(95)—Meccano Heald-Making Machine

(H. C. van Doorn, Utrecht, Holland)

Most Meccano boys like to build models that can be put to practical use, and if a Meccano structure can be employed to actually manufacture some small object, its fascination is increased a hundredfold. There are several well-known models that fulfil extremely practical functions, such as Meccano lathes that turn wooden wheels or chessmen, etc.; drilling and planing machines; looms, clocks, and clay-modelling machines, etc.; and another very interesting addition to the list is provided by the apparatus shown in Fig. 95. This was designed by H. C. van Doorn for converting thin lengths of wire into healds for use in Meccano Looms. It is very simple to construct and easy to operate. Two typical specimens of healds made with the machine are shown in Fig. 95a.

Details of Construction

The model consists principally of two box-like structures each composed of two 3½″×2½″ Flanged Plates and two 2½″×2½″ Flat Plates bolted to a 5½″×2½″ Flanged Plate, which, in turn, is secured to a base consisting of two 12½″ Angle Girders. The 2½″ Flat Plates form bearings for two 4½″ Axle Rods placed longitudinally in the model. One of these Rods is fitted with a handle composed of a Threaded Pin secured to a Bush Wheel; it carries also a ½″ Pinion that engages with a 57-teeth Gear Wheel secured to an 8″ Rod 3.

The other 4½″ Rod 2 is actuated on rotation of the operating handle 1, but it is arranged to revolve in the opposite direction, the reverse motion being obtained in the following manner. The inner end of the 8″ Rod 3 is journalled in one end of a Coupling, through the centre hole of which passes the vertical 2½″ Rod 7. The latter carries a ¾″ Pinion and is journalled in the centre holes of two 2½″ ×1″ Double Angle Strips bolted to the 12½″ Angle Girders. Another 8″ Rod 4 is journalled in the opposite end of the Coupling, and this Rod is fitted with a 57-teeth Gear Wheel meshing with a ½″ Pinion on the Rod 2, thus corresponding with the gearing at the opposite end of the machine.

The Rods 3 and 4 are both free to revolve in the ends of the Coupling, but the drive is transmitted from Rod 3 to Rod 4 via two ¾″ Contrate Wheels 5 and 6 and the Pinion on Rod 7; hence the direction of rotation of Rod 4 is reversed and consequently the Rod 2 rotates in an opposite direction to the 4½″ Rod carrying the operating handle. It will be seen that the Pinion and Contrate Wheel drive is a simple application of Standard Mechanism No. 66 (Reversing Gear).

Each of the two 4½″ Rods is fitted with a Coupling carrying a Threaded Pin 8, 9 secured at right-angles to its end; these Pins form hooks over which is slipped the loop of wire from which the heald is formed. Each Rod is also equipped with a small compression spring (extracted from a Spring Buffer, part No. 120a). The springs are mounted between the inner 2½″×2½″ Flat Plates and Collars and set-screws on the Rods in such a way that they normally tend to hold the Couplings carrying the Threaded Pins against the Plates. Two Threaded Pins 10 and 11 are bolted to the side of the machine to form a gauge by which the correct length of wire may be ascertained.

The healds are manufactured as follows: A piece of suitable wire, about 13″ in length, is passed round the Pins 10 and 11 and the ends twisted together with a pair of pliers to form a loop. A convenient size of wire is 26 S.W.G. (.018″ in diameter).

Next the loop of wire is removed and passed over the Rod 7, and its ends slipped over the Pins 8 and 9. The hand wheel is now rotated and the loop of wire is twisted into the form of a heald, the Rod 7 forming the hole through which will pass the warp threads of the loom. As the loop of wire is twisted the 4½″ Rods carrying the Threaded Pins 8 and 9 are drawn slightly towards the Rod 7. This movement is allowed for by the small compression springs already mentioned, and as soon as the completed heald is removed the Rods slip back into their normal positions. The whole operation occupies a few seconds only.

Parts required:

2	of No.	8	2	of No.	26	4	of No.	53
2	„ „	9f	2	„ „	27a	4	„ „	59
2	„ „	13a	2	„ „	29	3	„ „	63
2	„ „	15	40	„ „	37	4	„ „	72
1	„ „	17	8	„ „	38	5	„ „	115
1	„ „	24	2	„ „	46	2	„ „	120a
1	„ „	25	2	„ „	52			

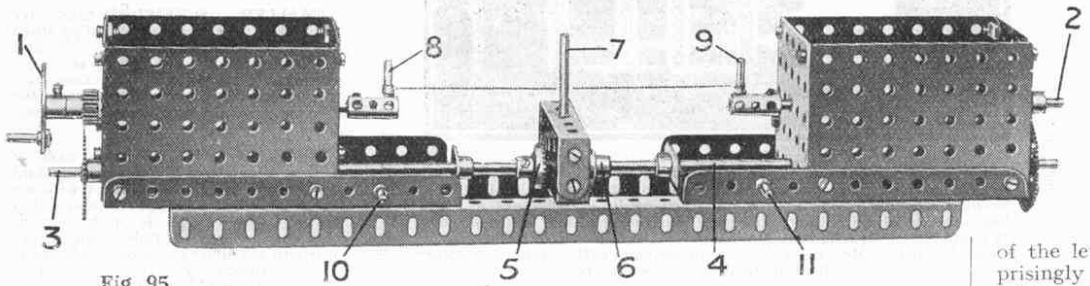

Fig. 95

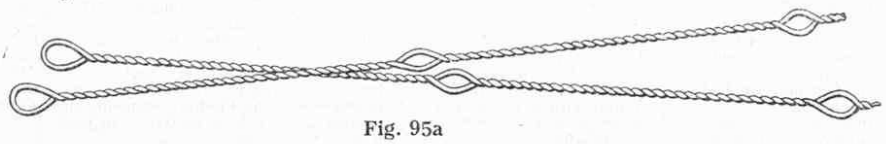

Fig. 95a

(96)—Push-Button Brake Control

(G. Boedeker, Croydon)

By means of the device shown in Fig. 96 it is possible to control the movements of a Meccano model merely by pressing a button! This new brake is particularly suitable for regulating the speed of the Clockwork Motor.

A Collar and set-screw secured to the 1″ Rod 1 forms the operating button. The 1″ Rod is secured beneath the plate in a Strip Coupling 2, in the slot of which a Strip 3 pivots upon the shank of a grub screw or an ordinary bolt inserted in the threaded bore of the Coupling. The Strip 3 is also mounted pivotally on a ⅜″ Bolt 4 secured to the frame by means of two nuts arranged one on each side of the Flanged Plate (see Standard Mechanism No. 262).

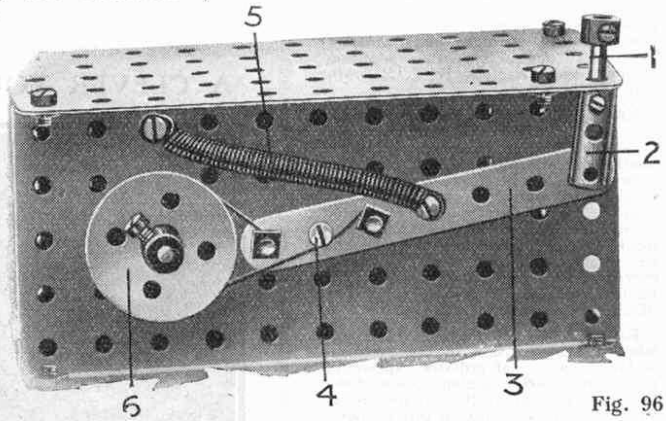

Fig. 96

A short piece of Cord tied to the end of Strip 3 is passed round a Flanged Wheel 6 secured to the shaft that is to be controlled, and the other end of the cord is secured by a nut and bolt on the opposite side of the pivot 4. The Spring 5 normally keeps the button 1 raised, and in this position of the mechanism the cord grips the Flanged Wheel 6 and thereby stops the rotation of the Rod on which the wheel is mounted. The braking effect may be diminished by gently depressing the Rod 1. When the latter is pushed down as far as it will go the cord should be comparatively slack and the wheel 6 free to revolve.

In some models it may be desirable to adjust the brake so that only a slight retarding effect is applied to the Flanged Wheel when the button is fully raised. This arrangement might be useful, for example, in a model motor car that is driven by a clockwork motor; in such a case the lever 1 should protrude through the floor of the car to correspond with the accelerator pedal. The car would travel at maximum speed when the Rod 1 is pressed hard down.

Although the movement of the lever 3 is small, the brake is surprisingly effective and it may be used with advantage in the heaviest models.

Contributions for the "Suggestions Section" are invited. If possible they should be accompanied by clear drawings or photographs, and the envelopes should be addressed to "Spanner." Special awards are given each month for all suggestions published in the Section.