Models Built with the MASTER BUILDER'S Erector Set

Rocket and Tower Model

This is a model of a rocket servicing tower. These towers are used for adjusting, arming, and fueling giant rockets and missiles. When not in use, the tower is lowered to a horizontal position and rolled back on its track so it will not be damaged at the "blast off."

The lower part of the tower is made of square girders braced by two (DP) angle girders. The upper part is made of two sets of (EX) channel girders with (C) girders between them. The upper section is pivoted at the top of the lower section with (S57). 1-3/8" screws.

Two (MO) 3" angle girders are secured to the top of the lower section and are used as bearings for one (P57.6) axle, two (P37) collar sheave pulleys, all held in place by two (P37) collars. See Fig. 2. Insert an (AS) 2-7/8" axle in the seventh hole down from the top of the upper section. Place a (P37) collar, two (AQ) sheave pulleys and another (P37) collar on the axle and run the other end of axle into hole on the other side of tower. Tighten the collar so the axle cannot fall out.

The carriage is made of two (MD) base plates held together on each side by (MF) 1 x 5 flat plates.
To construct the motor insert one (AS) 2-7/8” axle in the lower hole of the gear box side plate and assemble one (CJ) 36 tooth gear and one (P13) 12 tooth pinion. Now assemble a second (AS) 2-7/8” axle in the top hole and slip on a (P37) collar and one (CJ) 36 tooth gear which will mesh with the 12 tooth gear on the lower shaft. A (P37) collar on both axles outside of the side plates will keep the axles in place. This type of gear box is used where great power is needed.

Tie an (AF) hook to the end of a piece of strong string and hook into the (D) 2-1/2” curved girder at top of tower. Run the string over the axle then down around one of the sheave pulleys at the bottom of the tower. Now run the string up and over one of the (AQ) sheave pulleys at the top. Keep threading the string up and down in this manner until finally arriving at the bottom. Go over the last sheave pulley and tie onto the upper shaft of the gear box.

Shift the gears into mesh and as the shaft turns the tower will slowly raise to a vertical position (takes about 2 minutes). When tower is upright shift gears into neutral position. To lower shaft shift into reverse.
Fig. 4 is a view of the fins and first stage with one section of (C) 10° girders removed to show method of securing girders to (N) long double angles which make up the body. The (M'H) wheels are mounted on an (AT) axle to hold them in place.
Fig. 5 — The Second Stage

Fig. 5 shows the second stage which is made of two (T) boilers held together with four (F) five hole strips.

Fig. 6 — The Third Stage

Fig. 6 is a detailed view of the third stage. An elastic band is stretched across the top of the model. The trigger is made of an (H) eleven hole strip secured to the (EY) 6" channel girder with a nut and screw. A (CH) right angle fastened to the top of the trigger will hold the small rocket when the rocket is pushed down over the axle located at top. As the rocket is pushed down the elastic band will stretch. When the (CH) angle catches the step where the fin joins the body the rocket is armed. A gentle pull on the trigger will release the small third stage rocket and it will be propelled into space.
ENGINE NO. 13
This engine is used where great power and slow speed is required, such as, in the Light Tank.

ENGINE NO. 14
Same as No. 13 except has shorter axle so that one extra step can be used as in Tractor models.
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[Diagram of a complex mechanical structure with annotations and parts labeled with letters such as BE, NX, O, H, DP, CH, Z, P37, P57-E, P20, P7, F, P12B.]
How to build the WALKING ROBOT Model

The feet (Fig. 3) are made of (BE) 6” angle girders with a (MF) flat plate and two (P20) five hole strip-formed. The legs are (DP) 12” angle girders with a (CH) right angle attached to the bottom and top. They are loosely fastened to the feet with (S62) 7/8” screws and lock nuts. The (F) 5 hole strip is loosely fastened to the front of each foot with screws and lock nuts so that it slides over each tooth of the gear allowing the feet to move forward but not backward.

An (I) 21 hole strip is secured to each side of the bottom with a screw through the center hole. A (CH) right angle is secured to the inside by the same screw with the elongated hole toward the top.

The Arms

The arms are made of (BE) 6” angle girders with (NX) pulleys for hands. They are secured to the top of the body on the ends of a (P57E) 8” axle as follows. Remove the set screw from a (P37) collar. Insert the set screw through the top hole of the arm assembly and screw back into the collar. Now assemble the arm and collar to the axle and tighten the screw.

The Body

The body is shown in Fig. 1. It is made of six (MN) base plates.
Head Assembly — Figure 4

The front and back of the head are made using 2 (ME) 1” x 5” base plates overlapping each other as shown in Figure 4. The sides of the head are (MD) 2½” x 5” base plates. The ears are NX 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 1½ 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 2¼” x 2½” 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 2½” 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 5

The wiring for the model is very simple and is shown in Figure 5 at the right.

The nose is fastened to head with S62 ¾” screw with a pawl locked on the end with two S51 ¼” screws. When the nose is turned, the pawl makes contact with the battery holder and the eyes will light up.
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Detail of Steel Scrap Magnet

OPERATION OF ELECTRO MAGNET

Place batteries in holder so that the top of one is toward the front and the other is toward the rear of the model as shown.

Connect one magnet lead wire to the contact with the screw and the magnet. Now lift the pawl so that it makes contact with the insulated strip. To release the load, break the contact between the pawl and the screw.

Connect the other lead to the pawl (O). Connect the other lead to one of the battery holder clips. Now connect the other lead with the screw and the magnet.
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USE ENGINE NO. 8

DERRICK
with Clam Shell Bucket
used for Excavation Work.
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Details of Swivel and Treads

Snow Plow
Models Built with the MASTER BUILDER'S Erector Set

TRACTOR

Bottom View of Tractor
Models Built with the MASTER BUILDER’S Erector Set

LIGHT TANK

Bottom View of Light Tank
FULL VIEW MAST
OIL DRILLING RIG

This is a model of the new type oil drilling rig now being used in the oil fields and also mounted on barges for offshore drilling.

The boom can be raised for drilling but should oil or gas not be located it can be lowered and moved to a new location.

The block and tackle is used for two purposes. To raise and lower the boom and for raising and lowering the drill.
Strings are tied to the 8th hole of the lower support then threaded around the (P7) pulley. The other end is tied to the ends of an (M) 11 hole strip which is in turn engaged by the hook on the lower block.

Another string is tied to the motor platform and then passed up and down through the sheave pulleys in the blocks, finally ending up on the drum at the side of the power unit. When the lever is shifted the boom will raise slowly.
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Bottom Detail

HALF TRACK
ANTI AIRCRAFT GUN
The Texas Tower

Fig. 1

Read instructions on the following pages.

The search of a world that is thirsty for oil has extended from under the land to under the seas. An ingenious method of drilling for oil on the ocean bottom has been devised in the form of a "Texas Tower." With the legs in an "up" position, the Texas Tower is towed to the drilling location. The legs are then driven down into the ocean bottom until they actually lift the platform and tower out of the water. Drilling operations then commence.
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Fig. 2

Read instructions on the following pages.
Texas Tower Details

Fig. 1 shows general construction with the tower in a partially raised position. In Fig. 2 the method of assembling the triangular frame of the base is illustrated. It also shows the details of installing the (Z) flanged wheels as guides for the 2 (MB) 18½” angle girders that raise and lower our model platform.

The (O) pawls are secured to the (MO) 3” angle girders at each corner with (S51) ¼” screws. Two (N21) nuts are used as spacers between the parts. The four legs of the drilling tower are fastened to the platform with (CH) right angles.

With the motor gear shift in neutral (center) position, place a (BL) washer and a (P37) or (BH) collar loosely on each end of the shifting gear shaft. Now operate the shift to the first position to the right and tighten the left hand collar against the gear box side plate. Then move the shift lever to the first position to the left and tighten the right hand collar against the gear box side plate. When adjusted correctly, the shift lever should not move beyond the first position to the right or the first position to the left.

Fig. 4 shows in detail the elevating and lowering mechanism. The (P15) couplings on the (AT) 4” axle serve as guides for the (BM) 18½” angle girders. The (N) long double angle also serves as a guide in back of the 18½” angle girder. Three strands of string are twisted to form a cable and tied to the (BH) solid collar on the (P57N) 3¼” axle on the gear box. Then thread the string around the (AQ) sheave pulleys as shown, and tie securely to the top of the (J) 41-hole strips.
Texas Tower Details

The platform legs are constructed in the manner illustrated in Fig. 5. Two of the legs are each built of 3 (EX) 12" big channel girders and the third leg consists of 2 (EX) 12" big channel girders and 2 (EY) 6" big channel girders, one of which will protrude slightly.

When assembled, these legs must fit loosely between the (O) pawls and the (MO) 3" angle girders shown in Fig. 3. It may be necessary to bend the (O) pawls outward very slightly to assure a loose sliding fit for the legs.

To operate, start the motor and as the string winds around the (P57N) 3⅛" axle, it pulls the platform upward on the leg made of 2 (MB) 18½" girders. To stop the model in a desired position, unplug the motor. To reverse the direction of the platform, quickly snap the gear shift lever from one side to the other.

The three legs constructed of channel girders will remain in place as the platform slides up or down upon them.