

# New Meccano Model

## A Fascinating Designing Machine

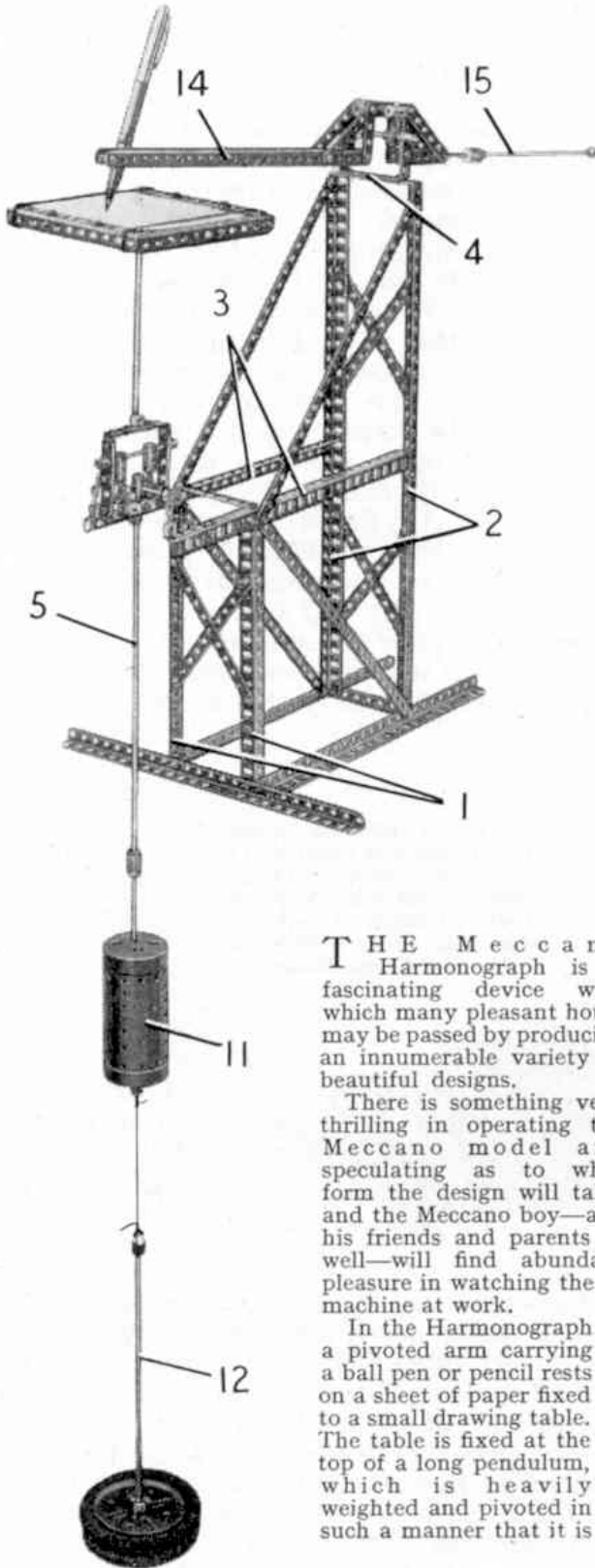


Fig. 1. This interesting machine will produce patterns by tracing the movements of a swinging compound pendulum.

THE Meccano Harmonograph is a fascinating device with which many pleasant hours may be passed by producing an innumerable variety of beautiful designs.

There is something very thrilling in operating the Meccano model and speculating as to what form the design will take, and the Meccano boy—and his friends and parents as well—will find abundant pleasure in watching the machine at work.

In the Harmonograph a pivoted arm carrying a ball pen or pencil rests on a sheet of paper fixed to a small drawing table. The table is fixed at the top of a long pendulum, which is heavily weighted and pivoted in such a manner that it is

free to move in any direction when the pendulum is set swinging. As the table moves the pen traces on the paper a design. The design varies according to the direction and extent of the movement of the pendulum and some of these assume very intriguing and beautiful forms. Further variety can be produced by varying the mass of the weight and by altering the length of the pendulum. Also if instead of only one pendulum, two or more are employed and so arranged that their combined movements operate the same pencil the resultant designs become much more complex and beautiful.

The Harmonograph is so simple that the youngest child can obtain successful results. All that is necessary is to clamp a sheet of white paper to the table of the machine using Driving Bands, fit a ball pen to the pivoted arm and then set the pendulum rod and weights swinging.

Construction of the model is begun by assembling a simple but strongly braced frame to support the pendulum and table and the pen arm. The main uprights of this frame are two  $9\frac{1}{2}$ " Angle Girders 1 and two  $18\frac{1}{2}$ " Angle Girders 2 (Fig. 1). These are connected at the base by a  $3\frac{1}{2}$ " Strip and three  $12\frac{1}{2}$ " Angle Girders, and two  $12\frac{1}{2}$ " Angle Girders 3 are bolted between the Girders 2 and the top ends of Girders 1. A  $3\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strip 4 is fixed between the upper ends of Girders 2 and the frame is braced by  $5\frac{1}{2}$ " and  $12\frac{1}{2}$ " Strips.

Two  $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strips, each fitted with a Double Arm Crank are connected by two  $2\frac{1}{2}$ " Strips. A  $6\frac{1}{2}$ " Rod is held in the upper Double Arm Crank and to its top end is fixed a Bush Wheel. The latter is bolted to two  $5\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strips, which are attached to two of the four  $5\frac{1}{2}$ " Angle Girders that form the table to which the paper is fixed. The face of the table is filled in with three  $5\frac{1}{2} \times 2\frac{1}{2}$ " Flexible Plates. An  $11\frac{1}{2}$ " Rod 5 is held in the lower Double Arm Crank and forms part of the pendulum.

The frame that supports the table and pendulum is mounted universally, which means that it is free to move in all directions, on special bearings designed to reduce friction to the minimum. These are known as "knife-edge" bearings, and they make use of the Meccano Centre Fork. A

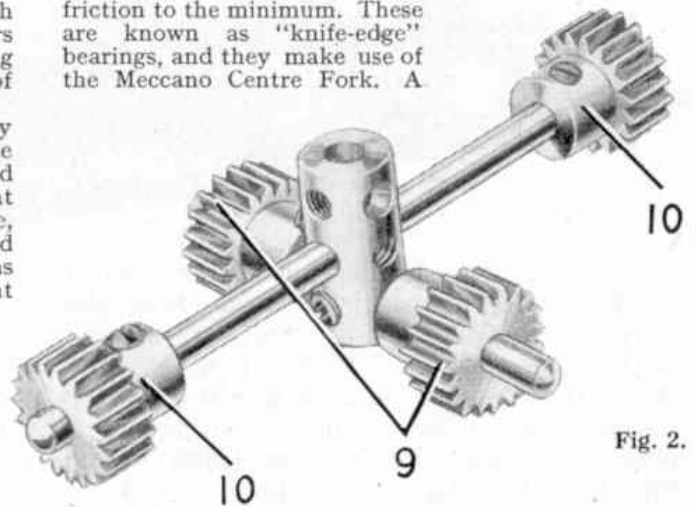


Fig. 2.

close-up view of the arrangement of these bearings is shown in Fig. 3 and it will be seen that a Centre Fork 6 is held in a Rod Socket fixed to each of the Girders 3. Two further Centre Forks 7 are held in Couplings fastened on a  $3\frac{1}{2}$ " Rod, and this Rod is fixed in Double Arm Cranks 8 bolted to the pendulum and table frame. The other section of the knife-edge bearing unit is