

# Build a Contra-rotating Mechanism

At first glance, the Contra-rotating Mechanism detailed here may appear to serve no useful purpose and, in fact, it does not have many uses in the average private model. However, if you like to build moving structures that seem complicated to the spectator or, more particularly, if you sometimes supply local shops with animated display stands, then this amazingly simple arrangement will prove invaluable.

The sort of display stand I have in mind consists of a large revolving disc with, above this, another smaller disc revolving in the opposite direction. General goods to be displayed could be placed on the lower disc, while the centre-piece of the display would be given the more prominent and eye-catching spot on the upper disc.

You will see that, in our model, Helical Gears are used, but their place could be taken by several alternative parts, such as Contra Wheels and Pinions, or even Worms and Gear Wheels. Anyway, I am sure you could adapt it to suit the parts you possess.

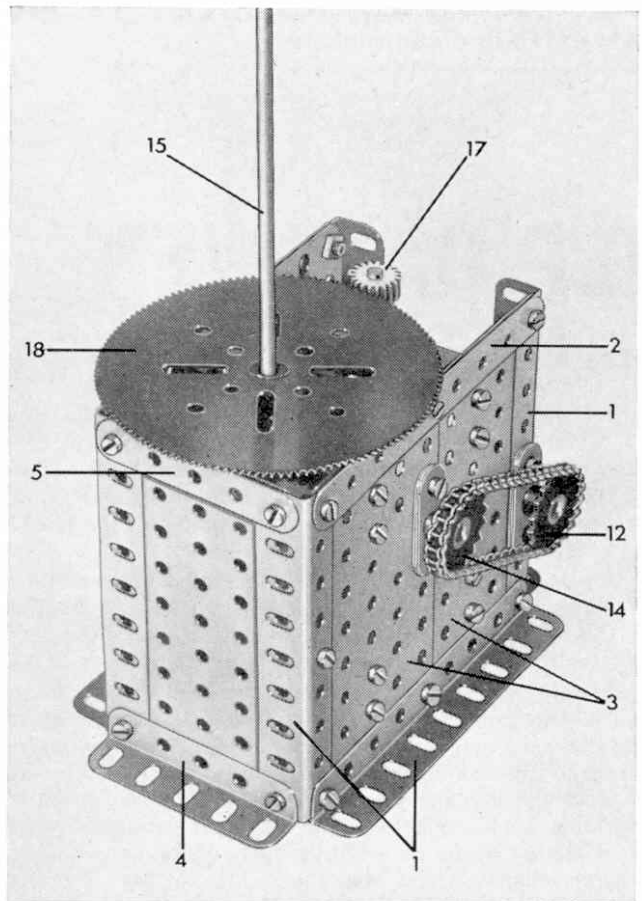
Constructional details are as follows: Two similar sides are built up from  $4\frac{1}{2}$  in. Angle Girders 1, a  $4\frac{1}{2}$  in. Strip 2 and two  $4\frac{1}{2}$  in. by  $2\frac{1}{2}$  in. Flat Plates 3. These sides are then connected, at one end, by a  $2\frac{1}{2}$  in. Angle Girder 4, a  $2\frac{1}{2}$  in. Strip 5 and another  $4\frac{1}{2}$  in. by  $2\frac{1}{2}$  in. Flat Plate. At their other end, they are joined by a  $2\frac{1}{2}$  in. Angle Girder 6, braced by 2 in. Strips, as shown, while further strengthening is supplied, inside, by four  $2\frac{1}{2}$  in. by 1 in. Double Angle Strips 7, 8 and 9. Note, incidentally, that these Double Angle Strips are fixed by bolts through *both* the holes in each of their lugs.

To both sides of the model, two sets of three  $1\frac{1}{2}$  in. Strips are bolted, and two  $3\frac{1}{2}$  in. Rods 10 and 11, each carrying a  $\frac{1}{2}$  in. Helical Gear, are journaled in the centre holes of these Strips. Rod 10 is held in place by a 1 in. Sprocket Wheel 12 and a  $1\frac{1}{2}$  in. Sprocket Wheel 13, whereas Rod 11 is held by a Collar and a 1 in. Sprocket Wheel 14. Next, further sets of three  $1\frac{1}{2}$  in. Strips are bolted to all the Double Angle Strips 7, 8 and 9. An  $11\frac{1}{2}$  in. Rod 15, carrying a  $1\frac{1}{2}$  in. Helical Gear to mesh with the Gear on Rod 11, is mounted in  $1\frac{1}{2}$  in. Strips fixed to one pair of Double Angle Strips, and a 5 in. Rod 16, also carrying a  $1\frac{1}{2}$  in. Helical Gear, is mounted in the other pair. Both Rods are held in place by Collars.

A  $\frac{1}{2}$  in. Pinion 17 is fixed tightly on Rod 16 and this meshes with the  $3\frac{1}{2}$  in. Gear 18 which is *free* on Rod 15. Sprocket Chain connects Sprocket Wheels 12 and 14.

If the mechanism is to be used for the purpose I mentioned, the large turntable is mounted on Gear Wheel 18 while the upper platform or object is fixed on Rod 15. A Face Plate or Bush Wheel would be a useful means of attaching it to the Rod.

**Parts required.**—2 of No. 2a; 1 of No. 5; 2 of No. 6; 24 of No. 6a; 6 of No. 9a; 2 of No. 9d; 1 of No. 13; 1 of No. 15; 2 of No. 16; 1 of No. 26; 1 of No. 27b; 54 of 37a; 54 of No. 37b; of 4 No. 46; 5 of No. 53a; 5 of No. 59; 1 of No. 94; 1 of No. 95a; 2 of No. 96. 2 of 211a; 2 of No. 211b.



This mechanism is ideal for mechanised display stands.

Another view showing the simple arrangement of the gearing.

