MODEL OF THE MONTH

Engineers' Shaping Machine

SHAPING machines, of one type or another, form part of the equipment of almost all general engineering workshops, and it is one of these very useful machine tools that we have chosen as the subject for this month's "Model of the Month." It is shown in Fig. 1 and embodies most of the features of its prototype.

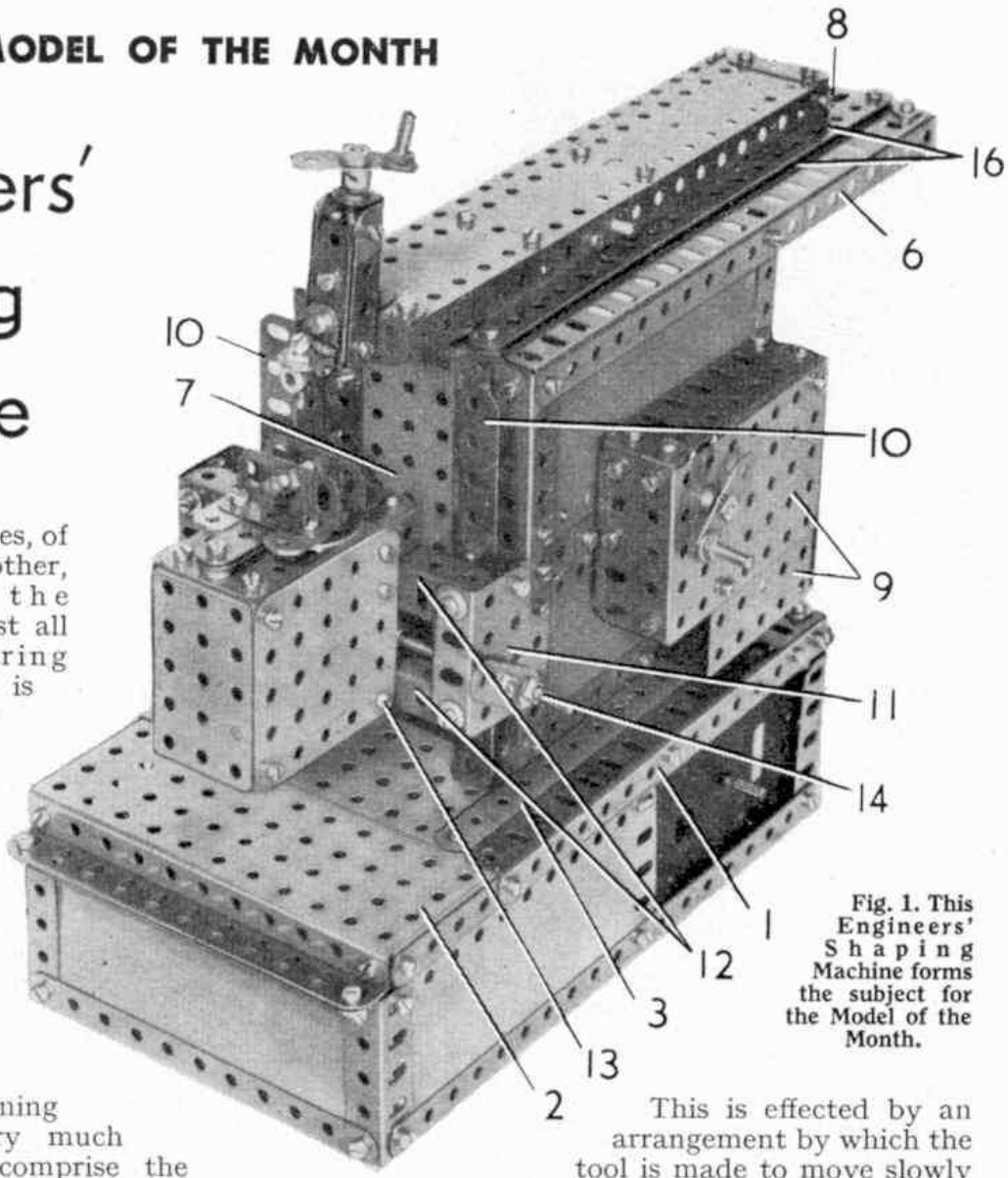

Fig. 1. This Engineers' Shaping Machine forms the subject for the Model of the Month.

Shaping and planing operations are very much alike, since both comprise the machining of flat metallic surfaces by means of tools having only one cutting edge.

Shaping is usually carried out on small areas of metal and small pieces of work that are not bulky enough for the big planing machines. In addition most shaping machines can be adapted to the cutting of convex or concave surfaces as readily as plane surfaces.

This is effected by an arrangement by which the tool is made to move slowly through the arc of a circle.

The cutting tool is carried in a special "tool box" fixed to a stout arm or ram that in some machines moves in a horizontal direction. In others the ram moves vertically.

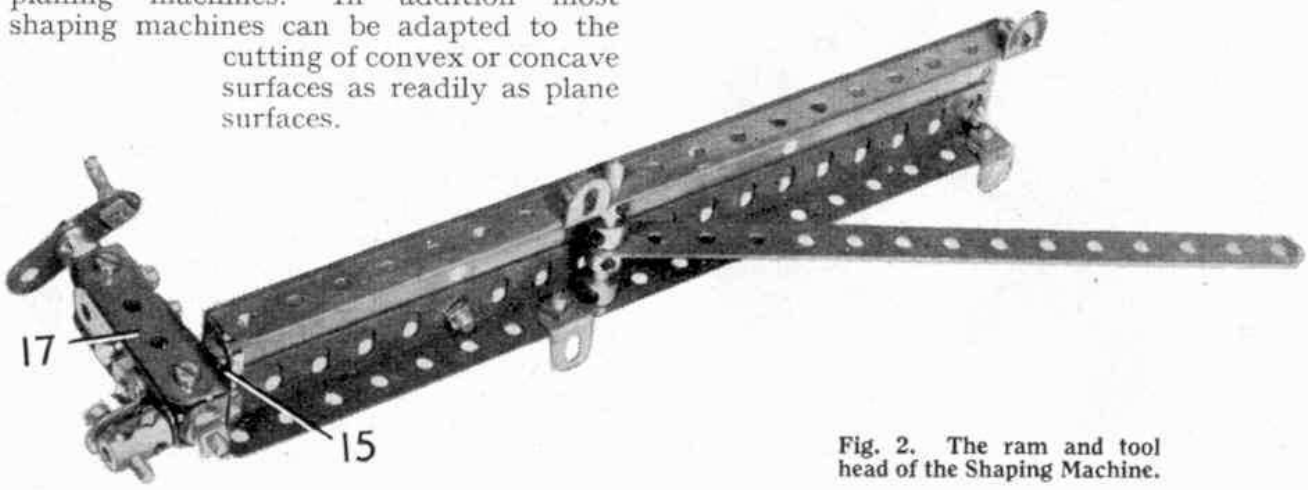

Fig. 2. The ram and tool head of the Shaping Machine.

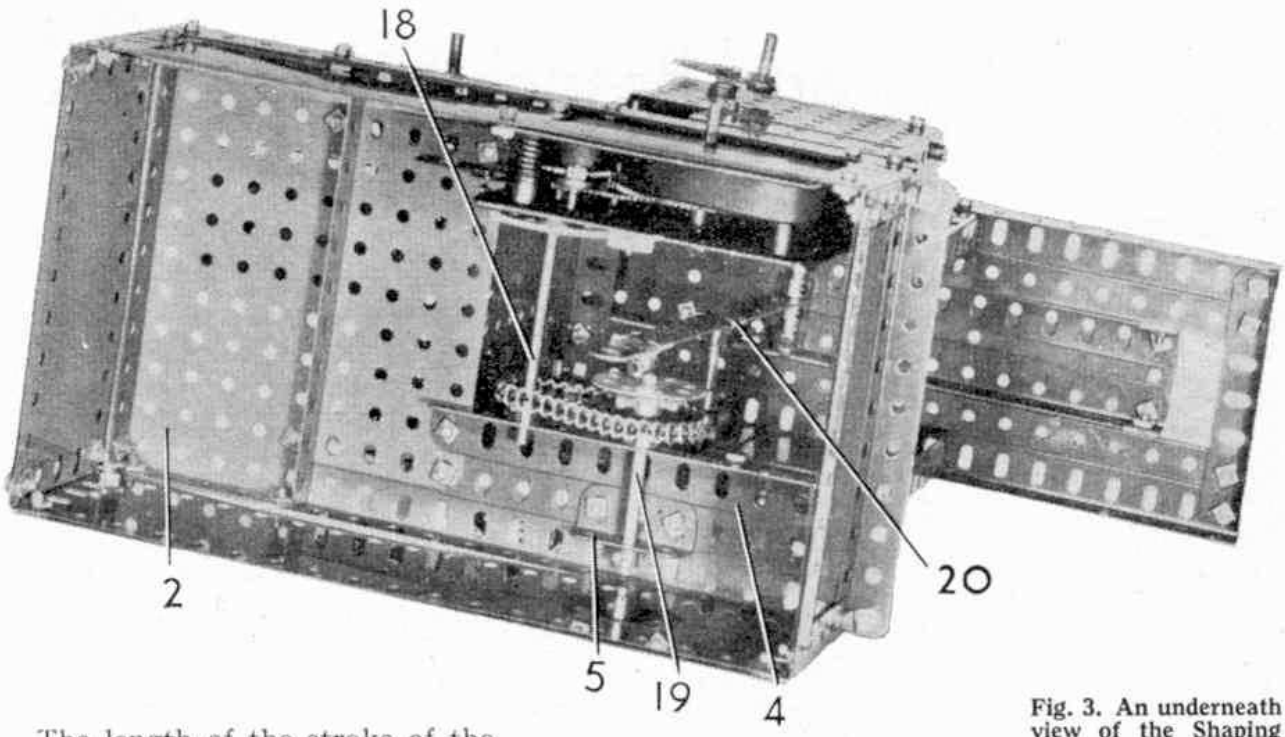

Fig. 3. An underneath view of the Shaping Machine, showing how the Clockwork Motor is fitted.

The length of the stroke of the ram can be adjusted, and in the larger machines a "quick return" motion is provided, the tool being run back to the starting point of its travel, ready for a new cut, at a higher speed than when cutting. This saves much valuable time.

Our model is based on a horizontal type of machine and it will be found an interesting structure to build. It is not designed for any particular Outfit, but makes an attractive subject for those having a good general collection of parts.

Full constructional details of the Shaping Machine and a list of the parts required to build it, can be obtained by Home readers by writing to the Editor, enclosing a 2d. stamp for postage. Overseas readers in Canada, Australia, New Zealand, South Africa, Ceylon, Rhodesia, United States of America and Italy should apply for the instructions to the main agents for those countries, enclosing suitable stamps for postage.

If you wish to avoid disappointment write for your copy as soon as you receive this issue. Supplies are of course limited, and we cannot guarantee to supply copies of the instructions once the original stock has been distributed.

A NOVEL MECCANOGRAPH

Most model-builders are familiar with the Meccanograph designing machine, which has for many years been one of the most popular Meccano models. It is possible to introduce a lot of variety into the design of these machines and one of the most novel that has come to my notice is one built by Mr. E. H. L. Roden, Truro, Cornwall. In Mr. Roden's model the designs are drawn continuously on a travelling band of paper instead of on a square of paper pinned to a rotating table as in the ordinary style Meccanographs. There are two pen arms spaced $2\frac{1}{2}$" apart on the sliding carriage, and although they have a common forward movement each of them is controlled independently by a separate crown head.

Dinky Toys News—(*Continued from page 186*)

The picture of the Dinky Toys model appears on page 185 and readers who are familiar with the actual car will readily realise how accurately the shape of the real car has been reproduced in it. The Vanwall is finished in British racing green and the driver has white overalls and helmet.

The upper illustration on page 185 shows the Vanwall leading the field on a miniature racing layout. Scenes of this kind can be arranged quite easily and there are so many different ways in which they can be put together. My scene is perhaps rather more elaborate than some of the younger Dinky Toys enthusiasts could manage to make up on their own, but quite a lot of fun can be obtained from a much more simple affair.

MODEL OF THE MONTH

ENGINEERS' SHAPING MACHINE

(Illustrated in the April 1958 issue of the Meccano Magazine)

The machine bed consists of a 7½" Angle Girder 1 on each side extended by a 9½" Strip that supports a 5½" x 2½" Flanged Plate 2. The rear ends of the Girders 1 are connected by a 5½" Angle Girder, and a 7½" Strip 3 on each side is bolted between this and a 4½" x 2½" Flat Plate attached to the Plate 2. A 5½" Angle Girder 4 is arranged next to one of the Strips 3, and a 1½" Angle Girder 5 is bolted in place.

One side of the base is a 9½" x 2½" Strip Plate and the other is formed by a No. 1 Clockwork Motor and a 5½" x 2½" Flexible Plate. The lower edges of the sides are strengthened by 9½" Strips. Each end of the base is a 5½" x 2½" Flexible Plate edged by a 5½" Strip, and these are connected to the sides by 2½" Angle Girders. The base is attached to the machine bed by 5½" Angle Girders, which are bolted to similar Girders secured to the ends of the bed.

Each of the Strips 3 supports a 5½" Angle Girder, which is fitted at each end with a vertical 5½" Angle Girder. The two vertical Girders are connected by two 5½" x 2½" Flexible Plates, a 5½" Strip, and a 9½" Angle Girder 6. A 5½" x 3½" Flat Plate 7 is bolted between the front pair of vertical 5½" Angle Girders, and a 3½" Angle Girder 8 is arranged between the ends of the Girders 6.

At one side of the machine a dummy gear-box housing is fitted. This consists of two 3½" x 2½" Flanged Plates 9 bolted together as shown and edged by two 3½" Flat Girders attached to 1" x ½" Angle Brackets. The control handle is a Threaded Pin in a 1½" Strip mounted on a lock-nutted Bolt. The unit is attached to the side of the machine by 1" x ½" Angle Brackets.

Two 5½" Angle Girders are fixed vertically to the Flat Plate 7 and to them are attached further 5½" Angle Girders 10. A Girder Bracket 11 on each side is attached to two 1" x ½" Angle Brackets bolted to each of the Girders 10, and the Girder Brackets are connected by two 4½" Angle Girders 12.

Each side of the work table is a 2½" x 2½" Flat Plate fitted at the top with a 3" Angle Girder. A 3" x 1½" Flat Plate is bolted to the Girders, and a 2½" x 1½" Flanged Plate is arranged between this and a 1½" x ½" Double Angle Strip that connects the lower corners of the sides. A 1½" Angle Girder is bolted to the inner ends of the 3" Girders, with another 1½" Angle Girder attached to it so that the flange of the last-mentioned Girder engages underneath the flange of the upper one of the Girders 12. A 1½" x ½" Double Angle Strip is fixed in place by a bolt 13 on each side, and a 1½" Angle Girder is bolted to the Double Angle Strip. The flange of the 1½" Girder engages behind the vertical flange of the lower one of the Girders 12. This construction allows the work table to be slid along the Girders 12, and its movement is controlled by a handle 14. This is a Threaded Pin in a 1½" Strip fixed by nuts on a 3" Screwed Rod, which is passed through one of the Girder Brackets 11 and is screwed into a Threaded Boss. The Threaded Boss is fixed by a bolt to one of two 2½" Angle Girders bolted to the inner edges of the 2½" x 2½" Flat Plates.

The clamp for the work to be machined consists of two 1½" Angle Girders connected by nuts on a ¾" Bolt, with Fishplates bolted to one of the Girders. The Girders are attached to two face to face 2½" Strips spaced from the top of the work table by Washers on the securing bolts.

The sliding ram that carries the cutting tool is formed by two 9½" Angle Girders connected by two 5½" x 1½" Flexible Plates, a 1½" Strip and a 1½" Angle Girder 15. Two Angle Brackets bolted to each of the 9½" Girders are free to slide between two 9½" Strips 16. These are spaced apart by a Washer on each of the Bolts that fixes them in place.

The cutting tool is represented by a ¾" Bolt fixed by a nut and a Short Coupling in one lug of a Hinge. The Hinge is bolted to a 2" Strip to which a Threaded Boss is fixed by a bolt. The Threaded Boss is screwed on to a Screwed Rod mounted in an Angle Bracket bolted to the Girder 15, and in two 1" x ½" Angle Brackets fixed together to make a 1½" x ½" reversed angle bracket, which also is fixed to the Girder 15. Two Double Brackets bolted in place support a 2" Strip 17 on each side. The Screwed Rod carries a handle formed by a Threaded Pin in a 1½" Strip, which is clamped tightly between nuts with a Collar serving as a spacing piece.

A ½" Pinion on the No. 1 Motor shaft drives a 57-tooth Gear on a 3½" Rod 18. A ¾" Sprocket on this Rod is connected by Chain to a 1½" Sprocket on a 2½" Rod 19. Rod 19 carries a Bush Wheel to which a Slide Piece is pivotally attached by a ⅜" Bolt. A 7½" Strip is passed through the Slide Piece and through a similar part 20 fixed on a 2½" Rod. The Rod is free to turn in a Bush Wheel and a Double Bent Strip bolted to one side of the machine. The upper end of the 7½" Strip pivots on a 2" Rod held by Collars in the sides of the sliding ram.

Parts required to build the Shaping Machine:-

8 of No. 1a; 3 of No. 1b; 4 of No. 2; 2 of No.5; 3 of No.6; 4 of No.6a;
4 of No.8a; 2 of No.8b; 15 of No.9; 2 of No.9a; 1 of No.9b; 2 of No.9c;
6 of No.9d; 6 of No.9f; 4 of No.10; 2 of No.11; 5 of No.12; 10 of No.12b;
1 of No.16; 2 of No.16a; 1 of No.17; 1 of No.24; 1 of No.24a; 1 of No.26;
1 of No.27a; 164 of No.37a; 158 of No.37b; 22 of No.38; 1 of No.45; 2 of No.48;
2 of No.50; 1 of No.51; 1 of No.52; 1 of No.52a; 2 of No.53; 1 of No.53a;
9 of No.59; 1 of No.63d; 2 of No.64; 2 of No.72; 1 of No.73; 2 of No.80c;
1 of No.94; 1 of No.95a; 1 of No.96a; 2 of No.103d; 1 of No.111; 4 of No.111c;
1 of No.114; 3 of No.115; 2 of No.161; 2 of No.189; 7 of No.192; 1 of No.196;
1 No.1 Clockwork Motor.