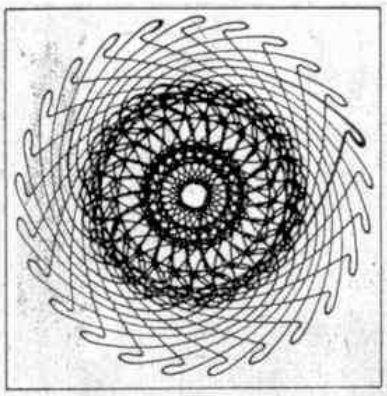
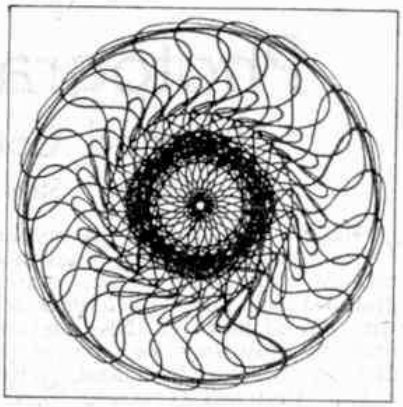


A Fine Meccano Designing Machine



AMONG the unlimited number of models that Meccano builds it would be difficult to name one that has attracted more interest and attention than the Meccanograph. Young and old alike find pleasure in the variety of beautiful designs that can be produced with the machine, which, as most "*M.M.*" readers will know, is a device that draws on paper pinned to a rotating table a wide range of fascinating designs of the kind shown at the top of this page. The form of the design produced can be varied merely by making simple adjustments to the operating mechanism.

Designing machines of this kind can be built in many different ways, but they are all based on similar principles. Their main feature is a mechanically operated arm that carries a pencil or a pen and moves in two different directions over a sheet of paper fixed to a rotating table.

One of the best machines that has come to our notice is the fine model shown in Fig. 1 on this page. This was built by the Rev. W. B. Hume, Tunbridge Wells, some time ago, and while it has some of the features of the standard Meccanograph it is much more elaborate and contains original constructional ideas that make possible the production of a rather wider range of designs.

In Mr. Hume's model the design is drawn by a fountain pen fixed at the end of the pivoted pen arm 1 that is capable of both side to side and to and fro movements, either singly or combined. The pen traces the designs on a sheet of paper pinned to the rotating table 2, which, together with the mechanisms that operate the pen arm is driven by a motor 3. In the illustration the model is shown fitted with a gramophone motor, but originally an Electric Motor was used until it was required for other models.

Variety in the designs is produced by altering the speed and extent of the two movements of the pen arm relative to

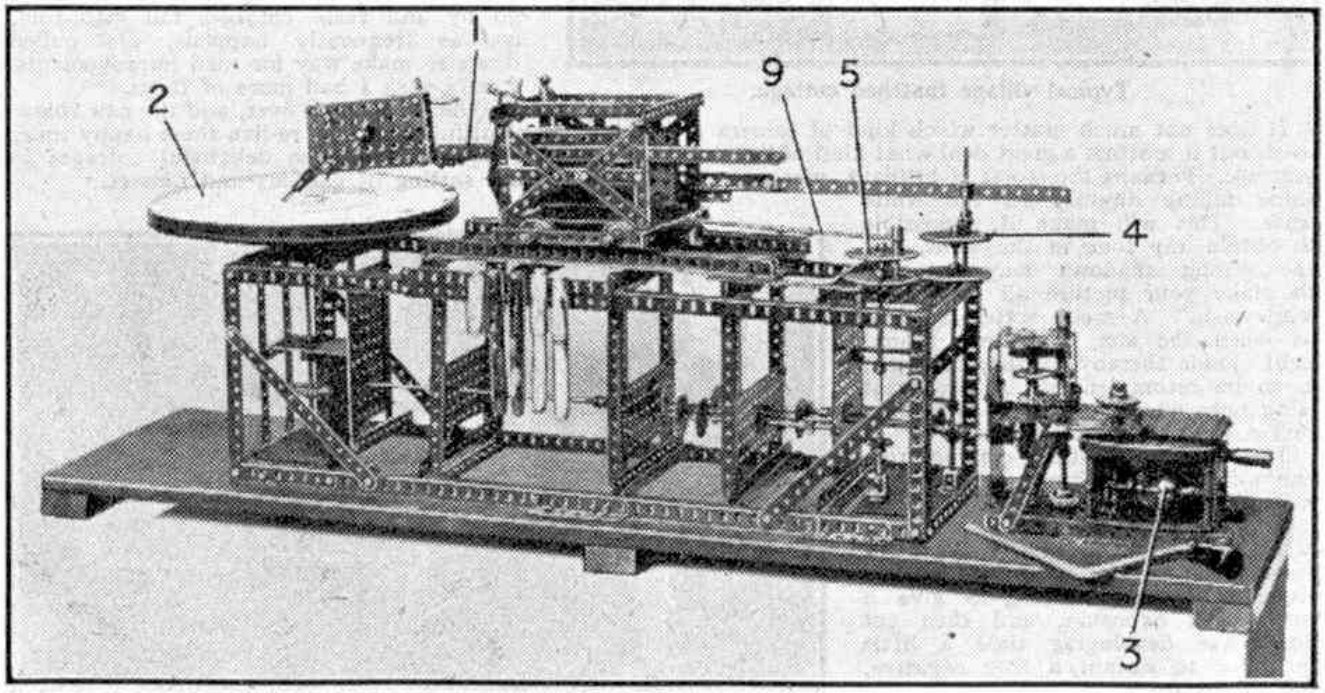


Fig. 1. A general view of a fine designing machine constructed by the Rev. W. B. Hume, Tunbridge Wells. Two of the many different designs that can be produced with it are shown at the top of this page.

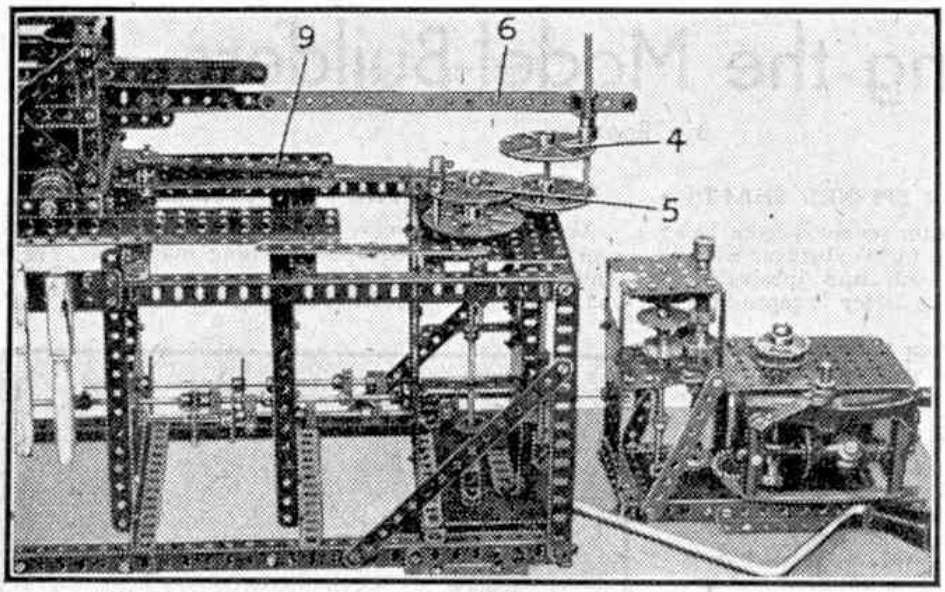


Fig. 2. A close up view of the crown heads and gear-box.

each other and to the speed of rotation of the table. These alterations are effected by employing alternative gear ratios in the drives to the table and the shafts that operate the pen arm and its carriage, and also by varying the point at which the pen arm is pivoted.

The pen arm 1 is carried backward and forward along the machine on a travelling carriage, which runs on the edges of Angle Girders. This carriage is linked by means of a $5\frac{1}{2}$" or $7\frac{1}{2}$" Strip 9 to a crown head 5, which consists of two Face Plates bolted back to back and mounted on a vertical rod, which can be rotated at various speeds. The side to side or lateral movement of the pen arm is produced by a second crown head 4, also made up from two Face Plates. This head carries, in any one of its 16 holes, a short Rod fitted with an Eye Piece, through which slides a well greased Strip 6 that forms an oscillating arm and is connected to an oscillating box 7 Fig. 3, which in turn carries the pen arm 1 This oscillating box consists of two Flanged Plates, pivoted vertically inside the carriage as shown. It is possible to pivot the oscillating arm and its box in three different positions.

The pen arm 1 consists of Strips, and these slide in Eye Pieces fixed to the sides of the oscillating box so that the length of the arm can be varied. The Strips are drawn together at their rear ends by means of a long Bolt and nut.

When the crown head 4 rotates, the Rod in one of its holes is carried around, and so causes the oscillating box to swing on its vertical axis.

The pen holder consists of two $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flat Plates spaced apart by Double Brackets at their rear ends, but free to grip the pen between their front ends.

By means of the gear trains provided in the gear-box at the rear end of the machine, it is possible to arrange 25 different speed ratios which, in conjunction with variations of the pivot position of the oscillating arm and length of the pen arm account for the wide variety of designs it is possible to produce.

We are aware that many *"M.M."* readers have constructed designing machines based on their own ideas and we shall be glad to hear from any who have experimented with devices of this kind and to receive photographs and details of their models. In addition to photographs of the machine itself designs produced on it should also be sent.

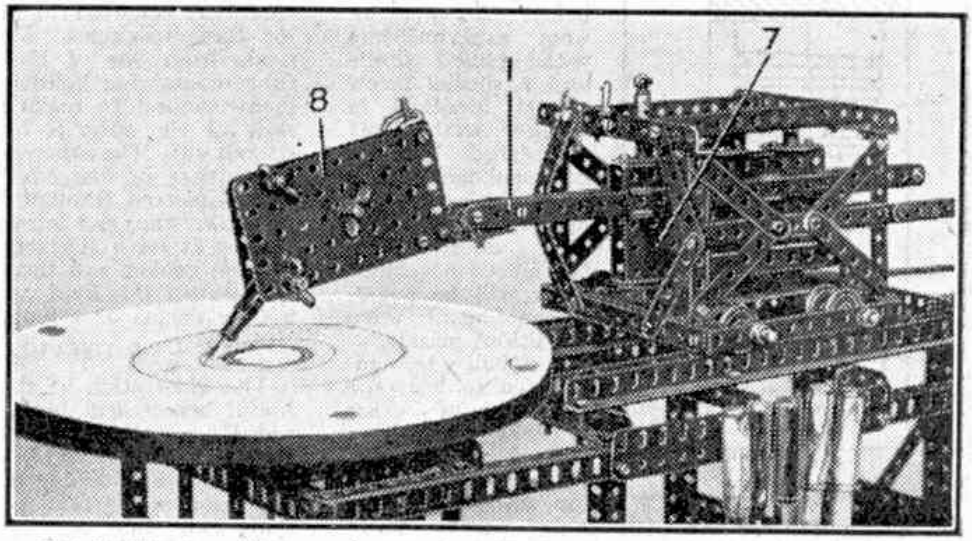


Fig. 3. The travelling carriage and oscillating box that carries the pen arm.