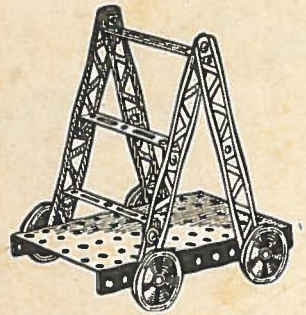
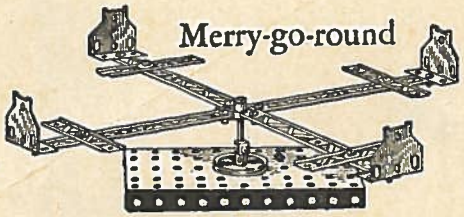
Models Built with No. 1½ Erector

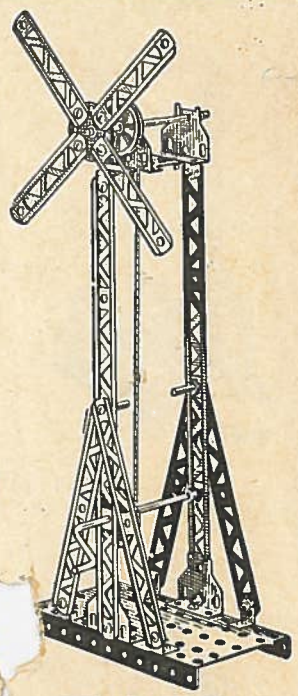


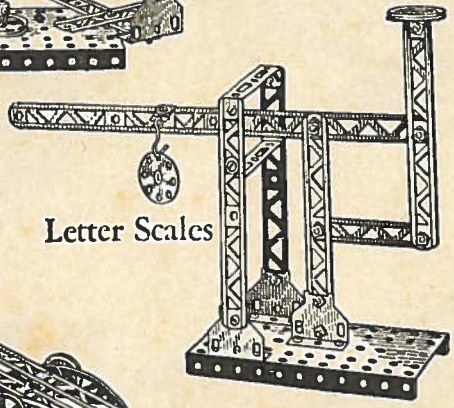
Truck Ladder



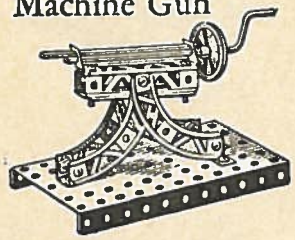
Merry-go-round

Dog Sled

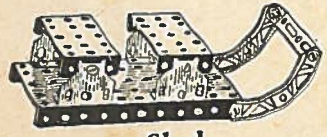




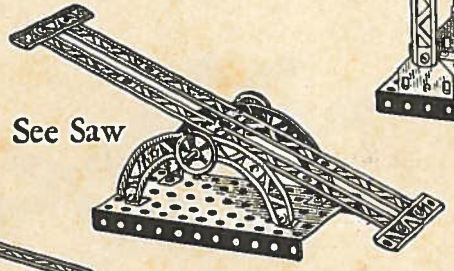
Letter Scales



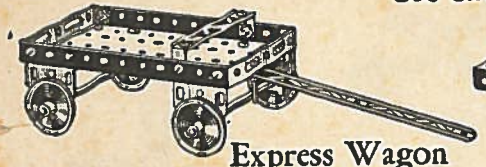
Machine Gun



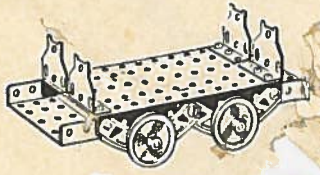
Sled



See Saw

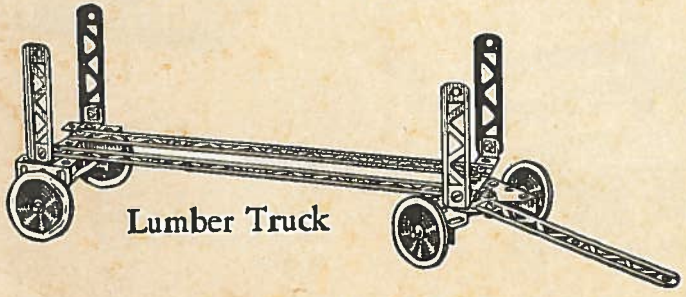


Express Wagon

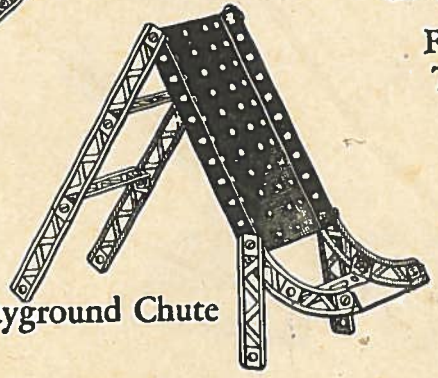


Factory Truck

Windmill Pump



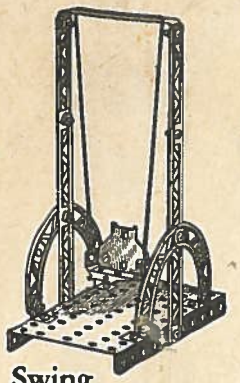
Lumber Truck



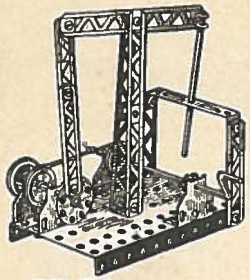
Playground Chute

Wagon

Models Built with No. 1½ Erector

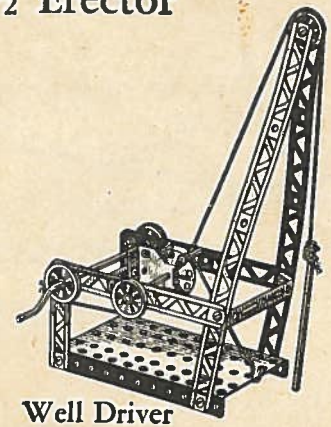


Swing



Walking Beam Engine

Small Wheelbarrow



Well Driver

Vegetable Cart

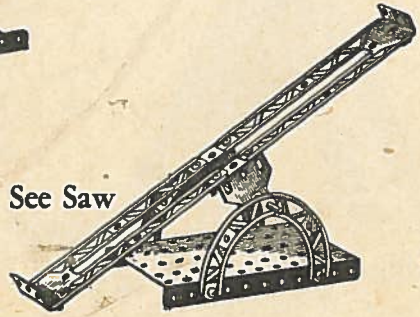
Telephone Pole

Siege Gun

Large Wheelbarrow

Small Windmill

Band Saw



See Saw

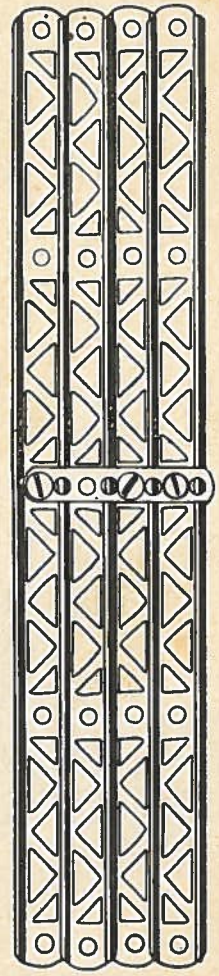
Package Truck

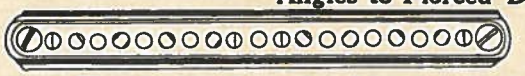
Make collar on axle rod or crank secure, and tie string around and under head of set screw

STANDARD DETAILS OF ERECTOR CONSTRUCTION

10 in. Square Girder

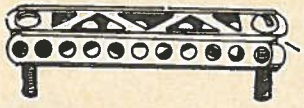
Method of fastening Double Angles to Pierced Disc





—Showing method of making bearings for axle

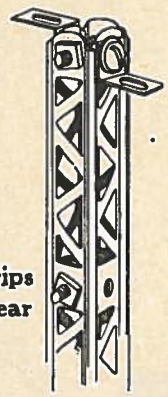
—2½ in. Square Girder



—2½ in. I-beam

Parallel Beam

Fastening Strips to Pierced Gear

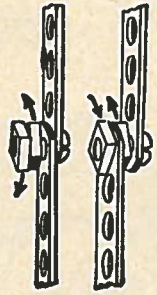


How Channel Keeps Angle in Position

5 in. Square Girder

Method of locking nuts to permit strips to swivel. Turn nuts in opposite direction as shown by arrows.

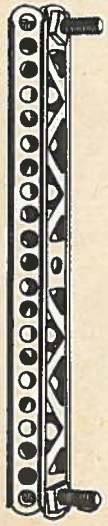
B



C

D

use washers to prevent screw from protruding too far beyond girder



5 in. I-beam

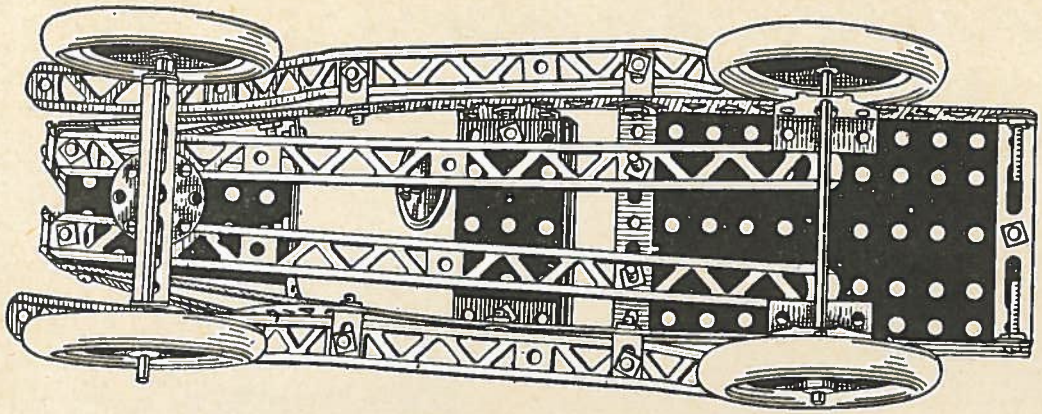
A

To construct a Square Girder commence by putting a long screw through center holes of two girders, as in A; then separate the two, take another girder pushing it down into the grooves or channels, as in B. Having assembled the three sides, take the fourth girder and likewise insert it into the grooves or channels, as in C; then slide it down until the two are flush, which makes a square column girder.

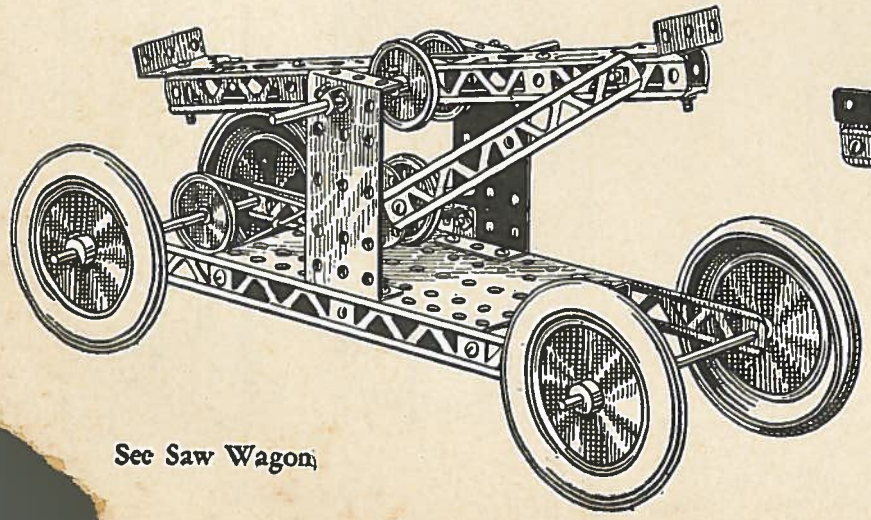
—Angle Iron

Flooring Const

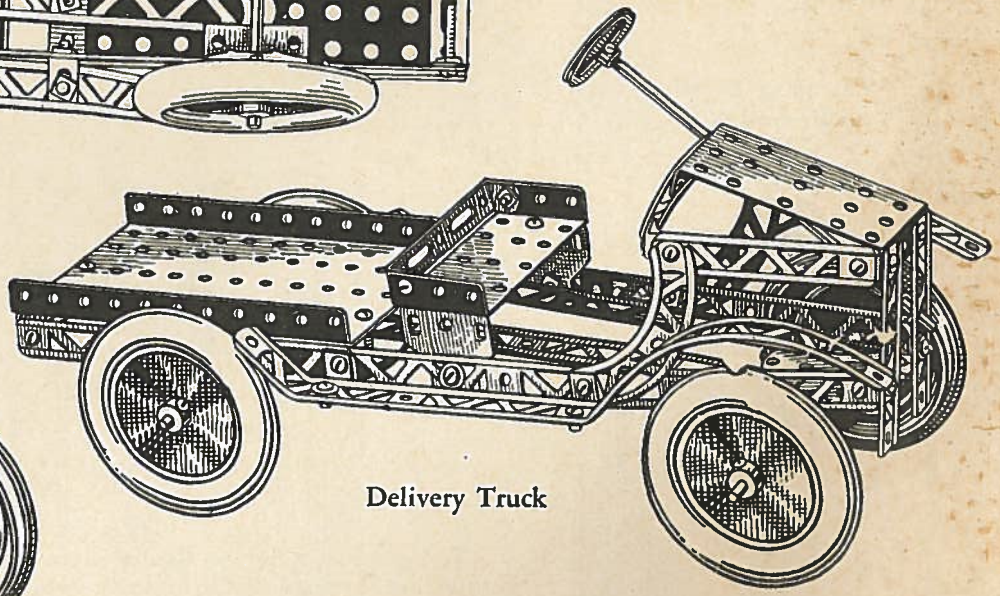
Models Built with No. 2½ Erector



Bottom View
Delivery Truck

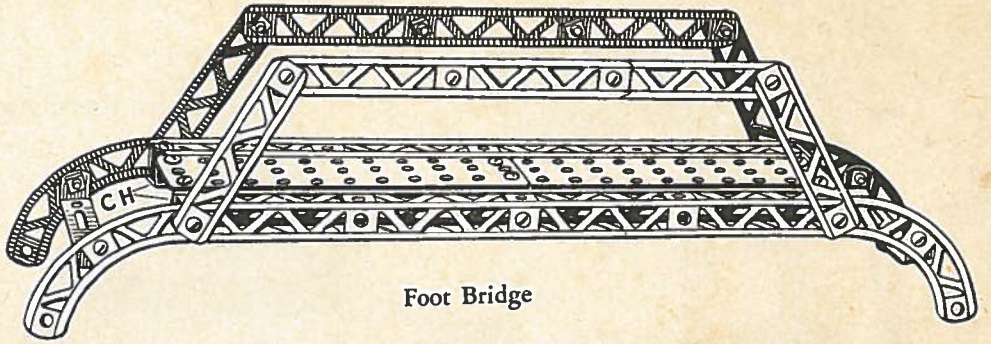


See Saw Wagon

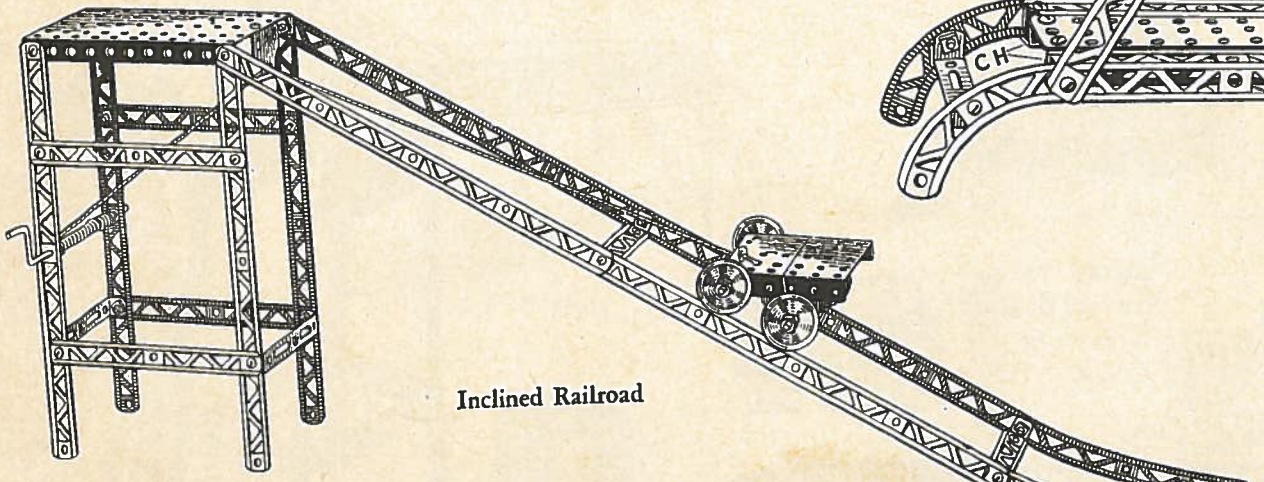


Delivery Truck

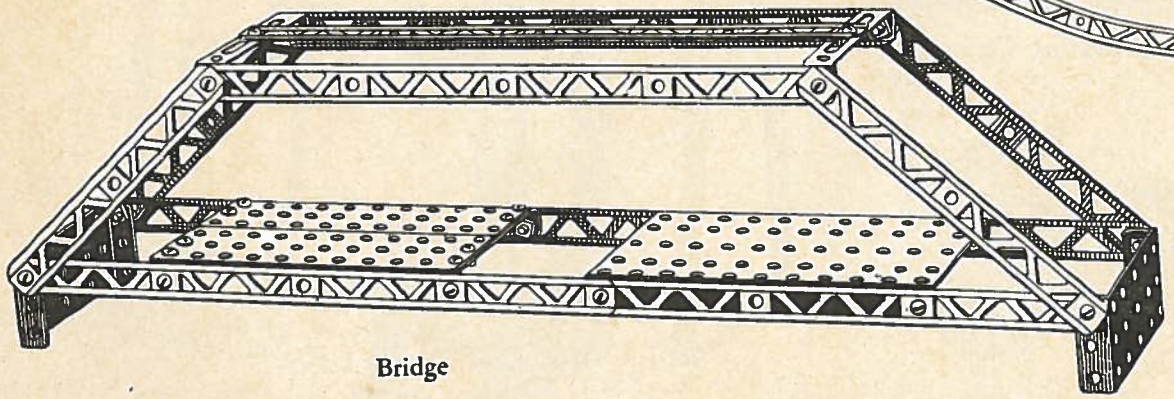
Models Built with No. 2½ Erector



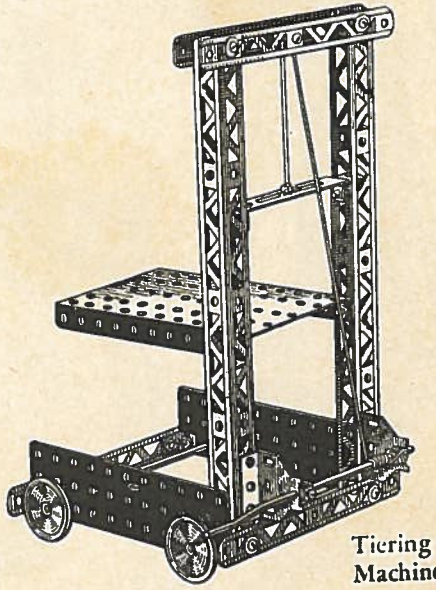
Foot Bridge



Inclined Railroad



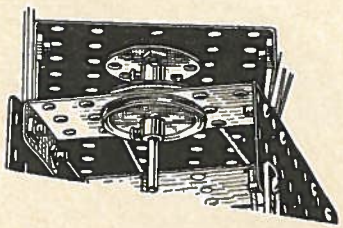
Bridge

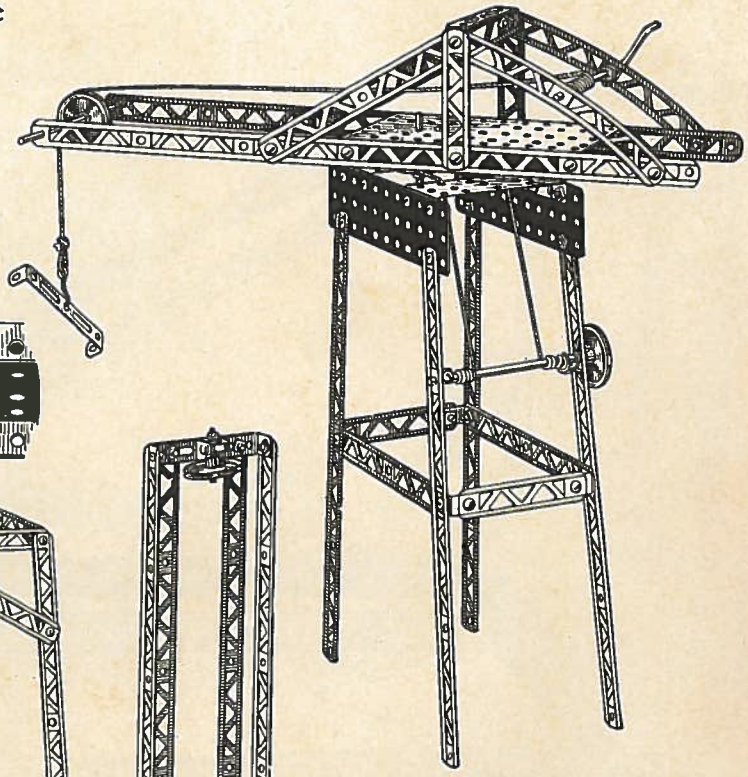


Tiering Machine

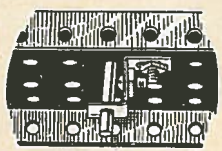
Models Built with No. 2½ Erector

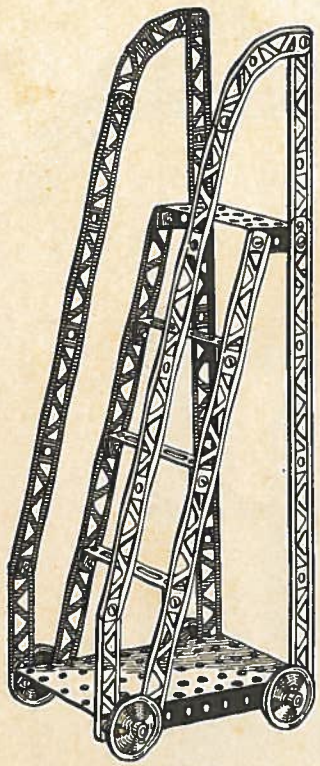
Detail View Revolving Crane





Detail View
Swivel Bearing
Traveling
Crane





Portable Ladder

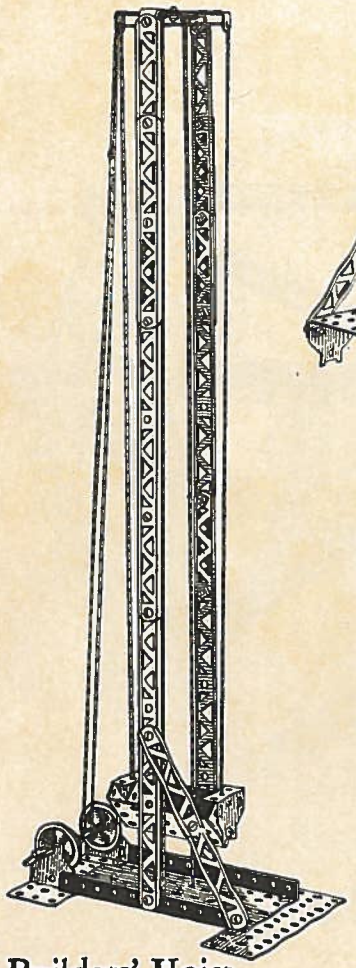
Traveling Crane

Tractor

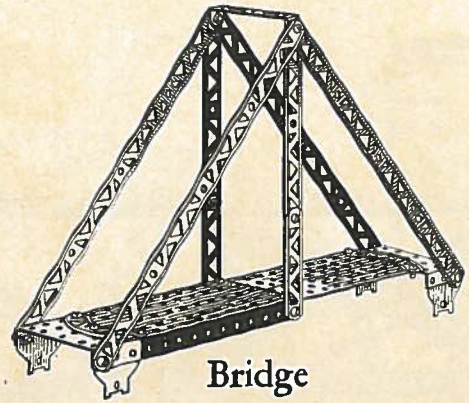
Strength Tester

Revolving Crane

Models Built with No. 3½ Erector

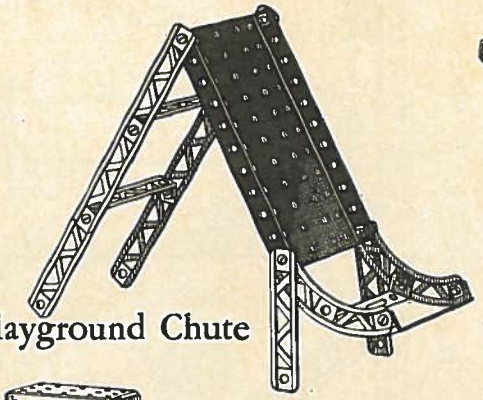


Builders' Hoist



Bridge

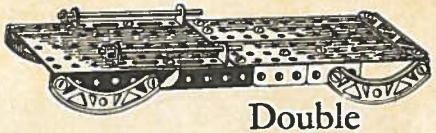
Tumbling Barrel



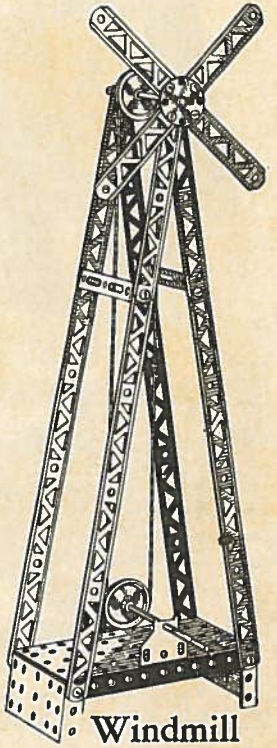
Playground Chute

Movie Camera

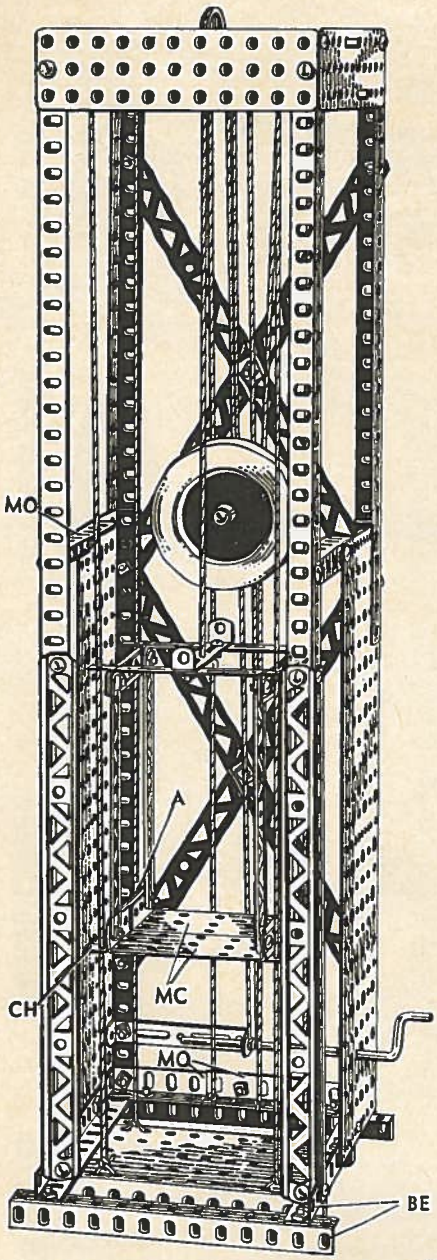
Weathervane



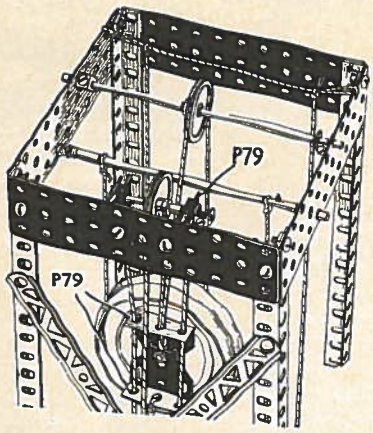
Double Runner Sled



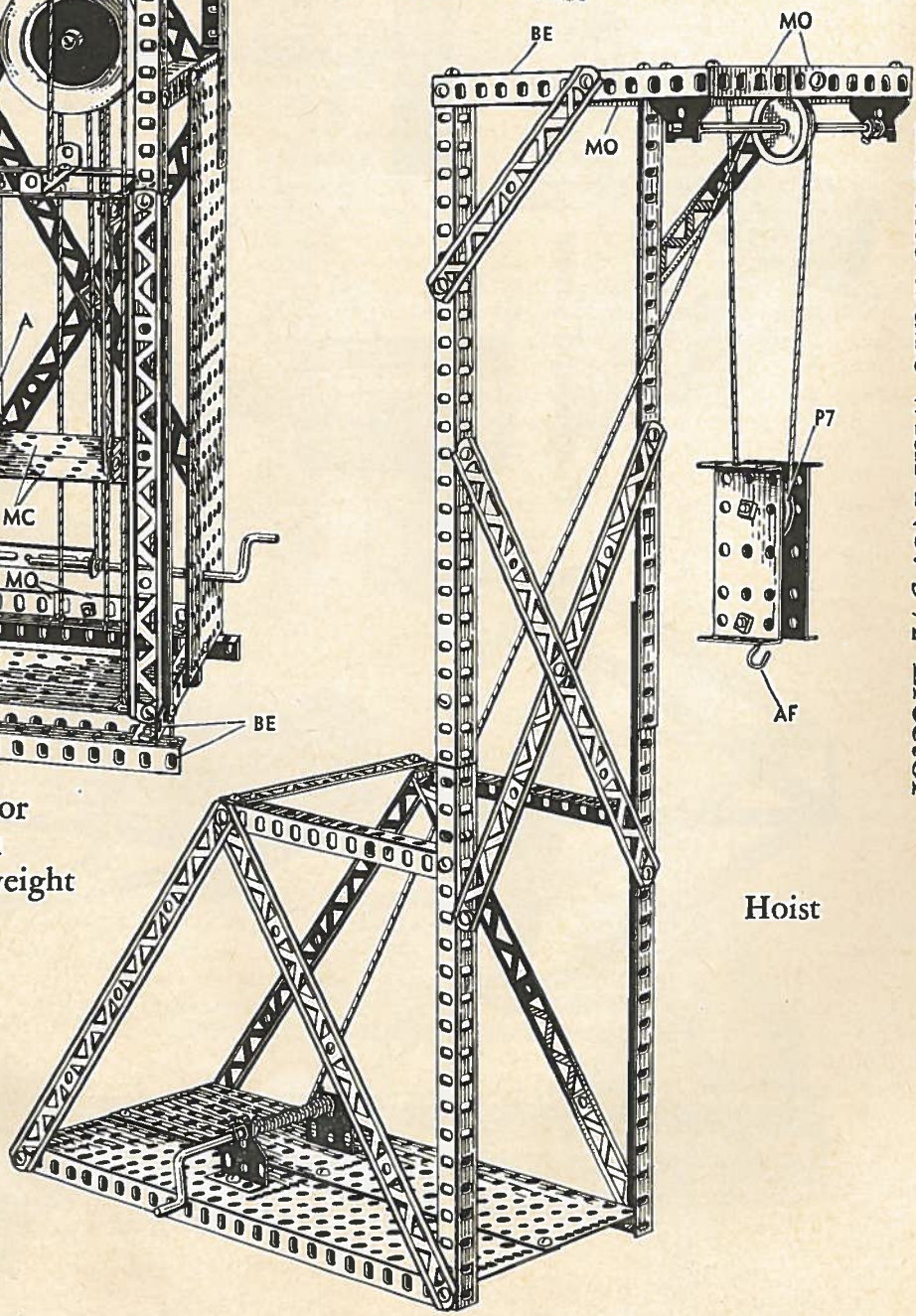
Windmill



Elevator
with
Counterweight



Detail of Top
and
Counterweight

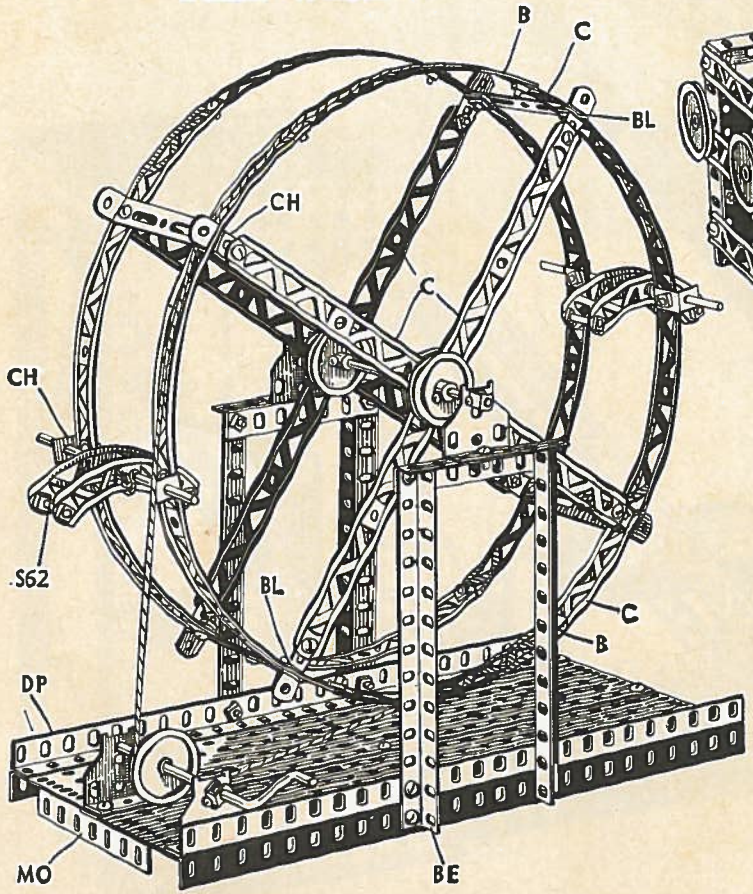


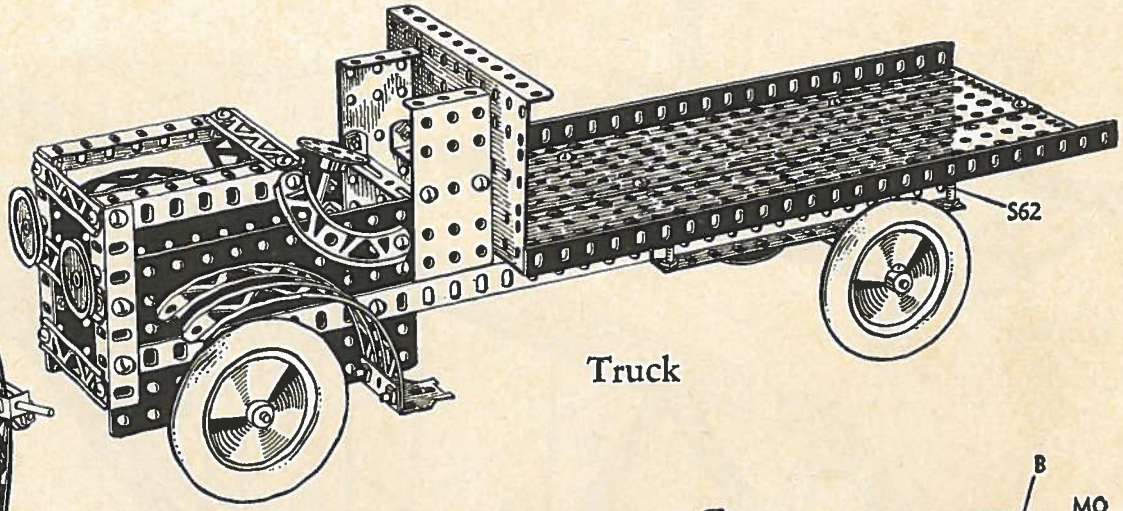
Hoist

Models Built with No. 3½ Erector

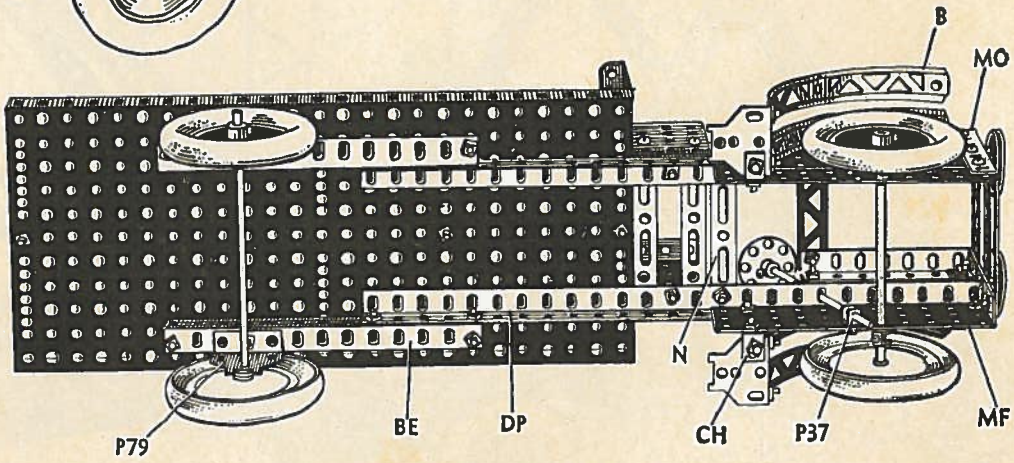
Models Built with No. 3½ Erector

Ferris Wheel



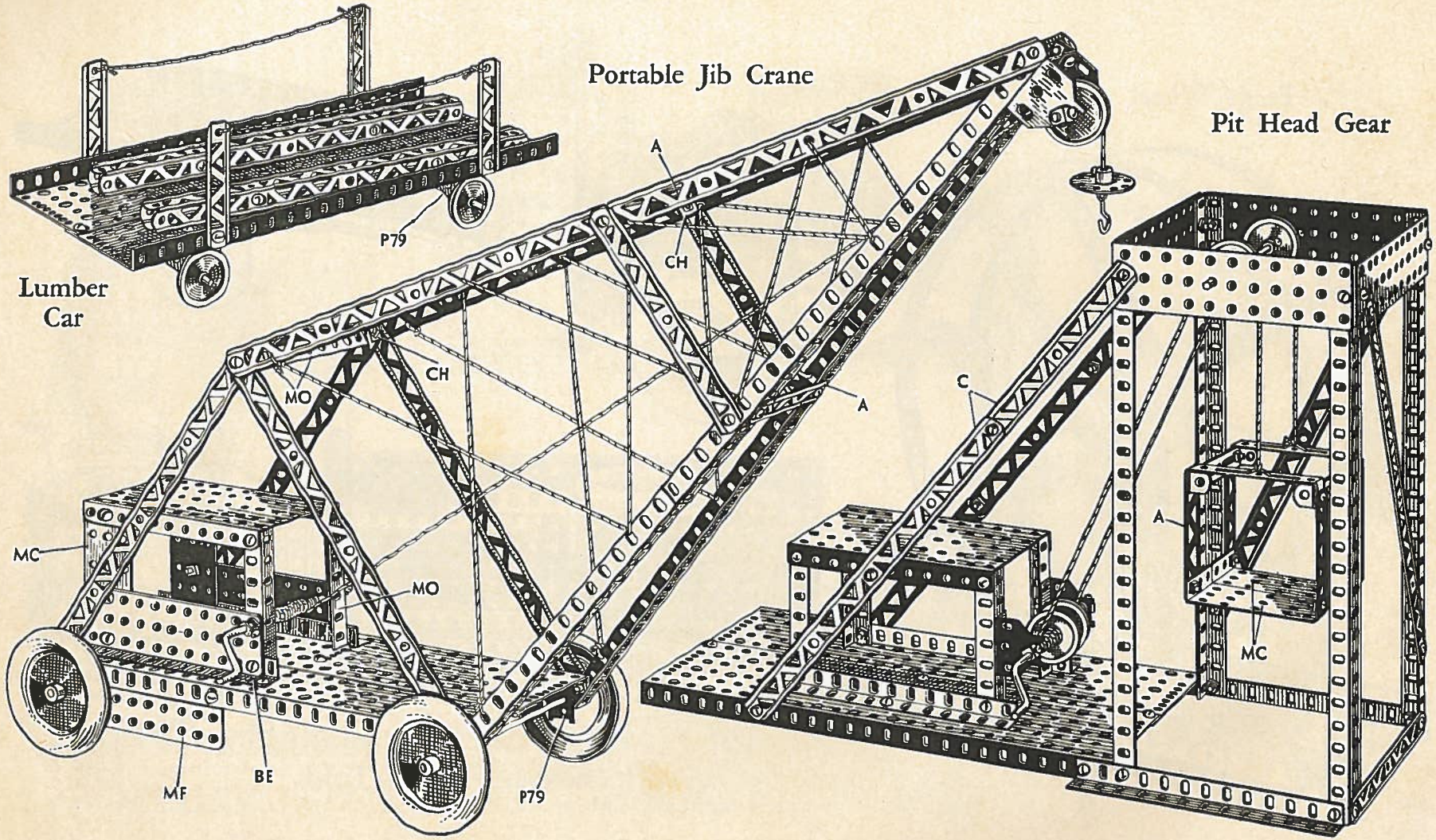


Truck

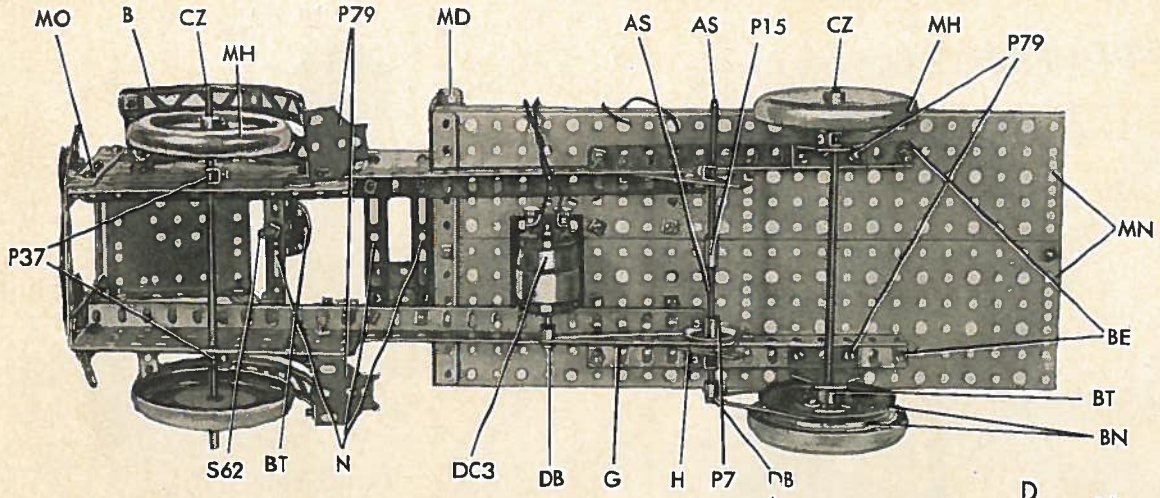


Bottom View of Truck

Models Built with No. 3½ Erector

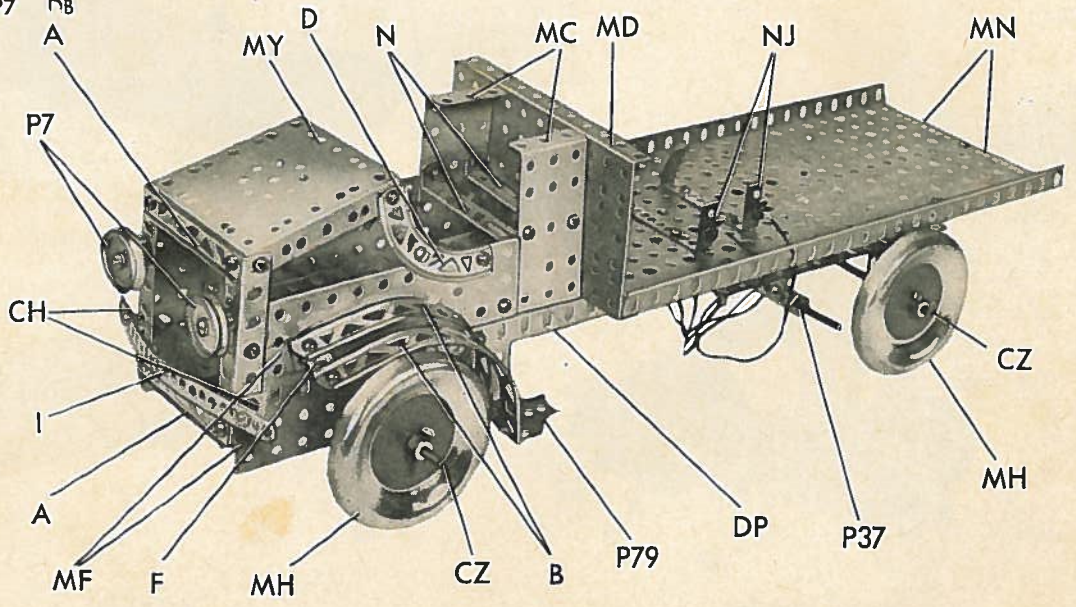


Models Built with No. 5½ Erector

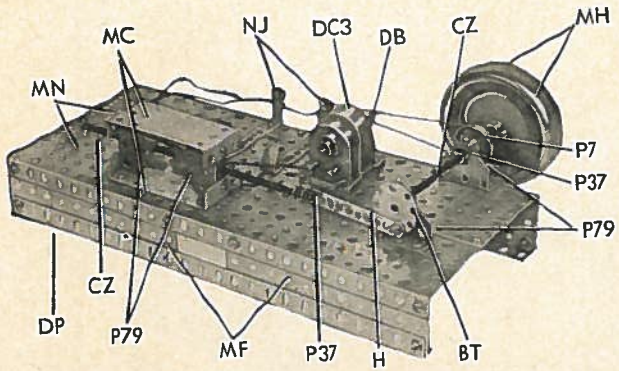


Flat Truck
Bottom View

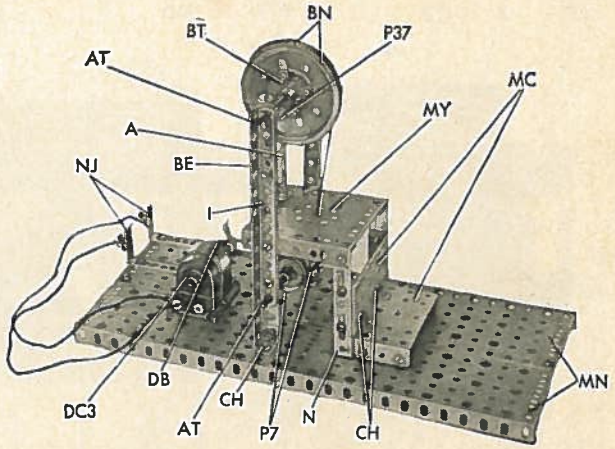
Flat Truck



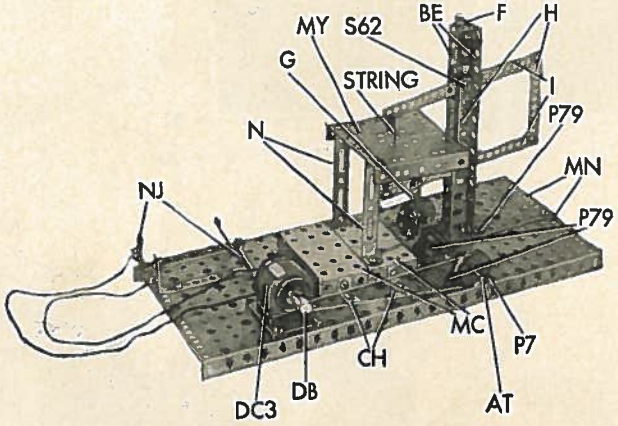
Models Built with No. 5½ Erector



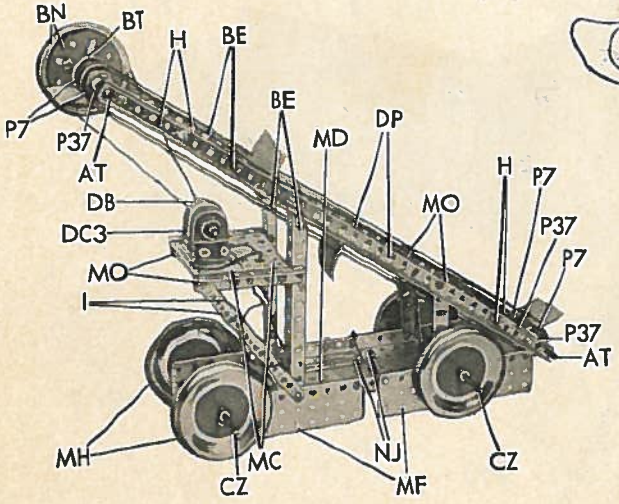
Horizontal Engine



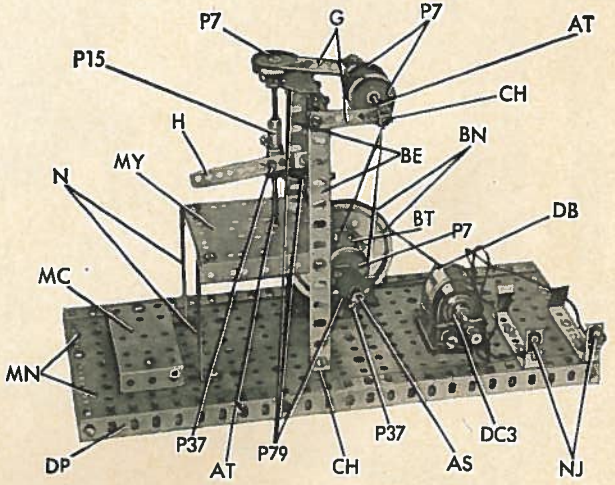
Band Saw



Jig Saw

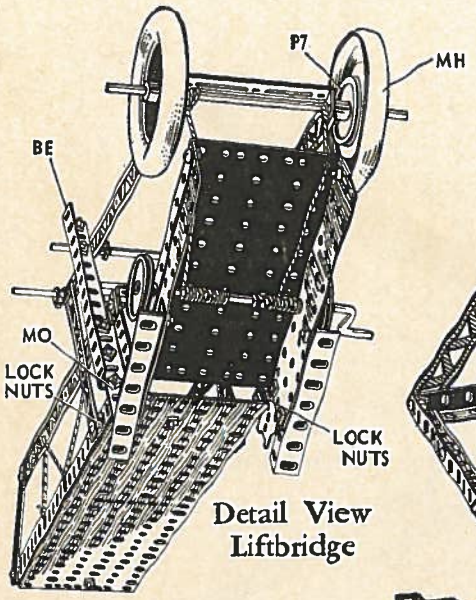


Snow Loader

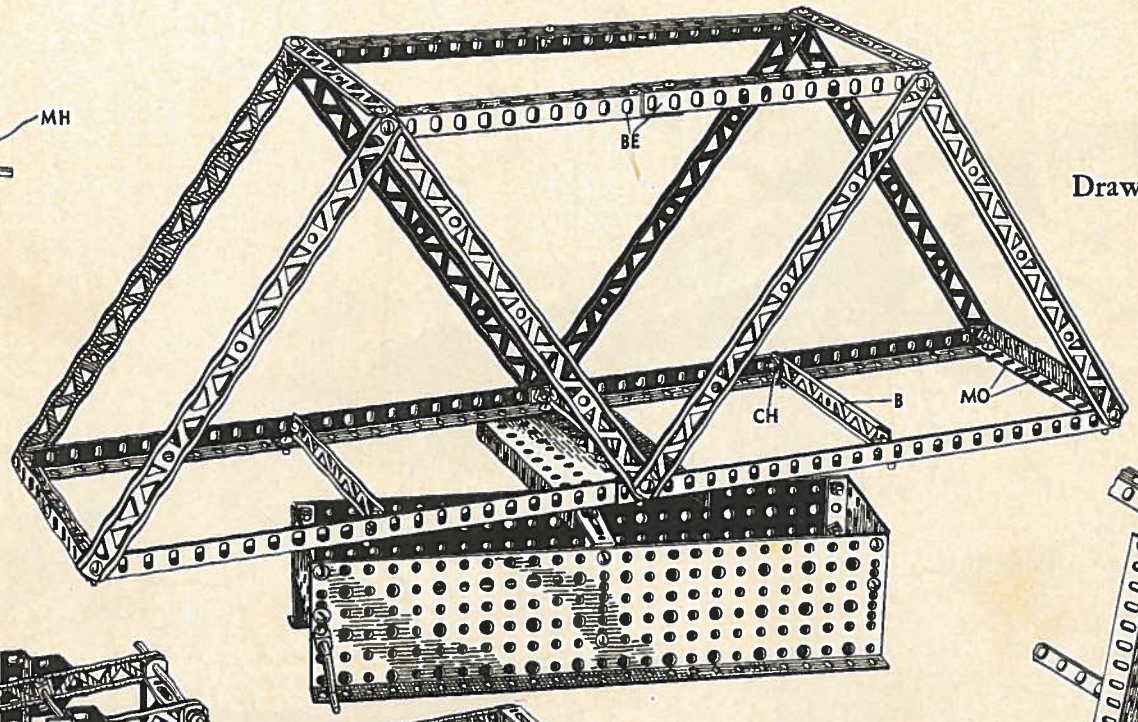


Drill Press

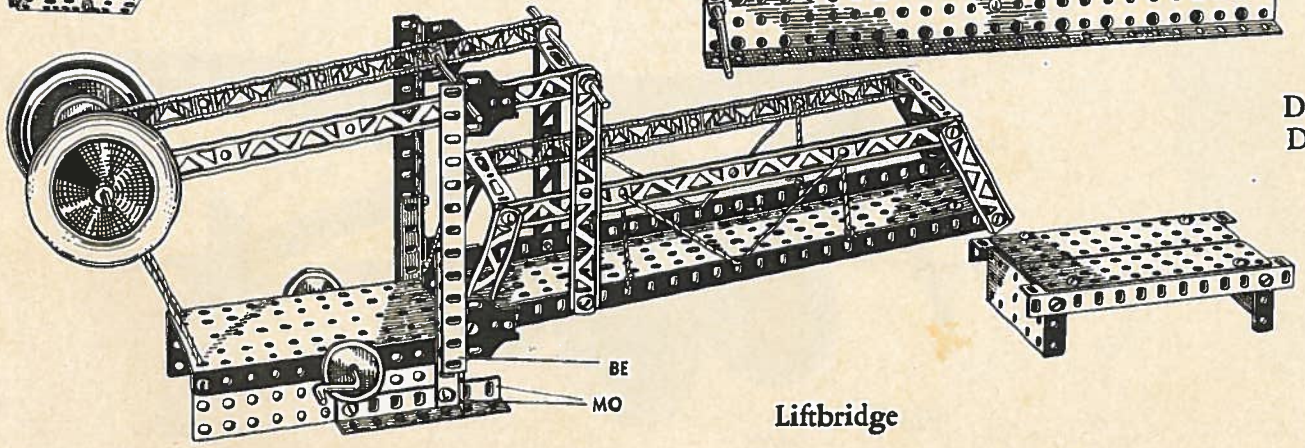
Models Built with No. 5½ Erector



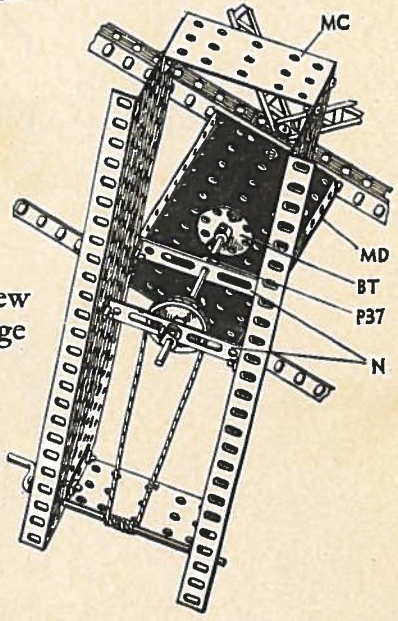
Detail View
Liftbridge



Drawbridge

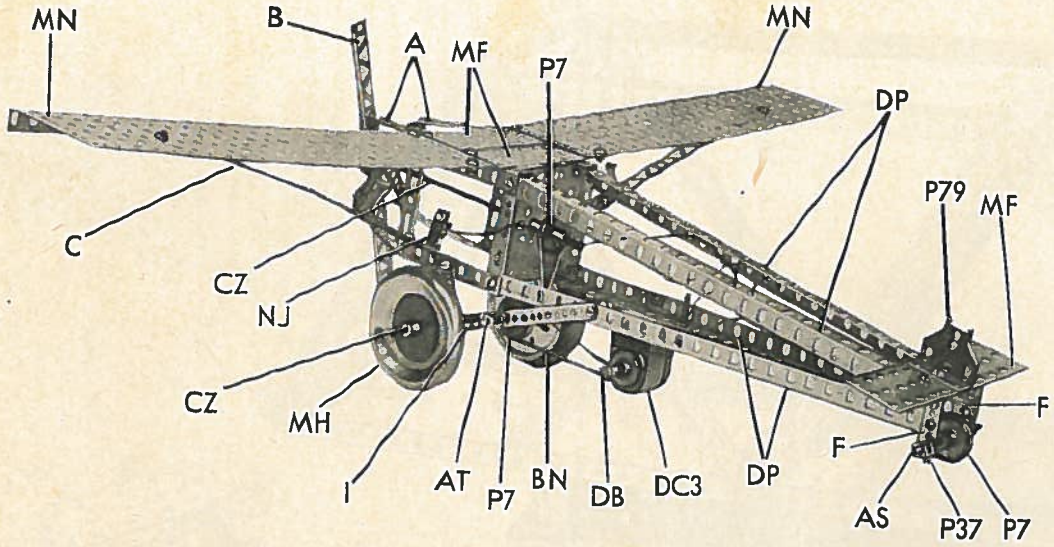


Liftbridge



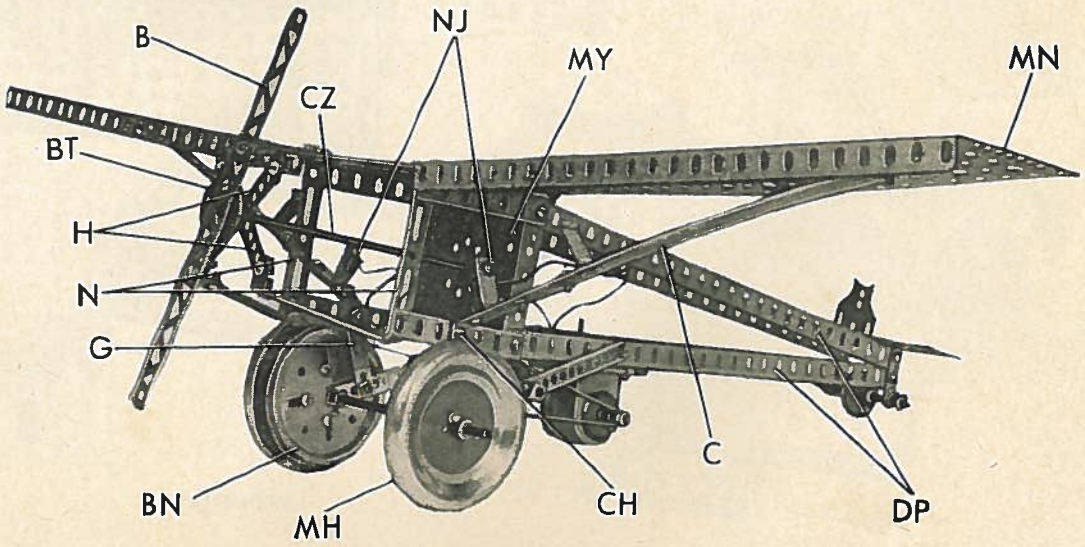
Detail View
Drawbridge

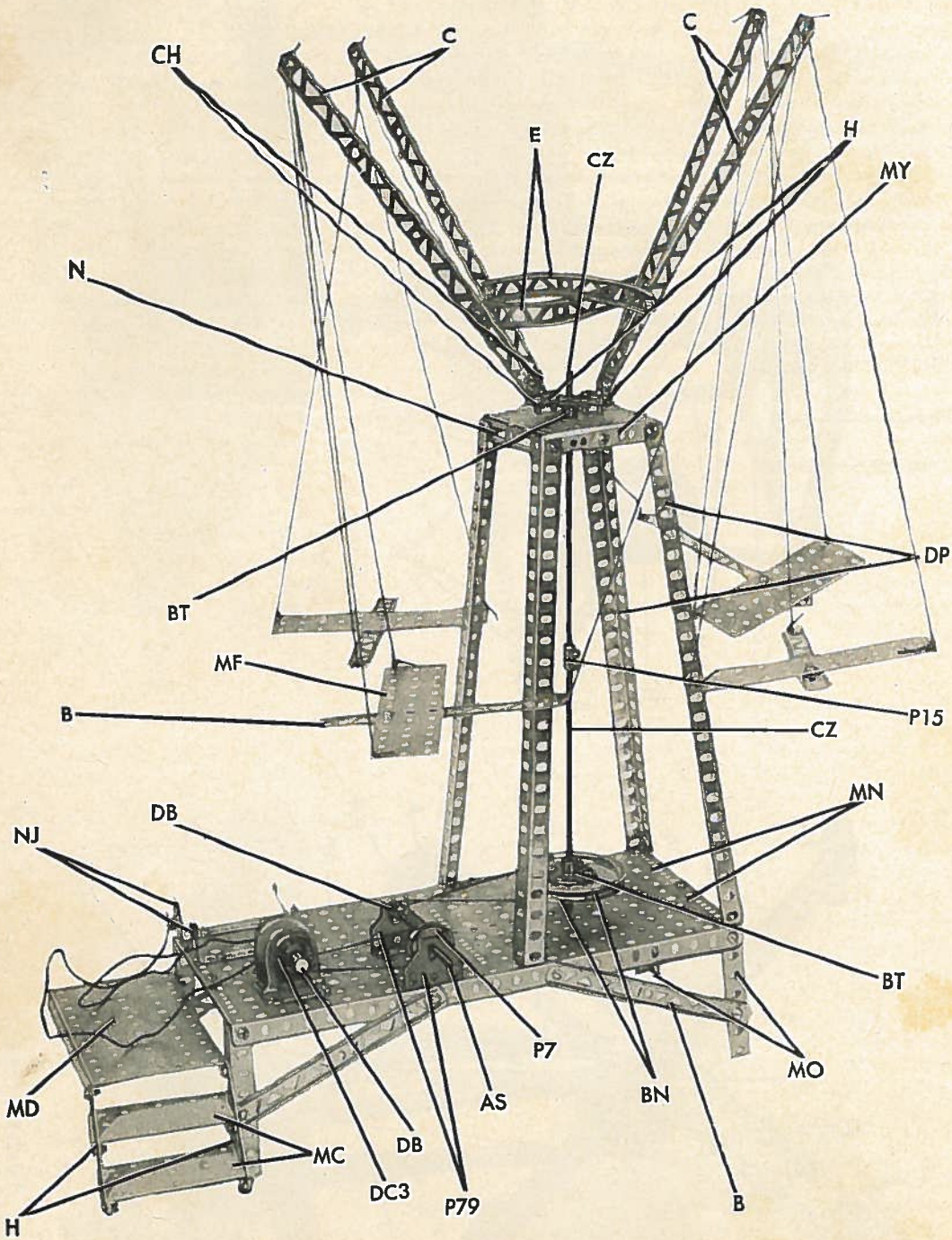
Models Built with No. 5½ Erector



Airplane — Left Side View

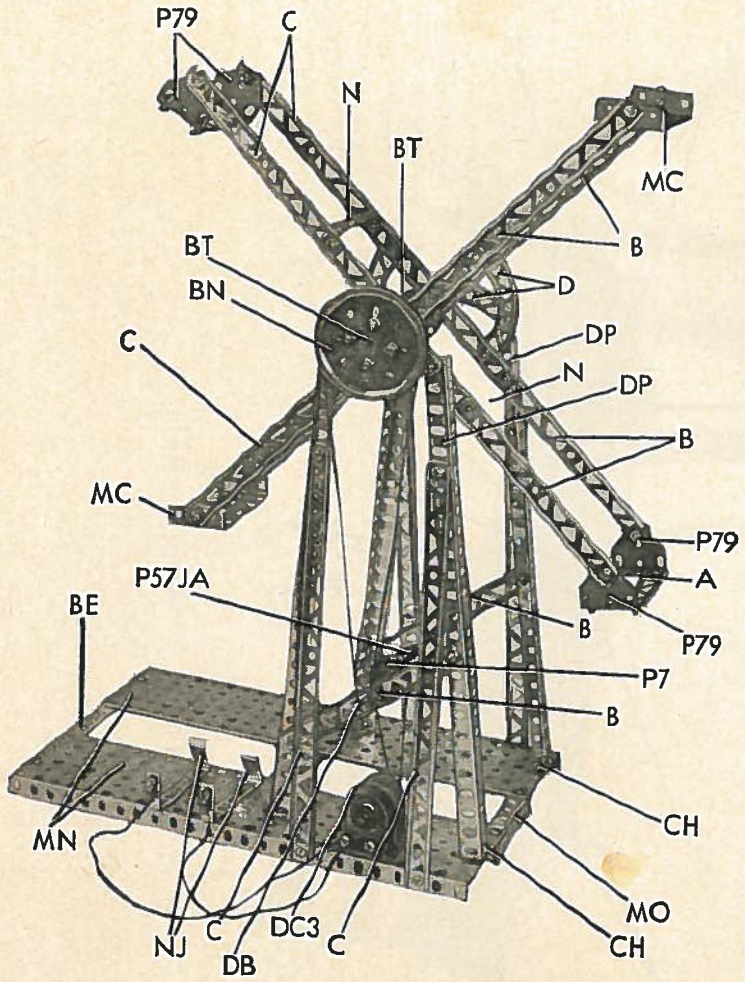
Airplane — Front View



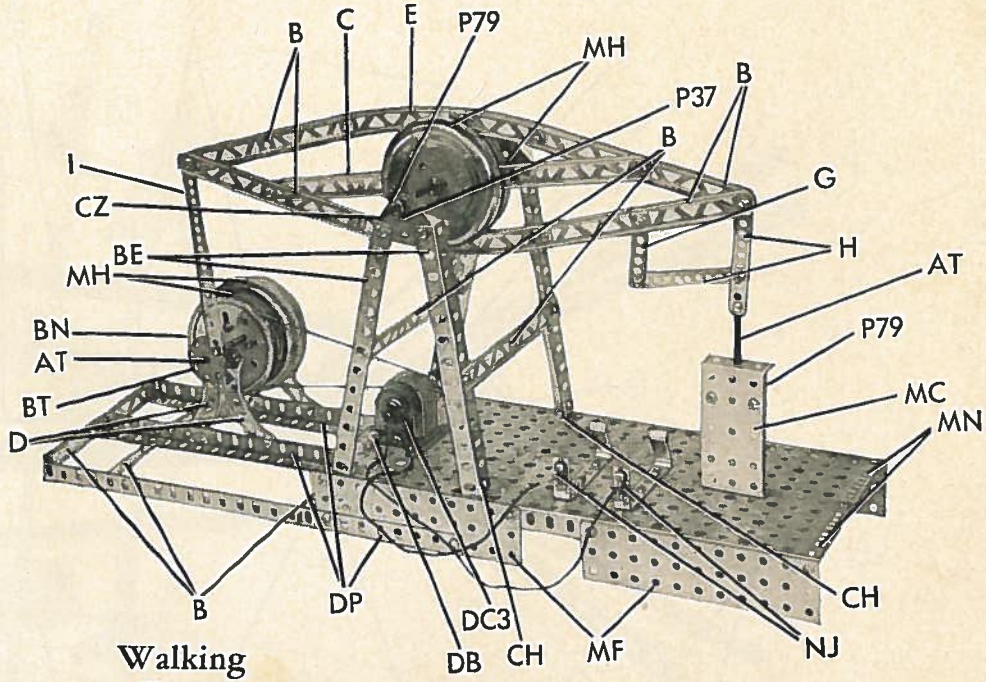


Airplane Ride

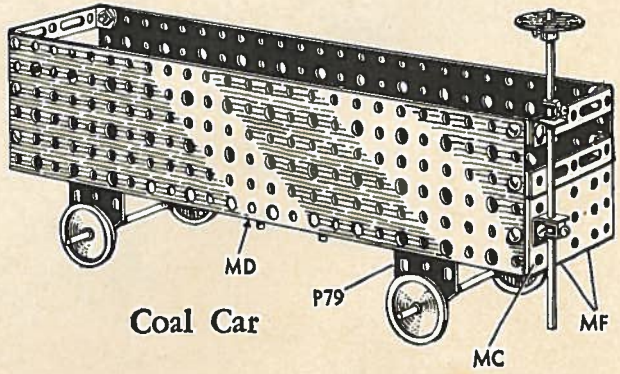
Models Built with No. 5½ Erector



Ferris Wheel

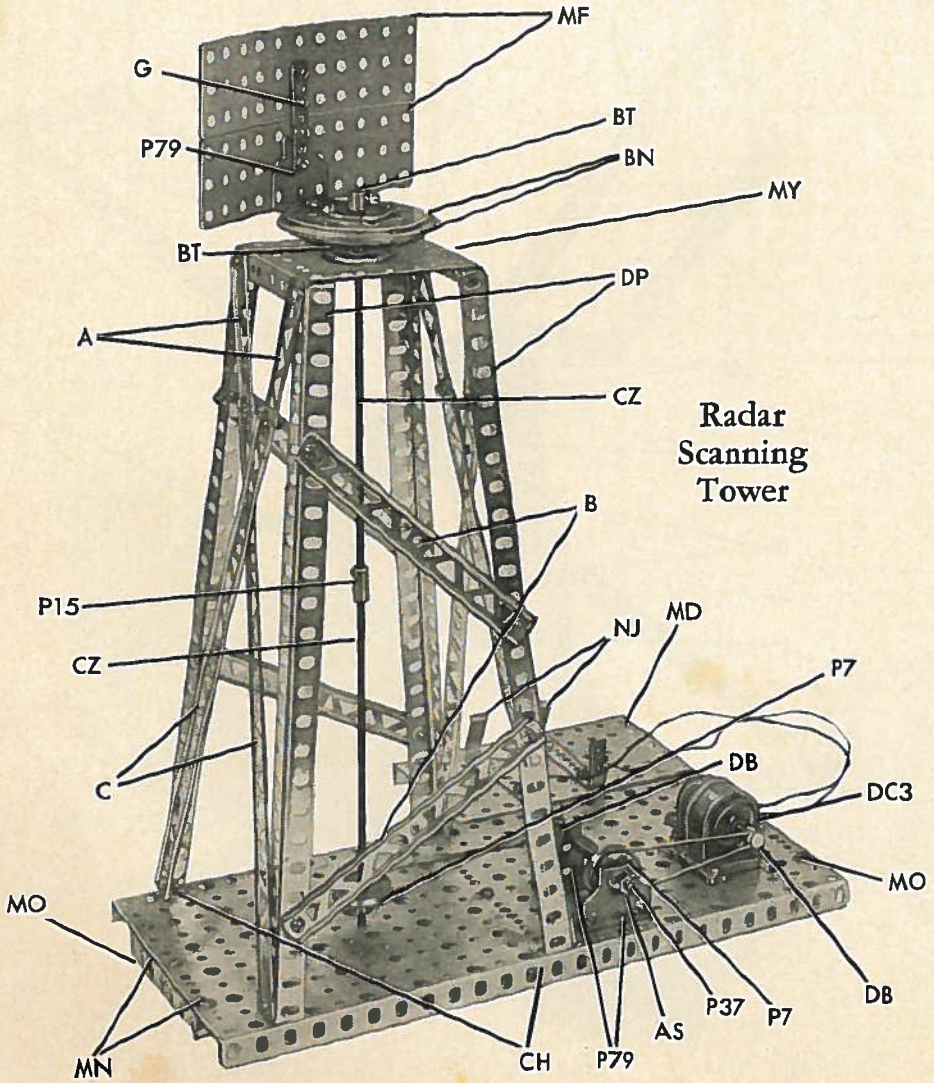


Walking Beam Engine



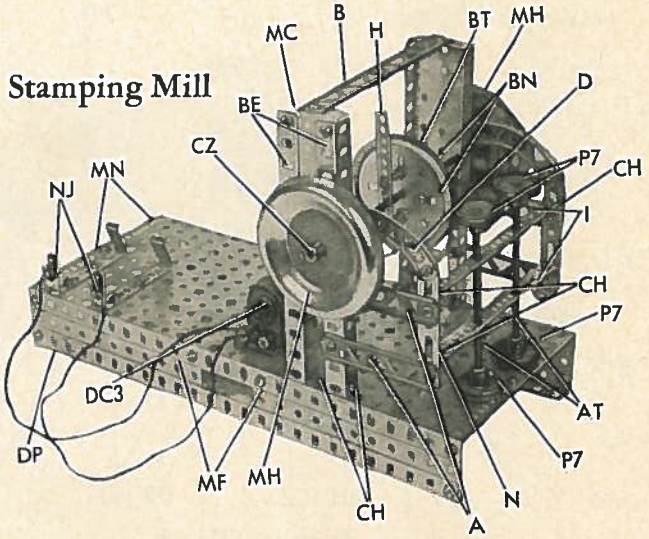
Coal Car

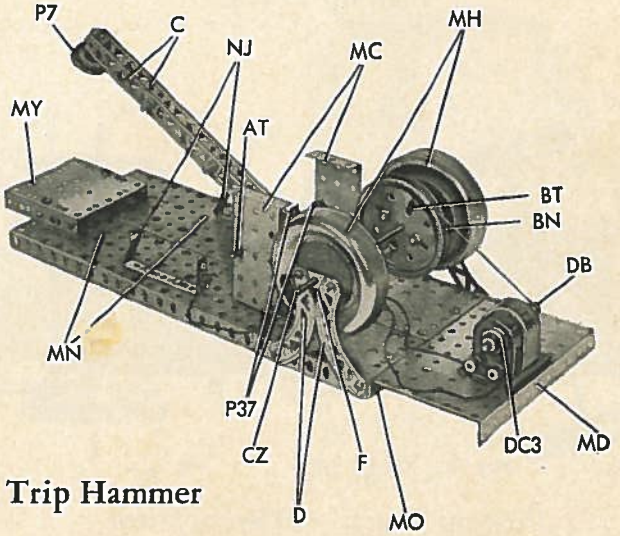
Models Built with No. 5½ Erector



Radar Scanning Tower

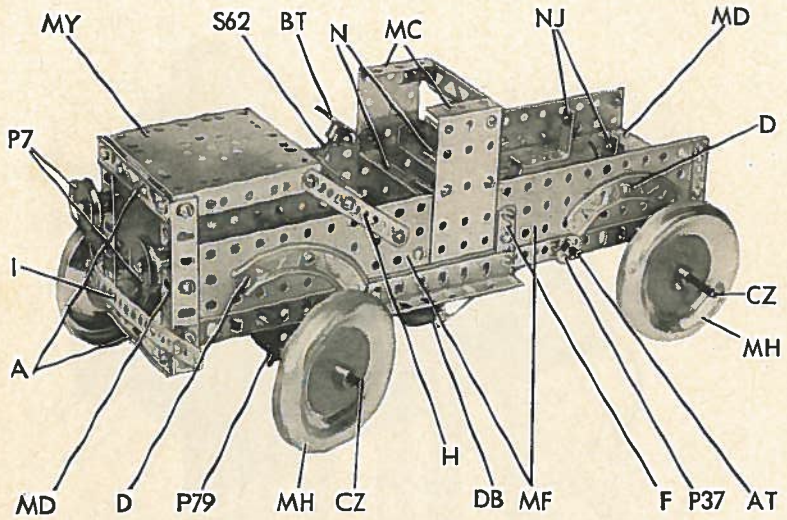
Stamping Mill



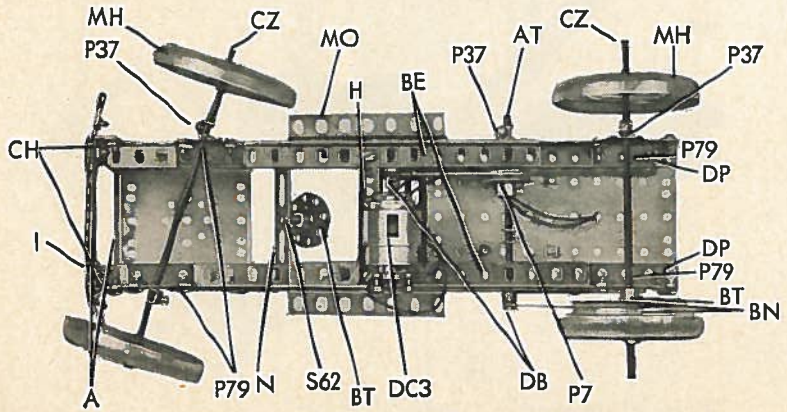


Trip Hammer

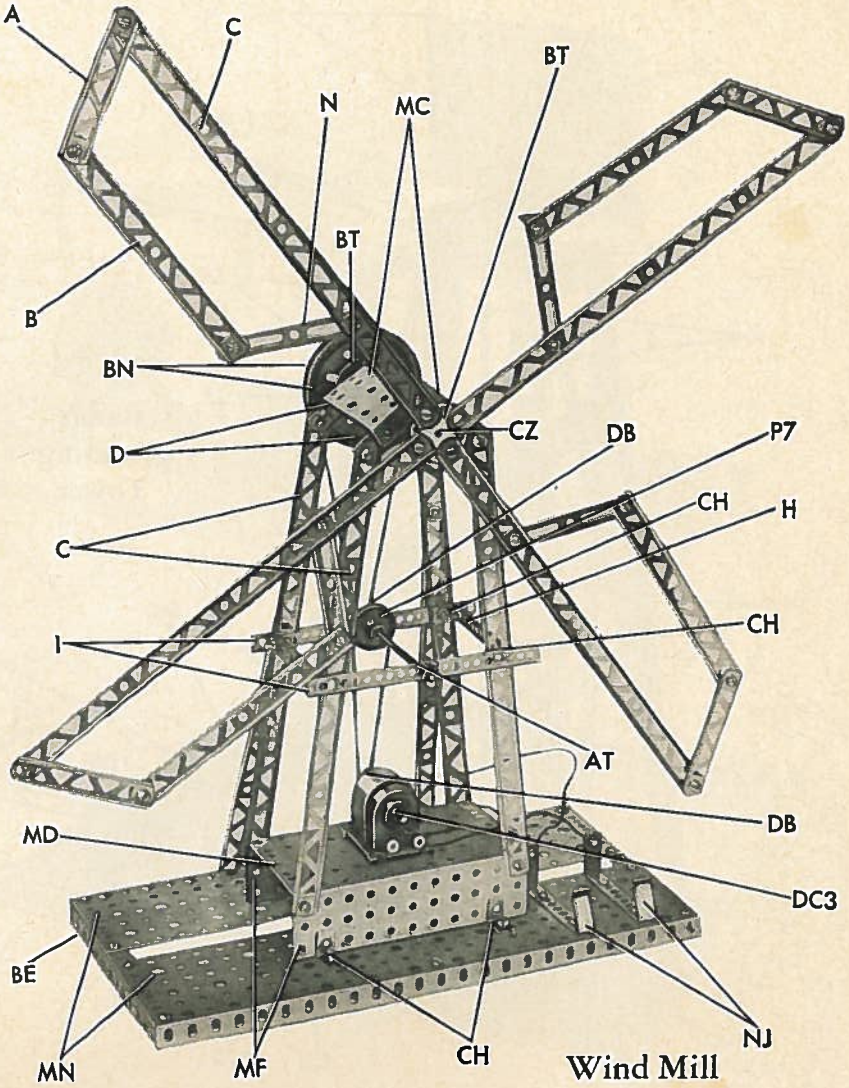
Models Built with No. 5½ Erector



Pick-up Truck



Pick-up Truck — Bottom View



Wind Mill

Models Built with No. 6½ Erector

INTRODUCTION – ELECTRIC ENGINE POWER UNITS

The A-49 Electric Engine is rated at 120 volts, 60 cycle, 25 watt input.

The gear shift lever and gears in the Electric Engine are arranged so that the shaft that shifts to the right or to the left may be driven forward, reversed, or allowed to remain in neutral.

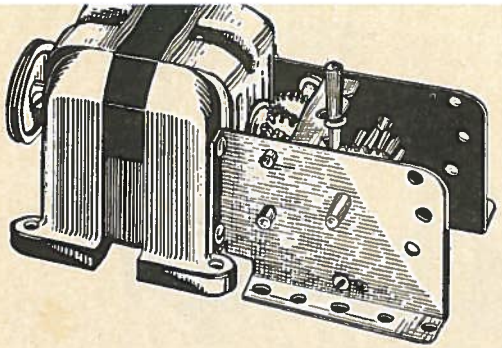
The A-49 motor is equipped with a worm drive which gives the greatest single reduction in gearing. The worm meshing with the 24 tooth worm gear on the countershaft of this motor gives a 24 to 1 reduction. This means that the speed of the countershaft is reduced 24 times from the speed of the worm shaft but the torque of the countershaft is increased 24 times that of the worm.

The shaft that shifts to the right or to the left is called the driven shaft. A 12 tooth gear on the countershaft (driver) meshing with the 36 tooth gear on the driven shaft must turn 3 revolutions to make the 36 tooth gear turn 1 revolution. Thus this gear ratio is 3 to 1.

Gears provide a means of transmitting power; controlling speed, and increasing or decreasing torque. If greater torque is desired, speed must be decreased; if more speed is desired, torque must be sacrificed for a given load.

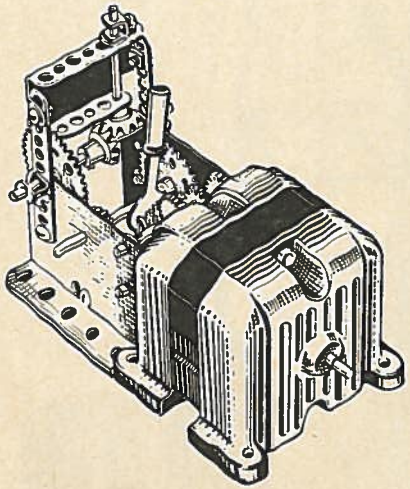
There are many combinations of gear ratios and gear trains that are possible with this motor. There are three sets of holes in the side plates where axles with gears may be attached.

CAUTION: Motor must be running to shift gears successfully. MUST be used on 60 cycle alternating current only.



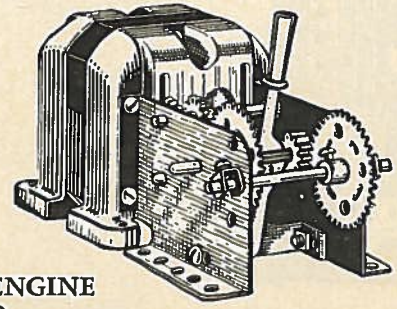
ELECTRIC ENGINE No. 1

A direct drive, as from the pulley on the motor shaft, gives a high speed, where little power is required, as in the case of windmills, etc.



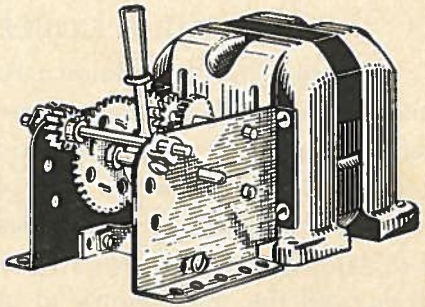
ELECTRIC ENGINE No. 11

A slow speed, vertical drive gear train.



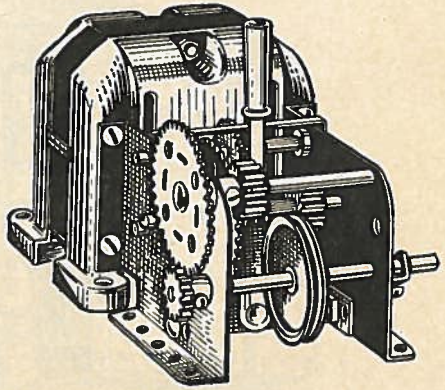
ELECTRIC ENGINE No. 9

A low speed gear train with great power.



ELECTRIC ENGINE No. 8

A high speed gear train.



ELECTRIC ENGINE No. 12

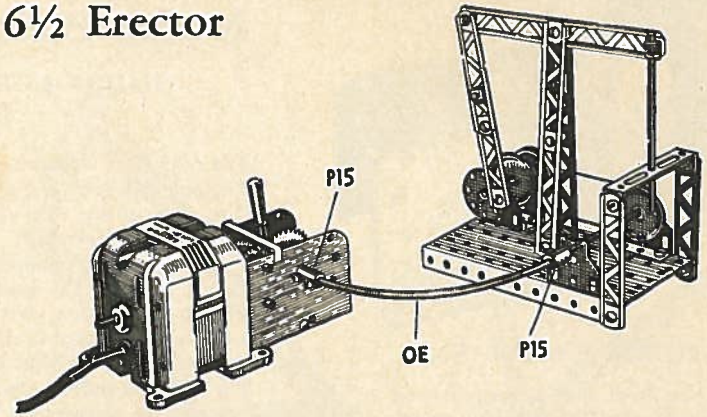
Super speed gear train for light loads.

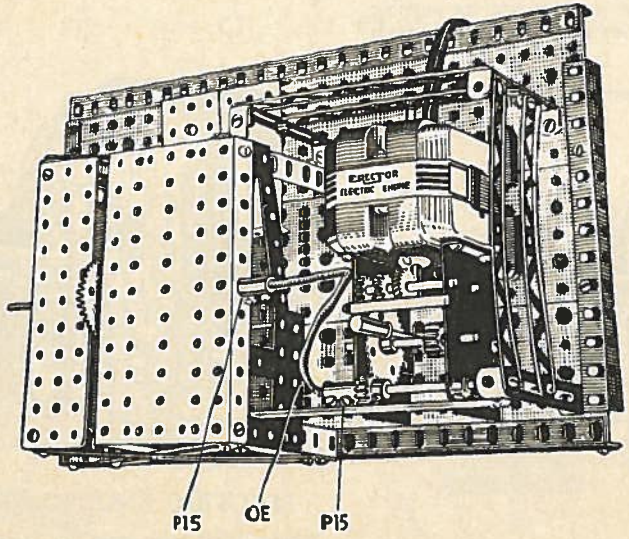
Models Built with No. 6½ Erector

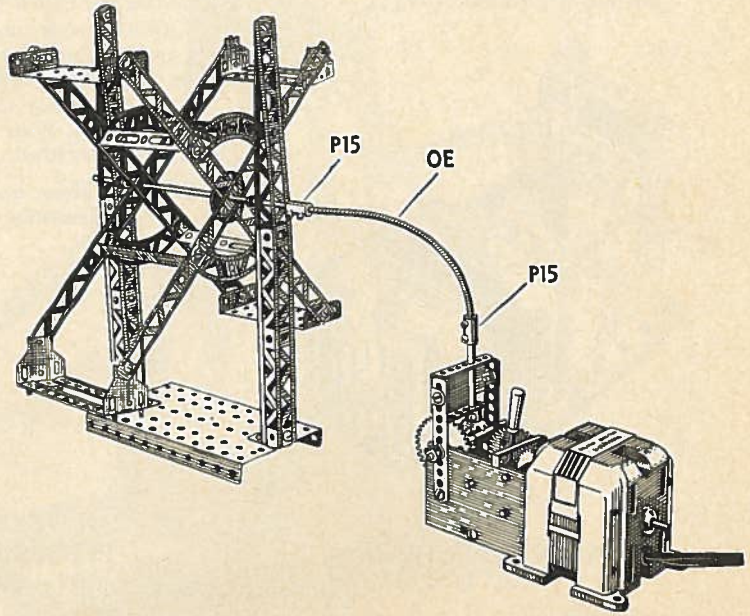
THE FLEXIBLE COUPLING

Flexible shafts are known throughout the world for their many varied uses. They are a means of transmitting power. They can be turned, twisted, bent into many shapes and will still run any model. Shown on this page are three suggested uses for the Flexible Coupling; one shows a small Well Pump being driven at a 45° angle, another shows a Ferris Wheel driven from a vertical drive, and the third shows an off-set reverse loop driving the Circular Saw model.

Almost every model in the manual can be adapted to use the flexible coupling for driving at angles up to 180°.







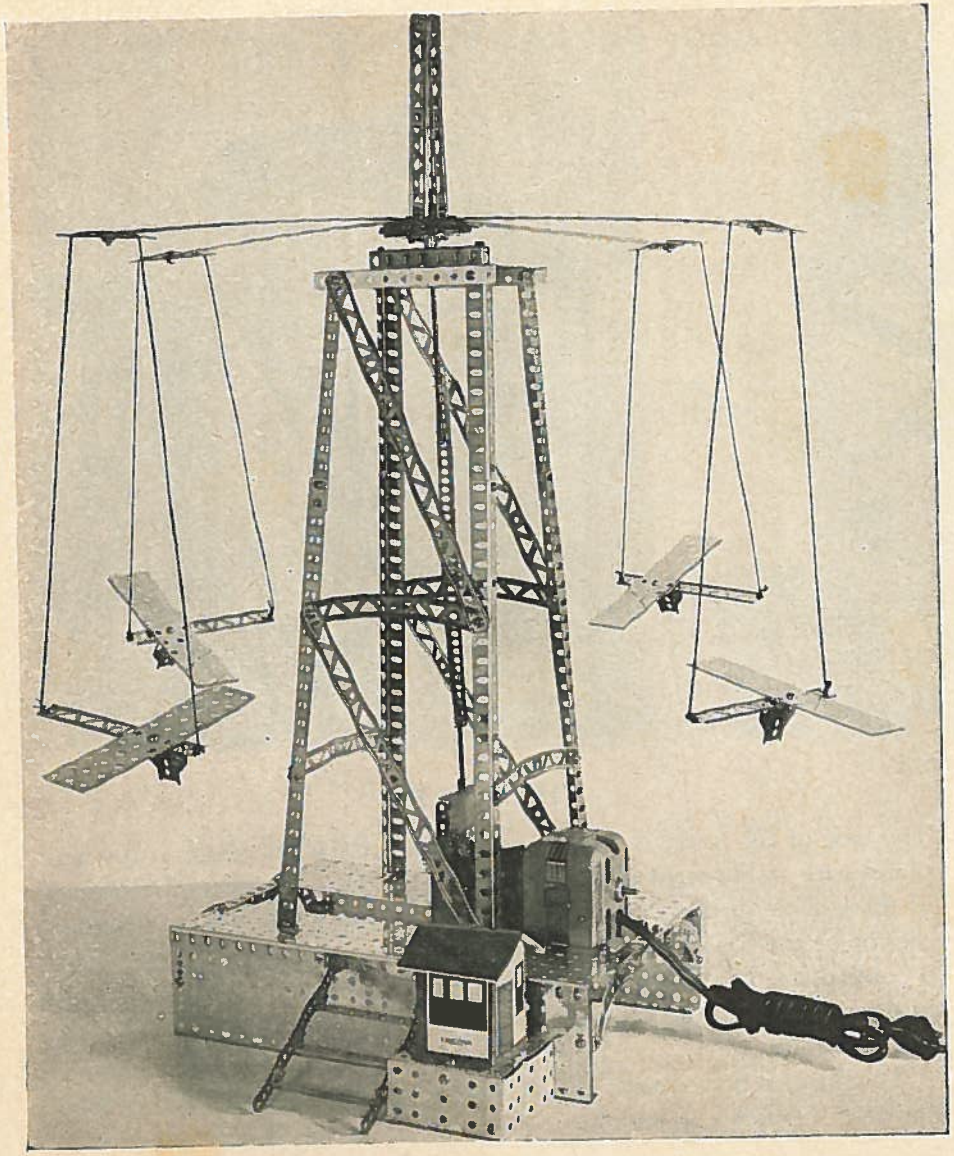


FIGURE 1

Models Built with No. 6½ Erector

Instructions for Building the 6½ Erector Airplane Ride Model

A fine action model to build is this Airplane Ride. It is continuous running and when the airplanes are winging their way around the tower, you can almost feel yourself piloting the airplane around and around.

THE COMPLETED MODEL

This is a very simple model to build but it has its difficulties. The base for the model is built with four (MN) 12″ base plates as shown in Figure 2.

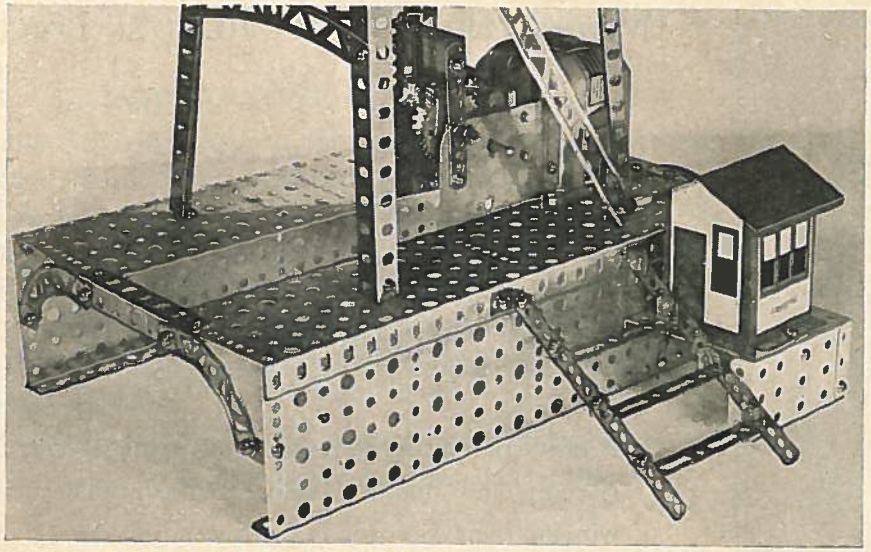


FIGURE 2

THE BASE

The base plates are assembled, two to each side and are spaced apart the width of an (MO) 3" angle girder as shown in Figure 2. For bracing, (D) 2-1/2" curved girders are used. These are fastened to the 3" angle girder and to the vertical base plate with (CH) right angles.

The steps are made with an assembly of 1 (H) 11 hole strip, 1 (G) 7 hole strip and 1 (F) 5 hole strip on each side and 3 (N) long double angles for steps. The step assembly is fastened to the base plate with (CH) right angles.

The house is mounted on an assembly of 2 (MC) 1" x 2-1/2" base plates for sides and an (MY) 2-1/2" x 2-1/2" base plate for the top.

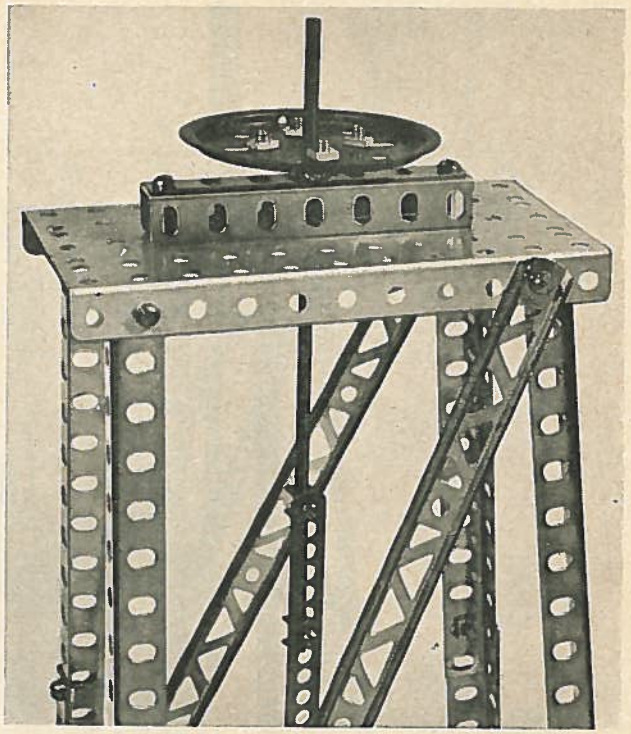


FIGURE 3

THE TOWER

The base of the tower is shown in Figures 1 and 2. Fastened to the base plates with (CH) right angles are 4 (DP) 12" angle girders. On the top of these angle girders are fastened 4 (BE) 6" angle girders, and then on the top of the four angle girder assemblies is fastened an (MD) 2-1/2" x 5" base plate. To the top of this base plate are fastened 2 (MO) 3" angle girders which form a (U) shape with the open part of the (U) down on the base plate.

The tower is braced with (E) 5" curved girders and (C) 10" girders as shown in Figures 1, 2, and 3.

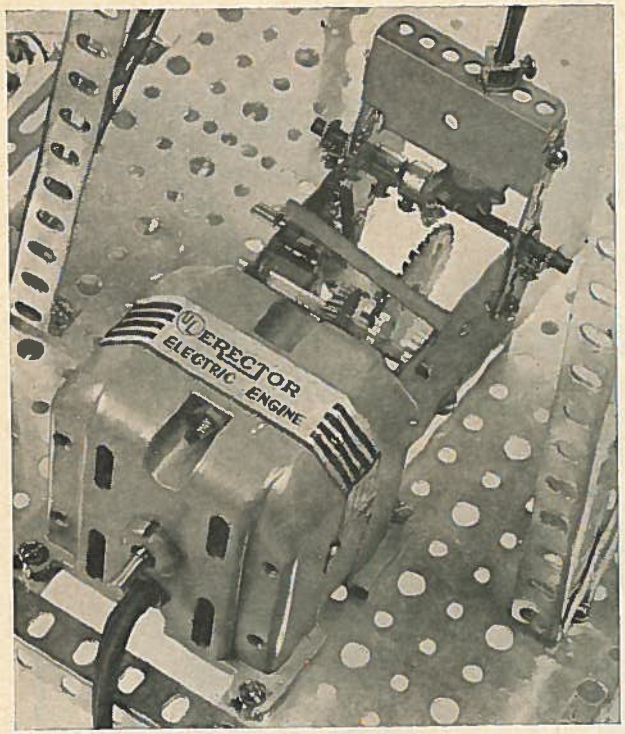


FIGURE 4

THE POWER UNIT

The power unit for this model is an A-49 Electric Engine geared up as Electric Engine No. 11 which is shown on the first page of the 6-1/2 section of the "How to Make 'Em Book". This power unit will provide a slow speed vertical drive gear train. The power unit fastened to the model as shown in Figure 4.

The first vertical axle which passes through the bearing block is a 4" axle. On this axle is fastened a P37 collar and an (I) 21 hole strip. To this 21 hole strip is fastened a second (I) 21 hole strip which has on the top end two P37 collars and a (CZ) 7" axle which passes through the top (MD) 2-1/2" x 5" base plates and through the 2 (MO) 3" angle girders. By referring to Figure 3, you will see a (BN) regular turret plate fastened to a (BT) pierced disc which in turn is fastened to the 7" axle.

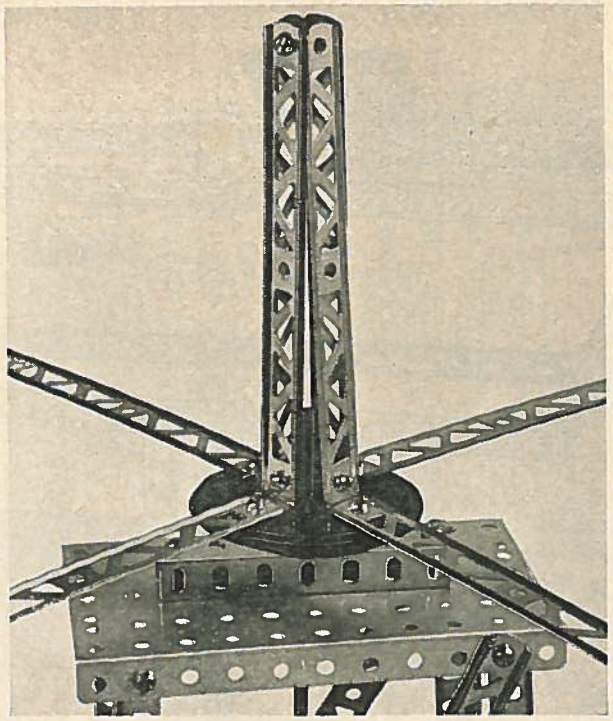


FIGURE 5

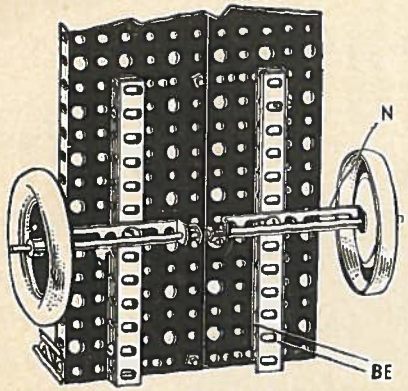
THE REVOLVING TOP

The revolving top is shown in detail in Figure 5. On a (BT) turret plate are fastened 4 (CH) right angles. To the vertical leg of the right angles are fastened 4 (B) 5" girders which are brought to the top to form a square. When the (CH) right angles are fastened to the turret plate, 4 (C) 10" girders are also fastened, each one at right angles to each other. On the ends of each 10" girder are fastened (A) 2-1/2" girders — see Figure 1. From these short girders are suspended the strings on which are hung the airplanes. Each airplane is made with a (B) 5" girder, a (MF) 1" x 5" base plate, and a P79 car truck as shown in Figure 1.

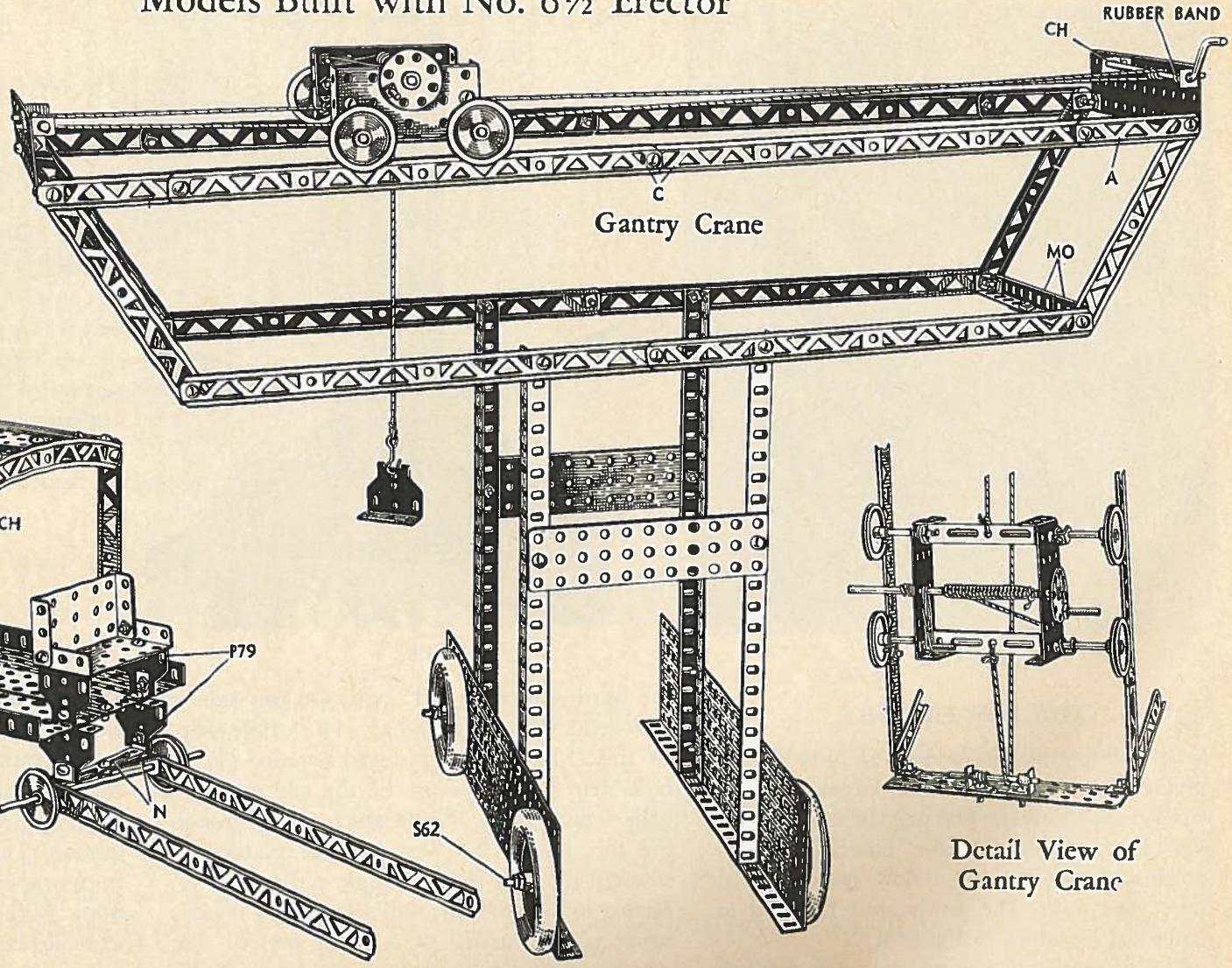
OPERATION OF MODEL

The two top turret plates are not fastened to each other. The bottom turret plate is fastened to the driving vertical shaft, by the (BT) pierced disc. The revolving top turret plate just rests on the bottom turret plate so that the top revolves by friction. This is done to prevent the airplanes from wrapping around the tower when the motor stops. With the friction drive the revolving top with airplanes will coast to a stop when the motor is shut off.

Models Built with No. 6½ Erector



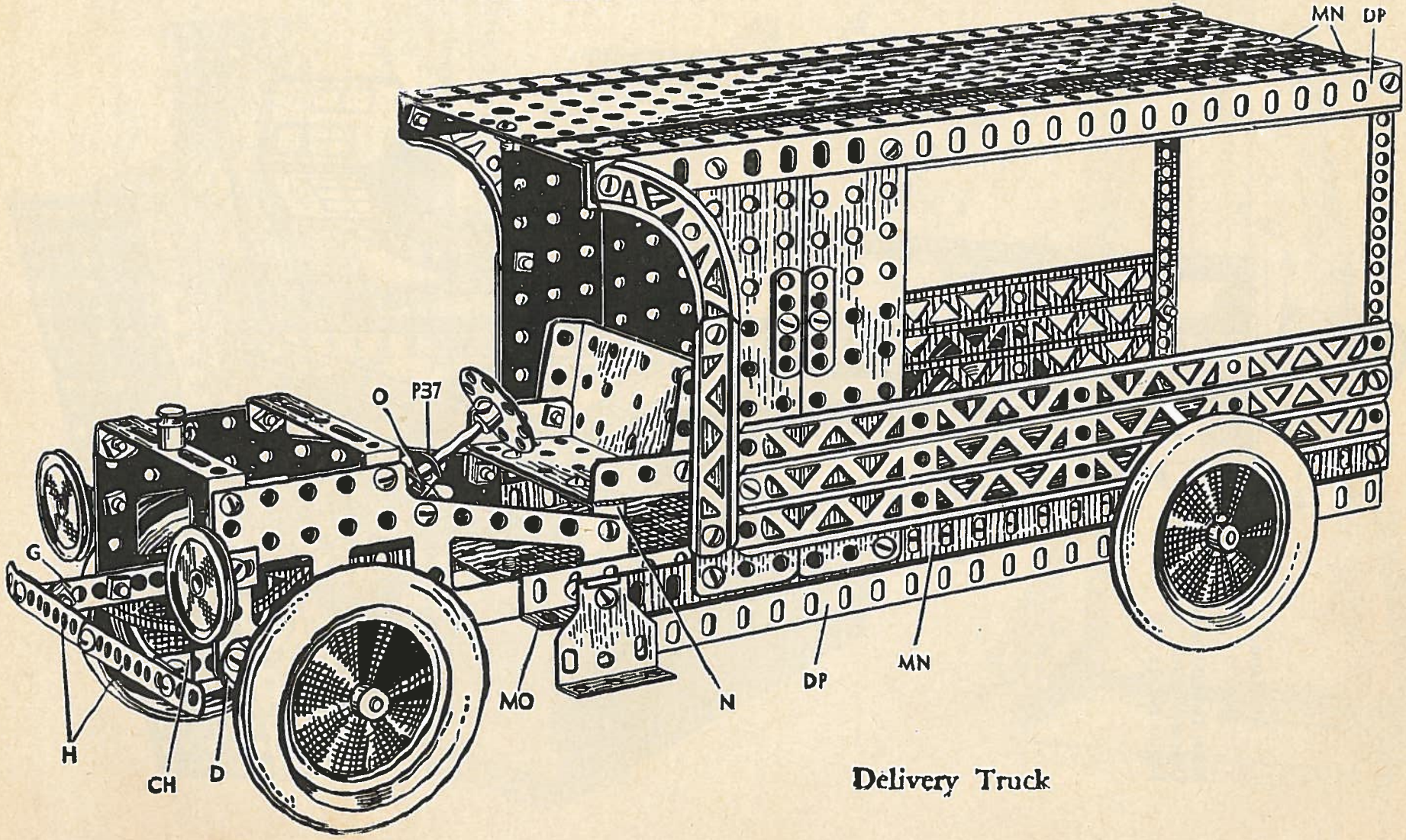
Detail of Furniture Van



Gantry Crane

Furniture Van

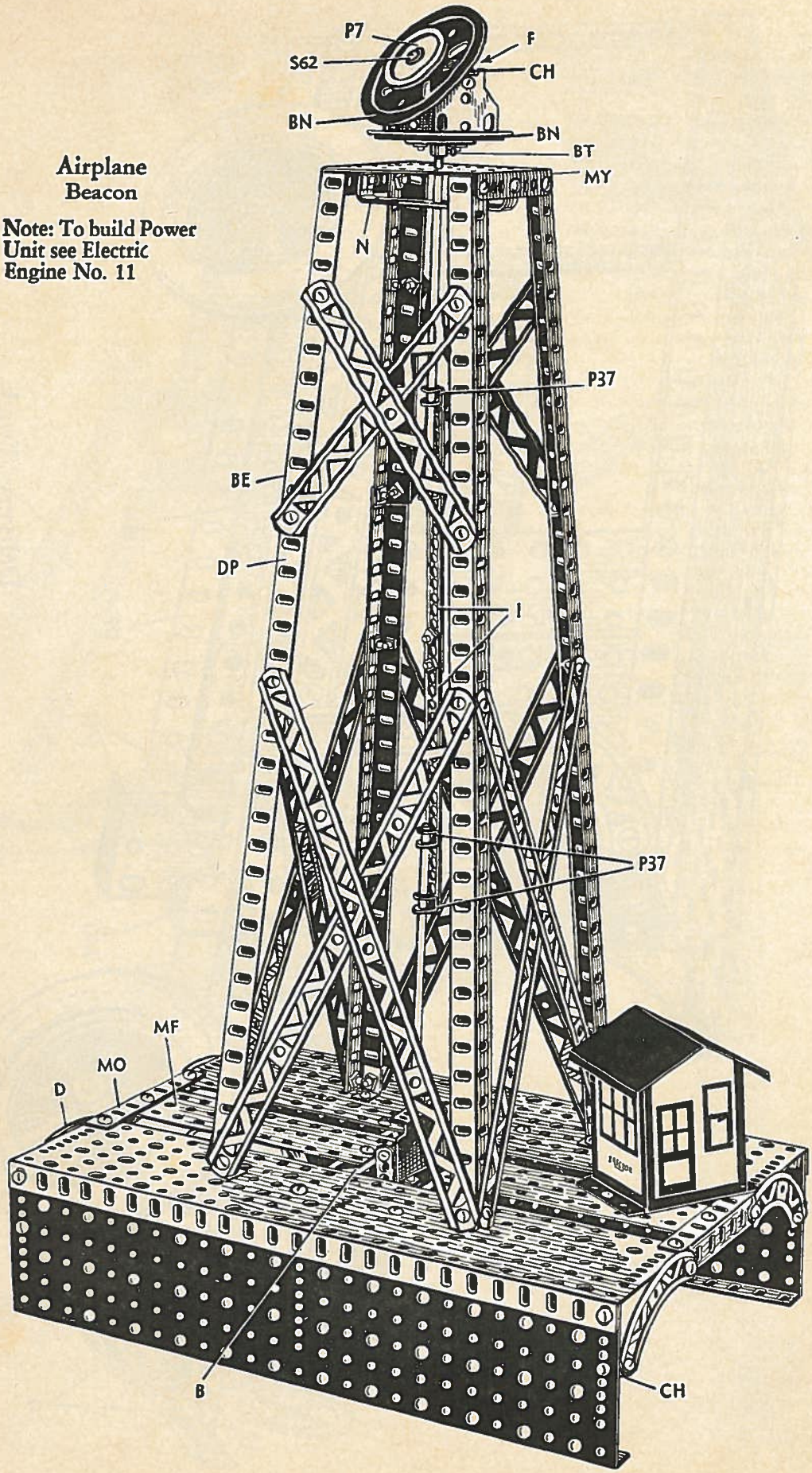
Detail View of Gantry Crane



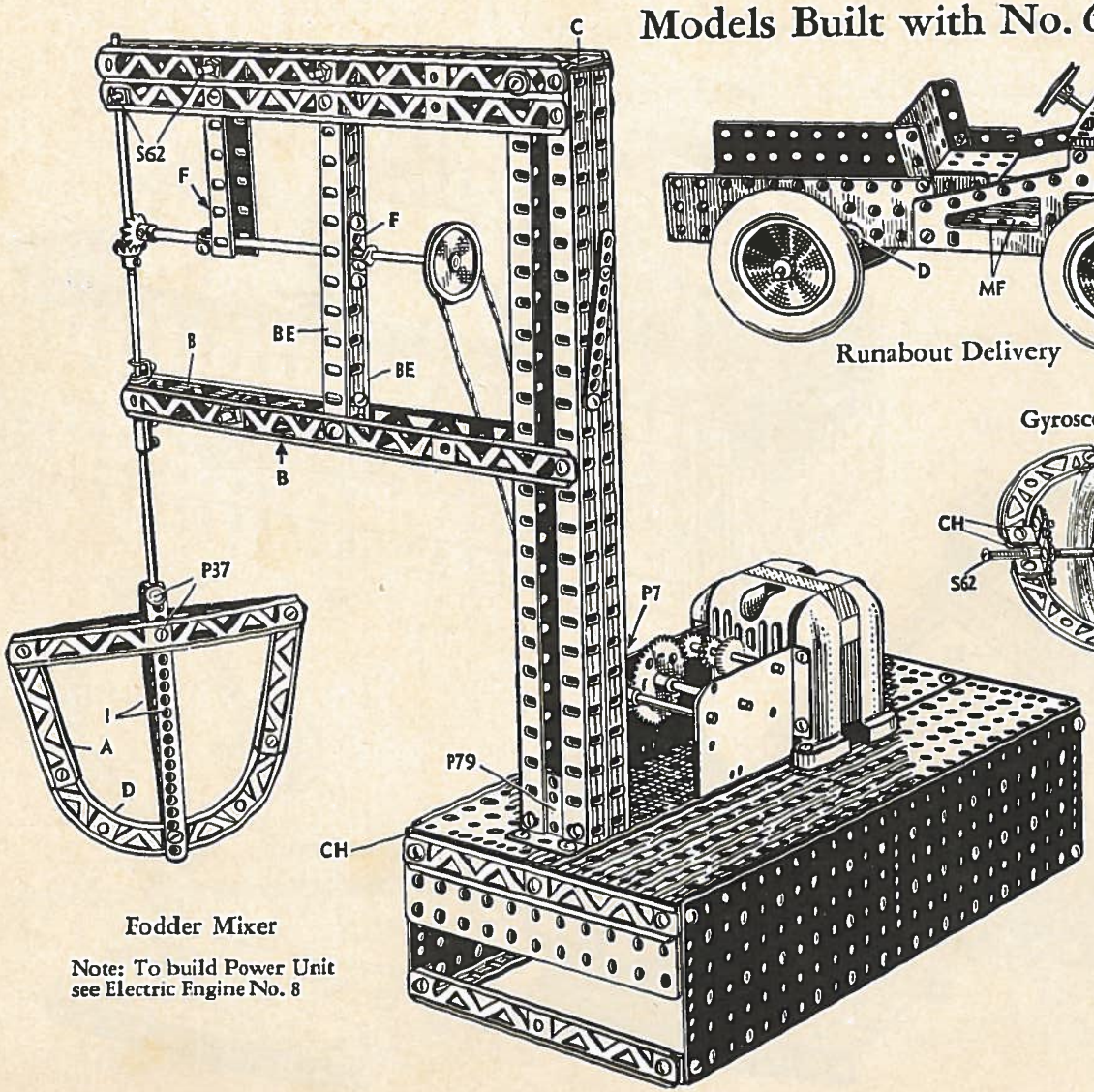
Delivery Truck

Airplane Beacon

Note: To build Power Unit see Electric Engine No. 11



Models Built with No. 6½ Erector

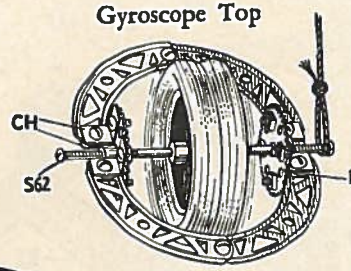


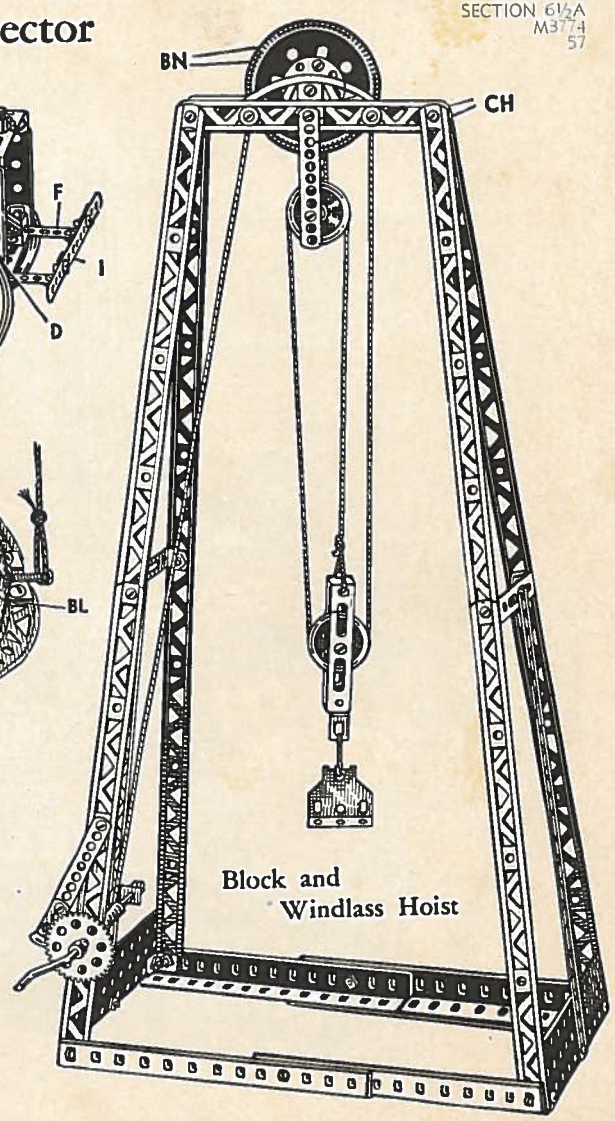
Fodder Mixer

Note: To build Power Unit see Electric Engine No. 8

Runabout Delivery

Gyroscope Top



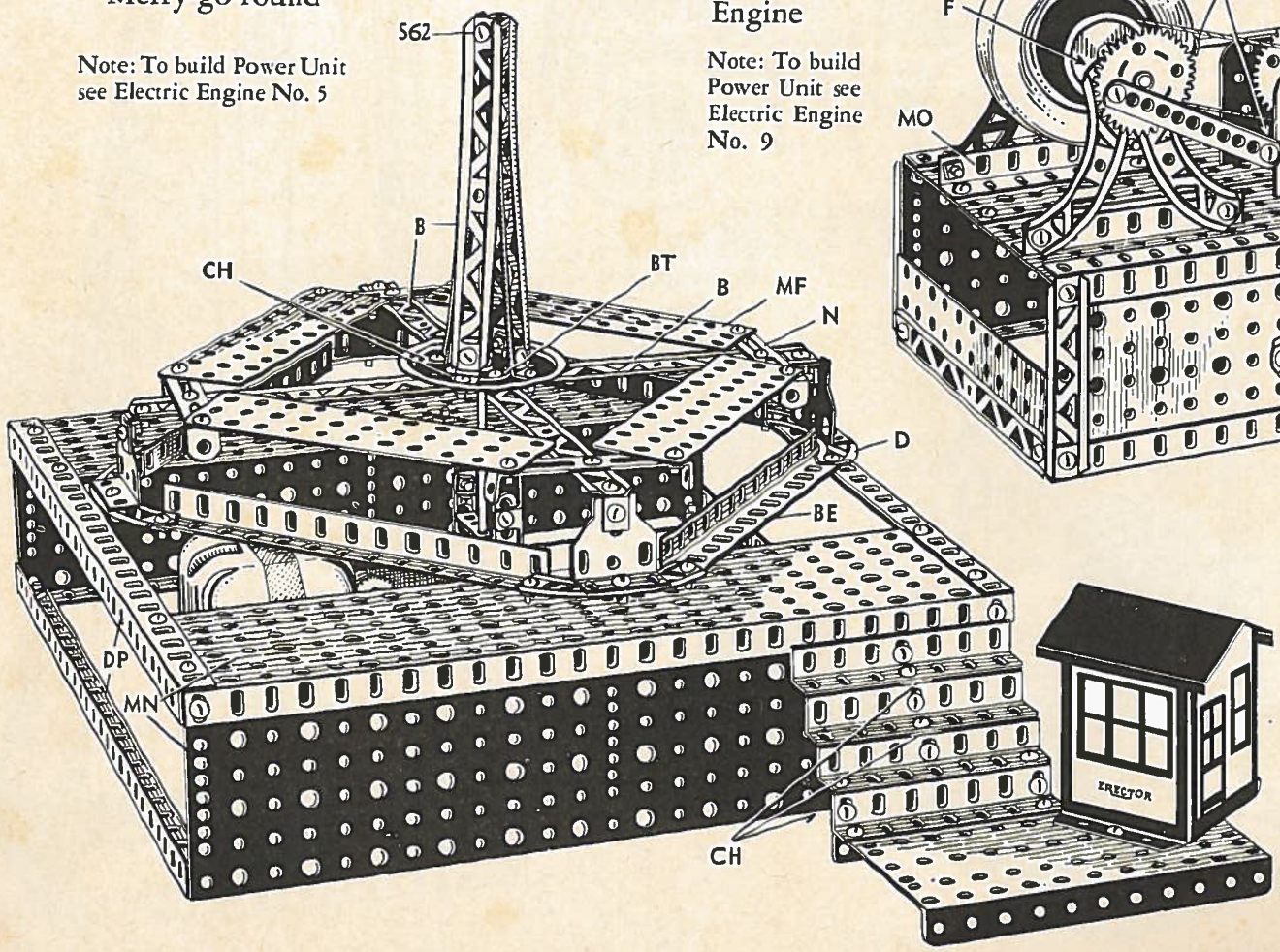


Block and Windlass Hoist

Models Built with No. 6½ Erector

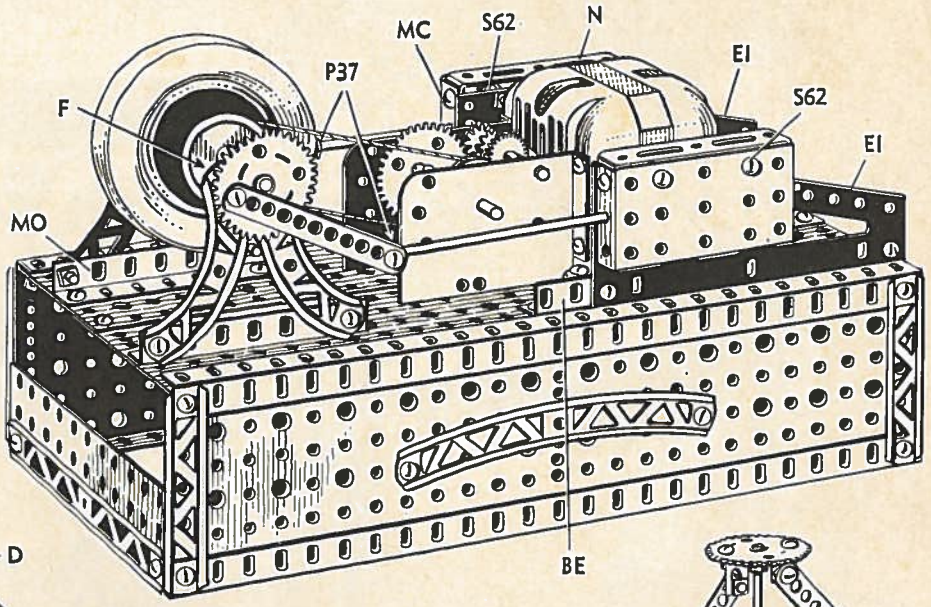
Merry-go-round

Note: To build Power Unit see Electric Engine No. 5

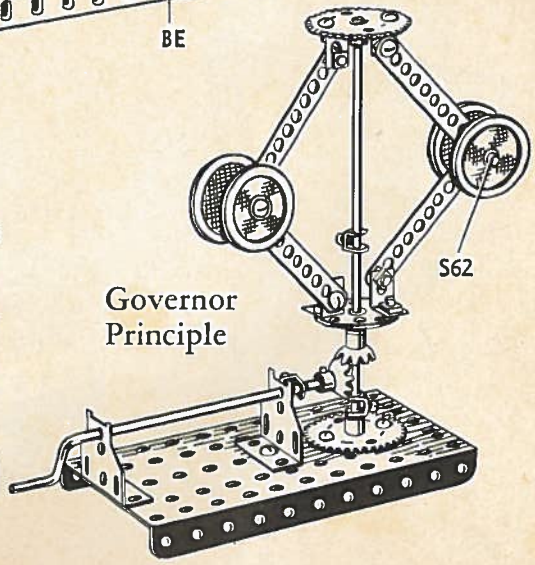


Horizontal Engine

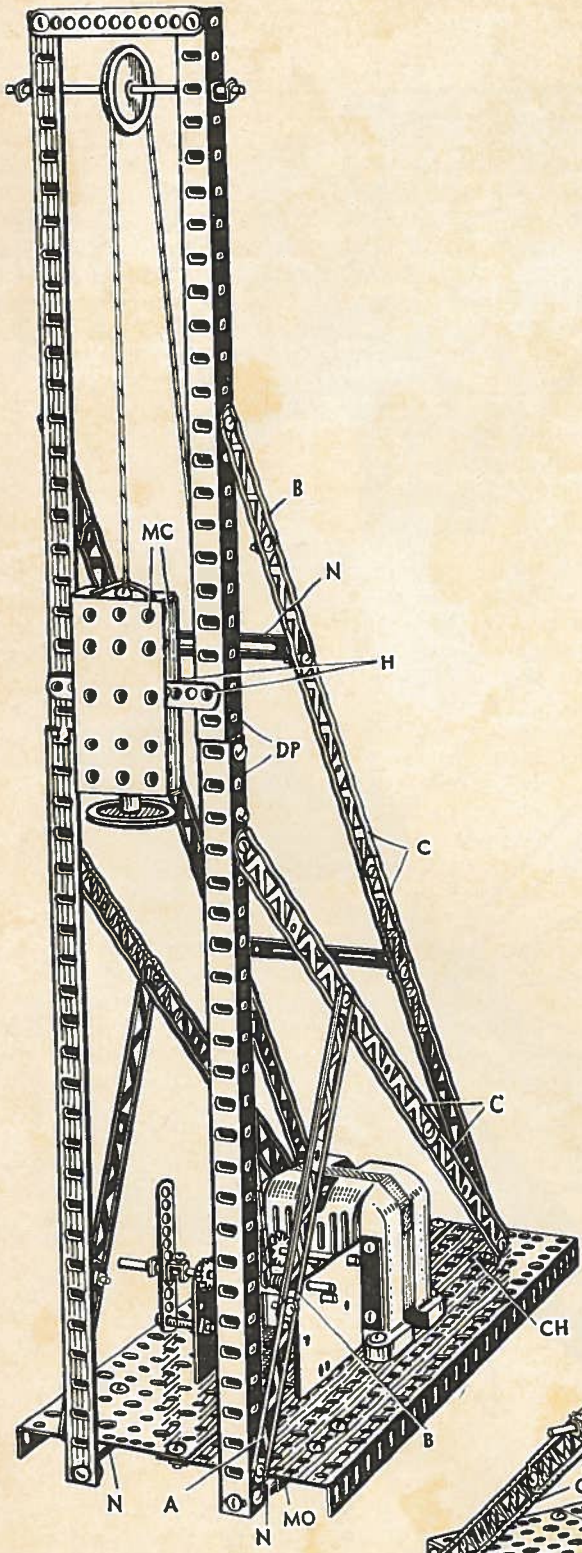
Note: To build Power Unit see Electric Engine No. 9



Governor Principle



Models Built with No. 6½ Erector

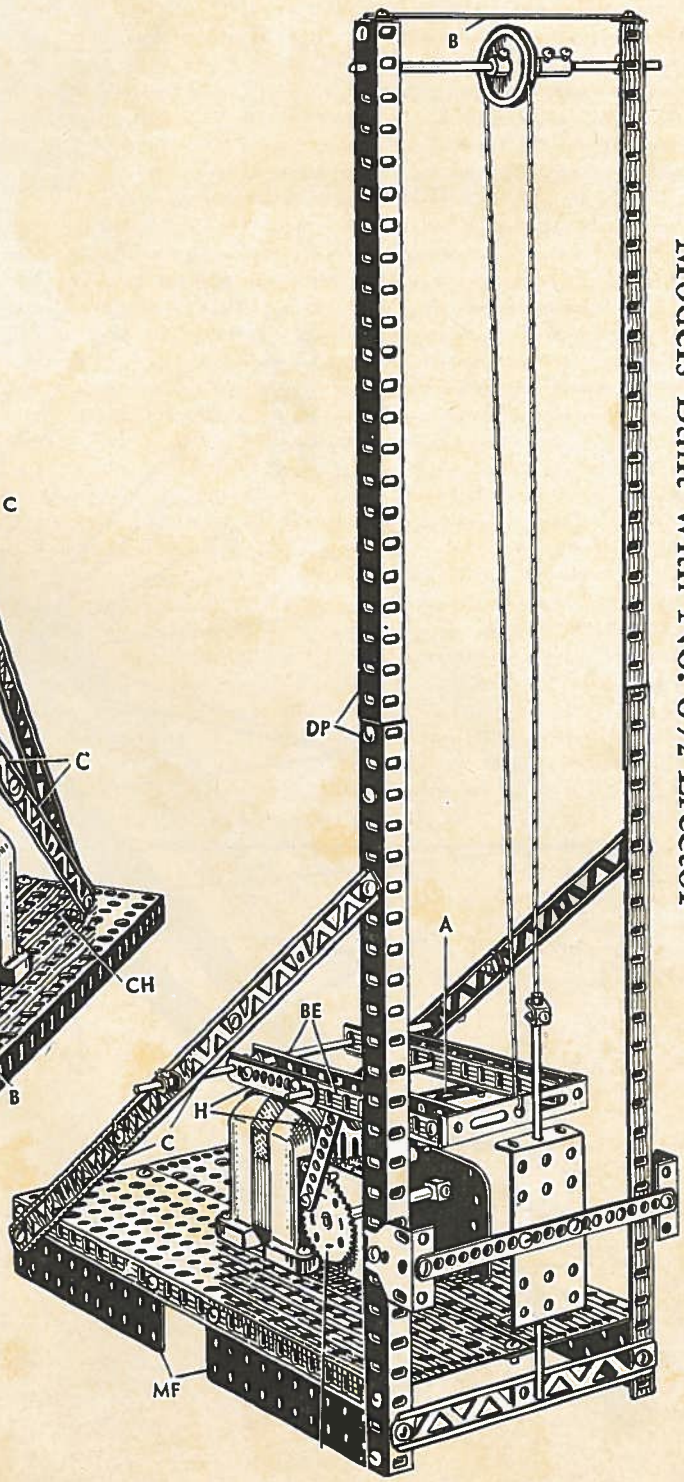


Pile Driver

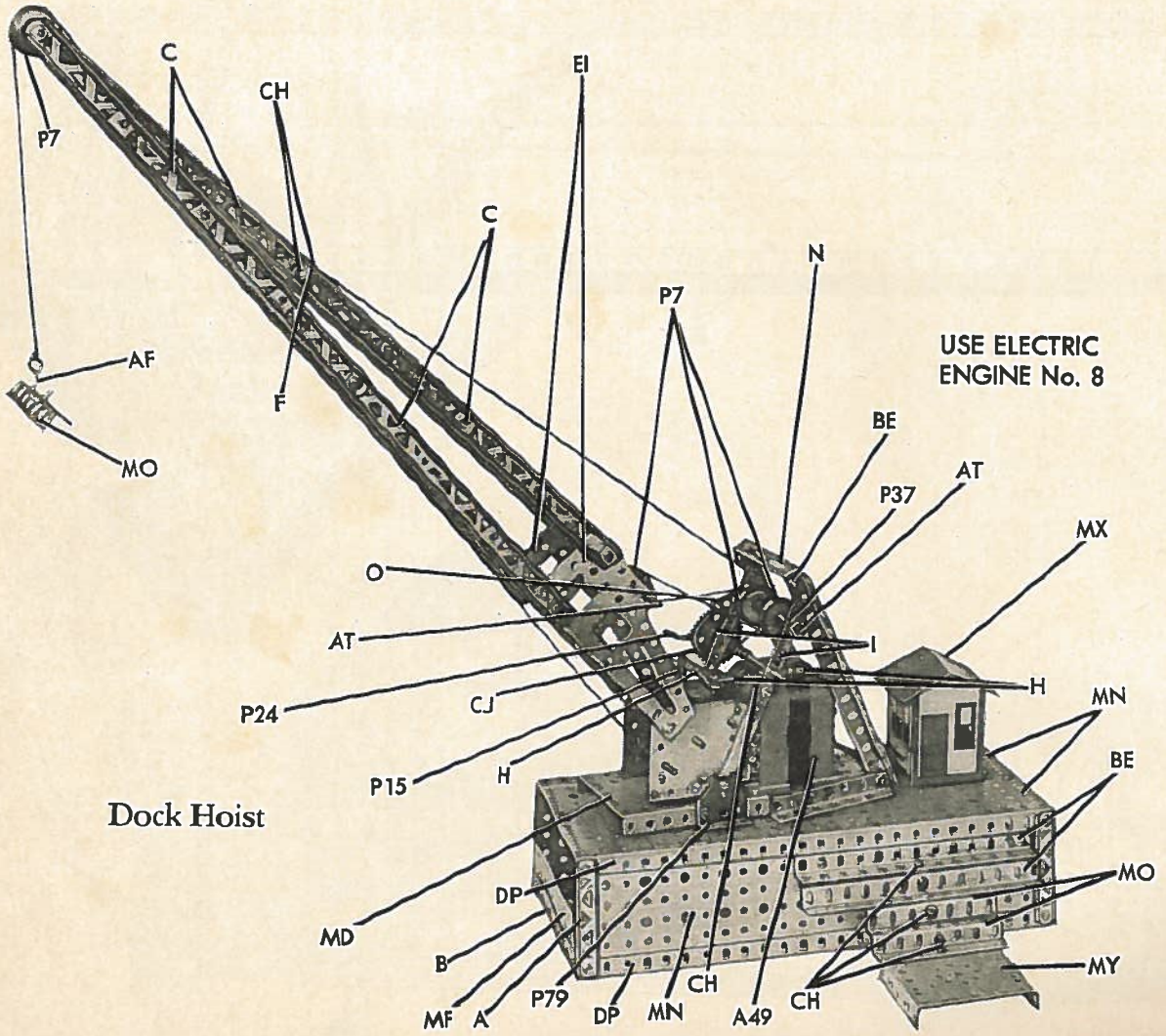
Note: To build Power Unit see Electric Engine No. 9

Well Driver

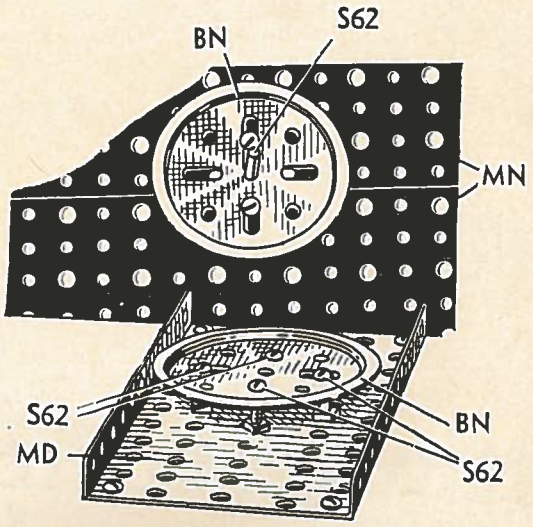
Note: To build Power Unit see Electric Engine No. 9



Models Built with No. 6½ Erector



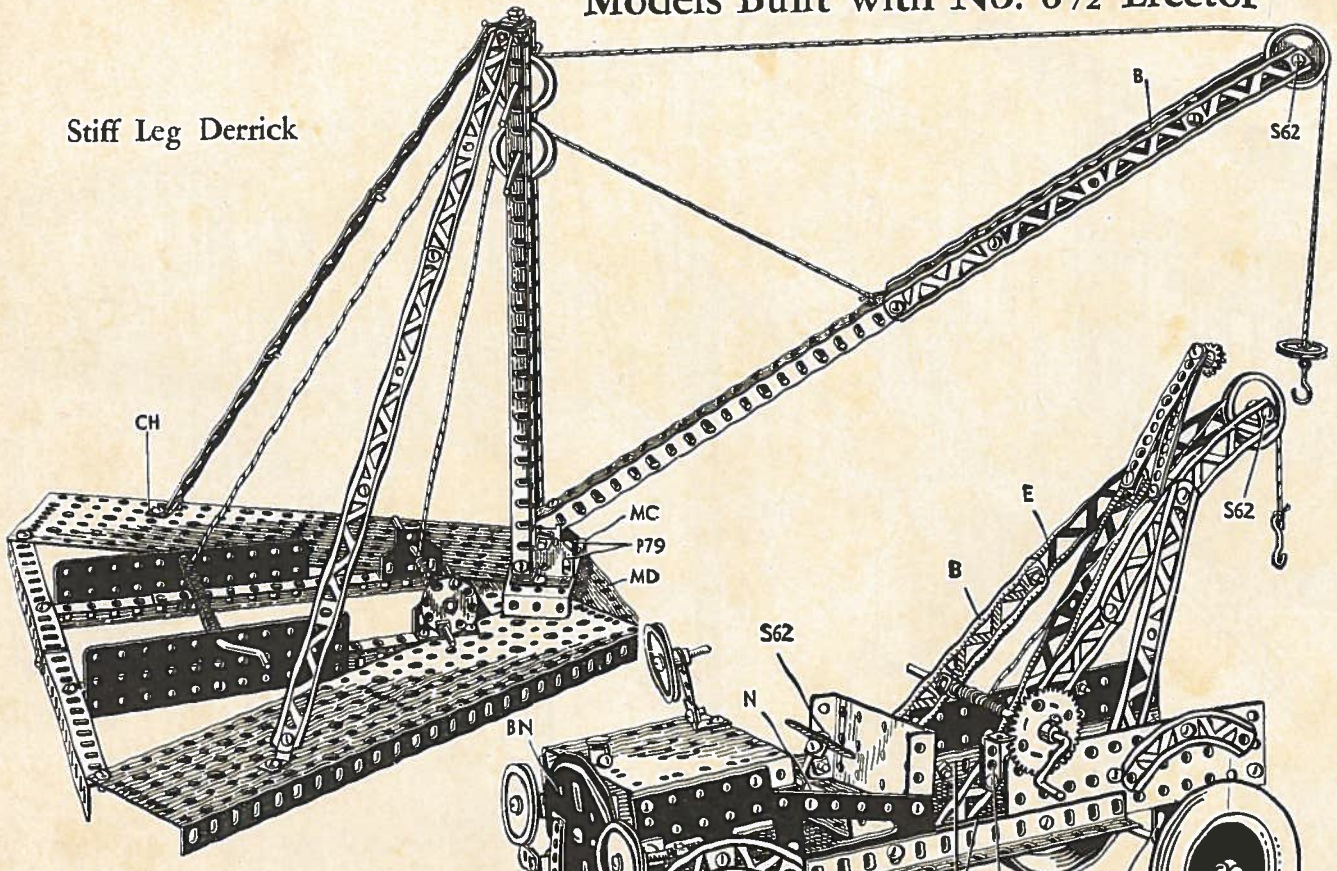
Dock Hoist



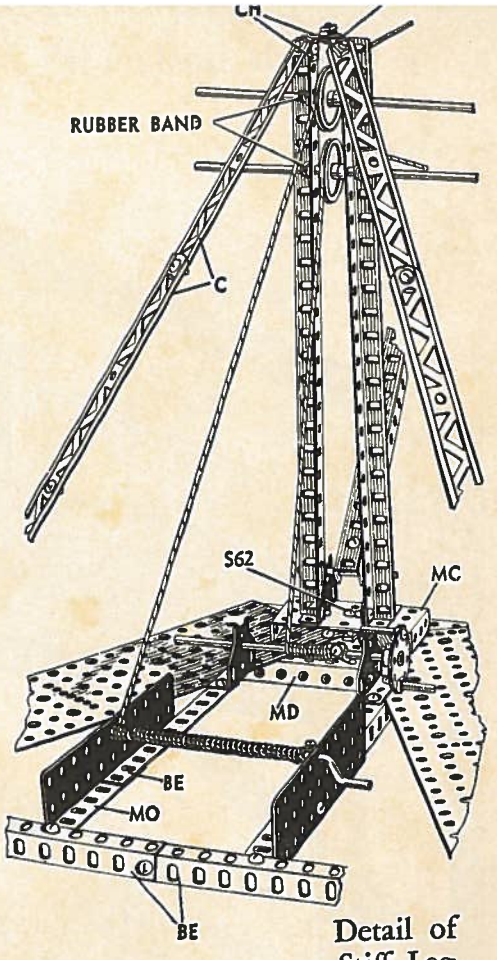
Detail of
Swivel Base for
Dock Hoist

Models Built with No. 6½ Erector

Stiff Leg Derrick

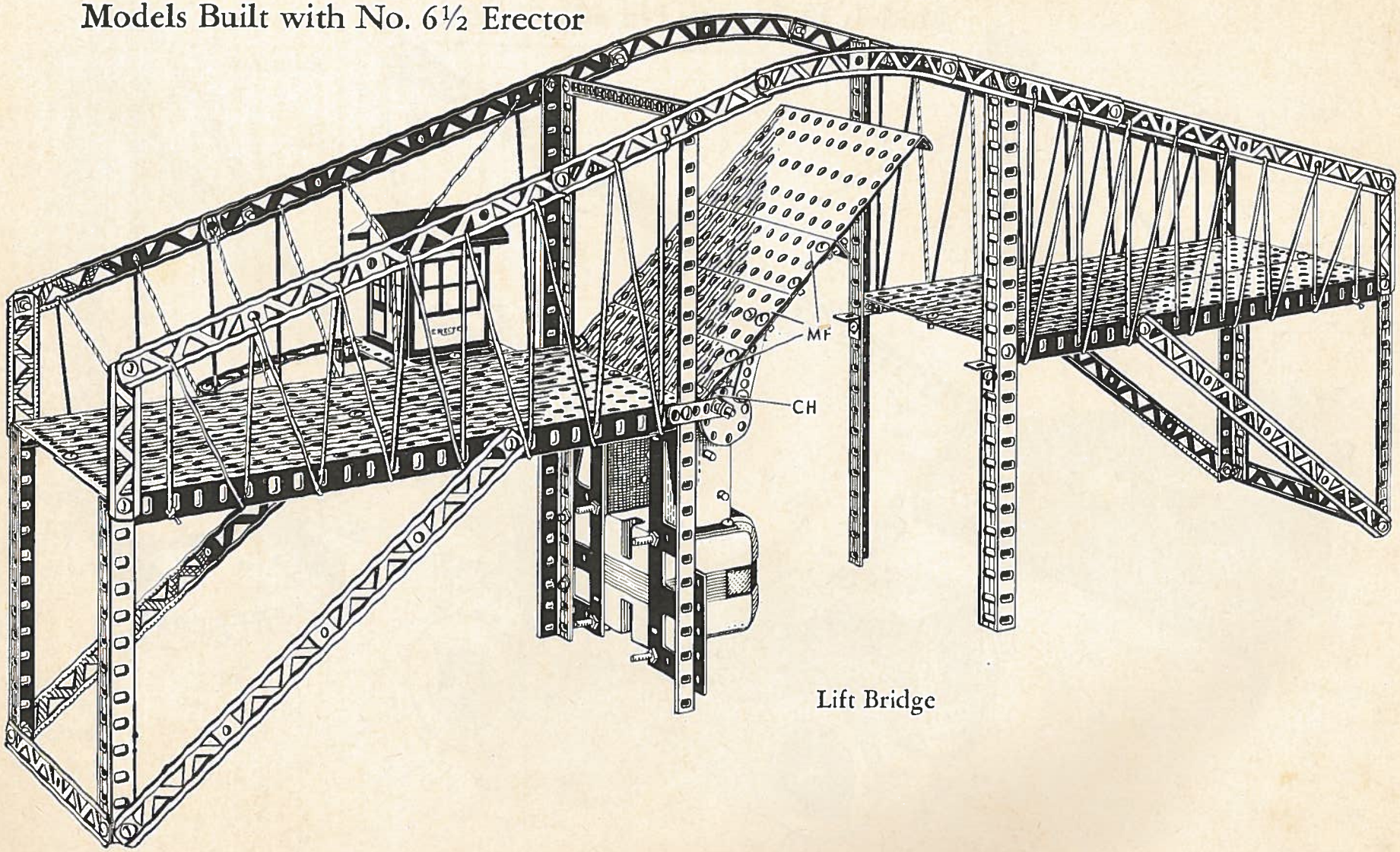


Tow Car



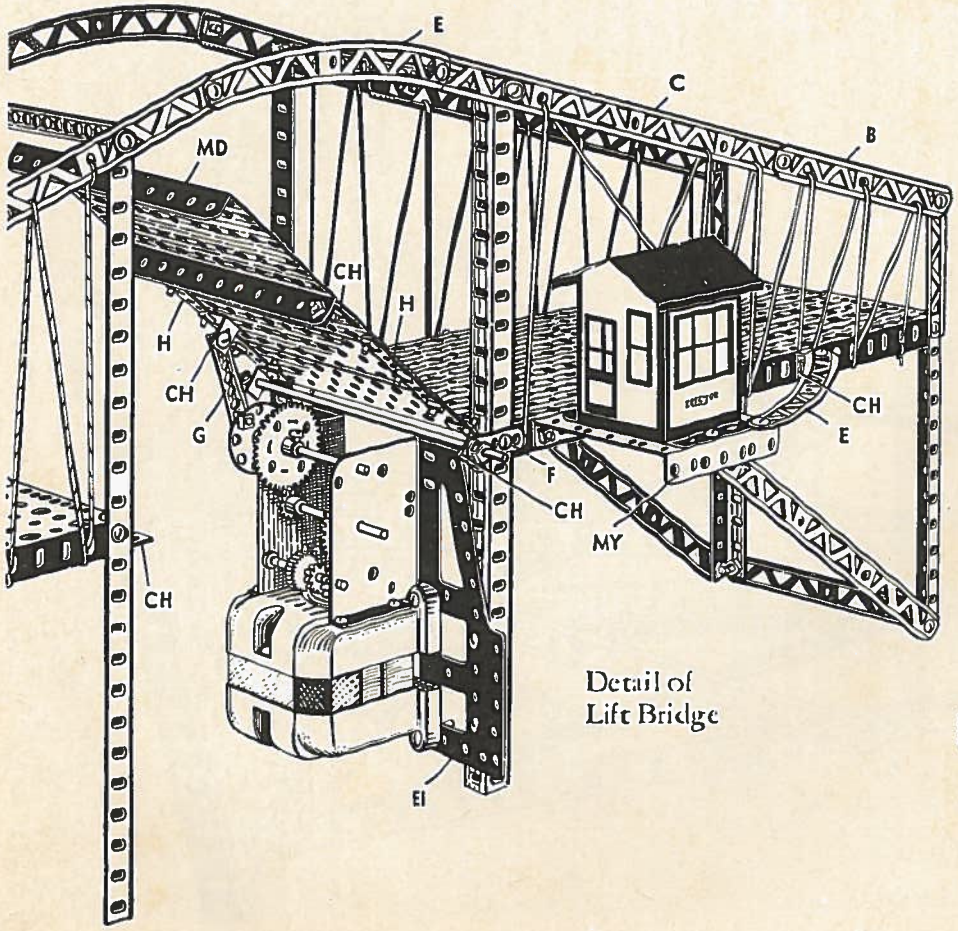
Detail of Stiff Leg Derrick

Models Built with No. 6½ Erector



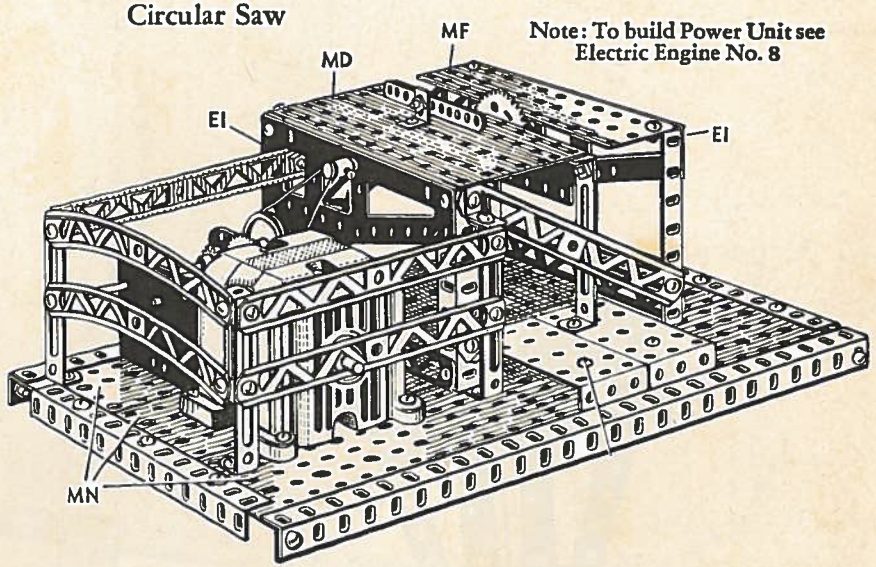
Lift Bridge

Models Built with No. 6½ Erector



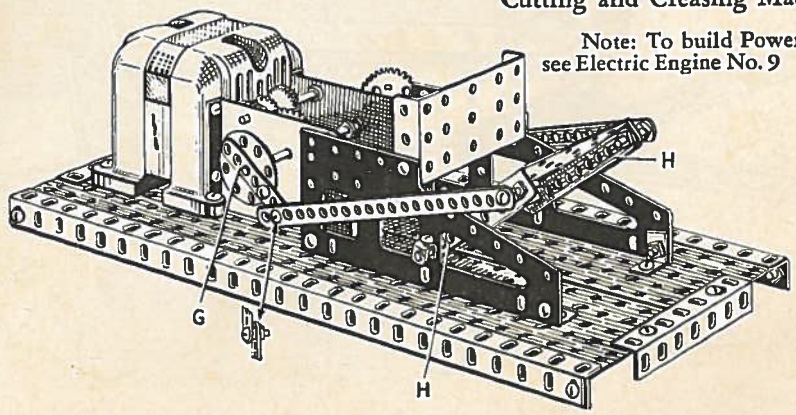
Detail of
Lift Bridge

Circular Saw



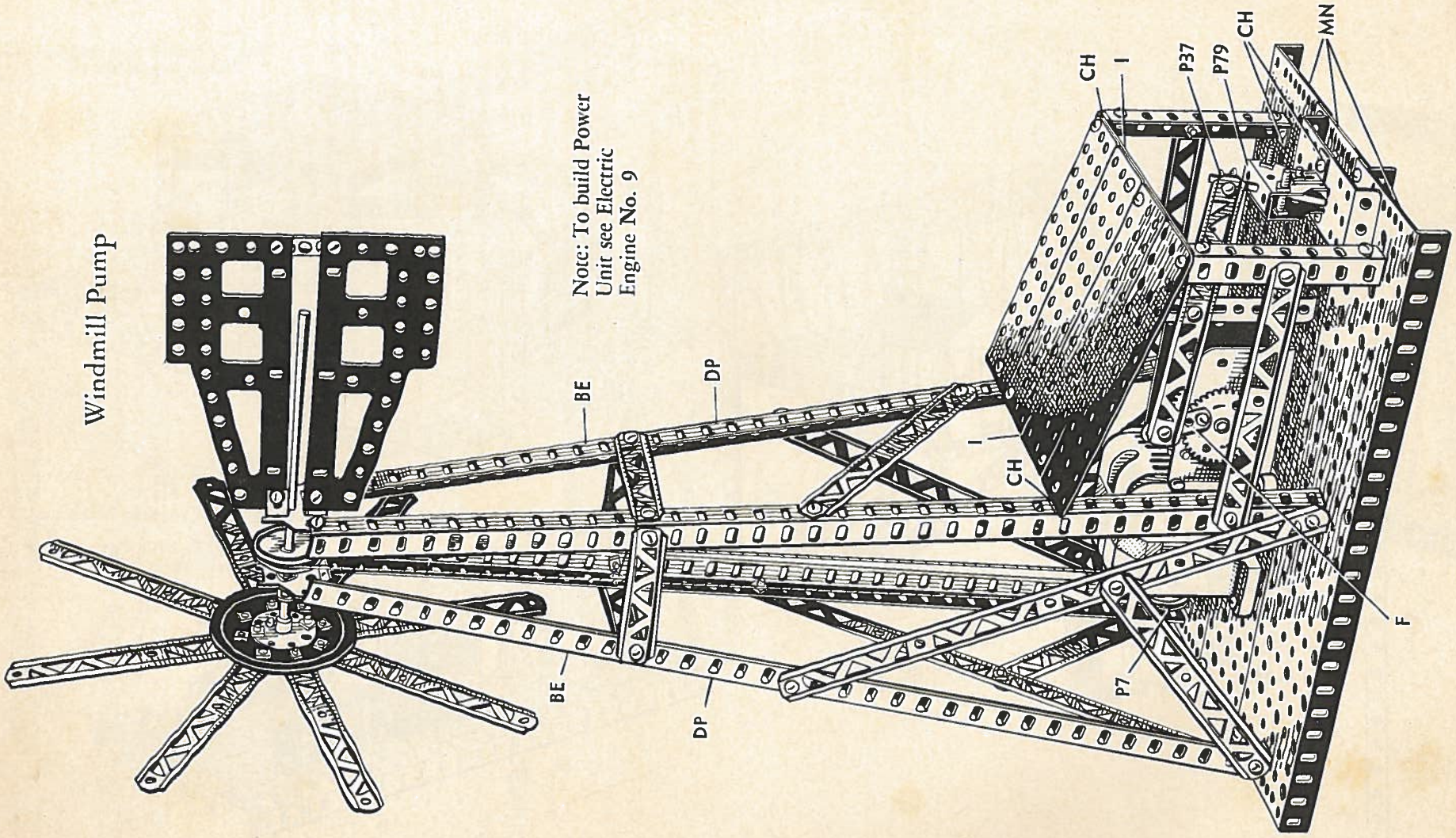
Note: To build Power Unit see Electric Engine No. 8

Cutting and Creasing Machine



Note: To build Power Unit see Electric Engine No. 9

Models Built with No. 6½ Erector



Models Built with No. 7½ Erector

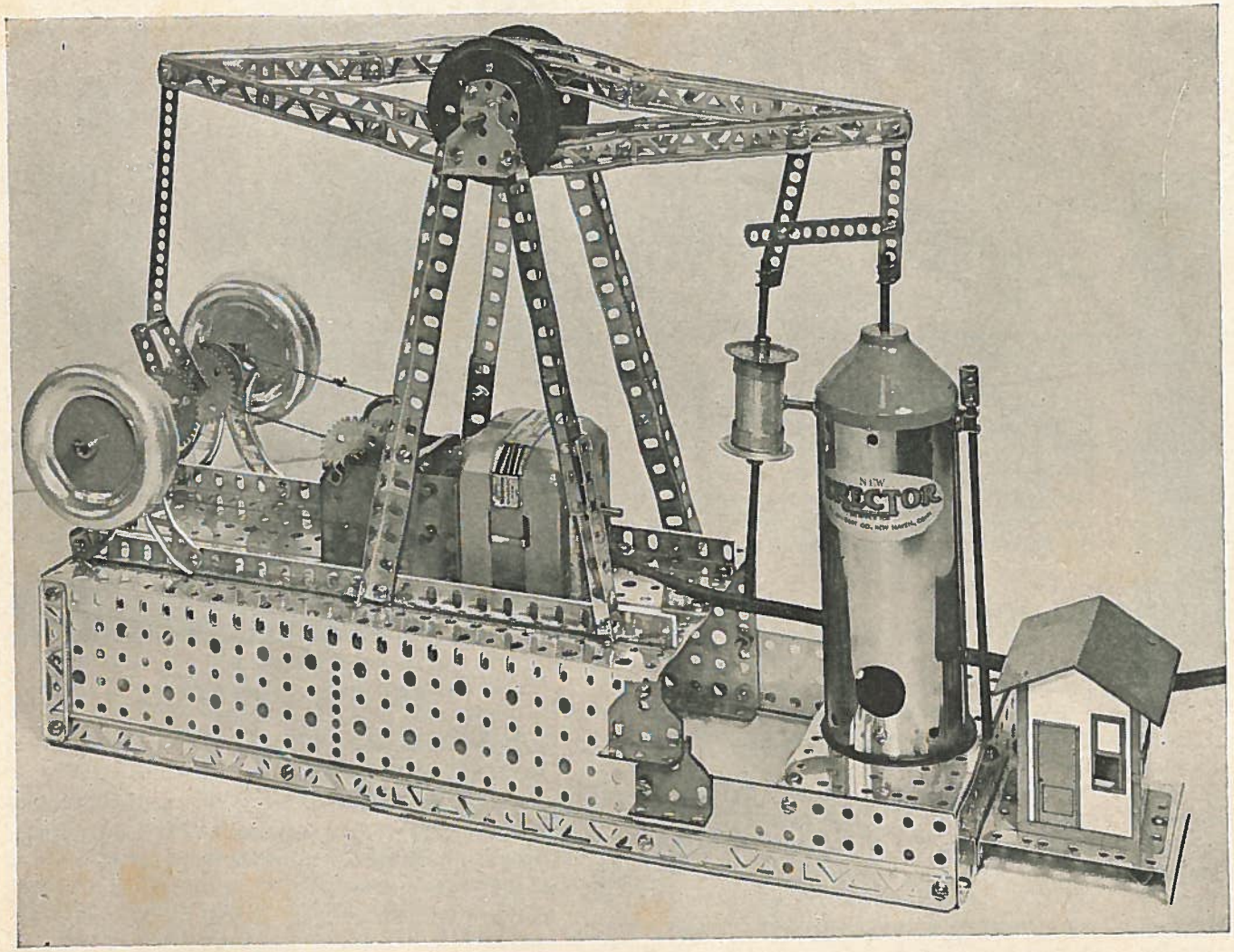
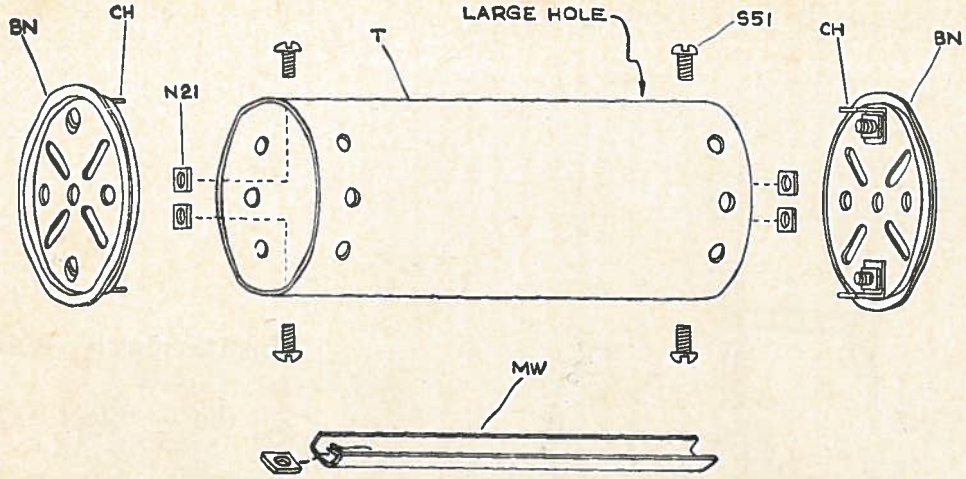


FIGURE 1

Instructions for Building the 7½ ERECTOR Walking Beam Engine

When James Watt invented the steam engine, its first use was to operate a Walking Beam Engine similar to the one you are about to build.



The boiler and boiler parts are found in the No. 7½ Erector set and successive sets.

On various models it is necessary to assemble the boiler (T) with turret plates (BN). Close boiler by overlapping edges and fastening with S51 screw and N21 nut. Assemble two (CH) angles to turret plates (BN). Hold boiler as shown in diagram, place assembled turret plate inside left end. Using nut holder, (MW) inside boiler to hold the N21 nuts, fasten turret plate to boiler. Remove nut holder from inside boiler and place second assembled turret plate inside right end of boiler. Using your finger through the large hole in boiler hold the N21 nuts to fasten turret plate to boiler.

THE COMPLETED MODEL

It is best to build this model as well as all other models from the bottom up. The base for this model is shown in Figure 1. The sides are each (MN) 12" base plates, the top is made from 2 (MN) 12" base plates. In Figure 2, you will see an (MF) 1" x 5" base plate fastened on the end to the sides of the base with (CH) right angles. On each side of the base is fastened an (A) 2½" girder and 2 (C) 10" girders.

On one side of the base are fastened 2 (P79) car trucks for steps.

The mounting for the boiler is made by extending the base with (MF) 1" x 5" base plates. Across the ends of these two base plates is fastened an (MF) 1" x 5" base plate. The top of this platform is an (MD) 2½" x 5" base plate.

The platform for the house is an (MY) 2½" x 2½" base plate fastened to the rear (MF) 1" x 5" base plate.

In Figure 1, you will see 2 (DP) 12" angle girders fastened along the top base plates. On these angle girders is mounted the inverted "V" frame which supports the beam. This inverted "V" is built with (MO) 3" angle girders on the bottom and (BE) 6" angle girders mounted on top of the 3" angle girders as shown in Figure 4. A P79 car truck is used to tie the "V" together as shown in Figure 3.

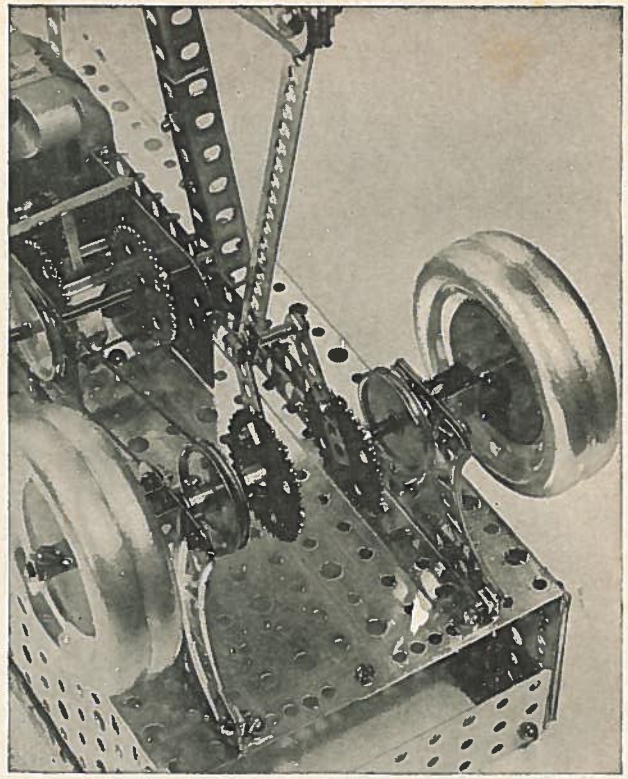


FIGURE 2

THE FLYWHEEL UNIT

In Figure 2 you will see a detail of the flywheel assembly. To the (DP) 12" angle girders are fastened 4 (D) 2½" curved girders. Across the top of these curved girders is fastened an (F) 5 hole strip and (P20) 5 hole strip—formed. On each side there are (AS) 2⅞" axles on which are fastened the 2 (MH) 3" disc wheels, P7 pulley and the (CJ) 36 tooth gear. On each 36 tooth gear is fastened a (G) 7 hole strip which is used as the eccentric arm to make the beam move in a see-saw fashion.

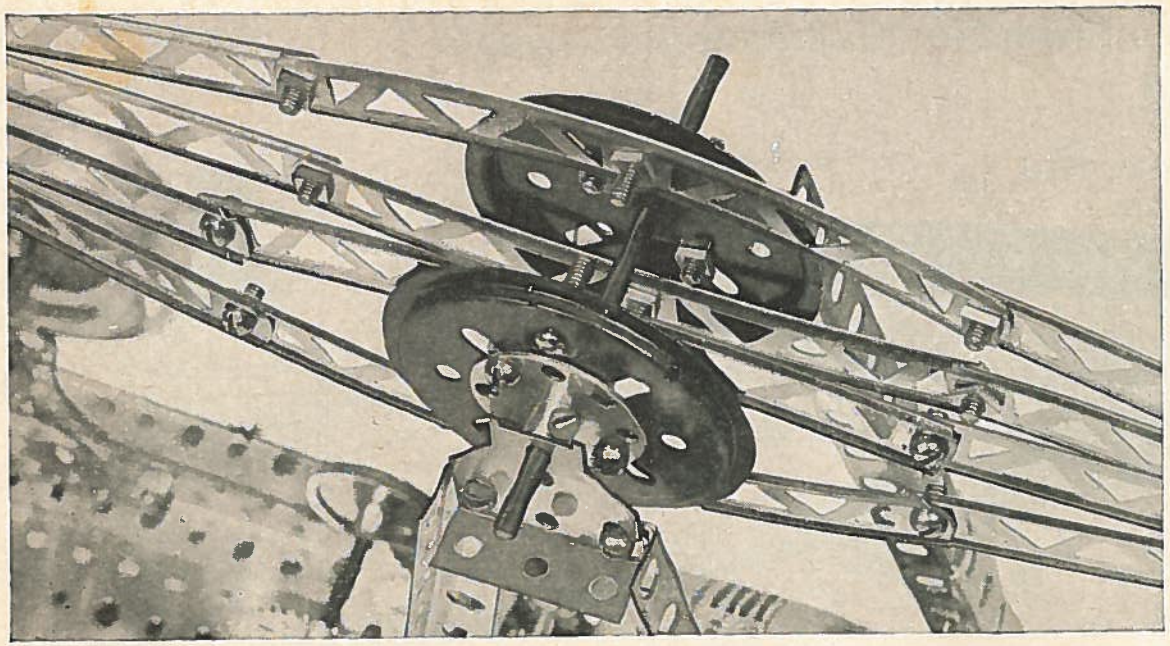


FIGURE 3

DETAILS OF WALKING BEAM

In Figure 1, you will see the entire Walking Beam and in Figure 3 is shown a detail of the beam. To the (BN) turret plates are fastened (BT) pierced discs which are used to hold the unit on the (AT) 4″ axles which also passes through the P79 car trucks. On each turret plate is fastened 2 (E) 5″ curved girders. To these curved girders are fastened (B) 5″ girders. The four 5″ girders are brought together at each end. On the boiler end is fastened an (H) 11 hole strip which is free to move. On the other end of the beam is fastened an (I) 21 hole strip which is also free to move. The beam should now be mounted on the inverted "V" and the end of the 21 hole strip attached to the flywheel unit. Special care should be taken at this point to check to see that everything is free by turning the flywheel unit by hand. The beam should move easily in see-saw fashion.

The (T) boiler should now be mounted on its base with a (BN) turret plate on the bottom and a (U) boiler top at the top. The little cylinder is made with a (W) smoke stack fastened to the boiler with an (S62) 8-32 x 7/8″ screw. Two (Z) flanged wheels are put on either end of the smoke stack.

A (CZ) 7″ axle is allowed to move free inside the two (Z) flanged wheels on the smoke stack. At the top of this axle is fastened a P37 collar and an (H) 11 hole strip. This strip is fastened to the beam in location shown in Figure 1 with an (S62) screw. Across the two (H) 11 hole strips fastened to the beam is attached an (H) 11 hole strip in location shown in Figure 1. These three strip should be free to move. On the end of the end 11 hole strip is fastened a P37 collar and a (AT) 4″ axle which passes through the top hole in the boiler top. Another (CZ) 7″ axle is used for mounting a P15 coupling which denotes the whistle on the boiler. This 7″ axle is held to the boiler with a P37 collar.

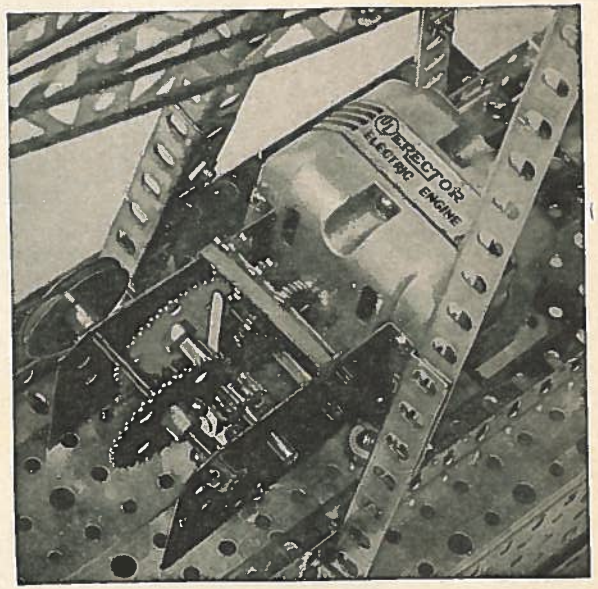


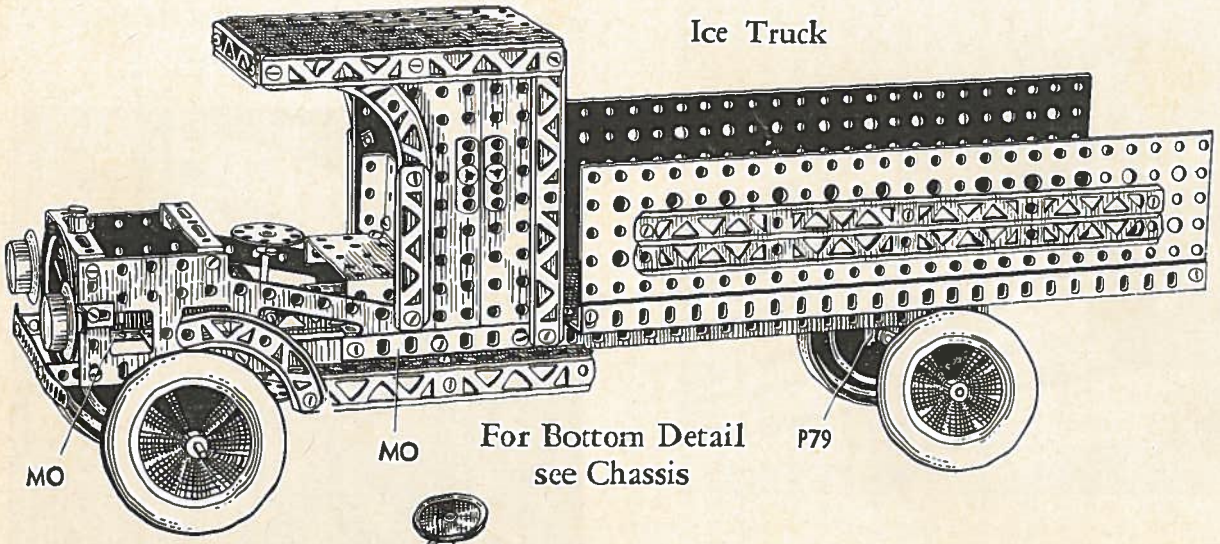
FIGURE 4

THE POWER UNIT

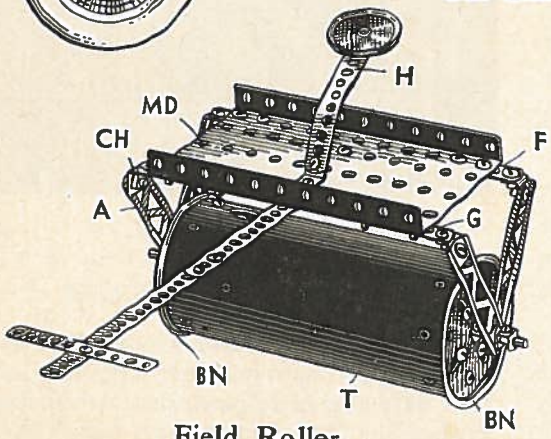
The power unit for this model is the A-49 Electric Engine geared as shown in Figure 4. A string is fastened from the pulley on the power unit to the pulley on the flywheel unit. When the engine is turned on, it drives the flywheel unit, which in turn drives the walking beam. The beam operates the piston in the cylinder and the boiler.

Models Built with No. 7½ Erector

Ice Truck

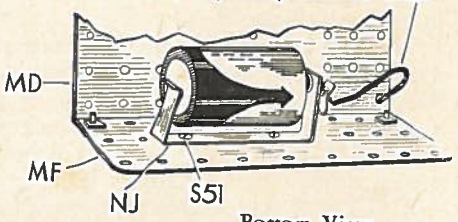


For Bottom Detail see Chassis



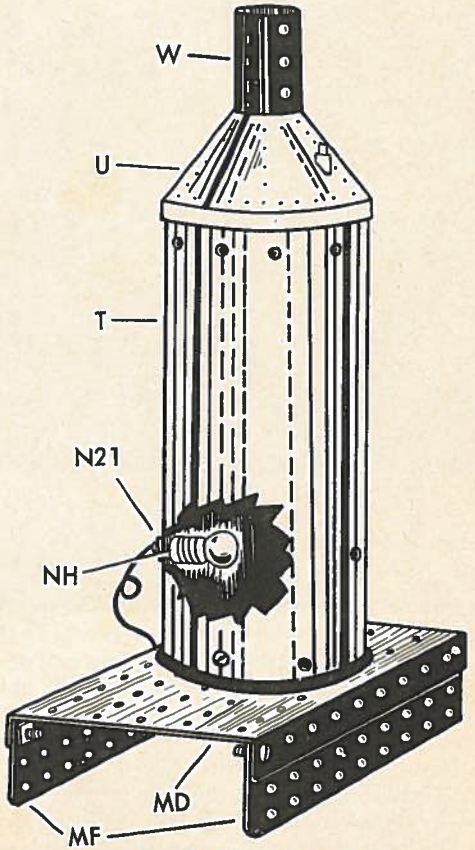
Field Roller

Wire from (NH) Lamp Socket Unit.



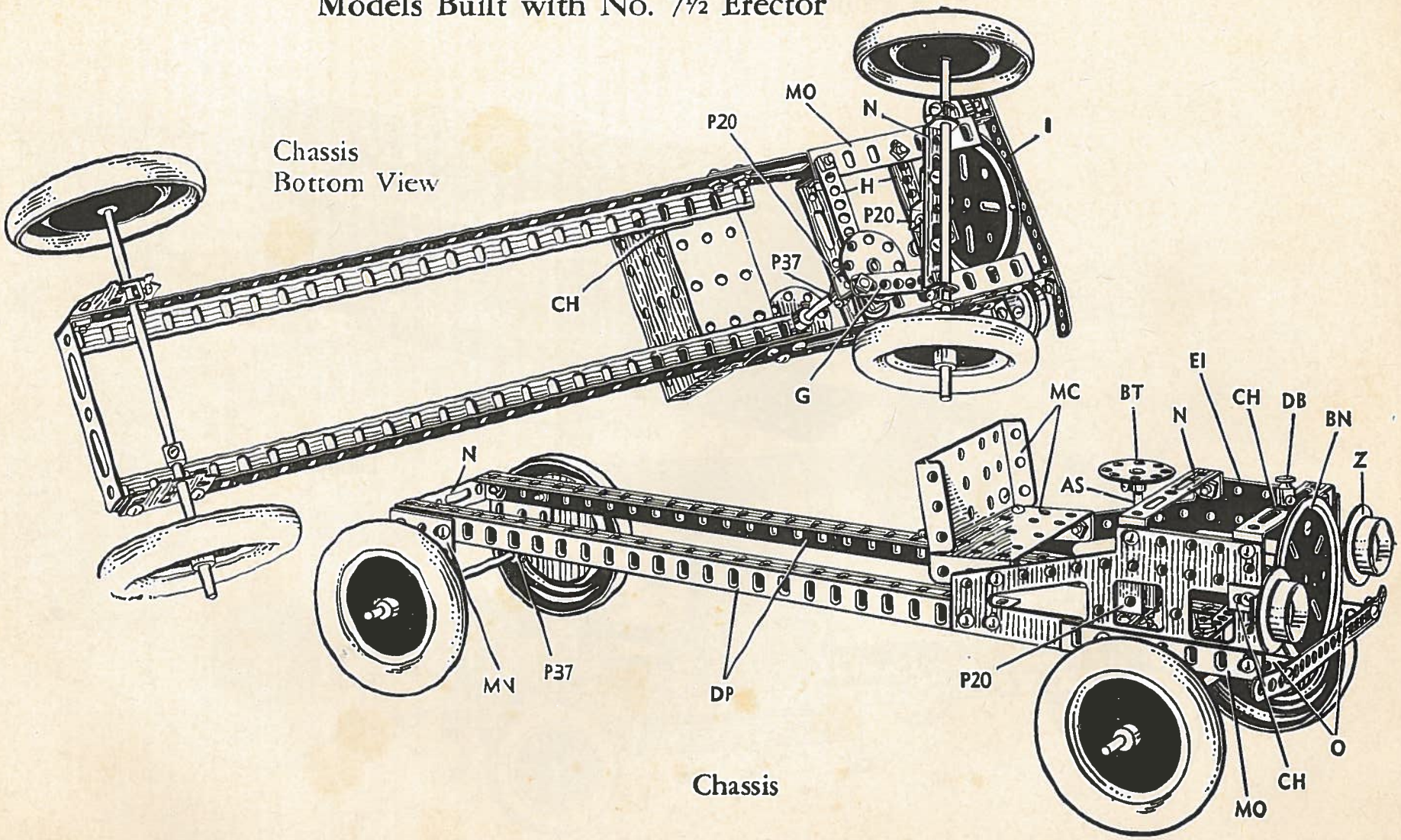
Bottom View

Shows details of Battery Holder to use with red or white bulb in boiler. Battery not included.



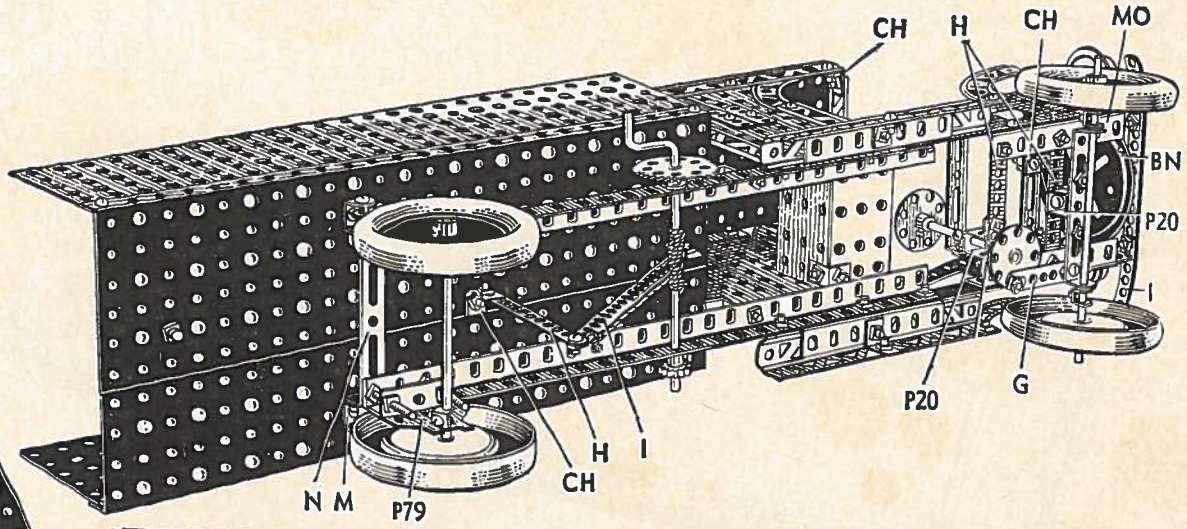
Inside view shows use of red or white 1½ volt bulb in boiler.

Models Built with No. 7½ Erector



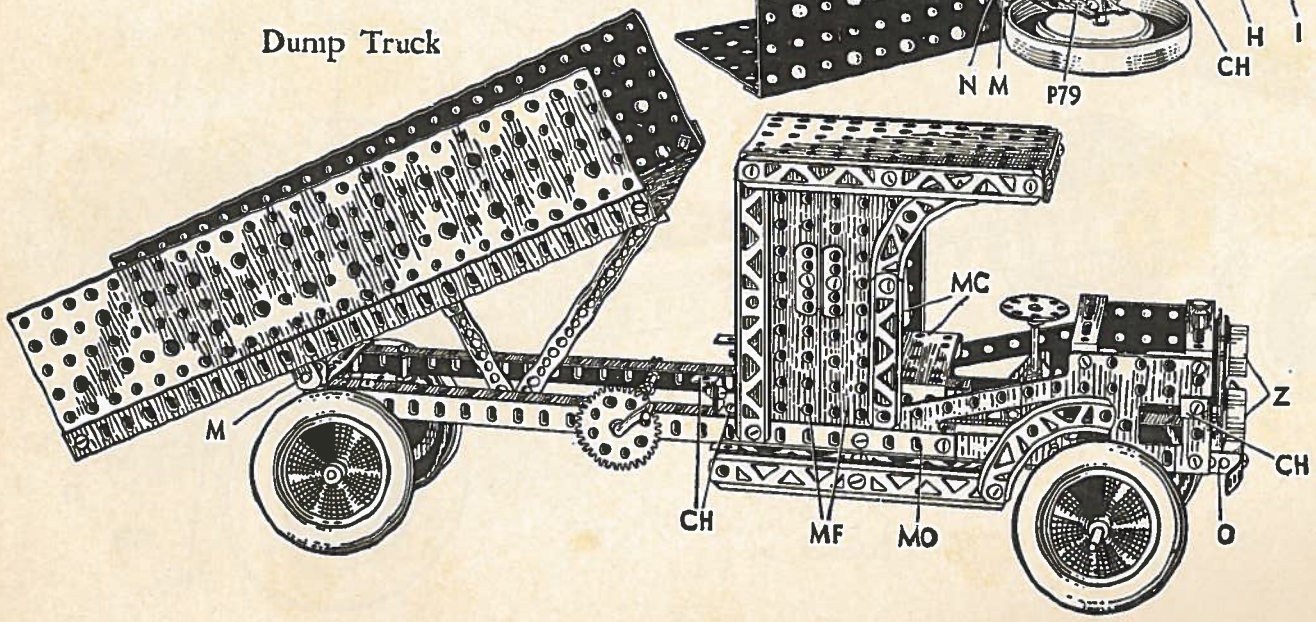
Chassis

Models Built with No. 7½ Erector



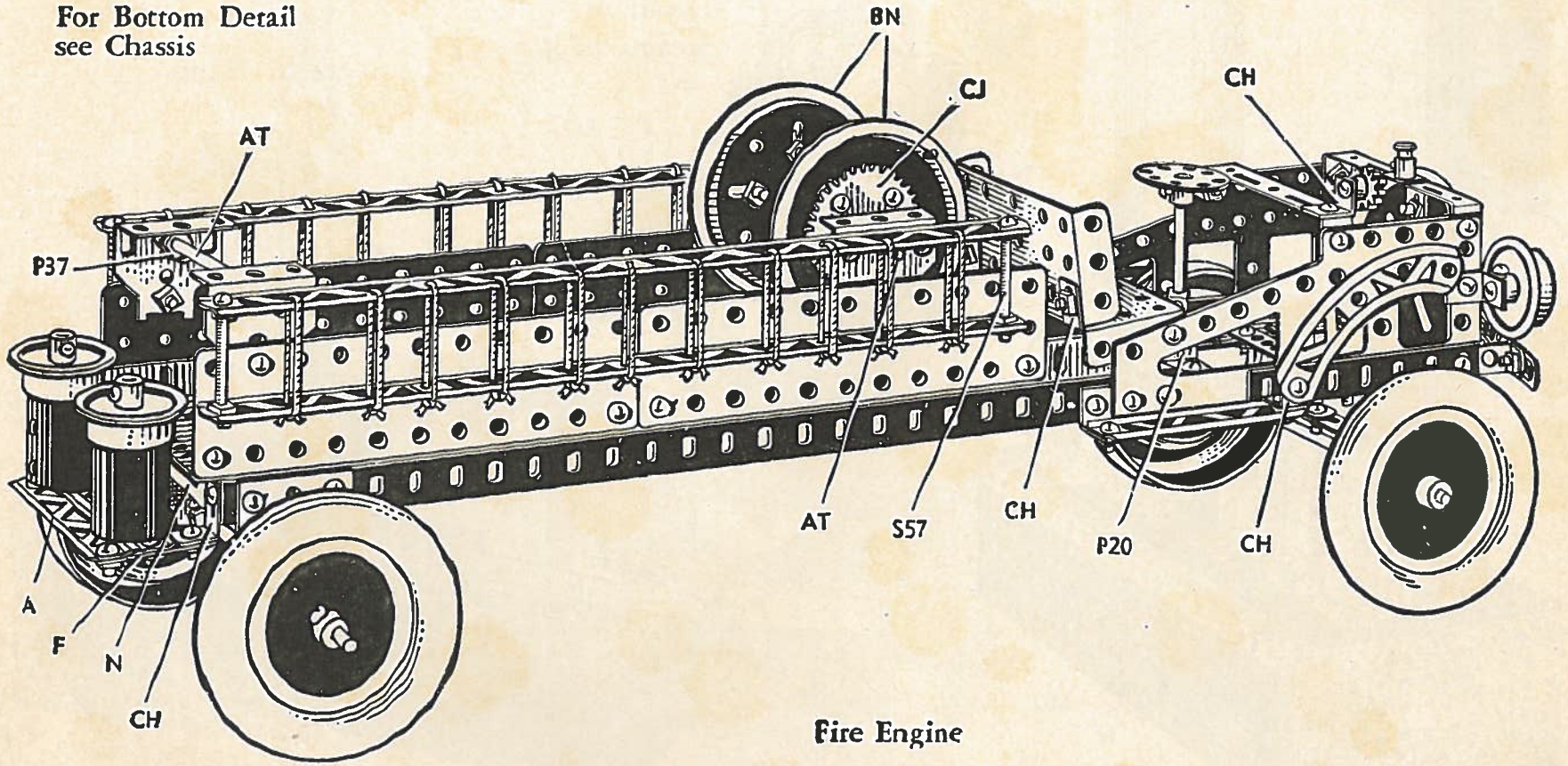
Dump Truck Bottom View

Dump Truck



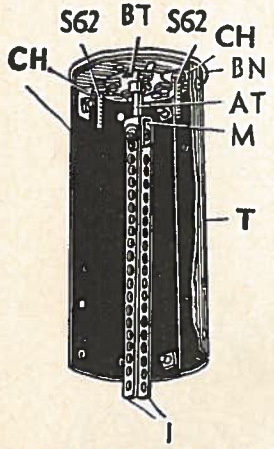
Models Built with No. 7½ Erector

For Bottom Detail
see Chassis



Fire Engine

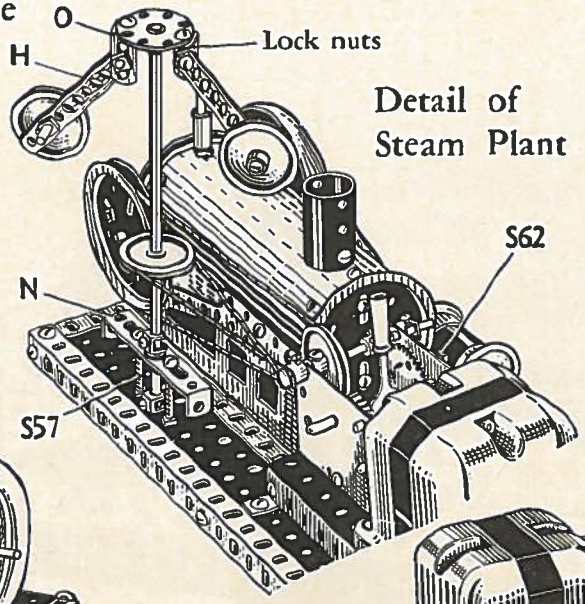
Models Built with No. 7½ Erector



Detail of Piston Construction

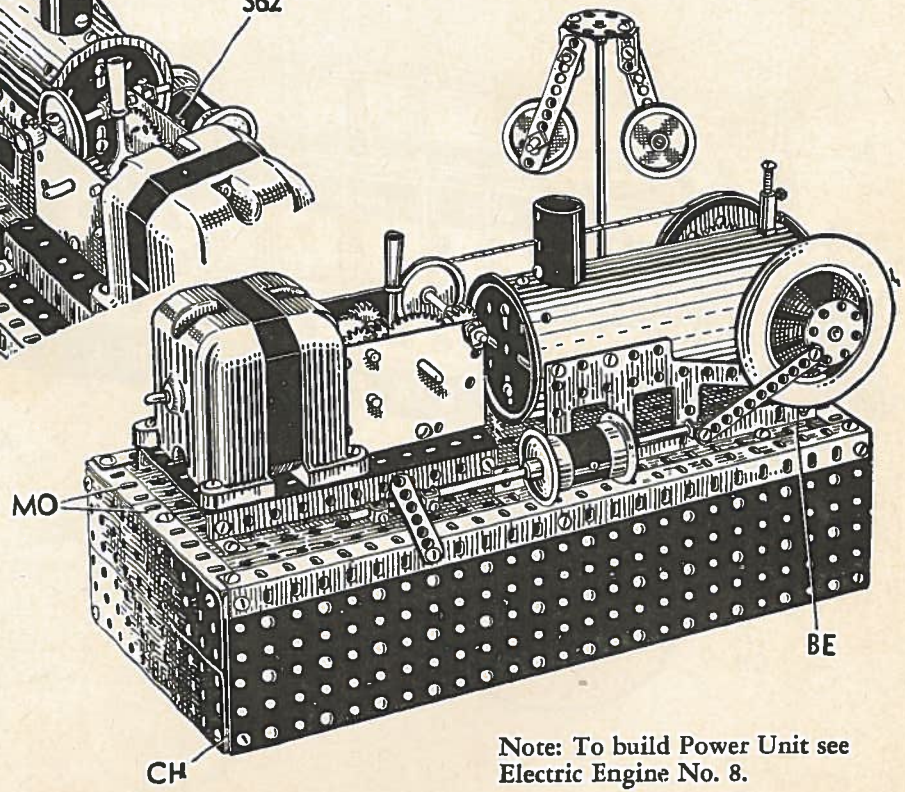
Marine Type Engine

Note: To build Power Unit see Electric Engine No. 8.



Detail of Steam Plant

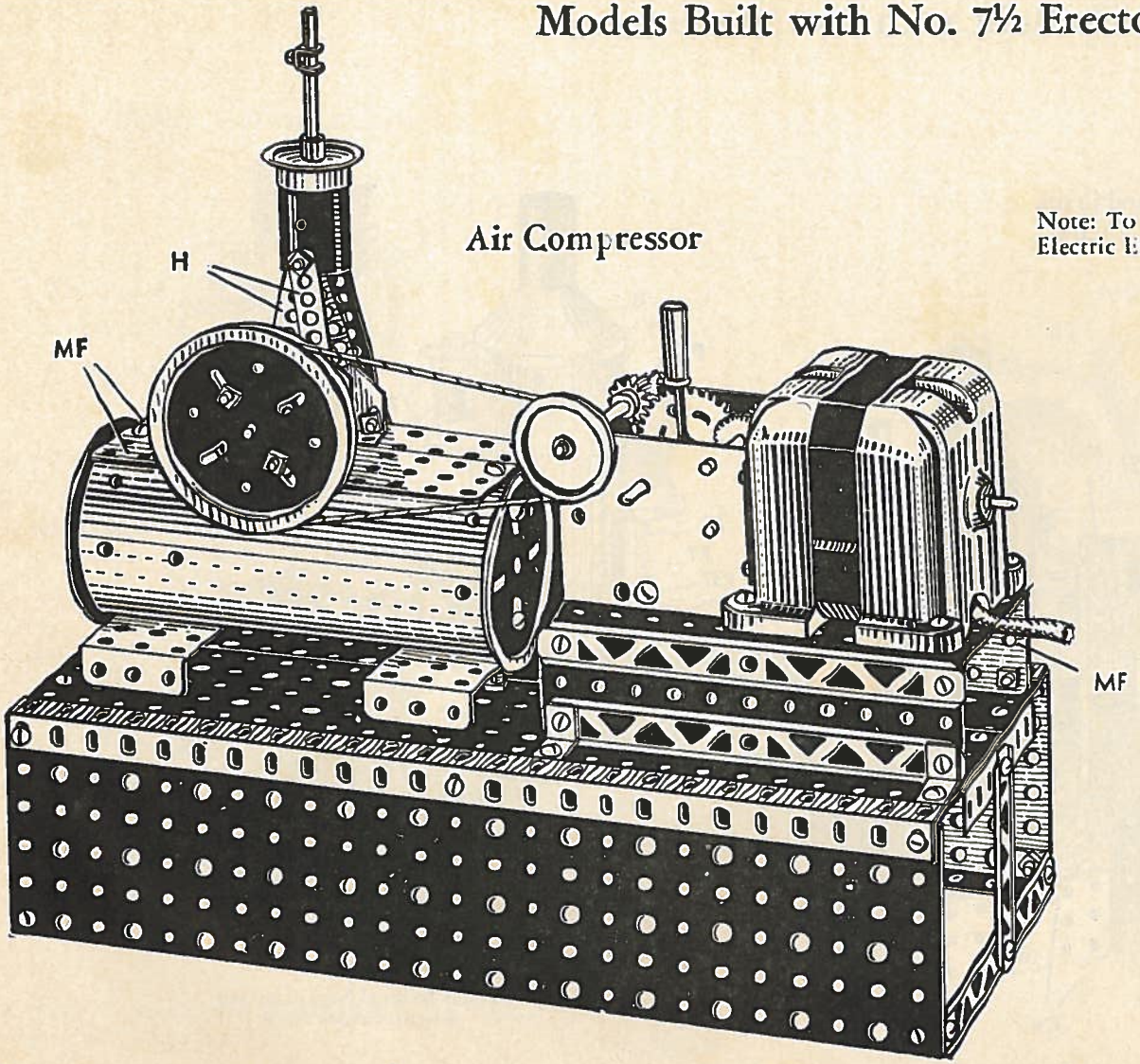
Steam Plant



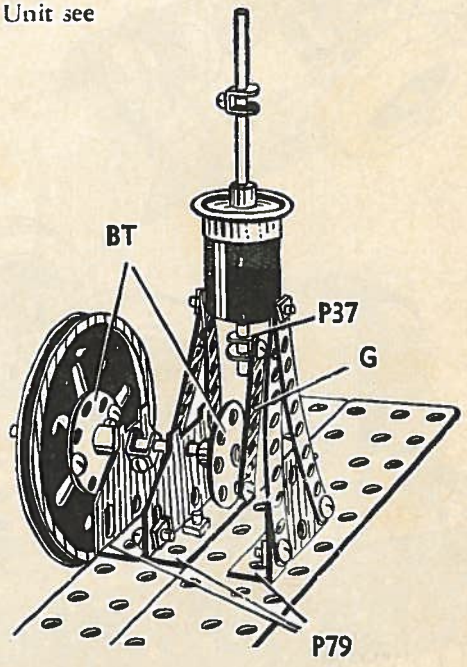
Note: To build Power Unit see Electric Engine No. 8.

Models Built with No. 7½ Erector

Air Compressor

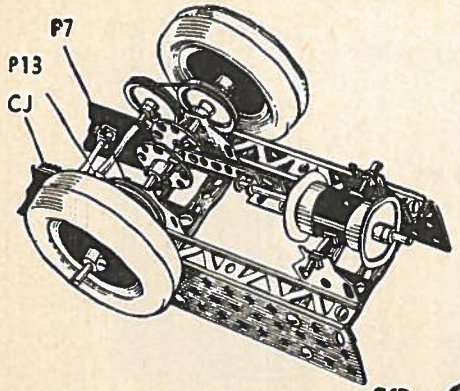


Note: To build Power Unit see Electric Engine No. 8.

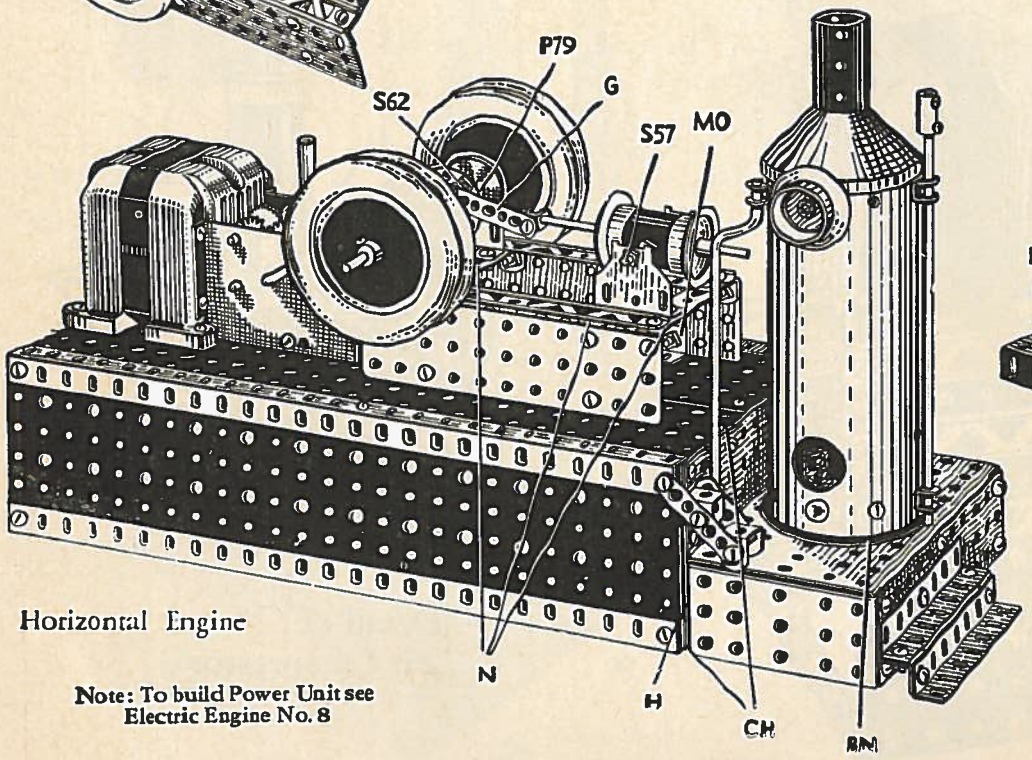


Detail of Air Compressor

Models Built with No. 7½ Erector

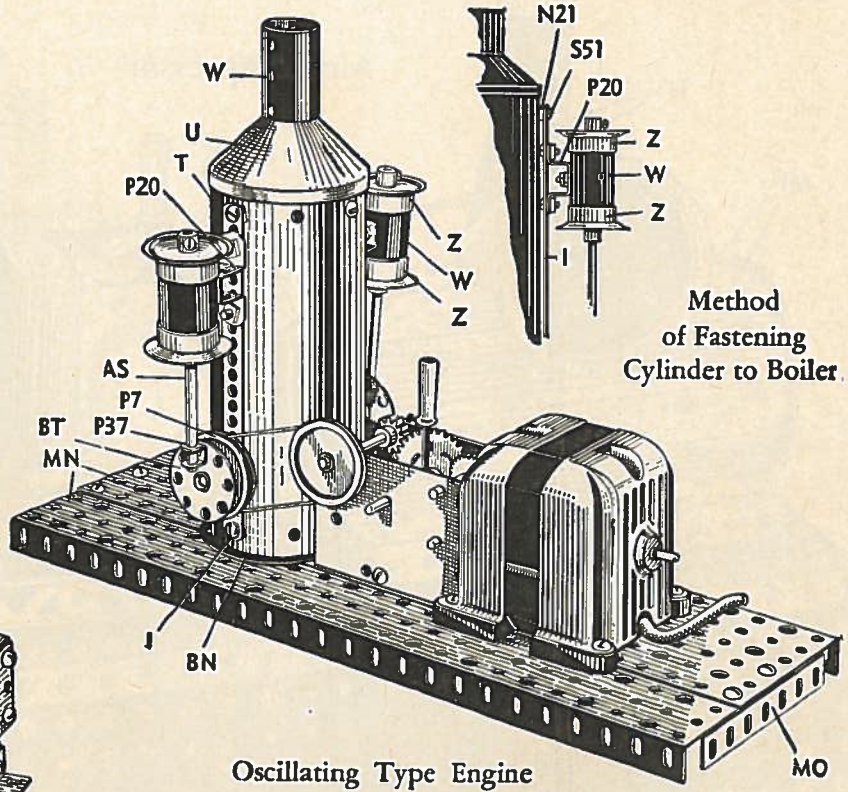


Detail of Drive and Crank for Horizontal Engine



Horizontal Engine

Note: To build Power Unit see Electric Engine No. 8



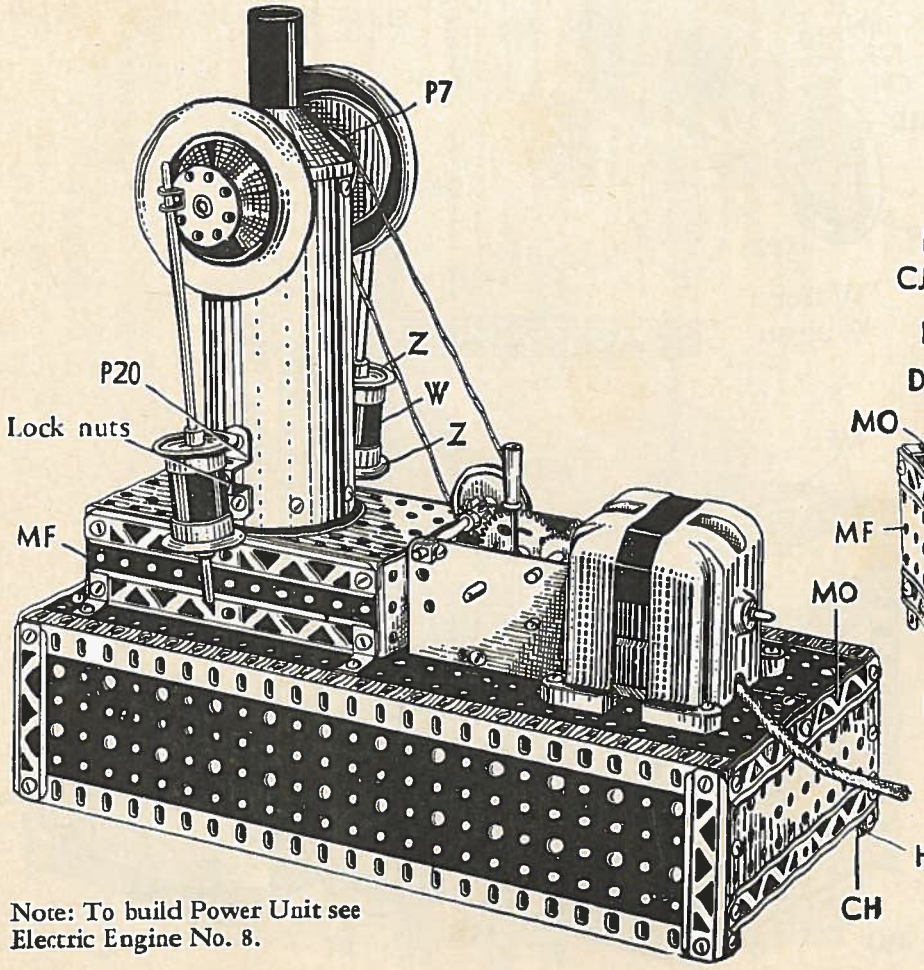
Method of Fastening Cylinder to Boiler

Oscillating Type Engine

Note: To build Power Unit see Electric Engine No. 8

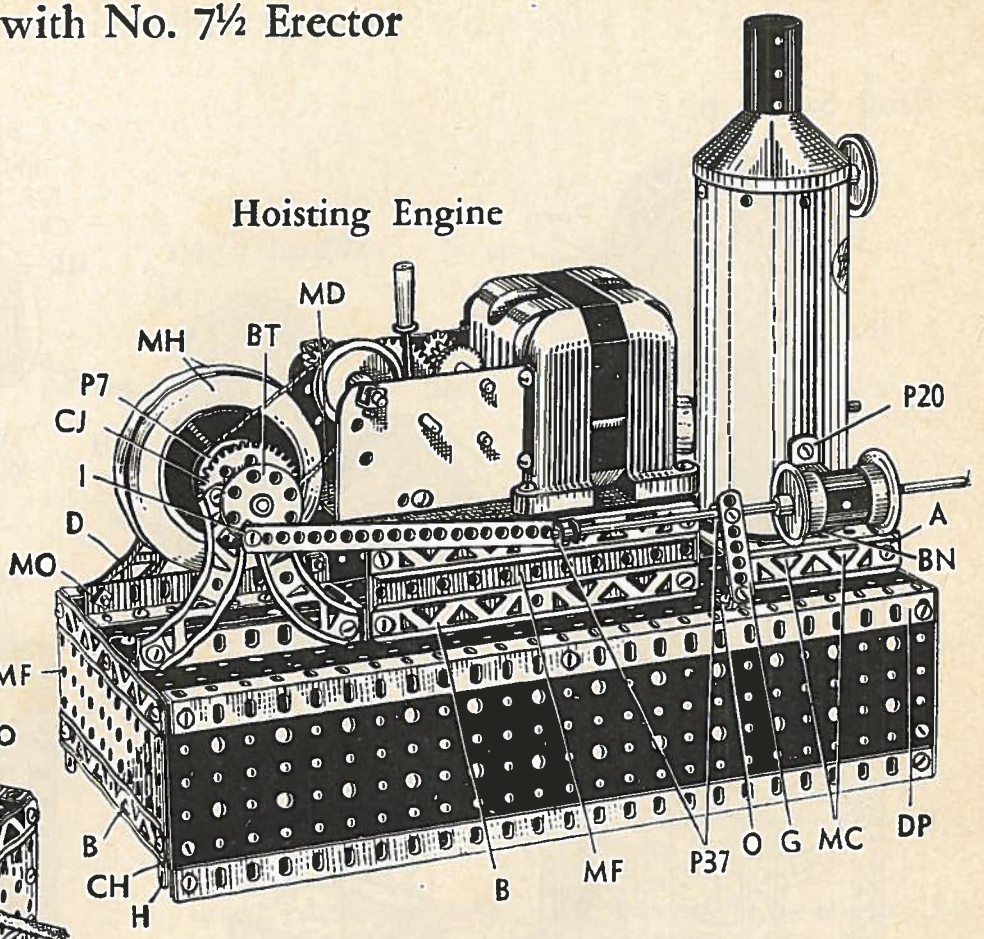
Models Built with No. 7½ Erector

Twin Cylinder Engine



Note: To build Power Unit see Electric Engine No. 8.

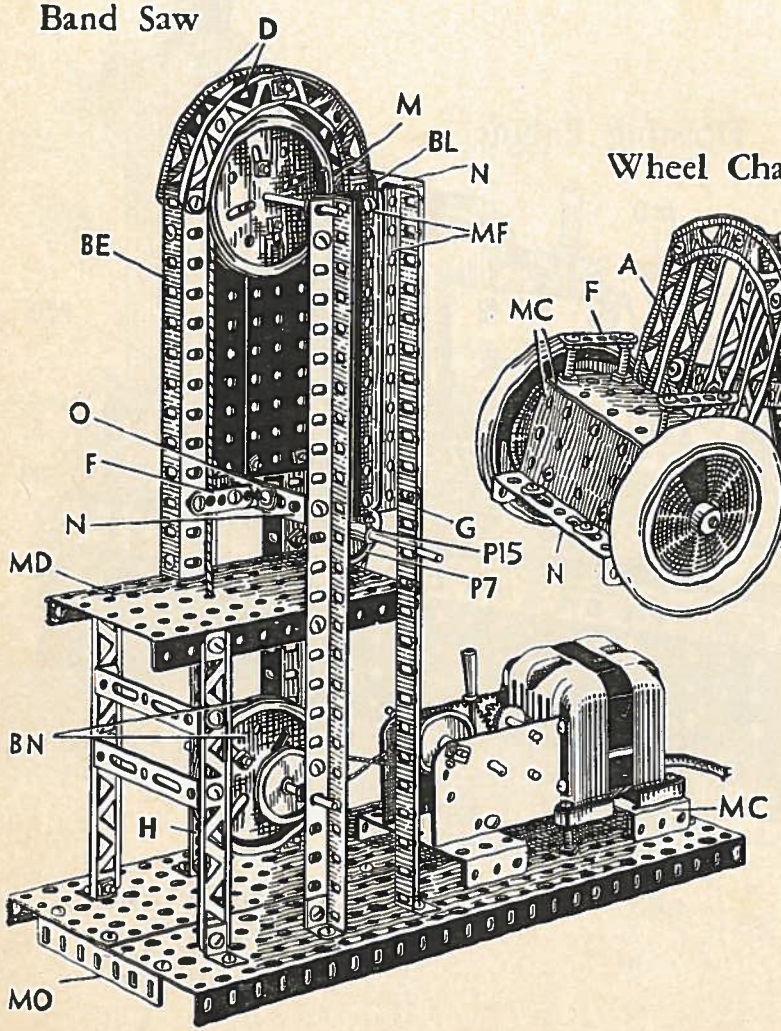
Hoisting Engine



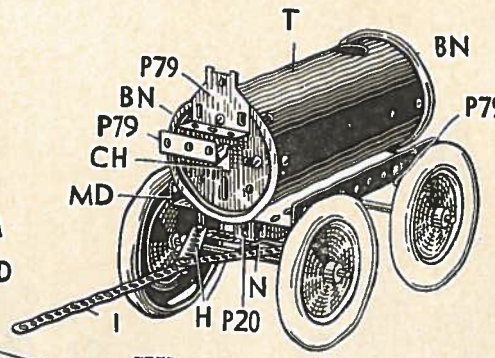
Note: To build Power Unit see Electric Engine No. 8

Models Built with No. 7½ Erector

Band Saw



Wheel Chair



Water Wagon

Jig Saw

Note: To build Power Unit see Electric Engine No. 8.

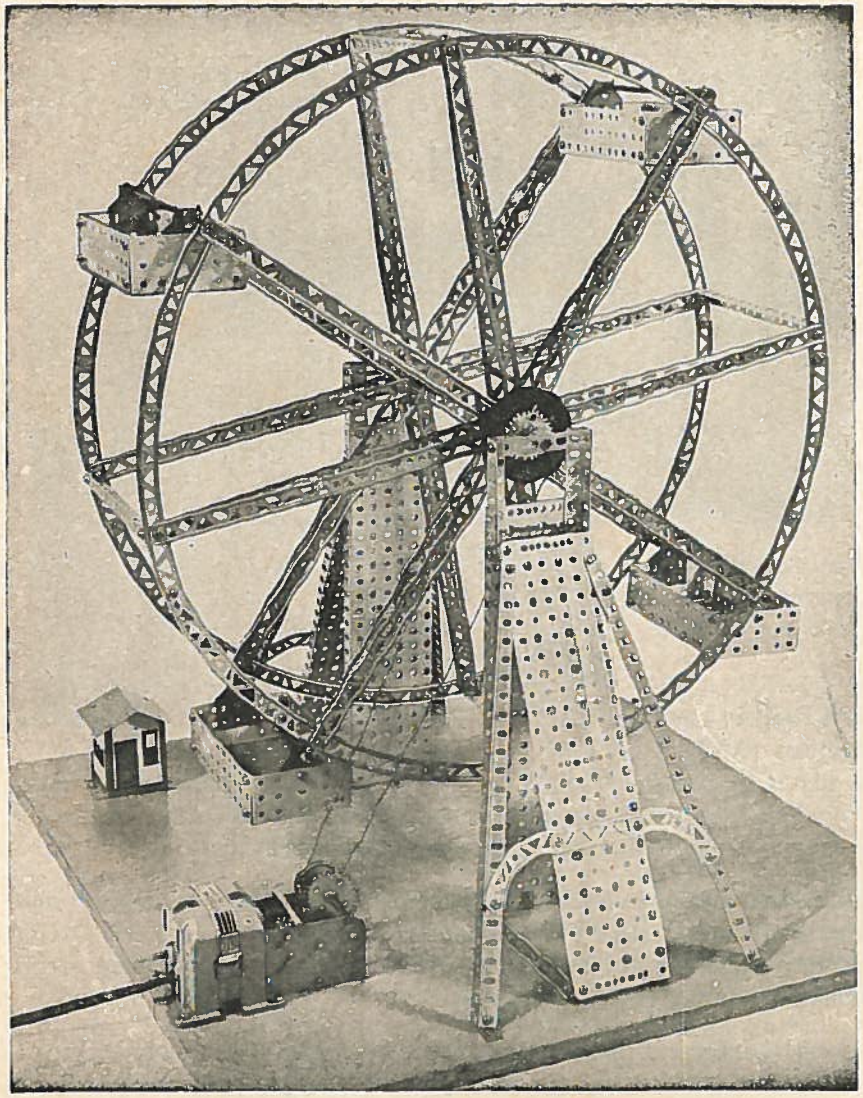


FIGURE 1

Models Built with No. 8½ Erector

Instructions for Building the 8½ Ferris Wheel Model

At every carnival, or fair, the most popular ride is the Ferris Wheel. It is one ride on which adults as well as children have fun and thrills. The 8½ Erector Ferris Wheel model you are about to build is probably the most famous of all Erector models. It shows how closely Erector can duplicate the actual Ferris Wheel.

THE COMPLETED MODEL

This model is not difficult to build. Figure 1 shows the completed model. The model is built with two large wheels fastened to a shaft which is held between two supports. The power unit drives the model with pulleys and string. The model should be fastened to a wood base or other suitable material.

The first assemblies to build are the large wheels. Each of these are built of 13 (E) 5″ curved girders on the rim and from eight equal places on the rim two (C) 10″ girders are fastened, one on each side of the rim. These girders are brought to the center of wheel as shown in Figure 2 and fastened to (BT) pierced discs.

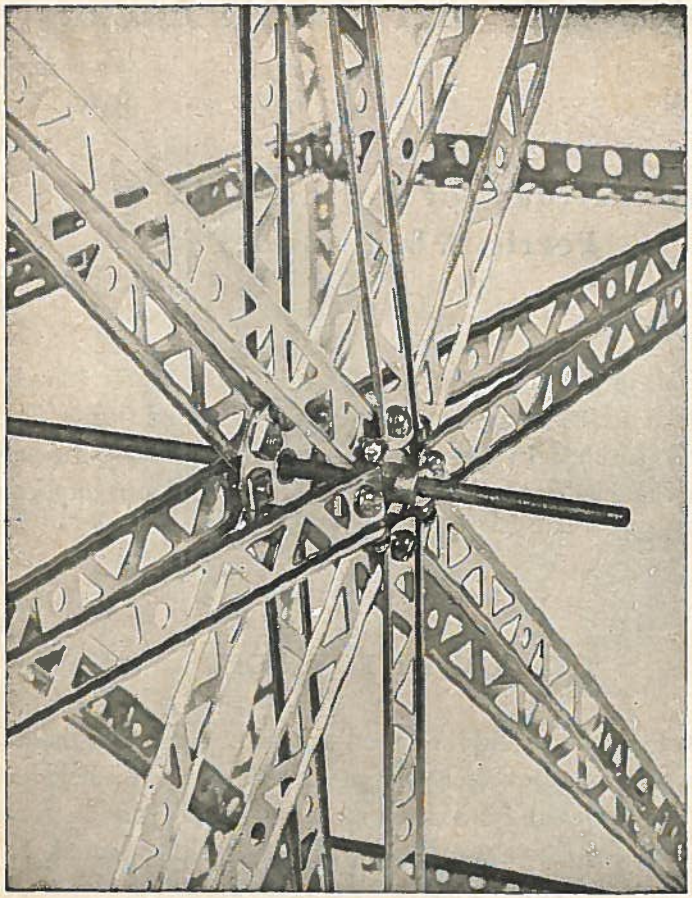


FIGURE 2

CENTER OF WHEEL

The hub of each wheel consists of two (BT) pierced discs to which are fastened 16 (C) 10" girders, 8 to each disc. The two wheels are fastened together at four places on the rim with (BE) 6" angle girders held to the rims with (CH) right angles. See Figure 1.

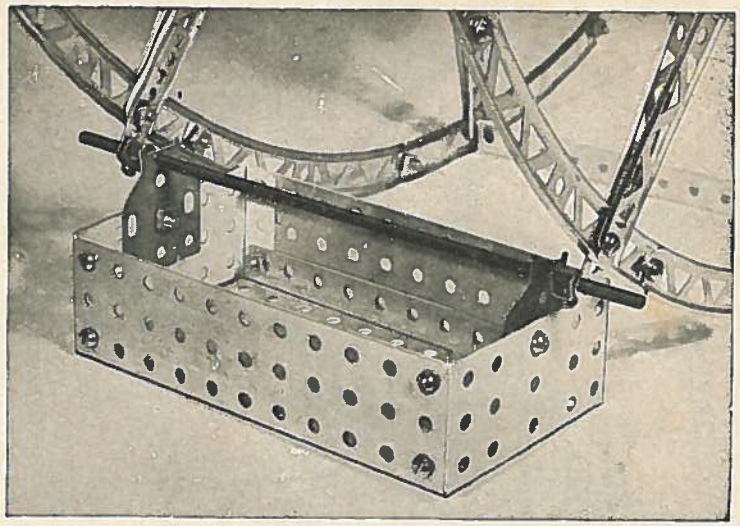


FIGURE 3

THE BASKET

The Ferris Wheel has four baskets which represent seats. Each of these are built with an (MD) 2½" x 5" base plate for the bottom, 2 (MF) 1" x 5" base plates for the sides with (MC) 1" x 2½" base plates on the ends. Inside the ends of two baskets are fastened (MV) flat car trucks. Inside the ends of the other two baskets are fastened P79 car trucks.

Three baskets are supported on the wheel from 7" axles which are held to the rim in one place with 2 (H) 11 hole strips, in another place with 2 (F) 5 hole strips, and in the third position with 2 (I) 21 hole strips. These strips are fastened inside the (C) 10" girders.

The fourth basket is supported on the wheel from an 8" axle made from 2 (AT) 4" axle rods fastened together with a P15 coupling. The axle is held between the wheel with 2 (H) 11 hole strips which are fastened inside the (C) 10" girders.

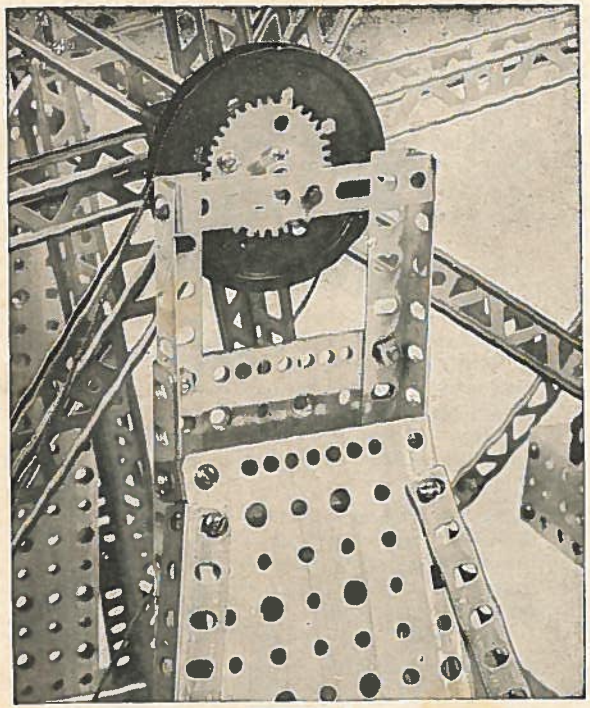


FIGURE 4

TOP OF SUPPORT

In Figure 1 and Figure 4 you will see how the supports are constructed. Each support is built with two (MN) 12″ base plates fastened together to form the vertical member with a single 12″ base plate fastened on a slant to the base plates with (CH) right angles, see Figure 4. Two (DP) 12″ angle girders are fastened to the single base plate and then to the mounting board. As a bottom support (B) 5″ girders are fastened to the vertical base plate and to the single slanted base plate. These girders are fastened to slanted base plates with (CH) right angles.

Across the slanted base plate is fastened an (A) 2½″ girder and then (2) (D) 2½″ curved girders fastened to the (DP) 12″ angle girders.

In Figure 4, you will see that 2 (MO) 3″ angle girders are fastened to extend the vertical support higher. Across the top of these two 3″ angle girders is fastened an (N) long double angle, the center hole of which is used to support the large wheel.

As shown in Figure 4, a large pulley is fastened to the 12″ axle. The pulley is made with 2 (BN) regular turret plates fastened together with a (CJ) 36 tooth gear.

The two supports are now fastened to the wood base in such a location that when the large wheel is mounted in the supports it will be free to turn between them. The wheel is kept from shifting from side to side by fastening two P7-A pulleys to the 12″ axle one on each side of the long double angle at the top of the support. This is done on the opposite end of the axle from the driving pulley. The pulleys should be fastened to the shaft with their hubs toward the long double angle.

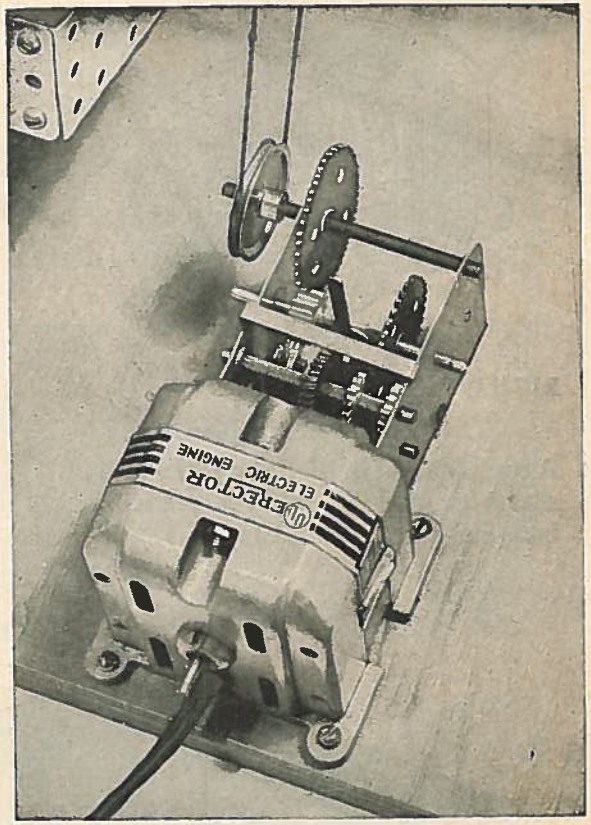


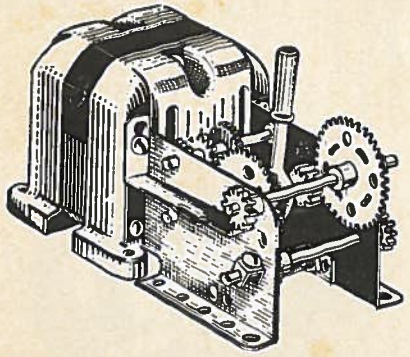
FIGURE 5

POWER UNIT

The power unit is an A-49 Electric Engine geared as shown in Figure 5. A P7-A pulley is fastened to an (AT) 4″ axle. The power unit is fastened to the base as shown in Figure 1. A string for driving the model is fastened around the pulley on the power unit and around the large pulley on the 12″ axle.

Models Built with No. 8½ Erector

ELECTRIC ENGINE POWER UNITS

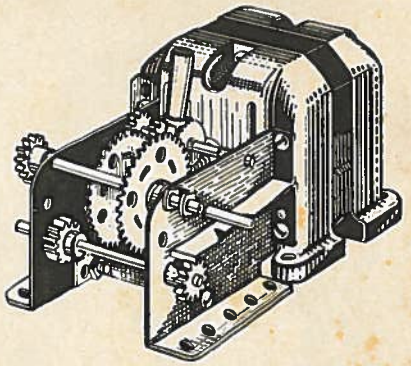


RIGHT SIDE

ELECTRIC ENGINE No. 10

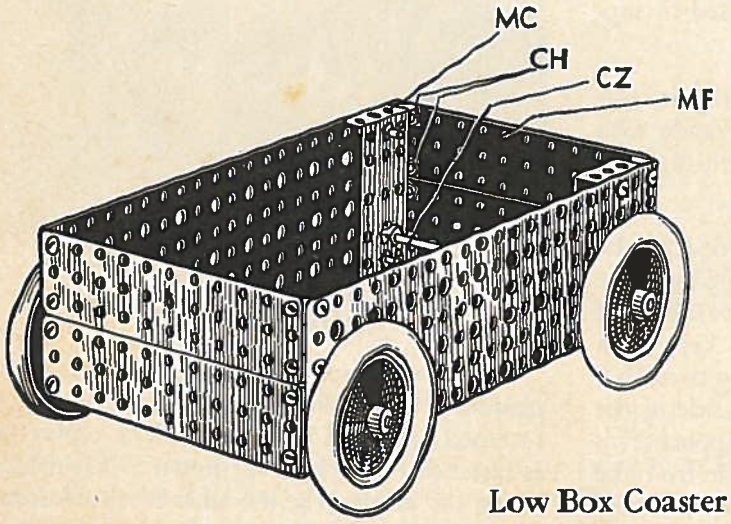
A combination of high and low speed shafts for load and boom on derricks, etc. (See note on RATCHETS.)

THE RATCHET and pinion arrangement on E. E. No. 10 are only needed when the load, such as an elevator or derrick, would run down when in neutral. This ratchet may be put on any power unit used for hoisting. It should be adjusted so that when the driven gear is not in mesh the ratchet engages the pinion preventing rotation. As the drive gear shifts into mesh, the sliding shaft slips off the raised portion of the ratchet, allowing it to disengage the pinion and free the driven shaft.

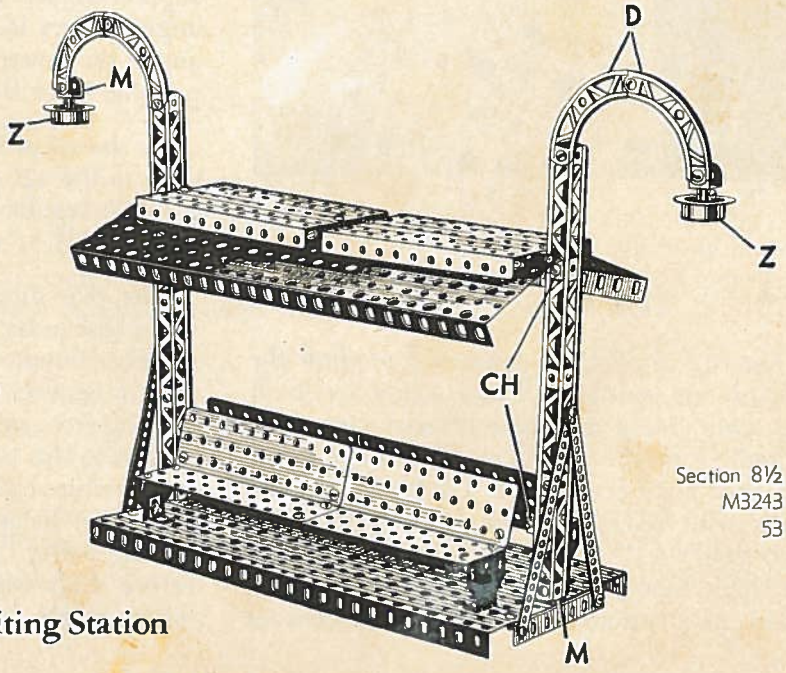


LEFT SIDE

ELECTRIC ENGINE No. 10



Low Box Coaster



Waiting Station

Section 8½
M3243
53

INSTRUCTIONS FOR BUILDING THE ERECTOR ELECTRIC THRILLER

This amazing little device will provide lots of fun for yourself and many thrills for your friends. This thriller is actually a device for giving your friends a slight shock. It is absolutely harmless in every respect.

Building the model should begin with the battery container. The container is shown in Figures 1 and 2. The bottom of the container is an (MF) 1" x 5" base plate. The sides are (MF) 1" x 5" base plates fastened to the bottom base plate with (MO) 3" angle girder on the inside. On the rear overhanging end of the bottom 1" x 5" base plate is fastened 2 (CH) right angles, 2 (G) 7 hole strips to the right angles and a cross piece, a (BY) 11 hole fibre strip, as shown in Figure 2.

On the front overhanging end of the bottom 1" x 5" base plate is fastened a P79 car truck. You will notice an S52 screw in center of this car truck and in the center of rear fibre strip. These screws are to be adjusted to hold 2 size (D) flashlight batteries with their tops pointed toward rear fibre strip.

By referring to Figure 2, the spring assembly is fastened to the side plate with 2 (CH) right angles. The spring assembly is built with a (BY) 11 hole fibre strip across the two right angles and an (H) 11 hole strip fastened to the fibre strip.

A (CJ) 36 tooth gear is fastened to a P24 Crank which is held in the top end holes of the side plates. A P37 Collar is fastened to the crank and prevents the crank from shifting from side to side.

The two handles, Figure 3, are two 5" square girders. They are constructed as shown in Section 2, Standard Details of Erector Construction, in your "How to Make 'Em Book".

The wiring for this model is shown in Figure 3. One length of wire is fastened from one handle to a screw on a side plate. Another length of wire is fastened from the other handle to one prong on the cord plug from an A-49 Erector Engine. From this same prong, a wire is fastened to the screw on the 11 hole strip. From the other prong, a wire is fastened to the contact screw on the rear 11 hole fibre strip.

OPERATION OF MODEL

If someone holds the handles, one in each hand, and you crank, he will get a thrilling shock. This happens because the three volt circuit from the flashlight cells passes through the motor coils to magnetize the iron in the motor. As the crank is turned, the gear leaves the contact spring, the current flow through the coils is stopped and the magnetism in the iron suddenly breaks down, generating a high voltage in the opposite direction to that of the battery. As the battery circuit is momentarily broken, this current cannot flow through the batteries so it flows through the handles and then through the person holding the handles. The intensity of shock may be changed by turning the crank fast or slow.

Here are two suggestions for having fun with your Erector Electric Thriller. Have a group of boys and girls form a circle, holding hands. Each person at the end of the circle should hold one handle of the Thriller. When the crank is turned, the current will pass through everyone, but with a lower intensity.

Another trick you can have a lot of fun with is to place a tin pan of water on one of the handles or connect it to one of the handles and place a coin in this tin pan of water. Have a person hold one handle and with the other hand try to pick the coin out of the water, while you turn the crank.

These are just two of the many things you can do with your Erector Thriller.

When the unit is not to be used for any length of time, the wires to the spring should be disconnected so the batteries do not run down; or, better still, batteries should be removed.

M2754

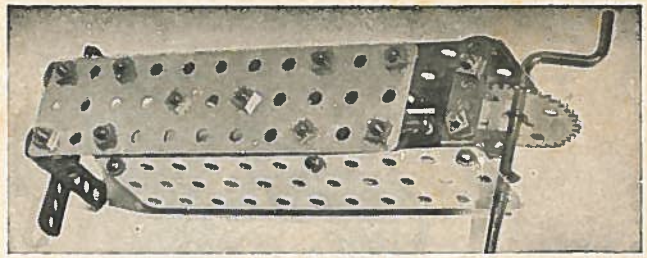


Fig. 1

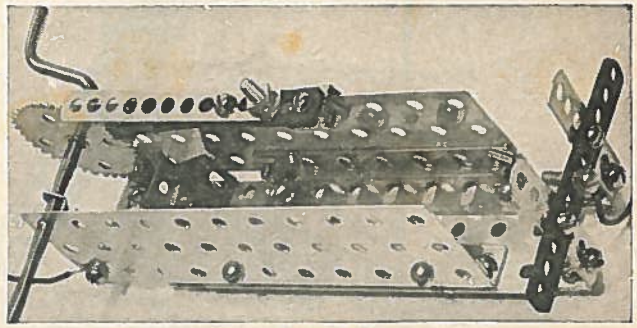


Fig. 2

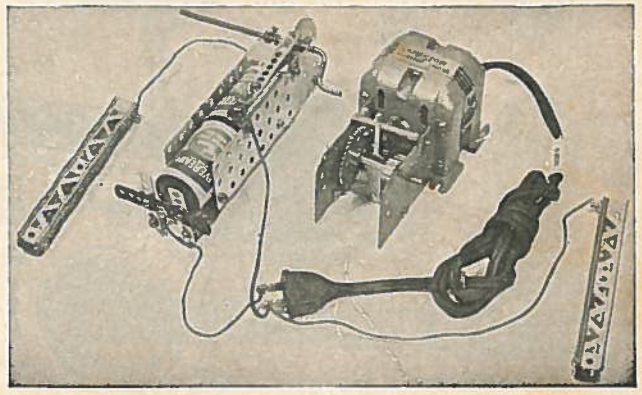
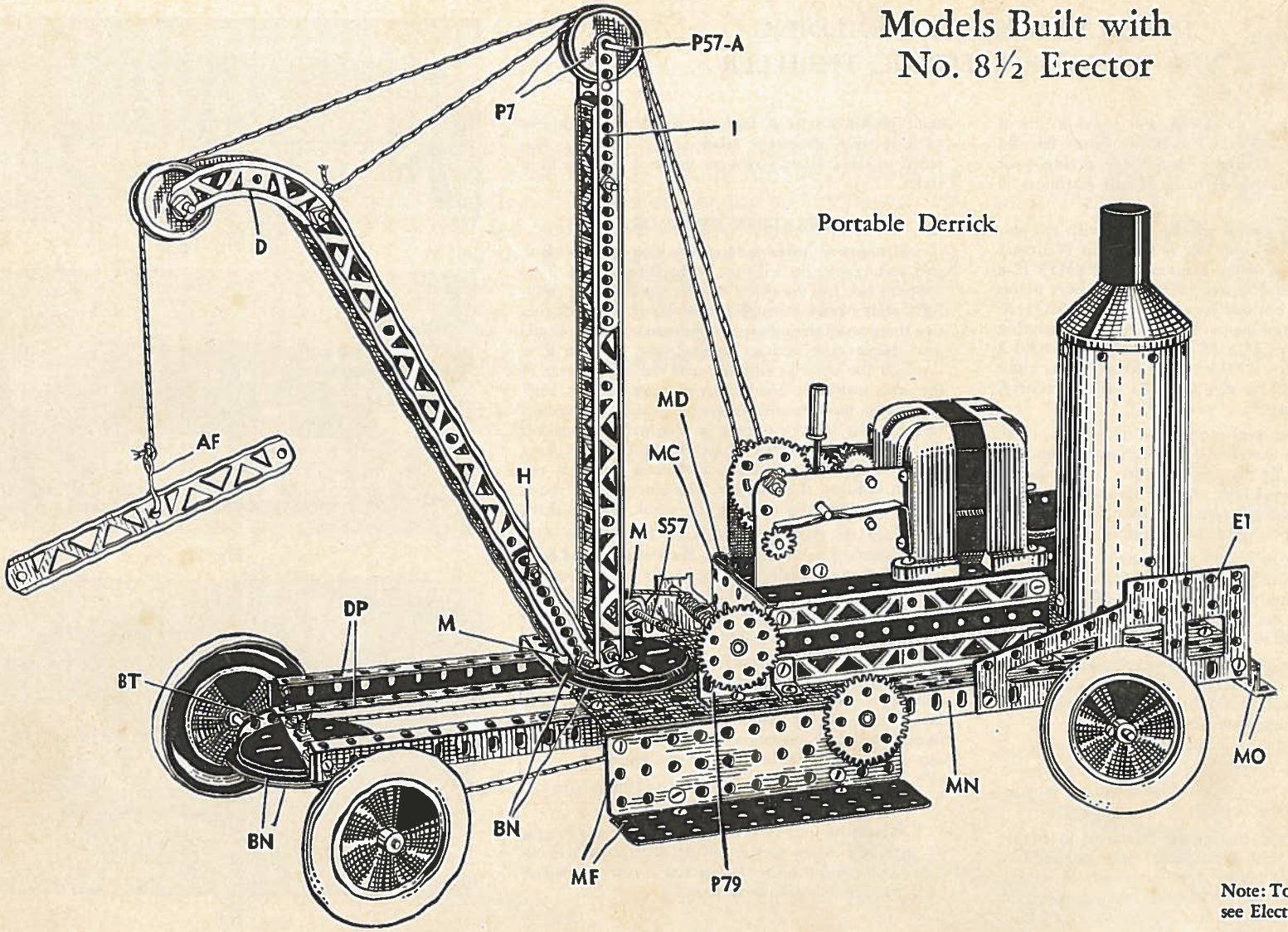


Fig. 3

Models Built with No. 8½ Erector

Portable Derrick

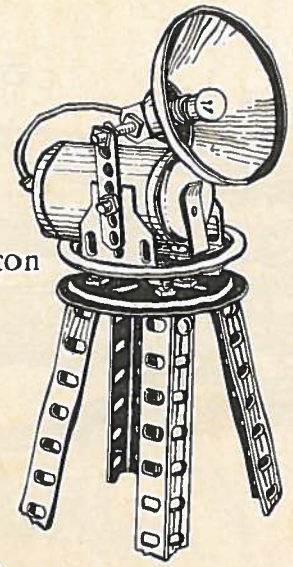


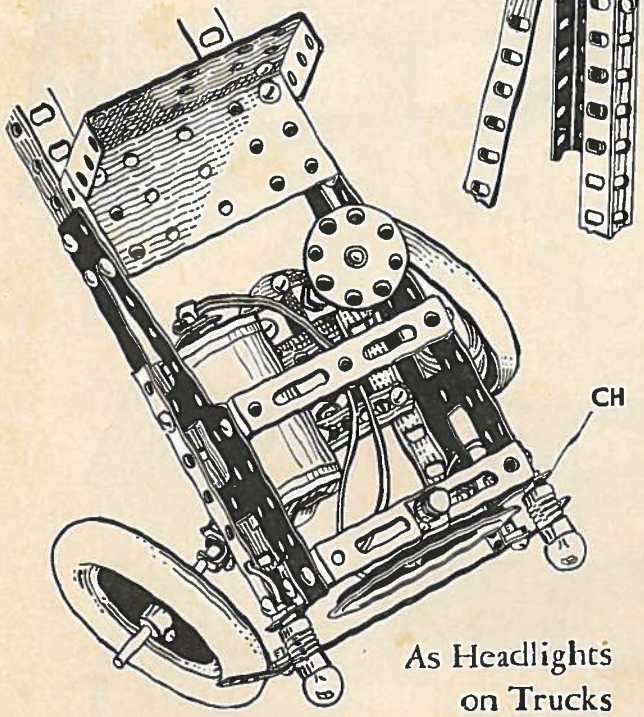
Note: To build Power Unit see Electric Engine No. 10

Models Built with No. 8½ Erector

Use Regular
Flashlight Battery

In Airplane Beacon

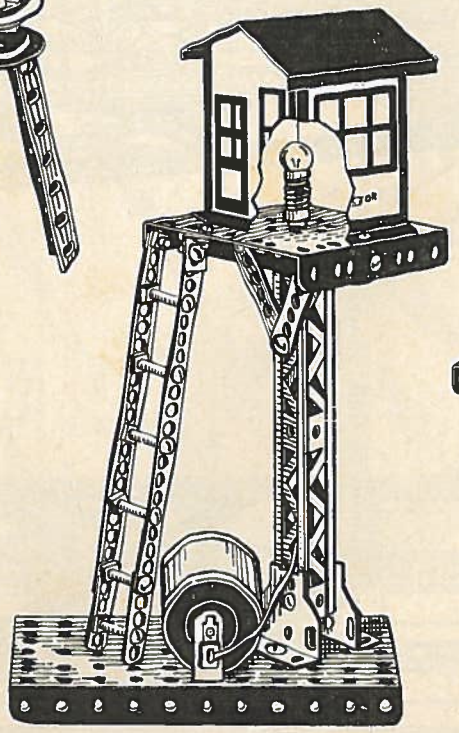




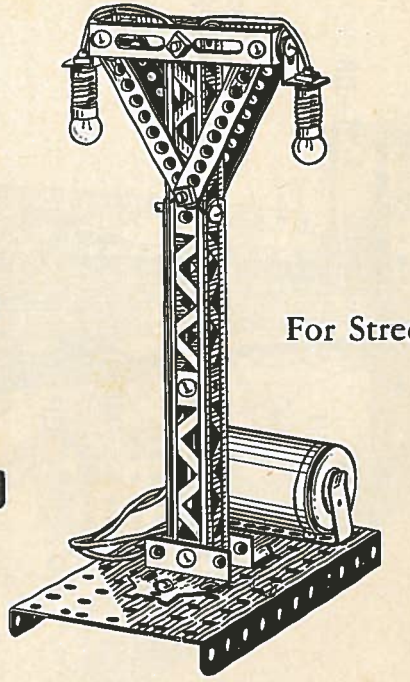
As Headlights
on Trucks

Suggested Methods
for Using Lights

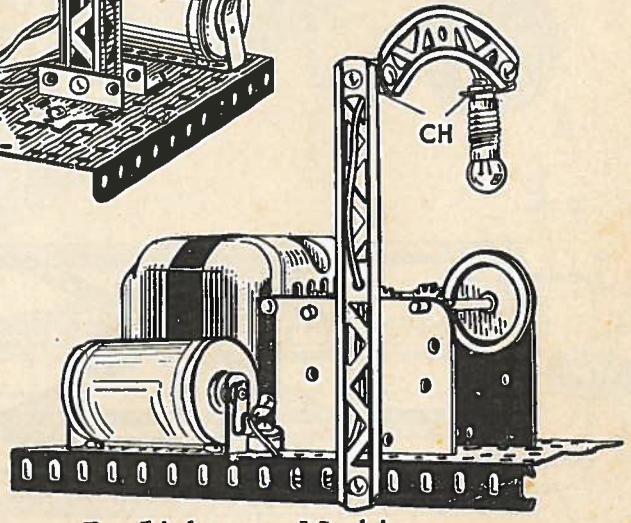
Use Regular Flashlight
Batteries as Shown



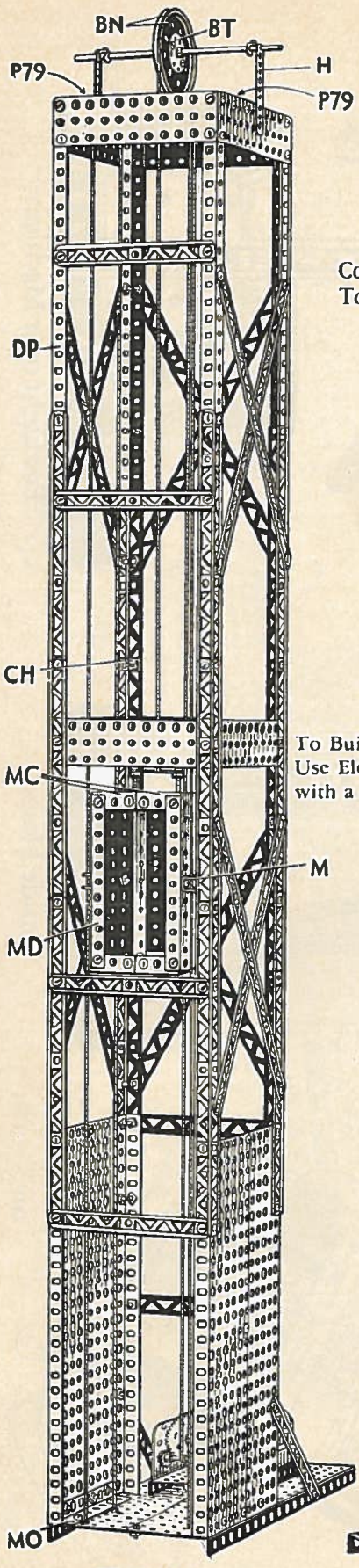
Inside House



For Street Lights



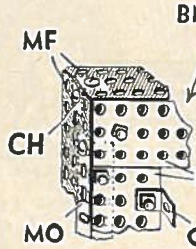
For Light over Machinery



Elevator

To Build Power Unit
Use Electric Engine No. 8
with a Ratchet

Construction of
Top of Tower

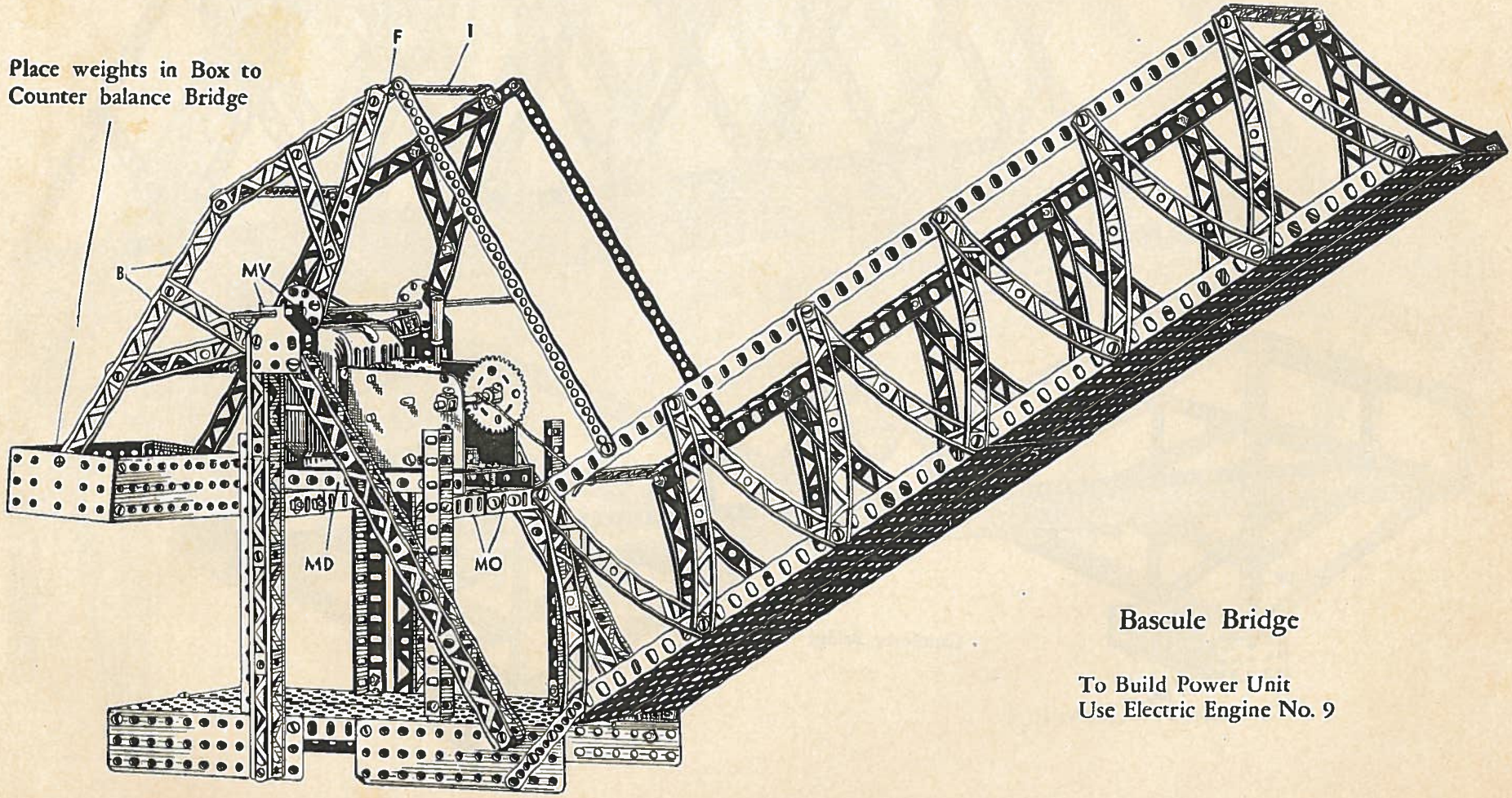


To Build Power Unit
see Electric Engine
No. 11

Airplane
Beacon

Models Built with No. 8½ Erector

Models Built with No. 8½ Erector

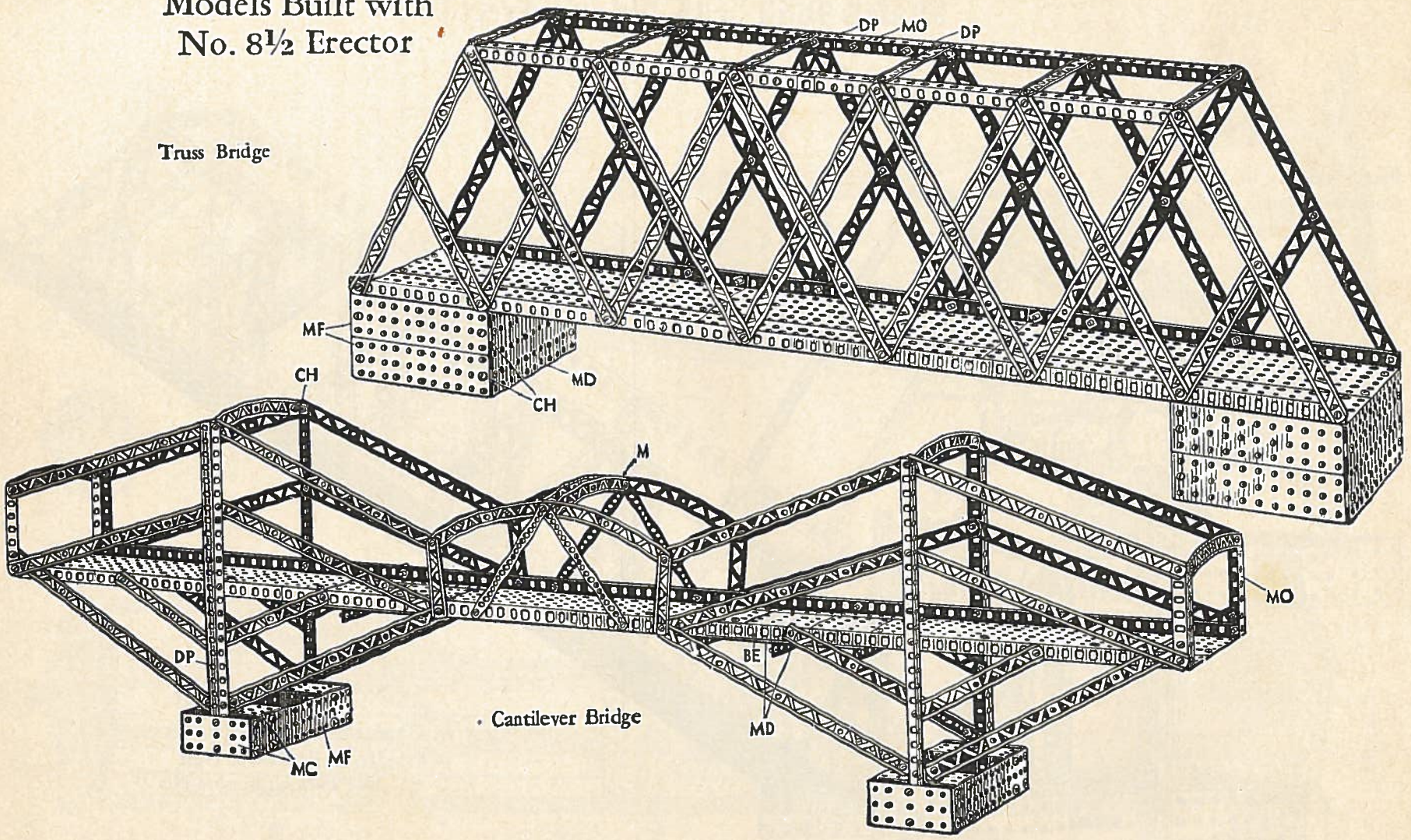


Bascule Bridge

To Build Power Unit
Use Electric Engine No. 9

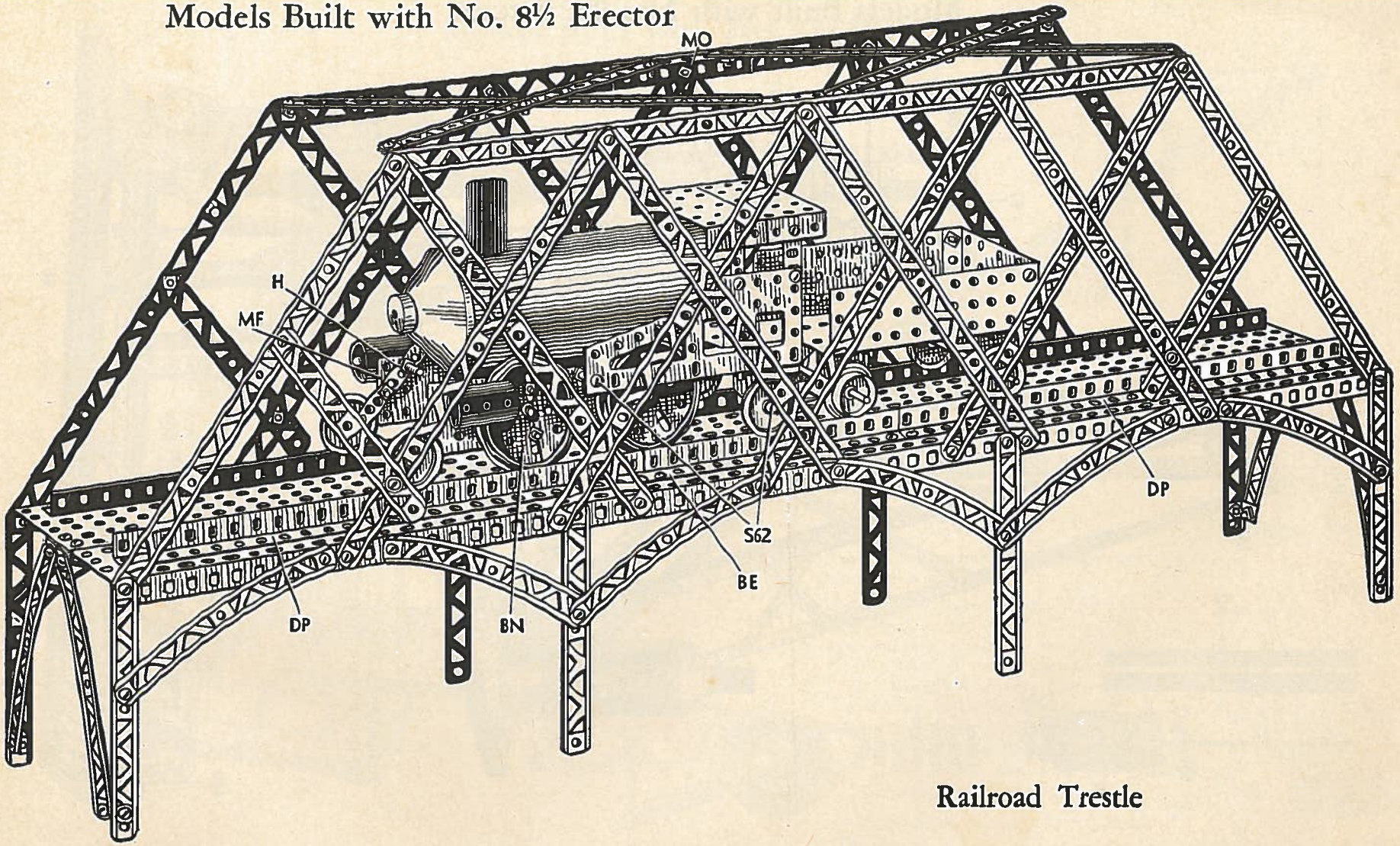
Models Built with No. 8½ Erector

Truss Bridge



Cantilever Bridge

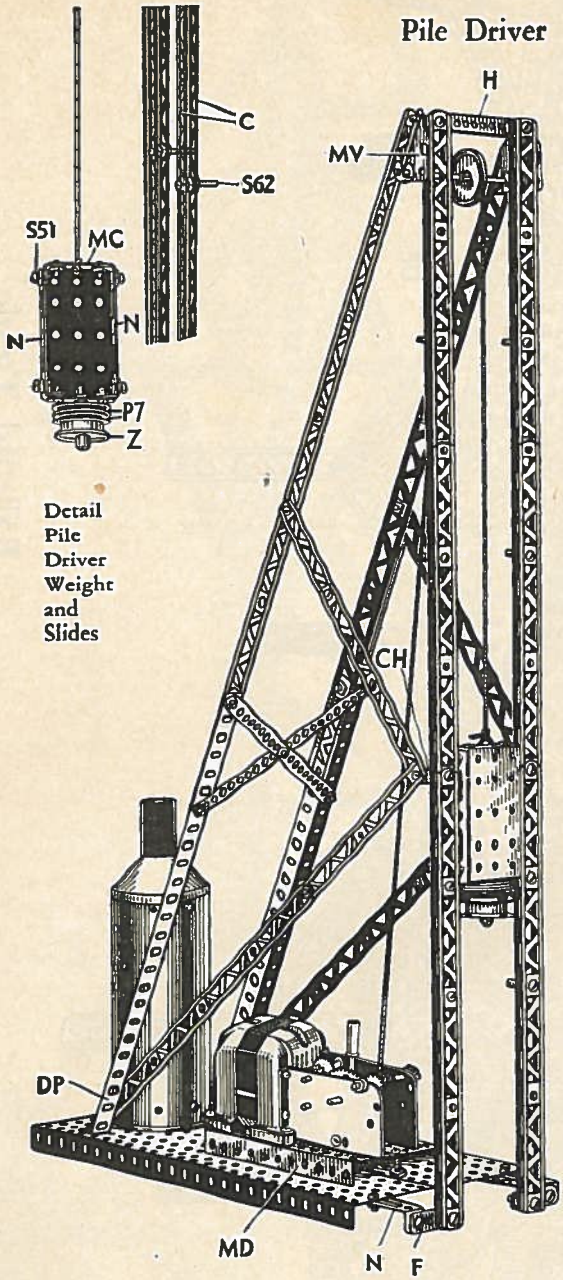
Models Built with No. 8½ Erector



Railroad Trestle

Models Built with No. 8½ Erector

Pile Driver



Detail Pile Driver Weight and Slides

To Build Power Unit Use Electric Engine No. 8

Oil Drilling Rig

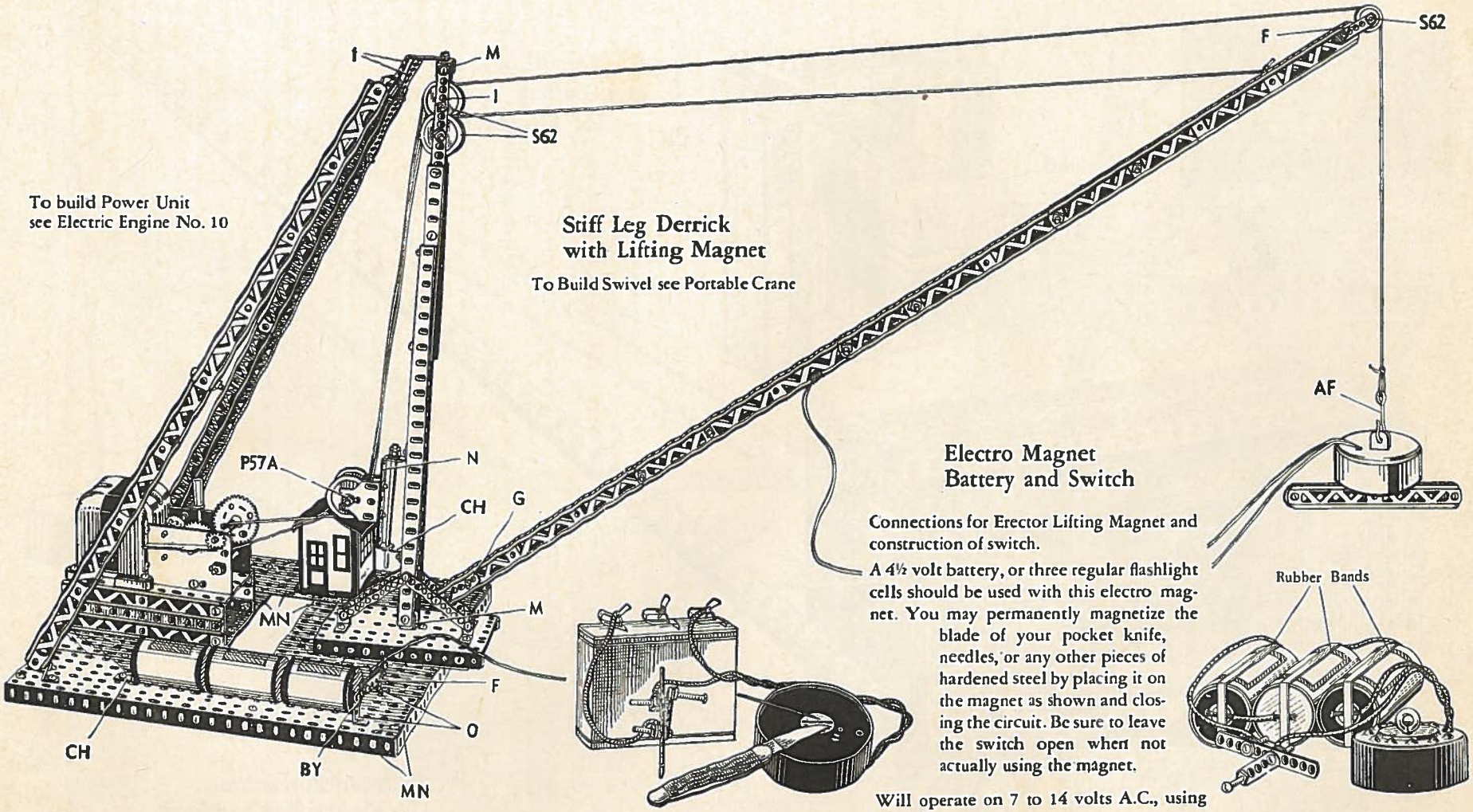
To Build Power Unit Use Electric Engine No. 8

Models Built with No. 8½ Erector

To build Power Unit
see Electric Engine No. 10

Stiff Leg Derrick with Lifting Magnet

To Build Swivel see Portable Crane



Electro Magnet Battery and Switch

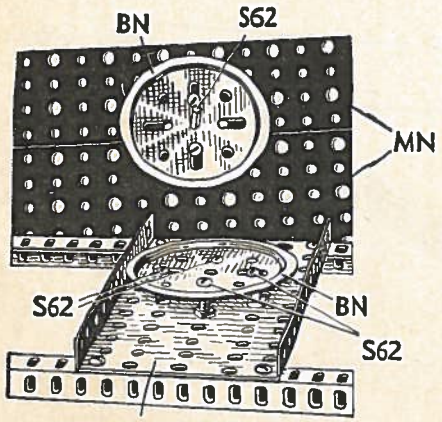
Connections for Erector Lifting Magnet and construction of switch.

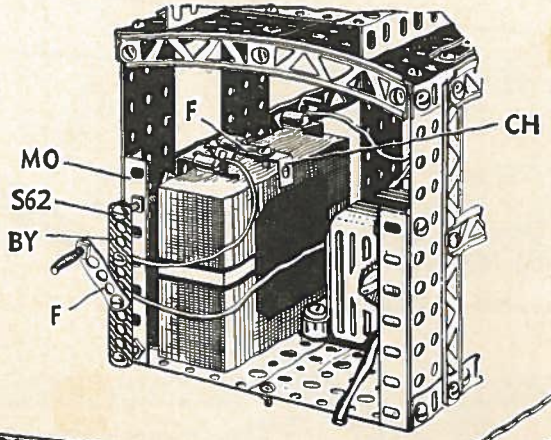
A 4½ volt battery, or three regular flashlight cells should be used with this electro magnet. You may permanently magnetize the blade of your pocket knife, needles, or any other pieces of hardened steel by placing it on the magnet as shown and closing the circuit. Be sure to leave the switch open when not actually using the magnet.

Will operate on 7 to 14 volts A.C., using Transformer.

Models Built with No. 8½ Erector

Detail of Swivel Base Portable Crane





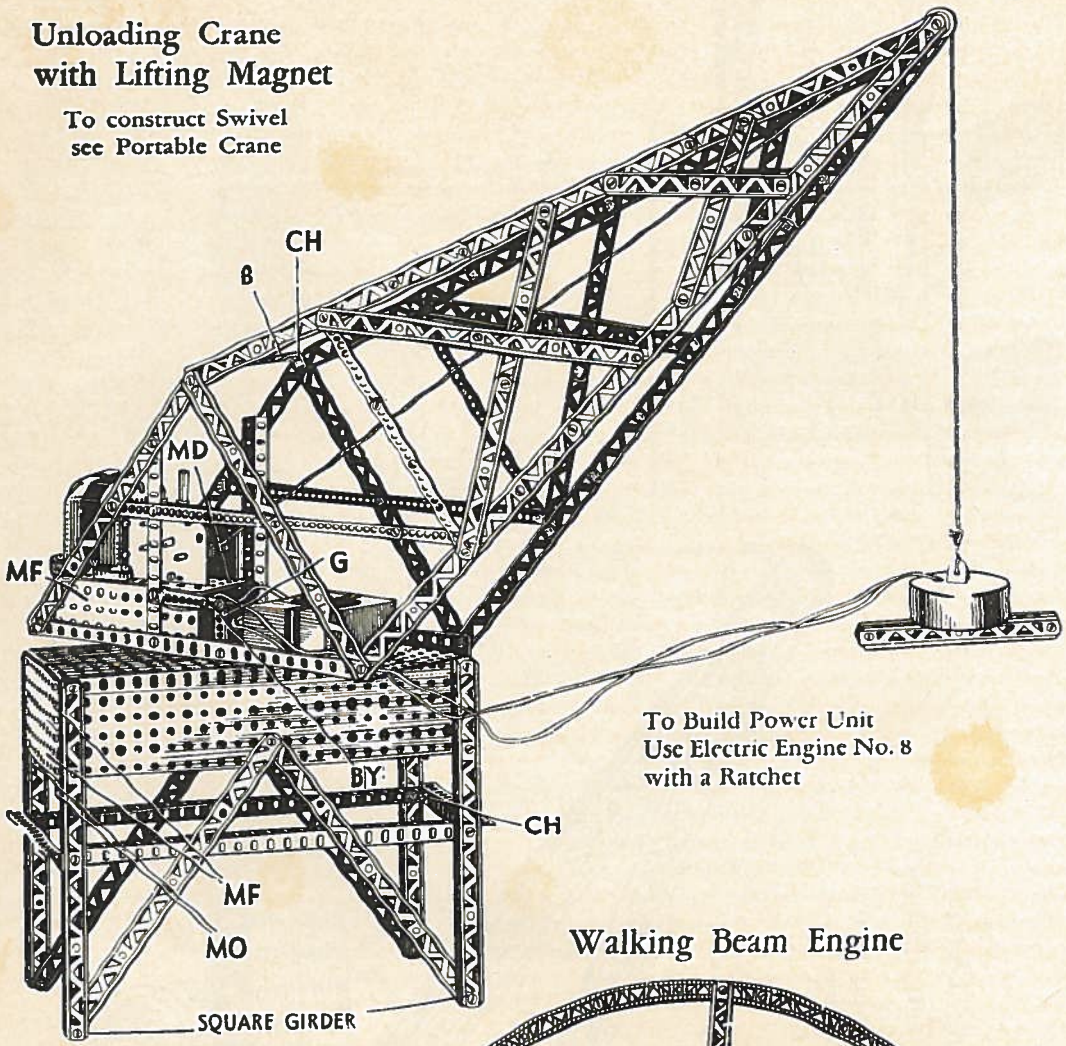
Detail of Switch and Battery Connections for Electric Crane

Portable Crane

To Build Power Unit
Use Electric Engine No. 10

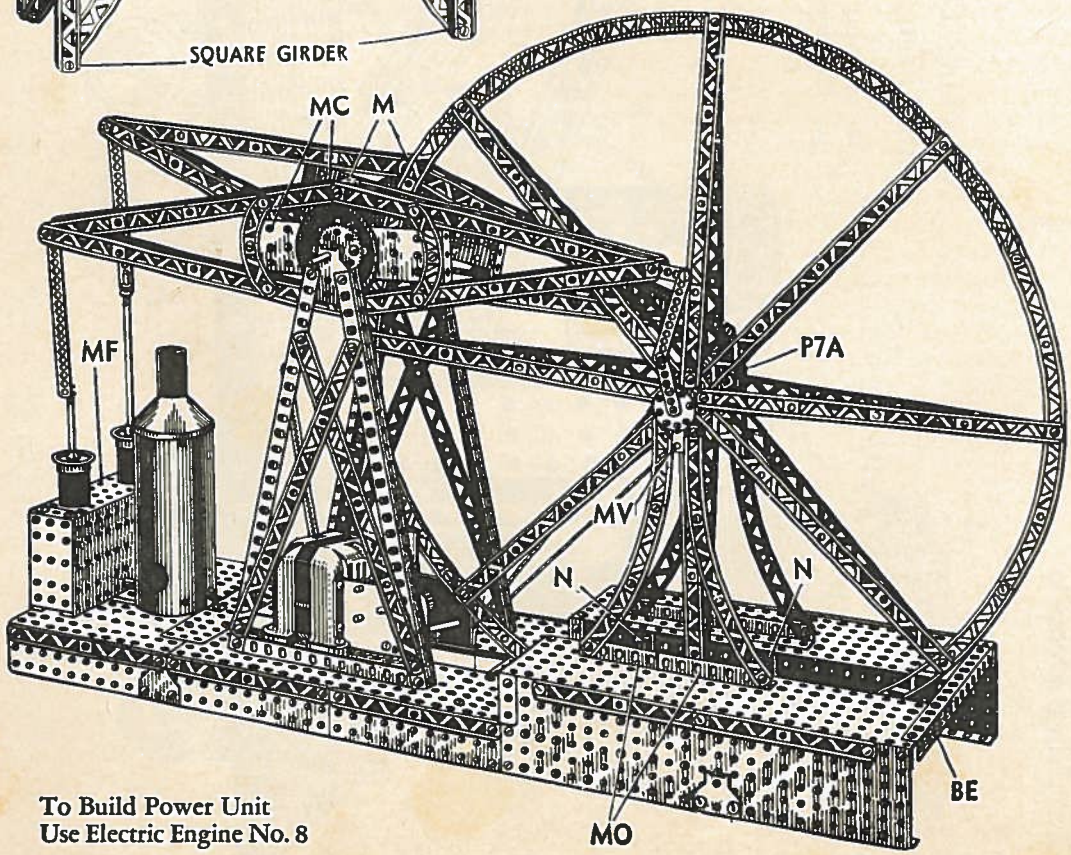
Unloading Crane with Lifting Magnet

To construct Swivel see Portable Crane



To Build Power Unit Use Electric Engine No. 8 with a Ratchet

Walking Beam Engine

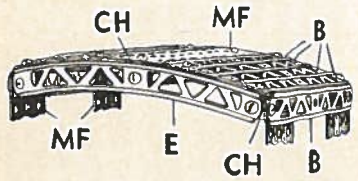


To Build Power Unit Use Electric Engine No. 8

Models Built with No. 8½ Erector

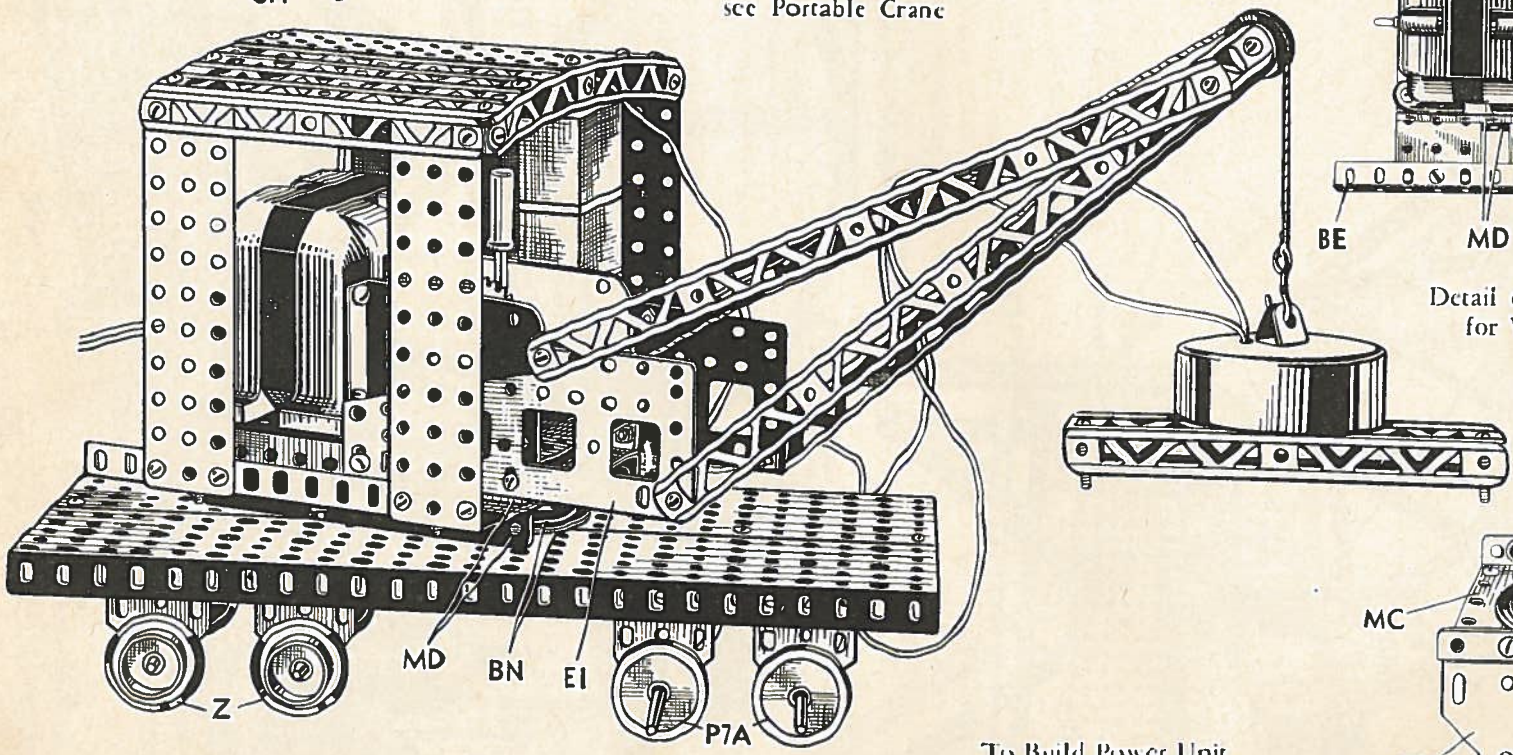
Models Built with No. 8½ Erector

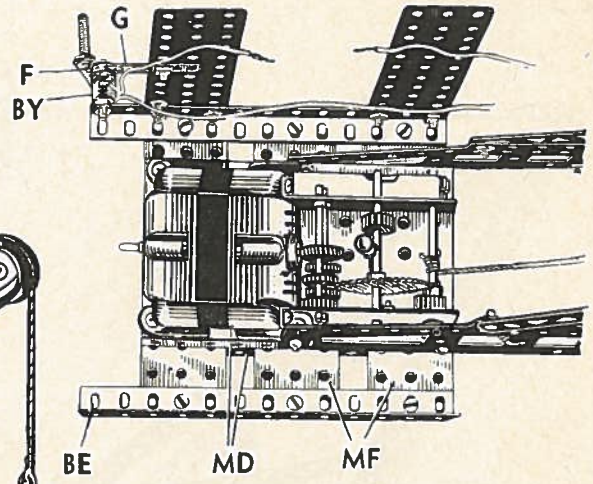
Detail of Roof Wrecking Derrick



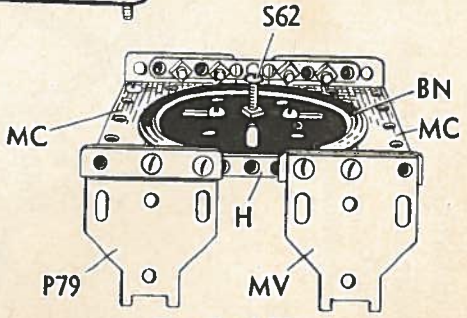
Wrecking Derrick with Lifting Magnet

To construct Swivel see Portable Crane





Detail of Cab Construction for Wrecking Derrick



Detail of Trucks

To Build Power Unit Use Electric Engine No. 8 with a Ratchet

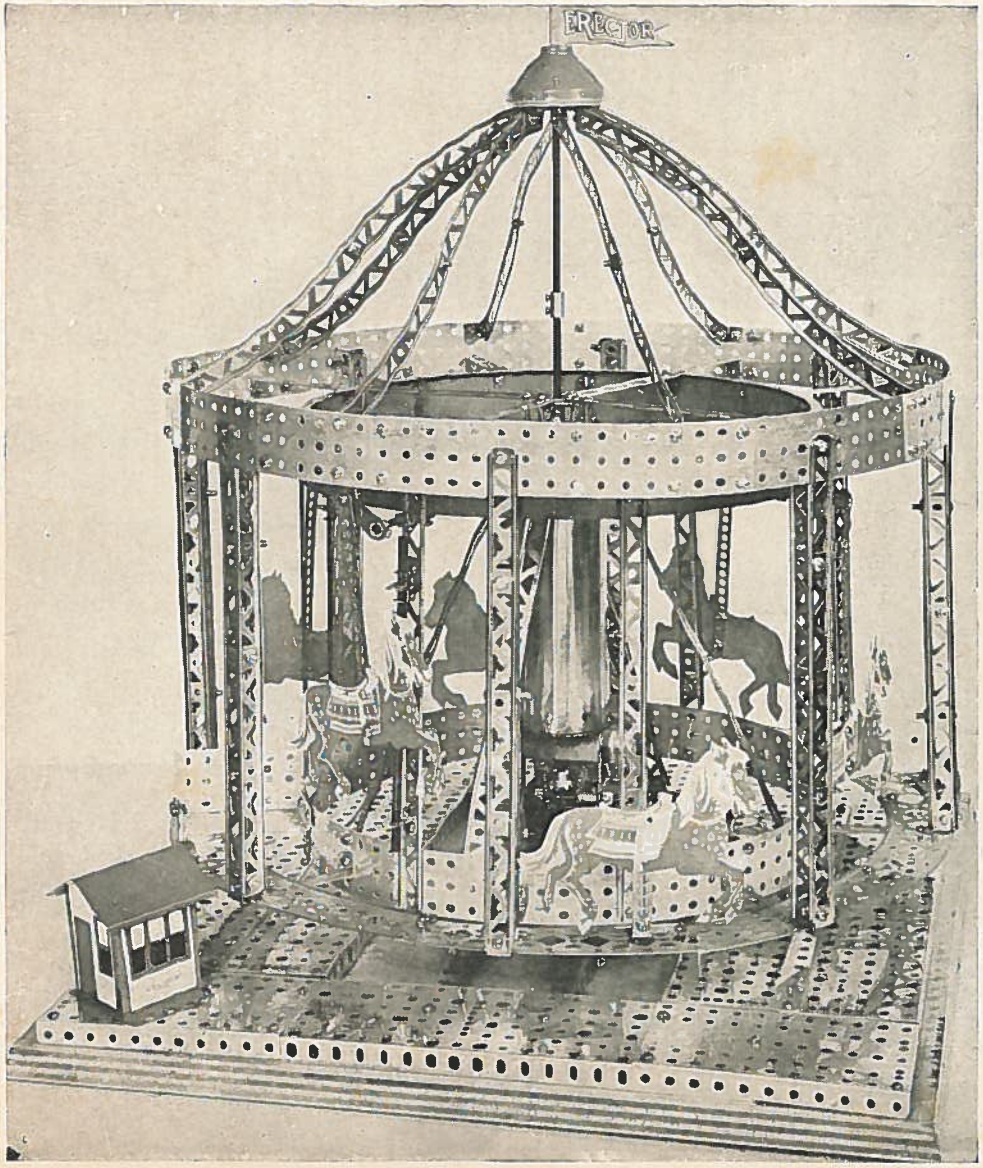


FIGURE 1

Models Built with No. 10½ Erector

Instructions For Building the *MERRY-GO-ROUND* Model

When the carnival or circus comes to your town, one ride you always have is on the Merry-go-round. Now you can build your own Merry-go-round.

Figure 1 shows the completed model. The model is shown set up on a wooden board, but it is not necessary that this be done.

BASE AND MOUNTING OF MODEL

The base of the model is built with six (MN) 12″ base plates and four (MD) 2½″ x 5″ base plates, constructed as shown in Figures 1 and 2. You should now add the two braces used to mount the motor down. These are built with a (DP) 12″ angle girder overlapping a (BE) 6″ angle girder. You can see the assembly of this in Figures 1 and 2.

CONTINUED ON FOLLOWING PAGE

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

Made In U.S.A. Printed In U.S.A. M-2685

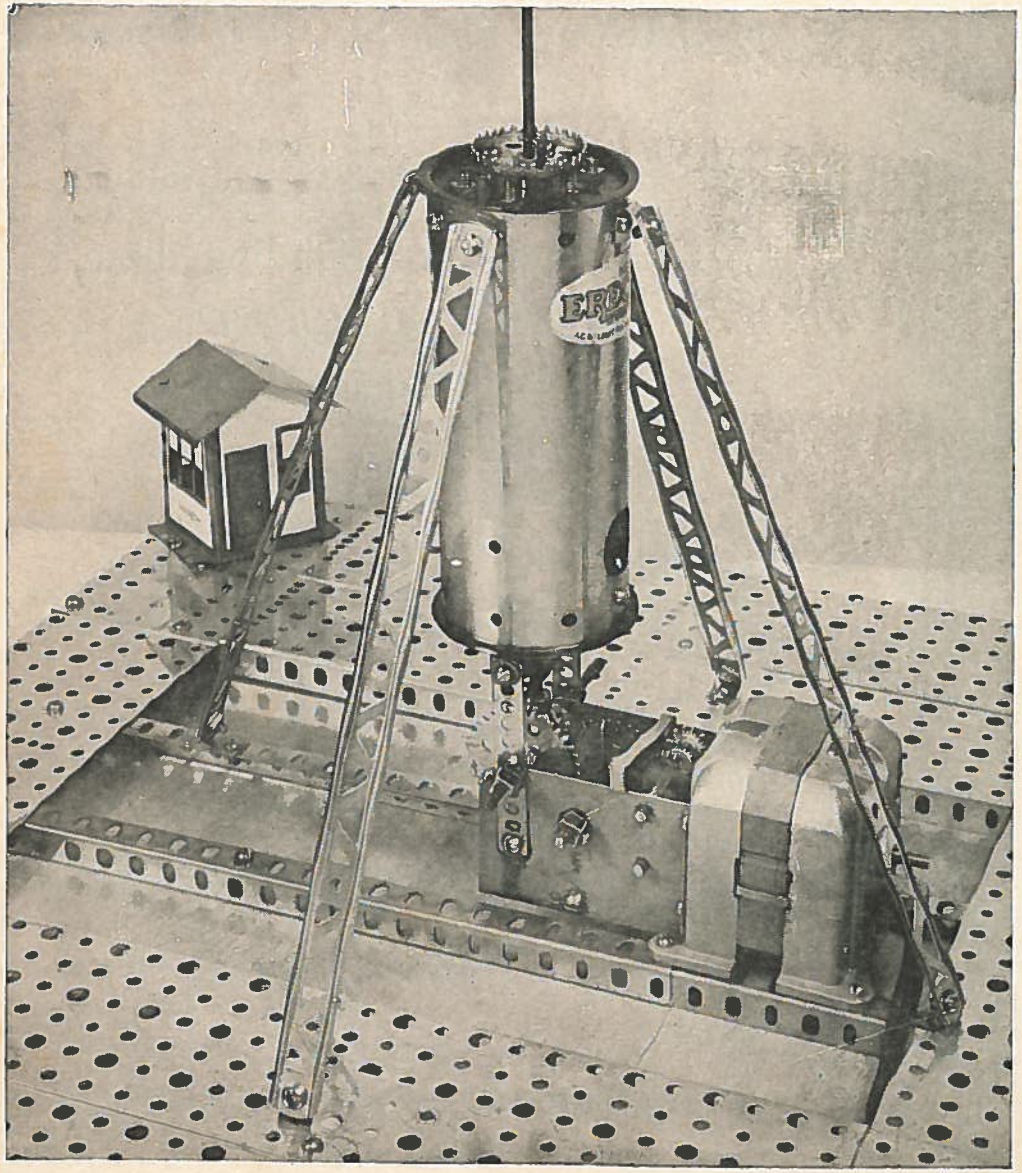


FIGURE 2

CENTER SECTION ASSEMBLY — FIGURE 2 AT LEFT

The motor assembly is made by referring to Electric Engine number 11 in your Erector manual. This produces a slow speed, vertical drive gear train. On top of the (MZ) bearing block in the motor assembly, the (T) boiler is mounted between two (BN) turret plates which are fastened to the boiler with (CH) right angles inside the boiler. Before the top turret plate is fastened to the boiler, attach four (CH) angles to which four (C) 10″ girders are fastened. The (C) girders are braces and prevent the boiler from moving from side to side. These (C) girders are fastened to the base with four (CH) angles as shown in Figure 2. Also, before the top (BN) plate is fastened to the boiler, attach a (P12) crown gear to the (BN) plate with four (S-62) screws and (N21) nuts. After the (P12) and (BN) assembly has been fastened to the boiler, you can insert a (P57-F) 12″ axle which continued to the top of the model with a (P15) coupling and an 8″ axle drives the model.

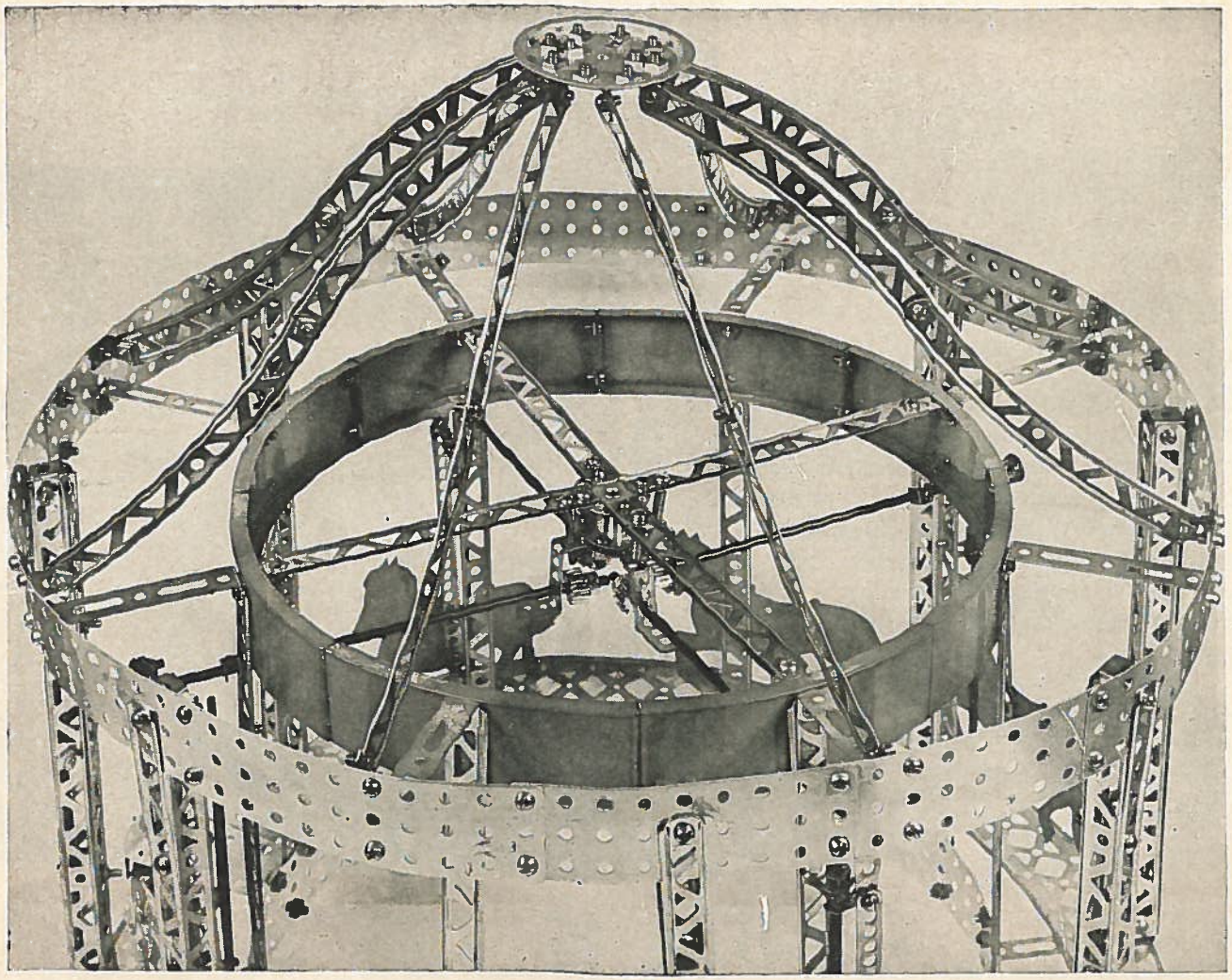


FIGURE 3.

TOP OF MODEL — FIGURE 3 ABOVE

The outer top ring is made of 13 (MF) 1″ x 5″ base plates overlapped as shown in Figure 3. The outer top ring is separated from the inner top ring, which is made of 8 (CS) wheel segments, by 8 (N) long double angles spaced as in Figure 3. The "S" shaped girders forming the top cone of the model are each made of two (E) 5″ curved girders and fastened to the top (BN) plate and the outer top ring with (CH) angles. To the (BN) turret plate is fastened a (BT) pierced disc. An 8″ axle is fastened in this pierced disc and this axle supports the entire model and drives the entire model. This 8″ axle is attached to the 1″ axle coming from the motor with a P15 coupling.

The outer bottom ring is made of 9 (EZ) big channel curved 6″ girders. The inner bottom ring is made of 8 (MF) 1″ x 5″ base plates overlapped to form the same size circle as the inner top ring. The outer bottom ring is fastened to the inner bottom ring with 8 (N) long double angles. The two inner rings are fastened together with 8 (C) 10″ girders. The two outer rings are fastened together with 8 square girders. Each square girder is made of 4 (C) 10″ girders. Across the inner top ring are four (B) 5″ girders which are fastened to the wheel segments with (0) pawl and to center with a (BT) pierced disc.

(CONTINUED ON FOLLOWING PAGE)

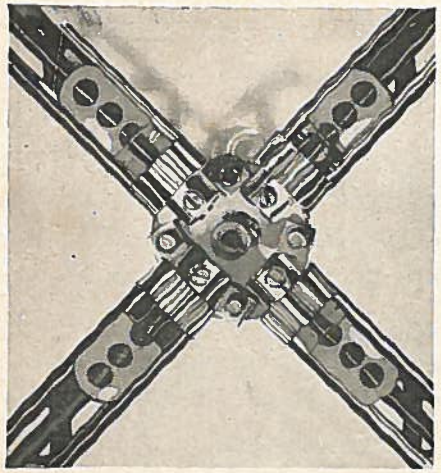


FIGURE 4

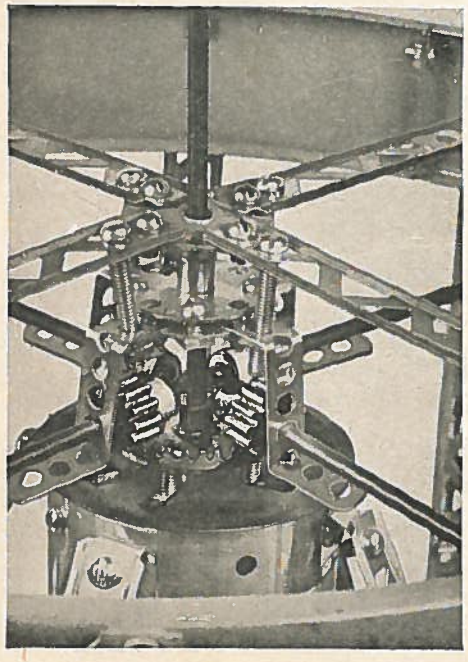


FIGURE 5

DETAIL OF DRIVING MECHANISM

The detail of the driving mechanism is shown in Figure 4 and 5. Two (OG) 21 hole strip formed are fastened between two (BT) pierced discs. These (OG) serve as bearings for 7½" axles to which are fastened P13B 12 tooth pinion gears. These gears revolve around the stationary crown gear and cause the horses to move up and down.

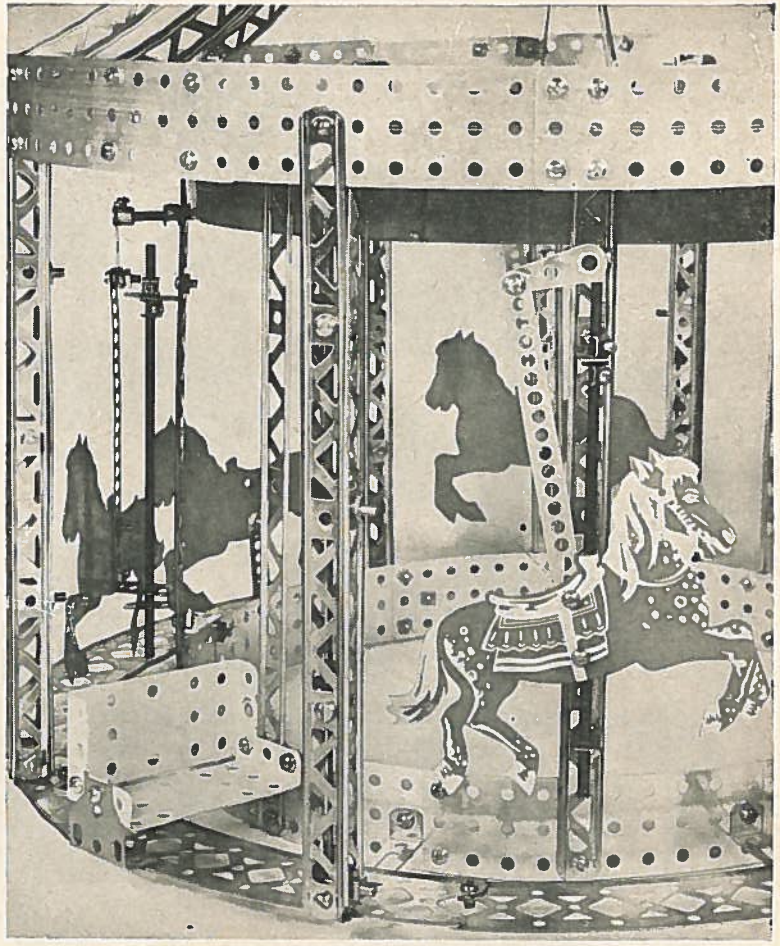


FIGURE 6

ASSEMBLY OF HORSES —FIGURE 6 AT RIGHT

The two stationary horses are fastened to the outer bottom ring with a (G) 7 hole strip and a (CH) right angle (Figure 1). The horses that move up and down do so by using an (AA) eccentric crank (Figure 6) which is fastened to the revolving 7½" axles. An (O) pawl is fastened to the horse which moves up and down on an 8" axle which is fastened to the (C) 10" girders with two (O) pawls.

The seats are constructed with two (MC) 1" x 2½" base plates which are fastened to the outer bottom ring with a P79 car truck. The seat is also fastened to the inner bottom ring. See Figure 6.

Instructions for Building The 10½ ERECTOR Parachute Jump Model

During the 1939 New York World's Fair, one of the greatest attractions was the 250 foot Parachute Jump ride in the amusement park section. After the Fair ended, the "Jump" was taken to the Coney Island amusement park where it still thrills thousands of people each year. You may have thrills and excitement all your own building this new continuous-running, 6 foot replica of that World's Fair Parachute Jump.

The Completed Model

You can see in Figure 1 the completed model. It is 6 feet high, has four chutes that are pulled up with the motor and then allowed to fall free. Throughout the building of this model keep referring to Figure 1. Study it as well as all the other views.

The Base

As in all building it is best to start at the bottom and

Continued on next page

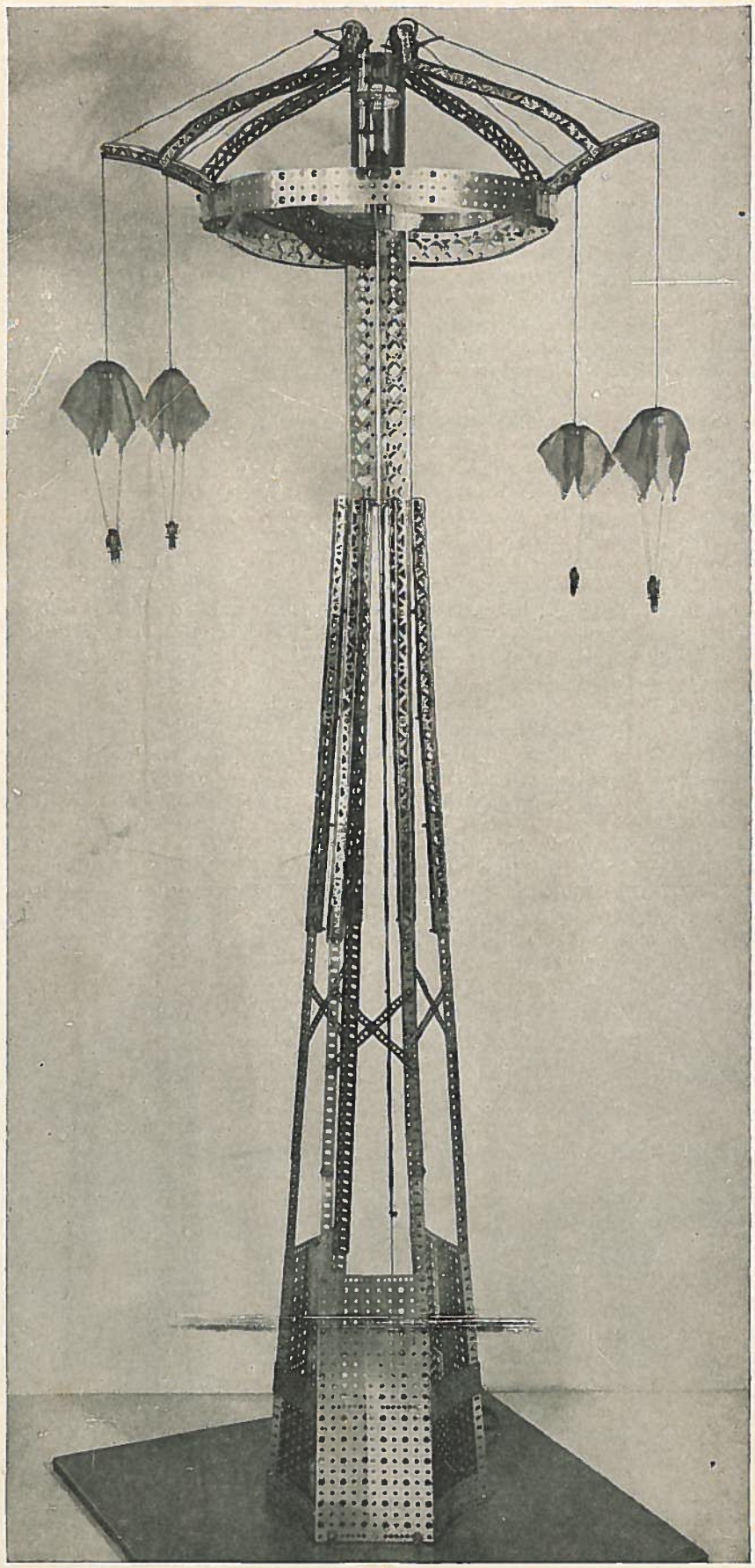


FIGURE 1

Models Built with No. 10½ Erector

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

M2696 Made in U.S.A. Printed in U.S.A.

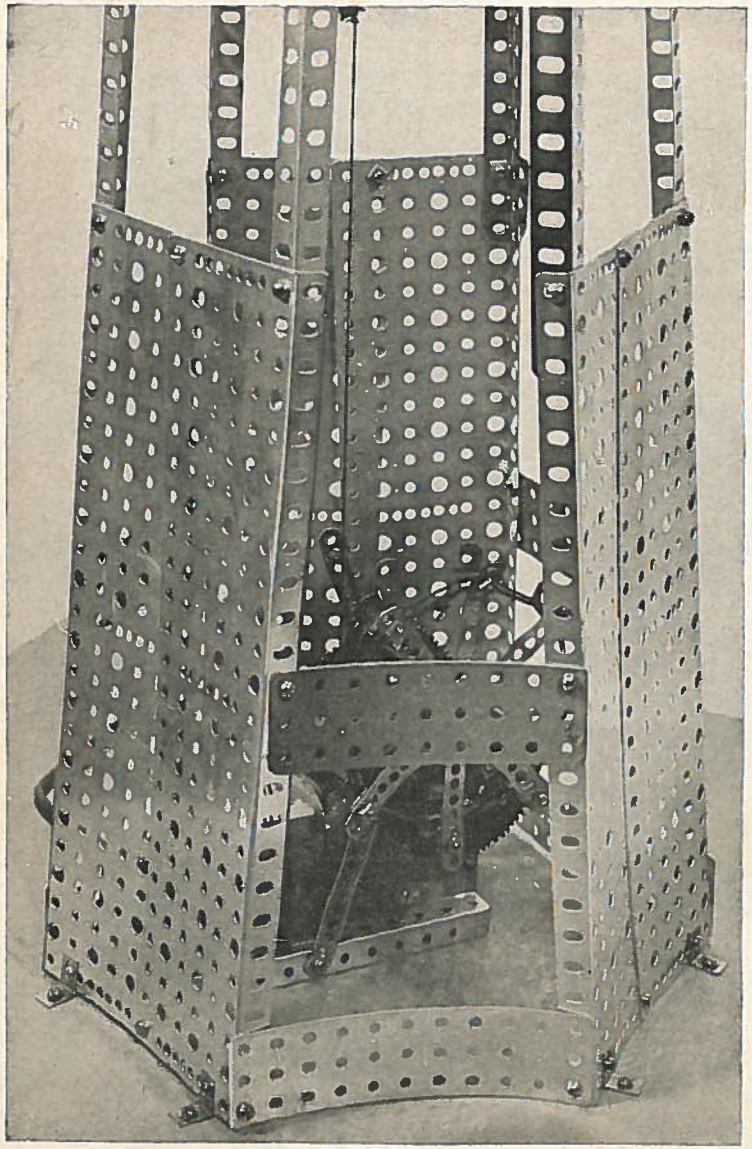


FIGURE 2

The Base—(Continued)

work up with sub-assemblies of each section. A structure is only as good as its foundation. Figure 2 shows the foundation for the "Jump". It is built with 6 (MN) 12″ base plates in groups of twos. The two base plates are overlapped one hole at the bottom and two holes at the top. These three base plate assemblies are held together at the bottom with (MF) 1″ x 5″ base plates and at the fourteenth hole from the bottom with (ME) 1″ x 4″ base plates. The model is shown fastened to a wood base with (CH) right angles.

The Tower

From the base plates are fastened six angle girders overlapping three holes onto the base plates. Two of these angle girders are (MB) 18½″ angle girders and the other four are (BE) 6″ angle girders. Attached to these 6″ angle girders are (DP) 12″ angle girders which will bring all six angle girders to the same height.

By referring to Figure 1, you will see that on top of each angle girder is fastened two square girders each made from 4 (C) 10″ girders (see Standard

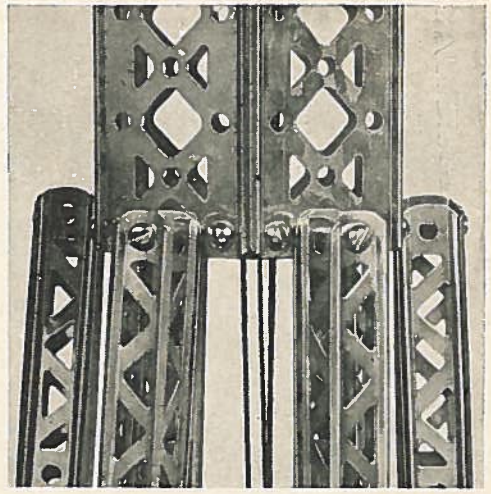


FIGURE 3

details of Erector Construction in your How to Make 'Em Book for instructions for building the square girder).

Detail of Square Girder Assembly

This third figure shows the top of the second square girder being fastened to a six-sided member constructed of 6 (EX) big channel girders 12″, and two (NS) 41 hole strip — formed. The two (NS) strips are attached inside each end of this six-sided member. See Fig 4 for an inside view of this member.

The only diagonal bracing on the tower are (I) 21 hole strips, placed in positions shown in Figure 1.

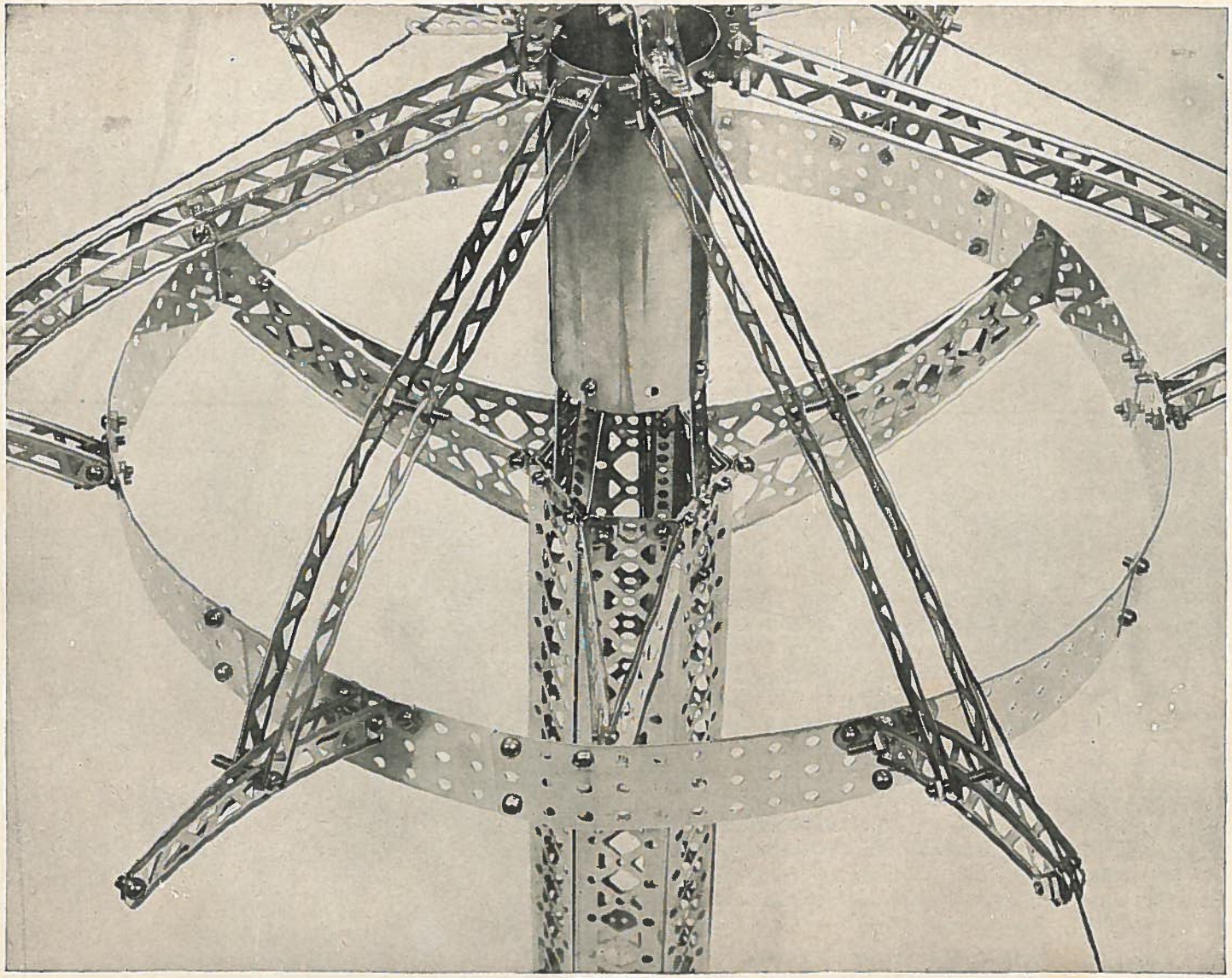


FIGURE 4

Circular Top and Bracing

The top ring is built in circular form with 10 (MF) 1″ x 5″ base plates. This ring is supported from the top of the tower in three places with (EZ) big channel curved girders as shown in Figure 4. A (T) boiler is mounted on top of the tower with 4 (H) 11 hole strips. The top of the boiler is supported in six places with an assembly of 2 (B) 5″ girders fastened to 2 (E) 5″ curved girders which in turn are fastened to 2 (E) 5″ curved girders that form the over-hanging struts. On Figure 4, you will see the over-hanging struts are fastened to the ring with (P20) 5 hole strip—formed. In the ends of four of these struts, (AQ) sheave pulleys are fastened so they are free to turn. The string for the parachute will pass over this pulley.

Top Assembly

In Figure 5 you will see the (B) 5″ girders fastened to the boiler with (M) small double angles. To four of these small double angles are fastened 2 (H) 11 hole strips which support the P7-A pulleys over

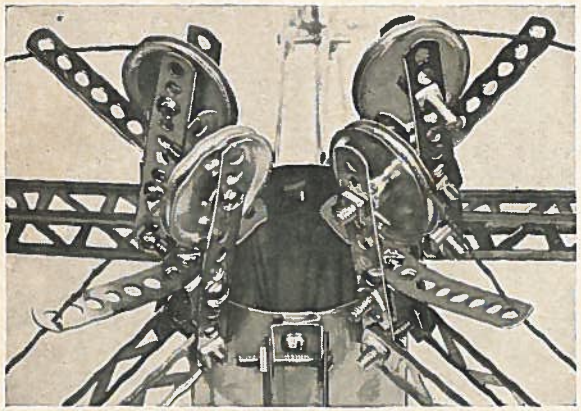


FIGURE 5

which the parachute string travels. Before fastening the pulleys in place, be sure to fasten the 4 (H) 11 hole strips to the small double angles. This strip is used to prevent the string from jumping off the pulleys.

Power Unit

The A-49 Electric Engine is mounted on an (MD) 2½" x 5" base plate. A 2⅞" shaft is fastened through the lowest holes in the front of the side plates of engine. On this shaft is fastened a (CJ) 36 tooth gear which meshes with the 12 tooth gear on the shifting lever shaft. Also on this shaft is fastened a P13B 12 tooth pinion gear on the outside of the side plate. A P37 collar is fastened to opposite end of shaft to prevent shaft from shifting sidewards. A modified "A" frame is built on the engine and base plates with (I) 21 hole strips and (F) 5 hole strips. In the front 21 hole strip is passed a 2⅞" axle with two P37 collars on the inside of the strips. On each end of this shaft is fastened a (BT) pierced disc. On one pierced disc is fastened a P50 72 tooth gear which meshes with the 12 tooth gear. On the other pierced disc is fastened a P50B 72 tooth gear segment as shown in Figure 6. Through the top holes in the "A" frame, attach an (AT) 4" axle. On this axle fasten a P13B 12 tooth pinion gear which will mesh with the teeth of the gear segment. To this shaft is also fastened the reel on which the string winds. This reel is built of two (BT) pierced discs, 4 (I) 21 hole strips and 8 (M) small double angles. Figure 6 shows a clear view of the reel.

Stringing Parachutes and Operation of Model

A (Z) flanged wheel is fastened under each parachute which acts as a weight. A 7 ft. 6 inch length of string is attached to each (Z) flanged wheel, through hole in top of parachute, over the sheave pulley on the overhanging struts, over the P7-A pulleys on top of model, then down inside the tower. These four lengths of string are then connected to one piece of string which is fastened to the reel on the engine. When the parachutes are down, that is touching the wood base or floor, there should not be any string wrapped on the reel. The single string should be tied to the reel and be taut from there to the parachute.

The operation of model is as follows: when the engine is running and when the teeth on the gear segments are meshing with the pinion gear, the parachutes are being pulled up. When the section of the gear segment that has no teeth reaches the pinion gear, the weights under the parachutes pull the strings down and the parachutes will fall free.

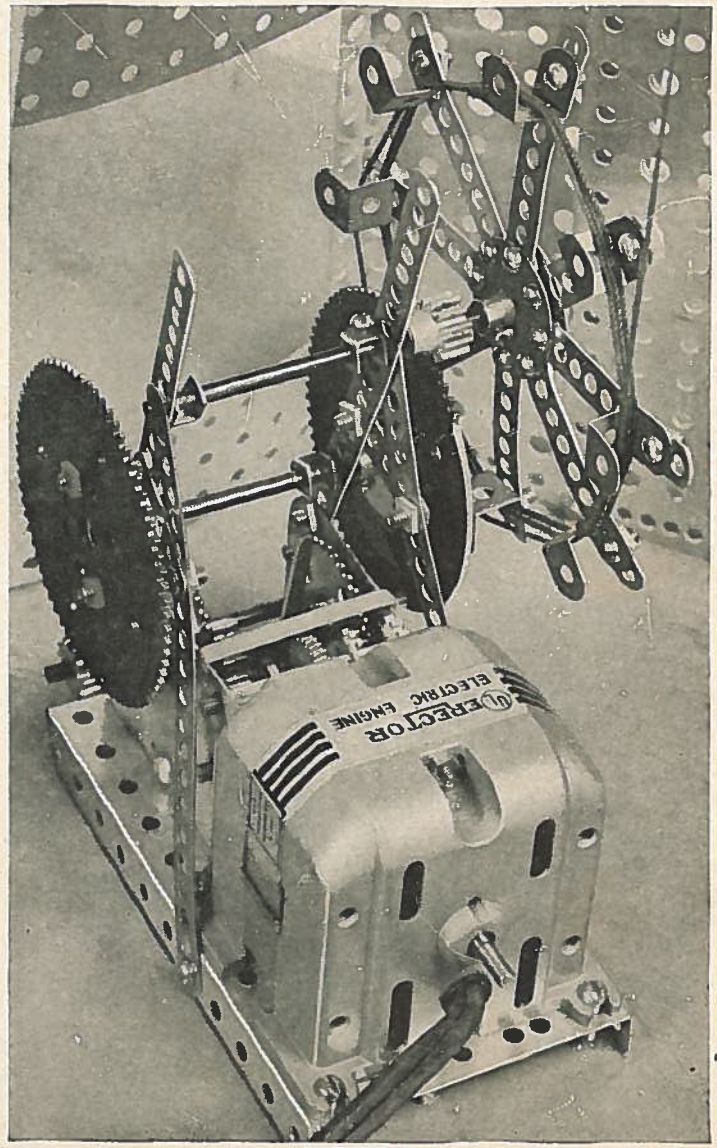


FIGURE 6

Models Built with No. 10½ Erector

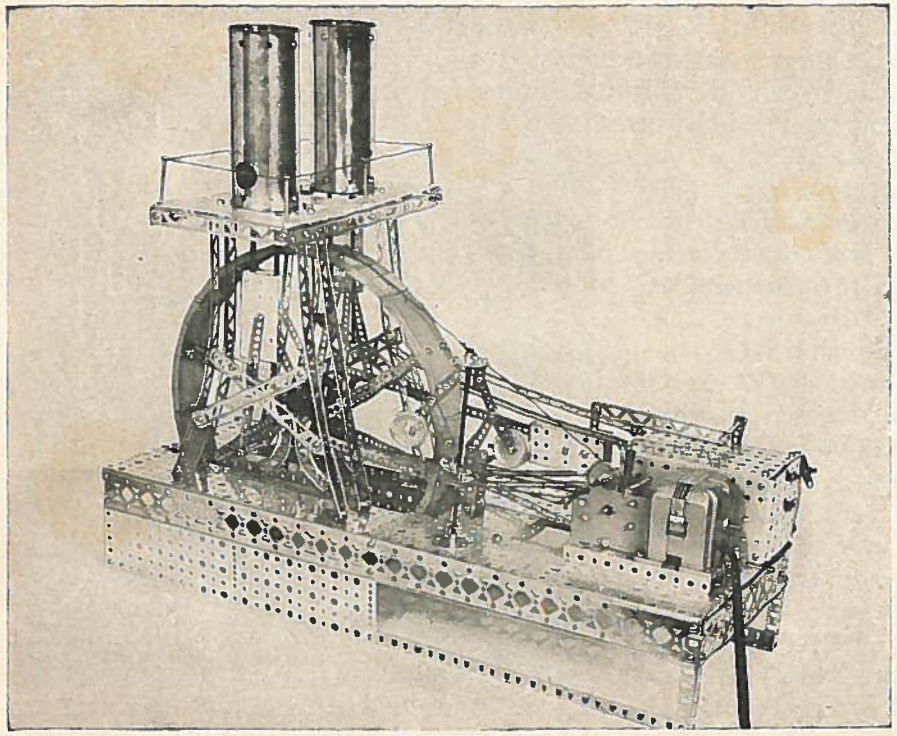


FIGURE 1

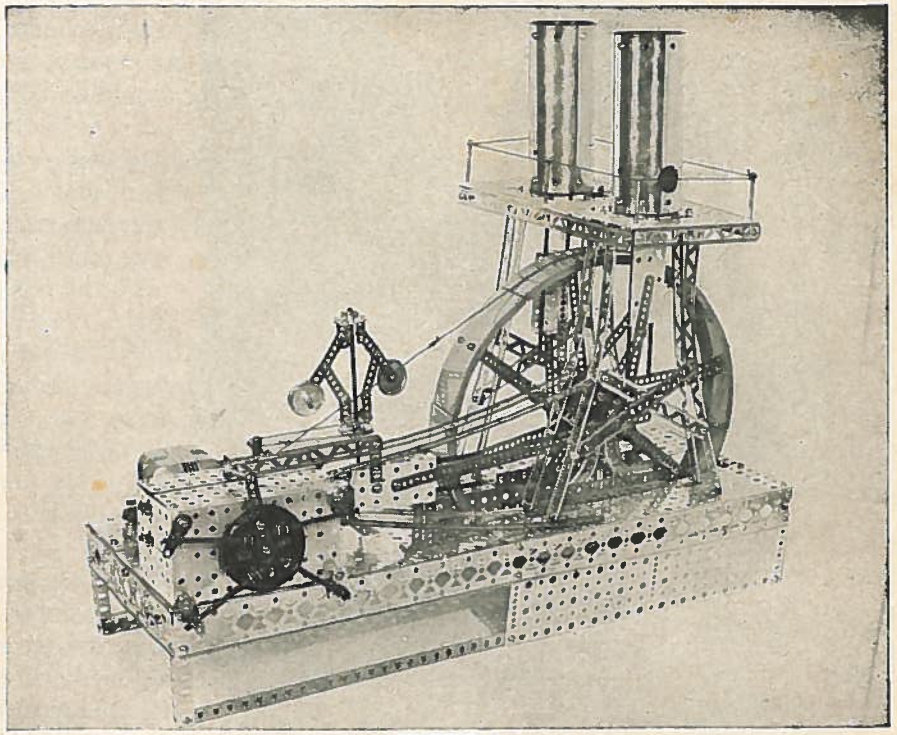


FIGURE 2

Instructions for Building the 10½ Giant Power Plant Model

One of the finest fun and action models is this large model, over two feet in length, 20″ high, 10″ wide.

Figs. 1 and 2 show how your model will look when completed. This is not a complicated model to build but care should be taken to follow the pictures and instructions.

The base should be built first. The top of the base is made with 4 (MN) 12″ base plates, two on each side. At the center, on the underside of the base plates, is fastened an (MD) 2½″ x 5″ base plate. Under each end of the base is fastened a (BE) 6″ angle girder.

On each side of the base are fastened 2 (EX) 12″ big channel girders. An (MN) 12″ base plate is fastened to one (EX) 12″ big channel girder with an (MO) 3″ angle girder on the end of the base plate. Another 3″ angle girder is fastened to the other (EX) girder and at the bottom of this 3″ angle girder is fastened a (DP) 12″ angle girder which is also fastened to the bottom of the 12″ base plate. At the top of each end of the base are fastened to the 6″ angle girder, 2 overlapped (EY) 6″ big channel girders.

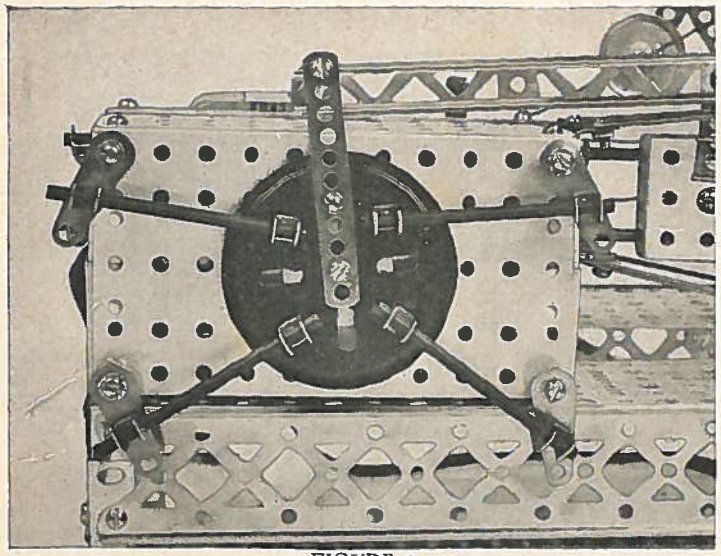


FIGURE 3

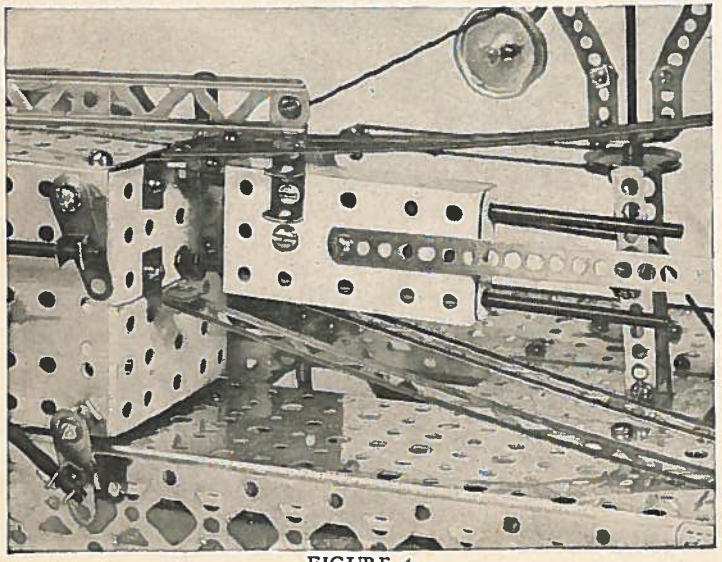


FIGURE 4

DETAIL OF VALVE ACTION

A replica of the steam cylinder with valve action is shown in Figure 3 and Figure 4. The steam cylinder is built with (MD) 2½" x 5" base plates for sides and 2 (MF) 1" x 5" base plates on top. The ends are made withe 2 (MC) 1" x 2½" base plates. The box should be built separately with the valve mechanism fastened to it. The valve mechanism is a (BN) regular turret plate fastened to a (BT) pierced disc which is held to the side base plate with an S62 7/3" x 8-32 screw so it is free to turn. Four (AA) eccentric cranks are fastened, one to each corner, of the side base plate with S62 screws. To the turret plate and eccentric cranks are fastened P37 collars and (AS) 2⅞" axle rods—See Figure 3. A (BY) 11 hole fibre strip is fastened to the turret plate.

To the front end of the upper (MC) 1" x 2½" base plates are fastened 4 (CH) right angles as shown in Figure 4.

The steam cylinder with valve action can now be mounted to the base plate. This is done by fastening an S51 ¼ x 8-32 screw in the four lower inside corners of the two side plates with a nut on the outside of the base plate. The unit is now ready to mount on the top of the base with four nuts fastened underneath the top of the base holding the unit down. The unit should now be raised off the top of the base the thickness of the ¼ x 8-32 nut.

DETAIL OF END OF STEAM CYLINDER

The piston action for the steam cylinders is obtained by holding 2 (P57-F) 12" axles in the front and rear top (MC) 1" x 2½" base plates with P37 collars. On these axle rods are fastened 2 (MC) 1" x 2½" base plates held together with 2 S62 ⅞" x 8-32 screws. To one screw is fastened very tightly an (0) pawl. To this pawl is fastened a second pawl. To the top pawl is fastened a (B) 5" girder which is fastened to the 11 hole fibre strip on the turret plate with an (FA) 1¾" x 8-32 screw. These fastenings should be such that when the base plates move back and forth on the axle rods, the 5" girder should move back and forth to move the turret plate, axle rods and eccentric cranks.

To the center screw on the piston is fastened a (J) 41 hole strip which goes to the crank on the eccentric on the flywheel axle.

DETAIL OF CRANK

The frame for the flywheel assembly to mount on is made, on each side, with a (BE) 6" angle girder with 2 (D) 2½" curved girders fastened to it with an (F) 5 hole strip across the ends of the curved girders.

The flywheel is built with 8 (CS) wheel segments with 8 P20 5 hole strips—formed fastened one to each wheel segment. From each P20 5 hole strip—formed are fastened 2 (I) 21

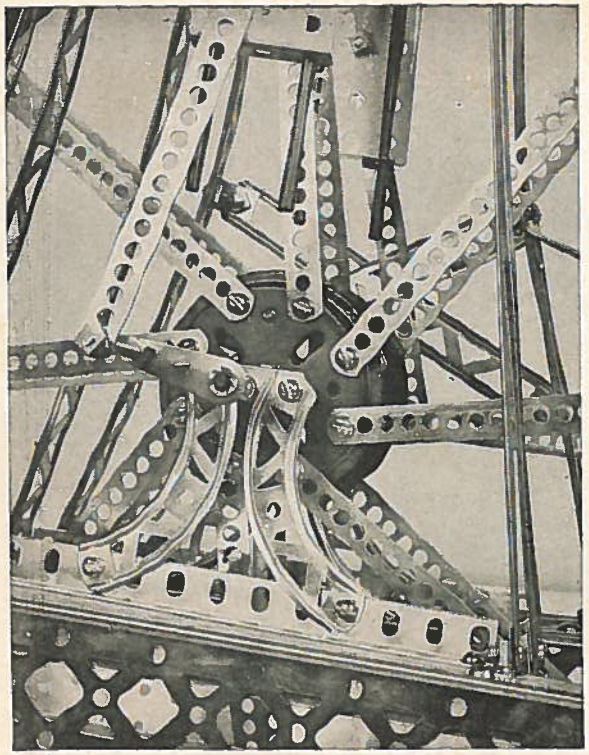


FIGURE 5

hole strips which are brought down and 8 strips on each side are fastened to (CR) special turret plates with hub.

The flywheel assembly is now placed between the two (F) 5 hole strips on the supports and an (AT) 4″ axle rod is inserted through the center hole in the 5 hole strip and through the hubs on the turret plates on the flywheel assembly and then through the center hole in the 5 hole strip on the opposite side.

THE TOWER AND PLATFORM

The tower for the compressors, (T) boilers, is built with 4 (C) 10″ girders on each side with a cross-bracing of 2 (B) 5″ girders fastened to the 10″ girders with (CH) right angles. From the middle holes on two tower legs are fastened 2 (C) 10″ girders to the top two (CH) right angles on the steam cylinder. From the bottom two (CH) right angles are fastened (C) 10″ girders to the base of rear two tower supports. See Figure 1 and Figure 4.

TOP OF TOWER PLATFORM

To the 8 (C) 10″ girders that form the tower supports is fastened the tower platform with 8 (CH) right angles. The platform is made with 7 (MF) 1″ x 5″ base plates and 2 (ME) 1″ x 4″ base plates with 2 (C) 10″ girders and 2 (B) 5″ girders as shown in Figure 6. One of the boilers has been removed in this picture so you might see the (CJ) 36 tooth gear, the (2) 7″ axles, and the (CH) right angles that are fastened to each (ME) 1″ x 4″ base plate. Under the boiler is a (CJ) 36 tooth gear, two 8″ axles, 2 (CH) right angles, and a (BH) solid collar that keep one of the axles from moving up. The other axle is kept from moving up by fastening it to the 36 tooth gear. Two (T) boilers are mounted to the (CH) right angles on top of the tower. These boilers represent compressors in the original Corliss engine. Eight (FA) 1¾″ x 8-32 screws are used with string to form a guard railing on the tower platform.

By referring to Figure 5 you will see an (AA)

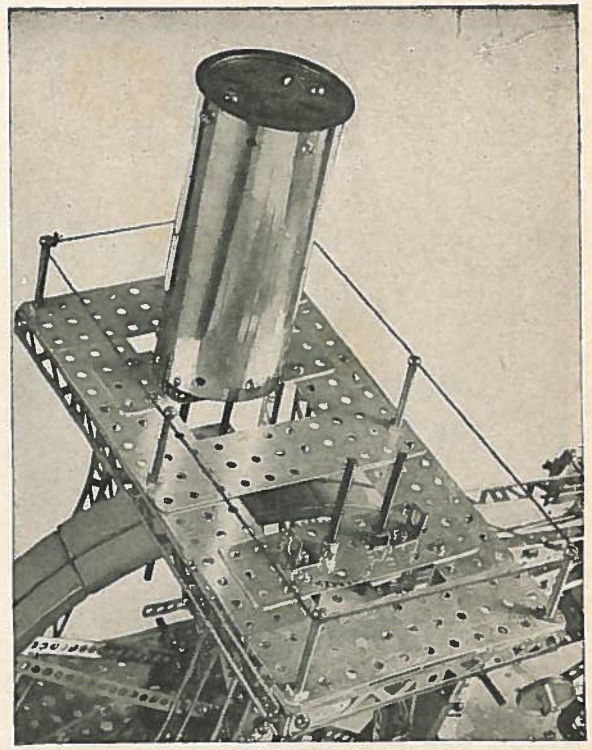


FIGURE 6

eccentric crank fastened to the 4″ flywheel axle. To this eccentric crank is fastened an (I) 21 hole strip with an (FA) 1¾″ x 8-32 screw. To the other end of the 21 hole strip is fastened an (MC) 1″ x 2½″ base plate which slides up and down on the two vertical axle rods. The 21 hole strip should be so fastened at each end that it can move freely. Two such assemblies are used. On the steam cylinder side of the engine is fastened the 41 hole strip to the 4″ axle rod with eccentric crank.

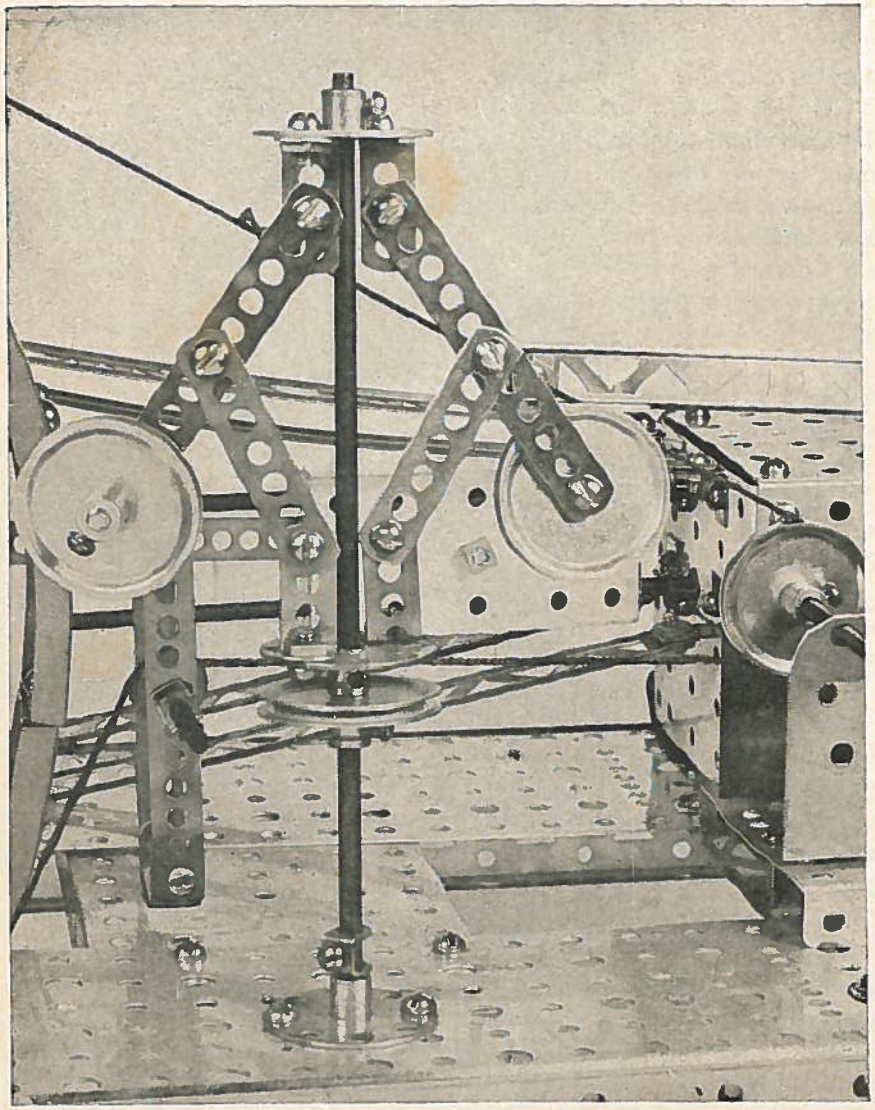


FIGURE 7

DETAIL OF GOVERNOR

The governor (Fig. 7) is built with 2 (BT) pierced discs, 2 (H) 11 hole strips, 2 (G) 7 hole strips with 4 (O) pawls. Two pawls are mounted to each pierced disc. The flyweights are P7-A pulleys. A (CZ) 7″ axle rod is used as a center support and is mounted to the base and revolves in a (BT) pierced disc. The governor is driven from the (DB) motor pulley on the power unit with string to the P7-A pulley on the governor rod. When the speed of the shaft is increased, the weights move up, swing out and the lower (BT) pierced disc, which is free on the shaft, moves up toward the top. As a result this model governor acts like a real one. The string take-up shown in Fig. 7 behind the flywheel is built with an (M) small double angle, 2 (H) 11 hole strips, an (AQ) sheave pulley, a P57-A 2⅛″ axle and 2 P37 collars.

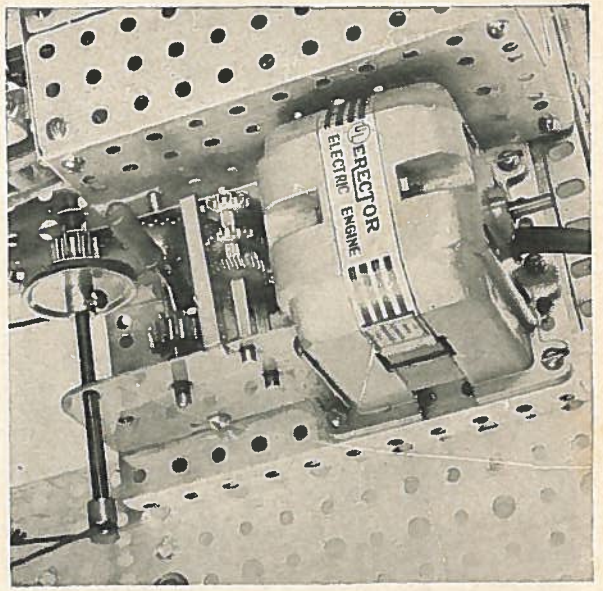
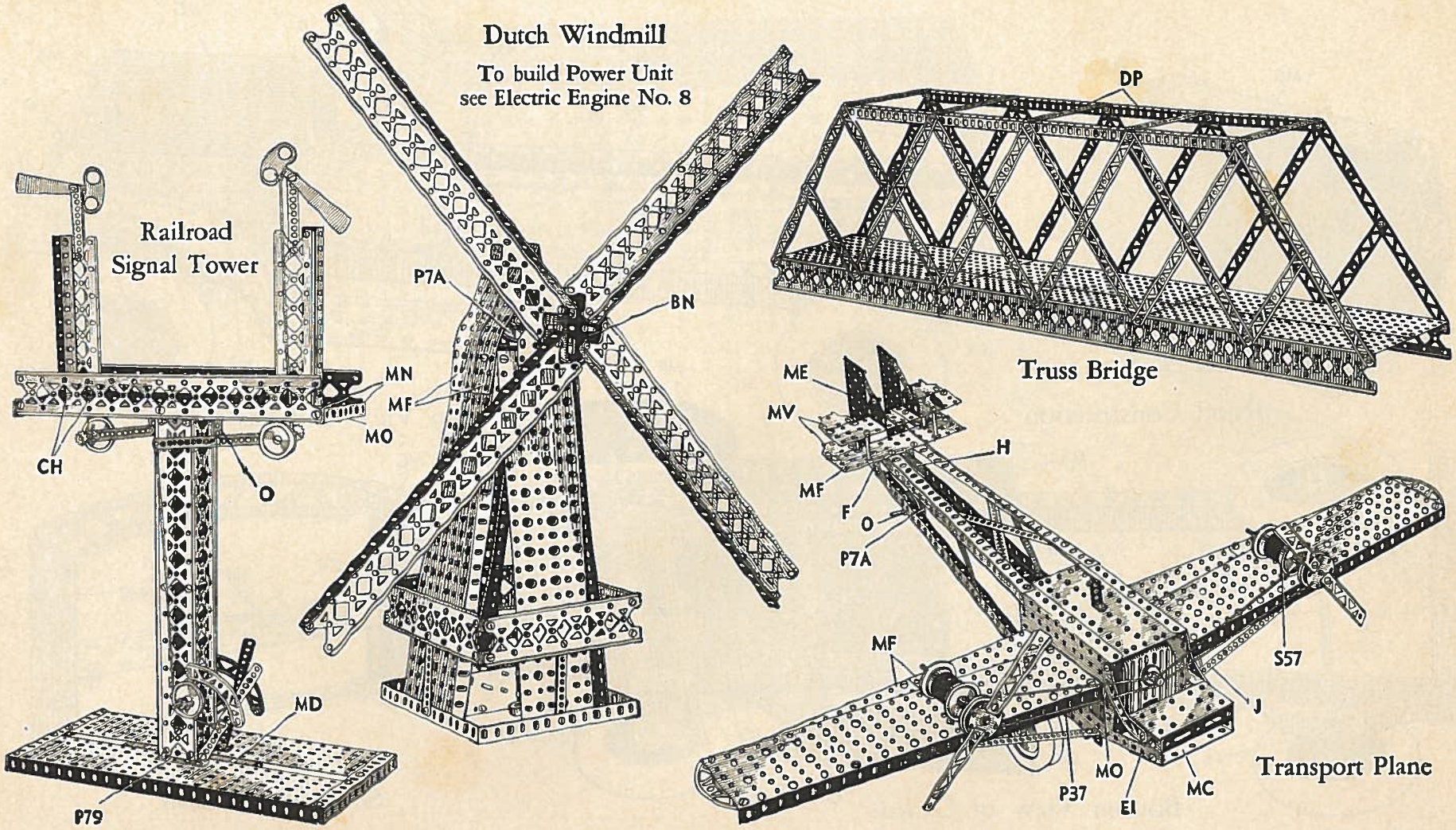


FIGURE 8

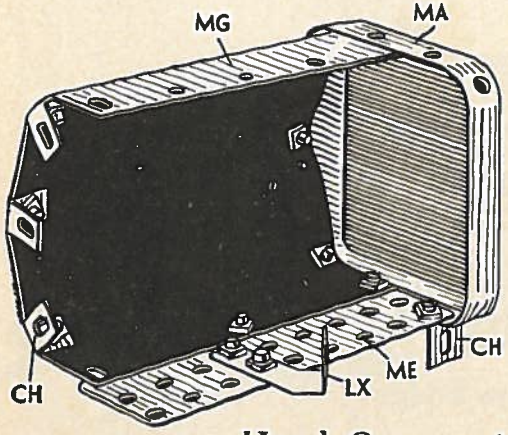
POWER UNIT

The power unit (Fig. 8) is an A-49 electric engine geared as shown. An (AT) 4″ shaft is used with one P37 collar, P13-B 12 tooth pinion gear, P7-A pulley and a (DB) motor pulley. The power unit is mounted to an (MD) 2½″ x 5″ base plate which is mounted to the base of model as shown. Two (B) 5″ girders are fastened to the underside of the base and these girders support the power unit. The driving string passes over the pulley in the power unit, over and around the flywheel, up and over the sheave pulley, then back to the power unit.

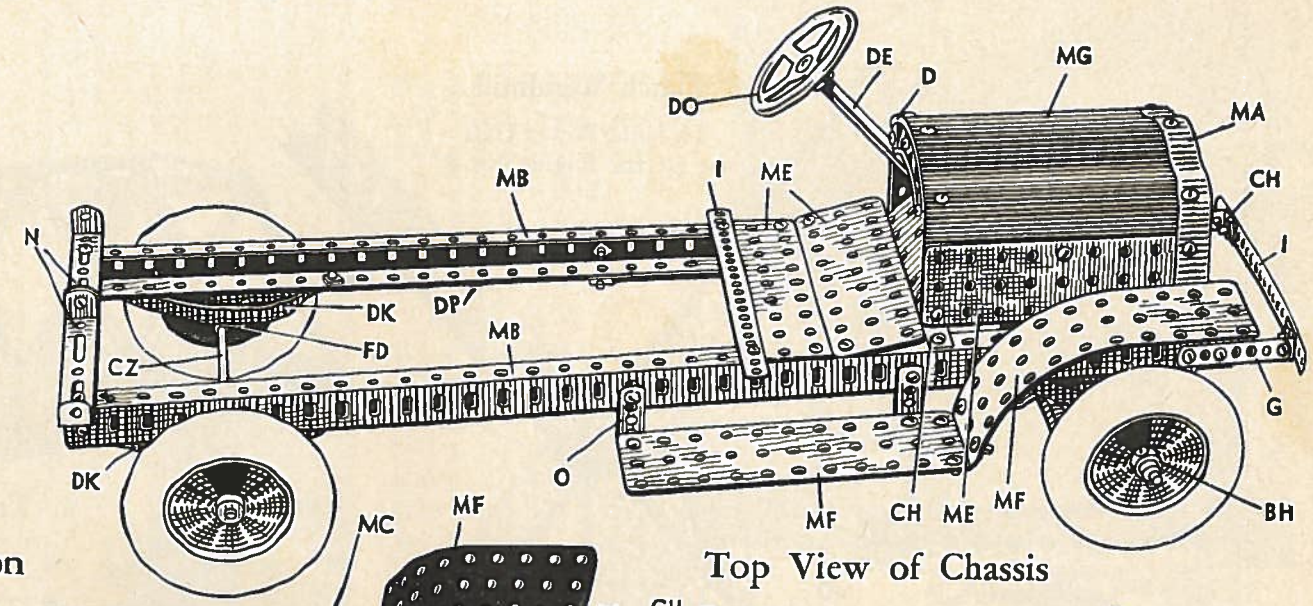
Models Built with No. 10½ Erector



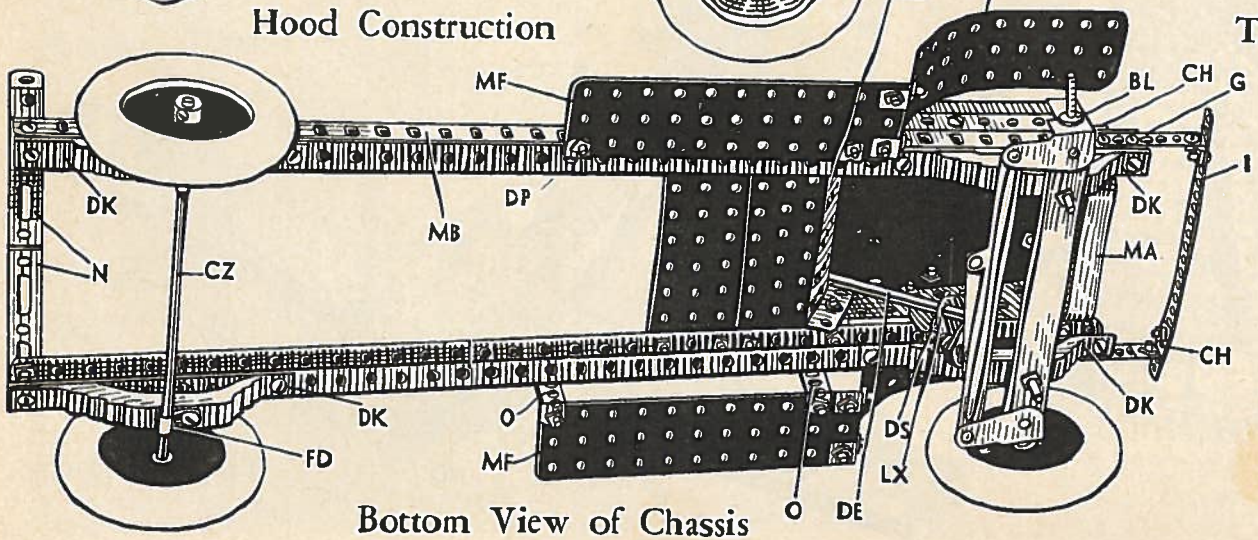
Models Built with No. 9 and No. 10½ Erector



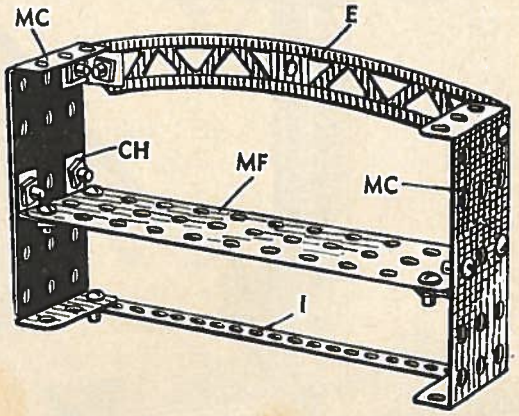
Hood Construction



Top View of Chassis

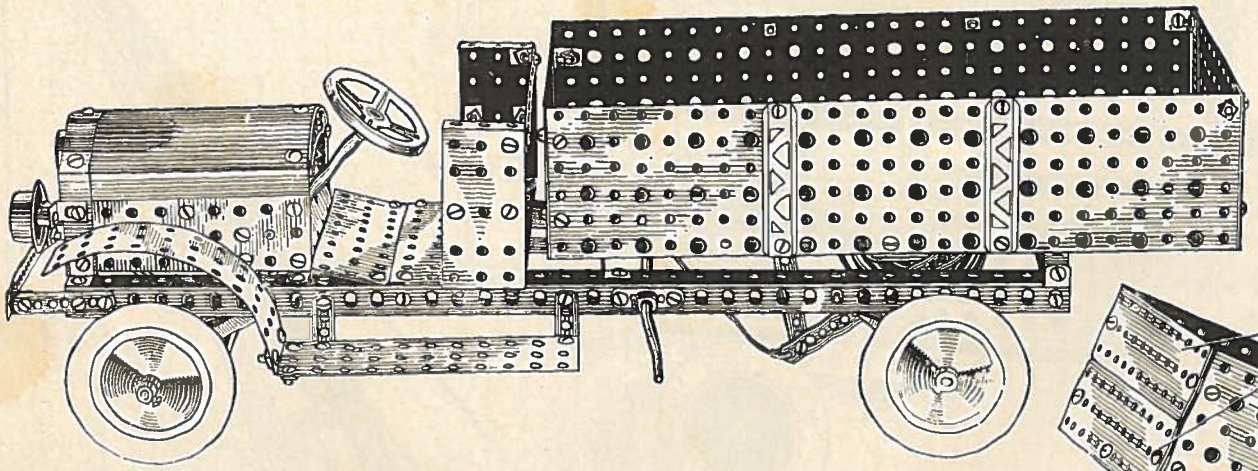


Bottom View of Chassis

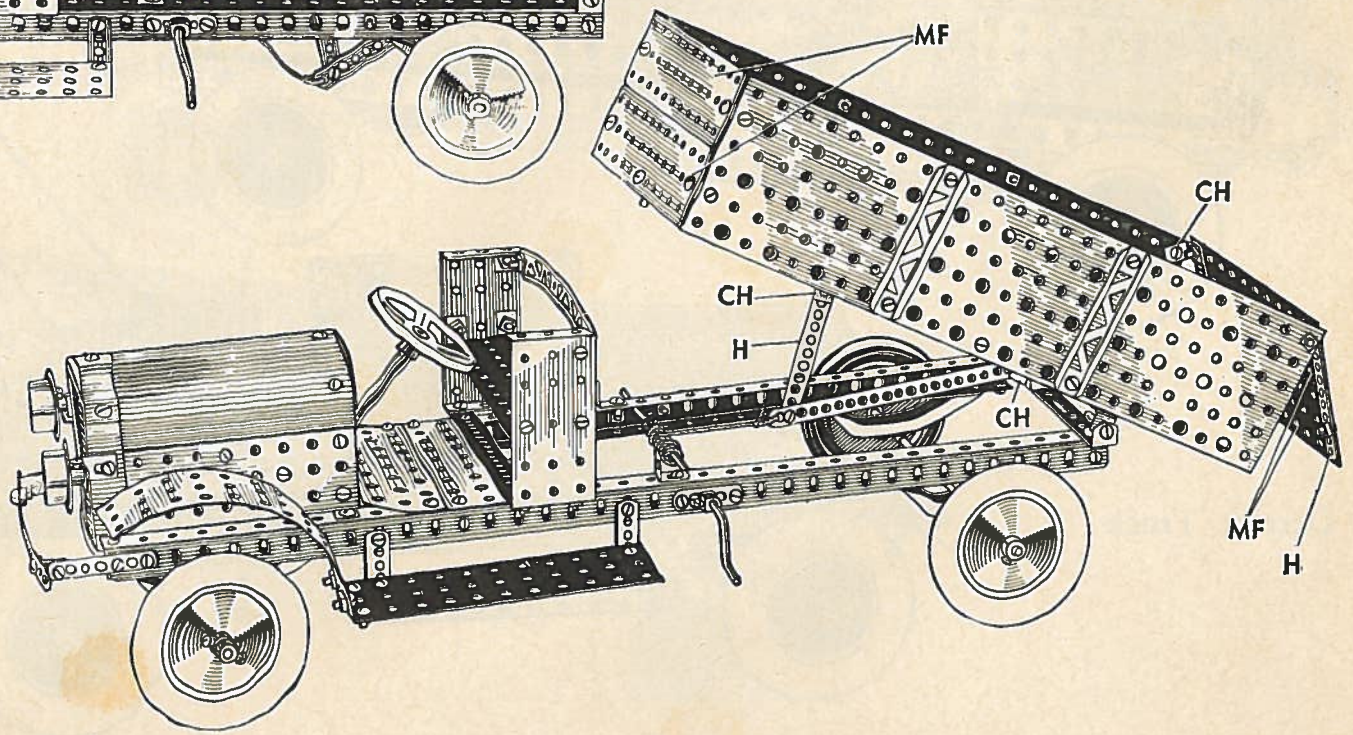


Seat Construction

Models Built with No. 9 and No. 10½ Erector

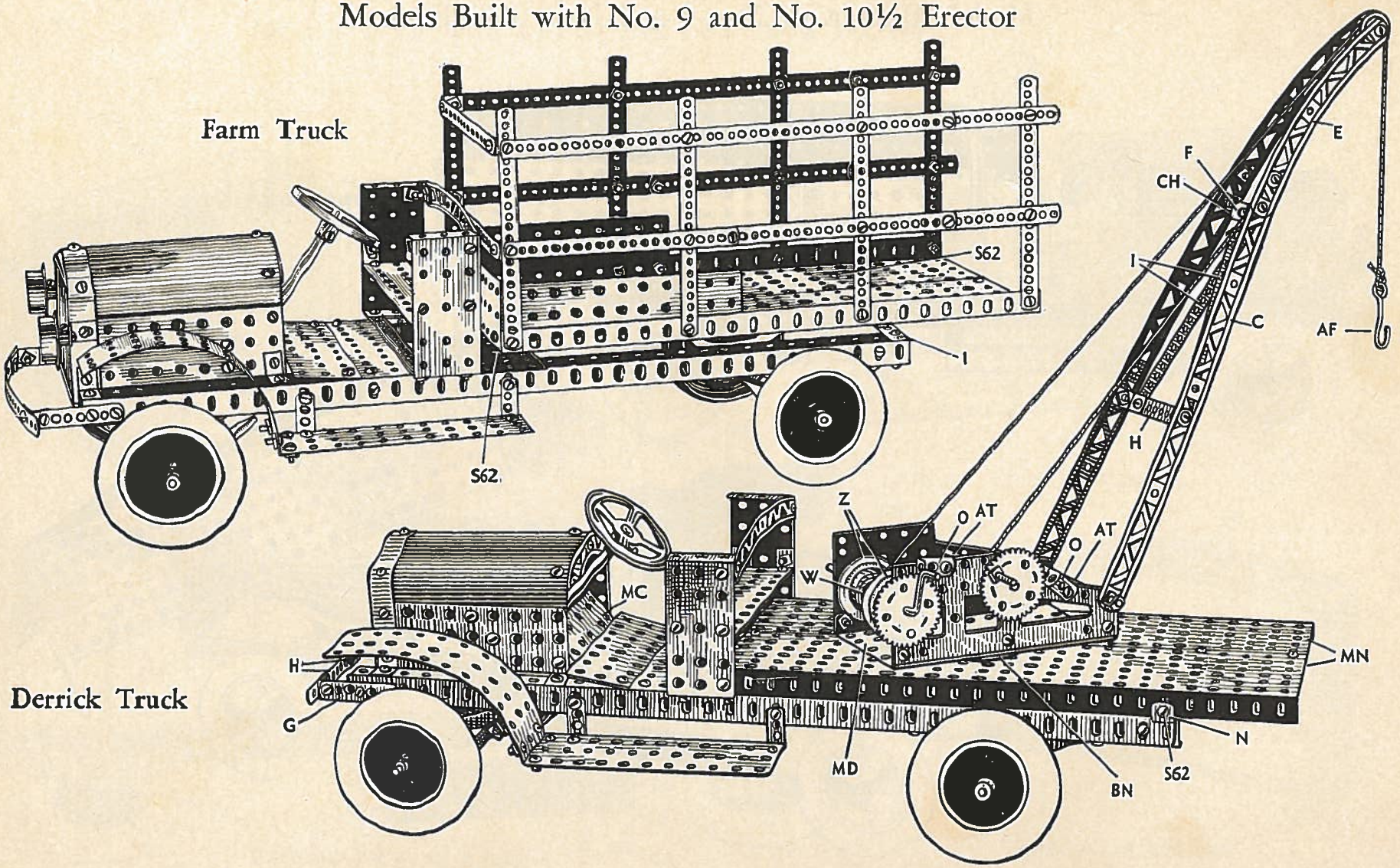


Dump Truck



Dump Truck
Raised Position

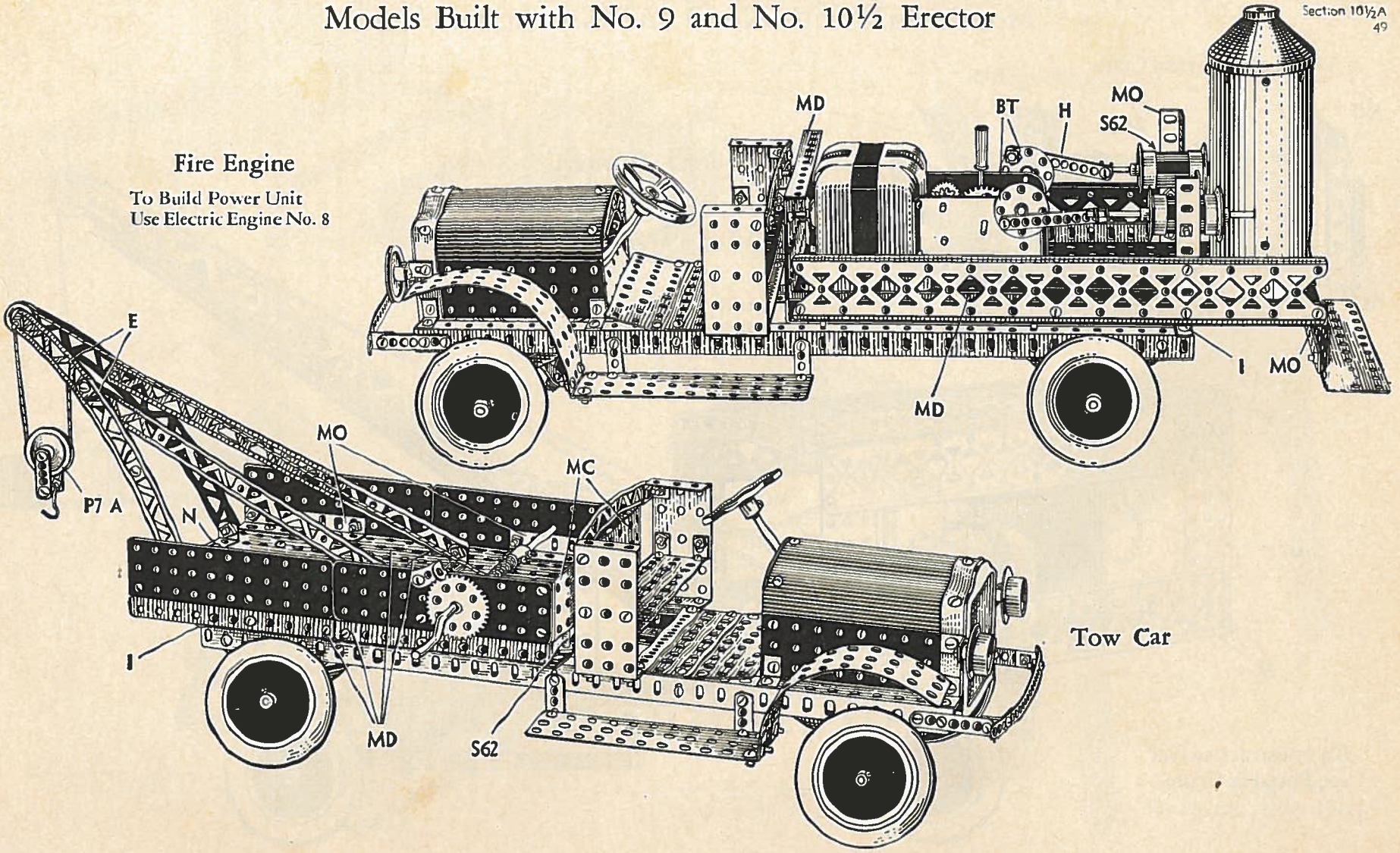
Models Built with No. 9 and No. 10½ Erector



Models Built with No. 9 and No. 10½ Erector

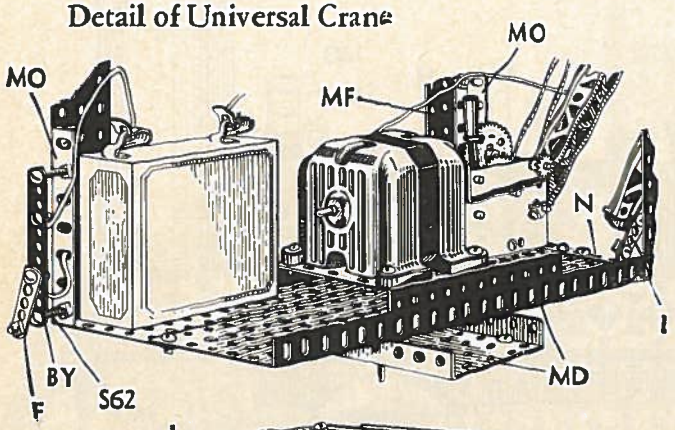
Fire Engine

To Build Power Unit
Use Electric Engine No. 8



Tow Car

Detail of Universal Crane

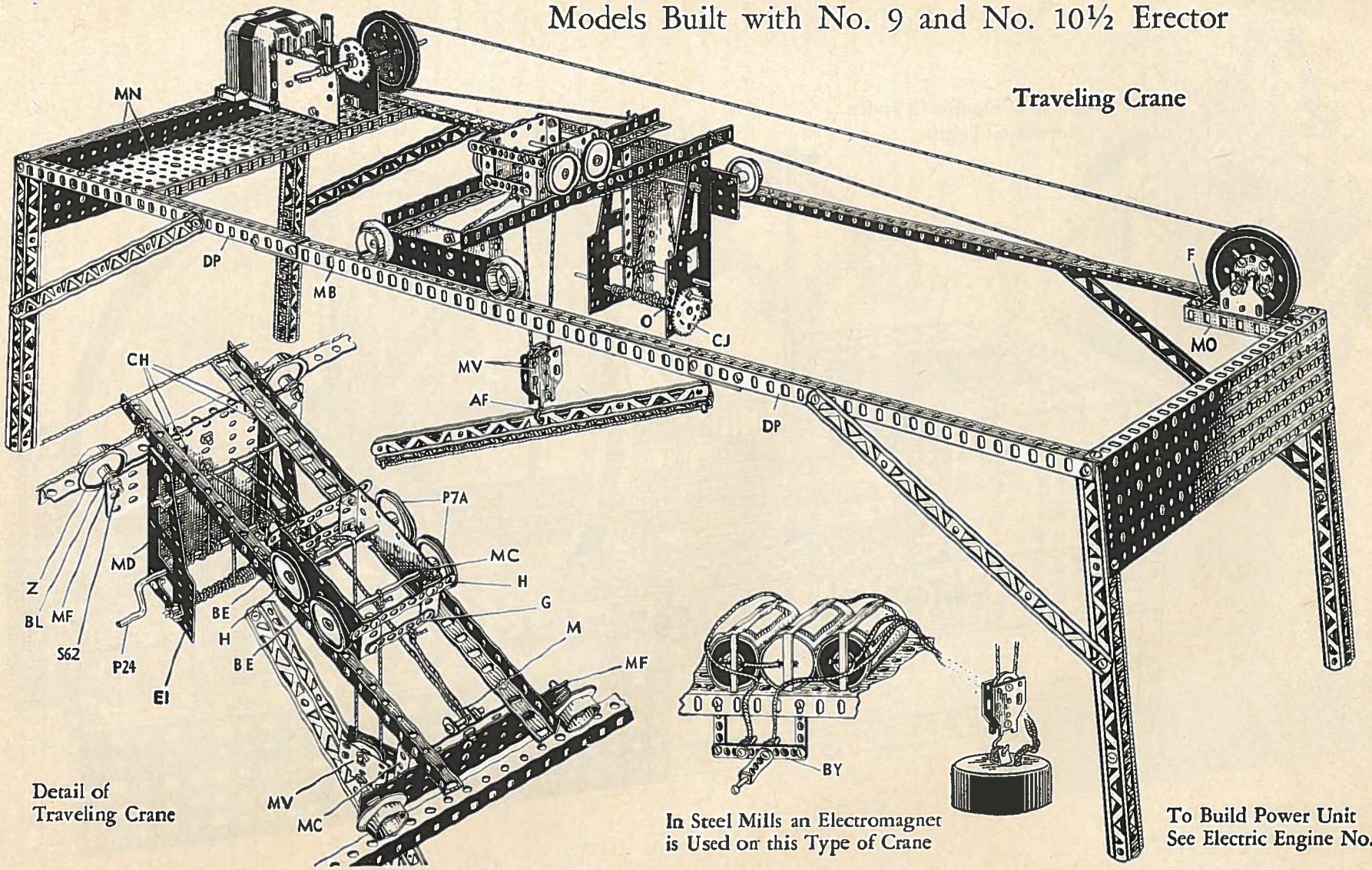


Universal Crane with Lifting Magnet

To build Power Unit
see Electric Engine No. 10

To construct swivel
see Portable Crane

Models Built with No. 9 and No. 10½ Erector



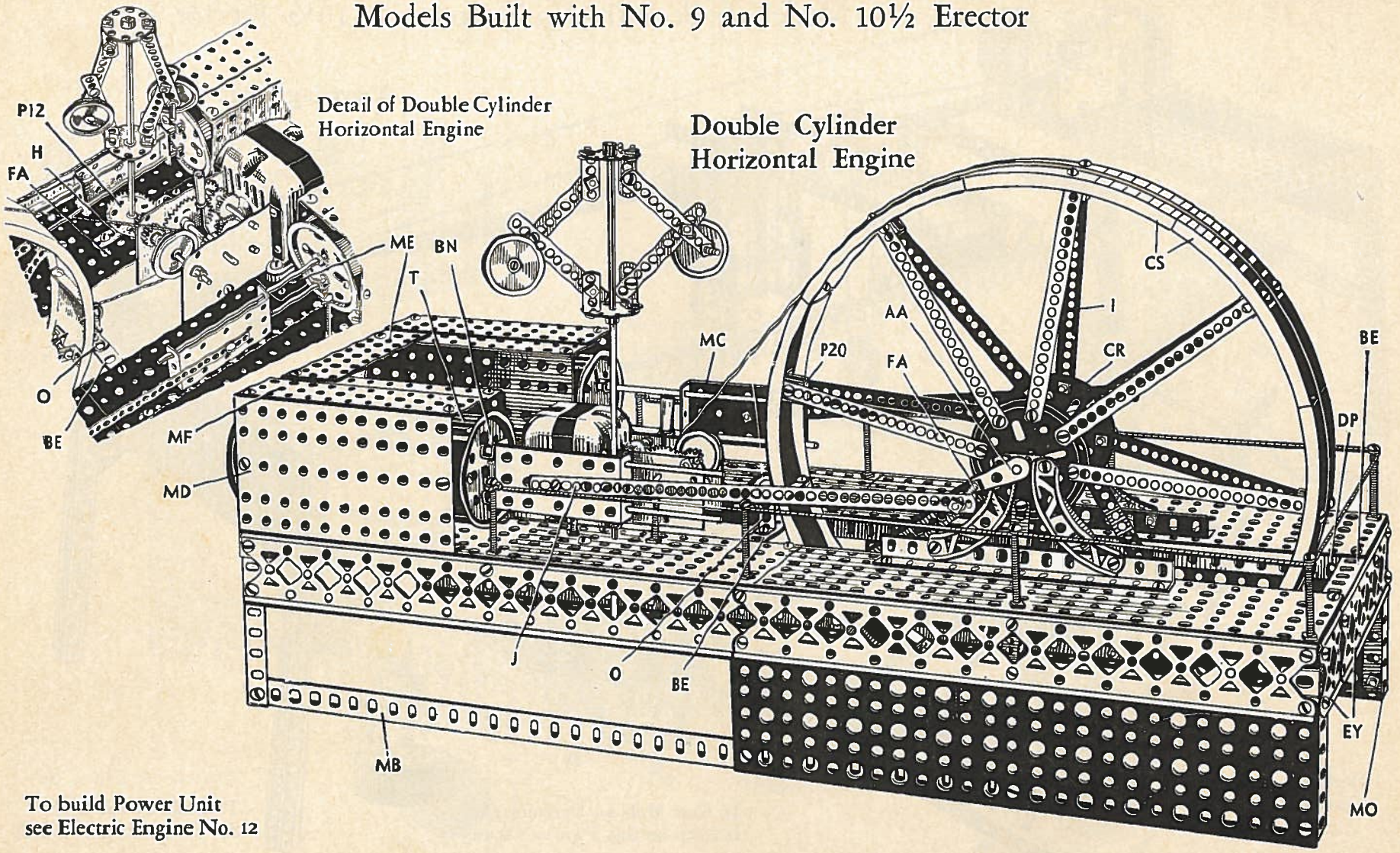
Traveling Crane

Detail of Traveling Crane

In Steel Mills an Electromagnet is Used on this Type of Crane

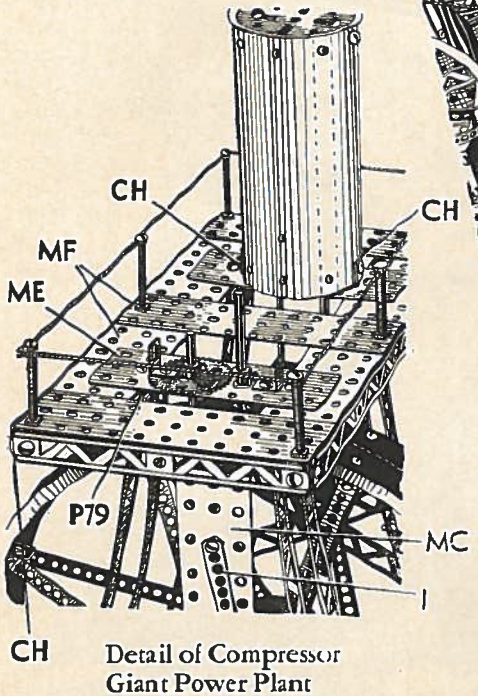
To Build Power Unit See Electric Engine No. 9

Models Built with No. 9 and No. 10½ Erector

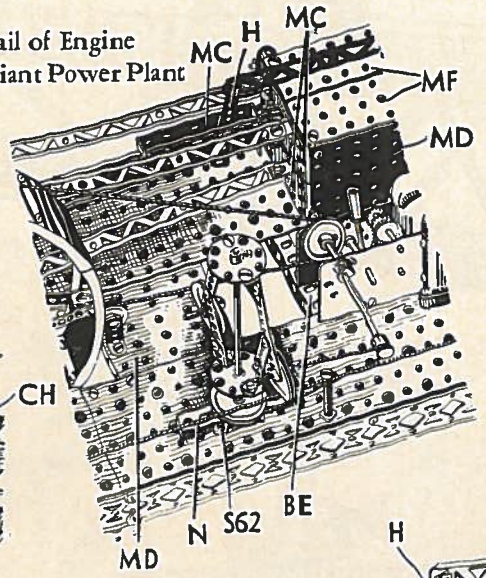


To build Power Unit see Electric Engine No. 12

Models Built with No. 9 and No. 10½ Erector



Detail of Compressor
Giant Power Plant

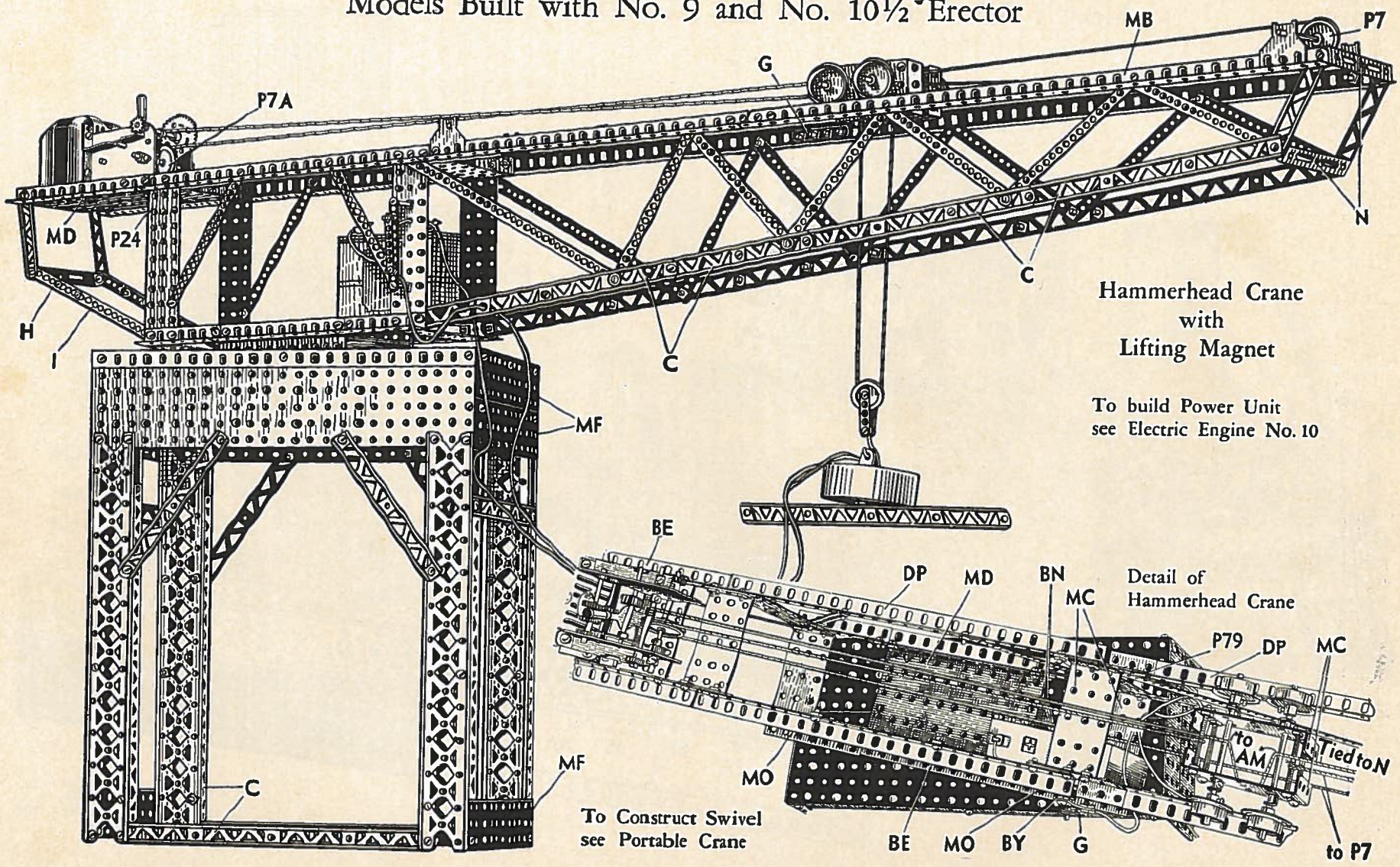


Detail of Engine
Giant Power Plant

Giant Power Plant

To build Power Unit
see Electric Engine No. 12

Models Built with No. 9 and No. 10½ Erector



Hammerhead Crane
with
Lifting Magnet

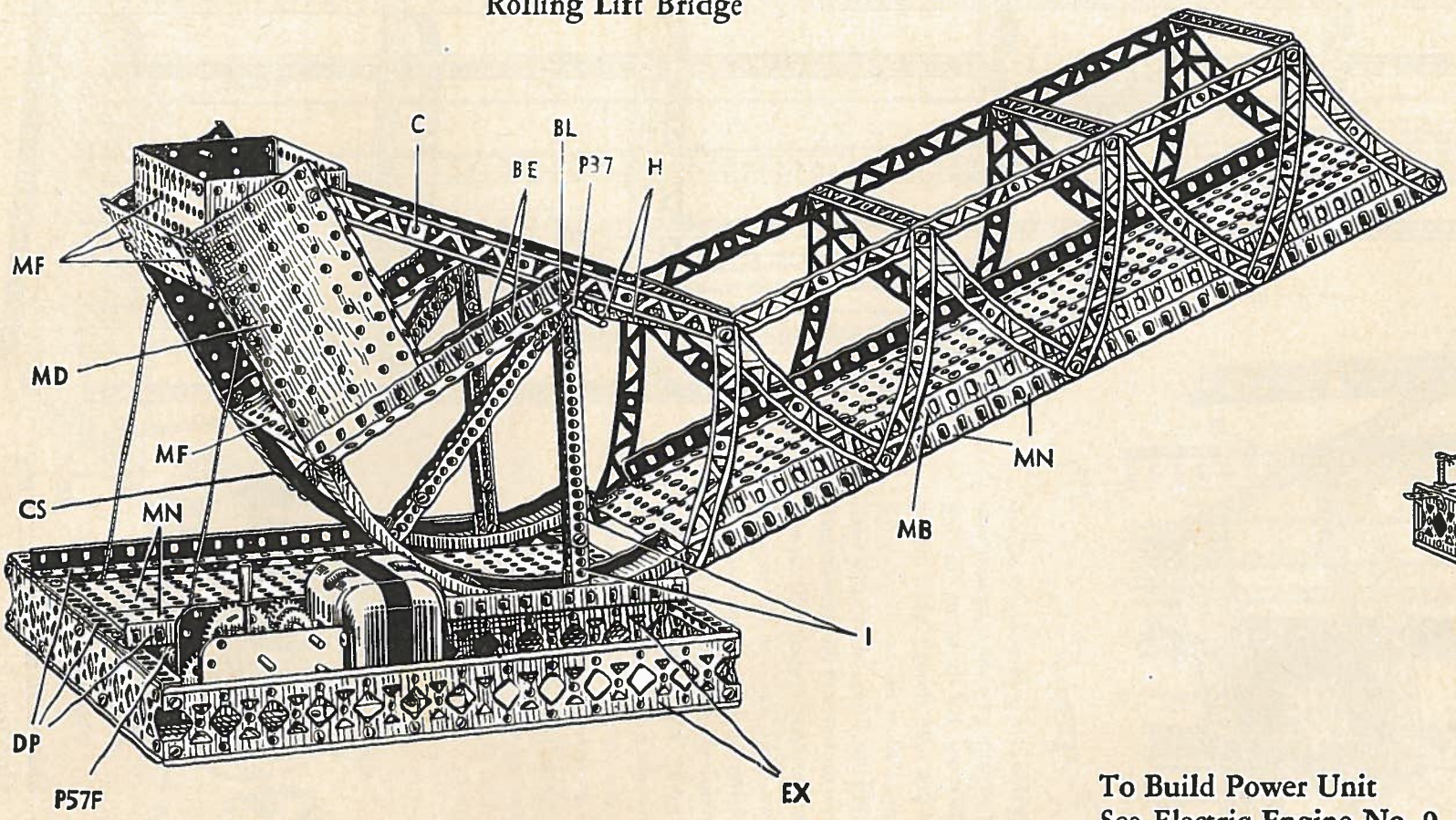
To build Power Unit
see Electric Engine No. 10

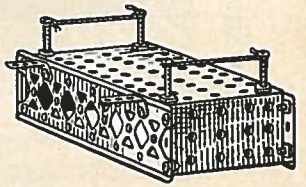
Detail of
Hammerhead Crane

To Construct Swivel
see Portable Crane

Models Built with No. 9 and No. 10½ Erector

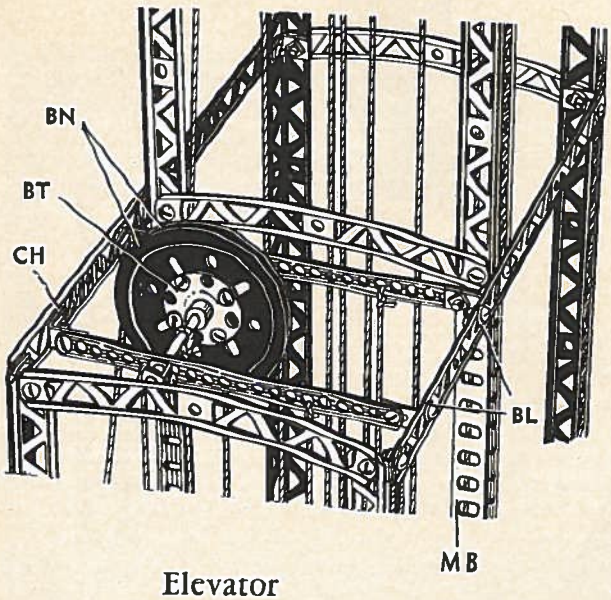
Rolling Lift Bridge





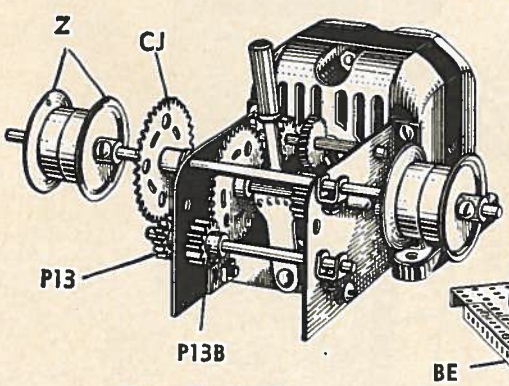
To Build Power Unit
See Electric Engine No. 9

Detail — Top of Elevator Shaft

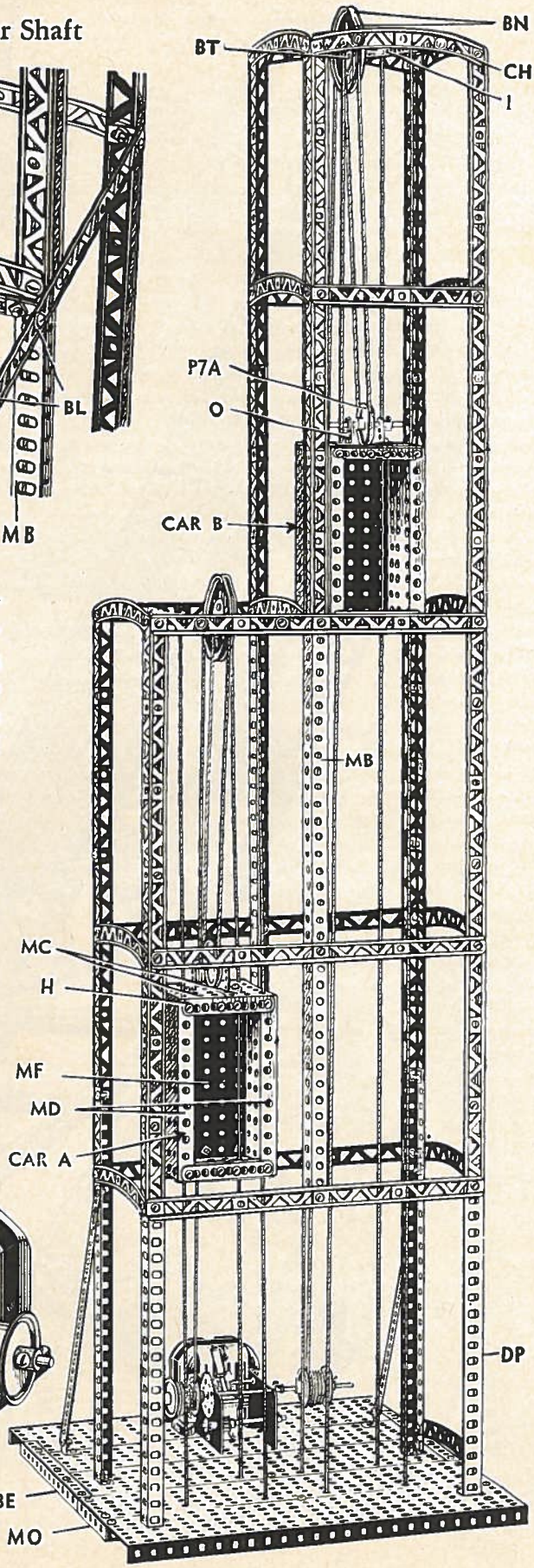


Elevator

Considerable care is necessary in adjusting this elevator to make it operate correctly. First see that the string hoisting car A is just long enough when tied to the drum to allow the car to touch the base. Wind this string on its drum until the car is at the top with the rotation such that when the motor is started the car will start down. With Car A in this position let Car B rest on the base and fasten its string so that when the motor starts this car will go up. When Car B reaches the top throw the gears into reverse until Car B reaches the bottom. Shift gears each time Car B arrives at the top or bottom. If the string on Car A is the proper length Car A goes up and down once for each trip of Car B and should need no attention.



Detail of Elevator Hoisting Unit

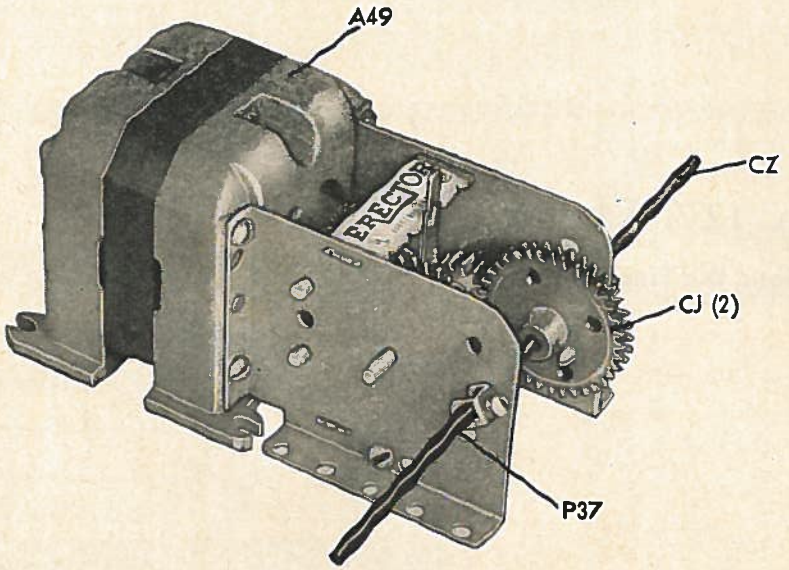


Models Built with No. 12½ Erector

The Set that Builds the Mysterious Walking Robot

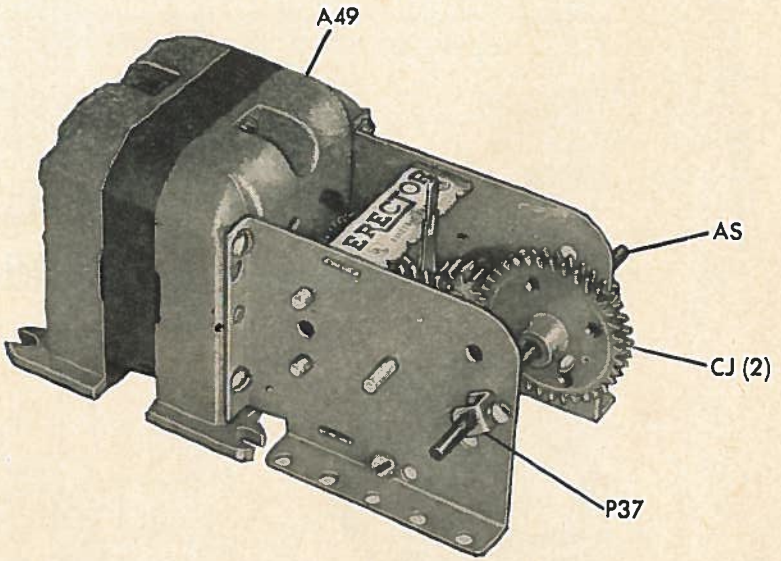
Models Built with No. 12½ Erector

The Set that Builds the Mysterious Walking Robot



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.

Models Built with No. 12½ Erector

The Set that Builds the Mysterious Walking Robot

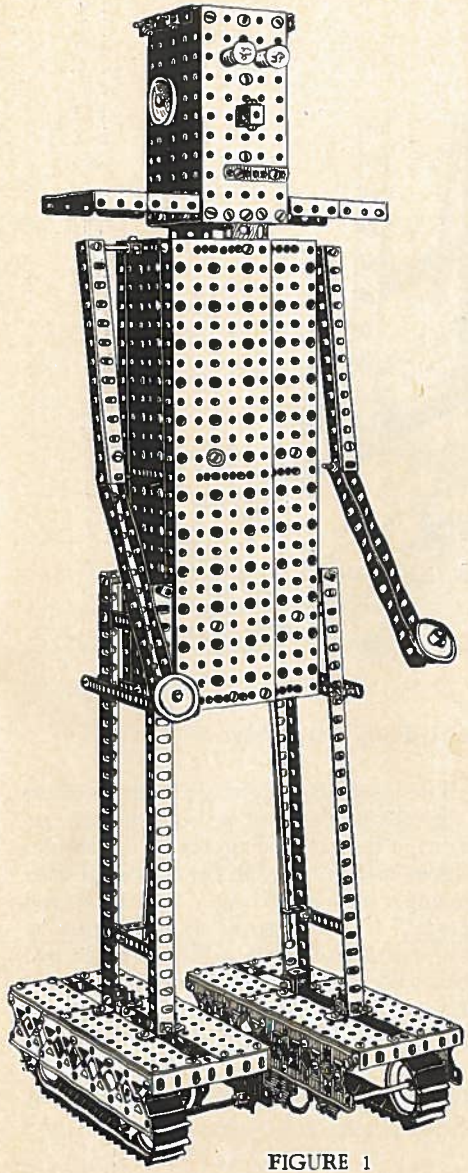


FIGURE 1

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 12½ 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.

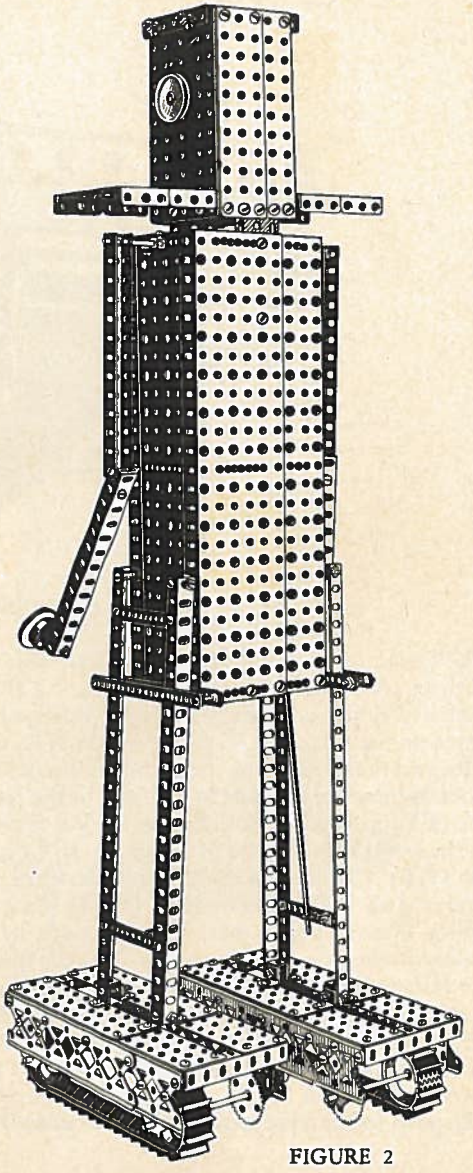


FIGURE 2

Models Built with No. 12½ Erector

The Set that Builds the Mysterious Walking Robot

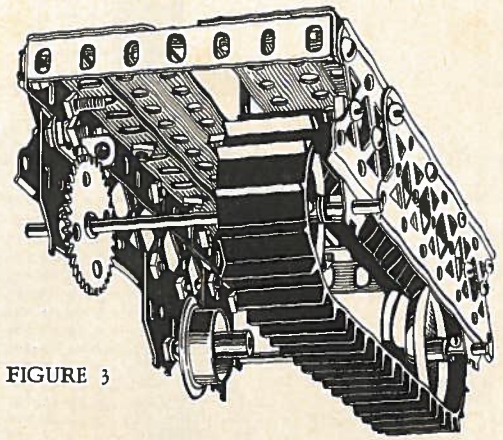


FIGURE 3

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 (Z) 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 (O) 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.

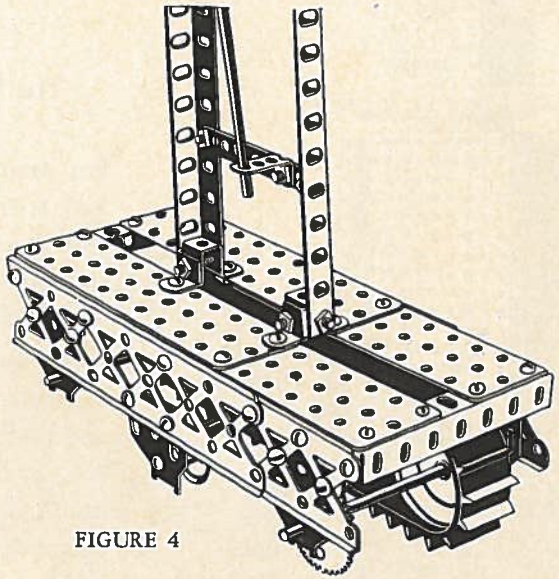


FIGURE 4

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 (O) pawl, as shown in Figure 4. On the bottom of each girder is fastened a (CH) right angle with an S51 ¼ x 8-32 screw and N21 nut. A P20 5 hole strip formed is now fastened to each girder by passing an S62 ⅞ x 8-32 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).

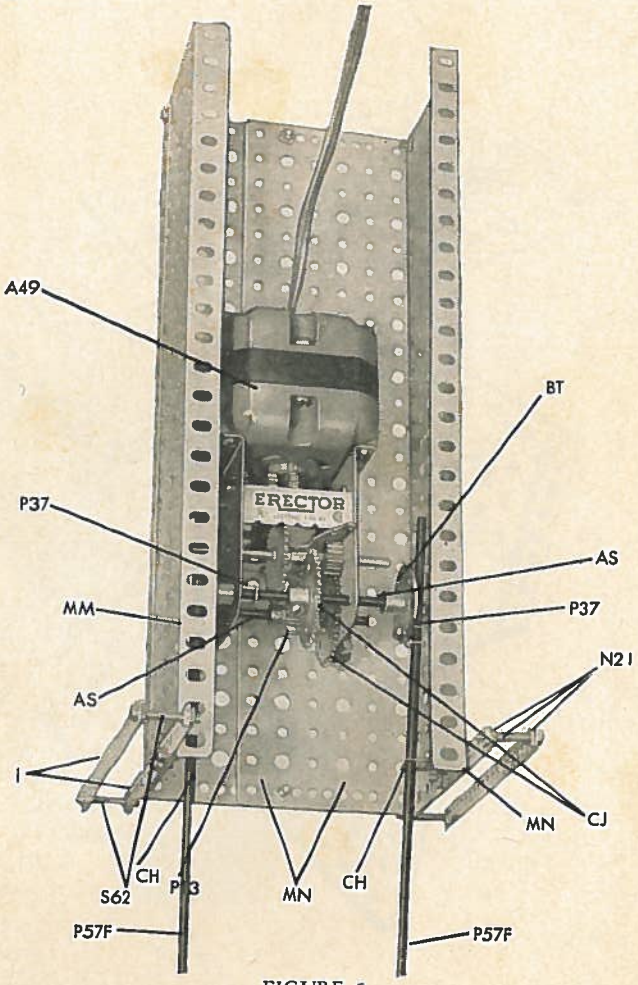


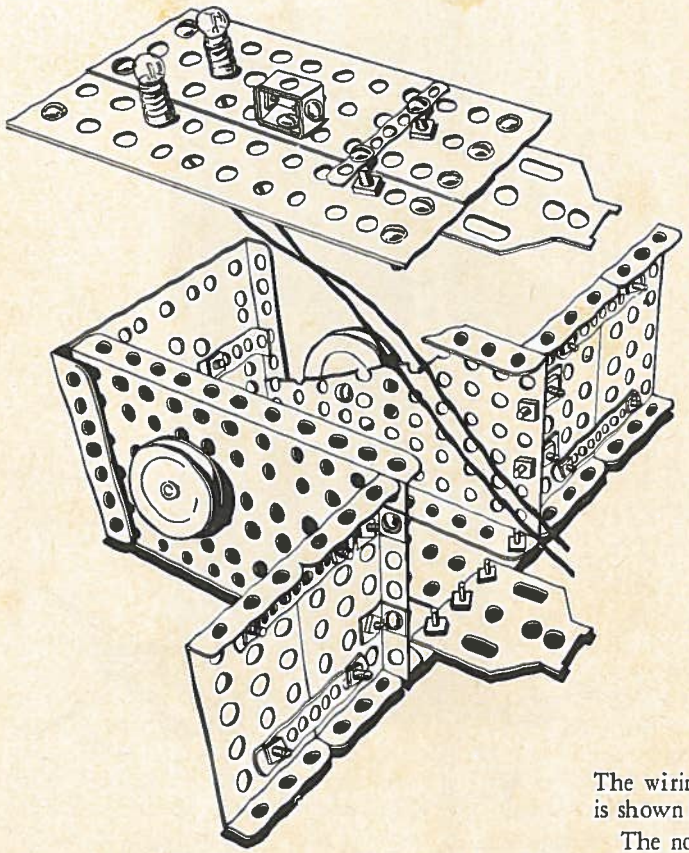
FIGURE 5

Detail of Motor Assembly

Models Built with No. 12½ 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) 2½" x 5" base plates. The ears are P7-A 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 2½" 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 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 ⅞" 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.

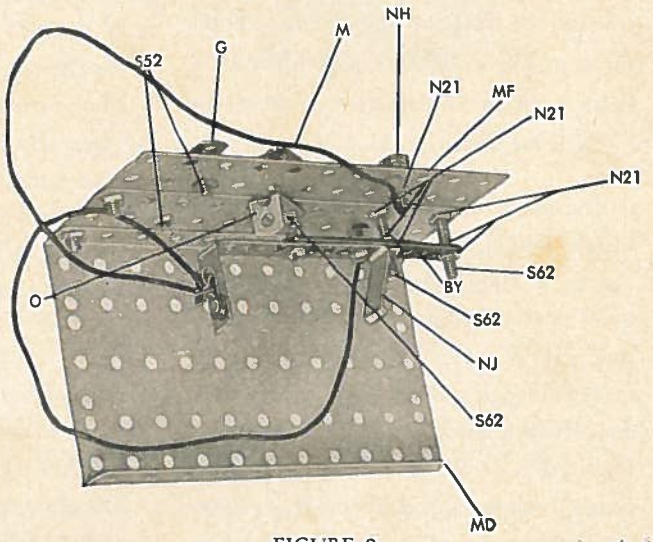
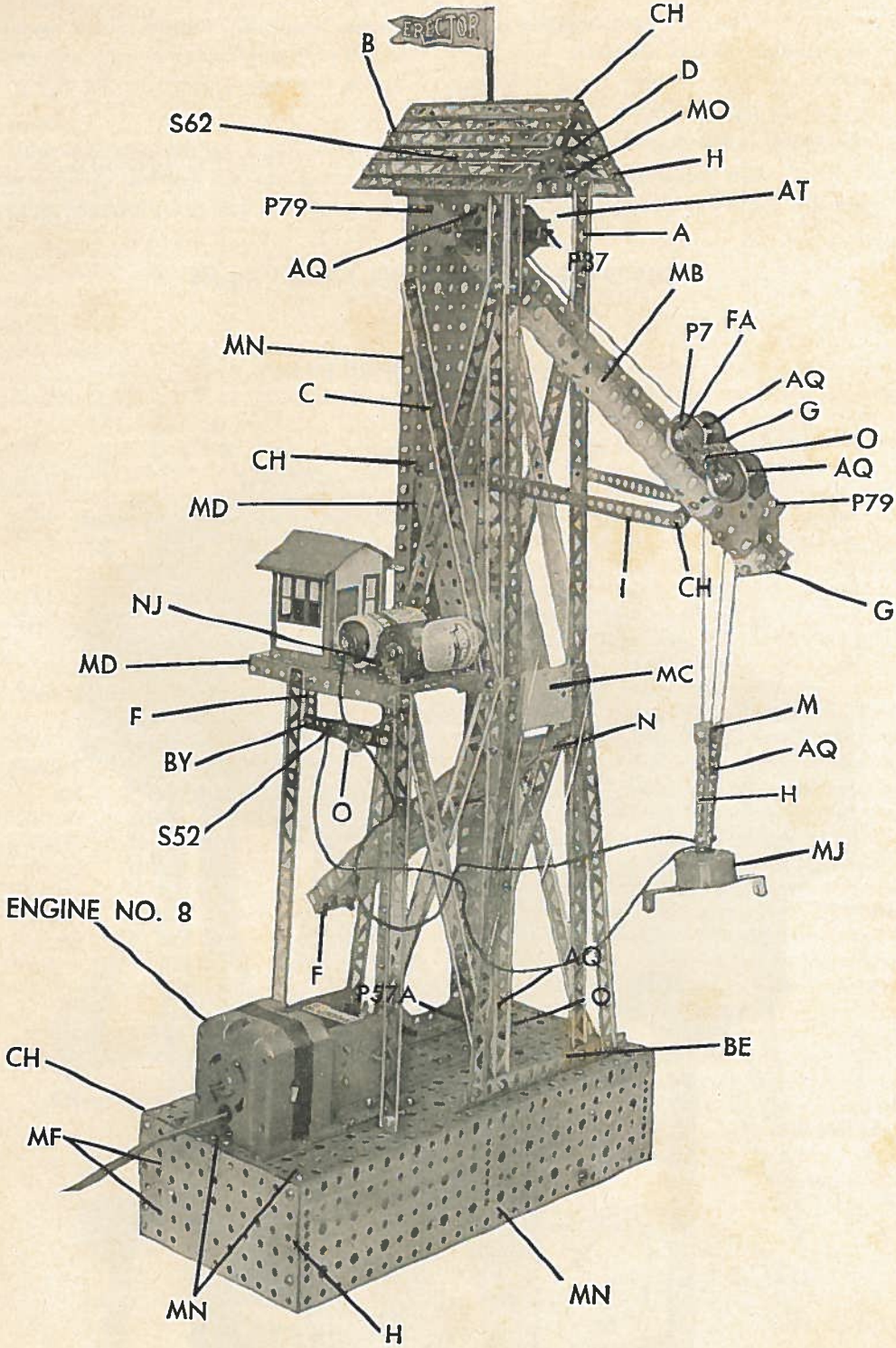
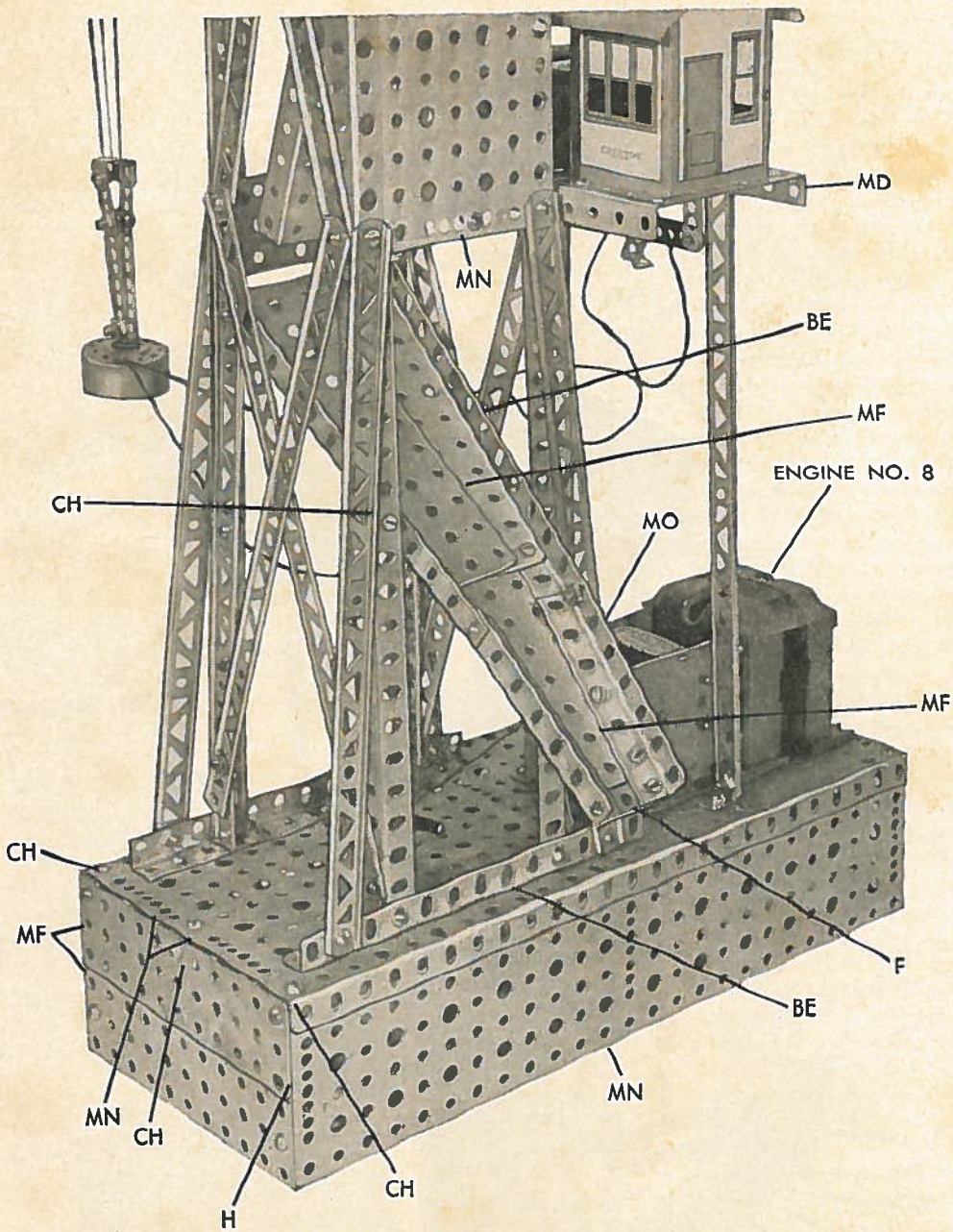


FIGURE 8



Electro Magnetic Steel Scrap Loader



Detail of Steel Scrap Magnet

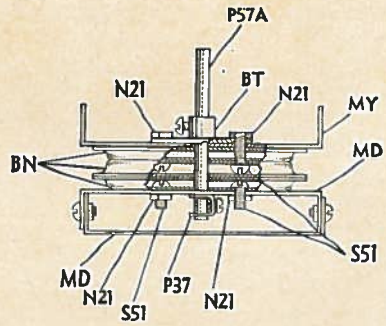
OPERATION OF ELECTRO MAGNET

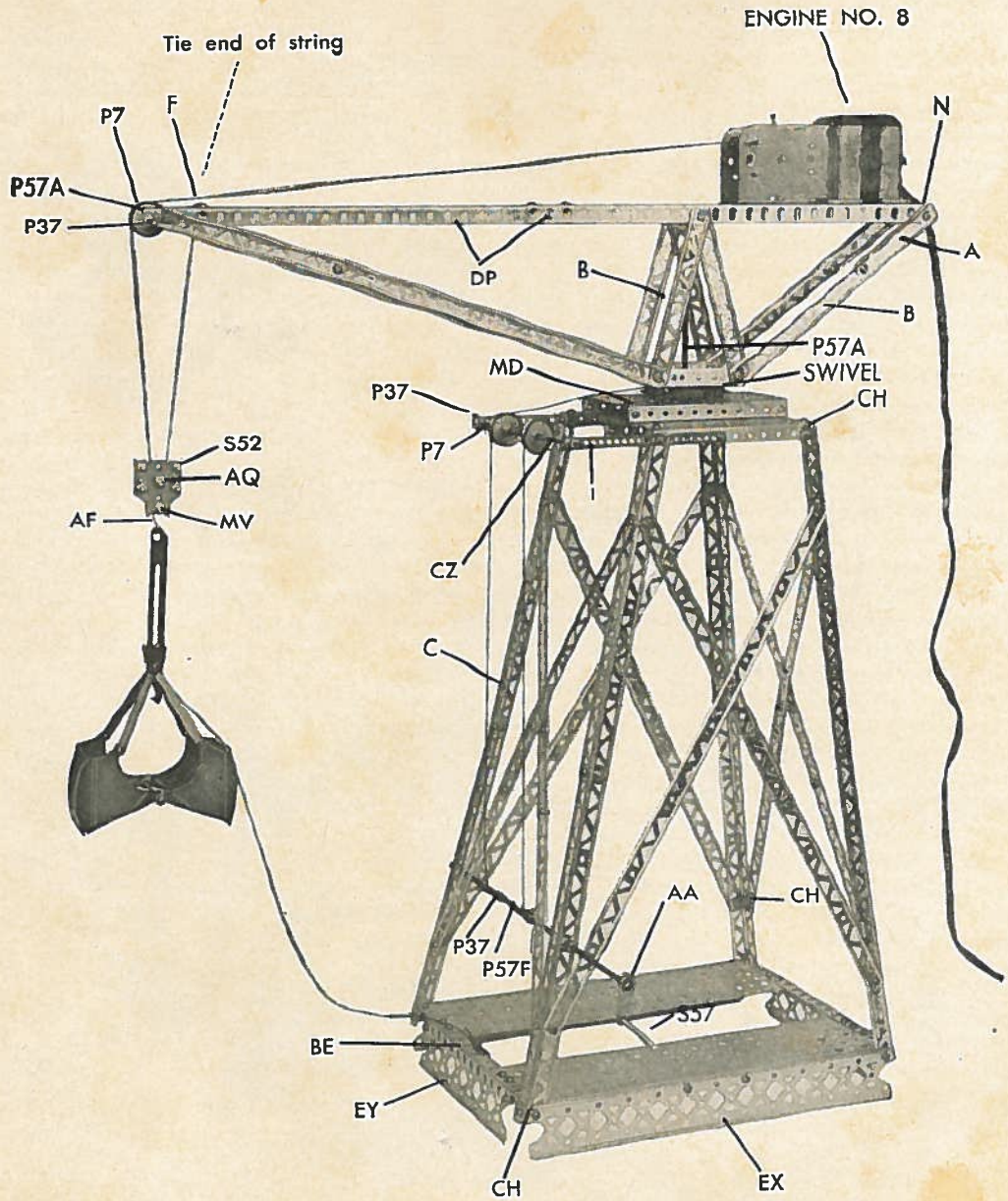
Place batteries in holder so that the top of one is toward the front and the other is toward the rear of the model as shown.

Connect one magnet lead wire to the pawl (0). Connect the other lead to one of the battery holder clips. Now connect a short wire between the other clip and the screw in the insulated strip.

Now lift the pawl so that it makes contact with the screw and the magnet is ready to lift a load of steel. To release the load, break the contact between the pawl and the screw.

Detail of Swivel



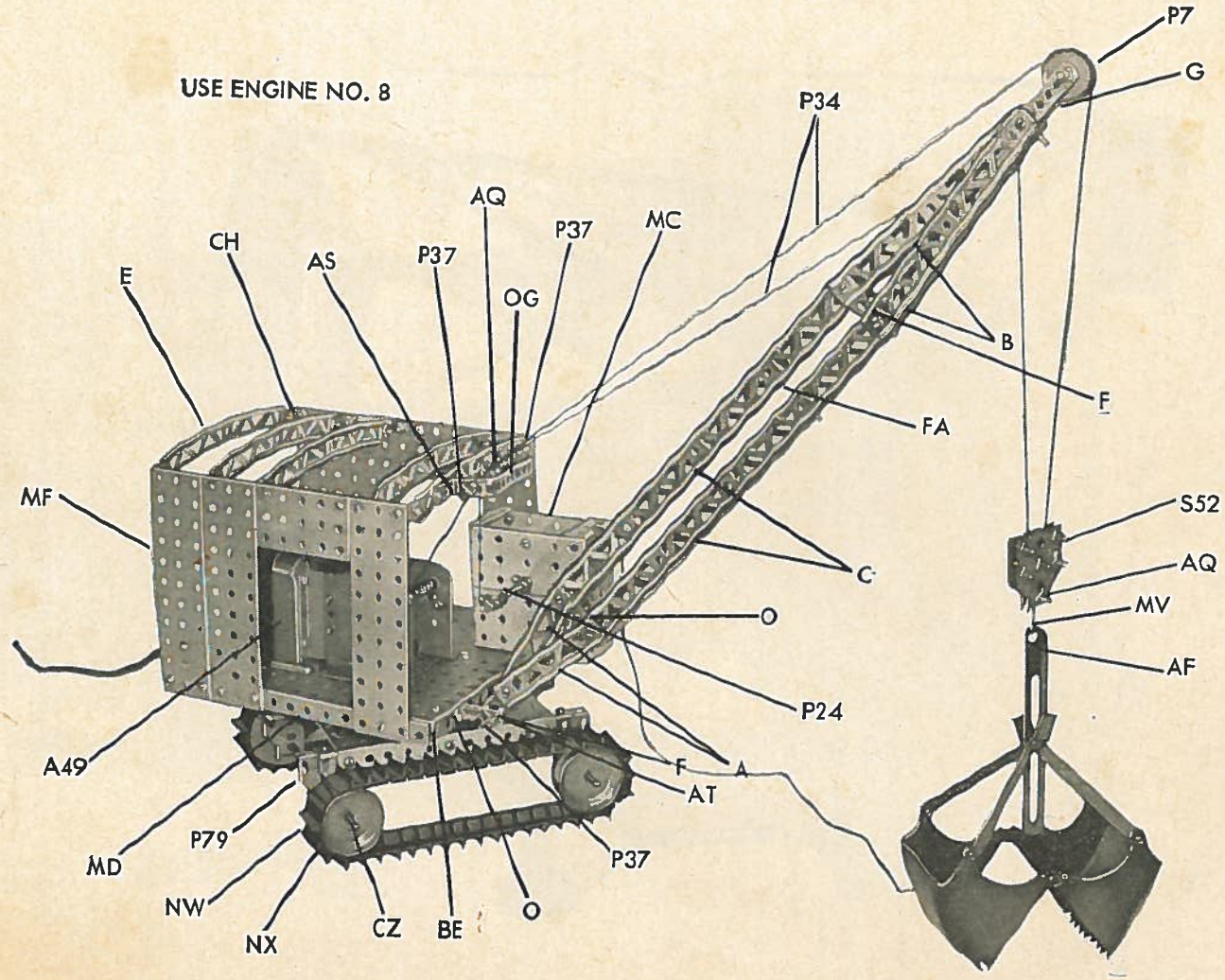


SHIP YARD CRANE

This type of crane with clam shell bucket is used to unload barges

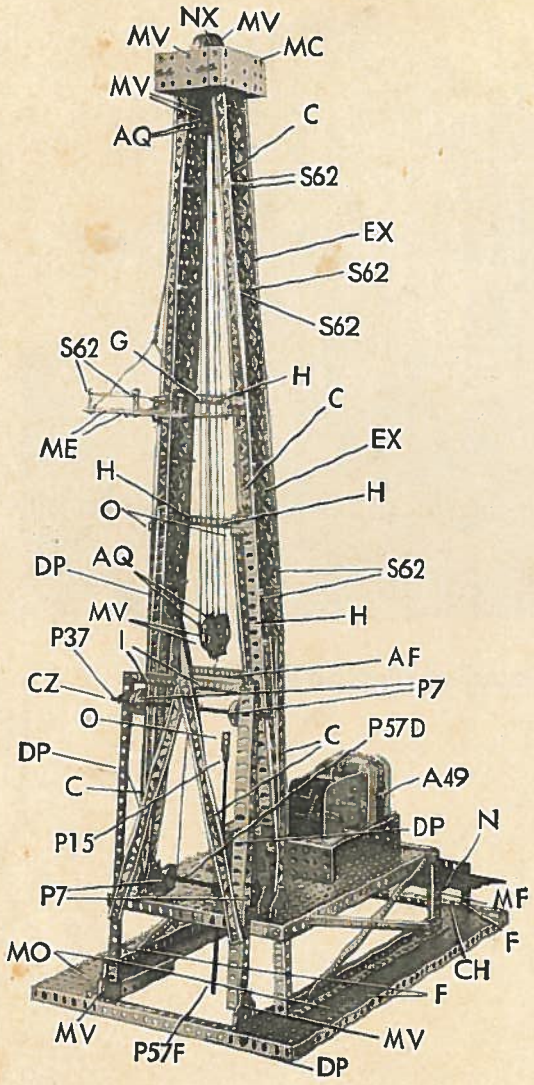
Models Built with No. 12½ Erector

The Set that Builds the Mysterious Walking Robot



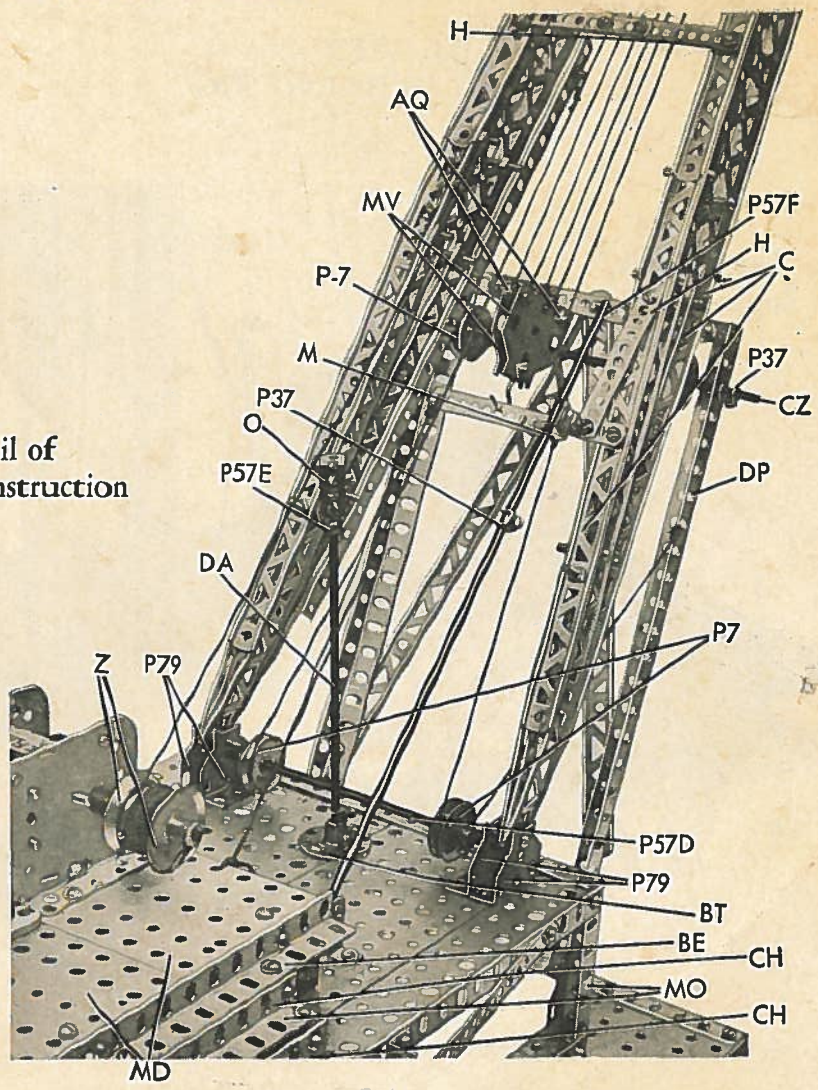
DERRICK
with Clam Shell Bucket
used for
Excavation Work.

Models Built with No. 12½ Erector



FULL VIEW MAST
OIL DRILLING RIG

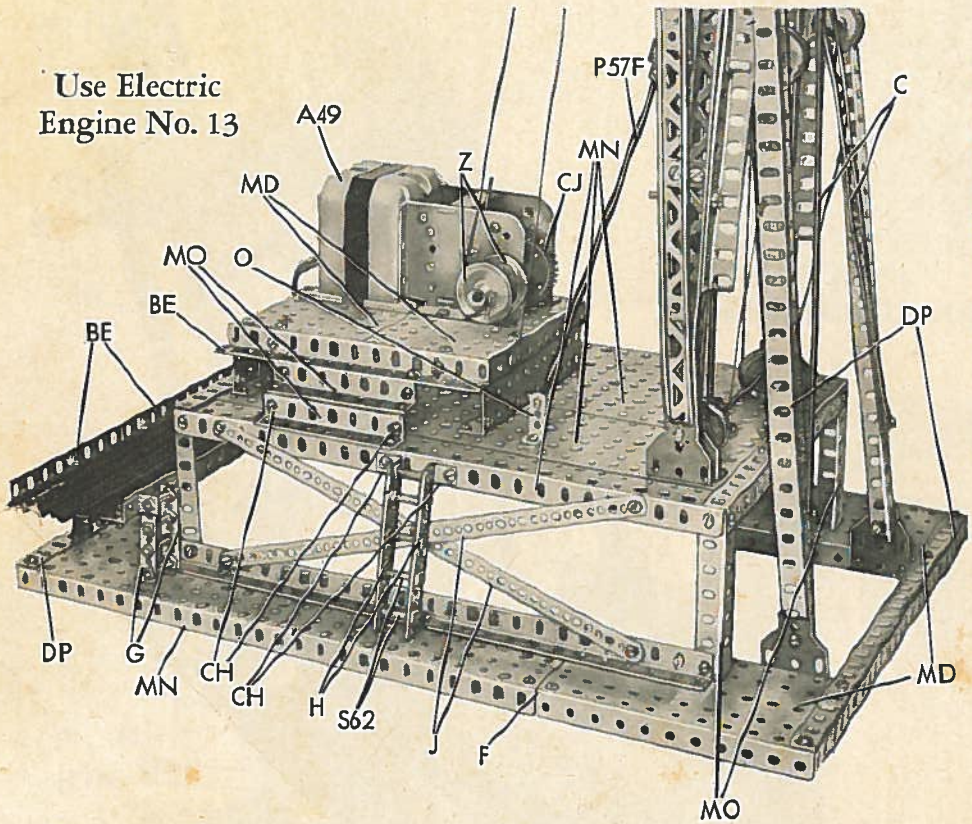
Detail of
Boom Construction



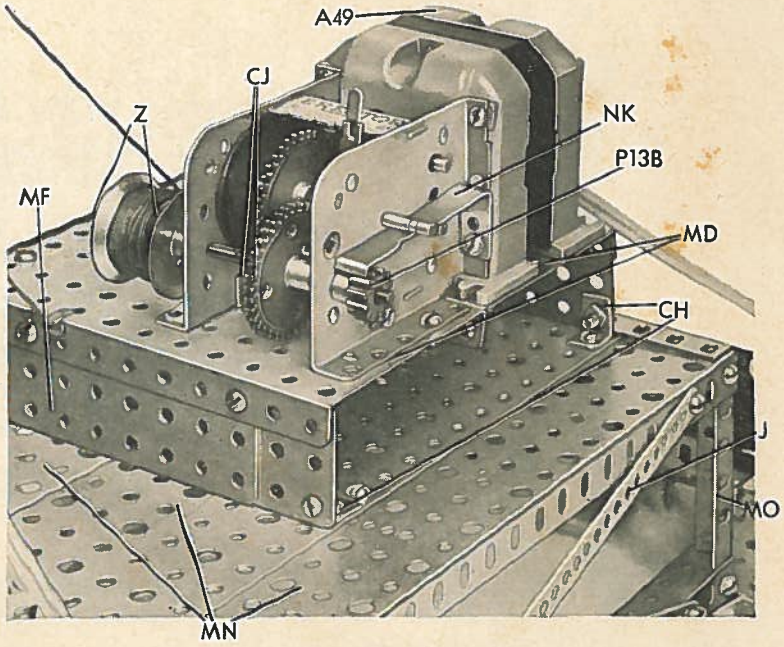
Models Built with No. 12½ Erector

FULL VIEW MAST OIL DRILLING RIG

Use Electric Engine No. 13



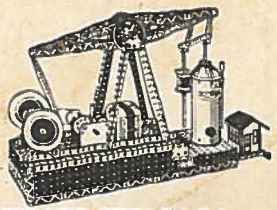
Detail of Base Construction



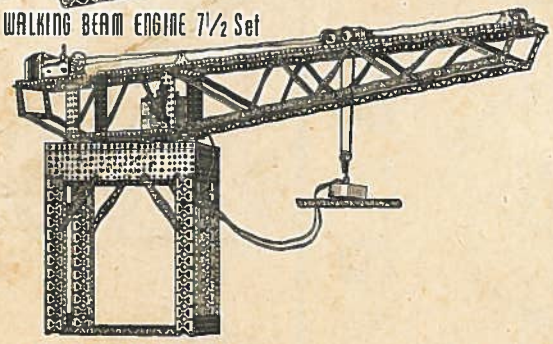
Detail of Electric Engine

Models Built with Famous ERECTOR Sets

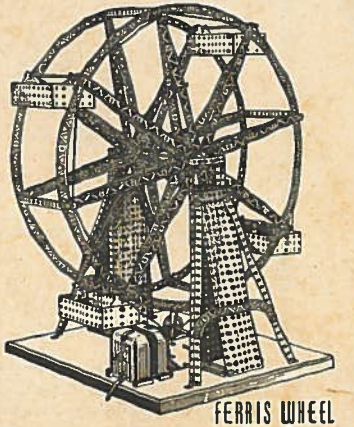
ELEVATOR 8½ Set



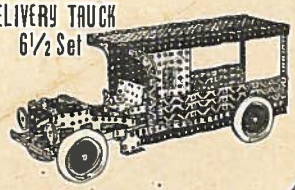
WALKING BEAM ENGINE 7½ Set



HAMMERHEAD CRANE with LIFTING MAGNET 10½ Set

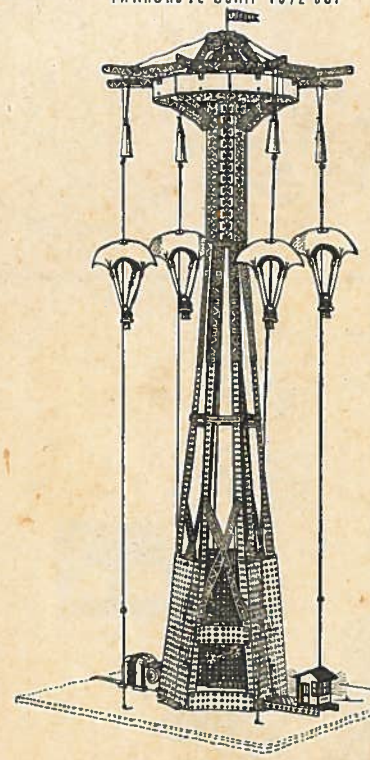


FERRIS WHEEL 8½ Set

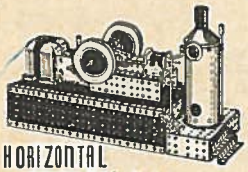


DELIVERY TRUCK 6½ Set

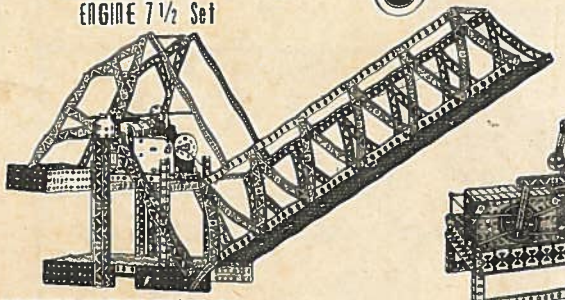
UNLOADING CRANE 6½ Set



PARACHUTE JUMP 10½ Set

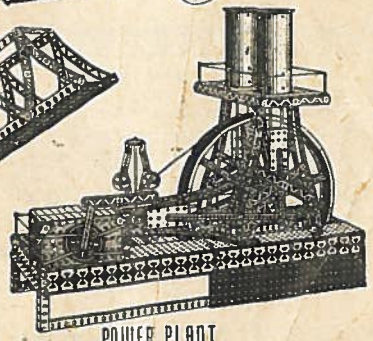


HORIZONTAL ENGINE 7½ Set

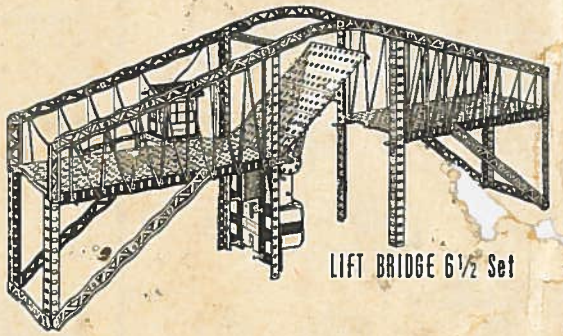


BASCULE BRIDGE 8½ Set

DUMP TRUCK 10½ Set



POWER PLANT 10½ Set

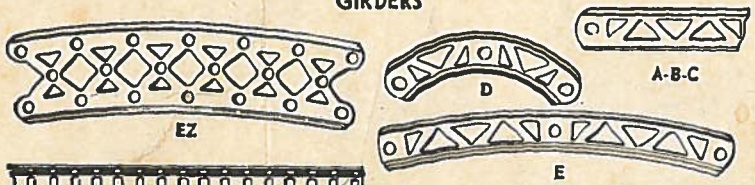


LIFT BRIDGE 6½ Set

AIRPLANE
5

ERECTOR SEPARATE PARTS

GIRDERS

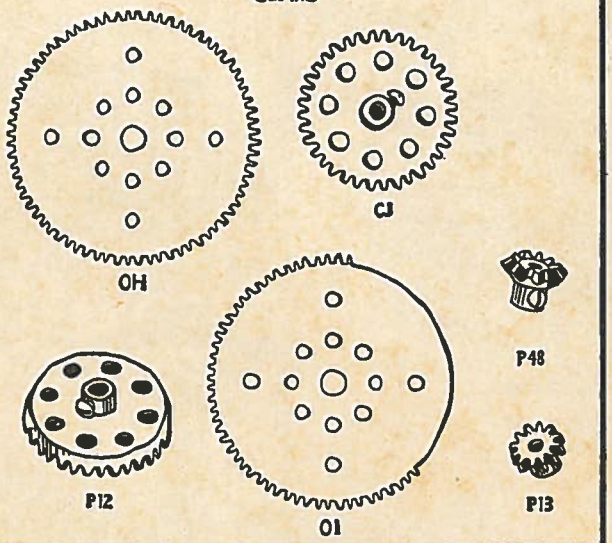


HOOKS AND WASHERS

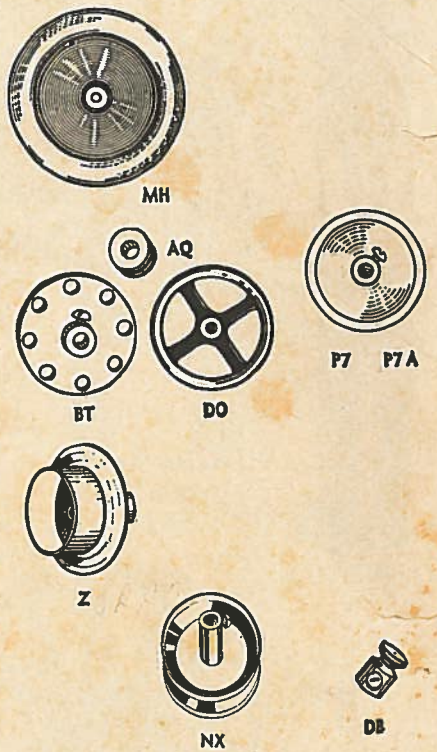
COLLARS AND COUPLINGS

PERFORATED STRIPS

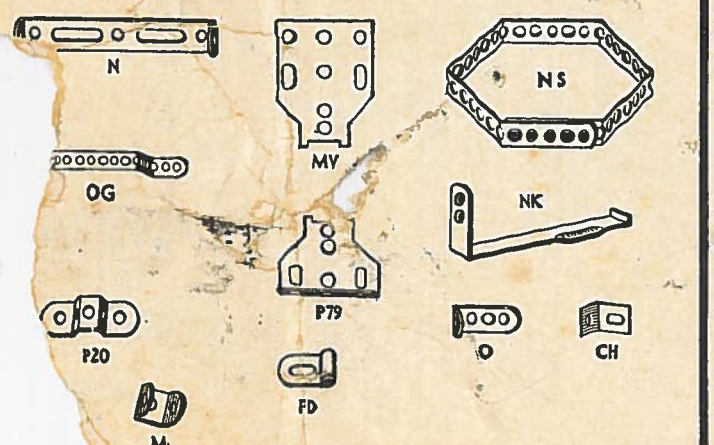
GEARS



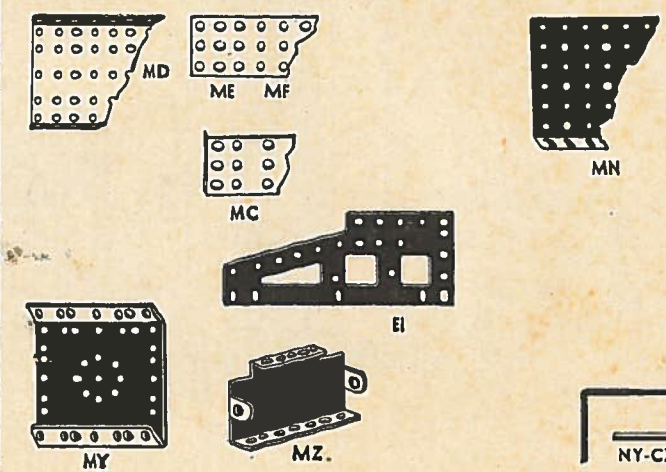
WHEELS, DRUMS, DISCS AND PULLEYS



ANGLES AND ANGLE PIECES



BASE PLATES



CRANK

AXLE RODS AND SHAFTING

NY-CX-P57A-AS-AT-CY-P57D-CZ-P57E-P57F-AX-P57JA-P57N