

# Models Built with No. 12-1/2 Erector

## The Set that Builds the Mysterious Walking Robot

### Instructions for Building The Mysterious Walking Robot Model

For many years, scientists all over the world have tried to build a robot or walking man. Now with your 12 1/2 Erector set or by purchasing enough additional parts to your smaller set, you can build a walking man.

Before starting to build the model you should become familiar with the various Erector parts and methods of assembly. The numbers (CH, AA, C, B, A, etc.,) referred to in this description and on the diagrams are called trade numbers. Trade numbers and pictures of the parts can be found in the index of your Erector manual.

Figure 1 shows the front view of the completed model. Figure 2 shows the rear view of the model. Study these, as well as all the other views very carefully.

As in all construction and model building it is best to start with small assemblies and build up to the final, completed model.

The first sub-assembly to build is shown in Figure 3.

THE A. C. GILBERT CO., NEW HAVEN, CONN., U.S.A.

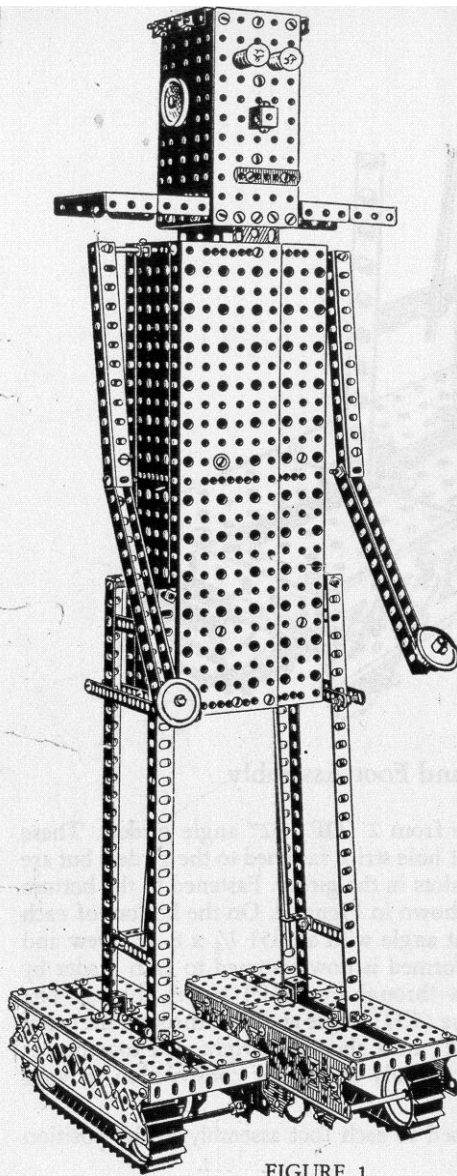


FIGURE 1

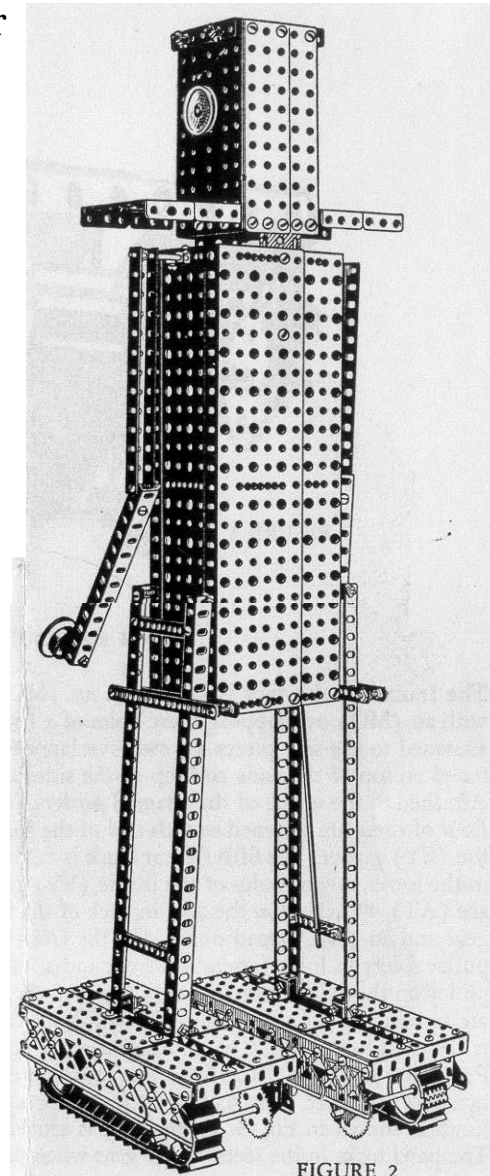
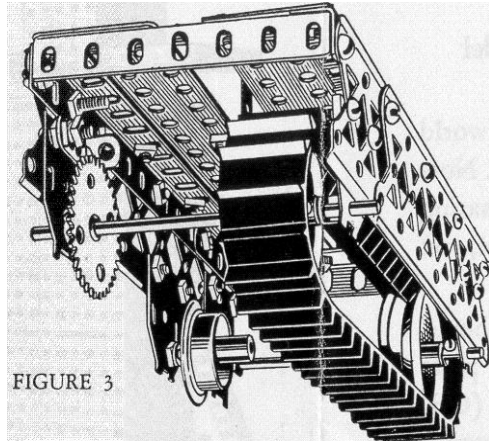


FIGURE 2

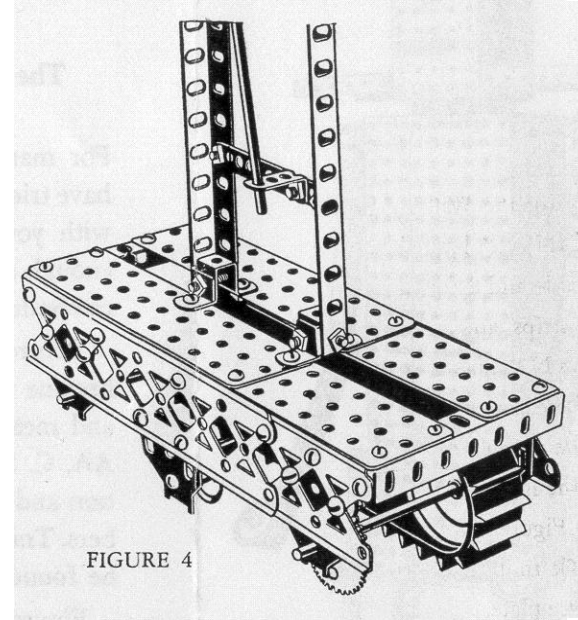
# Models Built with No. 12% Erector

## The Set that Builds the Mysterious Walking Robot



**Foot Assembly**

The frame for the foot is built with an (MO) 3" angle girder on each end with an (MO) overlapping three holes of a (BE) 6" angle girder on each side. Fastened to the side pieces are two overlapped (EY) 6" channel girders. Fastened on top of the ends and top of the sides are 4 (MF) 1" x 5" base plates. Attached to the inside of the channel girders (EY) are 5 (MV) flat car trucks. Four of these are fastened to each end of the foot, in the middle row of holes of the (EY) girder. The fifth flat car truck is fastened at the fourth and fifth holes in the lower row of holes of the inside (EY) girder. The axles used in the foot are (AT) 4" axles. On the axle in back of the foot is attached a (CJ) 36 tooth gear and an (NX) tread pulley. On the front axle is attached an (NX) tread pulley. Note in Fig. 1, there is a right and a left foot. The position of the tread pulley on the axle determines this. To keep the axles from shifting, P37 collars are fastened to the axles inside the (MV) flat car trucks. A flanged wheel (2) is fastened to the inside of middle car truck on side girder with an S57 screw, P37 collar and a P15 coupling. The foot is prevented from moving backwards by use of a ratchet. This is made by fastening a pawl (0) to the (EY) girder at location shown in Fig. 3. As the foot is moved forward, the pawl is released. The pawl locks *in* the teeth of the gear when the foot tends to move backward.



**The Leg and Foot Assembly**

The leg for the model is made from 2 (DP) 12" angle girders. These are held together with 2 (H) 11 hole strips fastened to the girders but are free to move the length of the slots in the girder. Fastened to the bottom strip (H) is an (0) pawl, as shown in Figure 4. On the bottom of each girder is fastened a (CH) right angle with an S51 1/4 x 8-32 screw and N21 nut. A P20 5 hole strip formed is now fastened to each girder by passing an S62 7/8 x S-32 screw through the (DP) girder, through one side of the P20 strip, through the (CH) angle and then through the other side of the P20 strip. Two N21 nuts should be tightened together as shown in Section 2, Standard Details of Erector construction in your Erector manual.

The legs can now be fastened to each foot assembly in the position shown in Figure 4.

# Models Built with No. 12½ Erector

## The Set that Builds the Mysterious Walking Robot

### Body and Motor Assembly

The body for the Walking Robot is made with 2 (MN) 12" base plates in front, one for each side and 2 for the back. Two (I) 21 hole strips are assembled using S62 screws and N21 nuts as shown in Figure 5. One of these assemblies is fastened to each side of the model. A (CH) angle is fastened to the inside of each side in location shown in Figure 5 which is the third hole from back in bottom row of holes in (MN) base plate.

The motor assembly is fastened to the inside front of model in location shown in Figure 5. The 12 inch axle rods are fastened in P37 collars on (BT) discs on shaft (D) of motor and pass through holes in (CH) angles. Refer back to Figures 1 and 2 which show location of top of leg fastening to body. The 12 -inch axle then passes through (O) pawl on (H) strip on leg and foot assembly. This shaft must be

located so when the feet are moving, it does not hit the top of the foot.

The arm is made as follows: 2 (BE) 6" angle girders are used to build the upper arm and two 6" angle girders make the forearm. These girders are assembled in a (U) shape, the upper arm has the bottom of the (U) to the front and the forearm has the top of the (U) to the front. The elbow action which is the connection of the upper arm to the forearm is made by fastening the two (U) shape angle girder assemblies with an S62 screw and two N21 nuts which are locked together to permit the elbow action.

The arms are fastened to the top of the model by passing an 8" axle through the center of the top row of holes and placing a (P37) collar on each side of the model. The arms are held in place on the axle with a (P37) collar inside the (U).

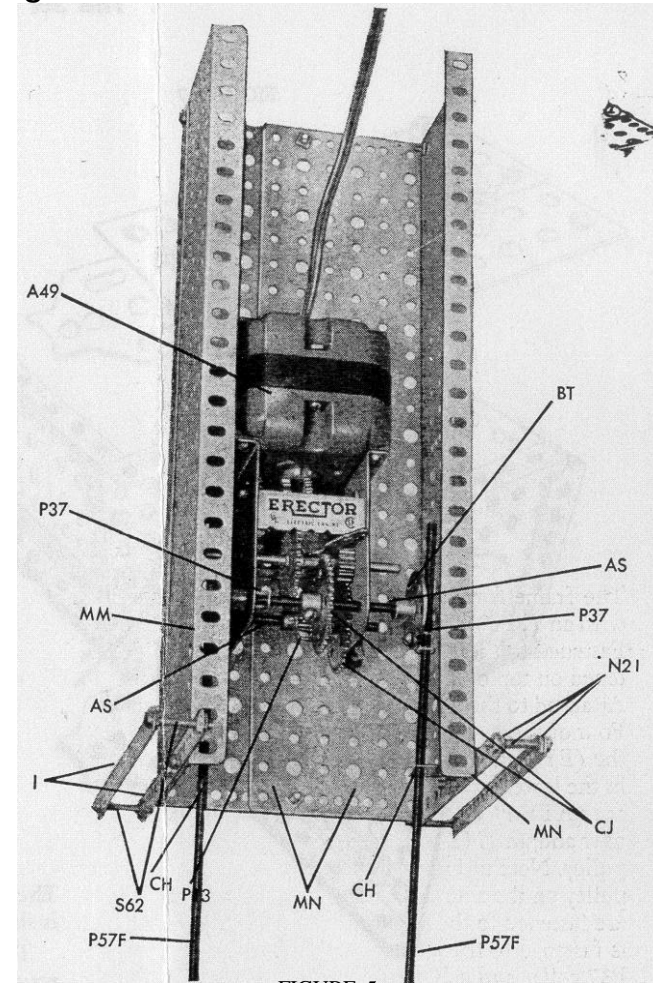


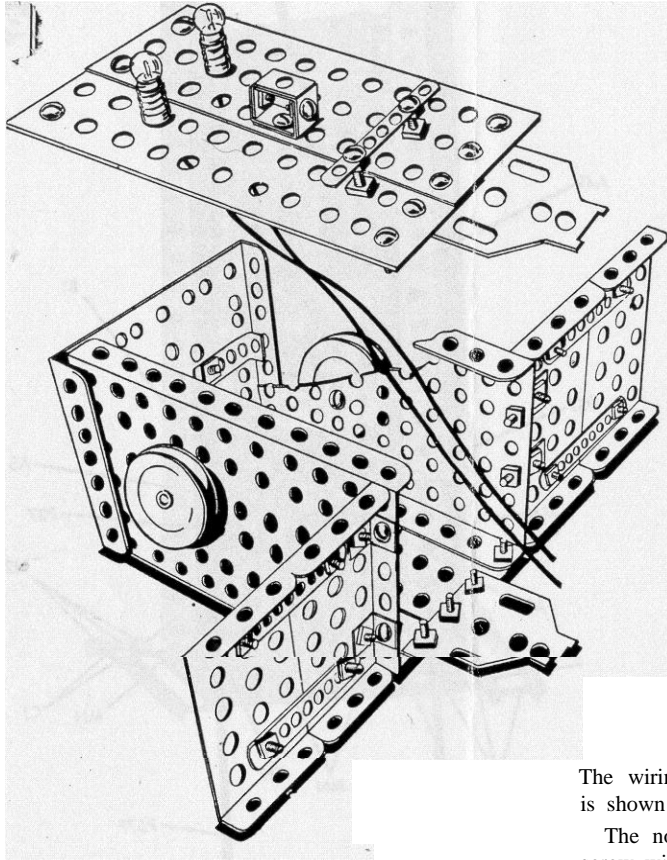
FIGURE 5

Detail of Motor Assembly

# Models Built with No. 12-1/2 Erector

## The Set that Builds the Mysterious Walking Robot

FIGURE 7



Head Assembly — Figure 7

The front and back of the head are made using 2 (ME) 1" x 5" base plates overlapping each other as shown in Figure 7. The sides of the head are (MD) 2 1/2" x 5" base plates. The ears are P-7A pulleys held to sides of the head with S52 screws. The neck is made using (MV) flat car trucks, one fastened on the inside back and one on the inside front. The facial features for the Walking Robot are made with two (NH) light socket units and two 1-1/2 volt bulbs for eyes, two (CH) angles

and an (M) small double angle are fastened together to form the nose, and a (G) 7 hole strip for a mouth. The top of the head is a 2 1/2" x 2 1/2" base plate with two (O) pawls fastened to this base plate in such a position that when the top is set on head it will not shift from side to side.

The shoulders are made of 2 (MC) 1" x 2 1/2" base plates fastened together with (G) strips. The shoulders are fastened to the head with (CH) angles as shown in Figure 7. Head is mounted to body in position as shown in Figures 1 and 2.

Wiring — Figure 8

The wiring for the model is very simple and is shown in Figure 8 at the right.

The nose is fastened to head with S62 7/8" screw with a pawl locked on the end with two S51 1/4" screws. When the nose is turned, the pawl makes contact with the battery holder and the eyes will light up.

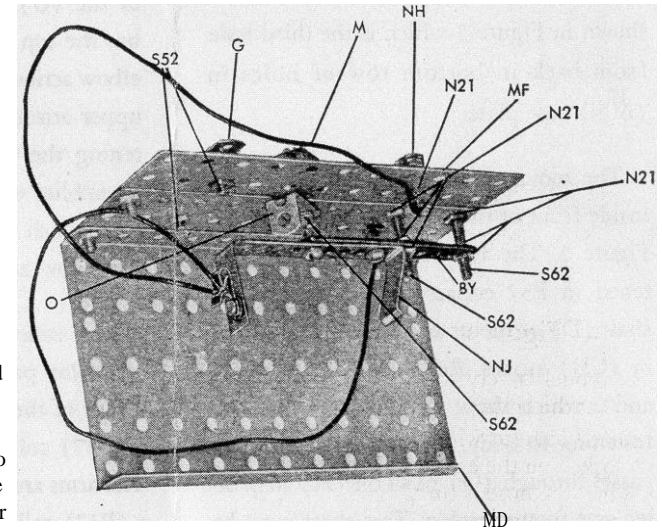


FIGURE 8