

# Build a Coin Machine

AT the flick of a switch, the model described here will whirl into action and supply builders with a little pile of money! Before you get excited, however, I should explain that it isn't some sort of magic box—it is simply a coin-giving machine which must, first, be loaded with a stock of pennies before it can deliver the 'goods'. Either threepennyworth or sixpennyworth is supplied, depending on the position of a wheel on the top of the model.

## Framework

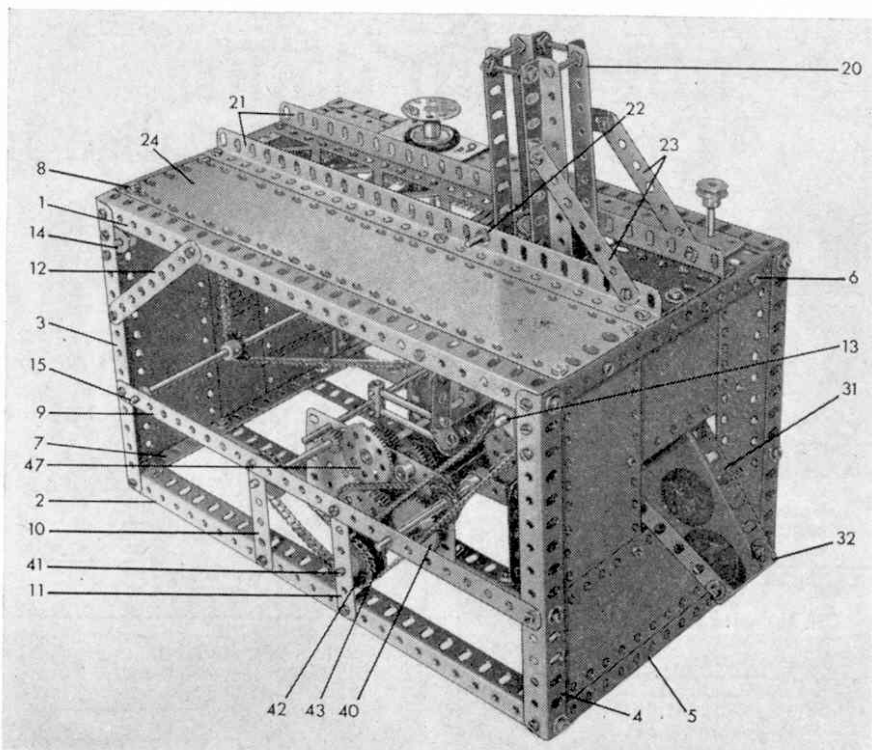
Two rectangles, each built up from two  $12\frac{1}{2}$  in. and two  $7\frac{1}{2}$  in. Angle Girders 1, 2, 3 and 4, are connected together by four  $7\frac{1}{2}$  in. Angle Girders 5, 6, 7 and 8. A  $12\frac{1}{2}$  in. Strip 9 is bolted to the upright Angle Girders and is supported by two 3 in. Strips 10 and 11. To hold the framework rigid, a  $4\frac{1}{2}$  in. Strip 12 is secured to Angle Girders 1 and 3. Three 8 in. Rods 13, 14 and 15, each carrying two  $\frac{3}{4}$  in. Sprocket Wheels, are journaled in 1 in. Corner Brackets bolted to the Angle Girders, as shown. A 1 in. Sprocket Wheel 16 is also secured on Rod 13. Three-inch Strips are attached by paper clips in every fourteenth link of two Sprocket Chains, 168 links in length.

The Chain is then placed over the  $\frac{3}{4}$  in. Sprocket Wheels on Rods 13, 14 and 15. Two  $7\frac{1}{2}$  in. Strips 17 and 18 are attached to the top  $12\frac{1}{2}$  in. Angle Girders with  $\frac{1}{2}$  in. Corner Angle Brackets. A  $2\frac{1}{2}$  in.  $\times$   $1\frac{1}{2}$  in. Flanged Plate 19 is bolted to the Strips 17 and 18 three and a half inches from Angle Girder 1. The 3 in. Strips on the Chain must just clear the surface of this Plate.

## Coin Magazine

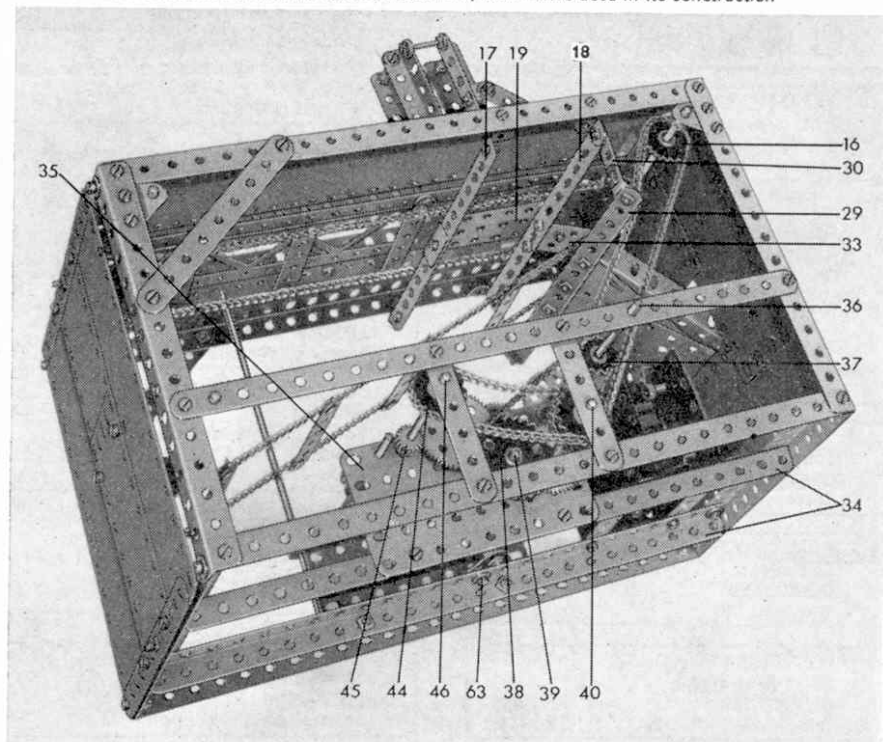
Four  $4\frac{1}{2}$  in. Angle Girders 20 are bolted together in pairs, using  $1\frac{1}{8}$  in. Bolts with three Nuts. The Nuts are adjusted so that a penny just clears the angle of the Girders. Two  $12\frac{1}{2}$  in. Angle Girders 21 are fixed to the Angle Girders 6 and 8 as shown, and the coin magazine is fastened to these by means of a 3 in. Screwed Rod 22 and two  $3\frac{1}{2}$  in. Strips 23, Angle Brackets being used at the magazine end.

The distance between the bottom of



*This general view of the coin-giving machine clearly shows the coin magazine which the operator loads with pennies. These are delivered on request either three or six at a time.*

*This view of the machine shows the various sections of chain drive used in its construction*



the 4½ in. Angle Girders and the 2½ in. × 1½ in. Flanged Plates should equal the thickness of a new penny. The top is covered by a 12½ in. × 2½ in. Strip Plate 24, two 5½ in. × 1½ in. Flexible Plates 25, a 1½ in. × 1½ in. Flat Plate 26, a 7½ in. Braced Girder 27 and two 2½ in. × 1½ in. Flexible Plates 28, overlapped two holes.

### Coin Tray

A 7½ in. Strip 29 is attached to the 7½ in. Strip 18 by means of a 1½ in. Strip 30 and an Obtuse Angle Bracket at each end. Two 5½ in. Angle Girders 31 are connected to each other by a 1½ in. × ½ in. Double Angle Strip 32, and the bottom of the tray is filled in by a 5½ in. × 1½ in. Flexible Plate and two 3½ in. × 1½ in. Flexible Triangular Plates, the last-named being bolted to the 7½ in. Strip 29. Flexible Plates of various sizes enclose the space around the tray, as shown. A 1½ in. Flat Girder 33 is attached by Angle Brackets to the front of the Flanged Plate 19 to guide the coins on to the tray.

### Motor Drive and Gear Box

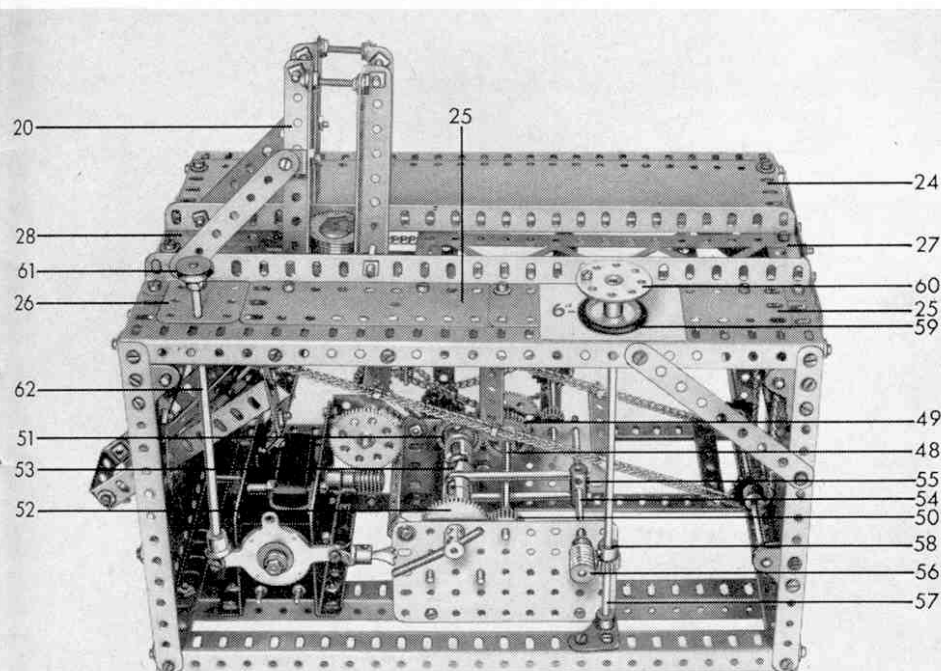
Two 12½ in. Angle Girders 34, each carrying a 4½ in. × 2½ in. Flat Plate 35, are bolted to the Angle Girders 5 and 7. These serve as a base for the Motor. A Worm Wheel on the armature shaft of the Motor drives a 57-tooth Gear Wheel on a 4½ in. Rod 36 that carries a ¾ in. Sprocket Wheel 37. This Sprocket Wheel is connected by Chain to a 1½ in. Sprocket Wheel 38 which is secured to a 5 in. Rod 39 mounted in Flat Plates 35. Behind Sprocket Wheel 38 a ¾ in. Pinion engages with a 50-tooth Gear Wheel 40, mounted on an 8 in. Rod 41, which also carries two 1 in. Sprocket Wheels 42 and 43. Sprocket Wheel 43 drives Sprocket Wheel 16. A 1 in. Sprocket Wheel 44 and a ½ in. Pinion 45 is fixed on a 3½ in. Rod 46. Sprocket Wheels 42 and 44 are now connected by Chain. A 57-tooth Gear Wheel 47 on a 4 in. Rod 48 engages with the Pinion 45. Also secured to Rod 48 is a 1 in. Gear Wheel 49 and a ¾ in. Pinion 50.

A Socket Coupling carrying the female part of a Dog Clutch is attached to the boss of another 1 in. Gear Wheel 51, then a similar arrangement, using a 50-tooth Gear Wheel 52 in place of the 1 in. Gear, is built up. Both are mounted loosely on a 4 in. Rod with keyway, making sure that they are free to turn. Between the Socket Couplings is placed another Socket Coupling 53 carrying two male parts of a Dog Clutch, one of the Dog Clutches being fitted with a Key Bolt. The Dog Clutches are so placed that when the Motor start lever has been knocked off (as explained later) the Socket Coupling 53 can be moved to engage with either of the other two Socket Couplings. On a 5 in. Rod 54 is mounted a Coupling 55 supporting two 3 in. Rods which engage with Socket Coupling 53, and a worm 56. On an 8 in. Rod 57, mounted as shown, a ½ in. Pinion 58 that engages with the Worm, is fixed, while a 1 in. Pulley with Rubber Ring 59 acts as a brake when the Rod is turned by means of an eight-hole Bush Wheel 60, to give the particular amount of change required.

The Motor is started by depressing the ½ in. Pulley 61 on a 6½ in. Rod 62 which is connected to the starting lever by an End Bearing, lock-nutted in position. Rigidly fixed to the other arm of the starting lever is another End Bearing supporting a Centre Fork. On the end of the Rod with keyway is placed a Short Coupling in which a Flexible Coupling Unit is mounted. When the Motor is started, this Flexible Coupling Unit revolves until it hits the Centre Fork, thus switching off the Motor.

By adjusting the length of the Flexible Coupling Unit and the angle of slope of the Centre Fork, the Motor can be made to stop when one of the 3 in. Strips on the endless chain is under the 4½ in. Angle Girders 20.

The Socket Coupling arrangements 51 and 52 are held in position by placing 1 in. Rods in Rod Sockets secured to Fishplates fixed to the Angle Girders 34 by Bolts 63. The ends of the 1 in. Rods fit into the centre grooves of the Socket Couplings.



**Parts required:**—1 of No. 1; 3 of No. 1b; 2 of No. 2; 2 of No. 2a; 4 of No. 3; 15 of No. 4; 2 of No. 6a; 2 of No. 10; 2 of No. 12; 1 of No. 12a; 4 of No. 12c; 4 of No. 13a; 2 of No. 14; 2 of No. 15; 1 of No. 15a; 1 of No. 15b; 1 of No. 16; 2 of No. 16a; 2 of No. 18b; 1 of No. 22; 1 of No. 23a; 1 of No. 24; 2 of No. 25; 2 of No. 26; 2 of No. 27; 2 of No. 27a; 2 of No. 31; 2 of No. 32; 151 of No. 37a; 120 of No. 37b; 54 of No. 38; 1 of No. 48; 1 of No. 48b; 1 of No. 51; 2 of No. 53a; 13 of No. 59; 1 of No. 63; 1 of No. 63d; 1 of No. 65; 1 of No. 74; 1 of No. 80c; 2 of No. 94; 1 of No. 95a; 4 of No. 96; 7 of No. 96a; 1 of No. 99b; 1 of No. 103h; 4 of No. 111c; 8 of No. 111d; 2 of No. 133a; 2 of No. 144; 2 of No. 154a; 2 of No. 154b; 2 of No. 166; 3 of No. 171; 1 of No. 175; 2 of No. 179; 2 of No. 188; 4 of No. 189; 1 of No. 190a; 2 of No. 191; 1 of No. 192; 3 of No. 195; 1 of No. 197; 2 of No. 224; 1 of No. 230; 1 of No. 231; 1 E15R Electric Motor; 24 Paper Clips.

*The particular amount required from the machine is decided by the selector wheel, shown in this view at figure 60. The 6d position is on the left of the white card surrounding the wheel. The 3d position is hidden by the wheel itself*