

## A Model Printing Machine

Fig. 1. This model Printing Machine demonstrates the essential movements of a printer of this type.

THE model Printing Machine shown in Figs. 1, 2 and 3 is so designed that it can be built from parts in Outfit No. 6; and although it is not intended for actual printing it demonstrates the movements and features of a printer of this kind very effectively.

The construction of the base, which should be built first, is commenced by joining two Angle Girders at each end to a  $5\frac{1}{2}$ " Strip. Two  $12\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Strip Plates are held by the same bolts and are fixed one on each side of the base. Two Angle Girders are then bolted along the inner edges of the Plates. The resulting gap along the centre of the base is filled in with two  $5\frac{1}{2}$ "  $\times$   $1\frac{1}{2}$ " Flexible Plates and a  $5\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flanged Plate 1.

Two  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strips seen at 2 are bolted to the base, and to their lugs at each end is bolted a Flanged Sector Plate. The Flanged Sector Plates form the bearings for a Crank Handle on which two 1" Pulleys 3 and 4 are fixed.

The central framework that supports the mechanism is built next. To each side flange of the Flanged Plate two  $5\frac{1}{2}$ " Strips are bolted. The upper portion on each side consists of two  $3\frac{1}{2}$ " Strips and a  $2\frac{1}{2}$ " Strip arranged as shown. At the top a  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strip 5 bridges the structure and a second Double Angle Strip 6 is bolted in the position shown. The type bed is formed by a  $2\frac{1}{2}$ "  $\times$   $1\frac{1}{2}$ " Flanged Plate 7 and

a  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strip 8, which can be seen in Fig. 2.

The operating mechanisms for the platen and the ink roller are built next and the operating links on each side are similar in construction except that a 57-tooth Gear 9 is used on one side and a Bush Wheel 10 on the other. A  $3\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flanged Plate 11 is connected by Angle Brackets to two  $5\frac{1}{2}$ " Strips, which are each lock-nutted at their lower ends to the sides of the  $5\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flanged Plate 1.

A  $2\frac{1}{2}$ " Strip is bolted across the Bush Wheel 10 and is extended by a flattened Formed Slotted Strip. The ink roller 12 is a 4" Rod to which a piece of rubber tubing is fitted, and it is held in place by two Collars in the slotted holes of the Formed Slotted Strips. The roller is kept in contact with the type and the inking plate by the tension of two elastic bands arranged one on each side of the rubber tubing. One of the elastic bands is marked 13 in Fig. 1 and they are looped around the ends of the inking roller and Rod 14. The Bush Wheel 10 and the 57-tooth Gear 9 are fixed on each end of Rod 14, which is mounted in the apex holes of two Flat Trunnions 15 and 16. A 1" Pulley fitted with a Rubber Ring is also mounted on the Rod.

The following constructional details are carried out on each side of the machine. A Fishplate is first bolted securely to the

Bush Wheel 10 or 57-tooth Gear 9, as the case may be, and is lock-nutted to a  $5\frac{1}{2}$ " Strip 17 or 18 so that the Strip is free to pivot. This Strip is held at its other end on a 5" Rod that is mounted in the  $5\frac{1}{2}$ " Strips carrying the Flanged Plate 11. A second Strip is then lock-nutted freely to a 3" Pulley 19 or 20 and this Strip also is held by Spring Clips on the 5" Rod. The 3" Pulleys are mounted on a  $3\frac{1}{2}$ " Rod held in Flat Trunnions, one of which is marked 21, bolted to the rear pair of vertical  $5\frac{1}{2}$ " Strips, and is driven by a belt from the 1" Pulleys 3 and 4 mounted on each end of the Crank Handle. By the action of the levers the Flanged Plate 11 is pulled to and fro so that it makes contact with the type bed when the ink-roller is over the inking plate 22.

The inking plate is held on a 4" Rod between a Collar and a Rubber Ring fitted on a 1" Pulley. The bearings for the Rod

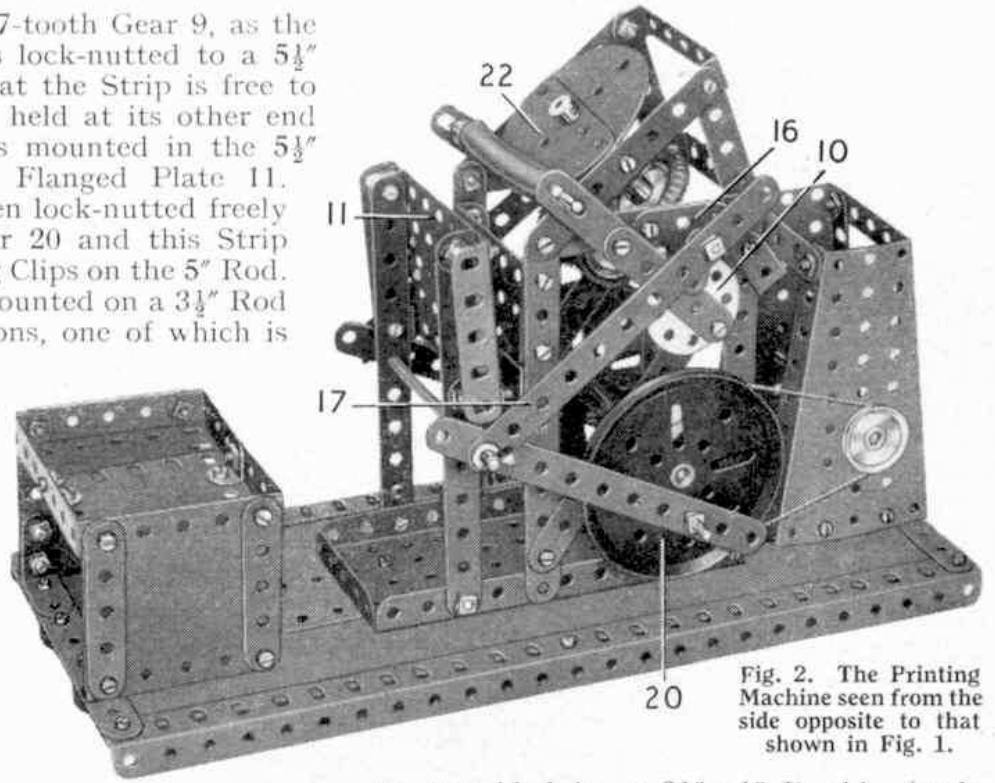


Fig. 2. The Printing Machine seen from the side opposite to that shown in Fig. 1.

are provided by a  $2\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strip and a Double Bent Strip. A 1" Pulley 23 is fitted with a Tyre and is mounted on the 4" Rod. The Tyre engages with the Rubber Ring fitted on the 1" Pulley on Rod 14, which rotates and drives the inking plate. A pawl and ratchet mechanism is now built up using a  $\frac{1}{2}$ " Pinion 24 on the 4" Rod carrying the inking plate. This Rod is allowed to rotate in one direction only, by the action of an Angle Bracket 25

fixed to a Fishplate that is lock-nutted to one lug of a 1" x 1" Angle Bracket. The lug of the Angle Bracket 25 engages the teeth of the Pinion 24. When the Crank Handle is turned the mechanism is actuated as described earlier.

A feeding and receiving table is built as shown and is fixed to the base by a 1" x 1" Angle Bracket and a  $\frac{1}{2}$ " x  $\frac{1}{2}$ " Angle Bracket. The table top is made from two  $2\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flexible Plates.

Parts required to build the model Printing Machine:—14 of No. 2; 4 of No. 3; 12 of No. 5; 4 of No. 8; 3 of No. 10; 8 of No. 12; 2 of No. 12a; 1 of No. 15; 2 of No. 15b; 2 of No. 16; 2 of No. 19b; 1 of No. 19g; 5 of No. 22; 1 of No. 24; 1 of No. 26; 1 of No. 27a; 8 of No. 35; 108 of No. 37a; 96 of No. 37b; 19 of No. 38; 1 of No. 40; 1 of No. 45; 6 of No. 48a; 2 of No. 48b; 1 of No. 51; 1 of No. 52; 1 of No. 53; 2 of No. 54; 3 of No. 59; 2 of No. 111; 3 of No. 111c; 4 of No. 126a; 1 of No. 142c; 2 of No. 155; 2 of No. 189; 4 of No. 190; 2 of No. 197; 2 of No. 214; 2 of No. 215; 1 piece of rubber tube; 2 elastic bands.

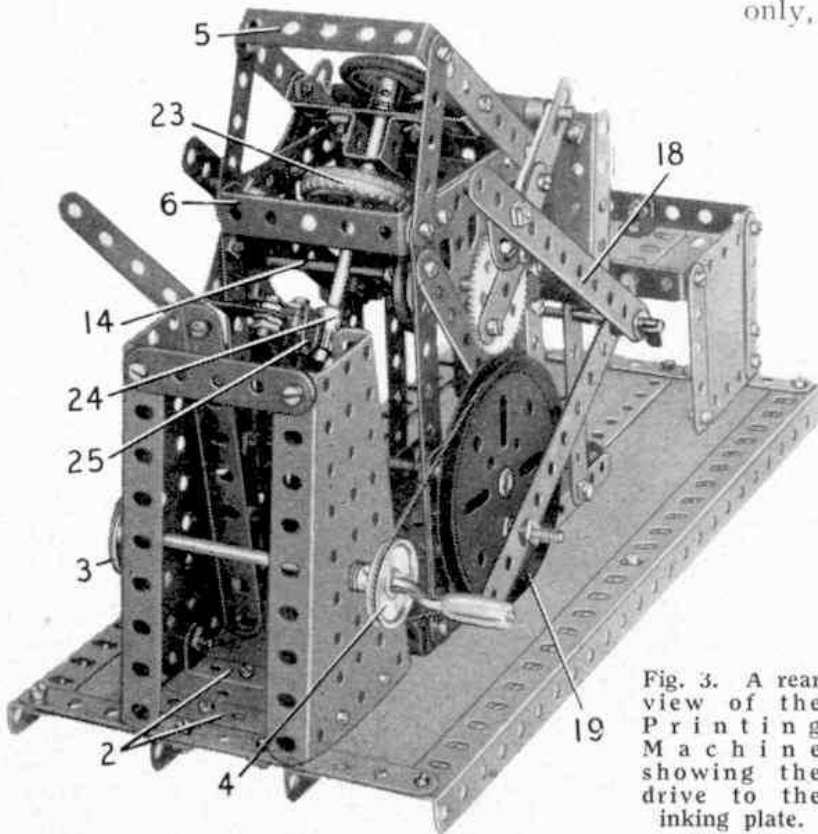


Fig. 3. A rear view of the Printing Machine showing the drive to the inking plate.