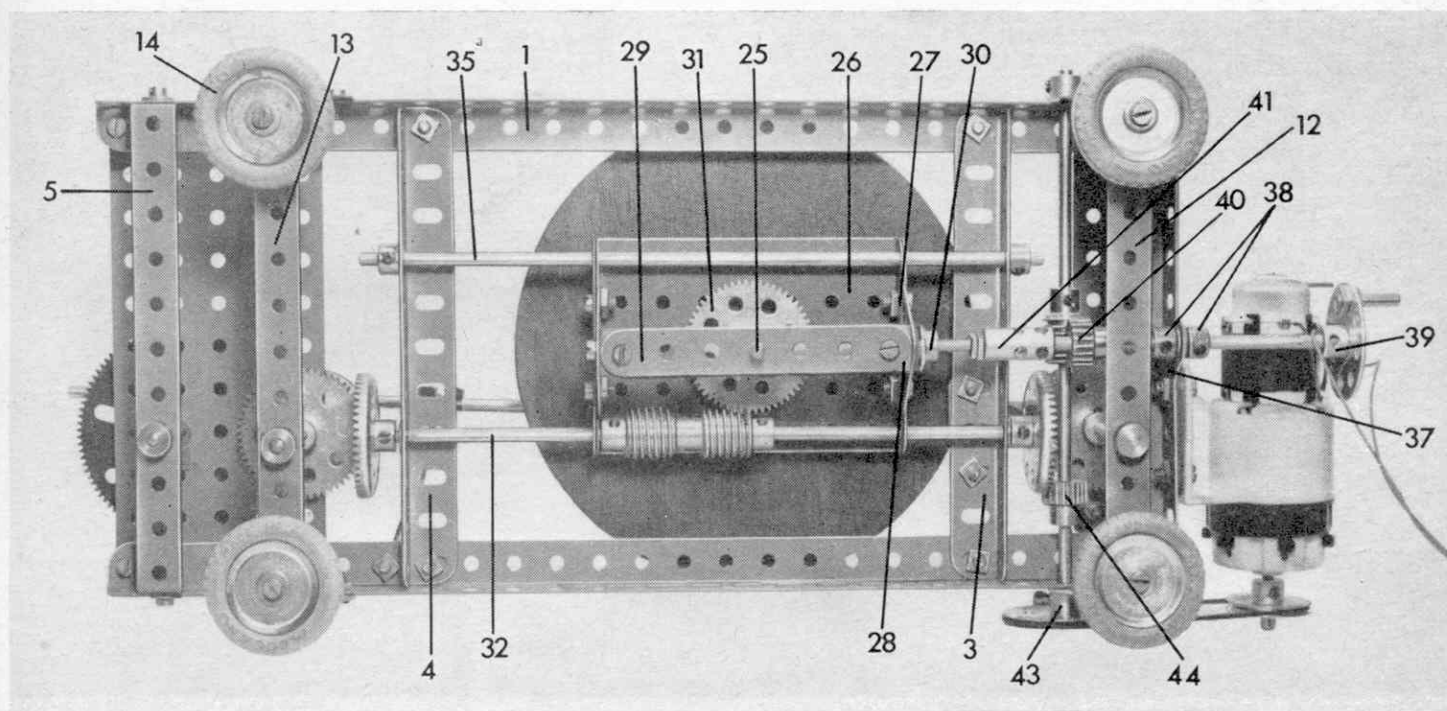
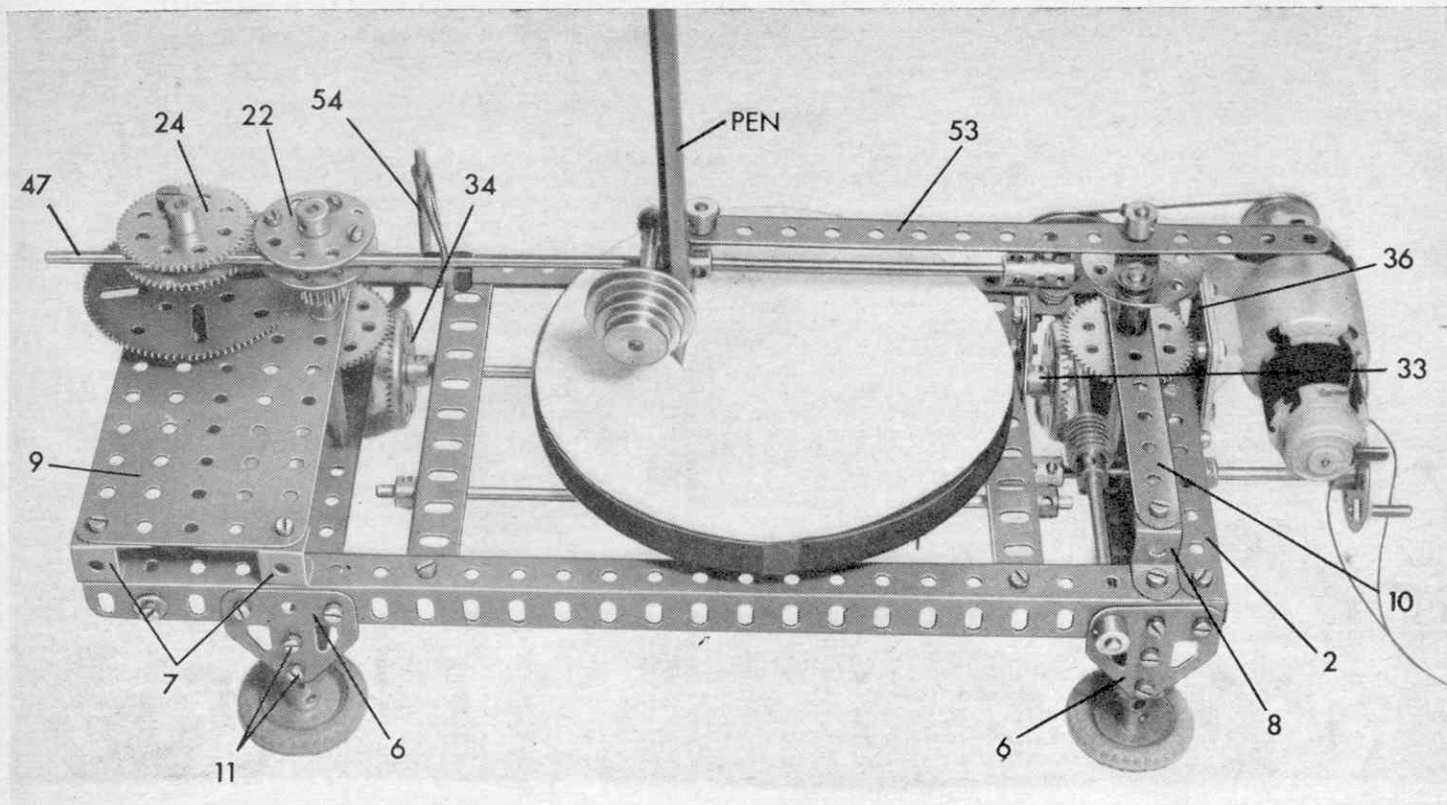
Held by Collars in Strips 10 and 12 is a 4 in. Rod carrying a 57-teeth Gear Wheel 15 positioned so

that it lies between Strip 10 and Angle Girder 2. A loose Collar 16 and two Washers are placed on the top of the Rod to be followed by a 6-hole Bush Wheel 17, but note that the Rod must not protrude through the boss of this Bush wheel. Fixed by a Nut in the face of the Bush Wheel is a ½ in. Bolt carrying above the Bush Wheel, in order, a Washer, a Fishplate, a Nut and two more Washers. A Threaded Pin 18 is mounted in the other end of the Fishplate.

Another 4 in. Rod, carrying a second 57-teeth Gear Wheel 19 is journaled in Flat Plate 9 and Strip 13, being held by a Collar beneath the Strip and a ½ in. Pinion 20 above the Plate. Note, however, that the Pinion is spaced from the Plate by a Collar, while another Collar is used to space the Pinion from an 8-hole Bush Wheel 21, fixed above it on the Rod. A ½ in. Pulley without boss is then slipped into the Rod and is held in place by a second 8-hole Bush Wheel 22. The holes in the face of this Bush Wheel must lie vertically above the holes in the face of Bush Wheel 21.

Journaled in Double Angle Strip 5 and Flat Plate 9 is a 3 in. Rod held in place by a Collar and a 2½ in. Gear Wheel 23, the latter spaced from Plate 9 by a Washer. A loose Collar is added to the Rod





to be followed by two 57-teeth Gear Wheels 24 spaced by a second  $\frac{1}{2}$  in. Pulley without boss. Here, again, the holes in the faces of these Gear Wheels must be in line with each other. Gear Wheel 23 meshes with Pinion 20.

### MOVING WORK TABLE

The actual work table itself is a circular piece of hard wood approximately  $5\frac{1}{2}$  in. diameter, and perhaps  $\frac{1}{2}$  in. thick, to the underside of which an 8-hole Bush Wheel is screwed. Fixed in the boss of this Bush Wheel, which must lie in the

exact centre of the work table, is a 2 in. Rod 25. An arrangement is now built up from a  $3\frac{1}{2}$  in. by  $2\frac{1}{2}$  in. Flanged Plate 26 to each flange of which a  $2\frac{1}{2}$  in. Strip and a Flat Trunnion 27 is fixed. Two Angle Brackets 28, joined by a  $3\frac{1}{2}$  in. Strip 29, are bolted through the apex holes of the Flat Trunnions, at the same time securing a Threaded Crank 30 in place at one end. The completed arrangement is then mounted on Rod 25, being held in place by a 57-teeth Gear 31. This Gear engages with two Worms fixed on an 8 in. Rod 32, mounted in Angle Girders 3 and 4 and in the

end holes in the flanges of Flanged Plate 26. A Collar is added to the Rod to act as a 'stop', while two  $1\frac{1}{2}$  in. Contrate Wheels 33 and 34 are mounted one on each end of the Rod, Washers being used as spacers. Another 8 in. Rod 35, held by Collars in Angle Girders 3 and 4, passes through the other end holes in the flanges of Flanged Plate 26. Contrate Wheels 33 engage with Gear Wheel 15 and Contrate Wheel 34 engages with Gear Wheel 19.

### MOTOR AND DRIVE

A Power Drive Unit is bolted, along with a  $1\frac{1}{2}$  in. by  $1\frac{1}{2}$  in. Flat



# MECCANOGRAPH PATTERN-DRAWING MACHINE

Designed and built by Colin Cohen from the No.5 and Gears Sets

Always fascinating subjects for modellers, Meccanograph Designing Machines have been featured in *Meccano Magazine* in very many different forms over the years, yet we cannot remember ever before having featured an effective working model built from such a low-numbered Standard outfit as this example. It is built from a No. 5 Set (1977-type), plus the Gears Set, and full credit, not only for the design and construction, but also for the following building instructions, goes to Mr. Colin Cohen of Vredehoek, Cape Town, South Africa.

## CONSTRUCTION

Beginning construction with the frame, this is built from four 12½" Strips with a 5½" x 2½" Flanged Plate and a 2½" x 1½" Flanged Plate 1 on top, and a 4½" x 2½" Flat Plate and two 2½" Strips on each side. The Bolts fixing the end 2½" Strips in place also hold Obtuse Angle Brackets to which an end 2½" Curved Plate is fixed, while 2½" Curved Strips 2 are held by the Bolts fixing the inner 2½" Strips in place.

Turning to the mechanism, an Angle Bracket on a Trunnion 3 and a 2½" Double Angle Strip 4 support a 2½" Strip. A 1½" Rod is then passed through the centre hole of the 5½" x 2½" Flanged Plate of the frame top and is fitted with, in order, a Washer, a Collar and a 1½" Contrate Wheel 5, after which the end of the Rod is located in the 2½" Strip. The Contrate Wheel meshes with a ¾" Pinion on a 3½" Rod 6 which also carries a ½" Pinion 7 and a ¾" Sprocket Wheel.

A Trunnion 8 fixed to the side of the frame supplies the lower journal for a 2" Rod

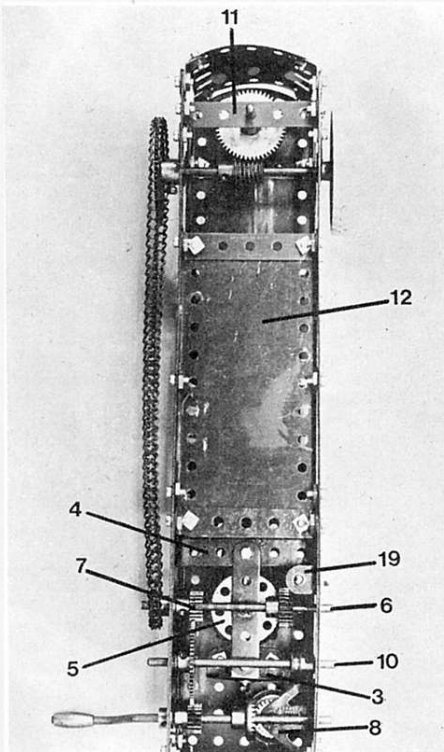
supporting a cam 9. The upper journal of the Rod is supplied by the 5½" x 2½" Flanged Plate and, between the journals, the Rod also carries a 1" Pulley and a ¾" Pinion. In mesh with this Pinion is a ¾" Contrate Wheel which, along with a ½" Pinion and a Collar, is fixed on a Crank Handle journalled in the frame sides. The ½" Pinion is linked to Pinion 7 by means of a 1½" Gear Wheel on a 3½" Rod 10 which is held in place by a ½" Pulley at its other end.

Located in the centre hole of Flanged Plate 1 is a 3½" Rod 11 which carries two 1" Pulleys - one either side of the Flange Plate to keep it in position - and 50-teeth Gear Wheel which meshes with a Worm on a 3½" Rod journalled in the centre holes of Curved Strips 2. This Rod also carries a Road Wheel and a 2" Sprocket Wheel which is connected to the earlier-mentioned ¾" Sprocket Wheel by Chain, as shown.

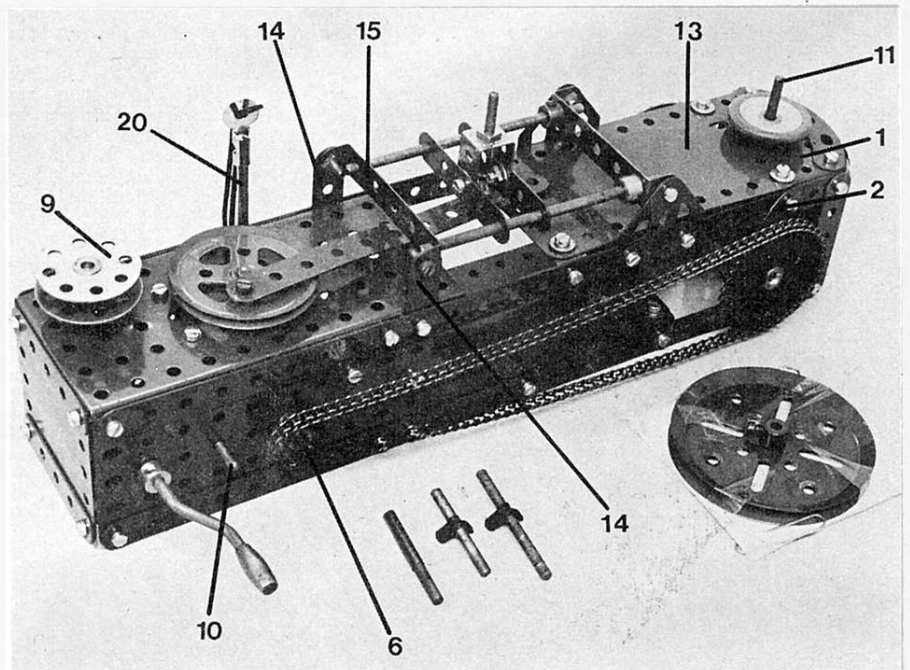
A 5½" x 2½" Flexible Plate 12 is now fixed to the base of the frame by two Double Angle Strips, while a 4½" x 2½" Flexible Plate 13 is fixed to the top of the frame, one end being

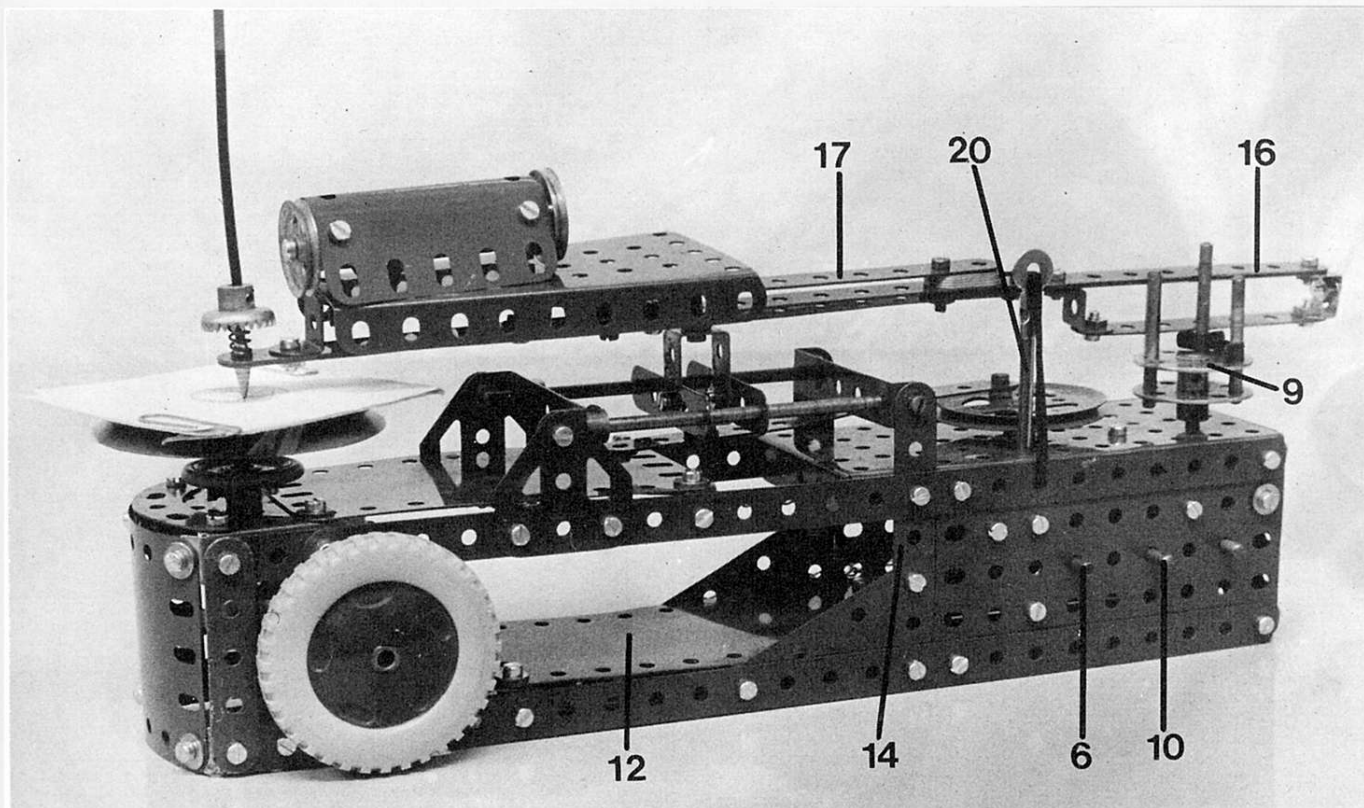
bolted to Flanged Plate 1 and the other being held in place by Angle Brackets. A Semi-Circular Plate linking the two Angle Brackets beneath the Flexible Plate adds rigidity to the structure.

Bolted to the sides of the frame in the positions shown are two 2½" Strips 14 supported at their lower ends by 2½" x 1½" Triangular Flexible Plates. The upper ends of these Strips at each side are connected by a 2½" x ½" Double Angle Strip 15, held in place by 3/8" Bolts. A second, similar, 2½" x ½" Double Angle Strip is attached to two Flat Trunnions bolted as shown to the sides of the frame. In this case, however, ordinary Bolts are used for fixing purposes, each Bolt being fitted with a Spacing Washer. Mounted in the end holes of the Double Angle Strips are two 4½" Rods on which the crosshead slides. The crosshead itself is built up from a ½" x ½" and a 1" x ½" Double Bracket, coupled by their lugs, together with two 2½" Strips. Pivotaly attached to the smaller Double Bracket by a 3/8" Bolt passing through its



Pictured left is the Meccanograph viewed from beneath to show the transmission of drive from one shaft to another by means of the gears in the Gears Set. Below is a general view of the machine with the table removed to show the crosshead slides.





A general view, above, of a neat yet effective working Meccanograph designed and built by Colin Cohen of the Cape Town Meccano Club, South Africa. It is built from a No. 5 Set (1977-type) and a Gears Set

third hole is a 5/2" Strip, the other end of which is pivotally attached to a 2" Pulley fixed on the upper end of the Rod carrying Contrate Wheel 5. Note that the Strip must be bent slightly to allow for the difference in pivot levels. Fixed to the larger Double Bracket, shank upwards as shown, is a 3/4" Bolt which later locates in the writing arm.

Turning to the writing arm, a 3 1/2" Strip is connected by a Reversed Angle Bracket, and two Angle Brackets arranged to form a Double Bracket, to two 5 1/2" Strips 16, one on top of the other. These Strips are extended by a further pair of 5 1/2" Strips, overlapped 3 holes, these Strips in turn being extended by another pair of 5 1/2" Strips also overlapped 3 holes. Another centrally-positioned 5 1/2" Strip 17 is fixed in the position shown, this being spaced from the other Strips by five Fishplates at one end and by a 1/2" Pulley without boss at the other. A 1/2" Bolt is used for fixing purposes in each case.

Attached to the writing arm by a Double Bracket and a Reversed Angle Bracket is a Flanged Sector Plate. Note that the Plate is attached to the Reversed Angle Bracket by Nuts on a 3/4" Bolt, a Loaded Hook also being secured to the elevated head of the Bolt. (Mr. Cohen used an obsolete Hook in the model illustrated, but the modern version will do equally well). The Hook is concealed beneath a U-section Curved Plate, to each end of which a 1" Pulley without Boss is fixed by an Angle Bracket. A third Angle Bracket 18 is secured to the rear Pulley, this being used to fix the assembly to the Flanged Sector Plate by means of a 3/8" Bolt which also serves to fix the Flanged Plate to the above-mentioned Double Bracket. Additional weights may be concealed beneath the Curved Plate if more pressure is required on the pen, but the pressure should be kept to a minimum.

The pen itself, is provided by a BIC-type ballpoint pen refill held in position in the end hole of the writing arm by a Compression Spring and a 3/4" Contrate Wheel.

A 1 1/2" x 1/2" Double Angle Strip 19, bolted to the inside of the frame, holds a Rod with

Keyway 20 which is prevented from slipping downwards by a Cord Anchoring Spring. A 6" Light Driving Band is passed through the side of the frame and looped around Rod 20, the other end being passed through a Rod and Strip Connector and then around the writing arm behind the Fishplates. This retains the arm against the cam. The cam itself comprises two Bush Wheels, a 1 1/2" and a 2" Rod, each with a Spring Clip, and a 1" Rod slipped part way into a Rod Connector. The table is a 3" square of strong cardboard stuck to a 3" Pulley Wheel with sellotape, and two paperclips attach the sheets of paper to the cardboard during operation.

## PARTS REQUIRED

4 - 1	1 - 20a	1 - 48	2 - 125
8 - 2	3 - 22	6 - 48a	2 - 126
1 - 3	2 - 22a	1 - 51	2 - 126a
9 - 5	1 - 23a	1 - 52	1 - 176
5 - 10	2 - 24	2 - 53a	1 - 186a
2 - 11	2 - 25	1 - 54	1 - 187
1 - 11a	2 - 26	1 - 57c	1 - 190
7 - 12	1 - 27	4 - 59	1 - 191
4 - 12c	1 - 27a	3 - 90a	1 - 192
2 - 15b	1 - 28	1 - 94	1 - 199
4 - 16	2 - 29	1 - 95	1 - 200
2 - 17	1 - 32	1 - 96a	1 - 212
2 - 18a	2 - 35	2 - 111	1 - 213
1 - 18b	95 - 37a	2 - 111a	1 - 214
1 - 19b	80 - 37b	5 - 111c	2 - 221
1 - 19s	18 - 38	1 - 120b	1 - 230

Pictured right are two views of the writing arm. In the upper picture the weight cover has been removed to show the Loaded Hook which is used as a tensioning weight for the pen. The Author's obsolete Hook can be replaced by the modern version if desired. Construction of the weight cover is clear from the lower picture. Note that the Sector Plate is fixed to the Double Bracket by Nuts on the shank of the weight cover's rear securing Bolt.

