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FOR THE  
ADVANCED MODELLER ...

# MECCANOGRAPH DESIGNING MACHINE

MECCANOGRAPH designing machines have been one of the most popular subjects for Meccano models ever since the first model of this kind was introduced in the very early days of Meccano. One reason for this is the scope that they provide for experimentation, for it is possible to vary the constructional details considerably.

We show on this, and the opposite page, a Meccanograph possessing several interesting features and based on a model designed by Mr. M. R. G. Spiller, of Stirling, for construction from parts in Outfit No. 8.

Each side of the frame consists of two built-up girders, each made up from two  $12\frac{1}{2}$ " Angle Girders placed end-to-end and connected by two  $12\frac{1}{2}$ " Strips. The sides are connected by two  $5\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flanged Plates. Two  $5\frac{1}{2}$ " Angle Girders 1 and 2 are fixed vertically to each side, and these are linked by pairs of  $5\frac{1}{2}$ " Strips attached to Angle Brackets. Washers are placed on the bolts to separate the Strips in each pair, so that the pen arm 13 is

able to slide freely between them. A  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strip is fixed to each Girder, and these Double Angle Strips are connected in pairs by  $5\frac{1}{2}$ " Strips. The Double Angle Strips support two  $12\frac{1}{2}$ " Angle Girders 3, which must be attached by their slotted holes.

The operating handle is a Threaded Pin in a Face Plate, fixed on an 8" Rod held by Collars in  $2\frac{1}{2}$ " Strips bolted to the frame. The

**BY SPANNER**

Rod carries a Worm Gear that drives a  $\frac{1}{2}$ " Pinion on a 5" Rod 4. Rod 4 is mounted in two  $5\frac{1}{2}$ " Strips fixed across the frame, and it carries a second  $\frac{1}{2}$ " Pinion that engages a 57-tooth Gear 5 on a  $3\frac{1}{2}$ " Rod, which also is mounted in the  $5\frac{1}{2}$ " Strips and is held in place by a Collar.

The 57-tooth Gear drives a  $\frac{1}{2}$ " Pinion on another  $3\frac{1}{2}$ " Rod that carries a Crank 6. A Fishplate

bolted to the Crank is fitted with a  $\frac{3}{8}$ " Bolt 7. Two Bush Wheels fixed to the upper end of Rod 4 support 4" Rods 8, which are held in place by Spring Clips.

A  $\frac{3}{4}$ " Sprocket on the 8" Rod is connected by Chain to a 2" Sprocket on a  $6\frac{1}{2}$ " Rod 9, which is mounted in Flat Trunnions bolted to the Girders 2 and held in place by a Collar and a 1" Sprocket. The 1" Sprocket is connected by Chain to a 2" Sprocket on a  $6\frac{1}{2}$ " Rod supported in  $2\frac{1}{2}$ " Strips bolted to the frame. The latter Rod carries a Worm Gear that drives a 57-tooth Gear on a 5" Rod 10, which is mounted in two  $5\frac{1}{2}$ " Strips bolted across the frame. A 2" Pulley is fixed to the upper end of Rod 10 and the design table is bolted to the Pulley. The table consists of a smooth piece of wood approximately 6 inches square and  $\frac{1}{4}$  inch thick.

The sliding carriage is made by bolting two  $3\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strips between the flanges of a  $3\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flanged Plate. Four  $1\frac{1}{2}$ " Rods are mounted in the Flanged

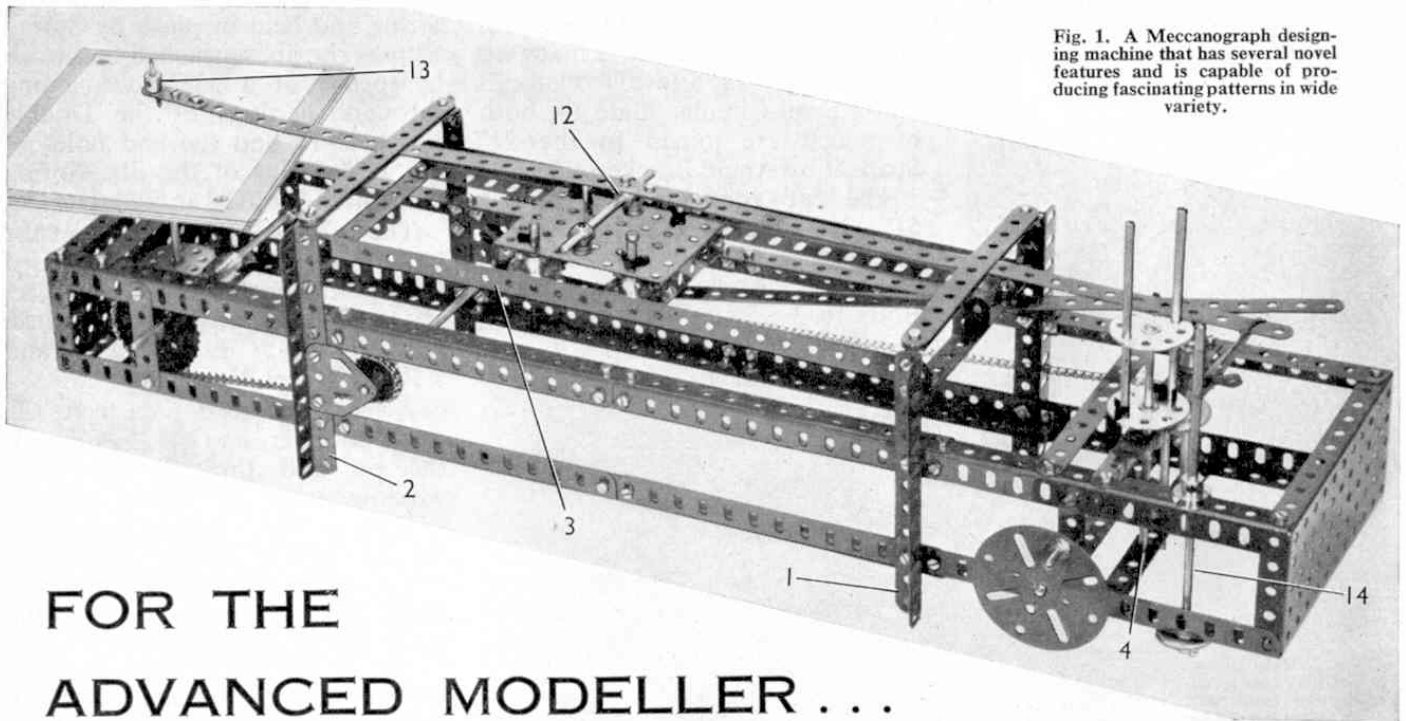


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Fig. 2. The operating end of the Meccanograph, showing the mechanism that actuates the pen-arm and the sliding carriage.

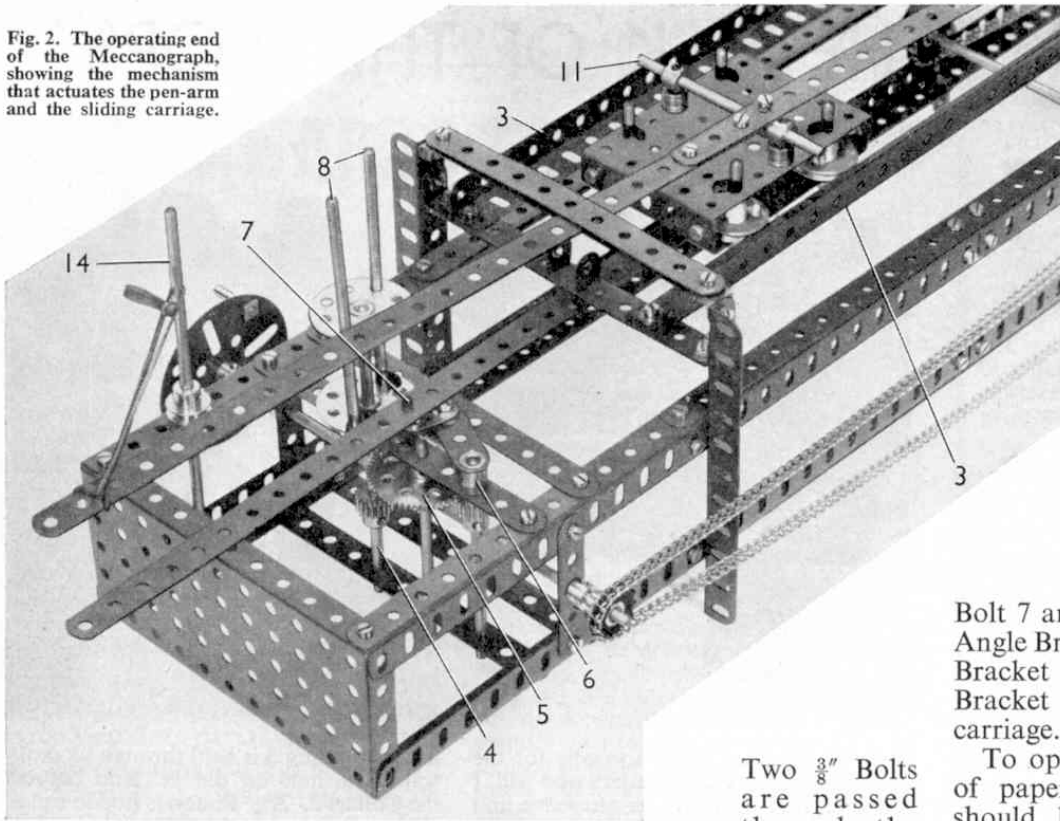


Plate and the Double Angle Strips as shown, and each of them carries a 1" Pulley and a Spring Clip. The boss of each Pulley is spaced from the Flanged Plate by two Washers.

Flanged Plate, and six Washers are placed on each Bolt before a Collar is screwed on to it. The Collars support a 3 1/2" Rod 11 that carries a Collar 12. The carriage is arranged so that the 1" Pulleys run

Two 3/8" Bolts are passed through the

freely on the inner edges of the Angle Girders 3.

The pen arm 13 consists of two 12 1/2" Strips overlapped three holes and fitted with a Crank at one end. The arm pivots on a bolt screwed into Collar 12, and it is held against the Rods 8 by a rubber band looped round the arm and passed over a 6 1/2" Rod 14.

The carriage is actuated by a 12 1/2" Strip passed over Bolt 7 and bolted to a 1/2" Reversed Angle Bracket. The Reversed Angle Bracket is lock-nutted to a Double Bracket 15 fixed underneath the carriage.

To operate the machine, a sheet of paper about 5 inches square should be pinned to the design table, and a ball pen refill fixed in the Crank 13. The design is produced simply by turning the operating handle.

Variations in the patterns produced can be made by altering the positions of the pen arm and the arm that operates the sliding carriage, on their pivots. Further  
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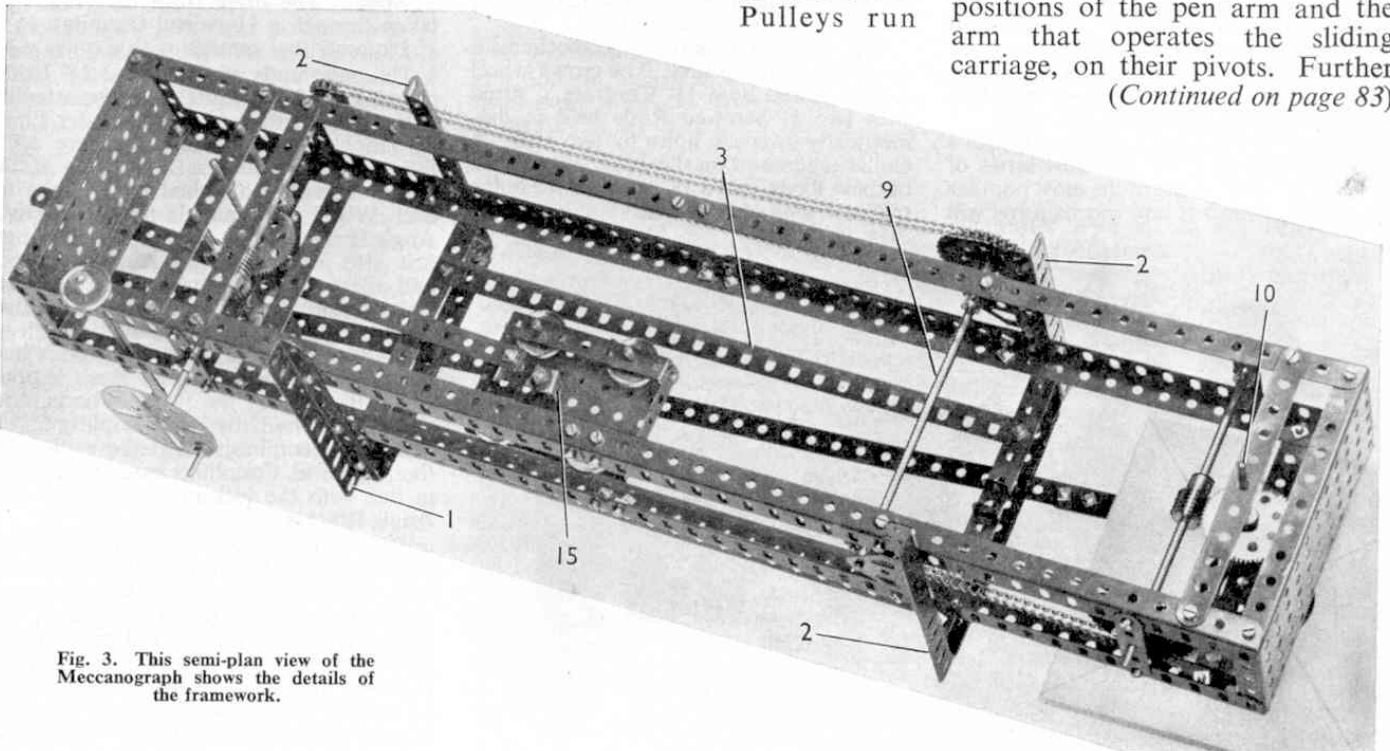


Fig. 3. This semi-plan view of the Meccanograph shows the details of the framework.