to the rear surfaces of the flanges of the 12½" Angle Girders 1 bolted to the top surface of the base. The main members are 18½" Angle Girders 6 with cross members being 7½" Strips 7 at the 15th hole down, and 9½" Angle Girders 8 at the top holes. Between the main members in the upper section are three vertical 7½" Strips 9 decorated at their upper ends by 2½" Curved Strips which are held to the 9½" Angle Girders 8 by Fishplates.

In the lower section are two vertical 7½" Strips 10 and four 5½" Curved Strips 11. In the rear section, these Strips are spaced to the rear at each point by a Collar to allow space for the pendulum bob. Outside the main members are placed, from below up, 5½", 7½" and 4½" Angle Girders, short sloping girders which are 3½", 3" and 2½" Angle Girders respectively, and each portion is finished by the addition of 2½" Curved Strips as shown. The front 18½" Angle Girders 6 are braced to 4½" Angle Girders 2 by Corner Gussets.

SPIRES Figures 1, 3, 4

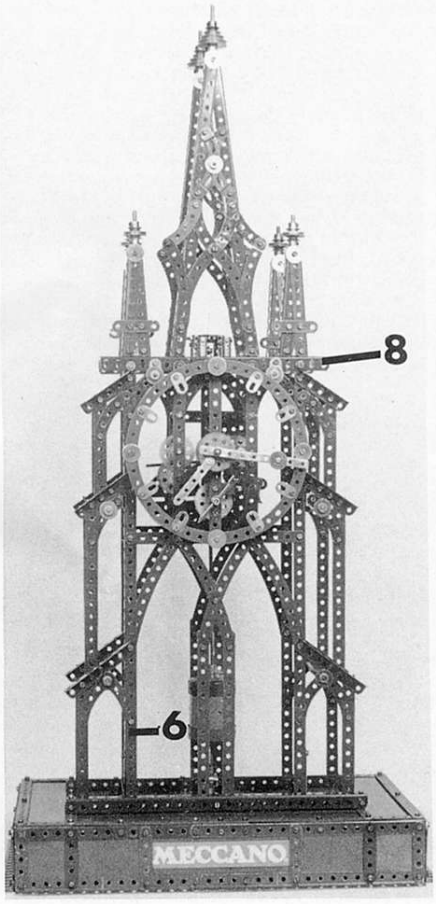
The central spire in each case is a pair of 12½" Angle Girders 12, fixed below by Angle Brackets to the 9½" Girders 8. A Bolt and ⅜" Washer secures the top ends by passing into the threaded bore of a Collar which holds a 2½" Rod on which is mounted a finial consisting of a Cone Pulley 13 and a ½" Pulley with Boss.

The spire is decorated with pairs of 4", 2½" and 3" Curved Strips as shown. Smaller spires are each made from a pair of 4½" Angle Girders 14 connected below to the 9½" Girder 8 by Angle Brackets, and holding finials above like the main spire, but using two ½" Pulleys with a 1" Pulley without Boss between them. 2" Strips decorate these small spires.

MECHANISM FRAME Figures 14, 15

This is fixed to the outer pair of 7½" Strips 9 in the upper part of the front body section using 3" Screwed Rods with three Couplings on each as spacers. The frame consists above and below

FIG. 3: Main view of the front of the Clock, showing the Gothic styling of the frame.



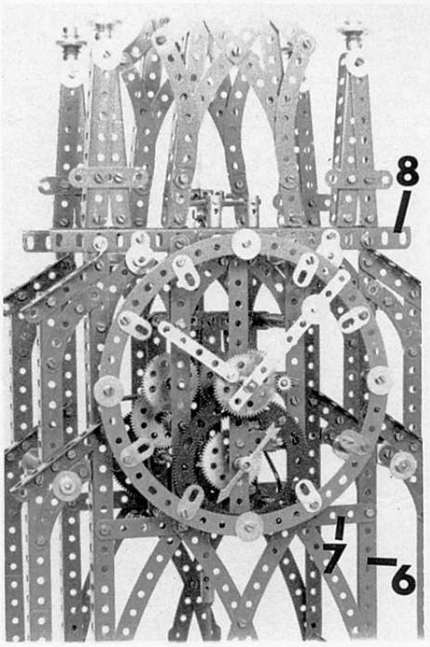


FIG. 2: The Clock dials are shown to advantage in this close-up shot.

of doubled 3½" Strips 15, and attached to these are three sets of vertical 5½" Strips 16, also doubled. Note the uneven spacing. Pivot Bolts (Elektrikit No. 545) are lock-nutted at the places shown, 'x'. A 2" Strip 17 and a 1" Corner Bracket 18 are fixed to the forward 7½" Strips 9.

CONTACT SPRINGS Figure 16

A 7/32" Cheesehead Bolt 19 has its head filed to a wedge as shown in Diagram C. Choose a Bolt with a shallow slot which should be effaced and a new shallow slot filed near the summit.

With this Bolt and Nut connect two 2" Wiper Arms 20, by their end holes. Straighten the bent end of one arm 20 and mount this part between a Fishplate and the long lug of a 1" x ½" Angle Bracket 21. Reshape the other Wiper Arm and bolt the Angle Bracket 21, lug upward and behind the horizontal 7½" Strip 7 of the rear body. The free end of this upper contact spring lightly presses against a ¾" Bolt 22 mounted in a Threaded Boss bolted to the rear body and locked with a Terminal Nut.

A further 2" Wiper Arm 23 reshaped as shown is bolted by its end hole to a Threaded Boss 24 which is held on a 1½" Insulating Strip fixed to the 7½" Strip 7. The upper and lower contact springs are adjusted until their contacts are separated by a 1/32" gap, the upper being vertically above the lower. Bolt two (doubled) 3½" Strips 25 to the vertical 7½" Strips 9 using ½" Bolts, spacing them behind the Strips by two Washers and a Collar on each Bolt. Fix a Pivot Bolt in the 3½" Strips 25 as shown at x.

CONNECTING FRONT AND REAR BODY SECTIONS

Below, each section is bolted to a 12½" Angle Girder. Above, the sections are connected by 5" Screwed Rods and 4½" Plastic Rods at seven locations as follows: at the peak of the lowest pair of 2½" Curved Strips; through the hole next to the top of the 2½" Curved Strips connected to the 7½" Angle Girders; through the peak of the pairs of 2½" Curved Strips at the top of the main body just under the 9½" Angle Girders 8; and through the point in the main spire where the central holes of the 3" Curved Strips overlap.

On all of these Screwed Rods, 4½" Plastic Rods are used as spacers, and ¾" Washers are placed on all surfaces. Terminal Nuts are used at the front end of the Screwed Rods, being more decorative than ordinary nuts.

PENDULUM SUSPENSION Figures 5, 17

A pair of Threaded Couplings 26 bolted to the flanges of the 9½" Angle Girders 8 support 5" Rods in their upper transverse holes, these Rods also passing through transverse holes of Short Couplings. Through the other transverse holes of these Short Couplings a 2" Screwed Rod 27 is passed; between the Couplings this rod carries a 2" Flexible Strip spaced from each Coupling by a Collar, a Washer, and a Thin Washer, and it is held in place by Hexagonal Nuts. (Square Nuts are obstructed by the Grub Screws in the Couplings.)

PENDULUM Figures 11, 19

From the top down the Pendulum consists of the following: An End Bearing 28, a 3½" Rod carrying a Short Coupling, and connected to a 6½" Rod by a regular Coupling; the 6½" Rod passes through the centre transverse hole of a Threaded Coupling 29 and is connected by a further Threaded Coupling to an 8" Screwed Rod which carries the bob and which is locknutted at its lower end in the boss of a Double Arm Crank 30.

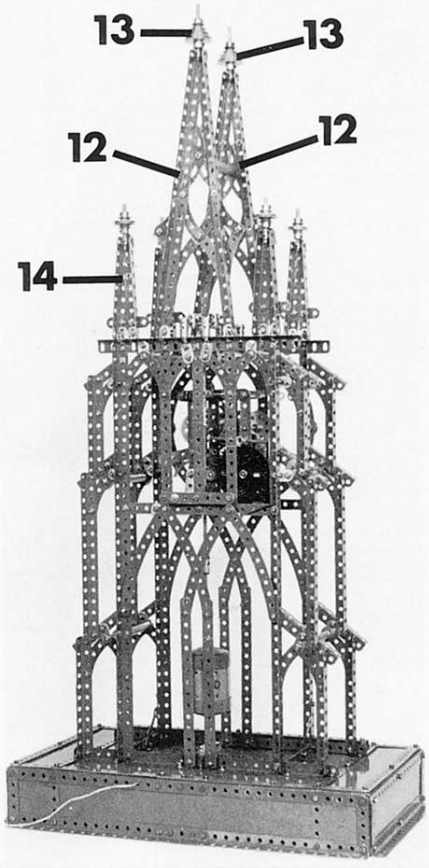


FIG. 4: The Hipp Clock as seen from the rear.

THE BOB

A Cylinder is constructed from a 5½" x 2½" Plastic Plate lengthened 2" by being bolted to a 2½" x 1½" Plastic Plate. Adjust this as a snug fit in a pair of Boiler Ends. Mount all this on the 8" Screwed Rod with a Conical Disc above and below, and also a nut and a Threaded Boss below, and a Threaded Boss above.

Fill the bob with Meccano Bolts till it weighs about one pound. Shot or other weighty matter can be used instead of bolts. Screw the Threaded Bosses together to close the bob to prevent spillage. A Centre Fork held in a Rod and Strip Connector is fixed by a Shoulder Bolt through the connector into the end threaded hole of the Threaded Coupling 29.