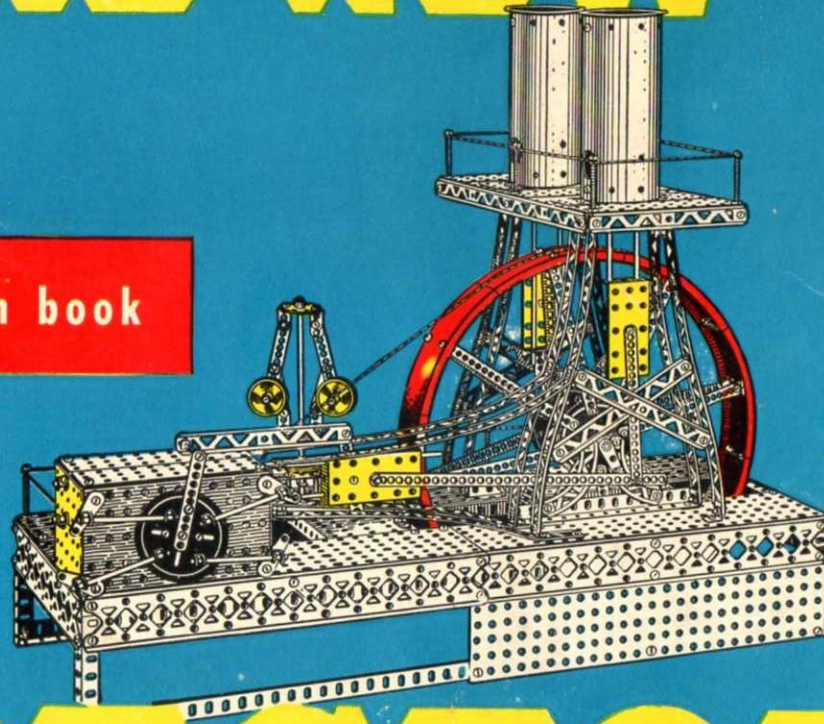


# THE NEW

How to make 'em book

Giant Power Plant  
Built with 9½ Erector Set



# ERECTOR®



THE WORLD'S GREATEST CONSTRUCTION TOY • DEVELOPED AT THE GILBERT HALL OF SCIENCE

# How to Get the Most FUN Out of Your ERECTOR®



A. C. Gilbert  
inventor of Erector  
and founder of the  
Gilbert Hall of  
Science



Photograph at left shows  
Gilbert Hall of Science in  
New York C'ty, at 5th Ave.  
and 25th St. Other Gilbert  
Halls of Science are in  
Chicago (512 S. Michigan  
Ave.), Washington (1610  
K St., N.W.), and Miami  
(300 East Flagler St.). All  
are open to the public.

## A PERSONAL MESSAGE FROM THE INVENTOR OF ERECTOR

**Y**OU are to be congratulated on owning an Erector set. It is the world's greatest construction outfit. As the inventor of Erector, I am proud to have you as one of my boy friends. I know what boys like because I am still a boy at heart myself. I want you to have as much fun and get as many thrills out of your set as I did in inventing it. Please do me a favor and take my advice and I am sure you will never regret it.

**STUDY THE PARTS.** The first thing you should do is open your Erector Set and spread out all the parts on the floor or table. Then, while they're in front of you, turn to the parts list in the "HOW TO MAKE 'EM" book. In this way you can identify each part and familiarize yourself with it. You'll find this a great time-saver later.

**DON'T TRY TO BUILD THE BIGGEST MODELS FIRST.** I know you are impatient to build spectacular action models right away. That's the worst mistake you can make. First, master the Erector building methods by putting together simple models, the kind you'll find in the 1½ Erector section of the

manual. Then, gradually, progress to those shown in the advanced sections. Soon, you will be building exciting models that will be the envy of your neighborhood.

**BUILD THE SQUARE GIRDER.** Next, I'd like you to build a square girder. You'll discover that the square girder, although consisting of four parts, assembles with only *two* screws. Notice the interlocking edge principle which makes it virtually impossible to crush the square girder with your hands. Putting this girder together will give you experience in nut-and-bolt assembly with a screwdriver.

**INVENT YOUR OWN MODELS.** You don't have to build models exactly as you find them in the manual. The illustrations there are intended as guides only and are purposely not highly detailed. Some of the best Erector models were created by boys like yourself. You may invent a rocket ship, a space platform or an ocean liner. Use your imagination to make new and better Erector models. For that is the thrill of being an Erector engineer.

Your very good friend,

*A.C. Gilbert*



# "how to make 'em" BOOK

...featuring the

## ERECTOR®

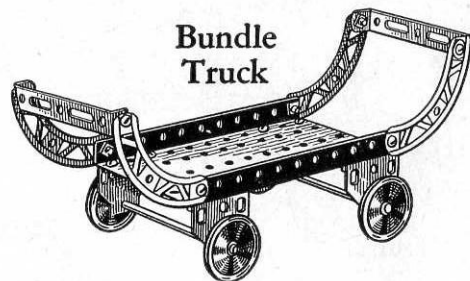
all-steel

# SQUARE GIRDER

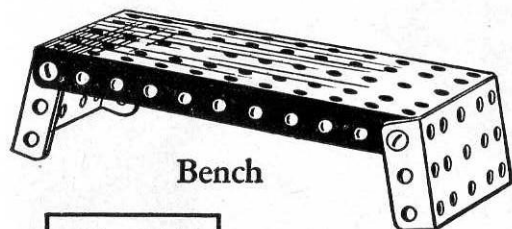
with interlocking edges



Gravel  
Screen

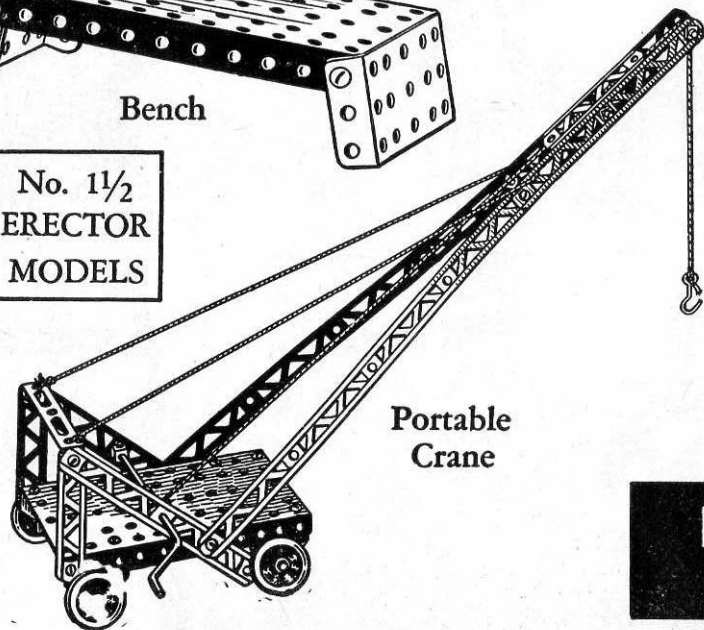


Bundle  
Truck

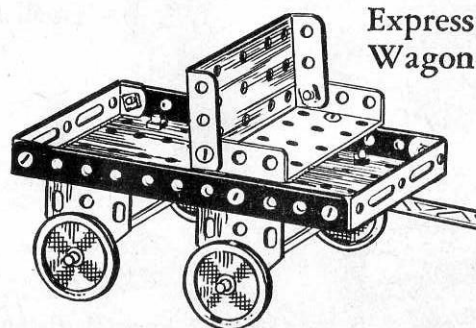
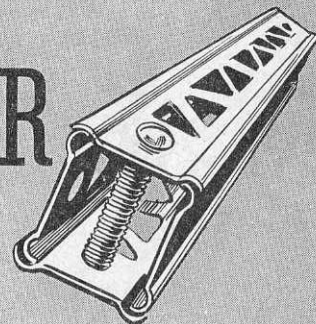


Bench

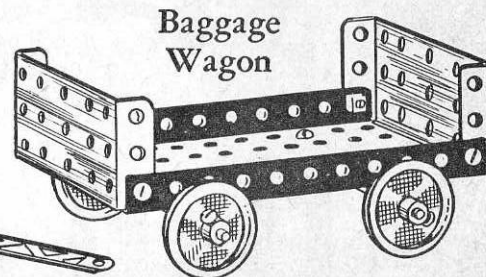
No. 1½  
ERECTOR  
MODELS



Portable  
Crane



Express  
Wagon



Baggage  
Wagon

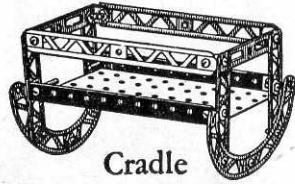
SECTION 1½ — M3295 — 1954

## BUILD 'EM YOURSELF WITH ERECTOR

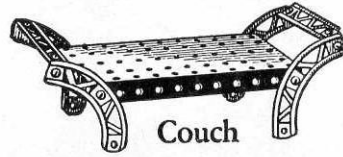
The World's Greatest Construction Toy

## Models Built with No. 1½ Erector

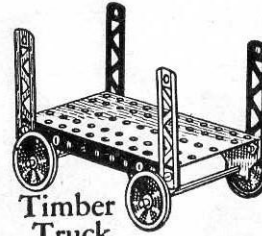
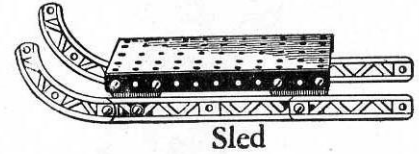
The number of models that can be built with Erector is unlimited. While we show a great many in this book, they are only indications of the large number of different varieties and the adaptability of Erector, The World's Greatest Toy.



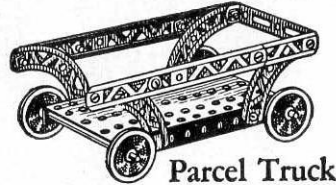
Cradle



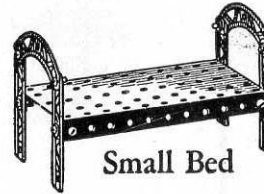
Couch

Timber  
Truck

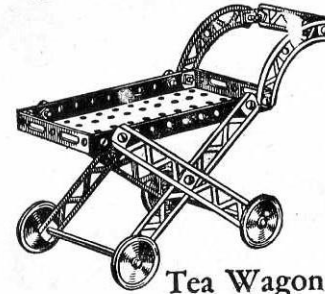
Sled

Hand  
Truck

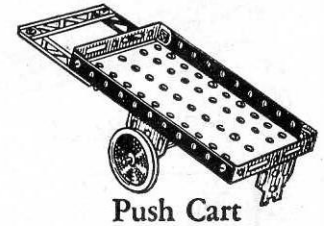
Parcel Truck



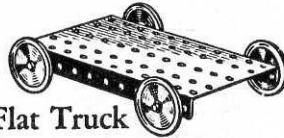
Small Bed



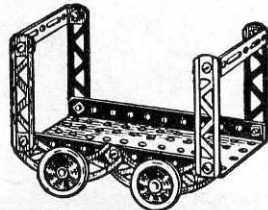
Tea Wagon



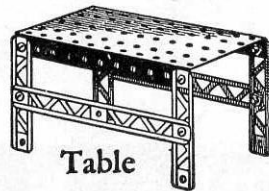
Push Cart



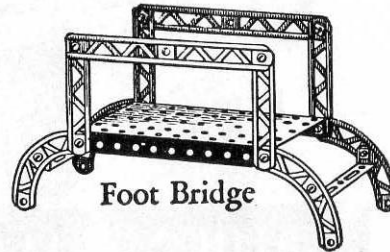
Flat Truck



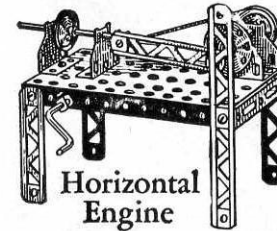
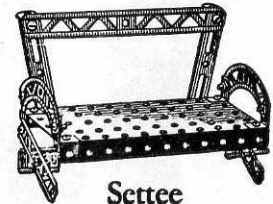
Baggage Truck



Table



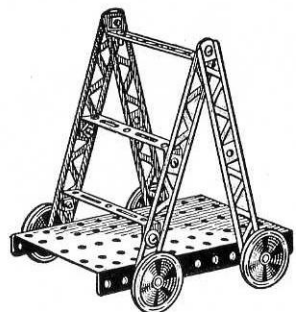
Foot Bridge

Horizontal  
Engine

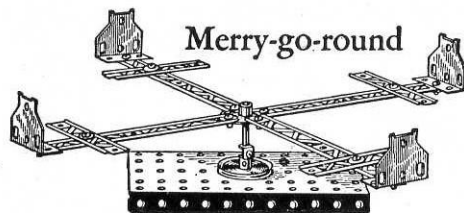
Settee



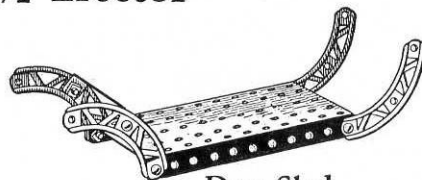
## Models Built with No. 1½ Erector



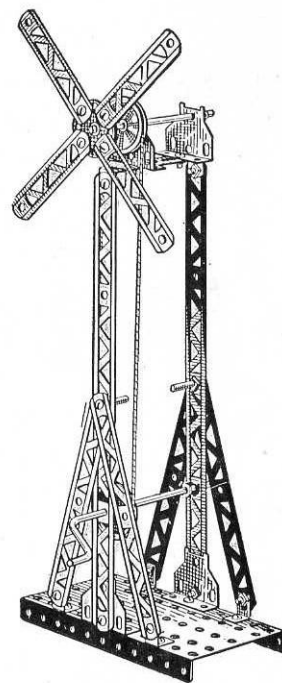
Truck Ladder



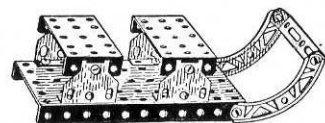
Merry-go-round



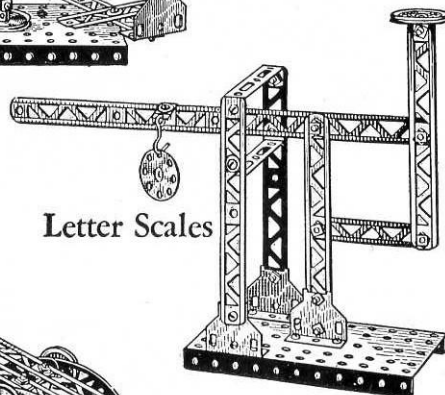
Dog Sled



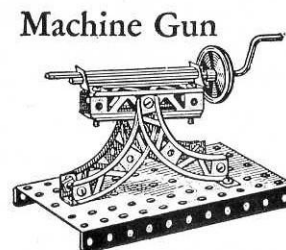
Windmill Pump



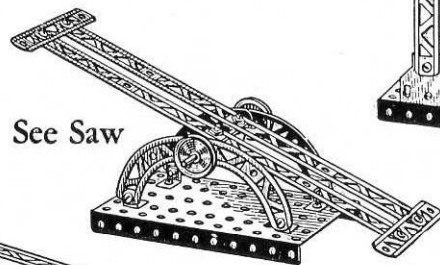
Sled



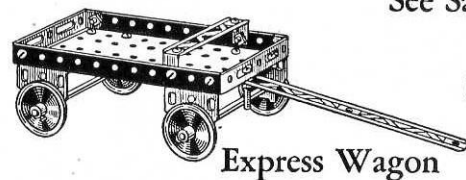
Letter Scales



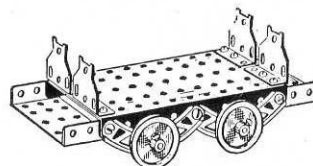
Machine Gun



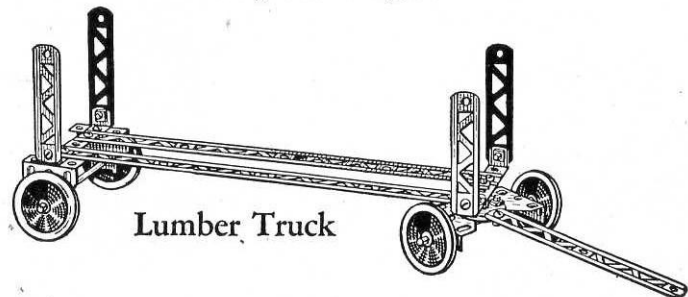
See Saw



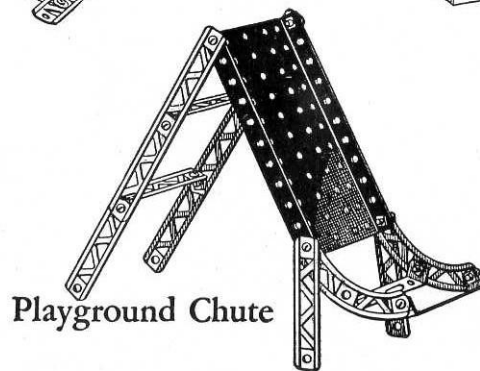
Express Wagon



Factory Truck



Lumber Truck

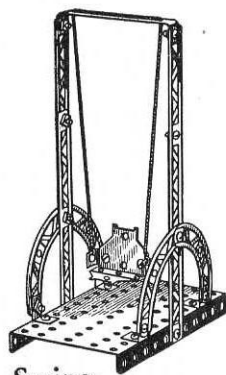


Playground Chute

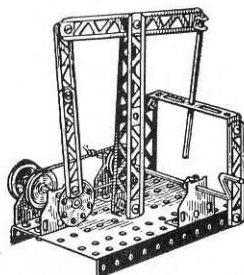


Wagon

## Models Built with No. 1½ Erector



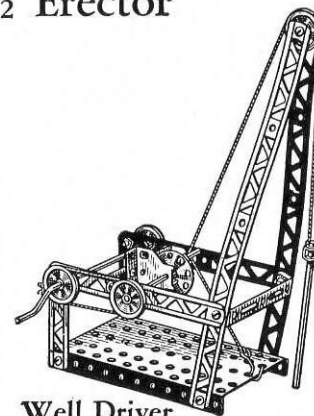
Swing



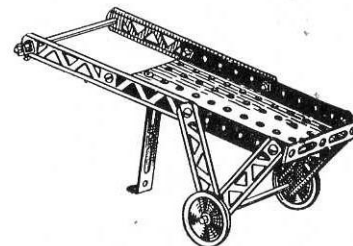
Walking  
Beam  
Engine



Small Wheelbarrow

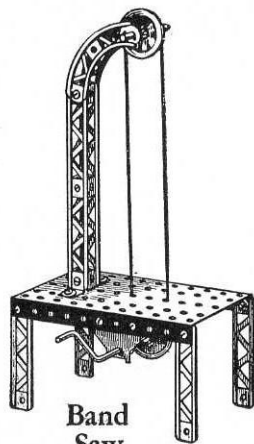
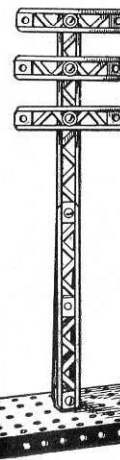


Well Driver

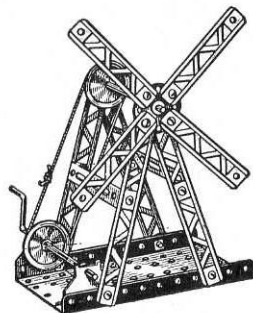


Vegetable Cart

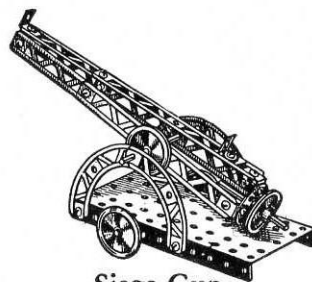
Telephone Pole



Band  
Saw



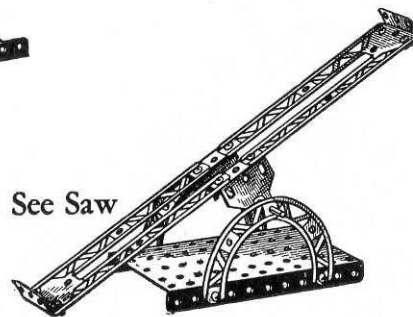
Small  
Windmill



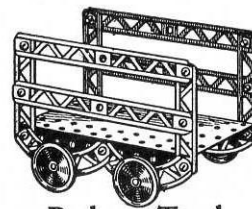
Siege Gun



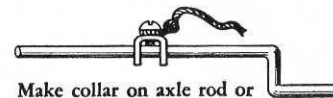
Large  
Wheelbarrow



See Saw



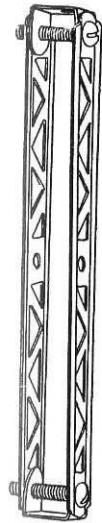
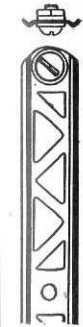
Package Truck



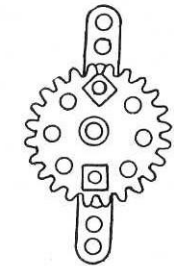
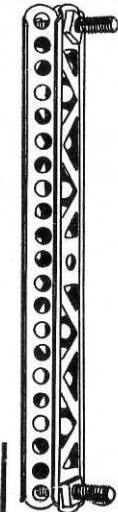
Make collar on axle rod or crank secure, and tie string around and under head of set screw



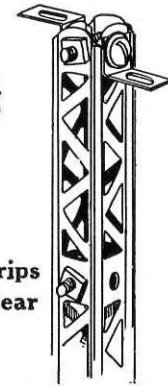
## STANDARD DETAILS OF ERECTOR CONSTRUCTION

SECTION 21½  
M3296  
54Parallel  
Beam

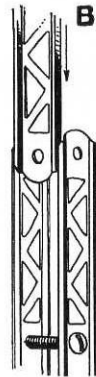
use washers  
to prevent  
screw from  
protruding too far beyond girder

Fastening Strips  
to Pierced Gear

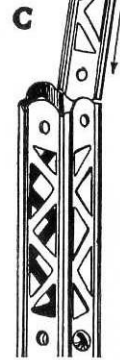
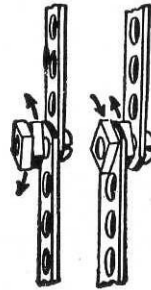
5 in. I-beam

How Channel  
Keeps Angle  
in Position

A

5 in.  
Square Girder

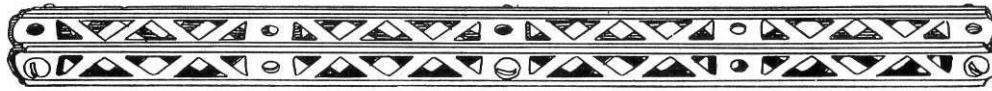
B



C

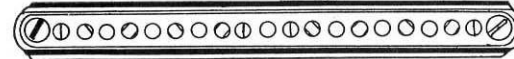


D

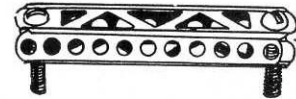


10 in. Square Girder

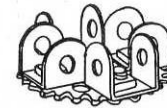
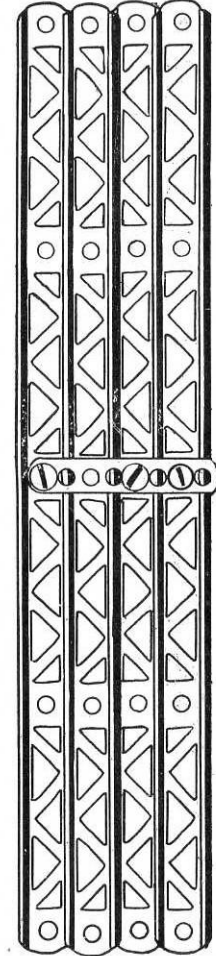
Method of locking nuts  
to permit strips to swivel.  
Turn nuts in opposite  
direction as shown by  
arrows.

—Showing method of making bearings  
for axle

—2½ in. Square Girder



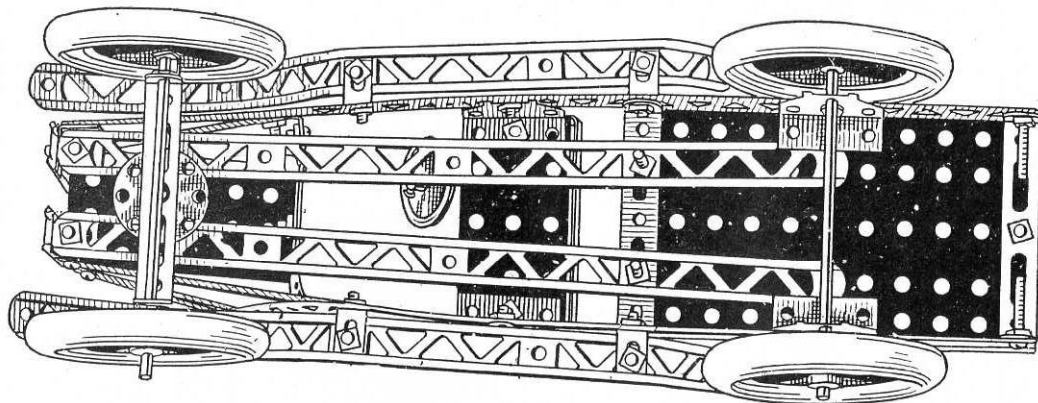
—2½ in. I-beam

Method of fastening Double  
Angles to Pierced Disc

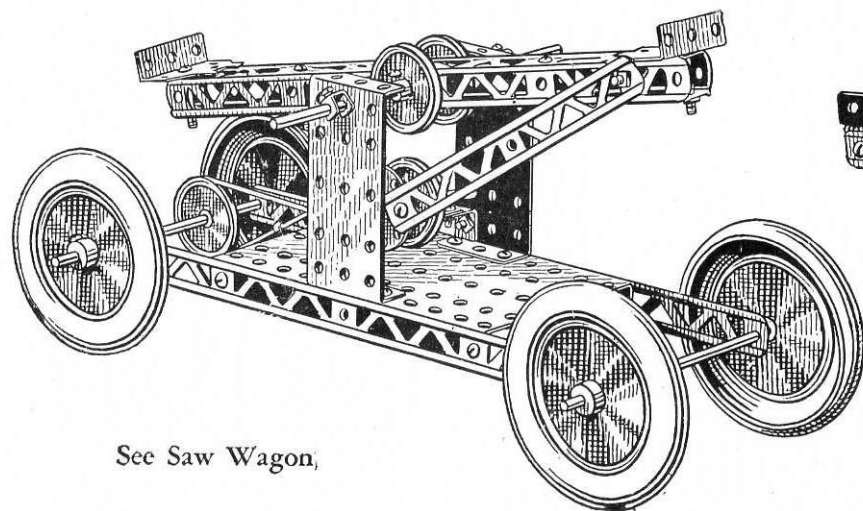
—Angle Iron

Flooring Construction

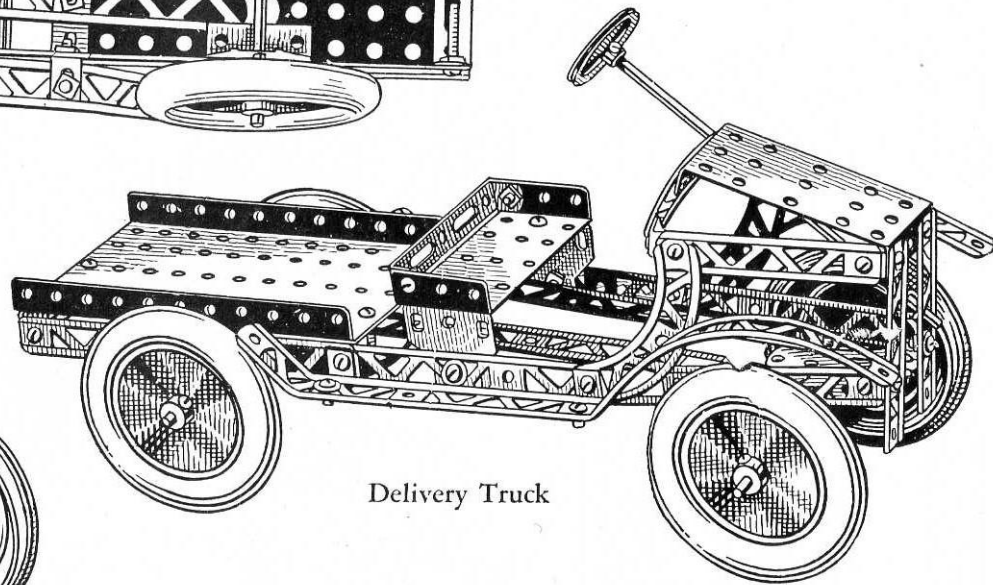
## Models Built with No. 2½ Erector



Bottom View  
Delivery Truck



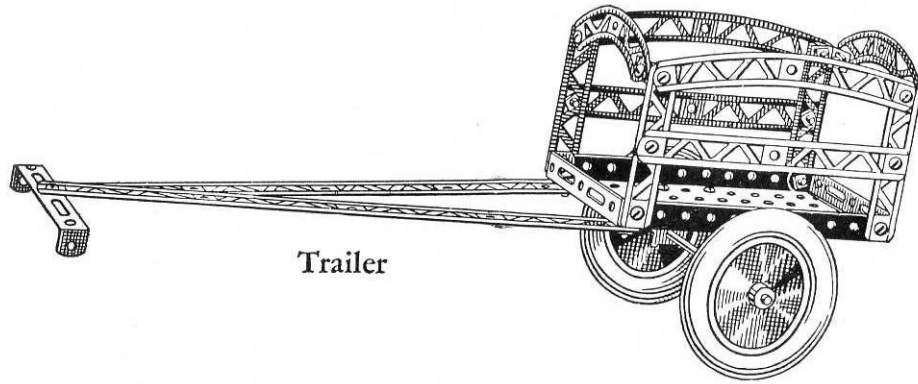
See Saw Wagon,



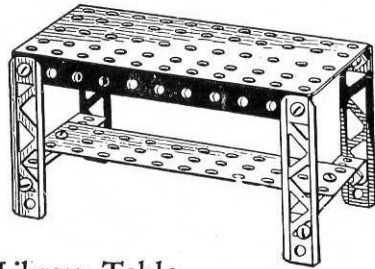
Delivery Truck



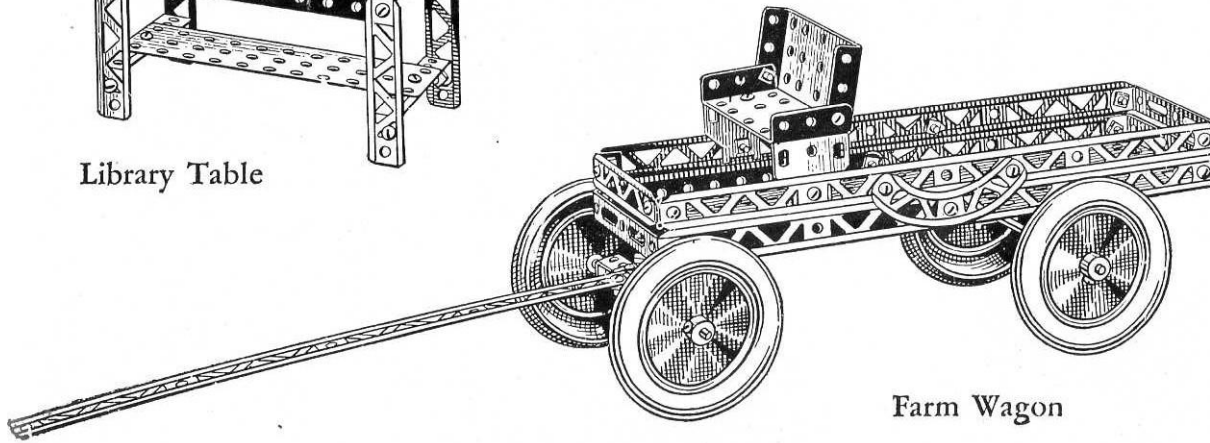
## Models Built with No. 2½ Erector



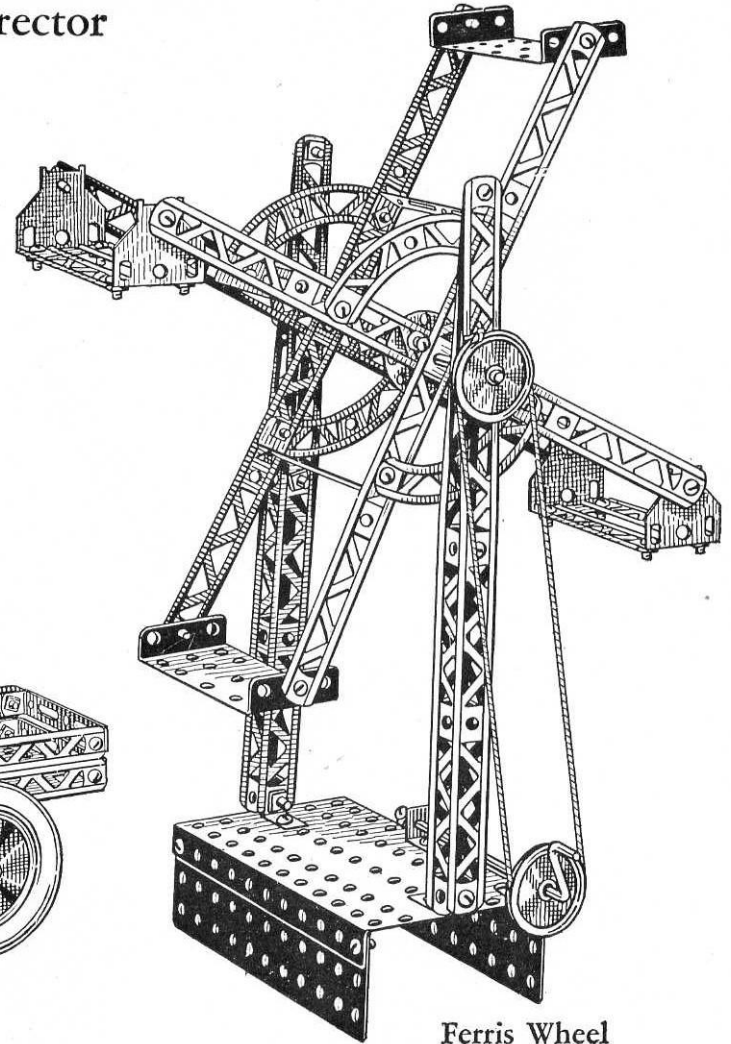
Trailer



Library Table

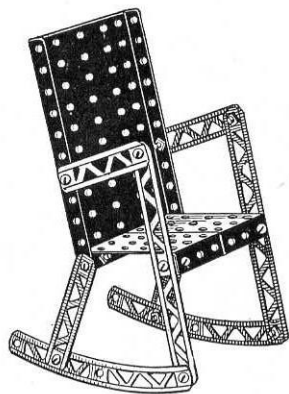


Farm Wagon

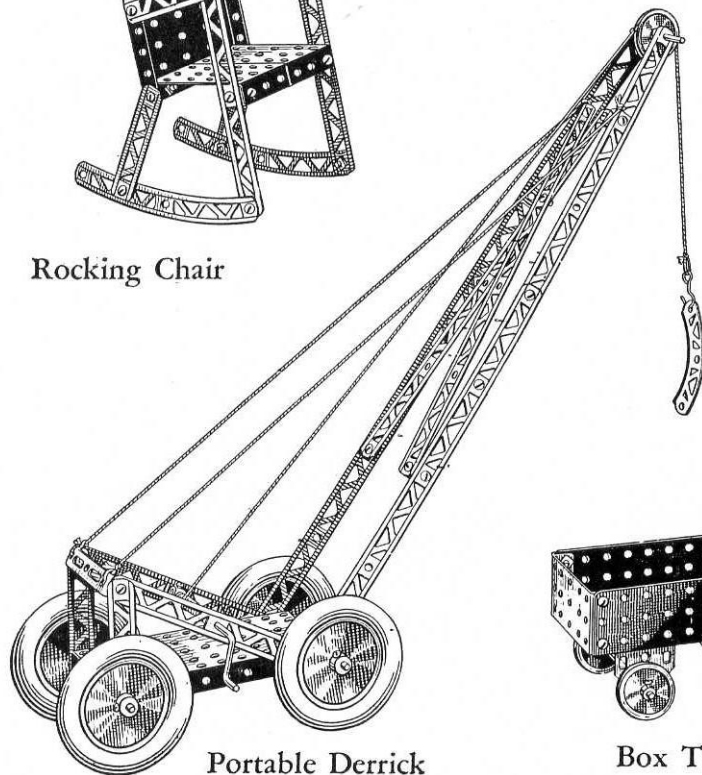


Ferris Wheel

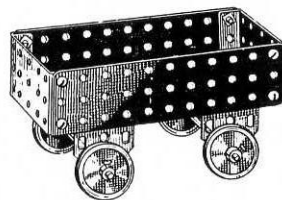
## Models Built with No. 2½ Erector



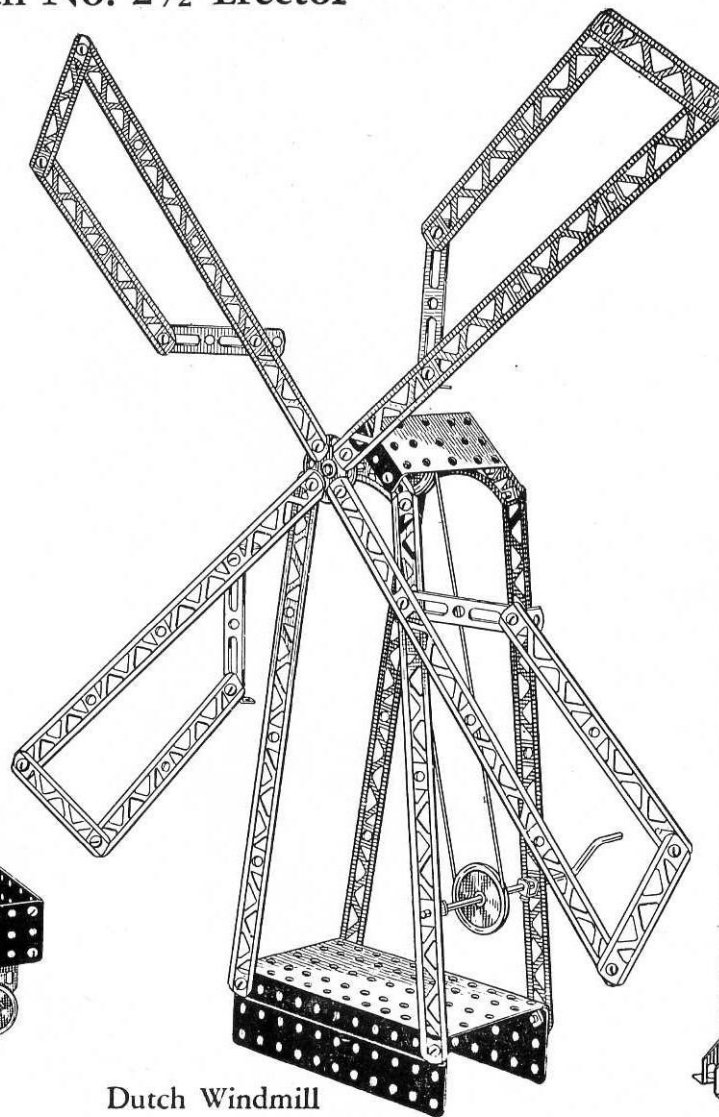
Rocking Chair



Portable Derrick

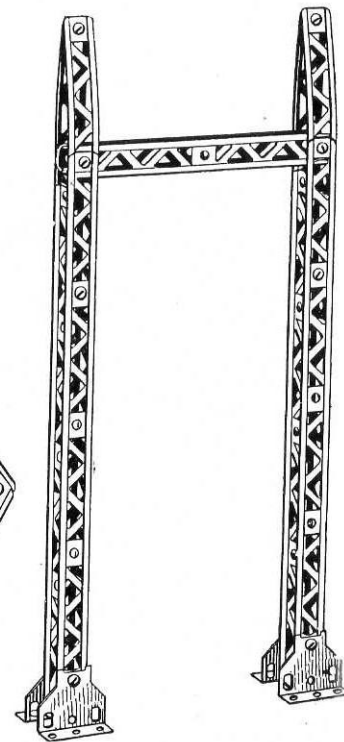


Box Truck



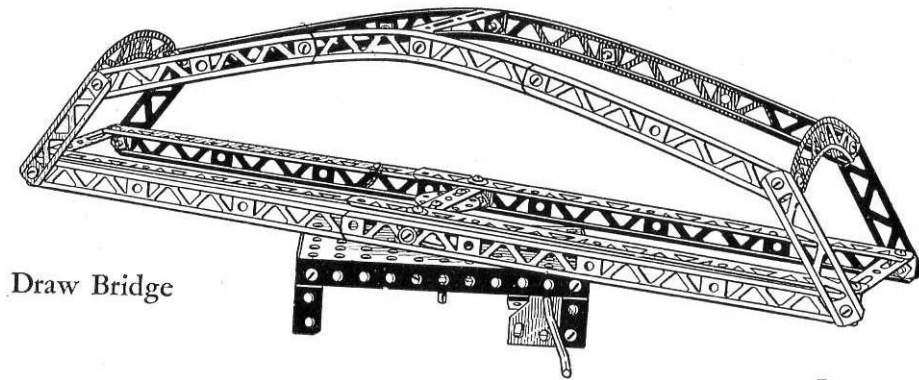
Dutch Windmill

Railroad  
Electrification  
Tower

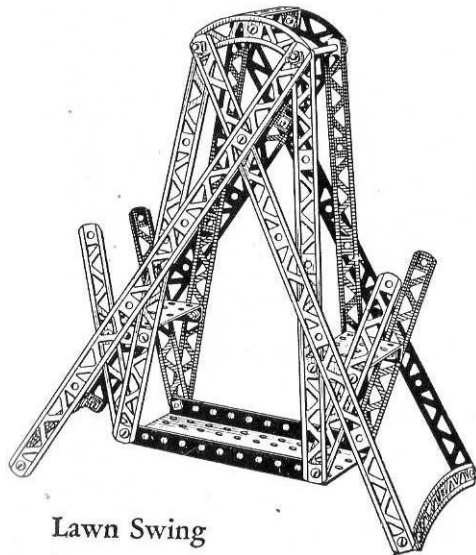




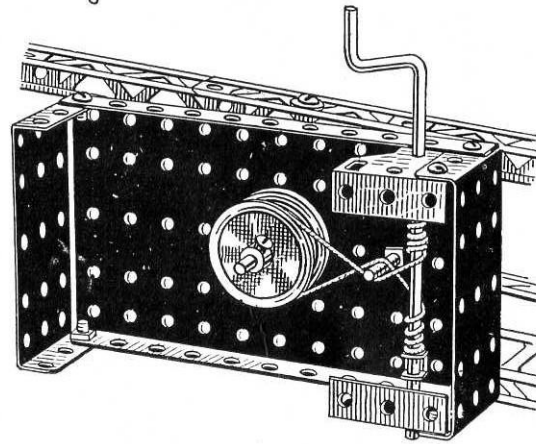
## Models Built with No. 2½ Erector



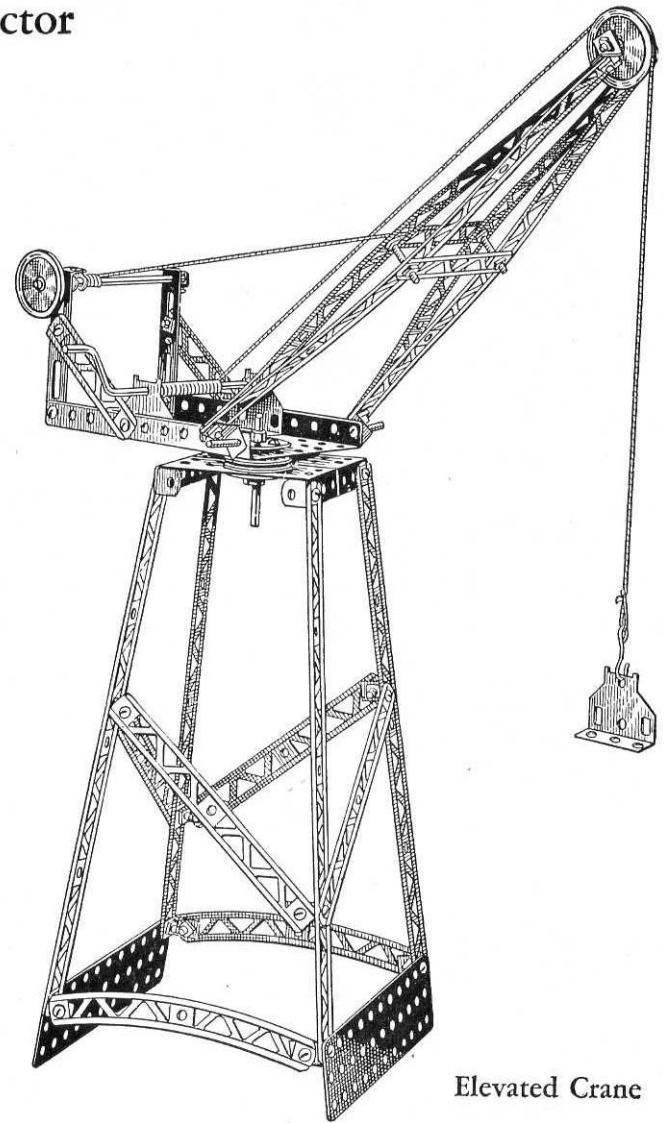
Draw Bridge



Lawn Swing

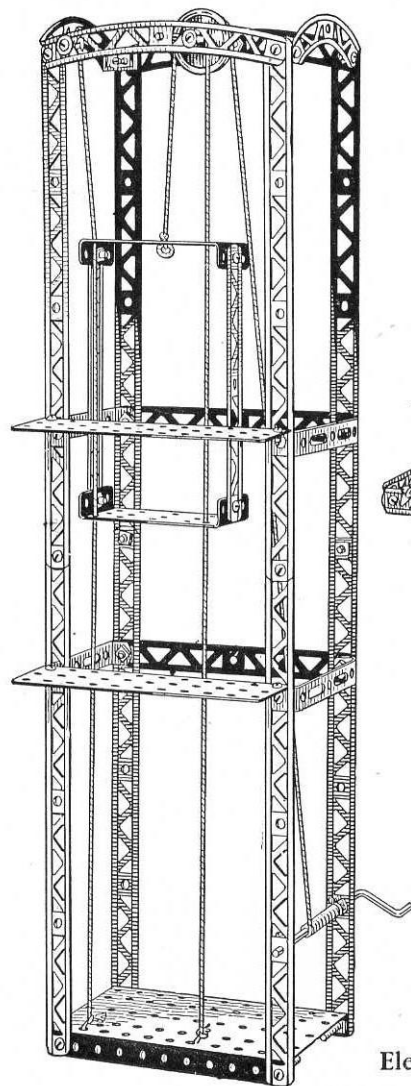


Bottom View of Draw Bridge

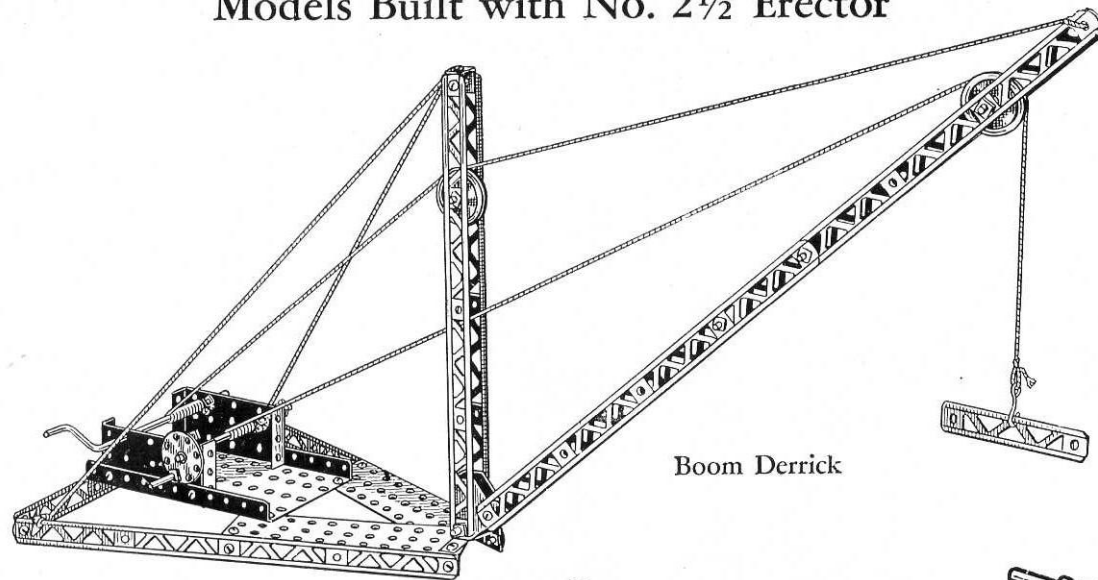


Elevated Crane

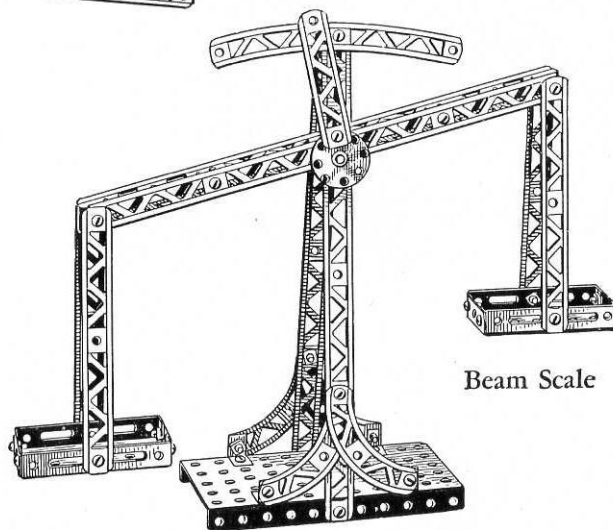
## Models Built with No. 2½ Erector



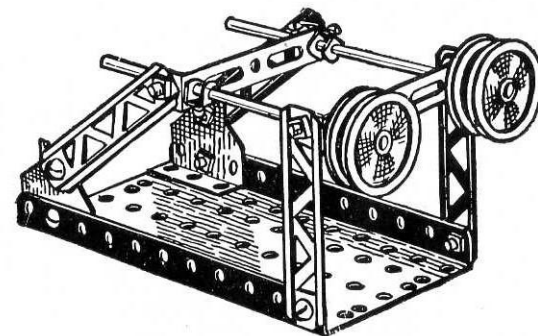
Elevator



Boom Derrick

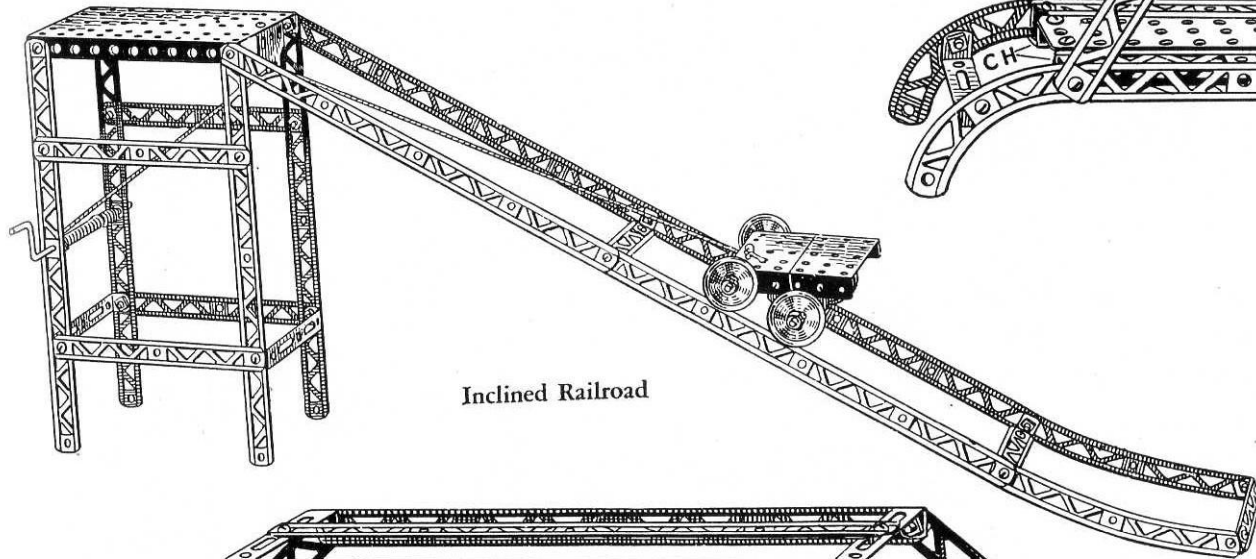


Beam Scale

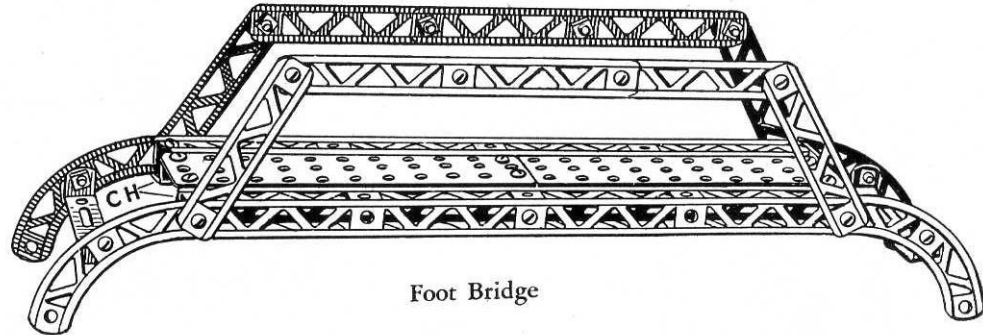


Railway Bumper

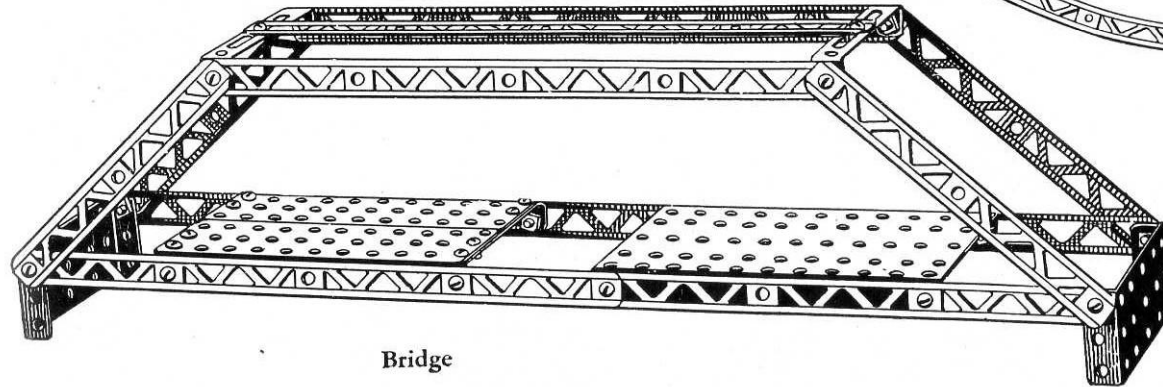
## Models Built with No. 2½ Erector



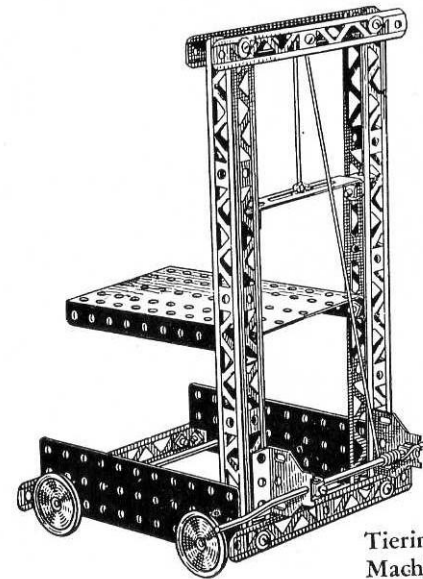
Inclined Railroad



Foot Bridge



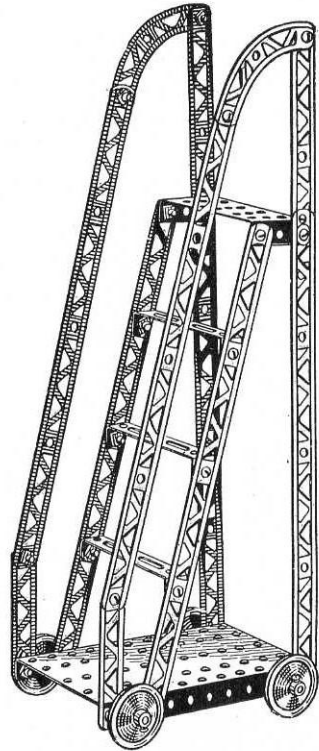
Bridge



Tiering Machine

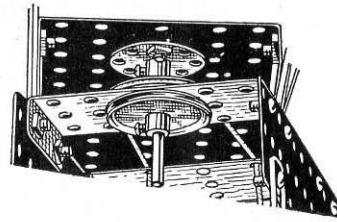


## Models Built with No. 2½ Erector

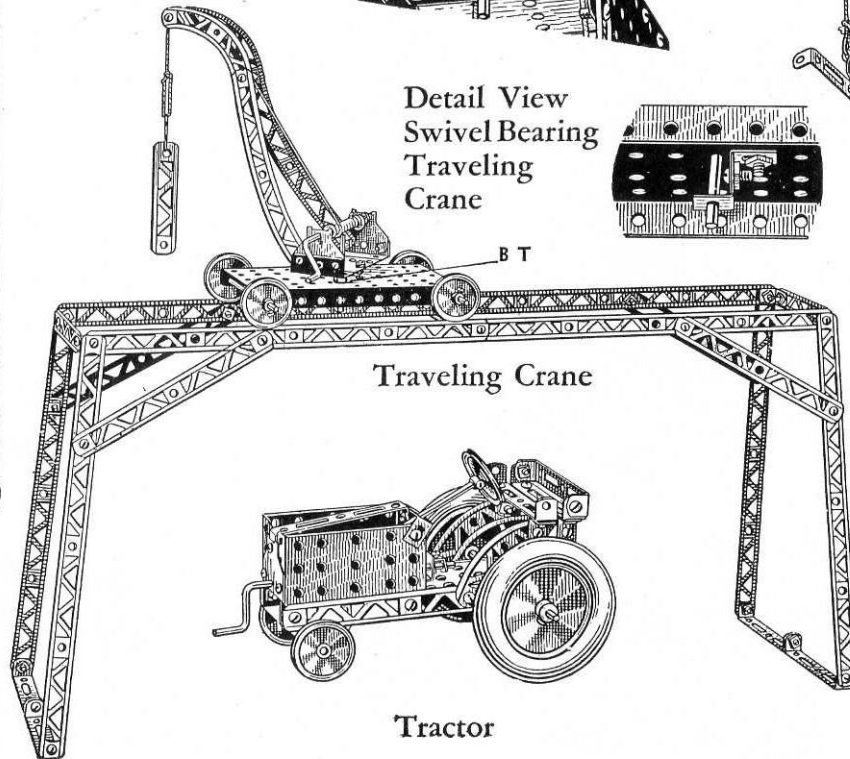
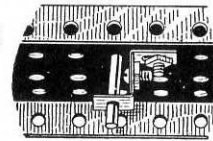


Portable Ladder

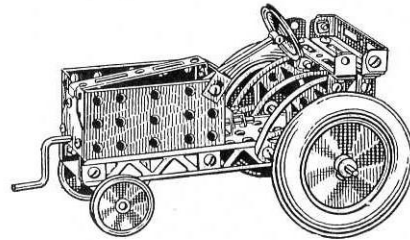
Detail View Revolving Crane



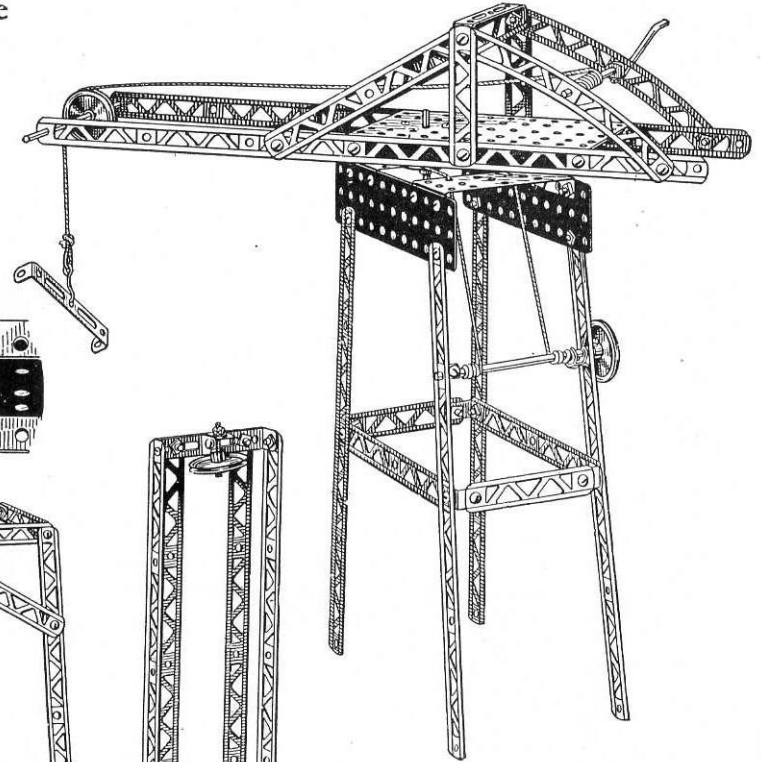
Detail View  
Swivel Bearing  
Traveling  
Crane



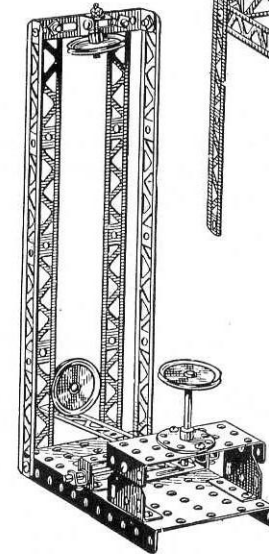
Traveling Crane



Tractor



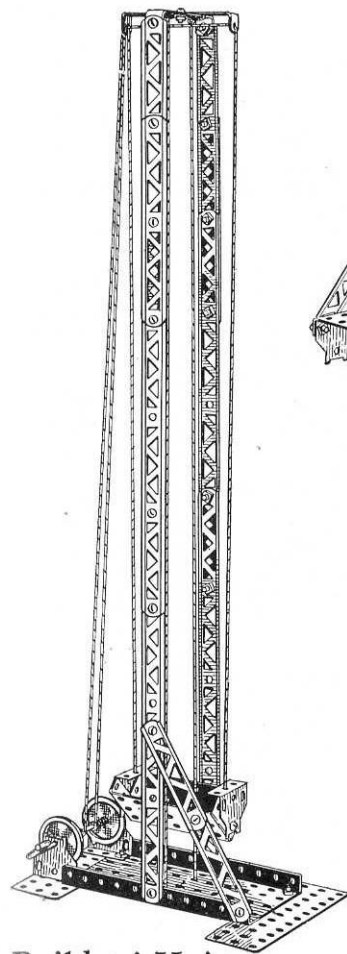
Revolving Crane



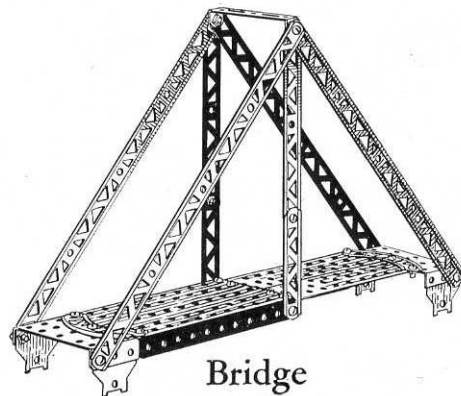
Strength Tester

# Models Built with No. 3½ Erector

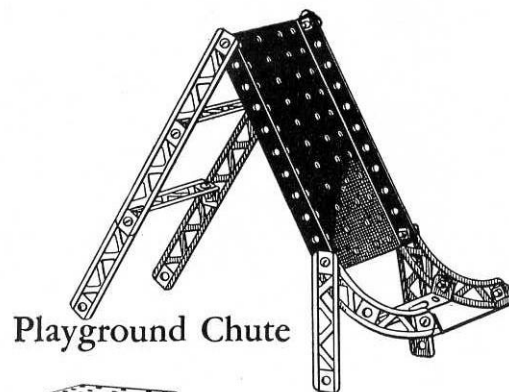
SECTION 3½  
M3297  
54



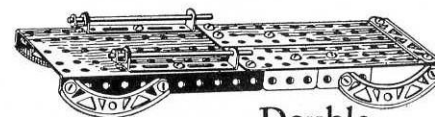
Builders' Hoist



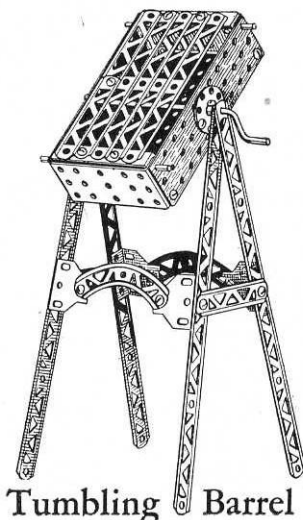
Bridge



Playground Chute



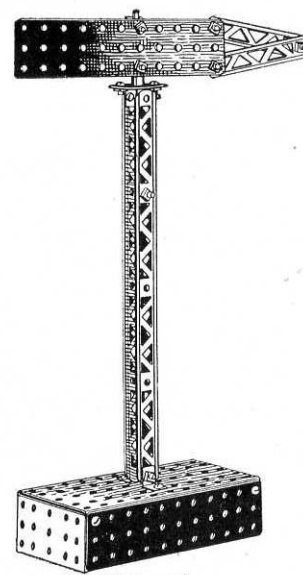
Double  
Runner  
Sled



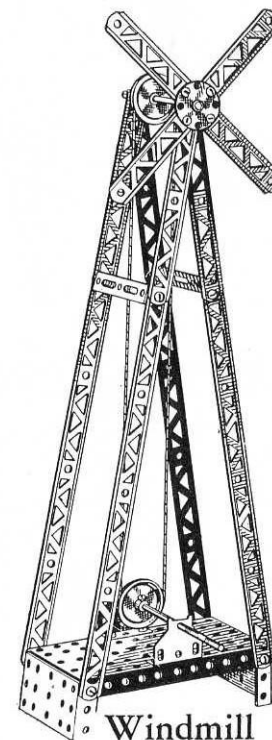
Tumbling Barrel



Movie Camera



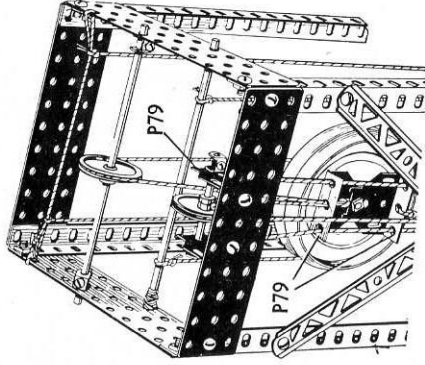
Weathervane



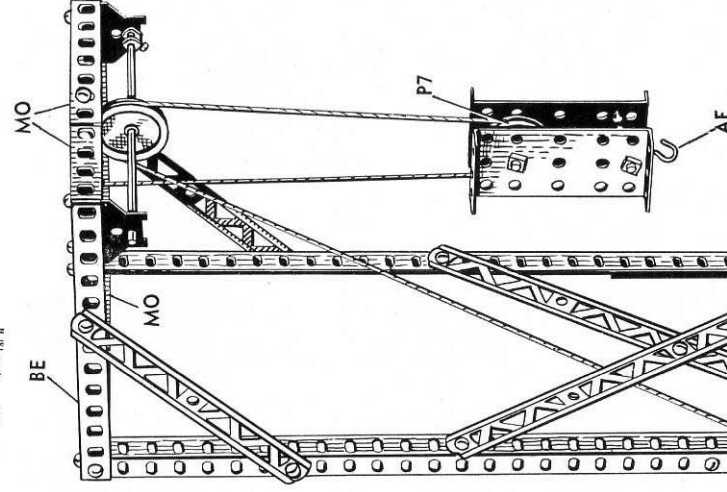
Windmill

# Models Built with No. 3½ Erector

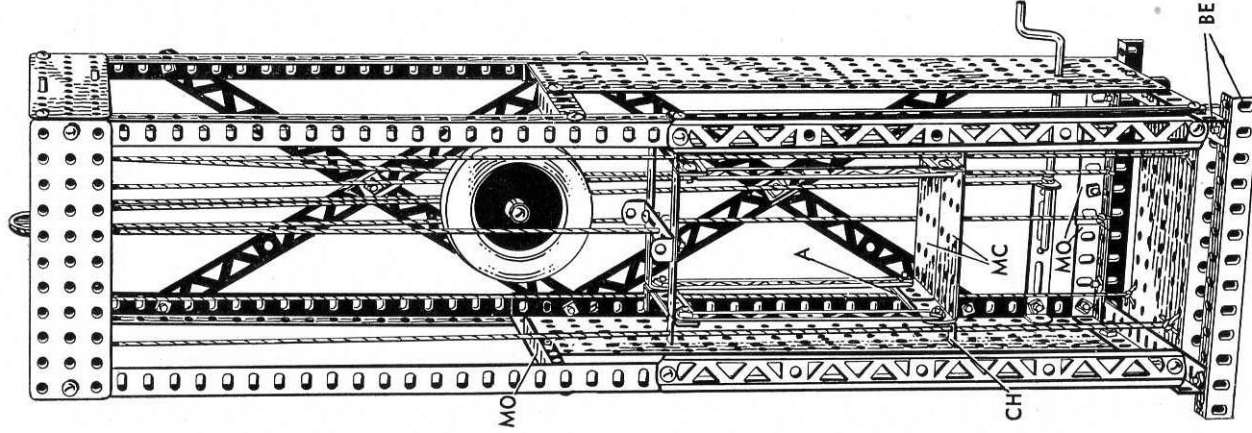
Detail of Top  
and  
Counterweight



Hoist



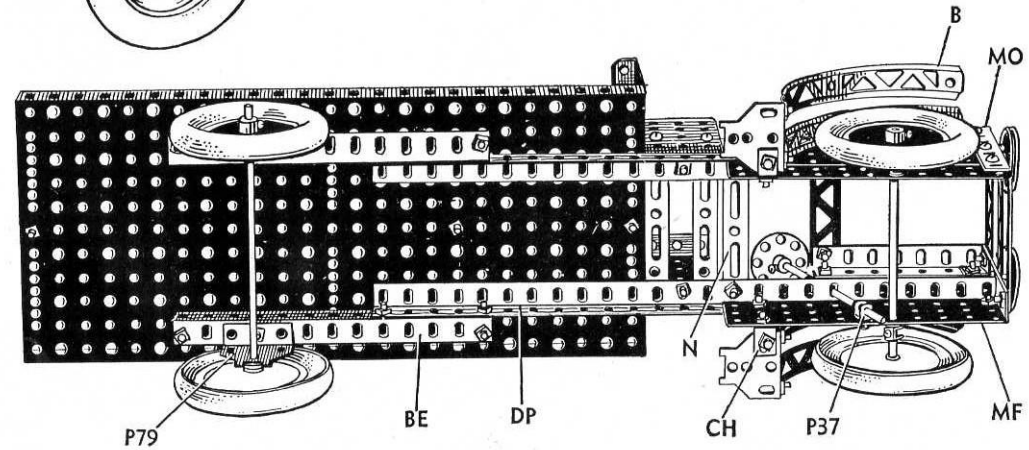
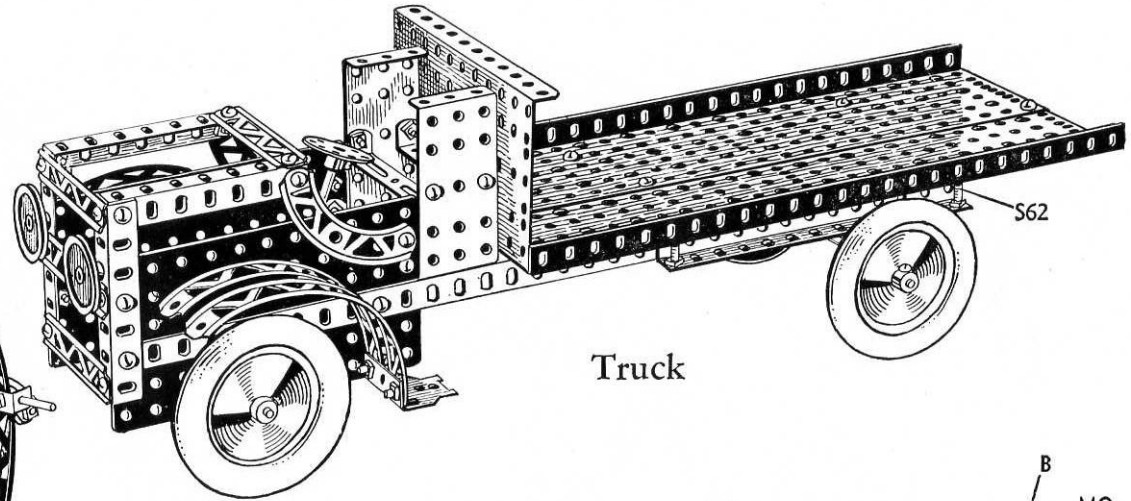
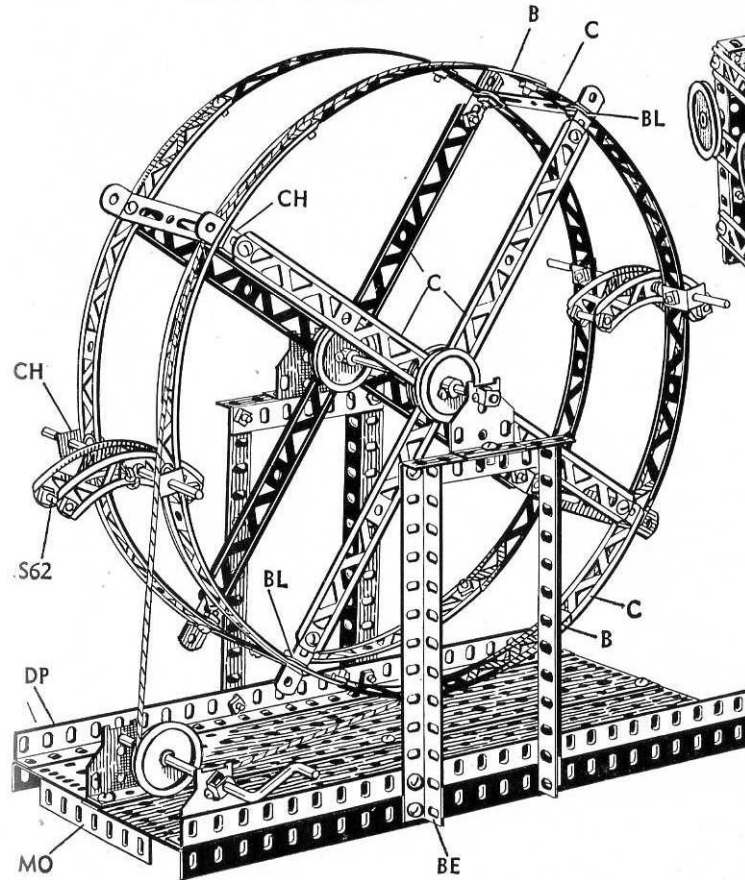
Elevator  
with  
Counterweight





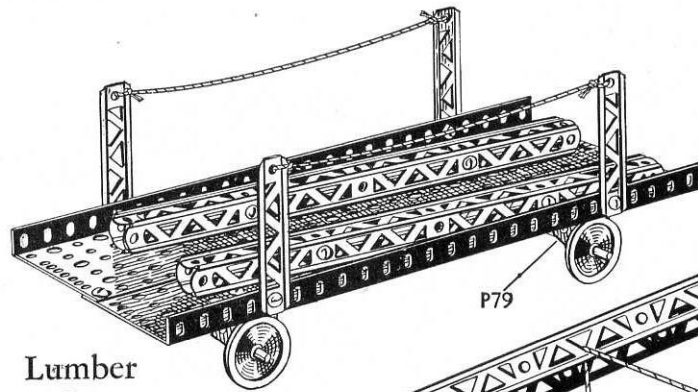
# Models Built with No. 3½ Erector

Ferris Wheel



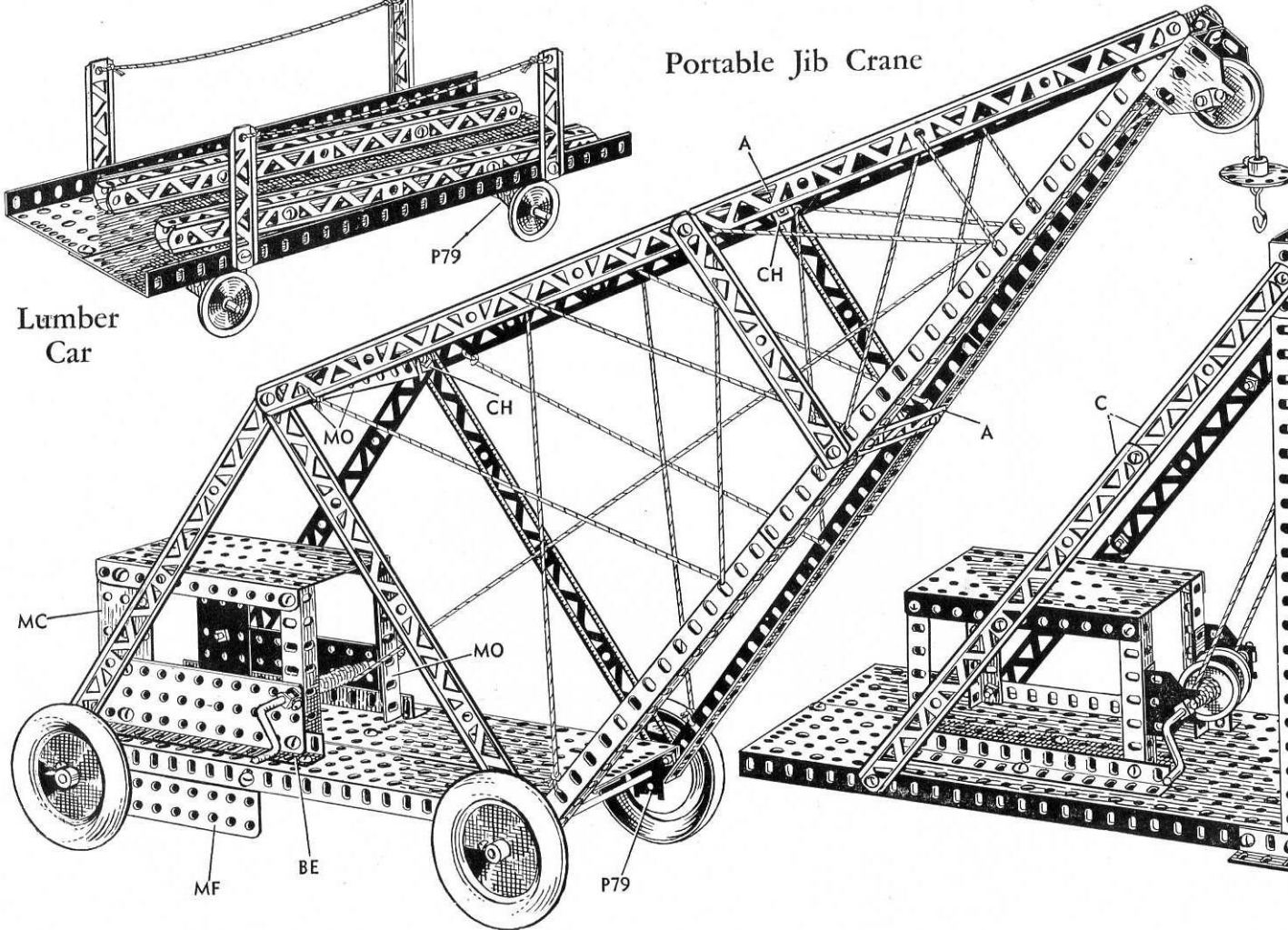
Bottom View of Truck

# Models Built with No. 3½ Erector

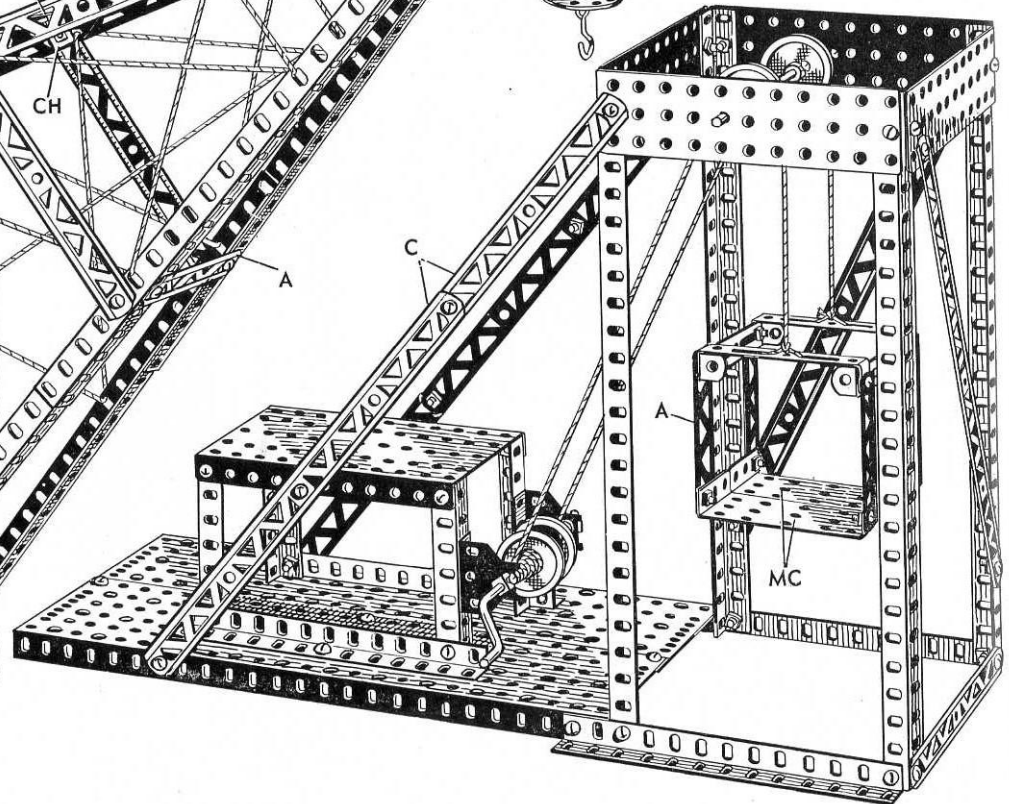


Lumber  
Car

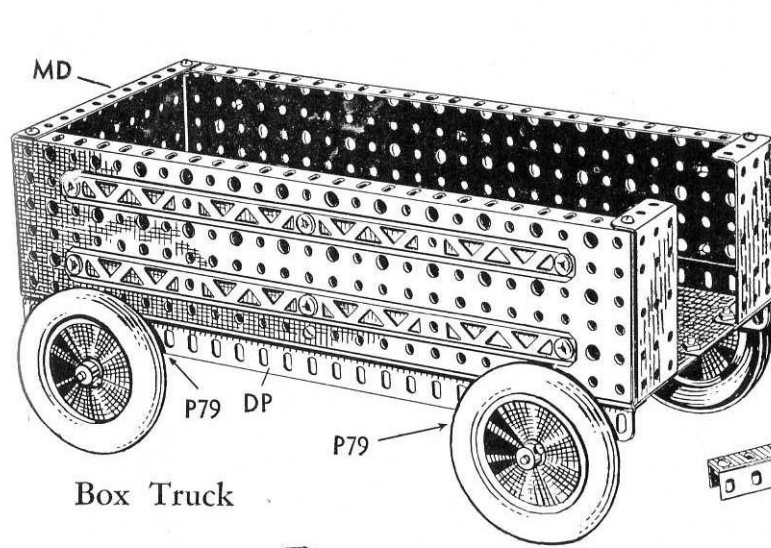
Portable Jib Crane



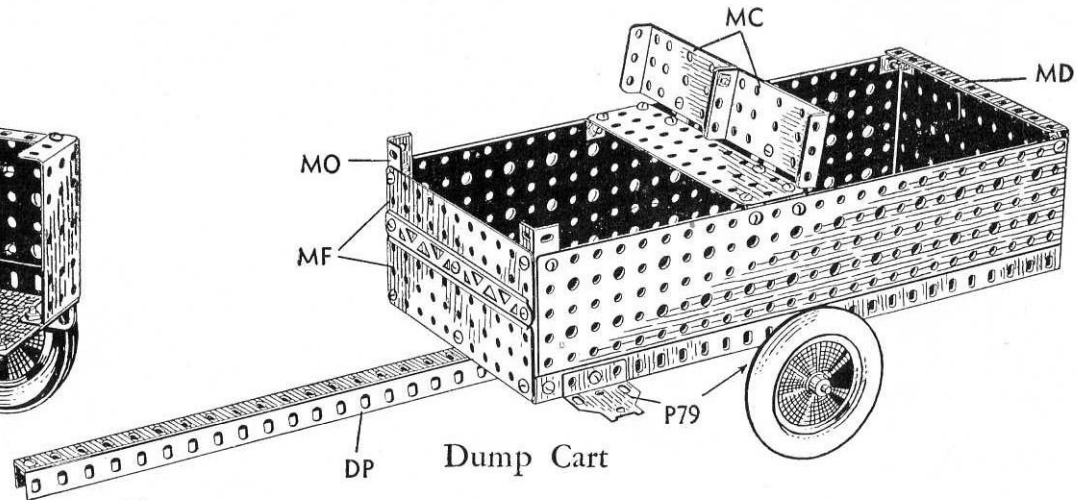
Pit Head Gear



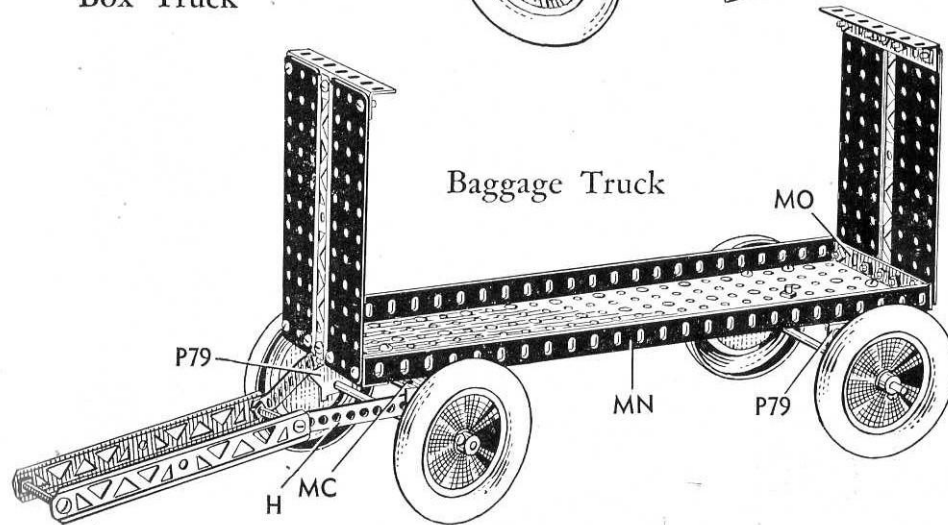
## Models Built with No. 4½ Erector

SECTION 4½  
M3298  
5

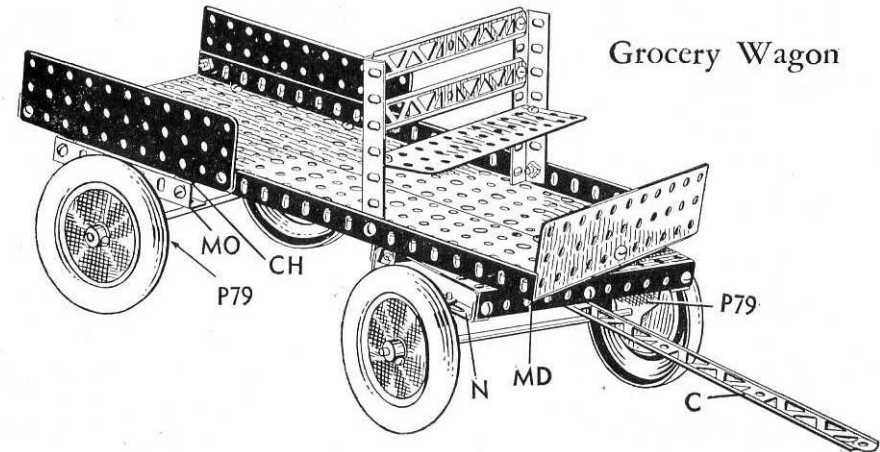
Box Truck



Dump Cart



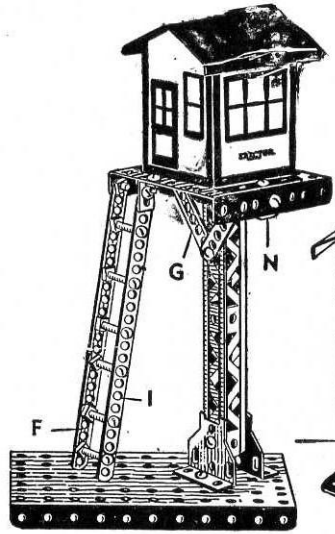
Baggage Truck



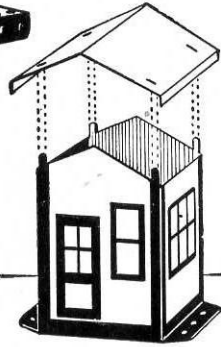
Grocery Wagon



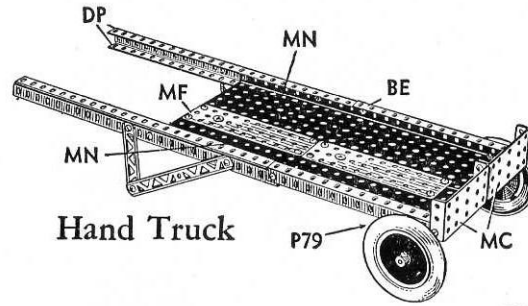
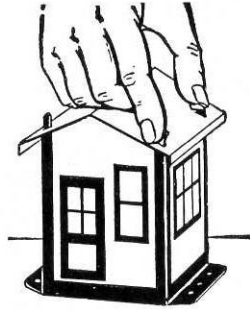
# Models Built with No. 4½ Erector



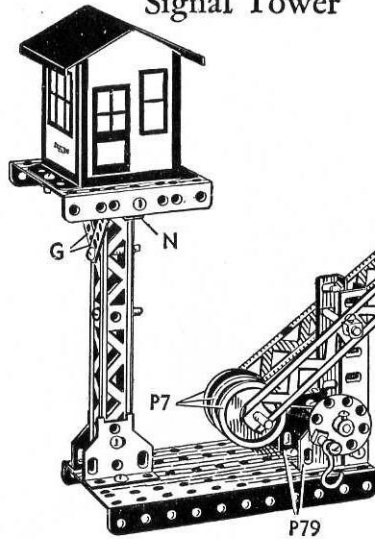
Signal Tower



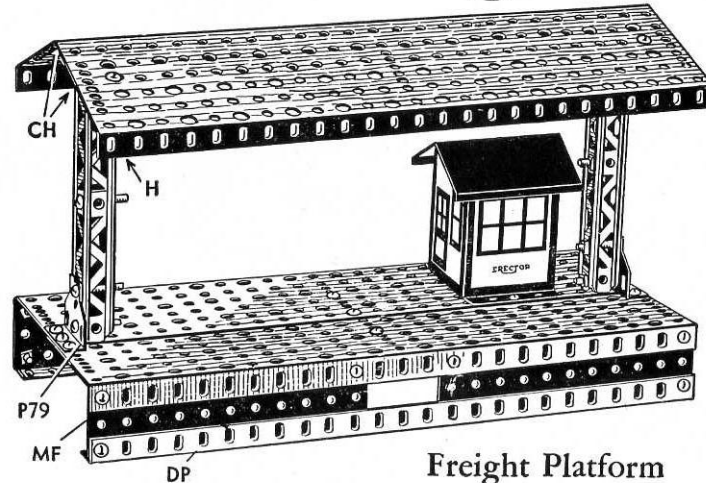
Method of Assembly  
of Roof to House



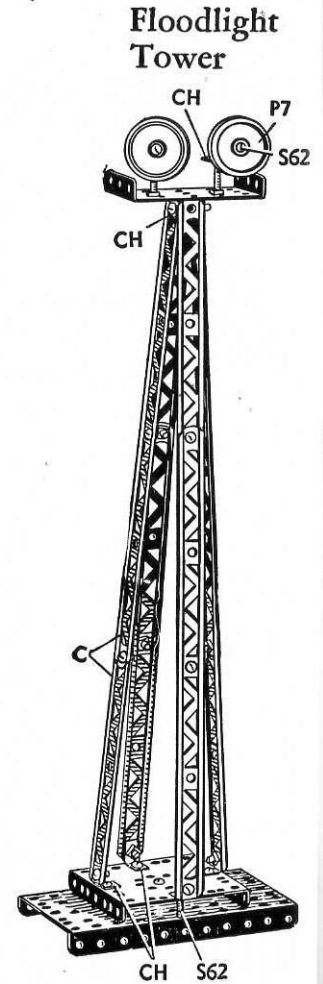
Hand Truck



Crossing Gate

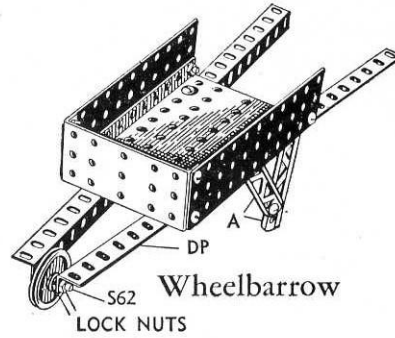
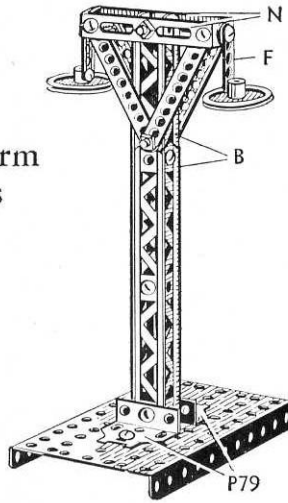


Freight Platform

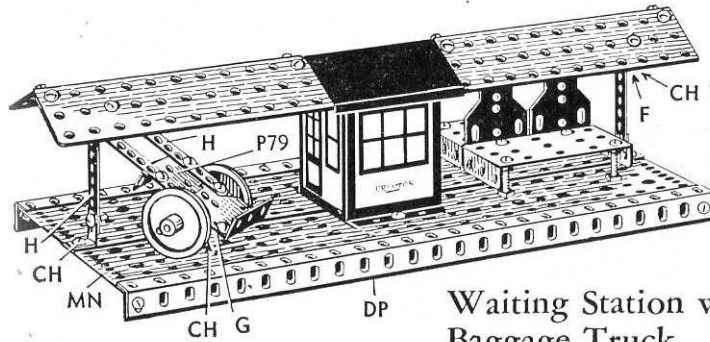


# Models Built with No. 4½ Erector

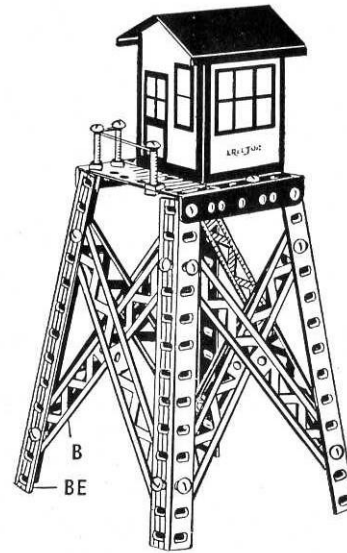
Platform  
Lights



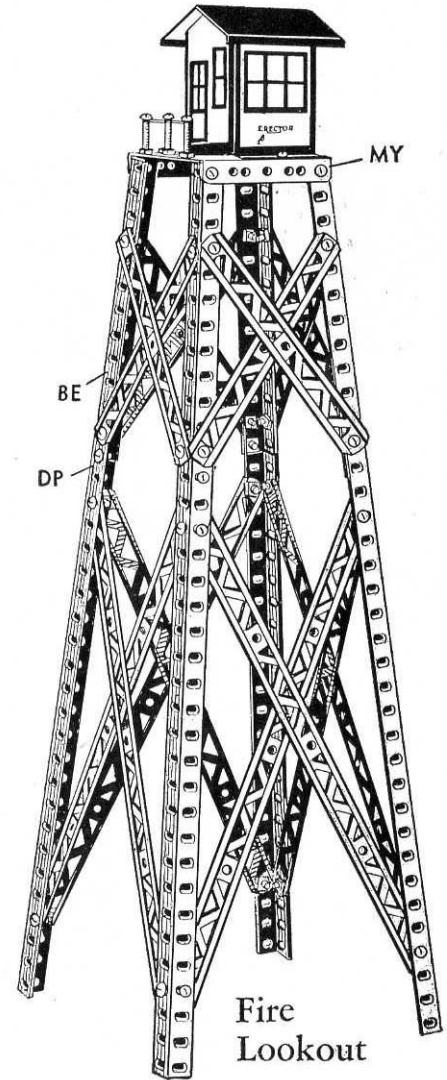
Wheelbarrow



Waiting Station with  
Baggage Truck

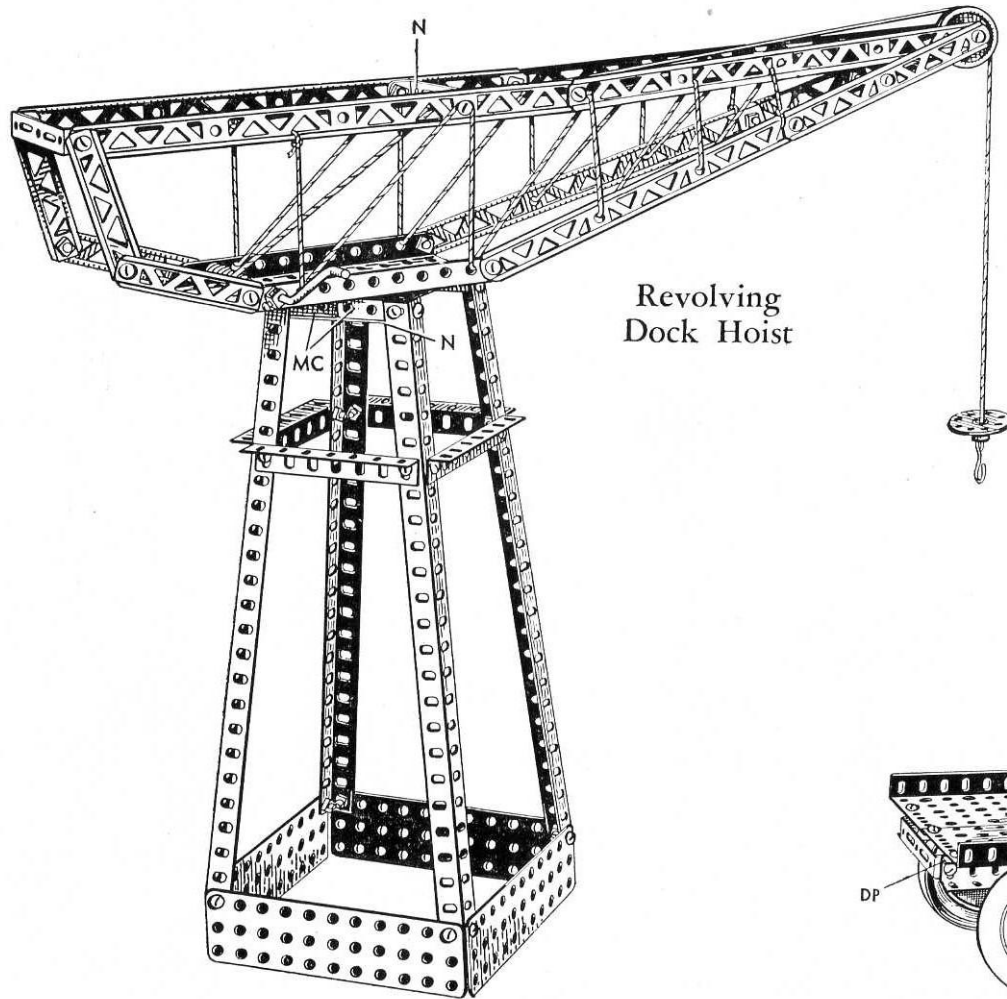


Switch Tower

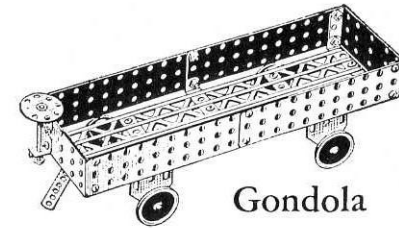


Fire  
Lookout

# Models Built with No. 4½ Erector

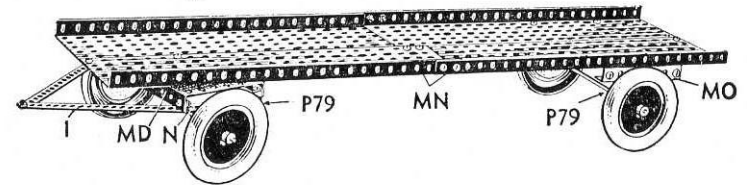


Revolving  
Dock Hoist

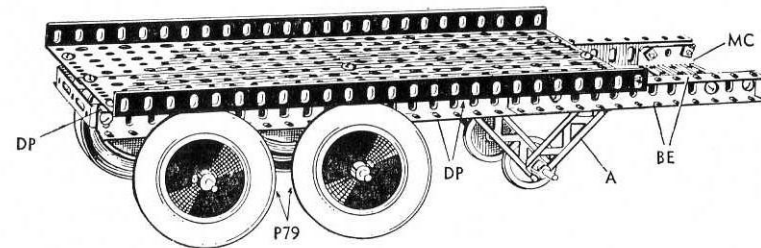


Gondola

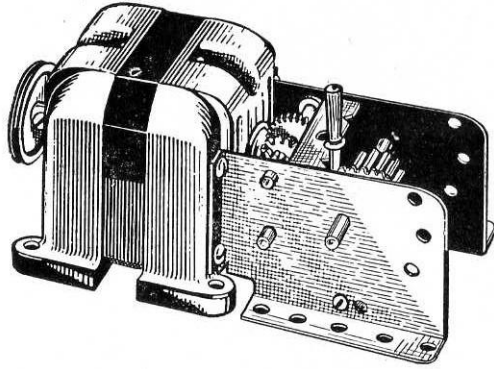
Auto Transport Trailer



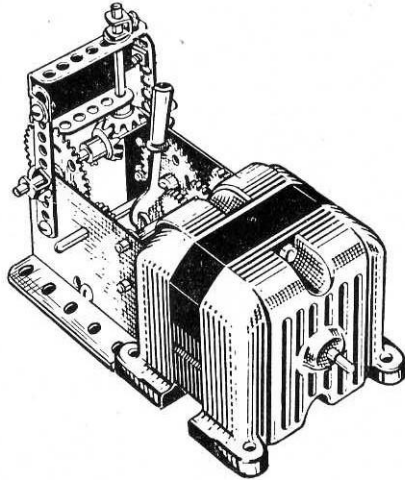
Heavy Duty Trailer





**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.

## 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.

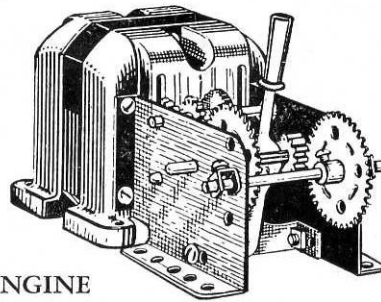
The A-49 motor is equipped with a worm drive which gives the greatest single reduction in gearing. The worm meshing with the 24 tooth worm gear on the countershaft of this motor gives a 24 to 1 reduction. This means that the speed of the countershaft is reduced 24 times from the speed of the worm shaft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

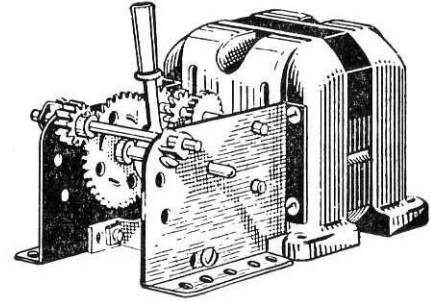
Gears provide a means of transmitting power; controlling speed, and increasing or decreasing torque. If greater torque is desired, speed must be decreased; if more speed is desired, torque must be sacrificed for a given load.

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.

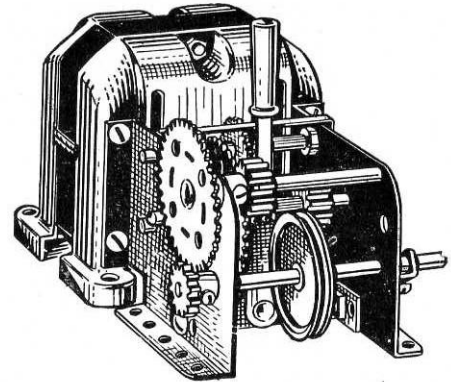
**CAUTION:** Motor must be running to shift gears successfully. **MUST** be used on 60 cycle alternating current only.

**ELECTRIC ENGINE No. 9**

A low speed gear train with great power.

**ELECTRIC ENGINE No. 8**

A high speed gear train.

**ELECTRIC ENGINE No. 12**

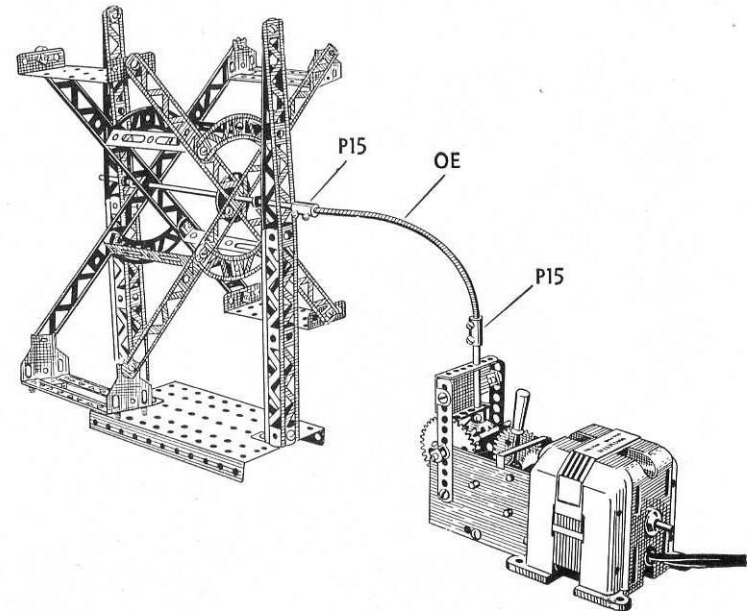
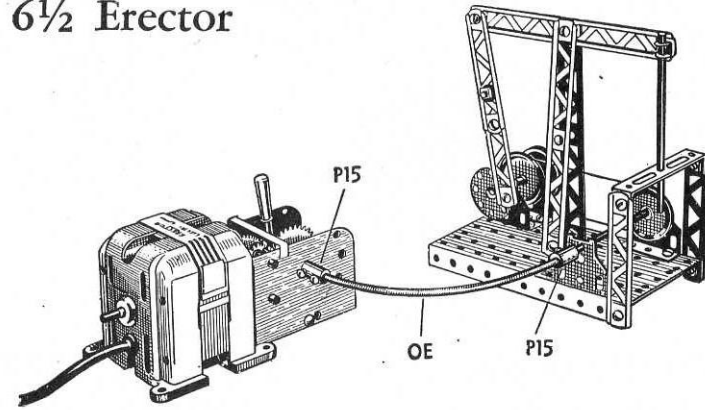
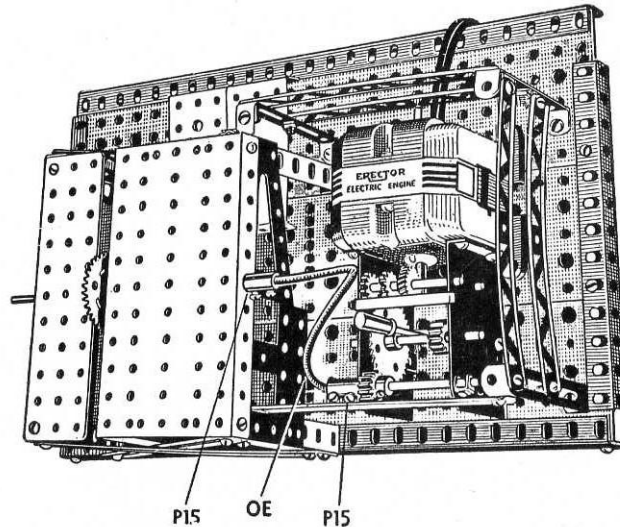
Super speed gear train for light loads.

## 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°.



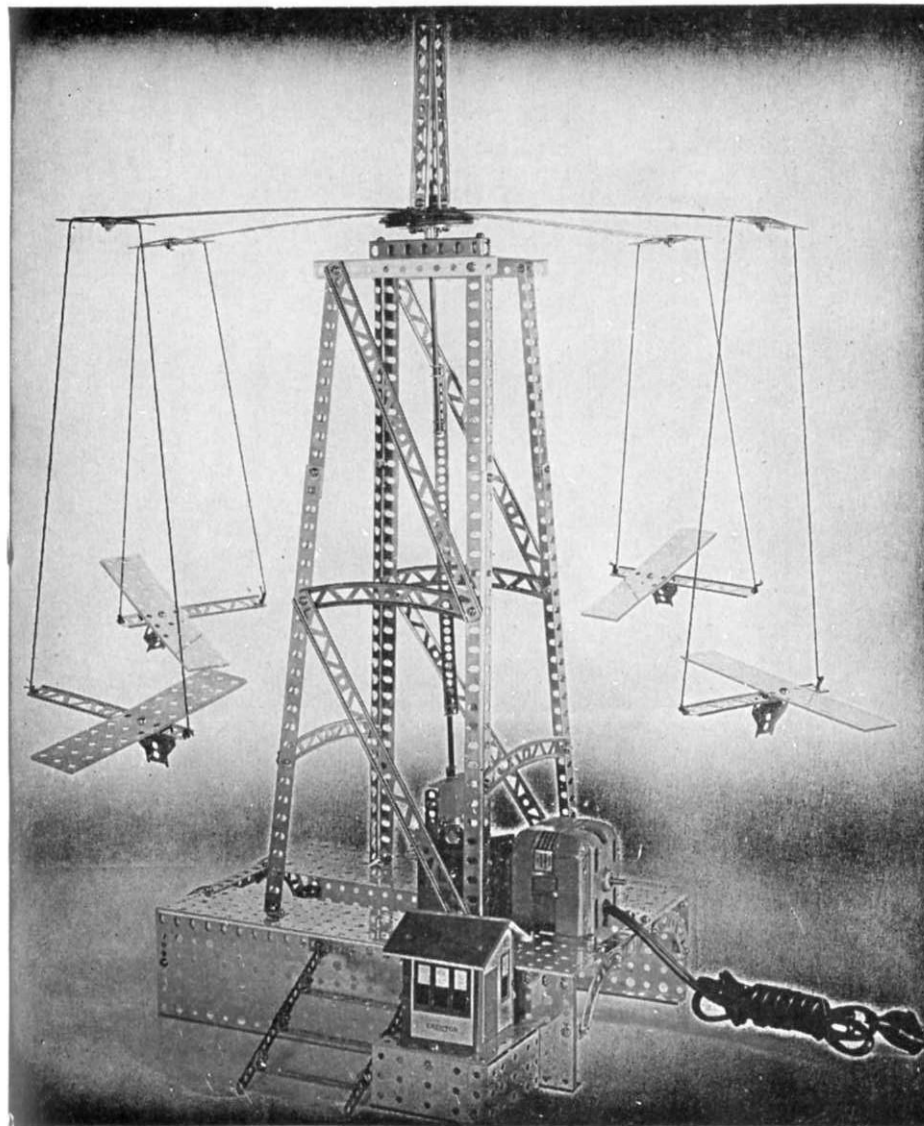


FIGURE 1

## 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.

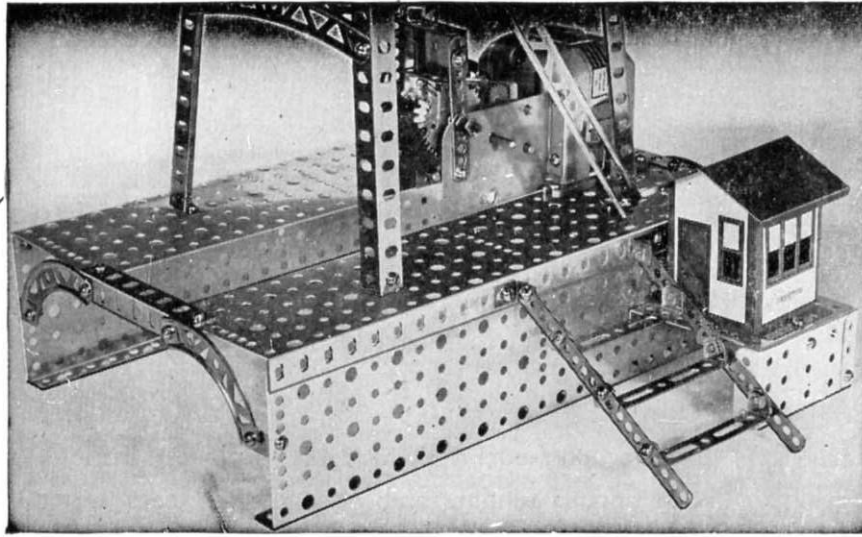


FIGURE 2

### 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.

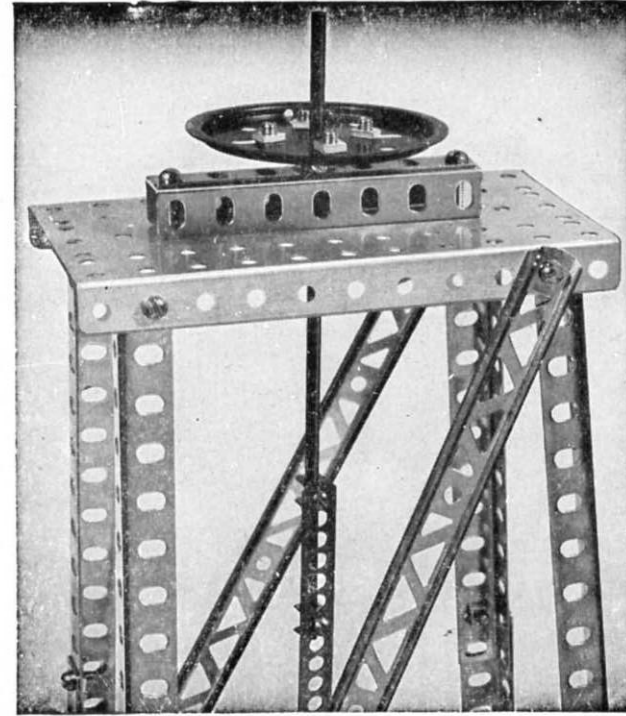


FIGURE 3

### 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.



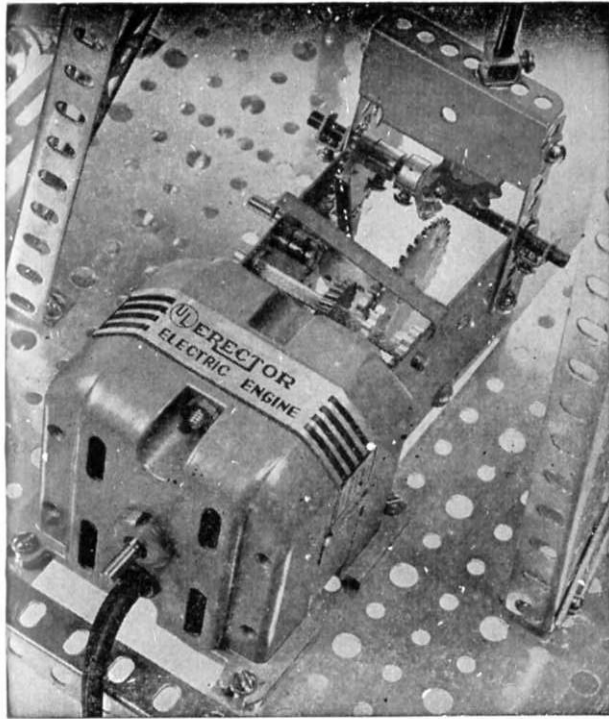


FIGURE 4

### 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 is fastened to the model as shown in Figure 4.

The first vertical axle which passes through

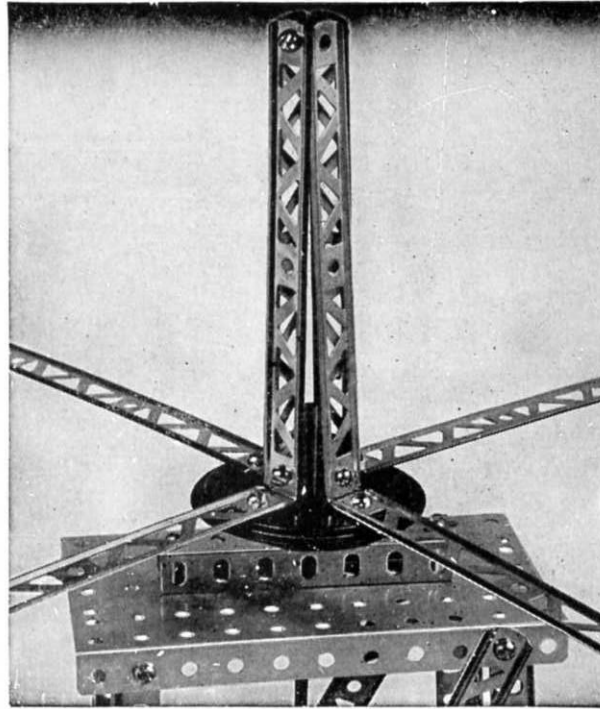


FIGURE 5

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.

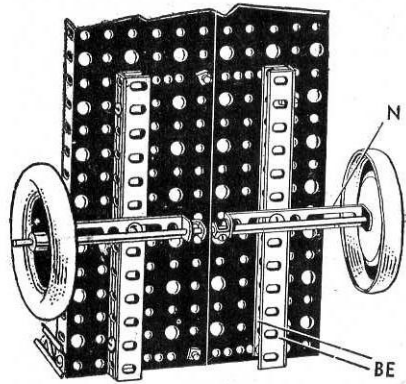
### THE REVOLVING TOP

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.

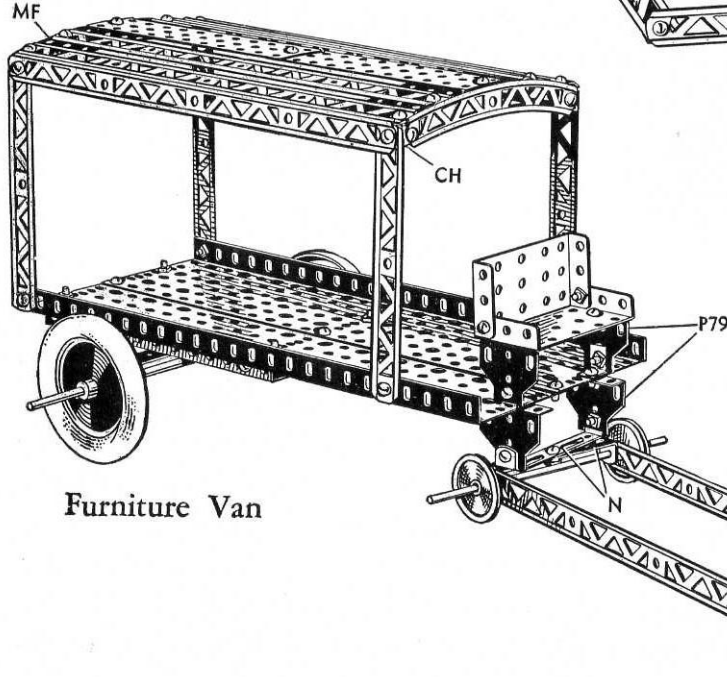
### OPERATION OF MODEL

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.

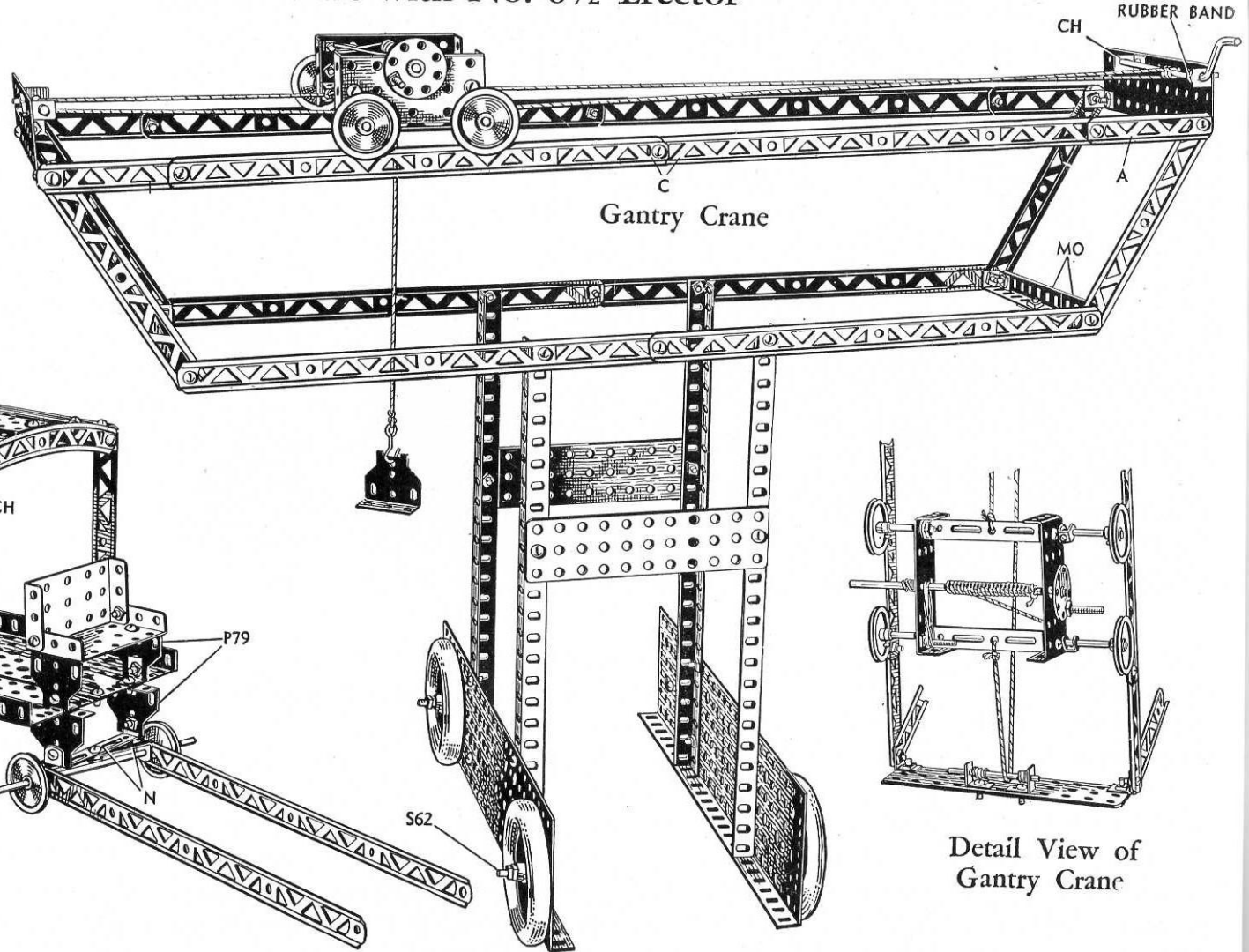
# Models Built with No. 6½ Erector



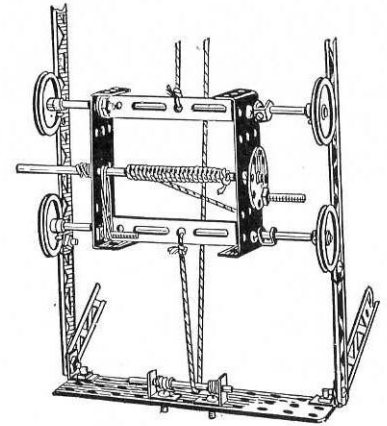
Detail of Furniture Van



Furniture Van

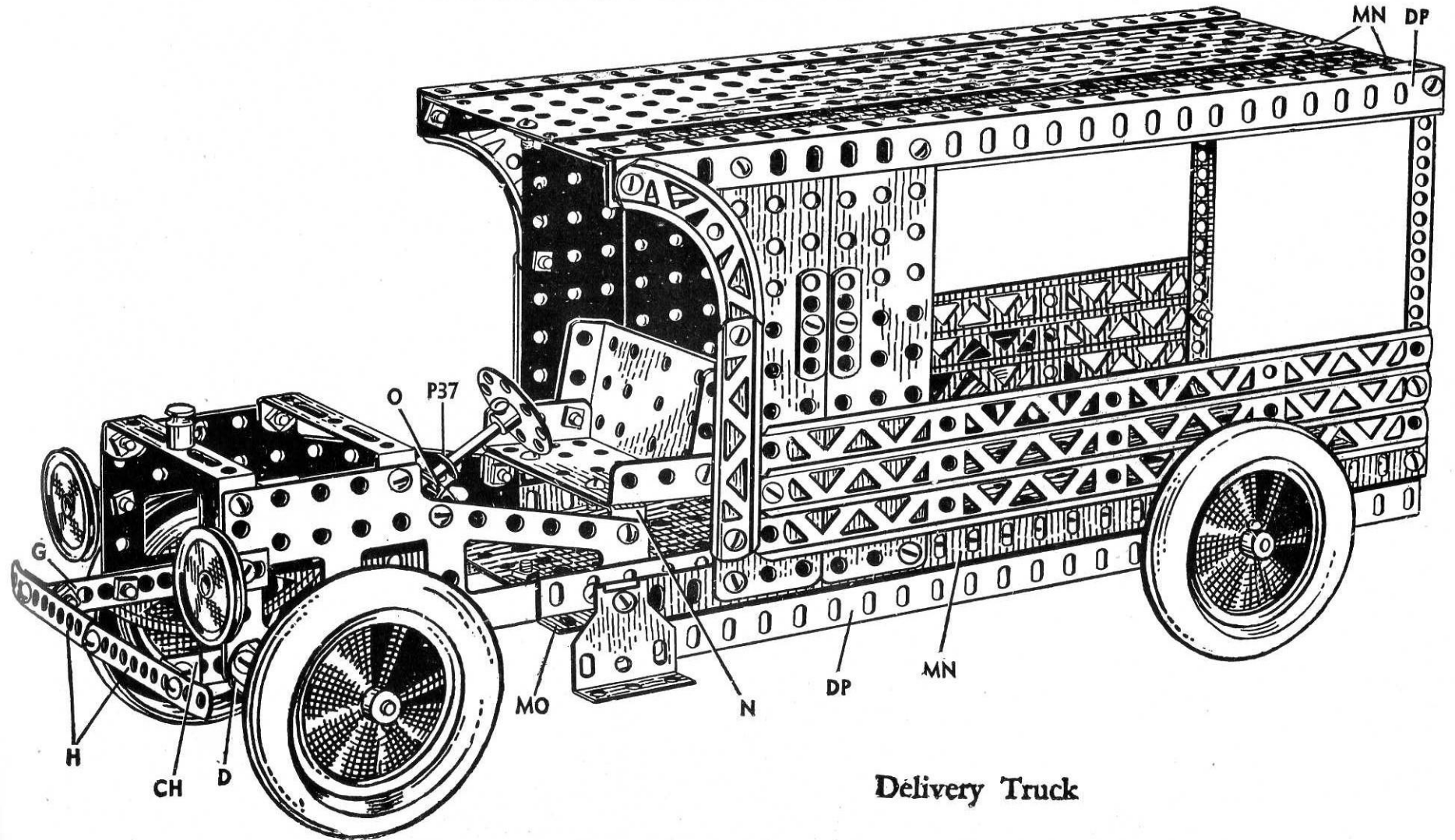


Gantry Crane



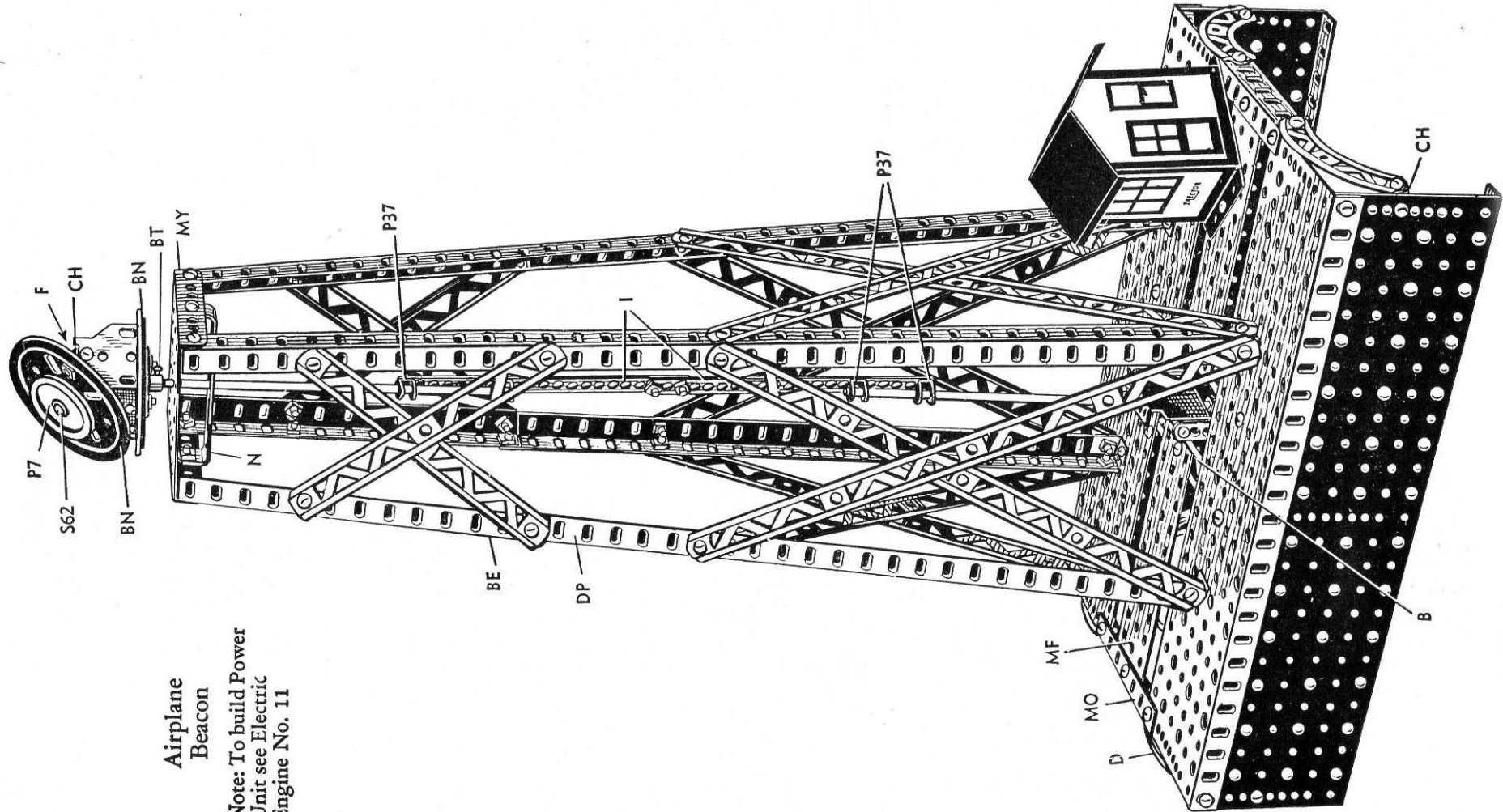
Detail View of Gantry Crane

# Models Built with No. 6½ Erector



Delivery Truck

## Models Built with No. 6½ Erector



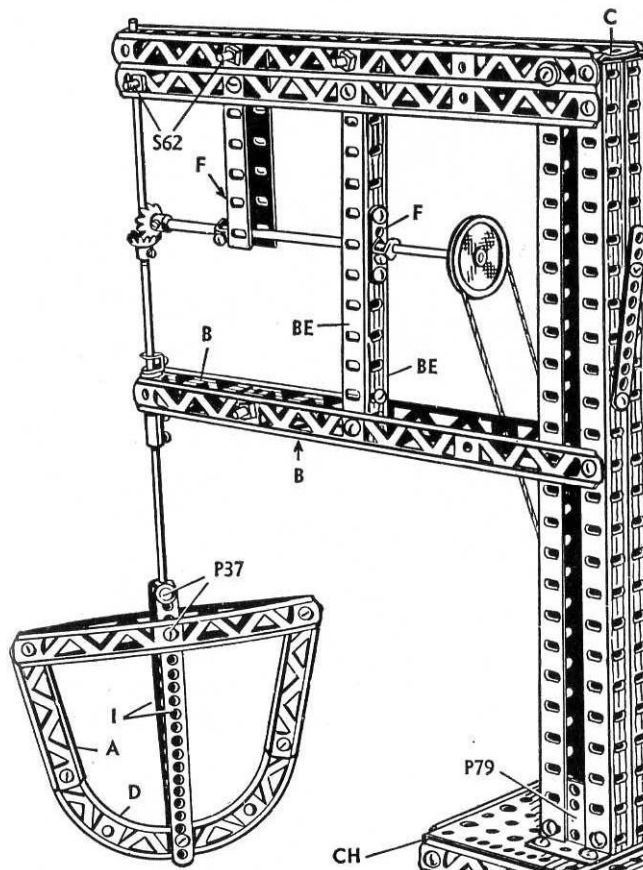
Airplane  
Beacon

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



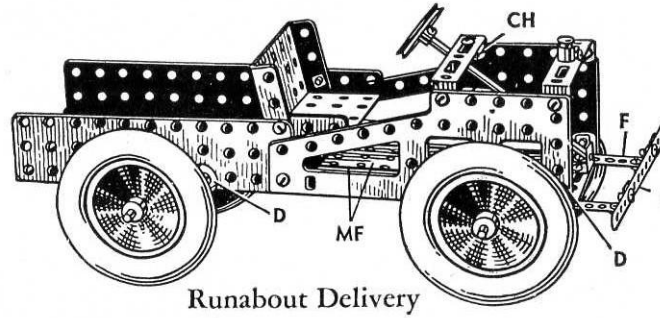
# Models Built with No. 6½ Erector

SECTION 6½A  
M2957  
51



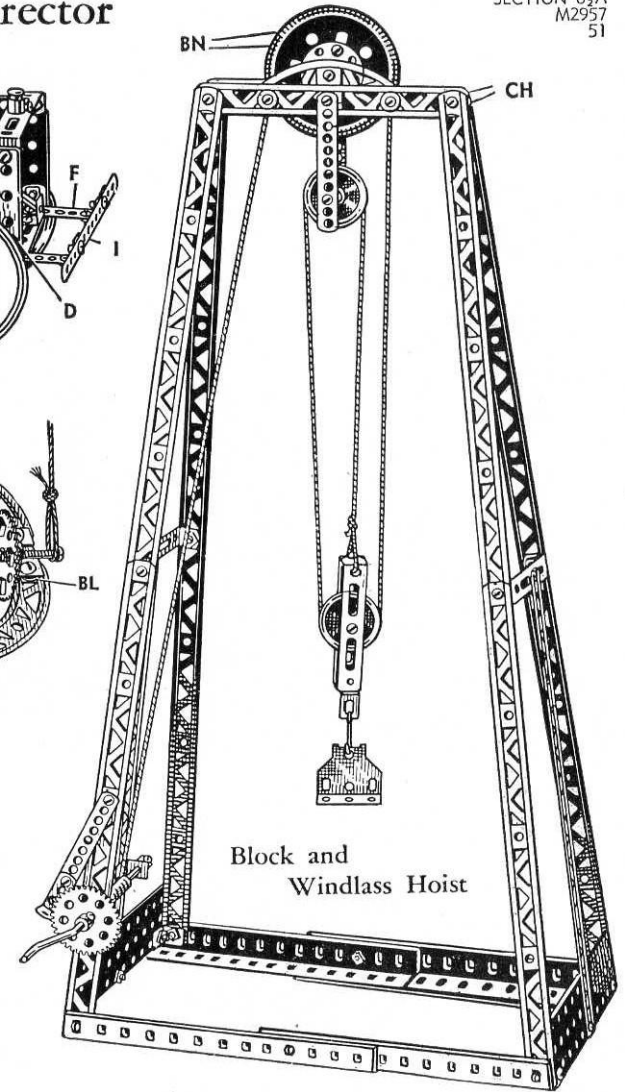
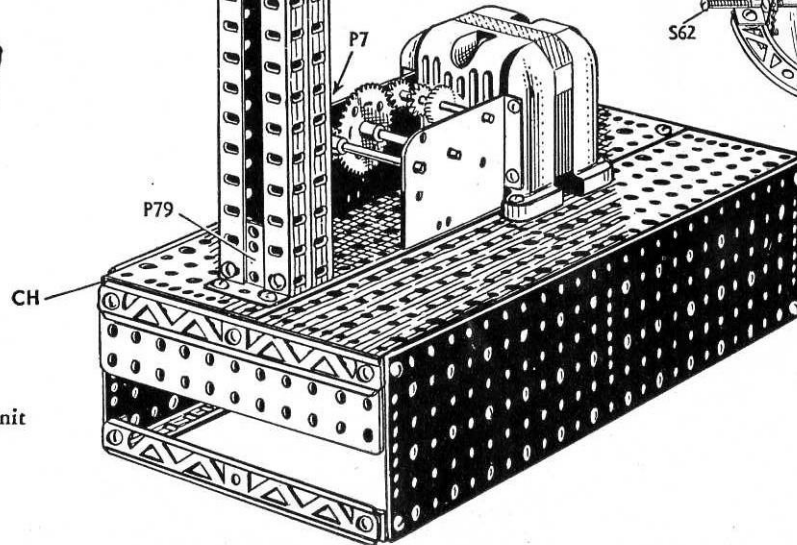
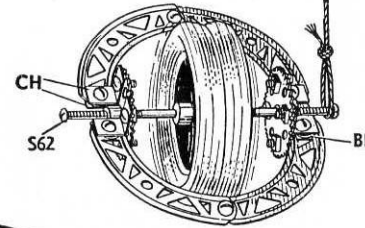
Fodder Mixer

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



Runabout Delivery

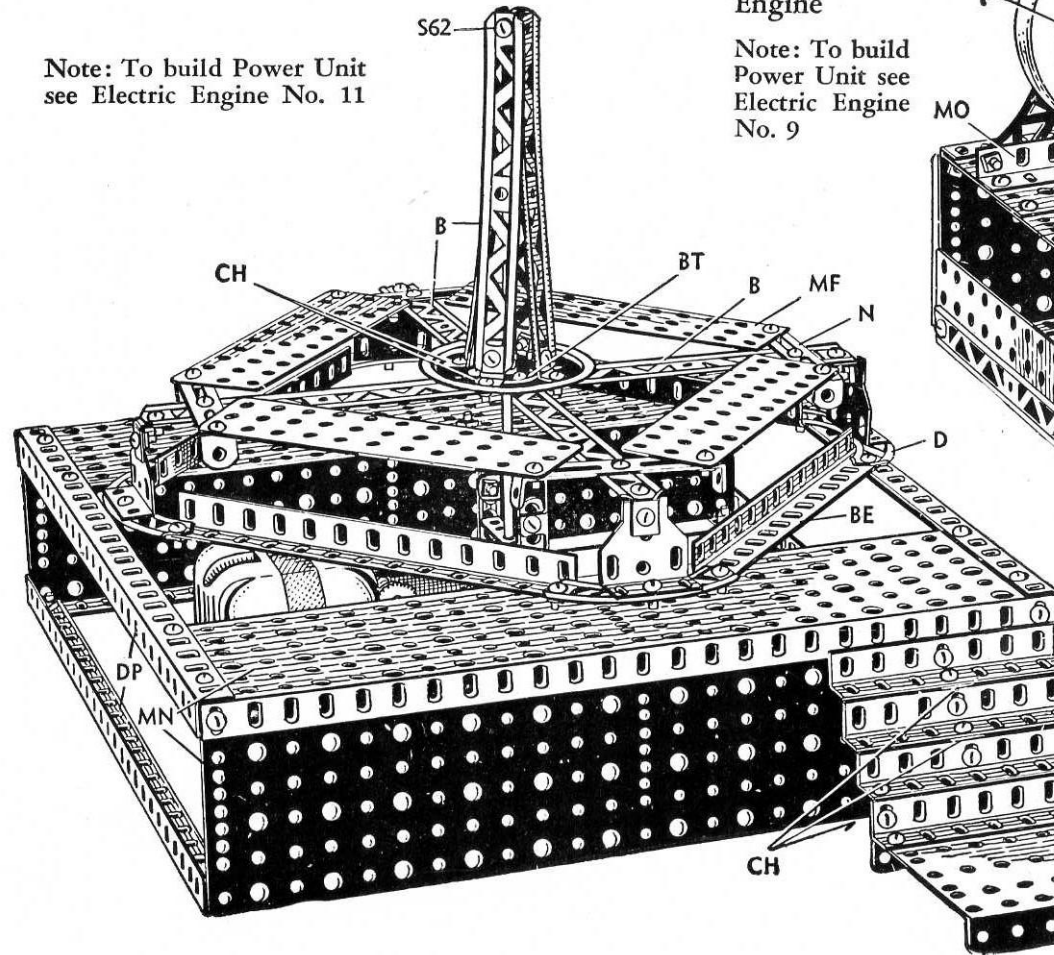
Gyroscope Top



Block and  
Windlass Hoist

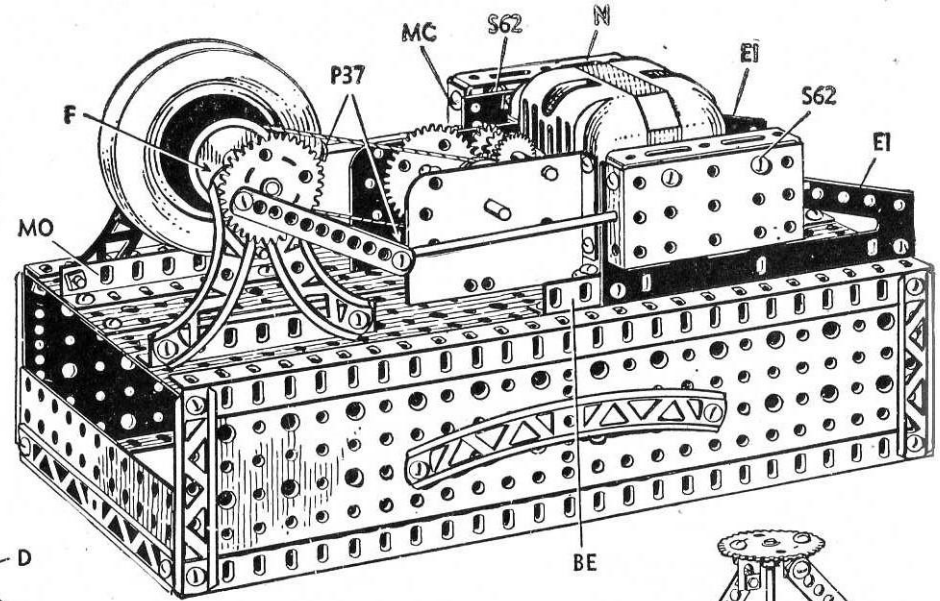
## Merry-go-round

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

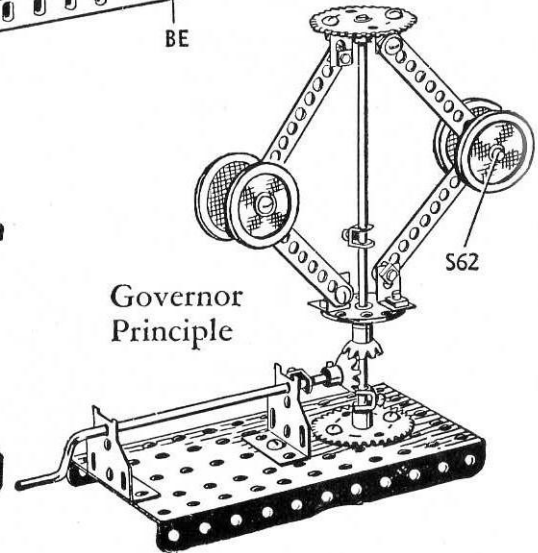


## Horizontal Engine

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



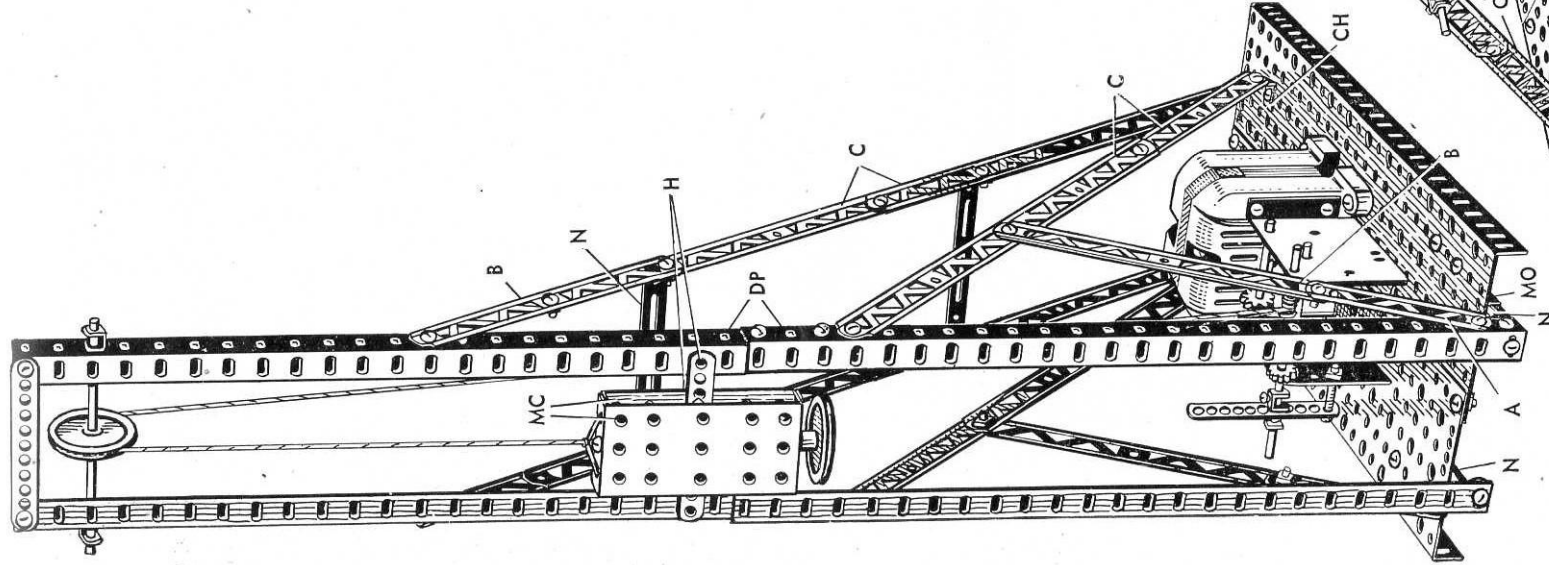
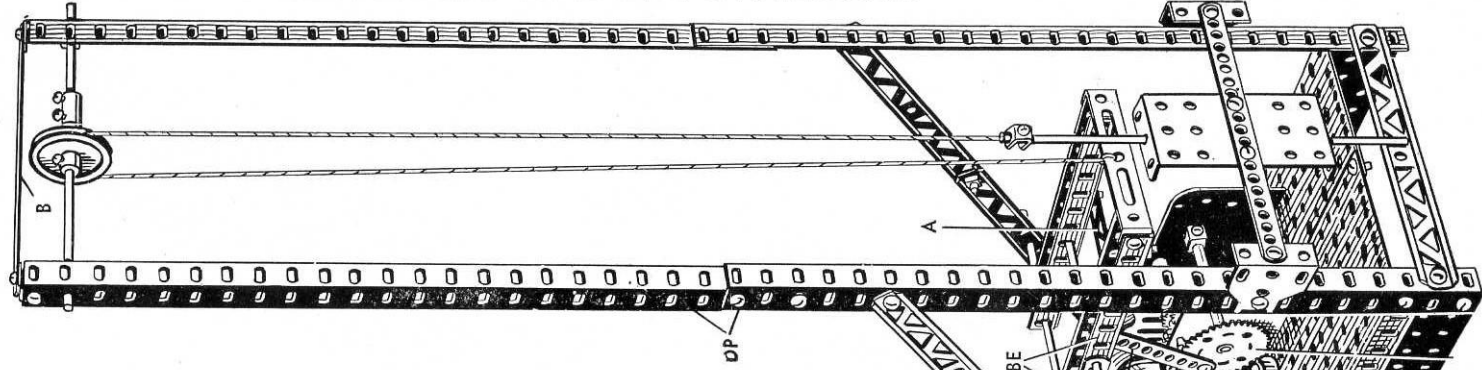
## Governor Principle



# Models Built with No. 6½ Erector

## Well Driver

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

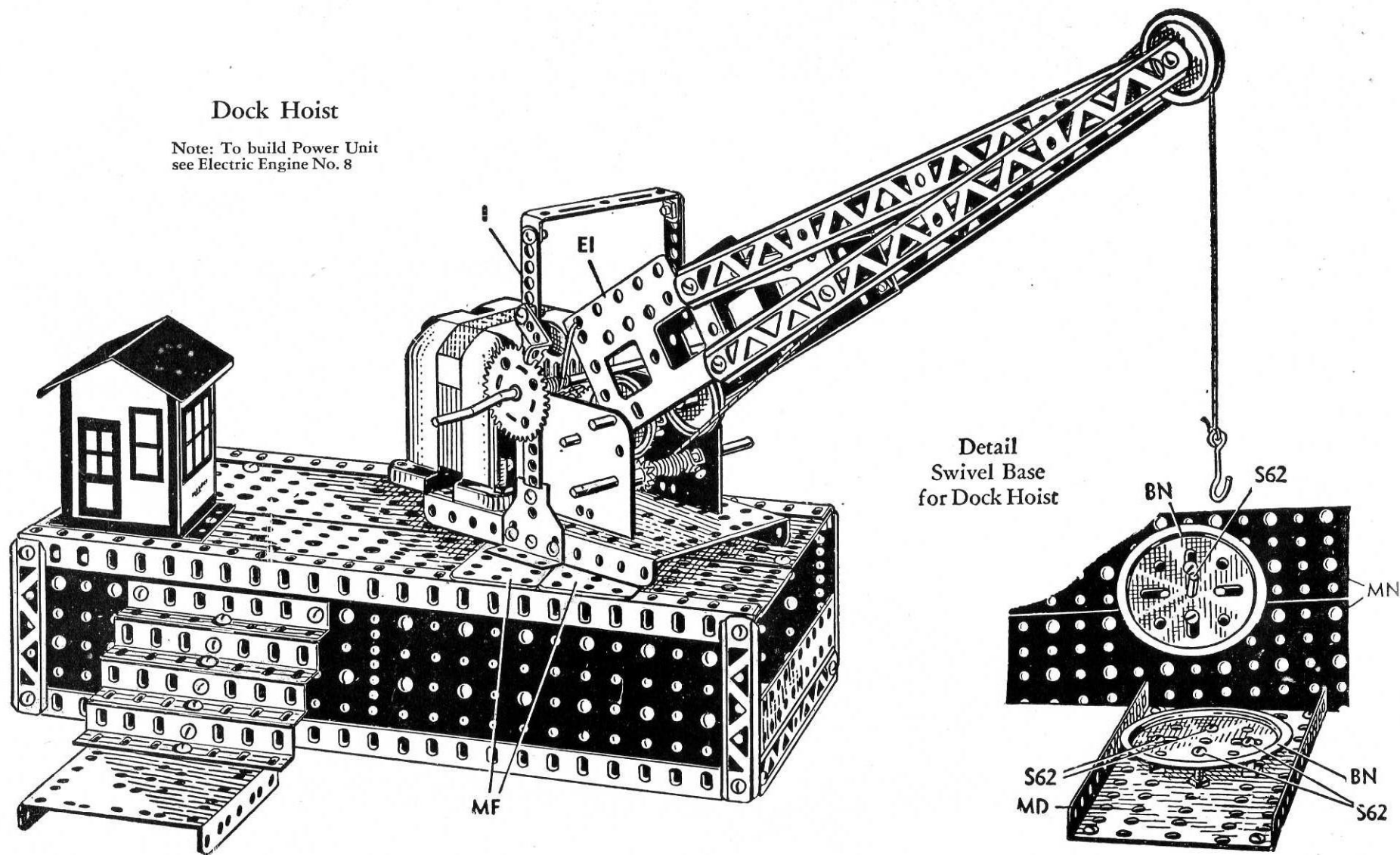


## Pile Driver

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

## Dock Hoist

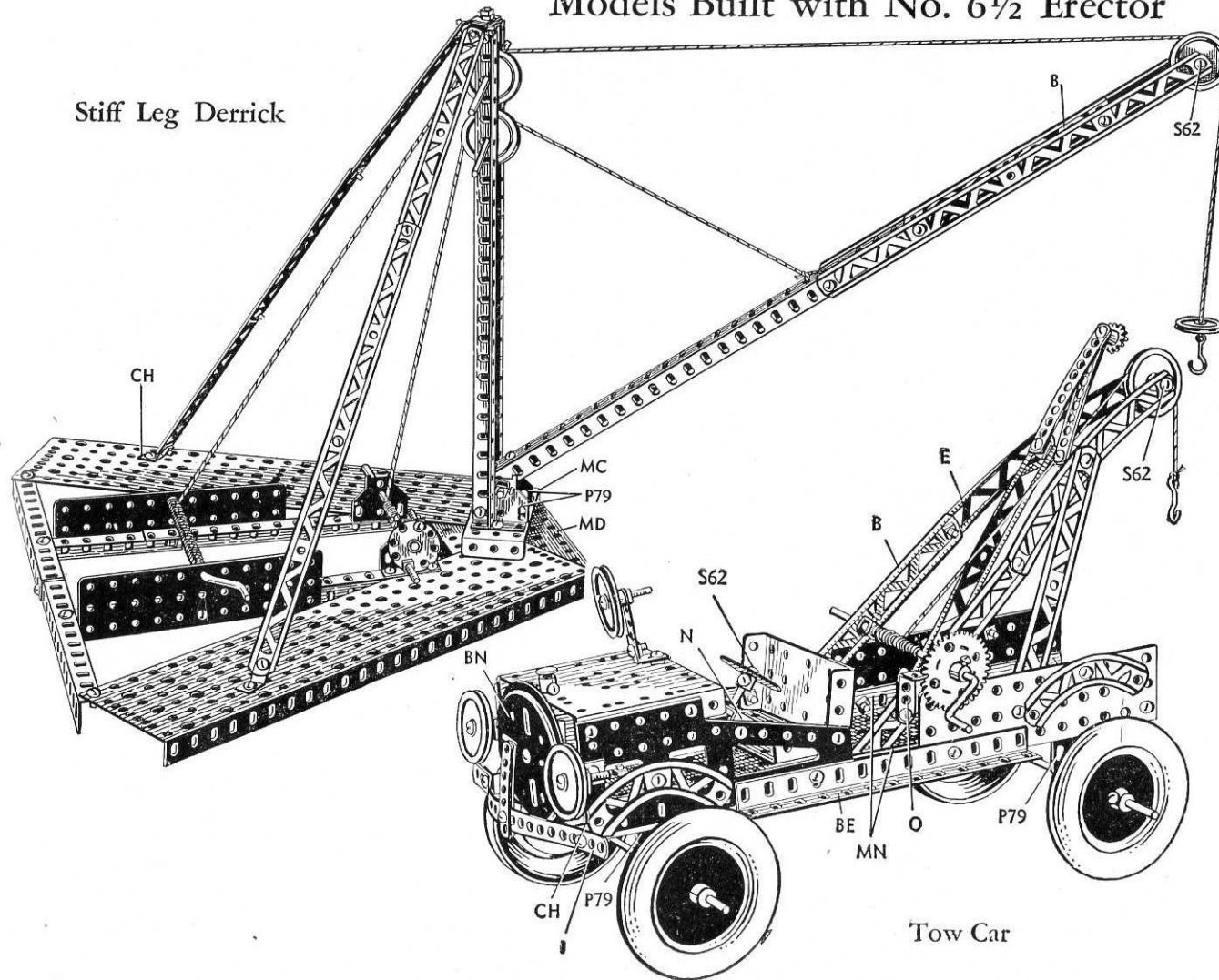
Note: To build Power Unit  
see Electric Engine No. 8



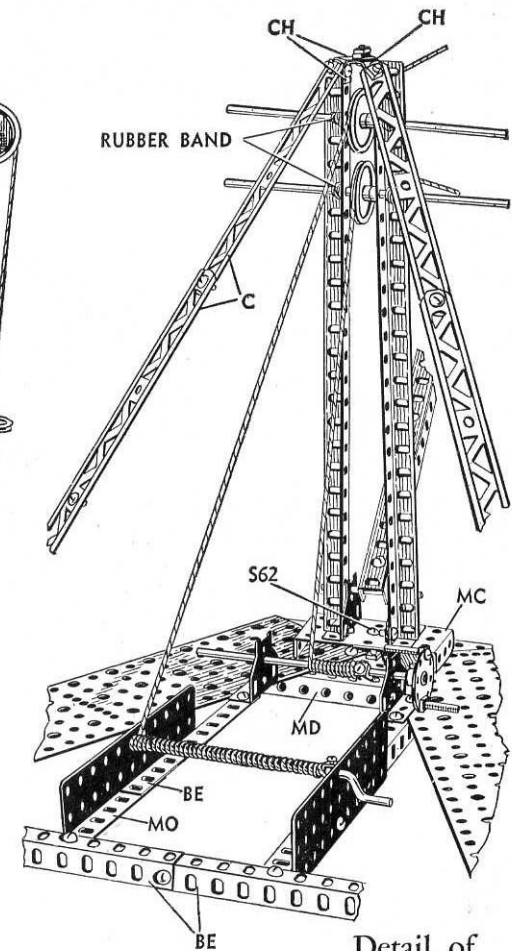


## Models Built with No. 6½ Erector

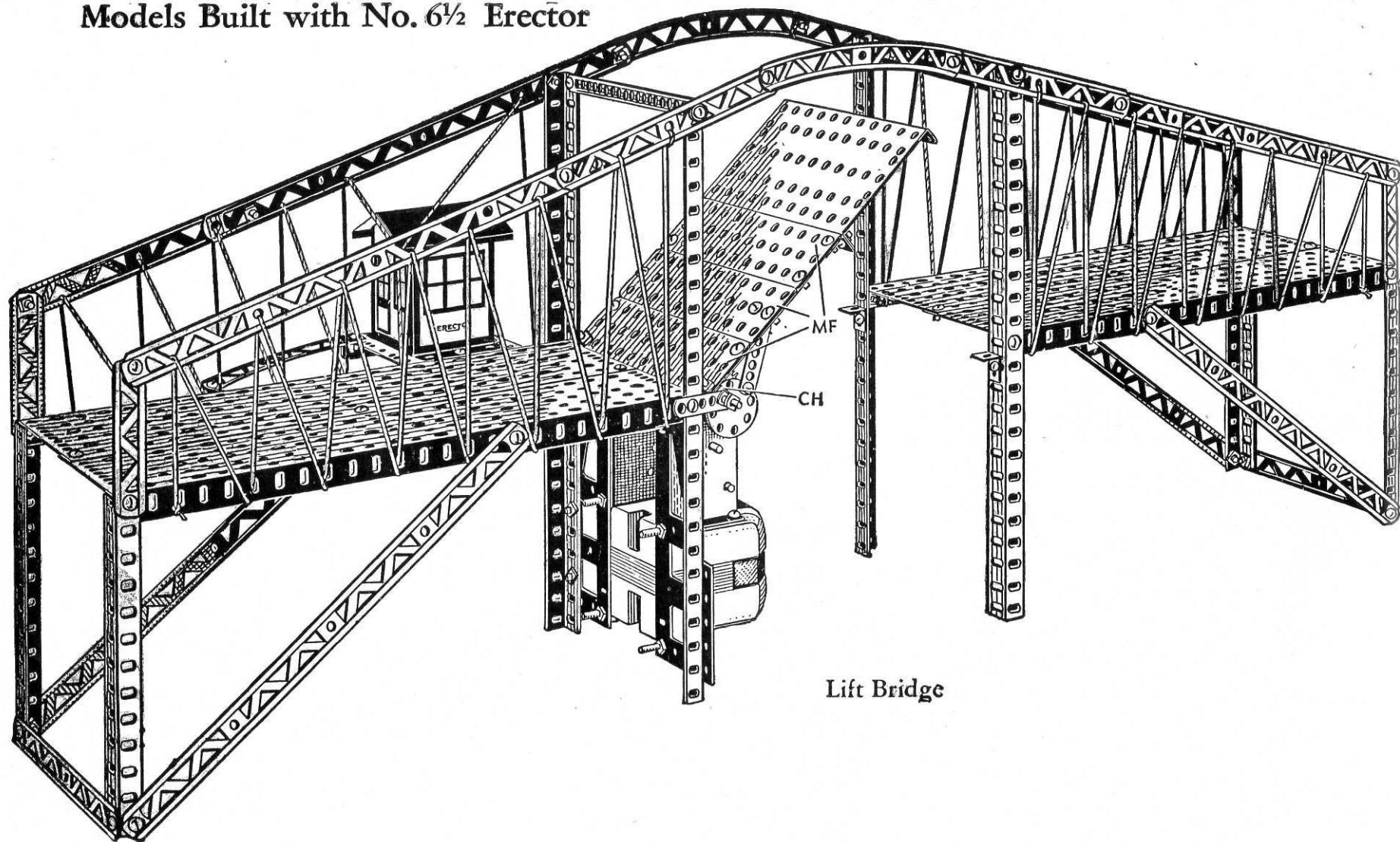
Stiff Leg Derrick



Tow Car

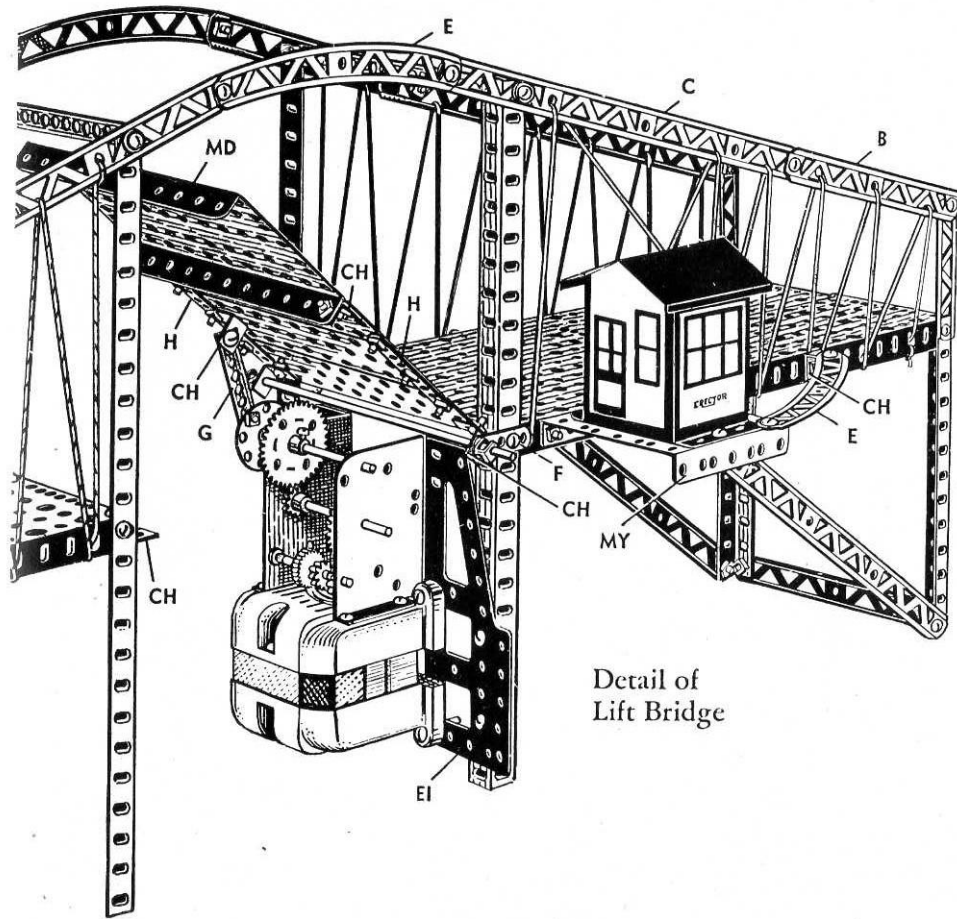
Detail of  
Stiff Leg  
Derrick

## Models Built with No. 6½ Erector



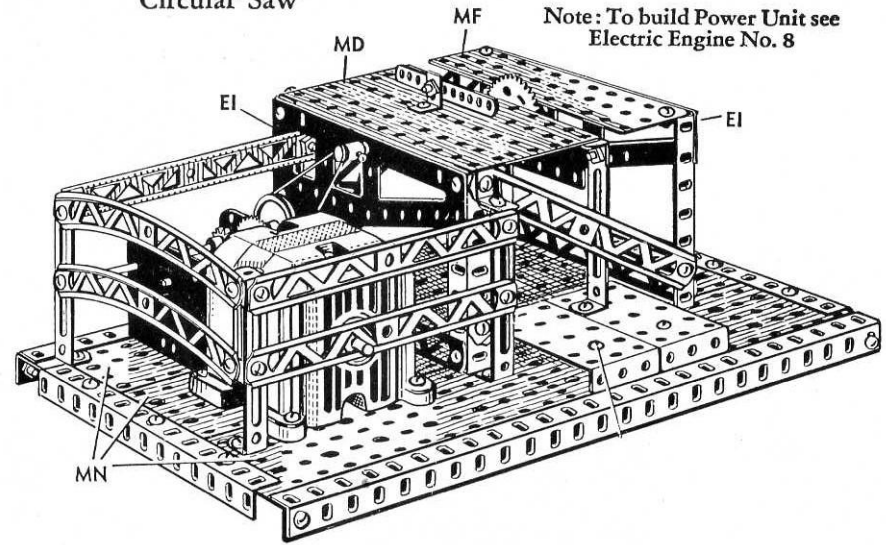
Lift Bridge

# Models Built with No. 6½ Erector



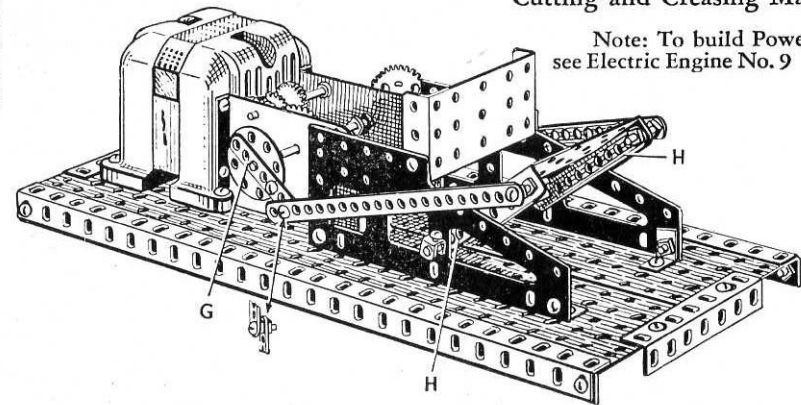
Detail of  
Lift Bridge

Circular Saw



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

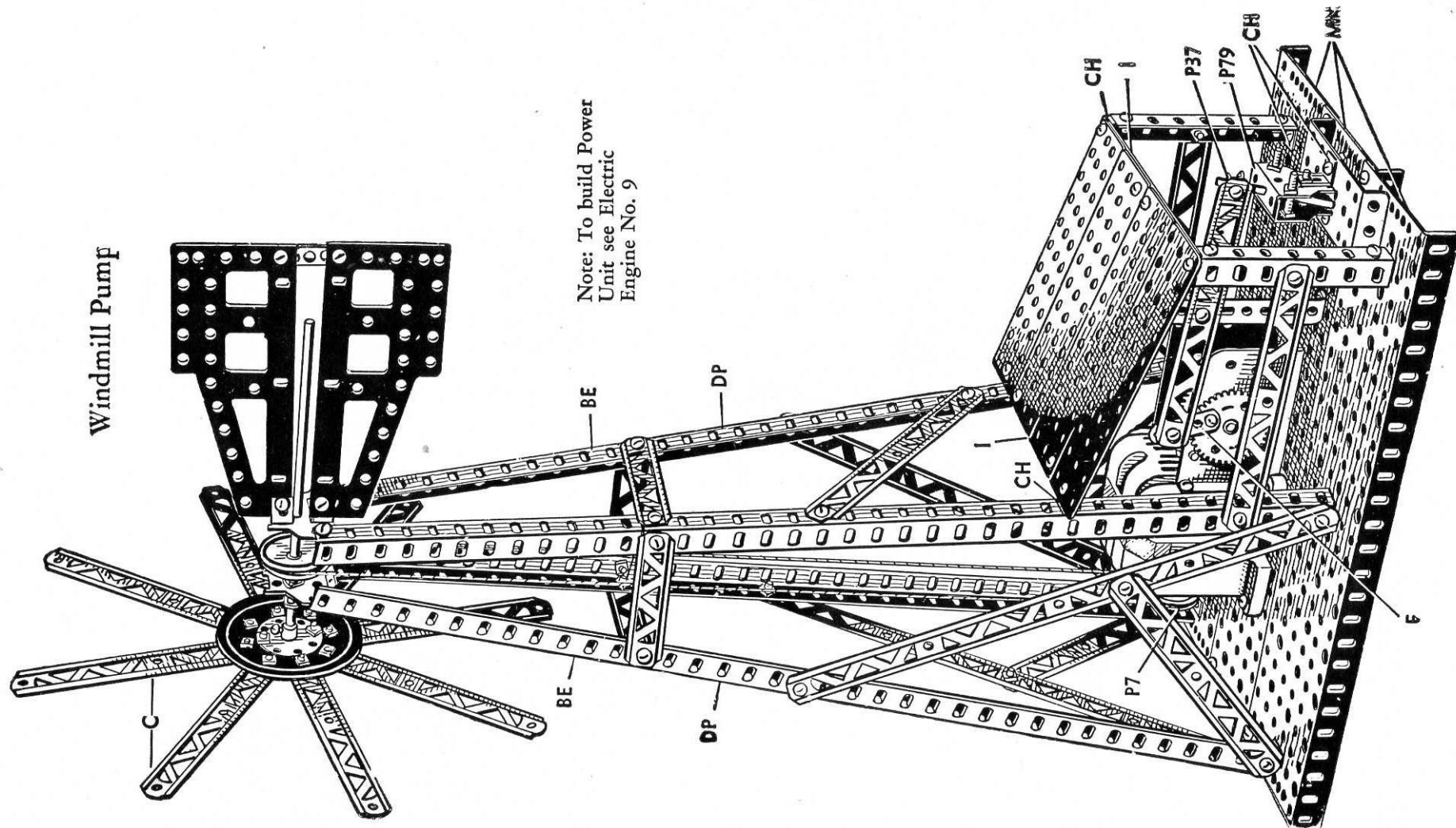
Cutting and Creasing Machine



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

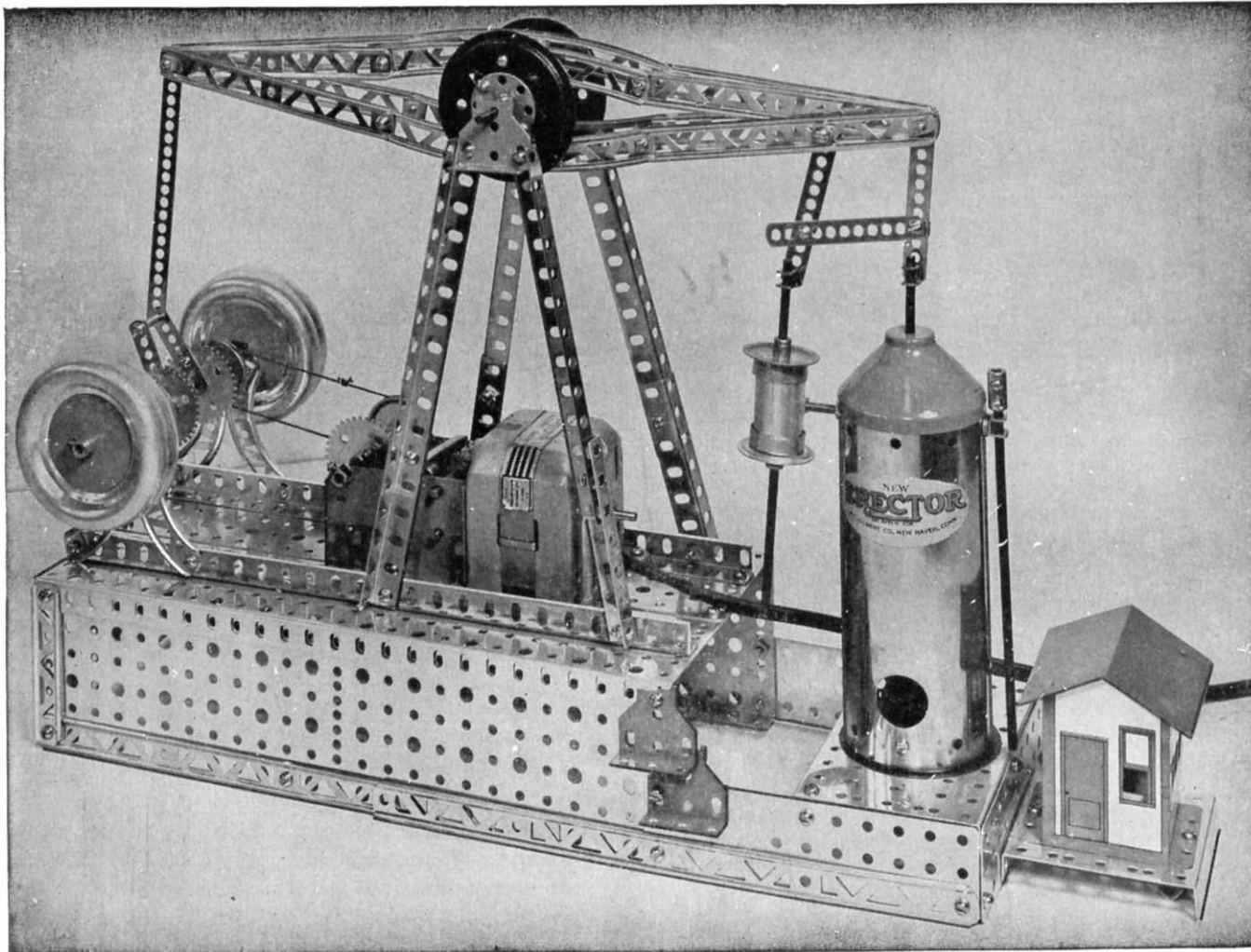
# Models Built with No. 6½ Erector

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





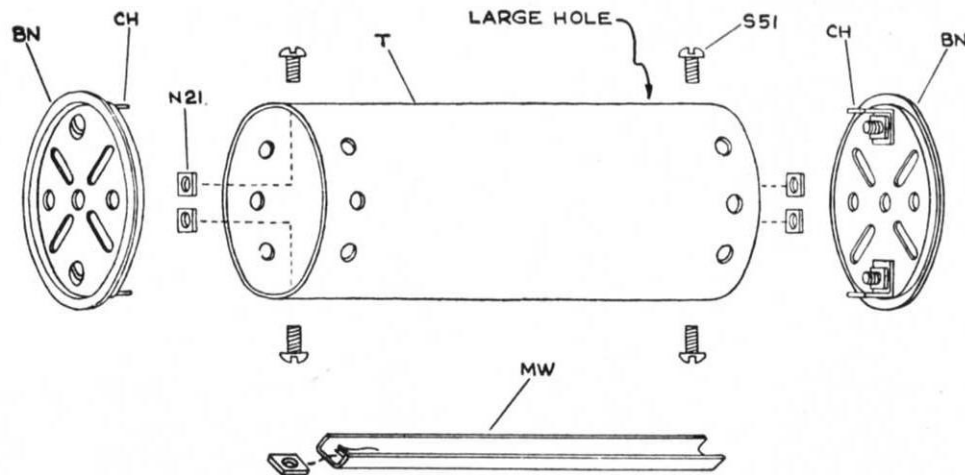
## Models Built with No. 7½ Erector

SECTION 7½  
M3304  
54

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.

FIGURE 1.



The boiler and boiler parts are found in the No. 71½ 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 dia-

gram, 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.

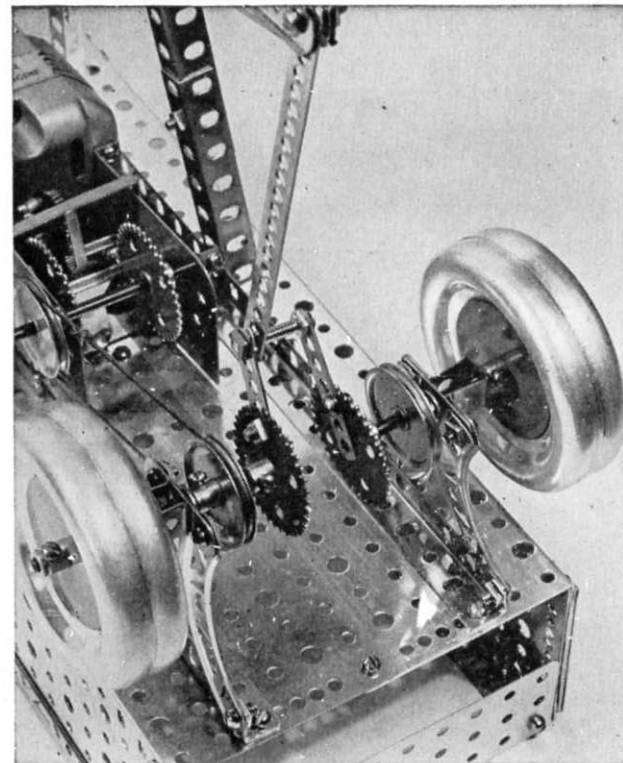


FIGURE 2

## 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.

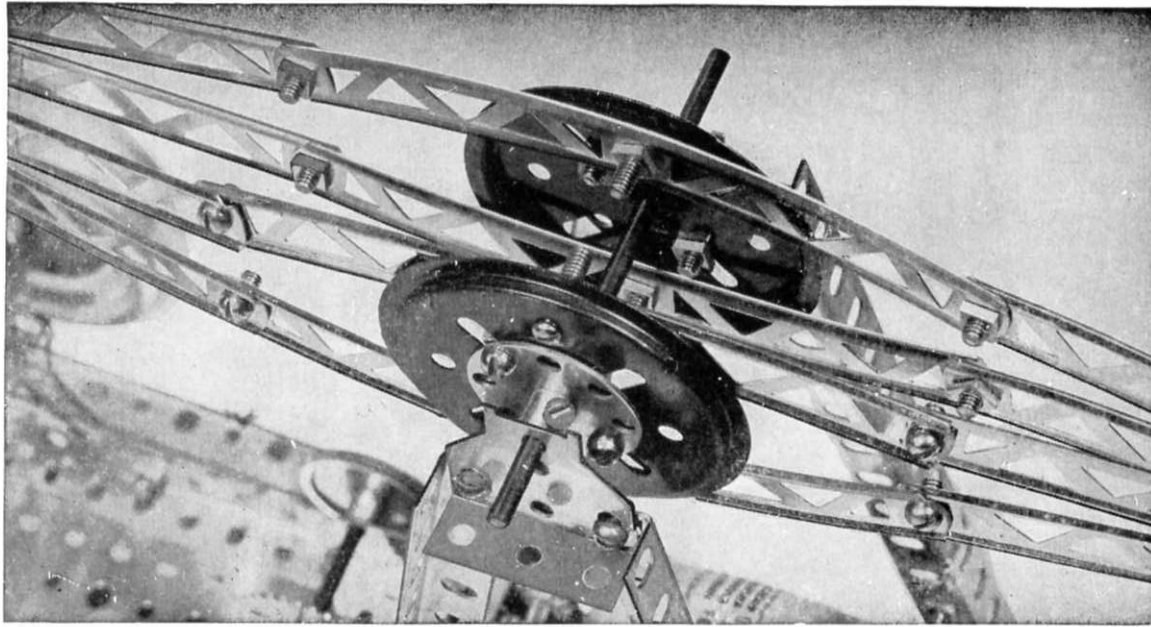


FIGURE 3

### 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 strips 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.

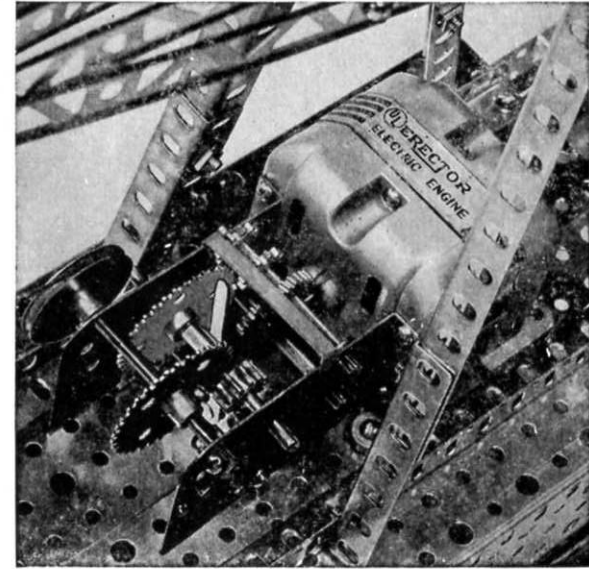
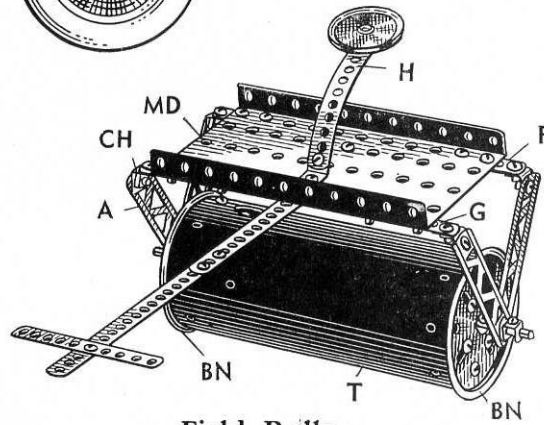
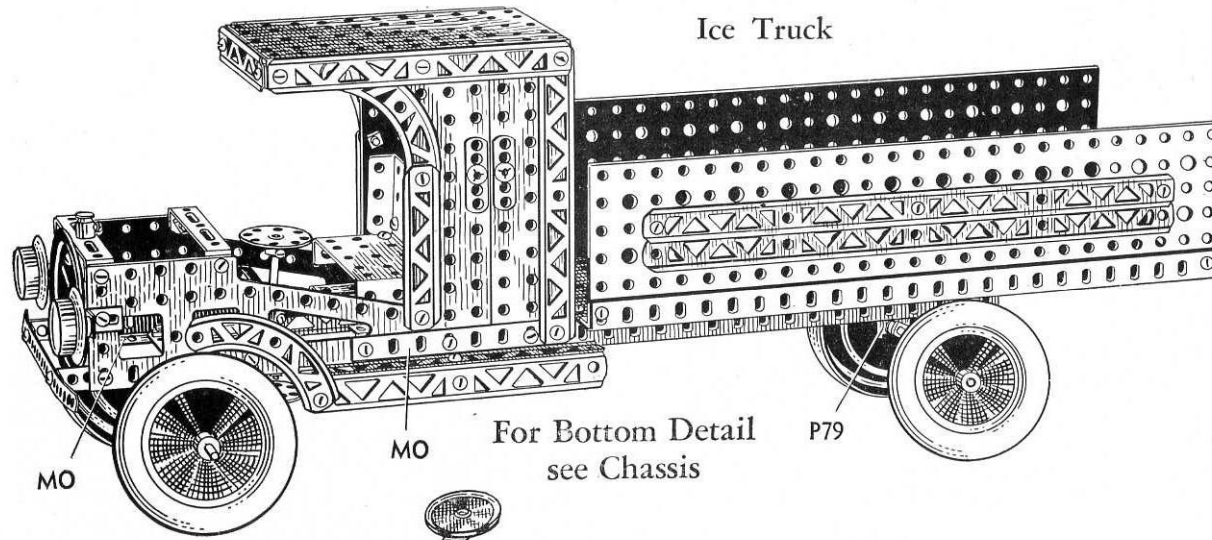


FIGURE 4

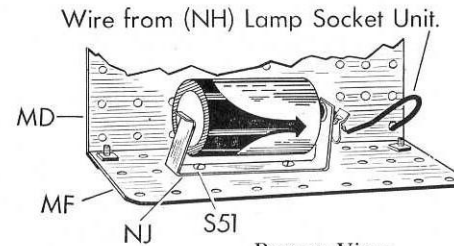
### THE POWER UNIT

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

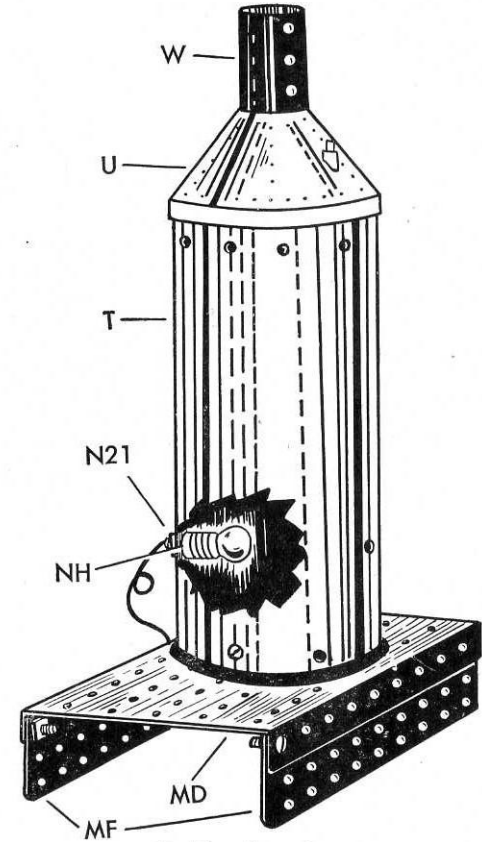


Field Roller



Bottom View

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

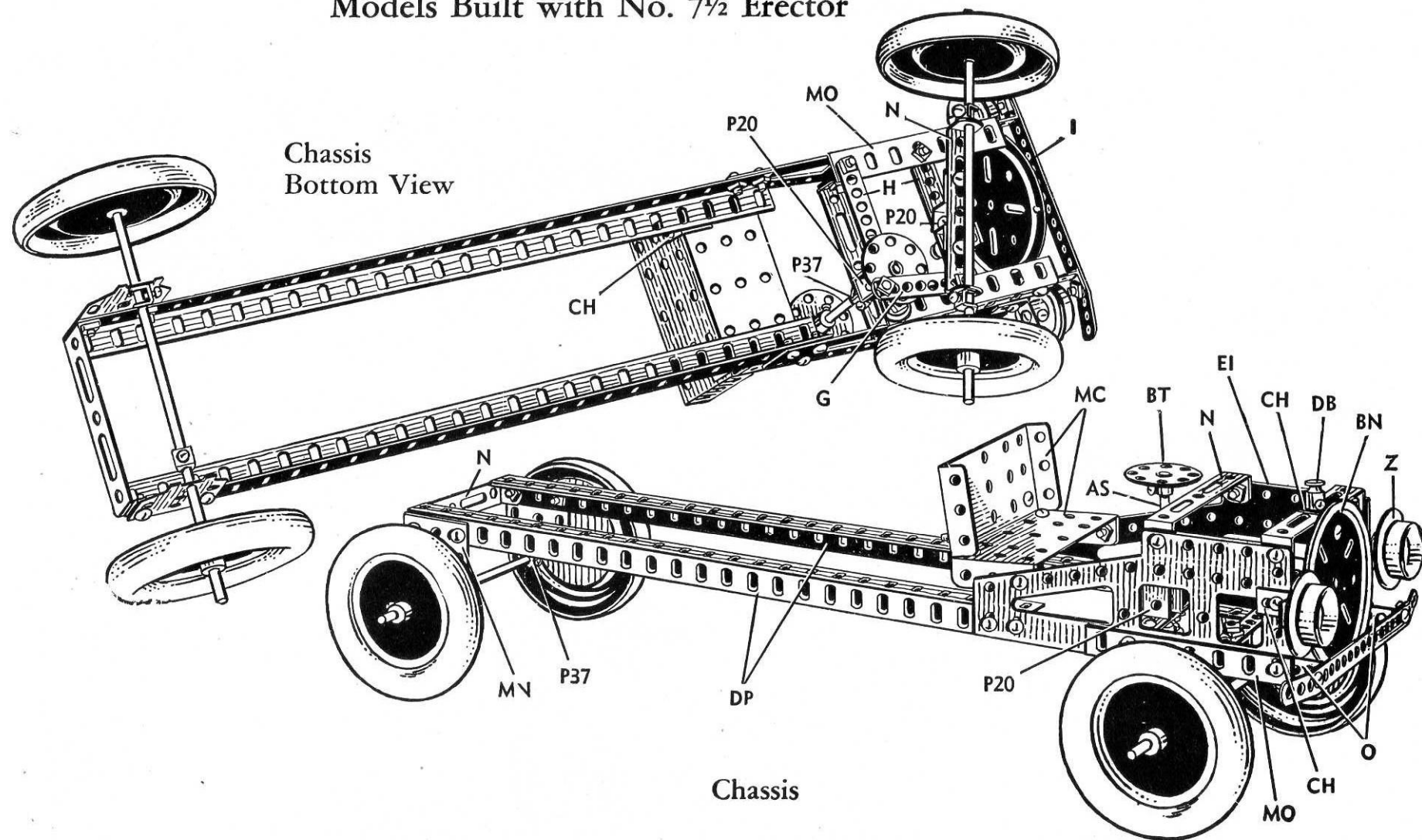


Inside view shows use  
of red or white 1½ volt  
bulb in boiler.



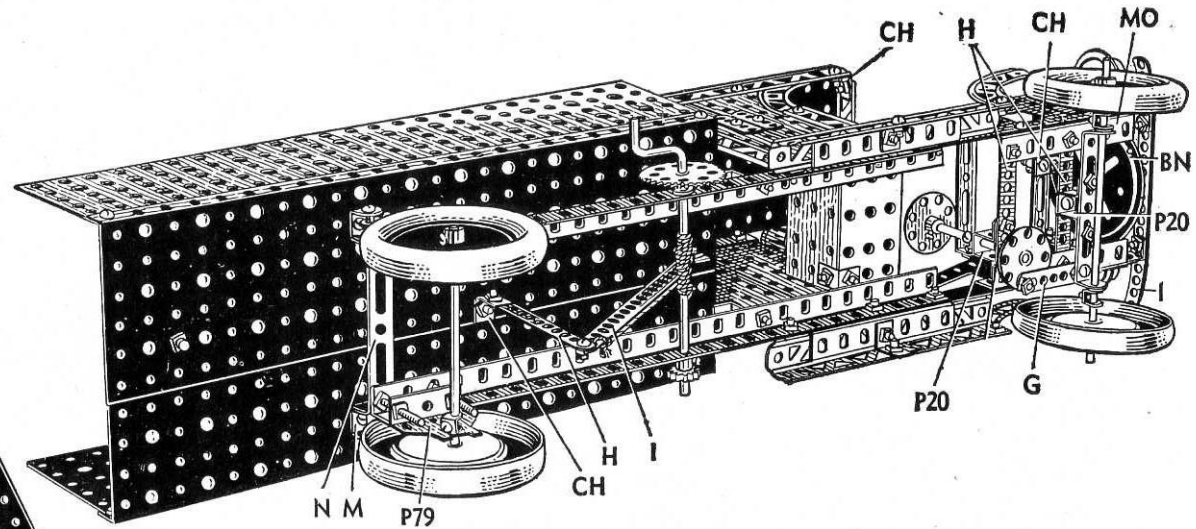
# Models Built with No. 7½ Erector

Chassis  
Bottom View

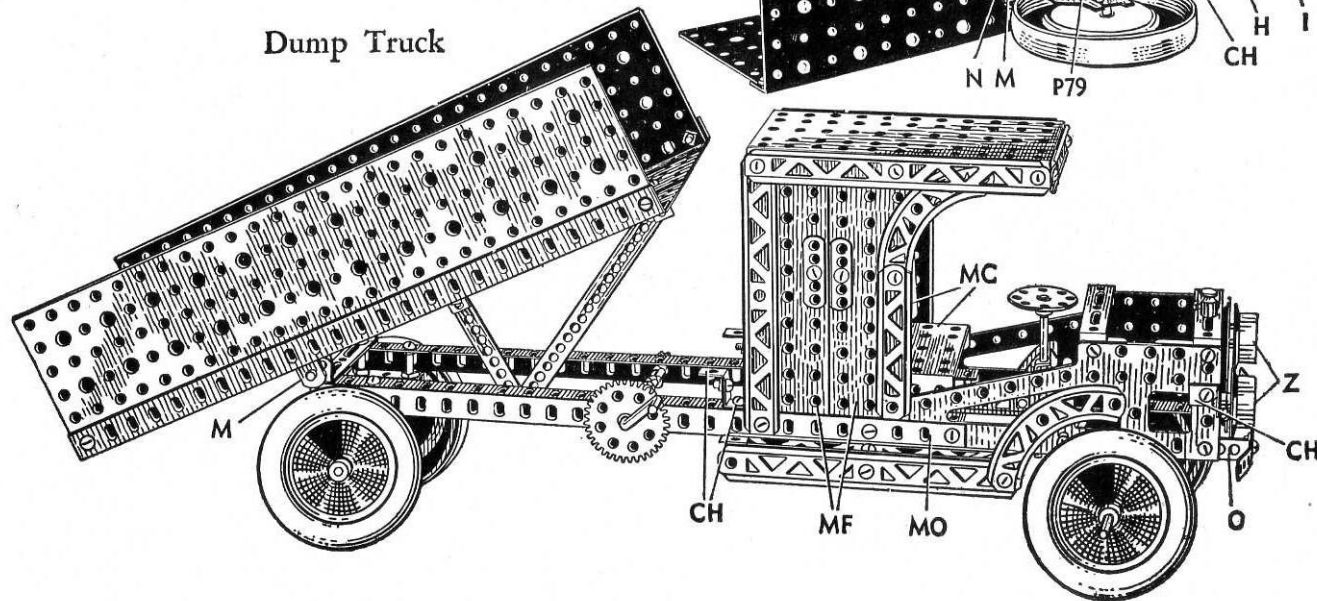


Chassis

# Models Built with No. 7½ Erector



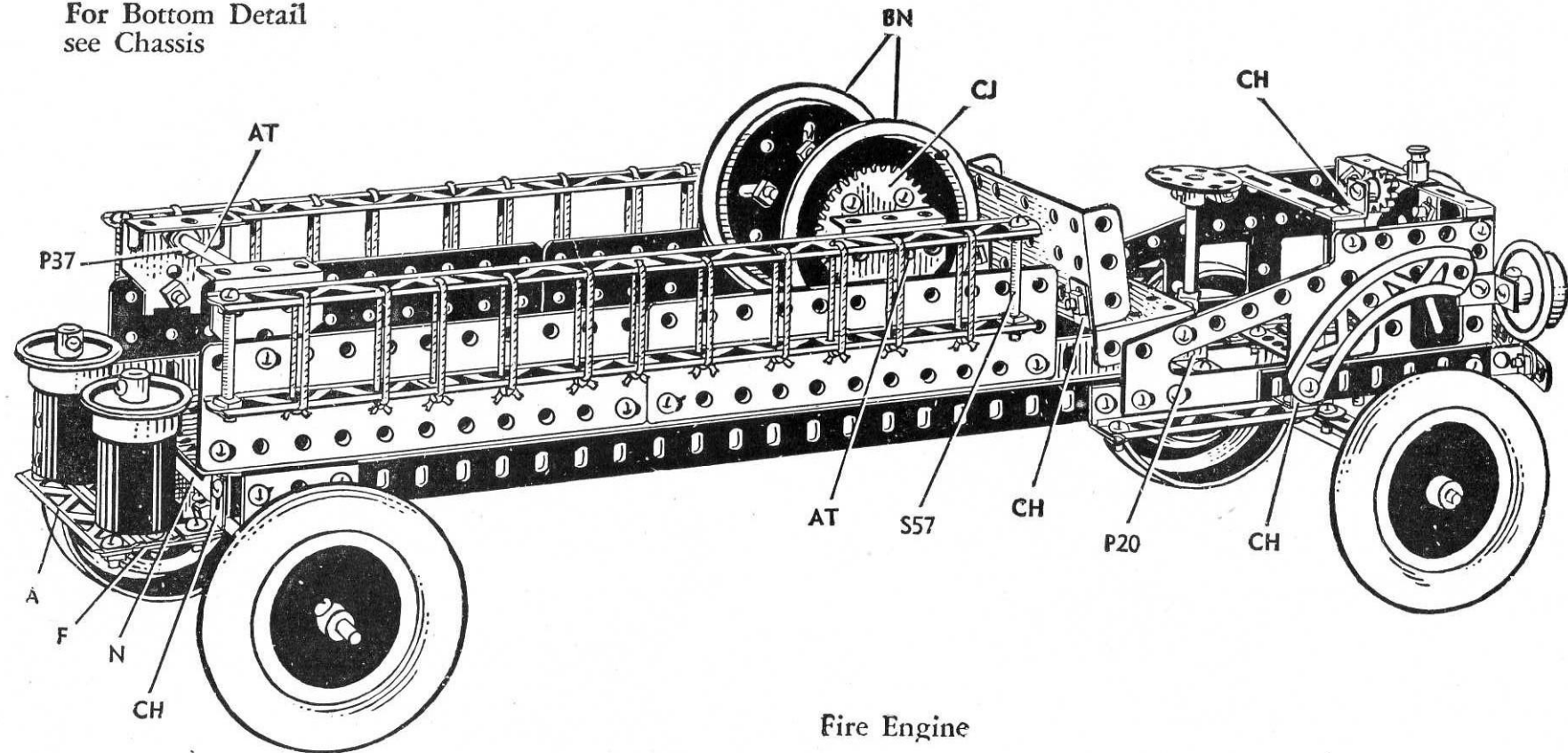
Dump Truck



Dump Truck Bottom View

## Models Built with No. 7½ Erector

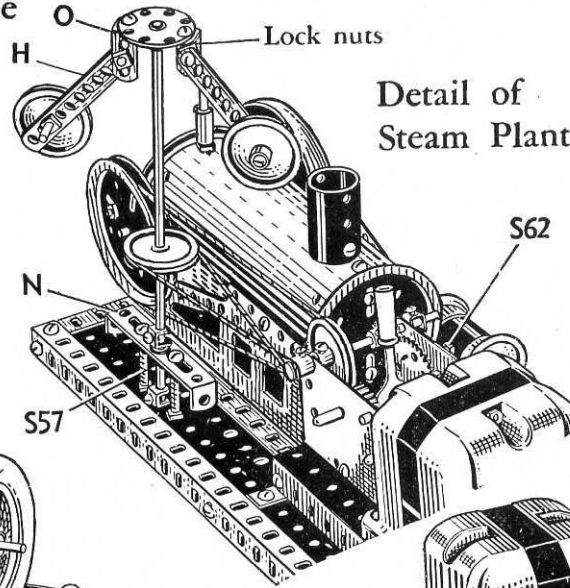
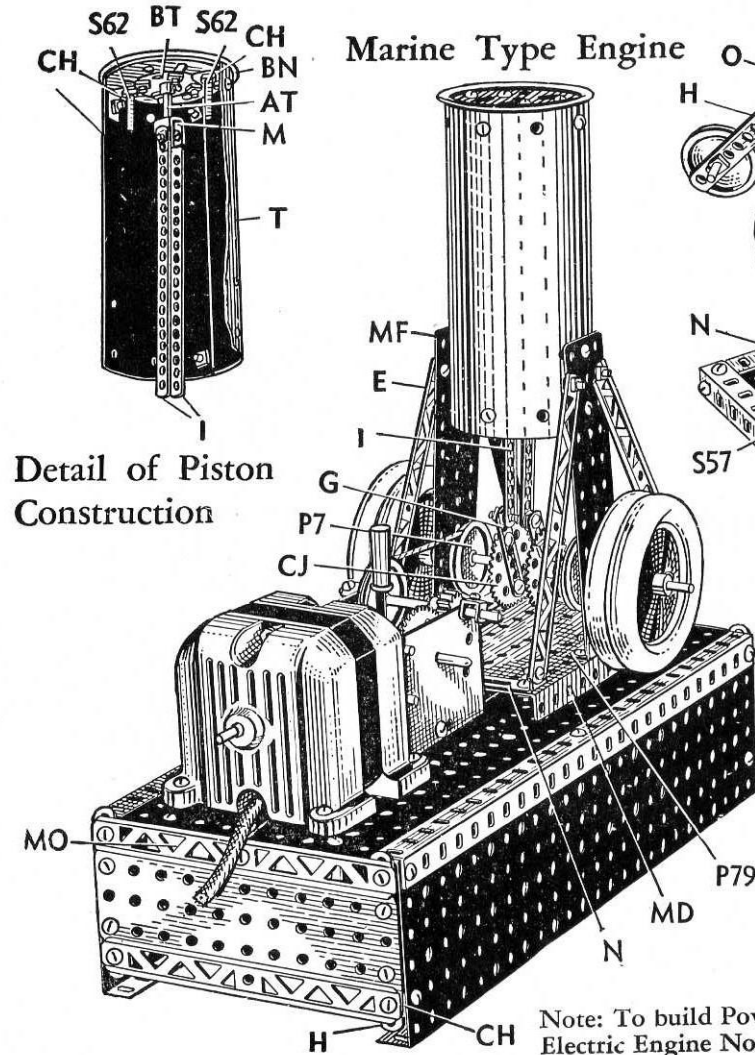
For Bottom Detail  
see Chassis



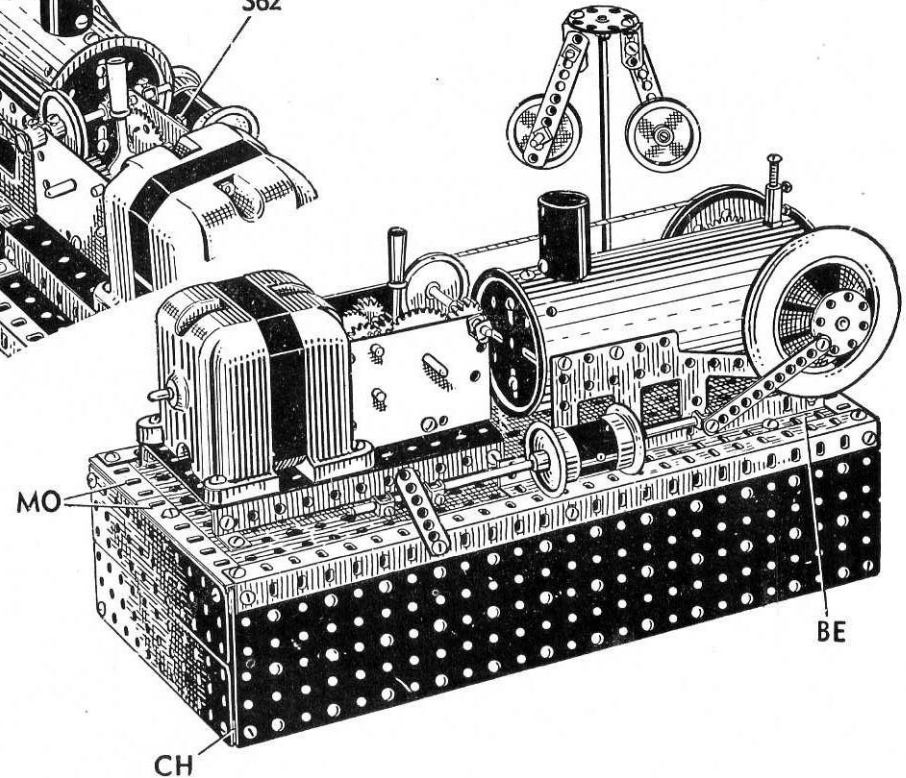
Fire Engine

# Models Built with No. 7½ Erector

## Marine Type Engine



## Steam Plant

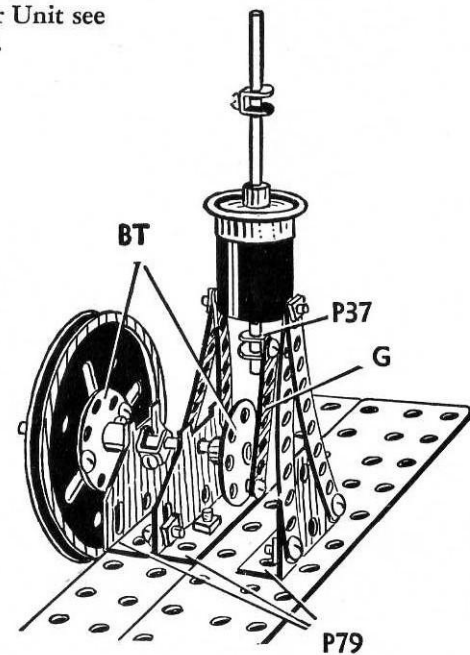
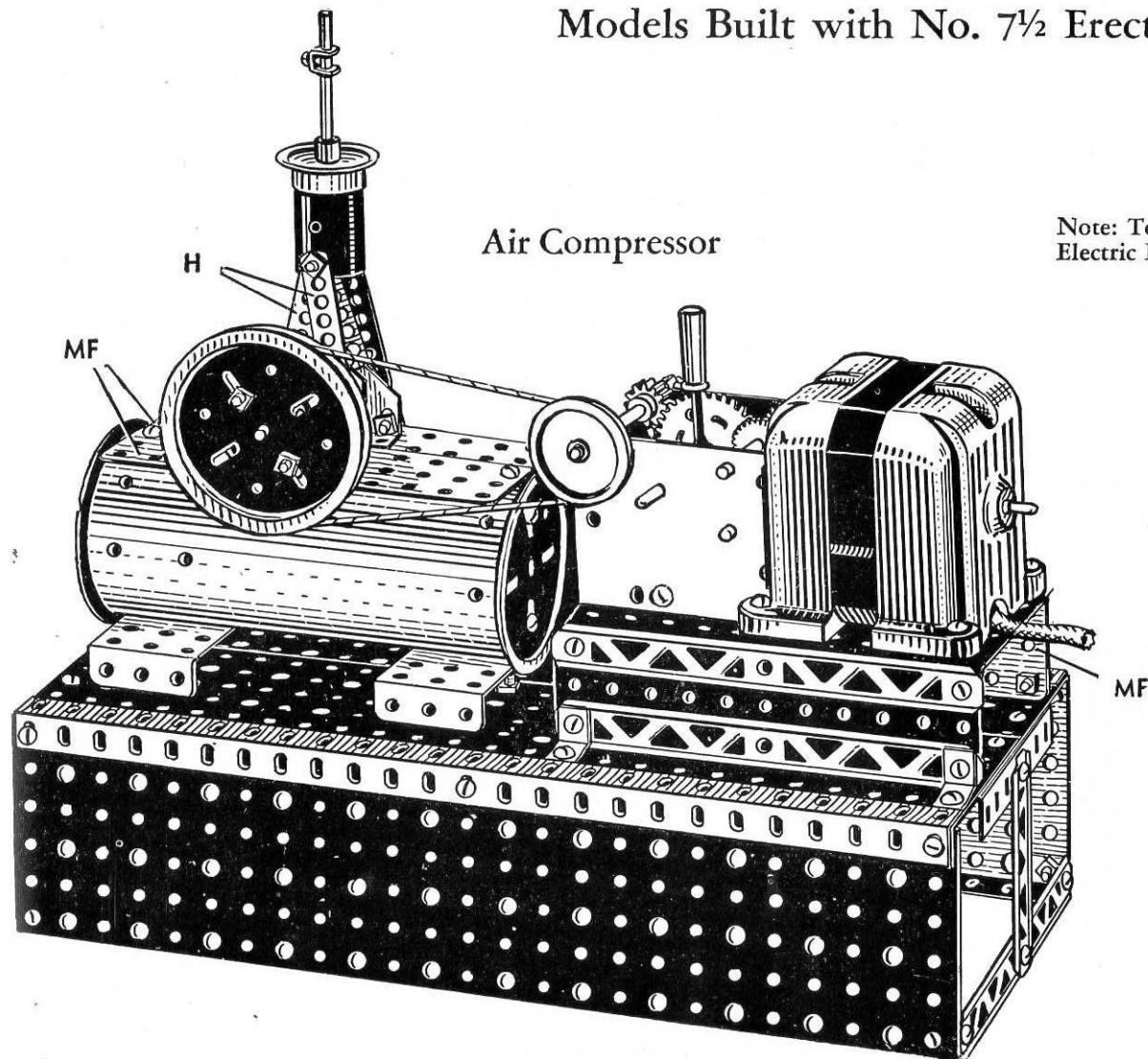




# Models Built with No. 7½ Erector

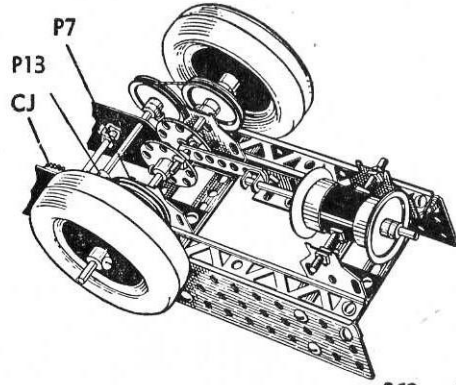
## Air Compressor

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

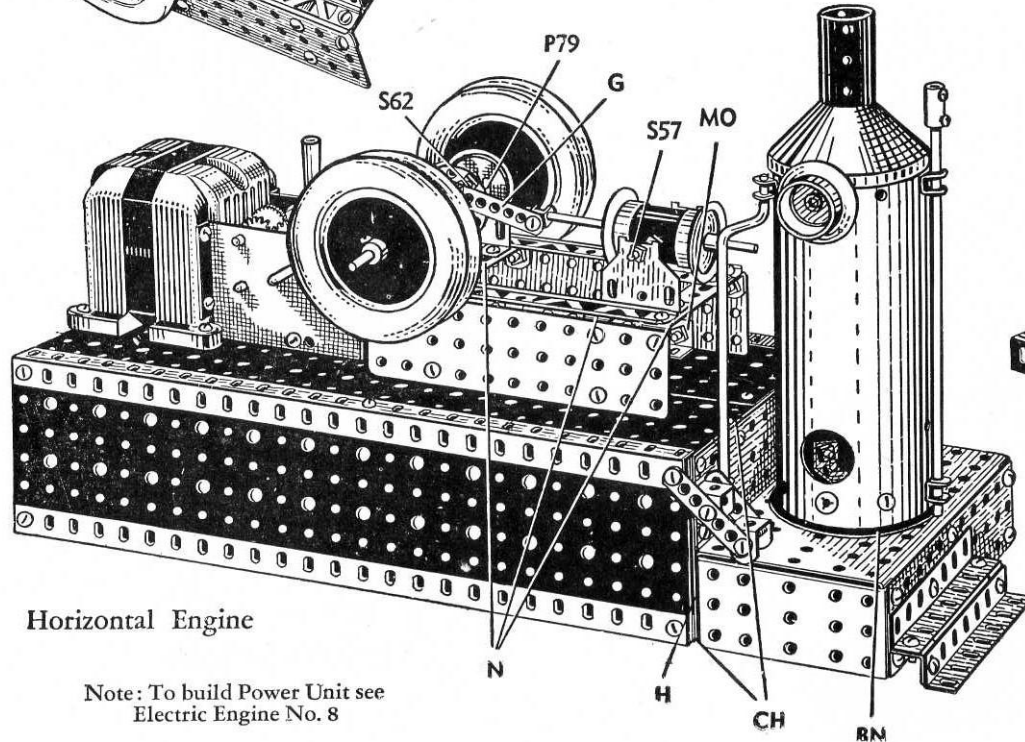


## Detail of Air Compressor

# Models Built with No. 7½ Erector

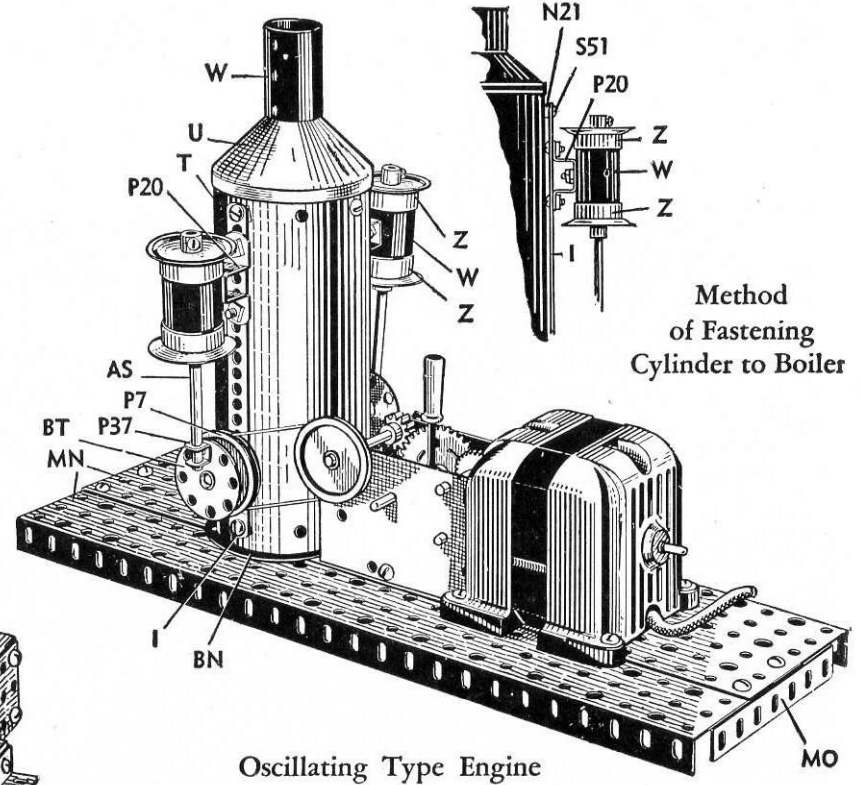


Detail of Drive and Crank  
for Horizontal Engine



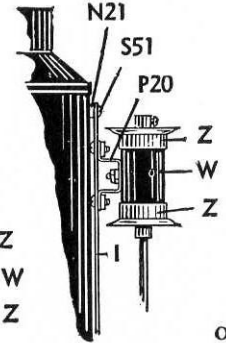
Horizontal Engine

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



Oscillating Type Engine

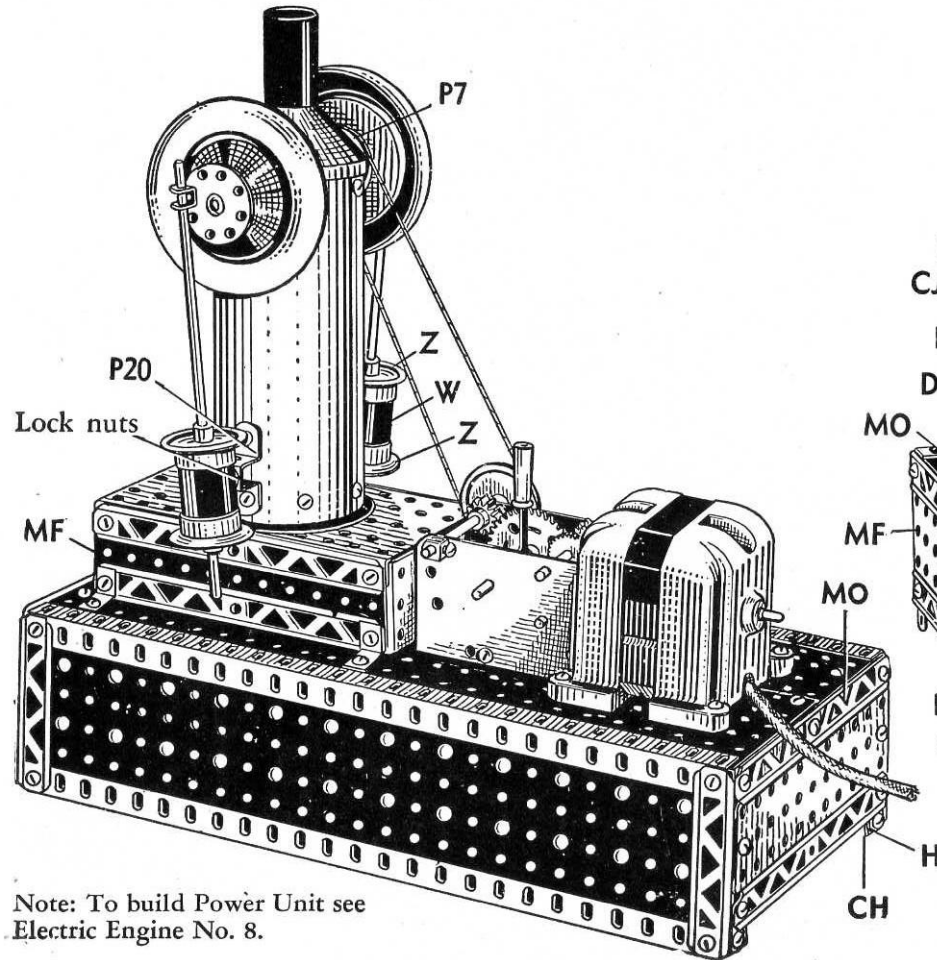
Note: To build Power Unit see  
Electric Engine No. 8



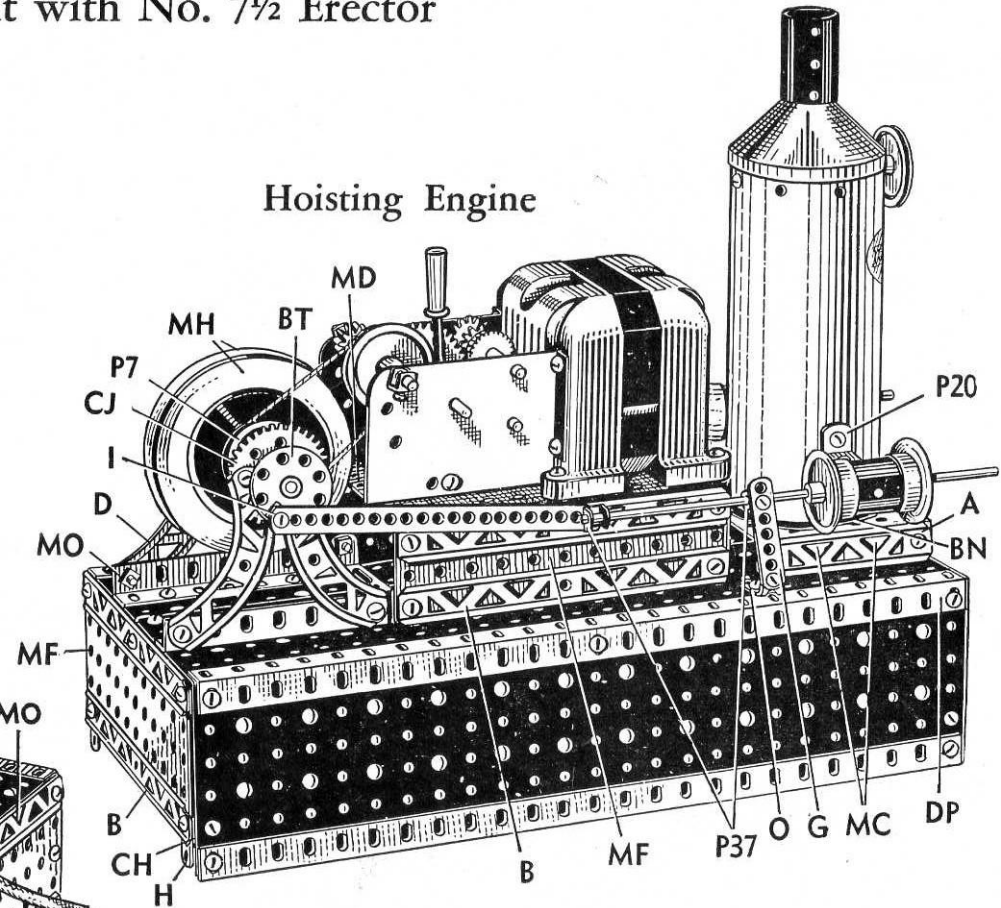
Method  
of Fastening  
Cylinder to Boiler

# Models Built with No. 7½ Erector

## Twin Cylinder Engine

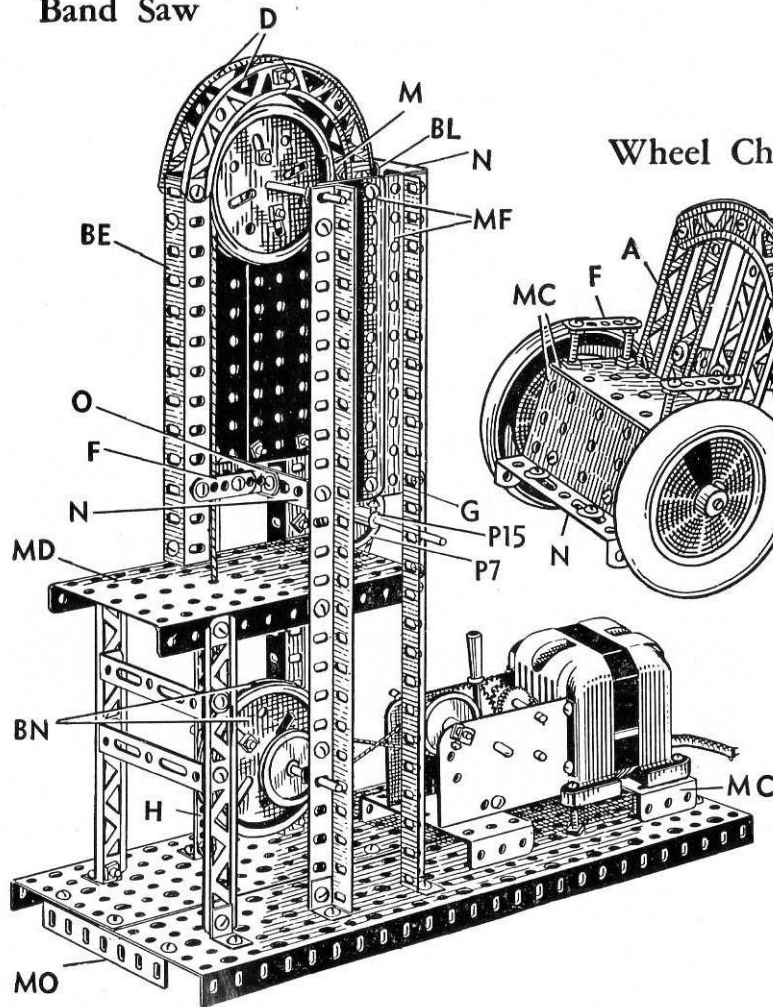


## Hoisting Engine

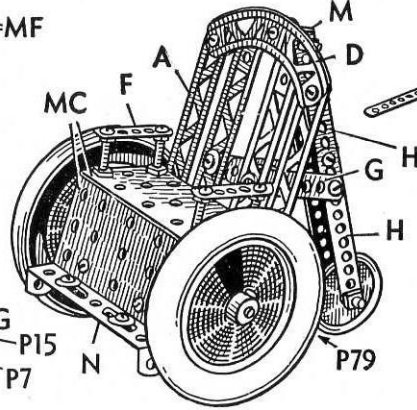


# Models Built with No. 7½ Erector

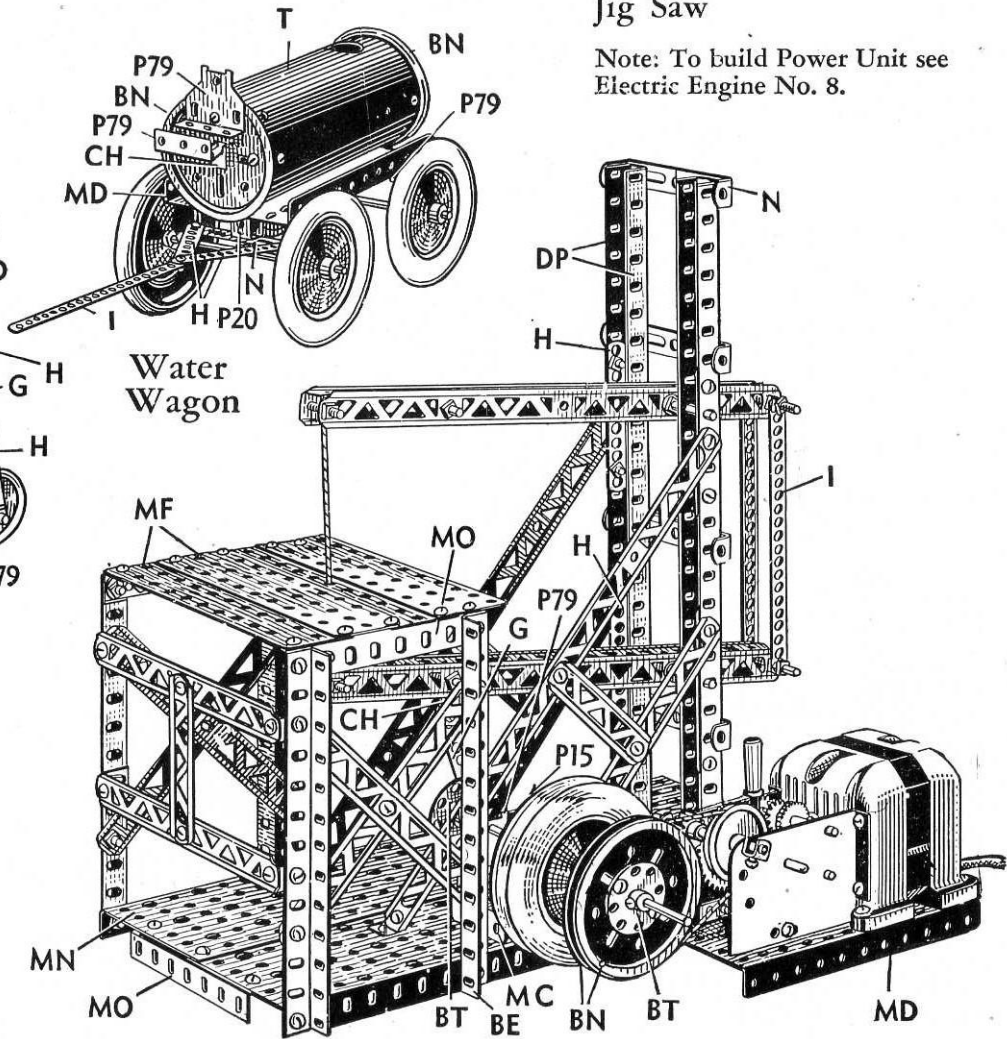
## Band Saw



## Wheel Chair



## Water Wagon



## Jig Saw

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



## Models Built with No. 8½ Erector

SECTION 8½  
M3243  
23

### 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.

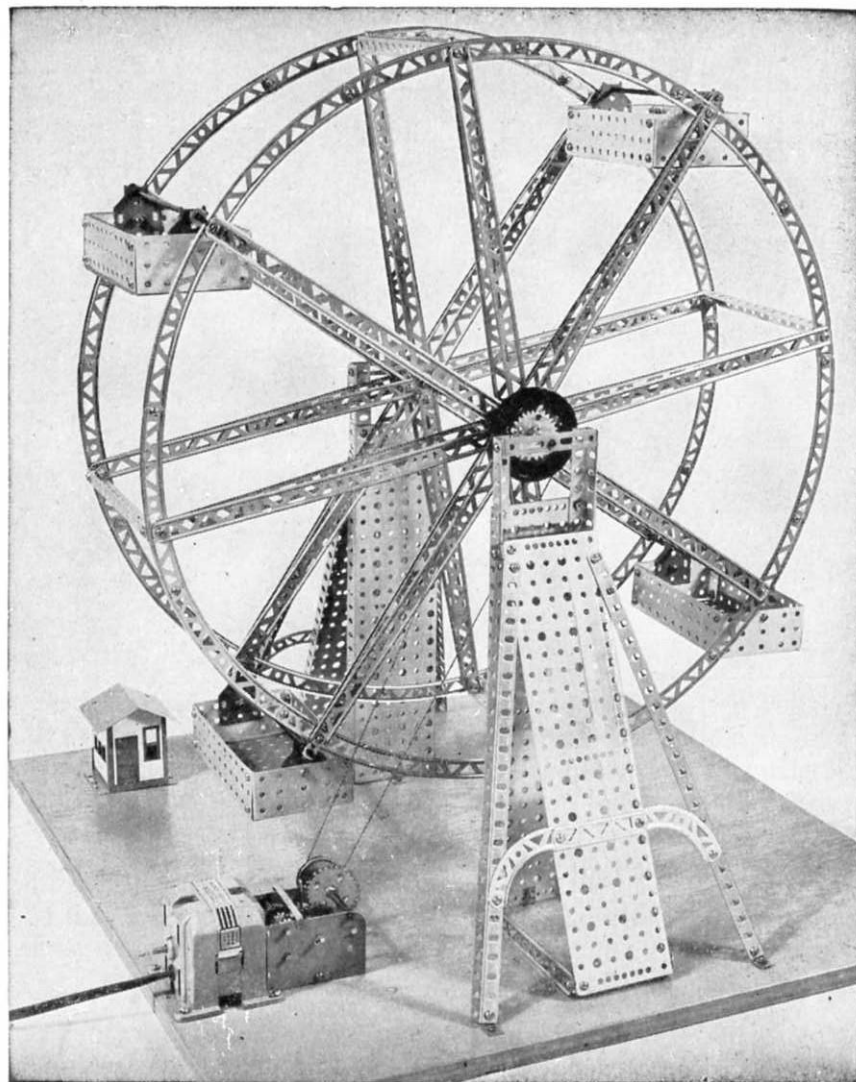


FIGURE 1

M2708

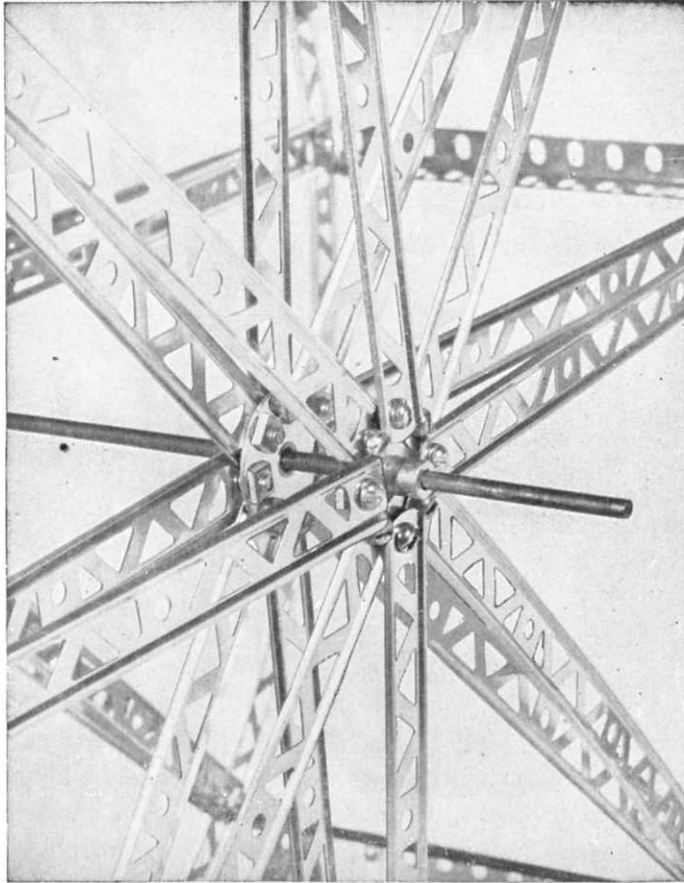


FIGURE 2

### 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.

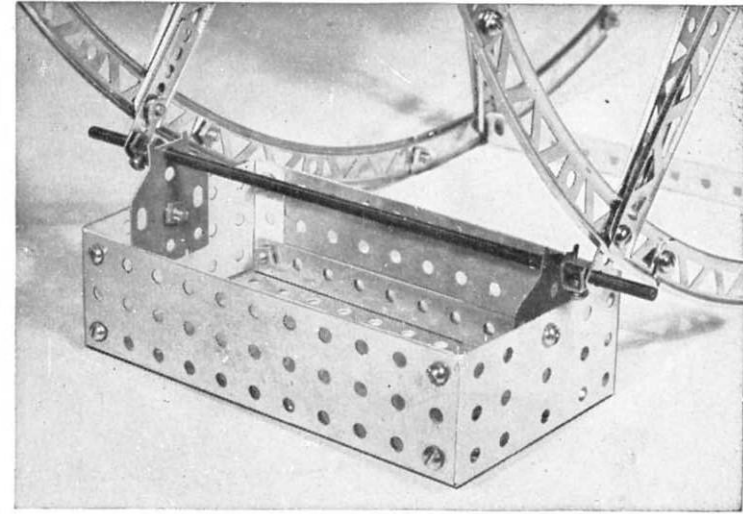


FIGURE 3

### THE BASKET

The Ferris Wheel has four baskets which represent seats. Each of these are built with an (MD)  $2\frac{1}{2}$ " x 5" base plate for the bottom, 2 (MF) 1" x 5" base plates for the sides with (MC) 1" x  $2\frac{1}{2}$ " 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.

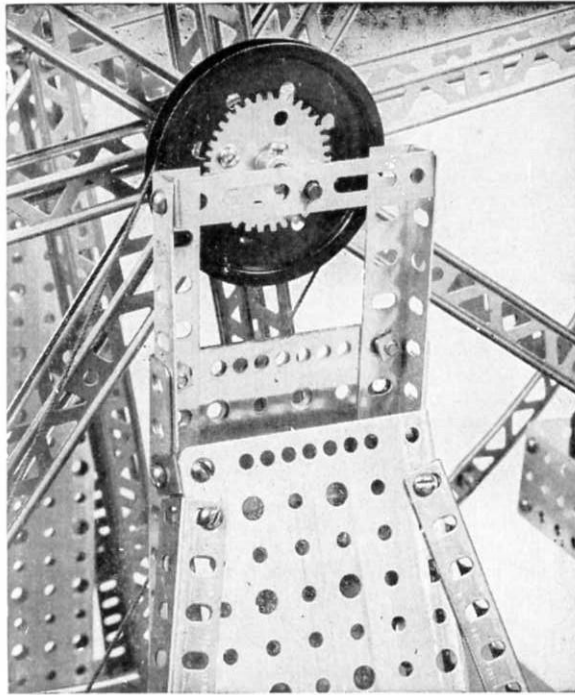


FIGURE 4

### 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.

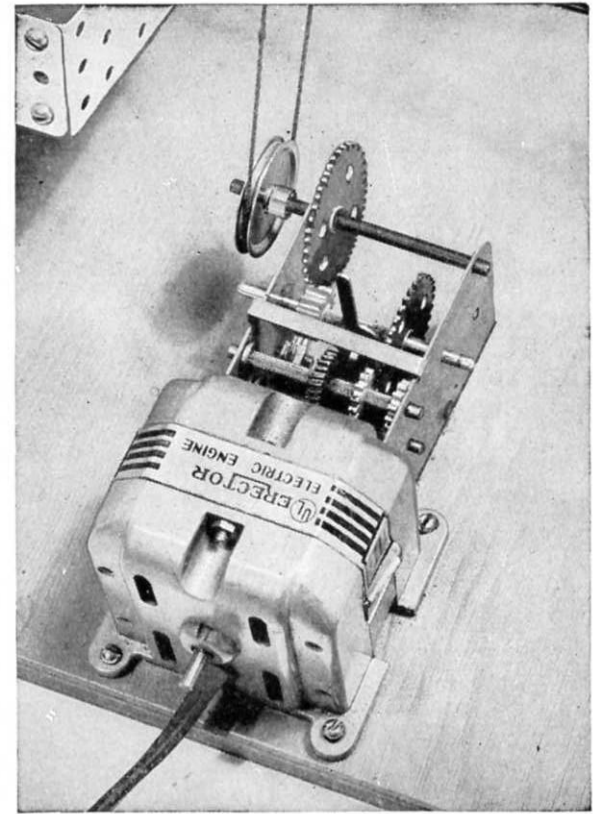


FIGURE 5

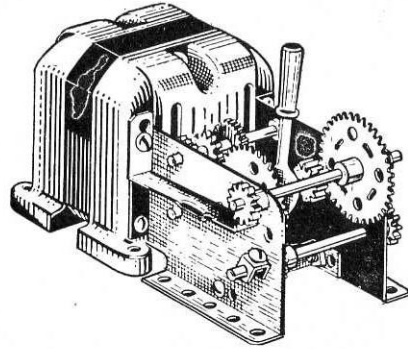
### POWER UNIT

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

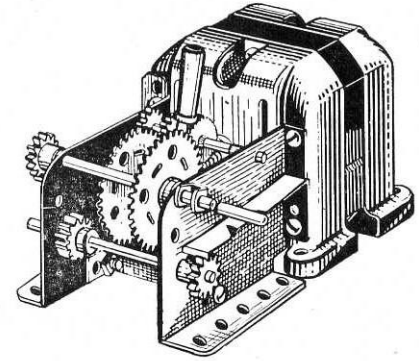
THE RATCHET and pinion arrangement on E. E. No. 10 are only needed when the load, such as an elevator or derrick, would run down when in neutral. This ratchet may be put on any power unit used for hoisting. It should be adjusted so that when the driven gear is not in mesh the ratchet engages the pinion 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.



RIGHT SIDE

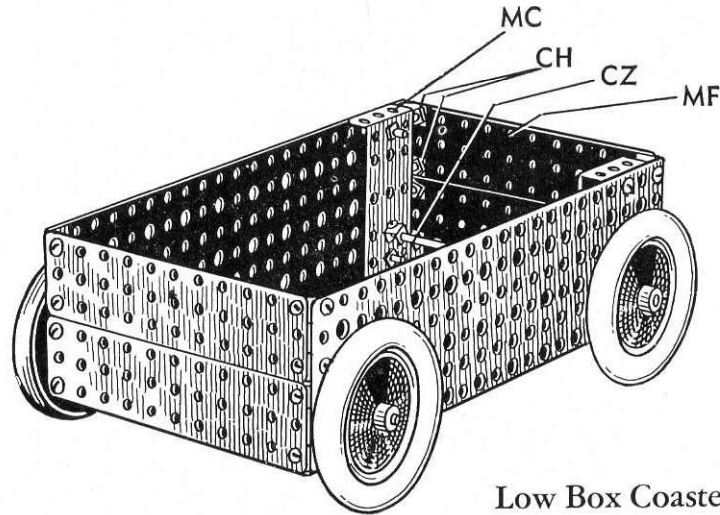
#### ELECTRIC ENGINE No. 10

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

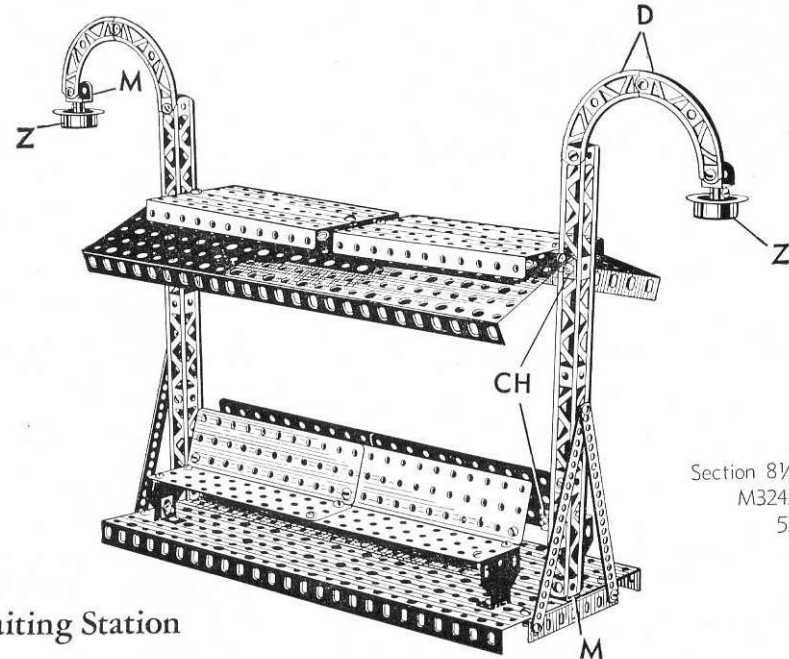


LEFT SIDE

#### 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.

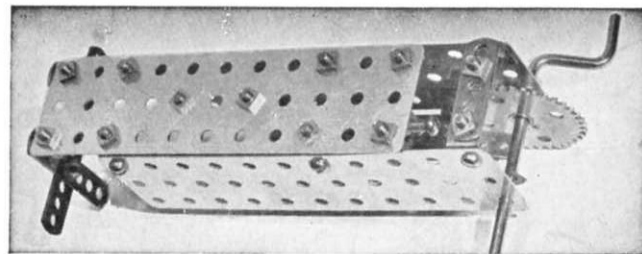


Fig. 1

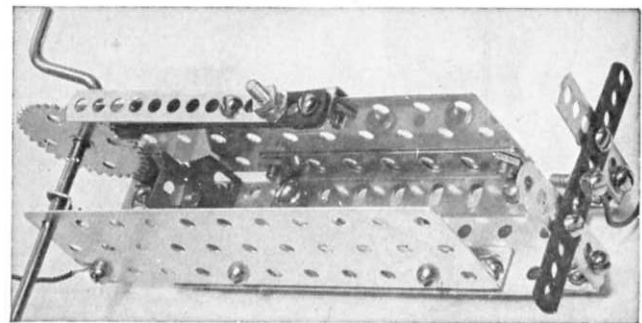


Fig. 2

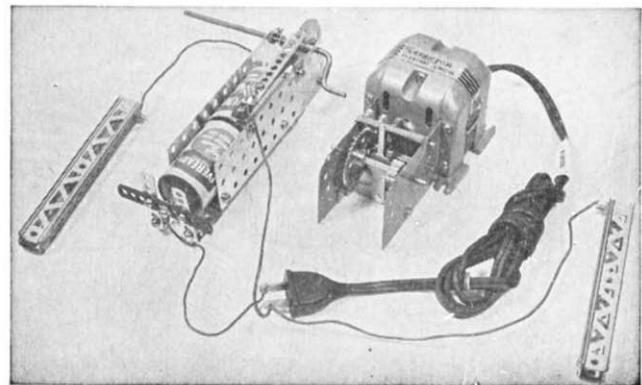
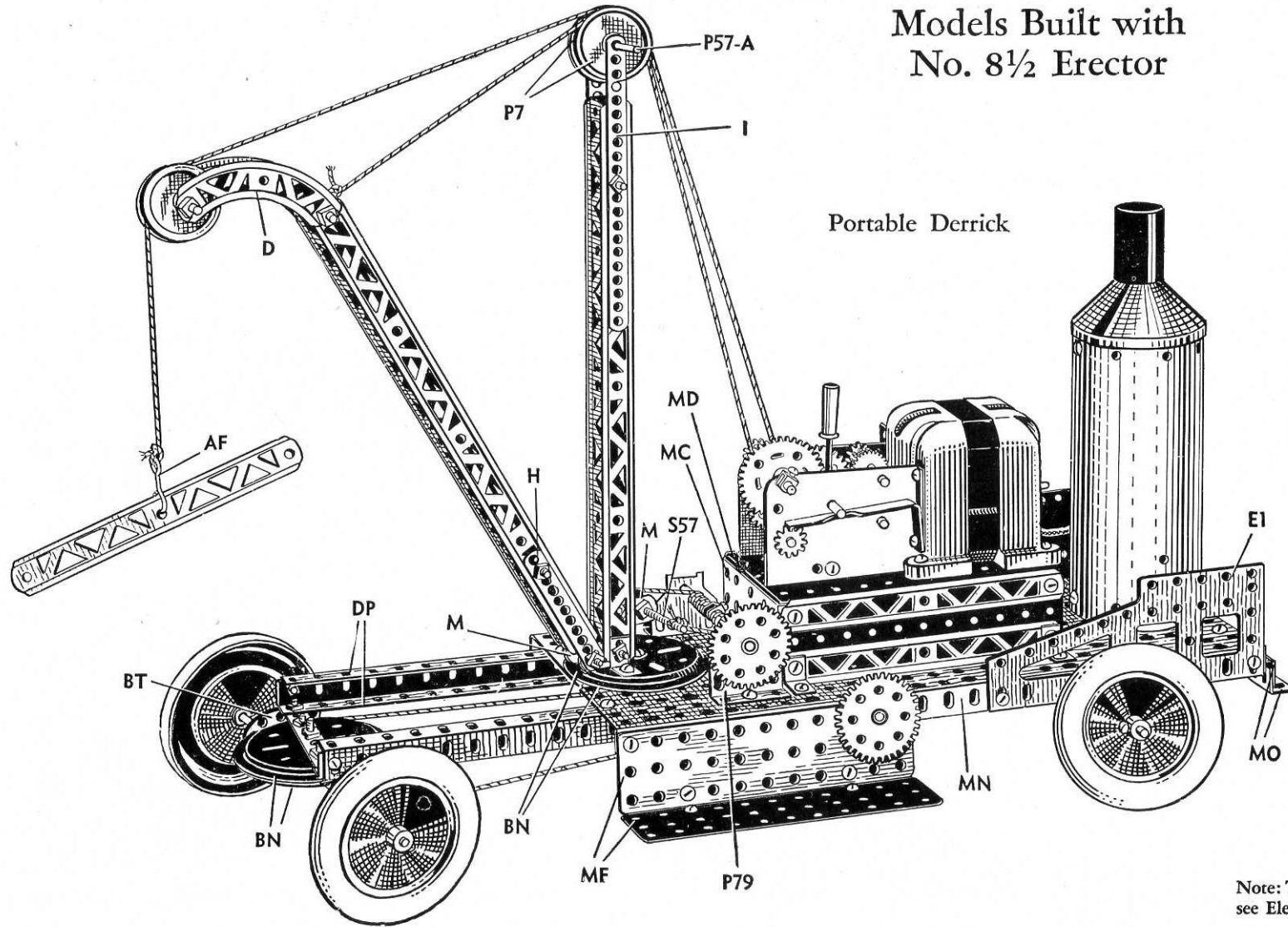


Fig. 3

# Models Built with No. 8½ Erector

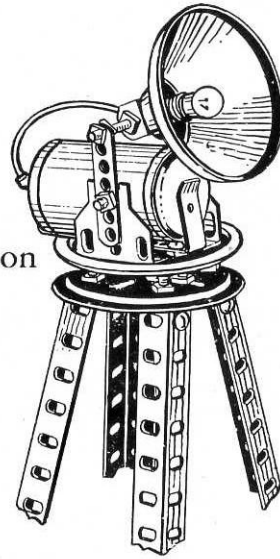
Portable Derrick



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

# Models Built with No. 8½ Erector

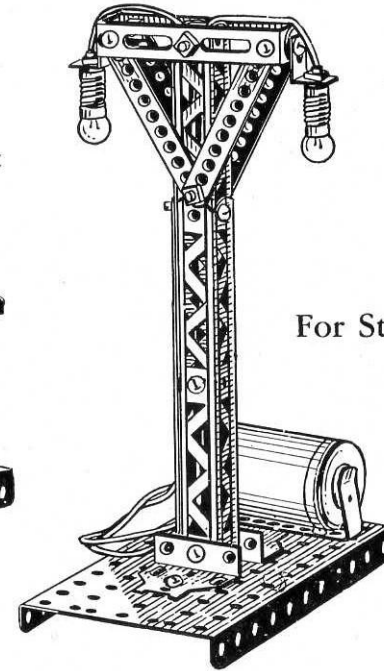
Use Regular  
Flashlight Battery



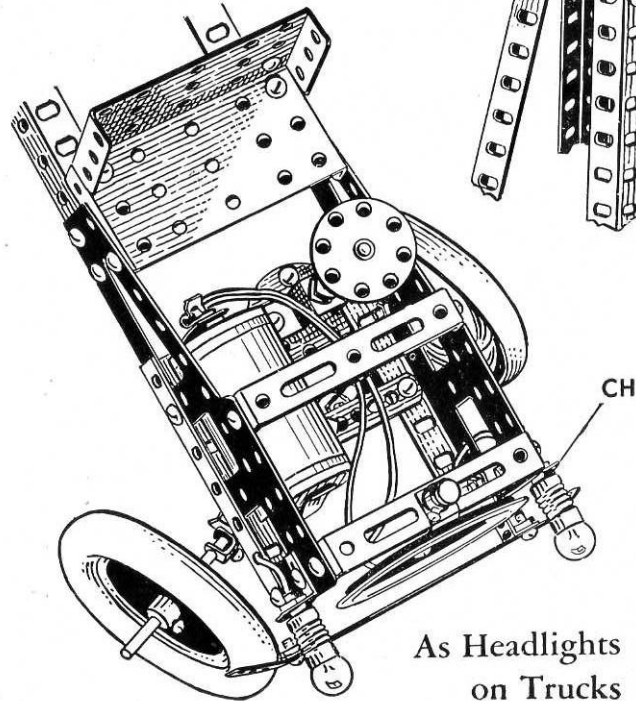
In Airplane Beacon

Suggested Methods  
for Using Lights

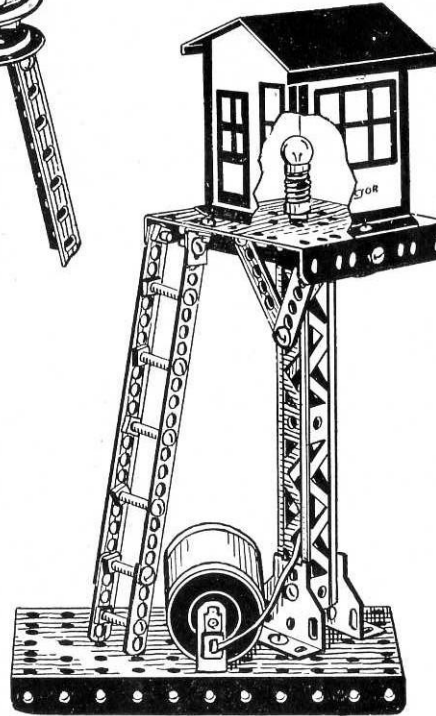
Use Regular Flashlight  
Batteries as Shown



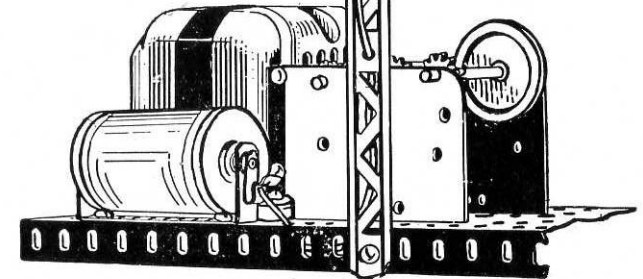
For Street Lights



As Headlights  
on Trucks

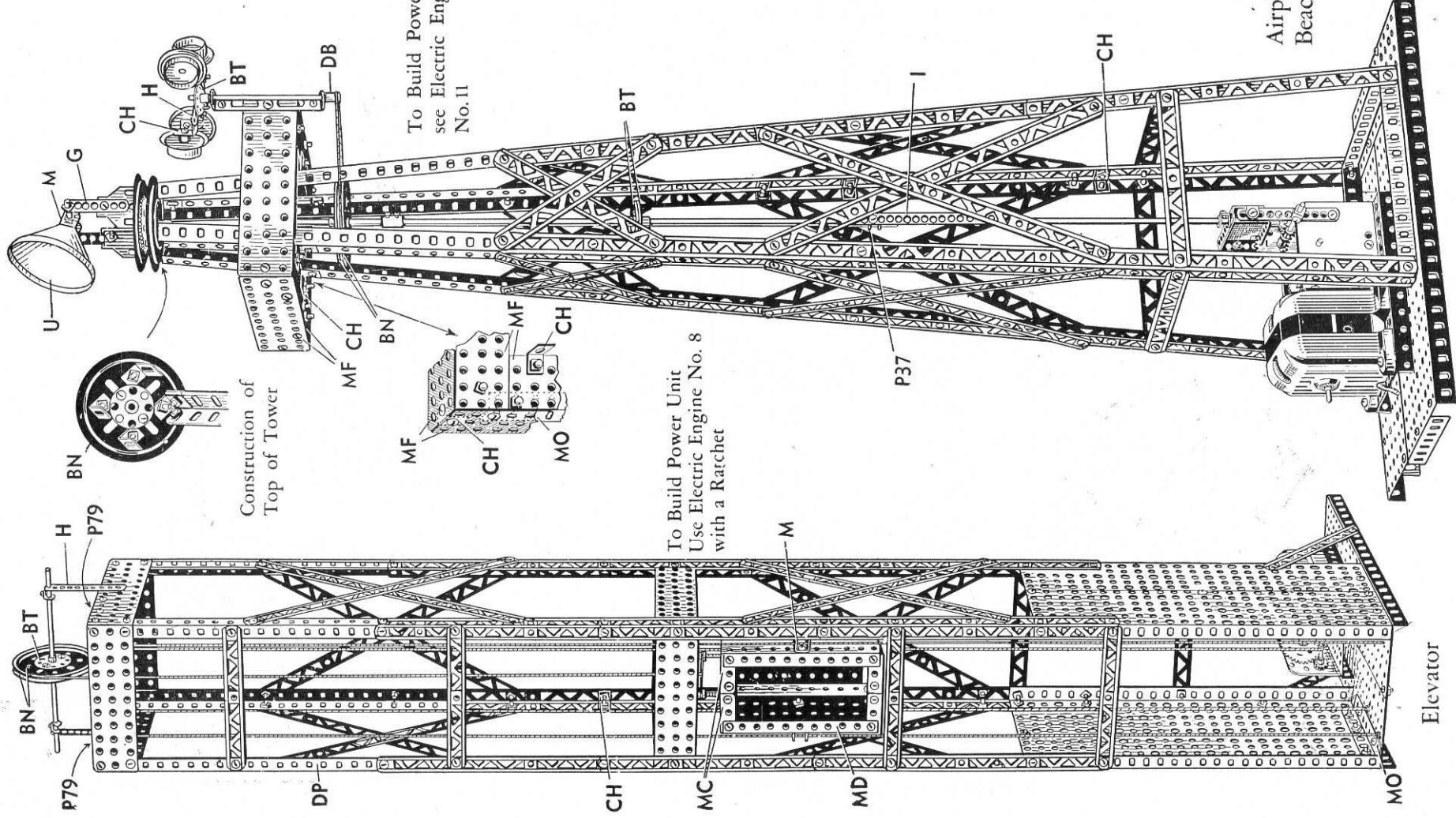


Inside House



For Light over Machinery

# Models Built with No. 8½ Erector



Elevator

Airplane Beacon

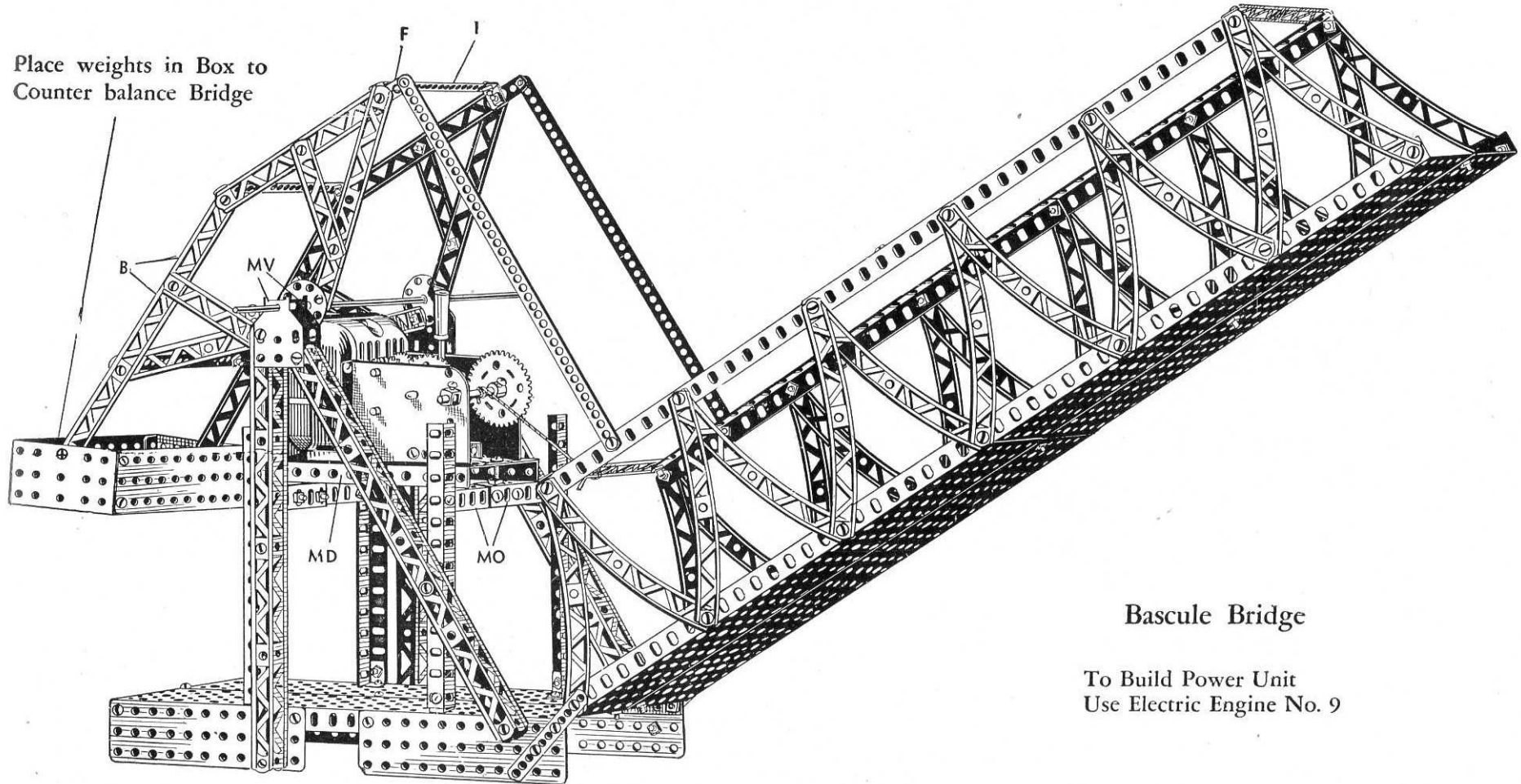
Construction of Top of Tower



## Models Built with No. 8½ Erector

Section 8½A

49

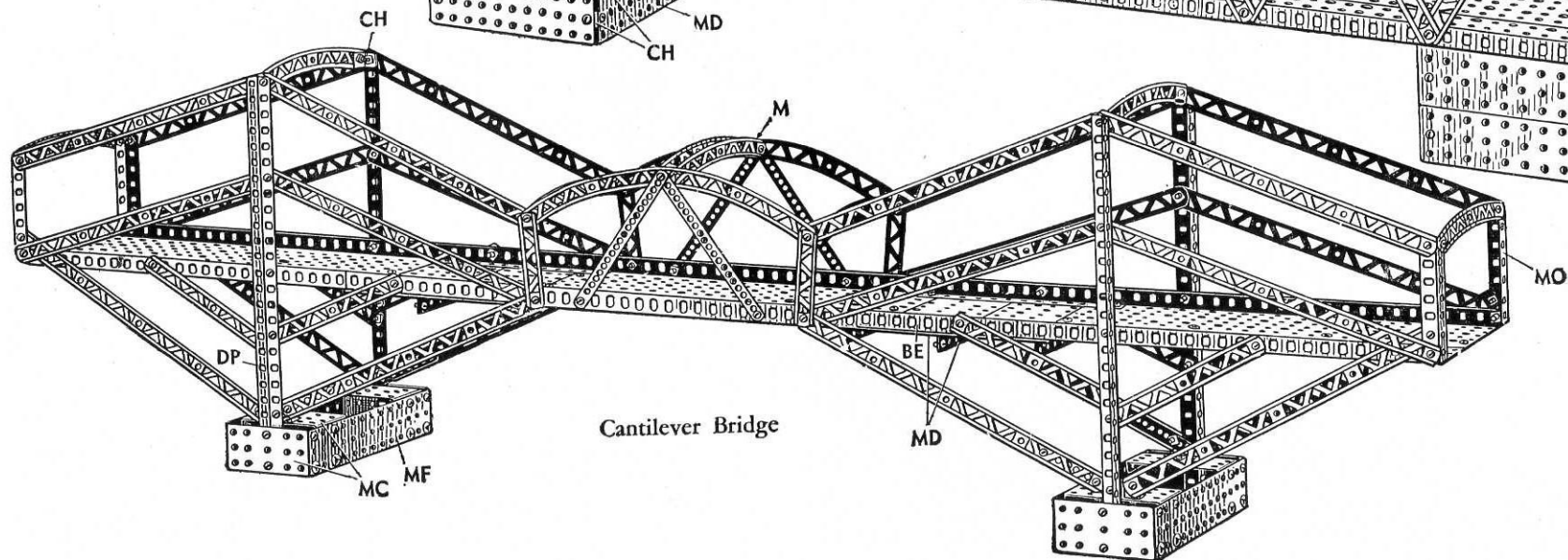
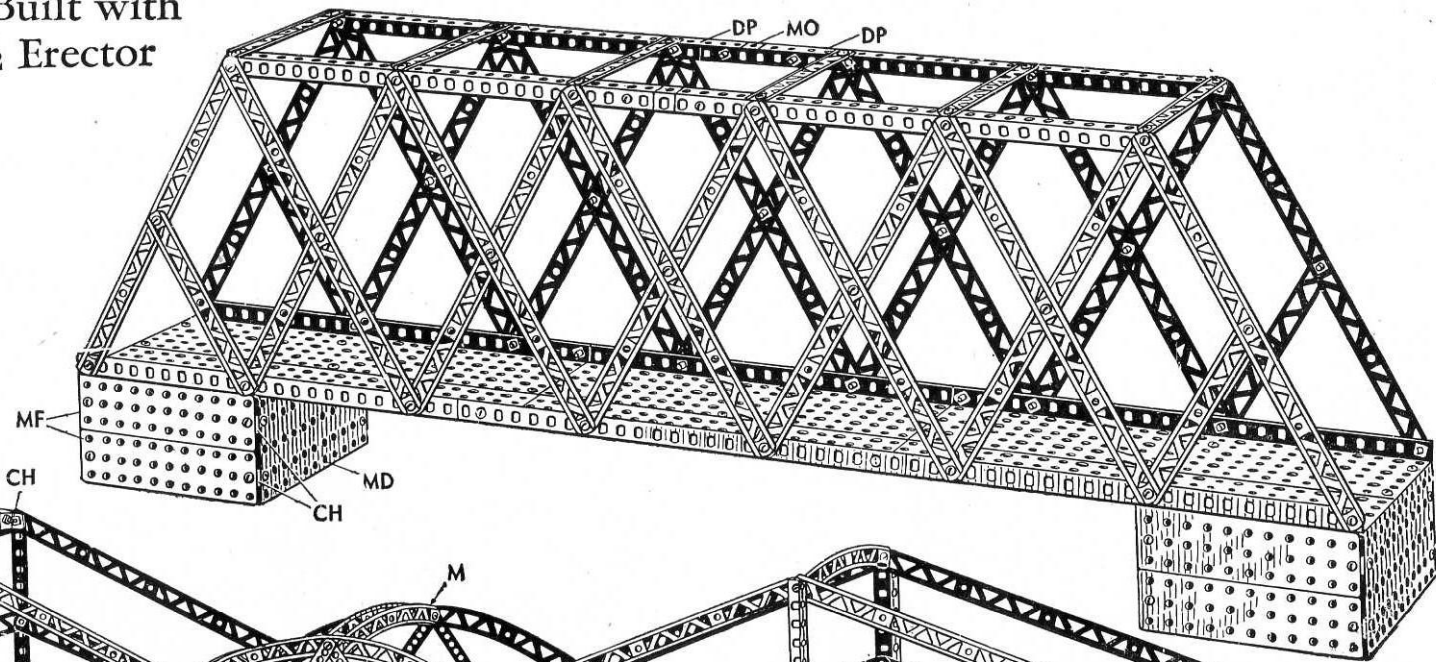


Bascule Bridge

To Build Power Unit  
Use Electric Engine No. 9

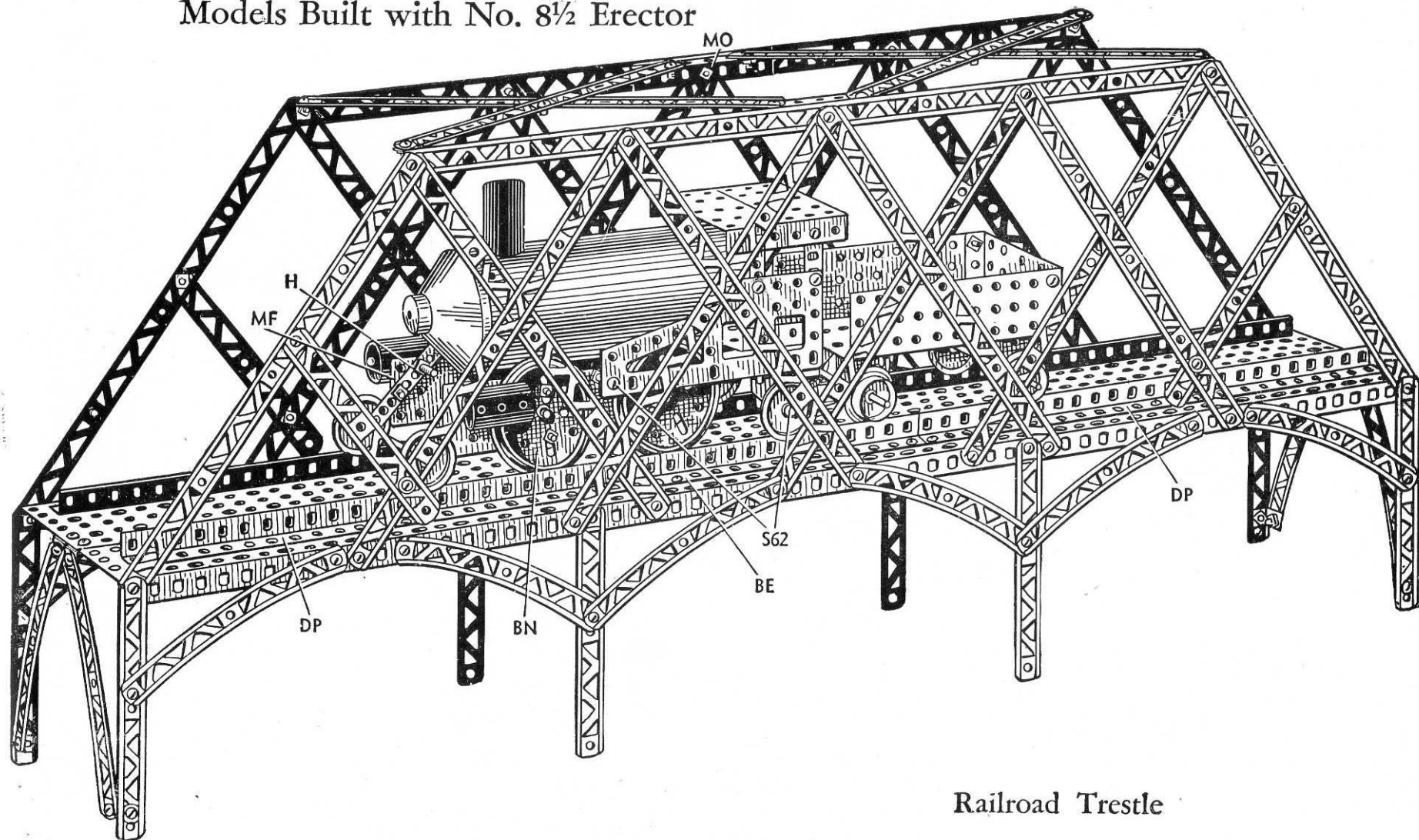
# Models Built with No. 8½ Erector

Truss Bridge



Cantilever Bridge

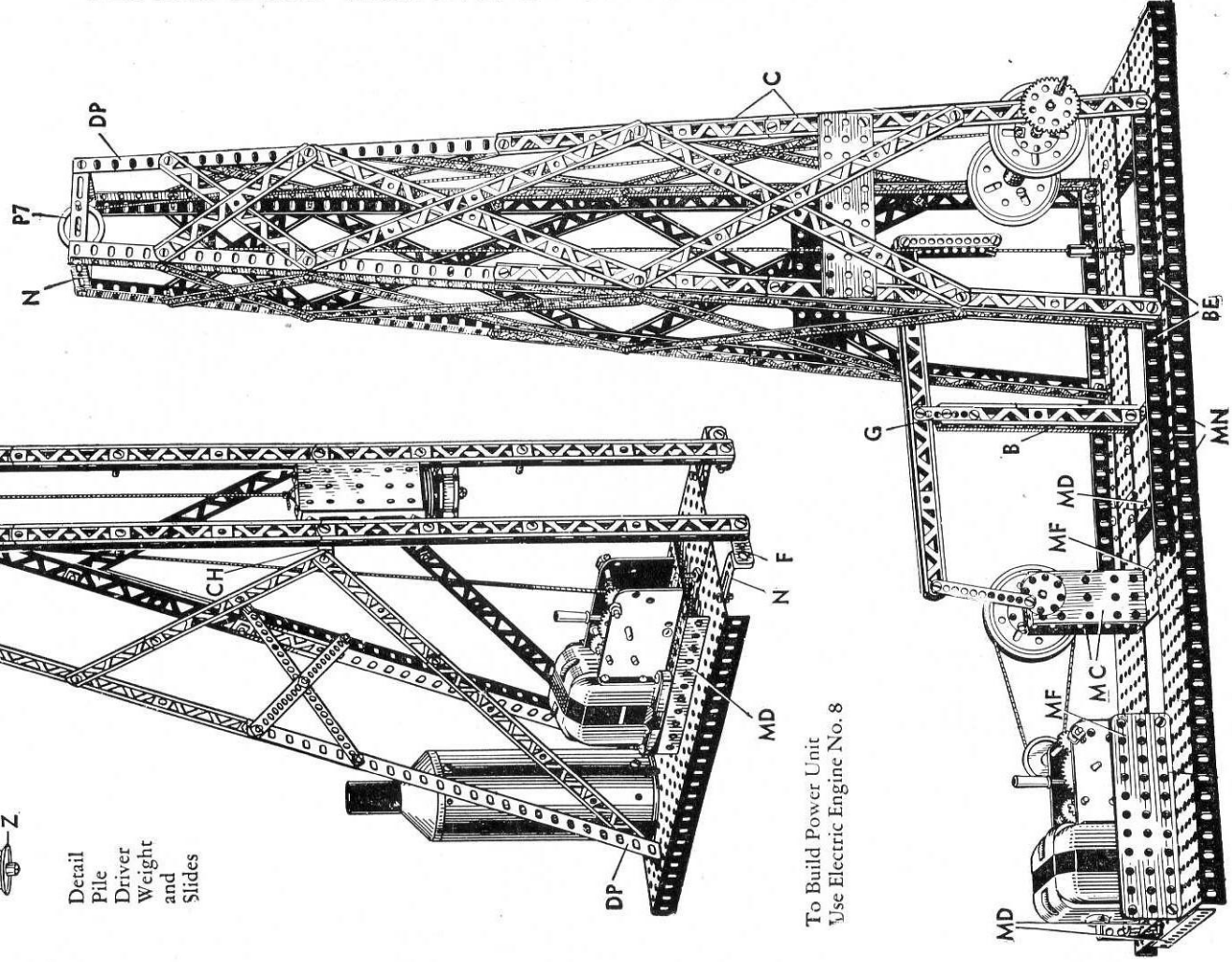
## Models Built with No. 8½ Erector



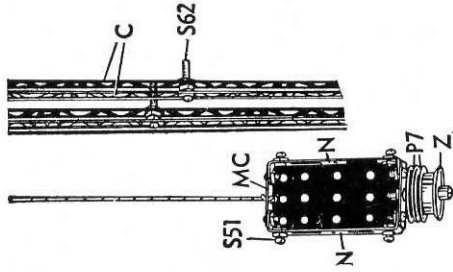
Railroad Trestle

# Models Built with No. 8½ Erector

Oil Drilling Rig  
To Build Power Unit  
Use Electric Engine No. 8



Pile Driver



Detail  
Pile  
Driver  
Weight  
and  
Slides

To Build Power Unit  
Use Electric Engine No. 8

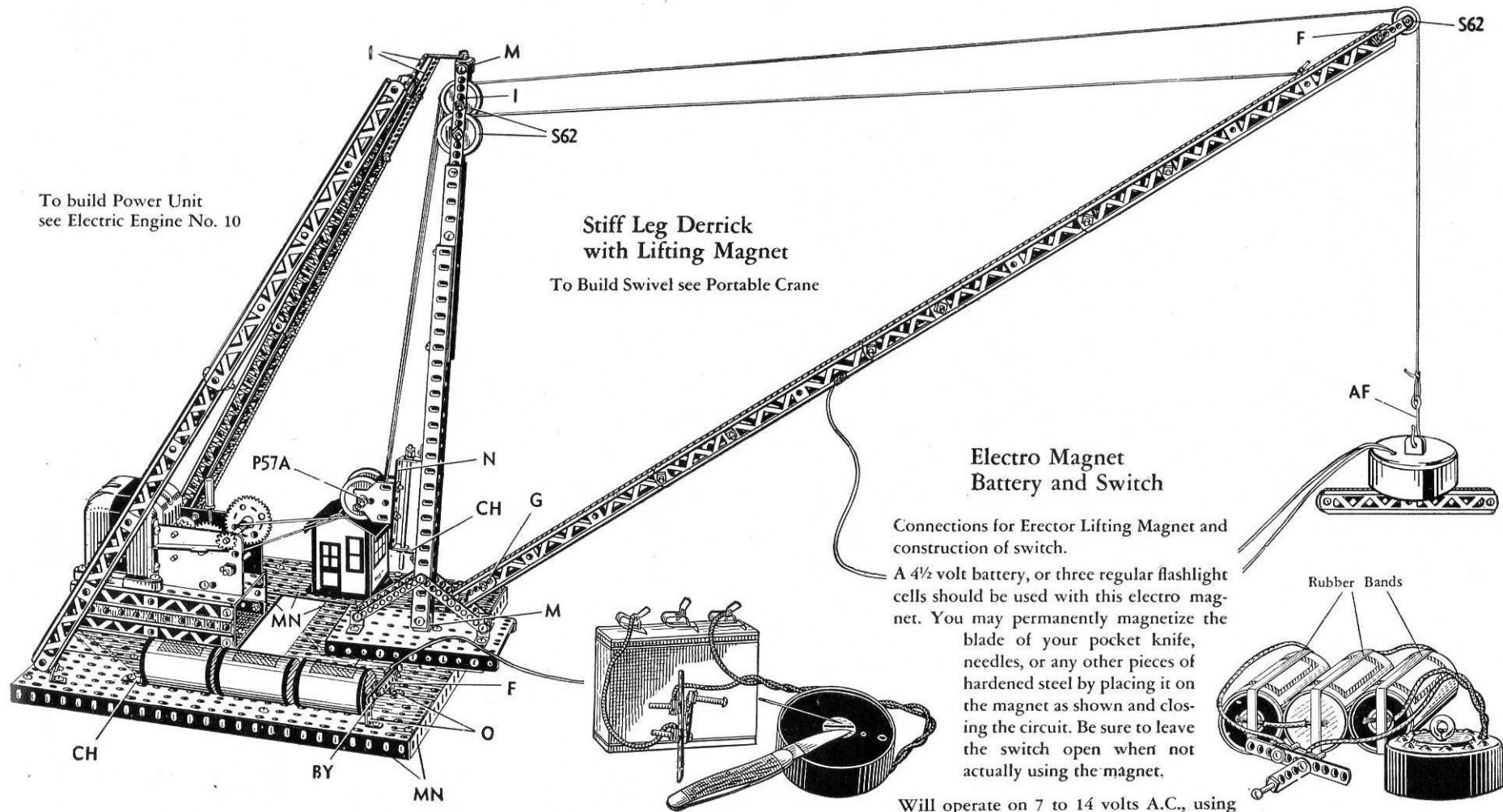


# Models Built with No. 8½ Erector

To build Power Unit  
see Electric Engine No. 10

## Stiff Leg Derrick with Lifting Magnet

To Build Swivel see Portable Crane



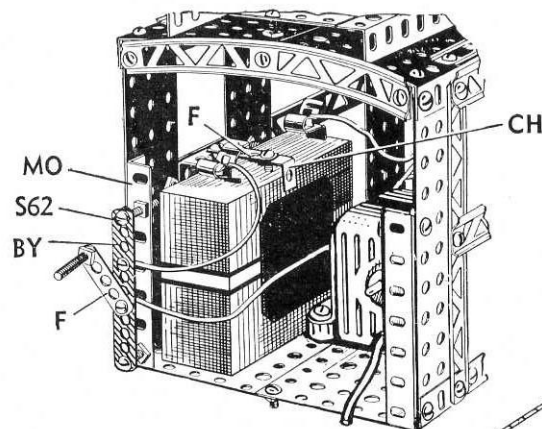
### Electro Magnet Battery and Switch

Connections for Erector Lifting Magnet and construction of switch.

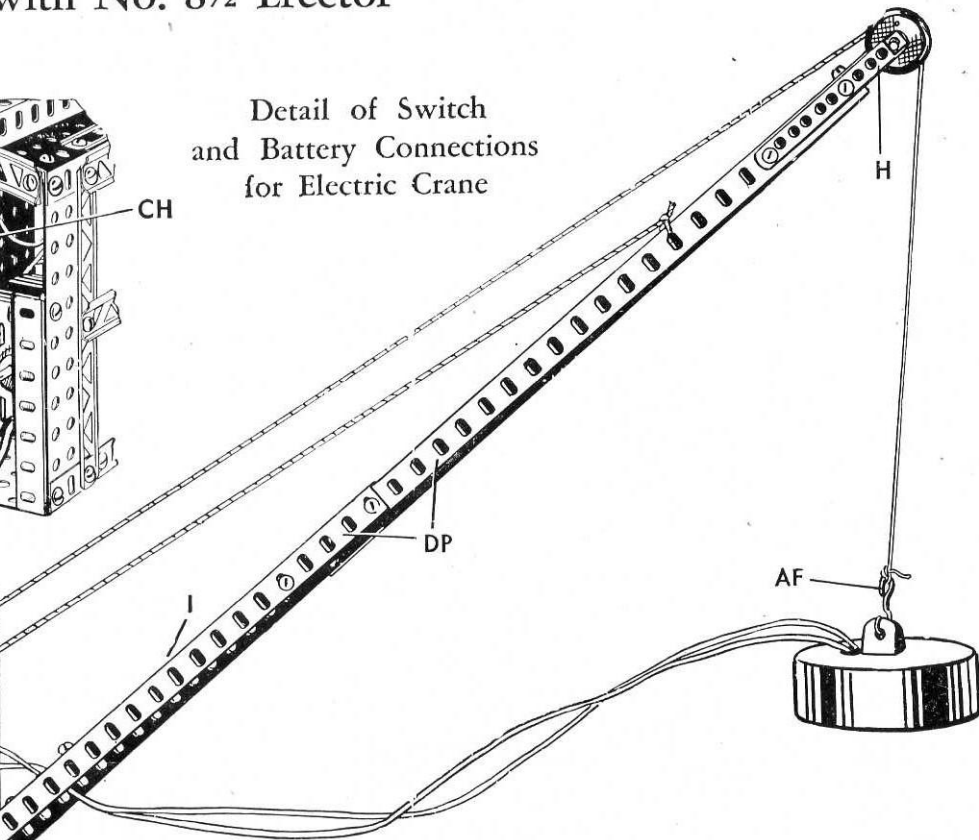
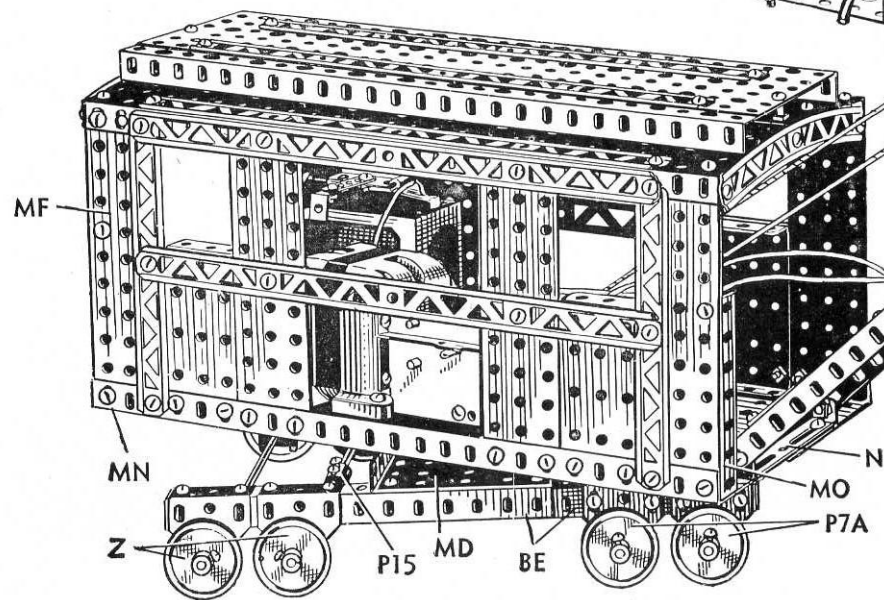
A 4½ volt battery, or three regular flashlight cells should be used with this electro magnet. You may permanently magnetize the blade of your pocket knife, needles, or any other pieces of hardened steel by placing it on the magnet as shown and closing the circuit. Be sure to leave the switch open when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

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

Rubber Bands



### Detail of Switch and Battery Connections for Electric Crane



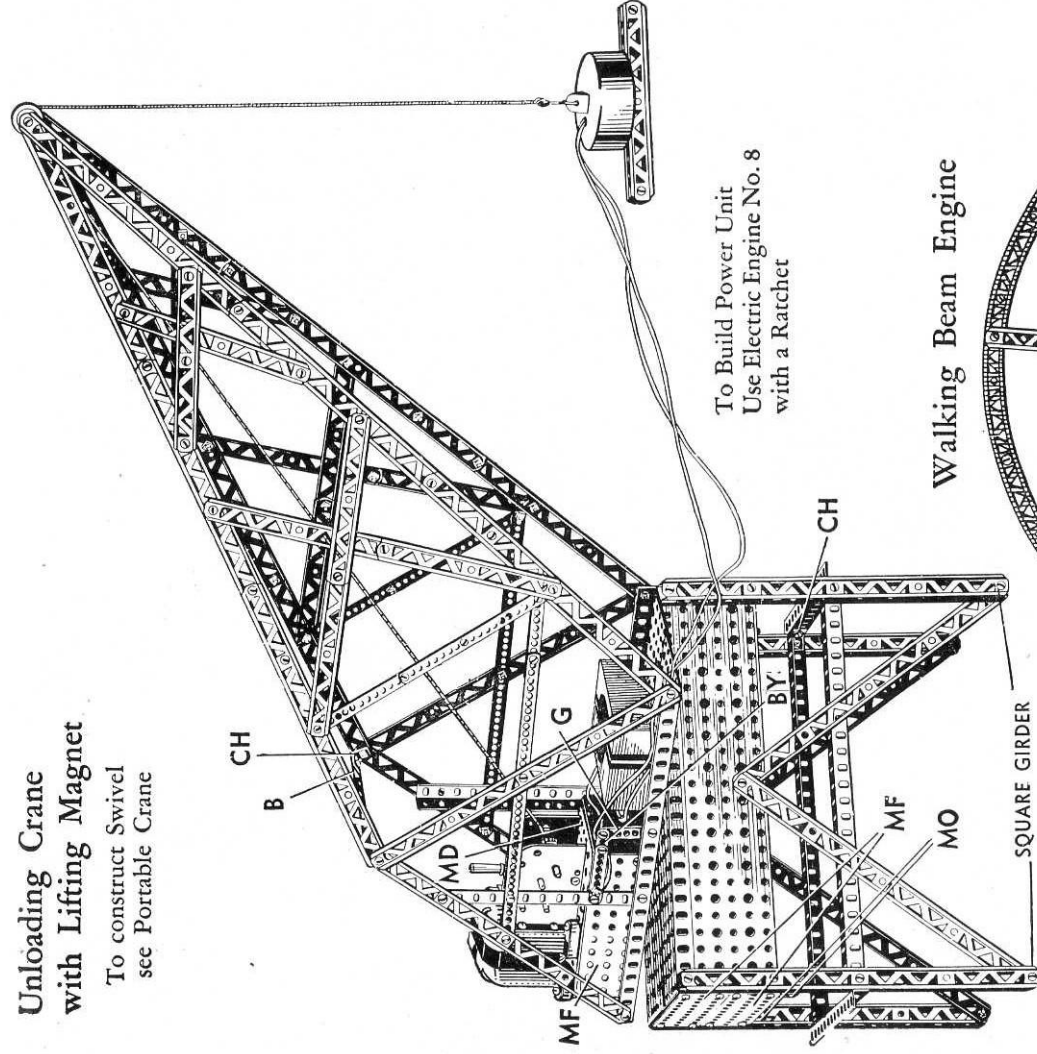
## Portable Crane

**To Build Power Unit  
Use Electric Engine No.10**

# Models Built with No. 8½ Erector

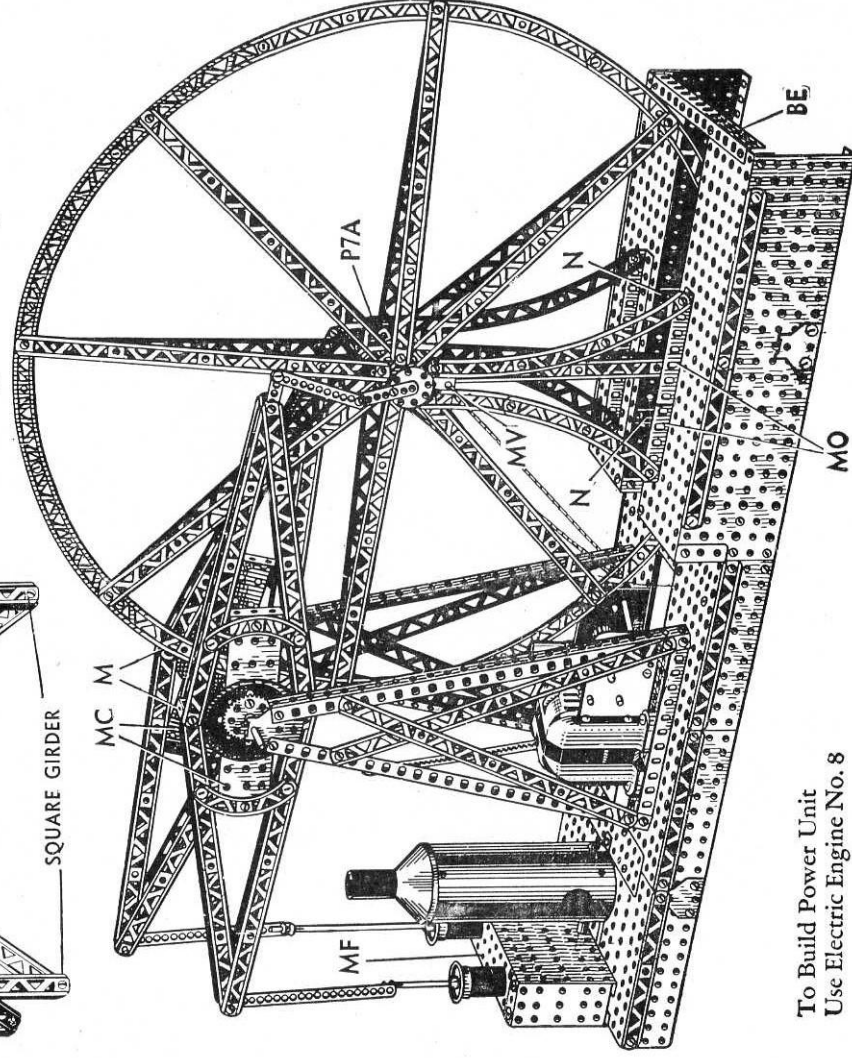
## Unloading Crane with Lifting Magnet

To construct Swivel  
see Portable Crane



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

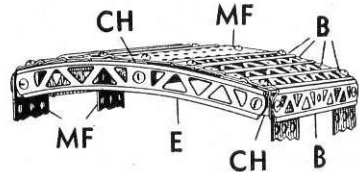
## Walking Beam Engine



To Build Power Unit  
Use Electric Engine No. 8

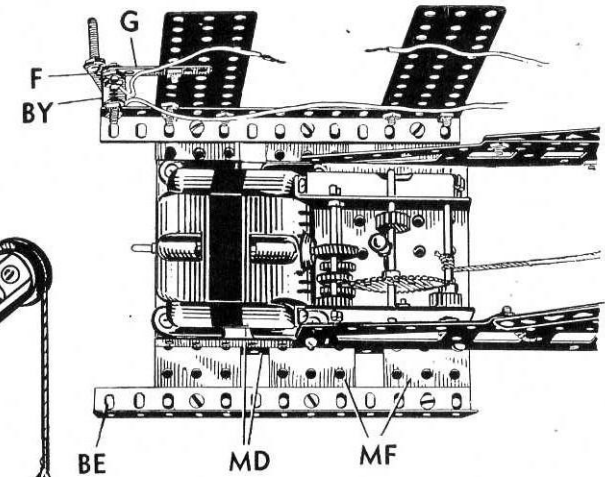
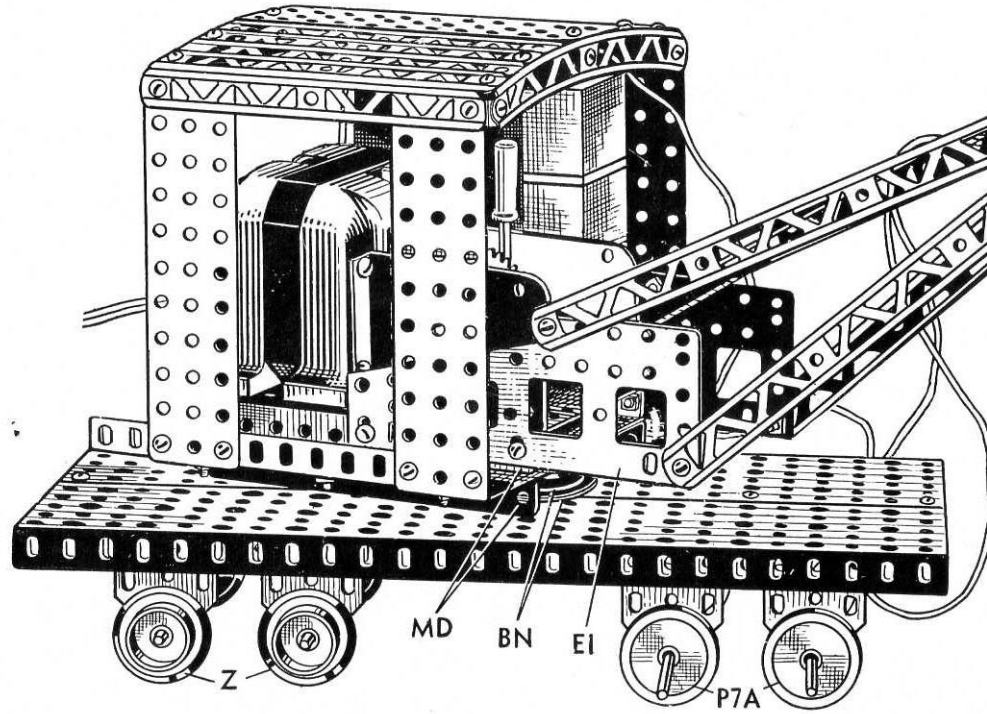
# Detail of Roof Wrecking Derrick

## Models Built with No. 8½ Erector

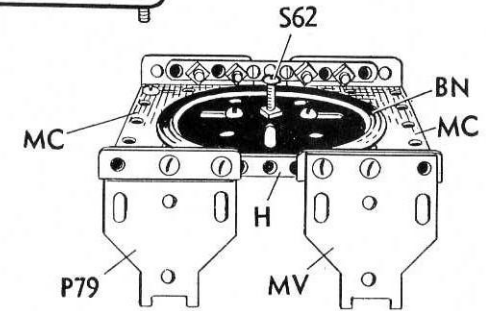
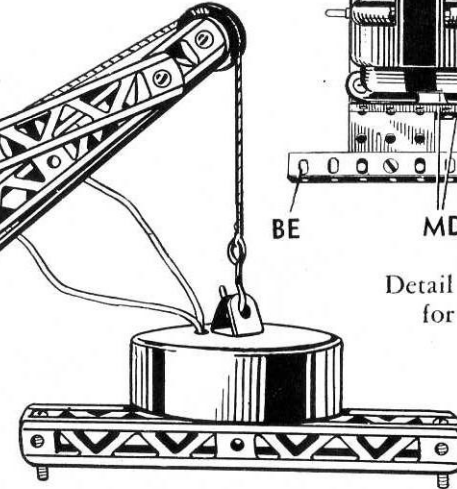


### Wrecking Derrick with Lifting Magnet

To construct Swivel  
see Portable Crane



Detail of Cab Construction  
for Wrecking Derrick



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

Detail of Trucks





## Models Built with No. 10½ Erector

Section 10½  
49

### 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

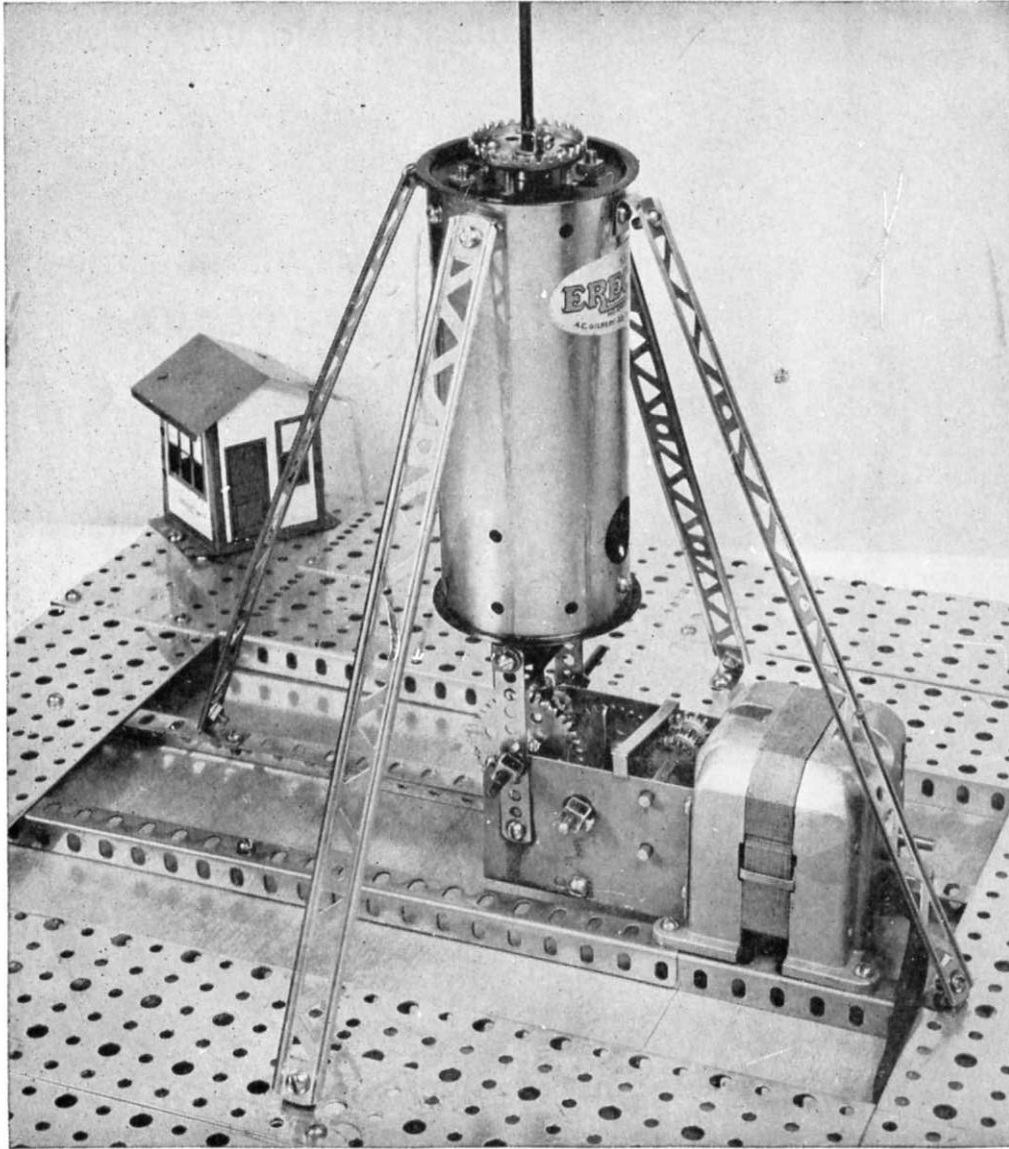
FIGURE 1

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

Made In U.S.A.

Printed In U.S.A.

M-2685



### 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, 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 to 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 continues to the top of the model with a (P15) coupling and an 8" axle drives the model.

FIGURE 2

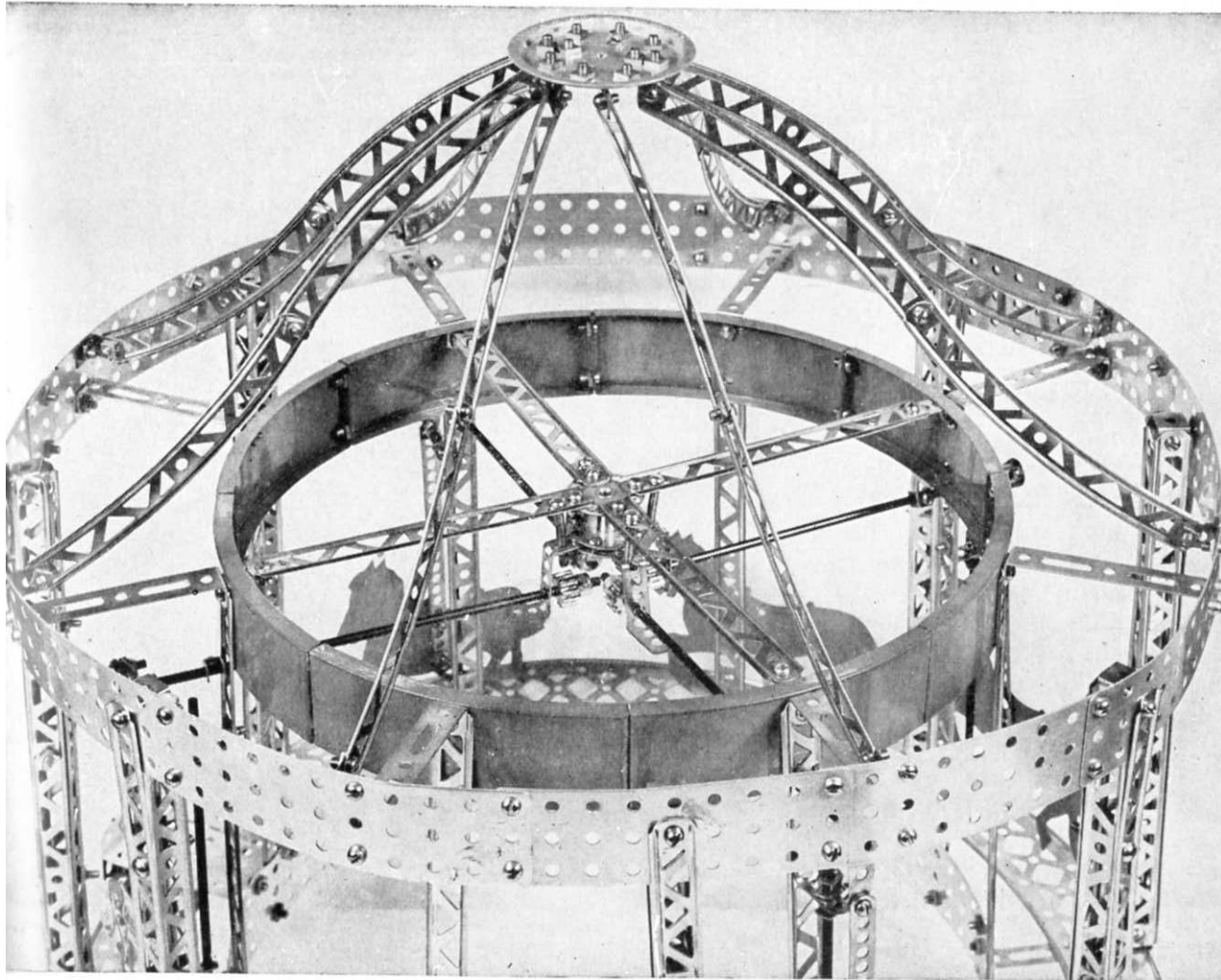


FIGURE 3.

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 (O) pawl and to center with a (BT) pierced disc.

(CONTINUED ON FOLLOWING PAGE)

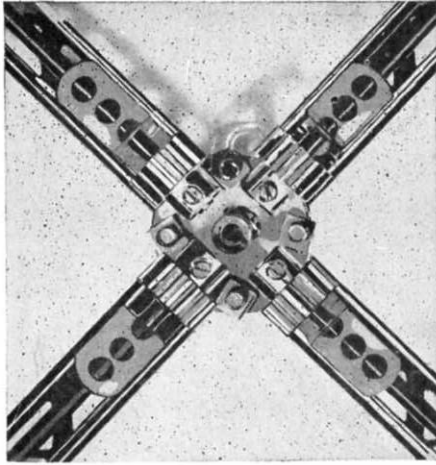


FIGURE 4

### 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  $7\frac{1}{2}$ " 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.

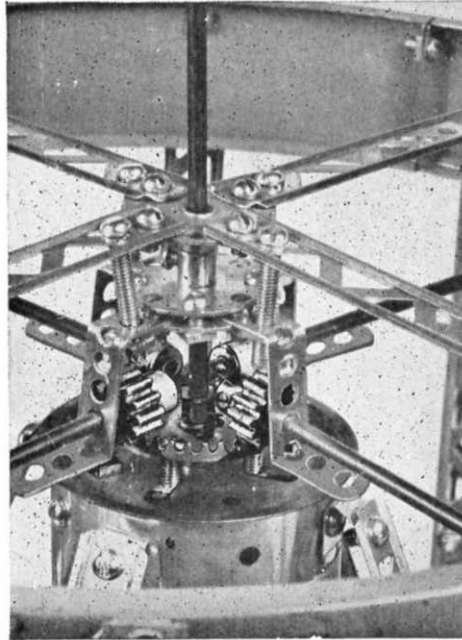


FIGURE 5

### 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  $7\frac{1}{2}$ " axles. An (O) pawl is fastened to the horse which moves

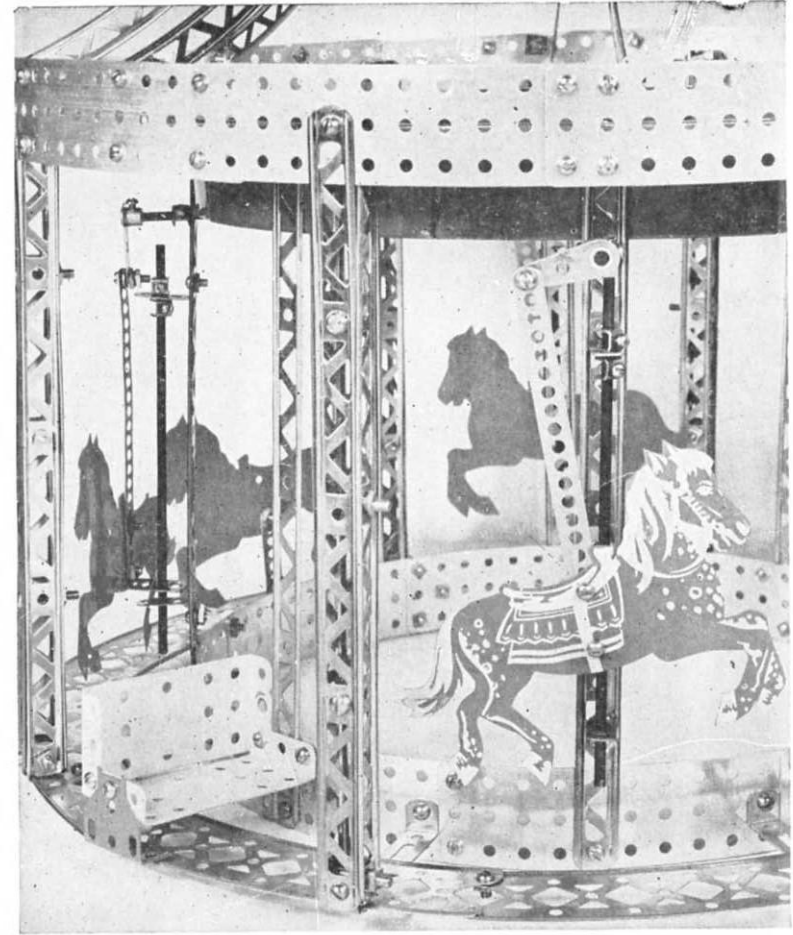


FIGURE 6

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  $2\frac{1}{2}$ " 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 10 $\frac{1}{2}$

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 thrill 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*

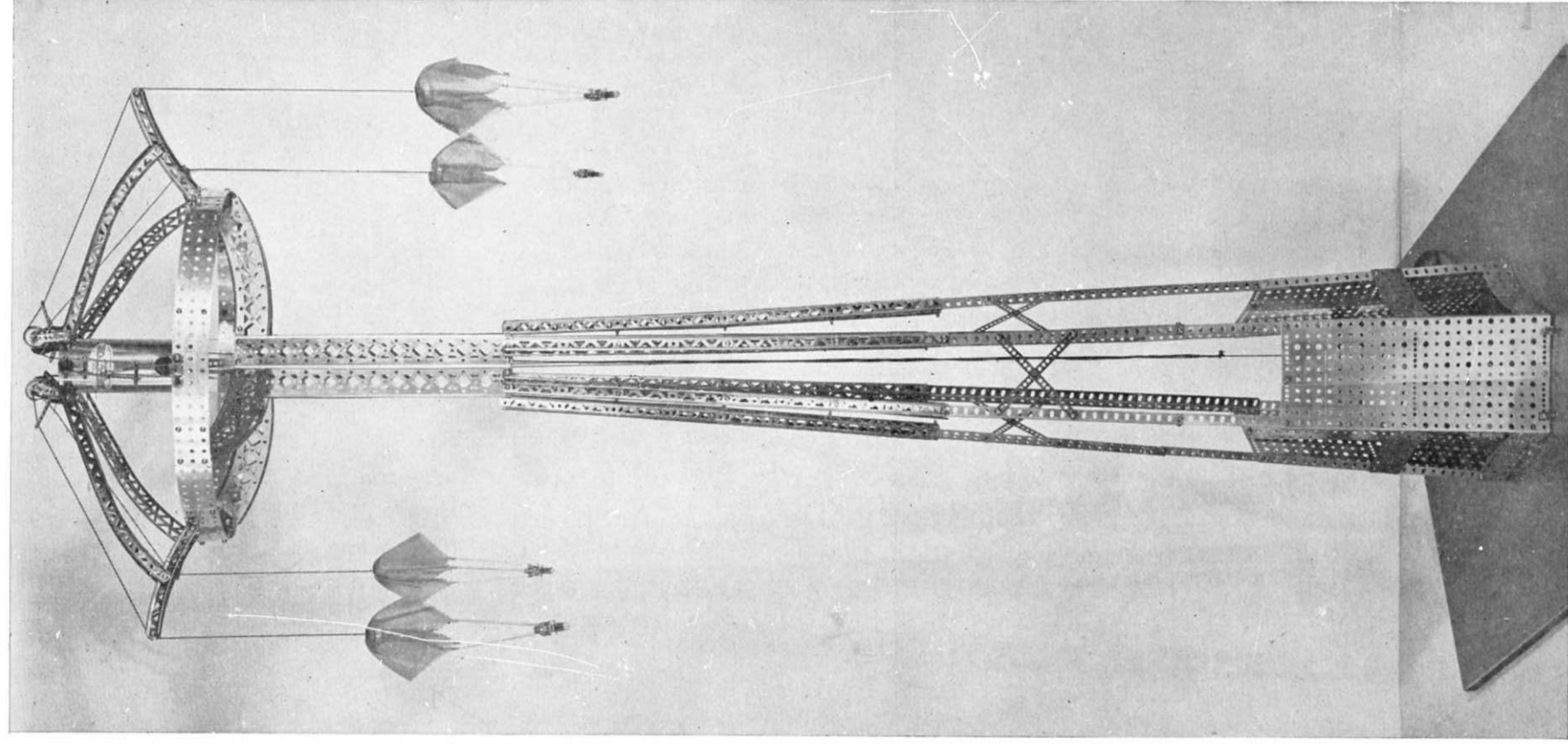


FIGURE 1

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

M2696 Made in U.S.A.

Printed in U.S.A.

### 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.

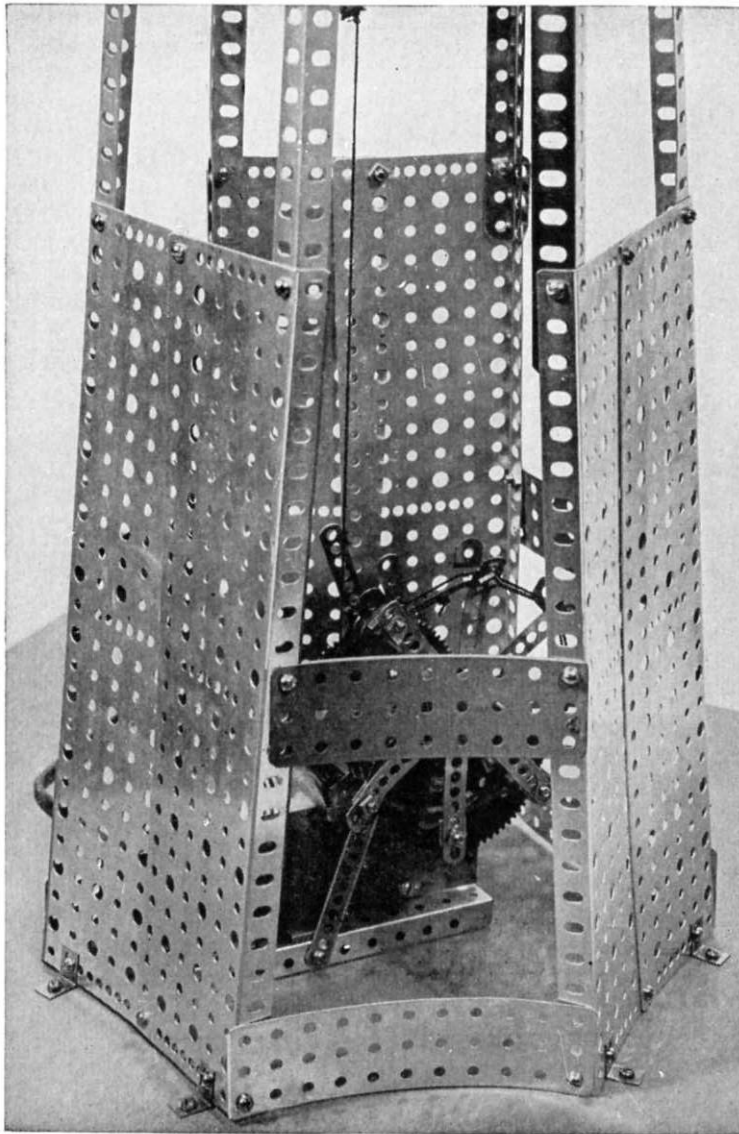


FIGURE 2

### 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

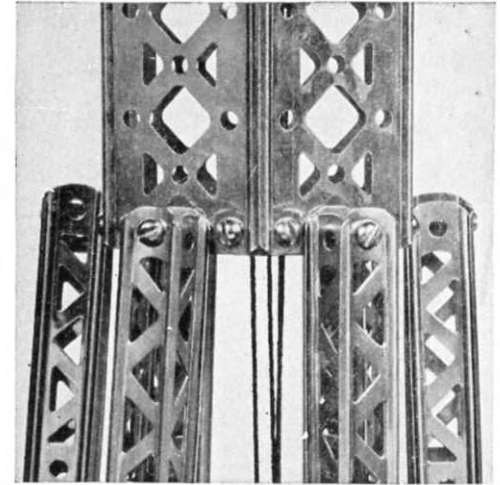


FIGURE 3

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.

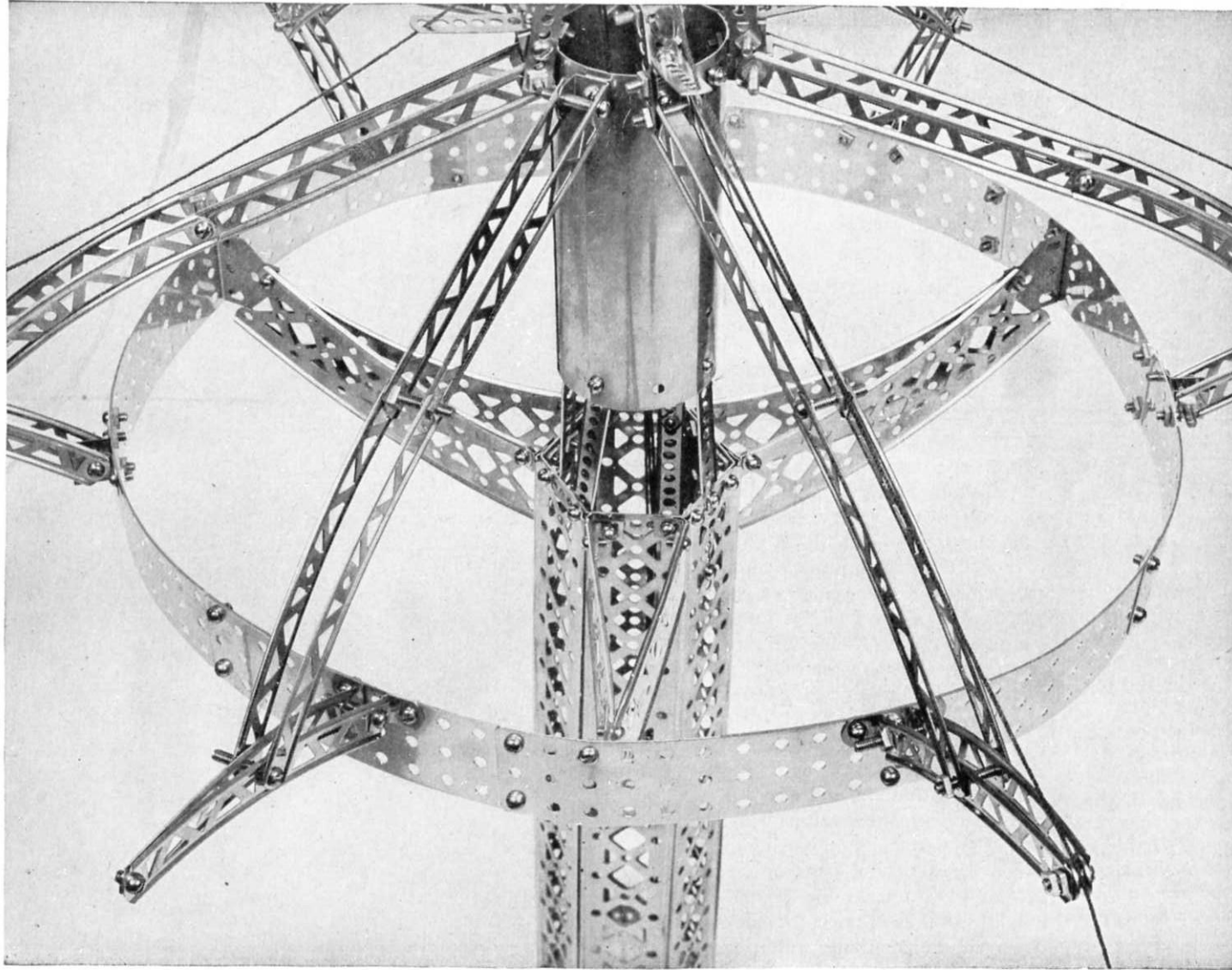


FIGURE 4

### 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

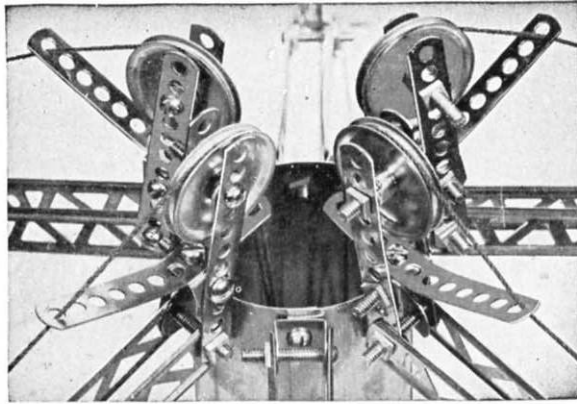


FIGURE 5

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)  $2\frac{1}{2}$ " x 5" base plate. A  $2\frac{7}{8}$ " 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 sideways. 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  $2\frac{7}{8}$ " 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.

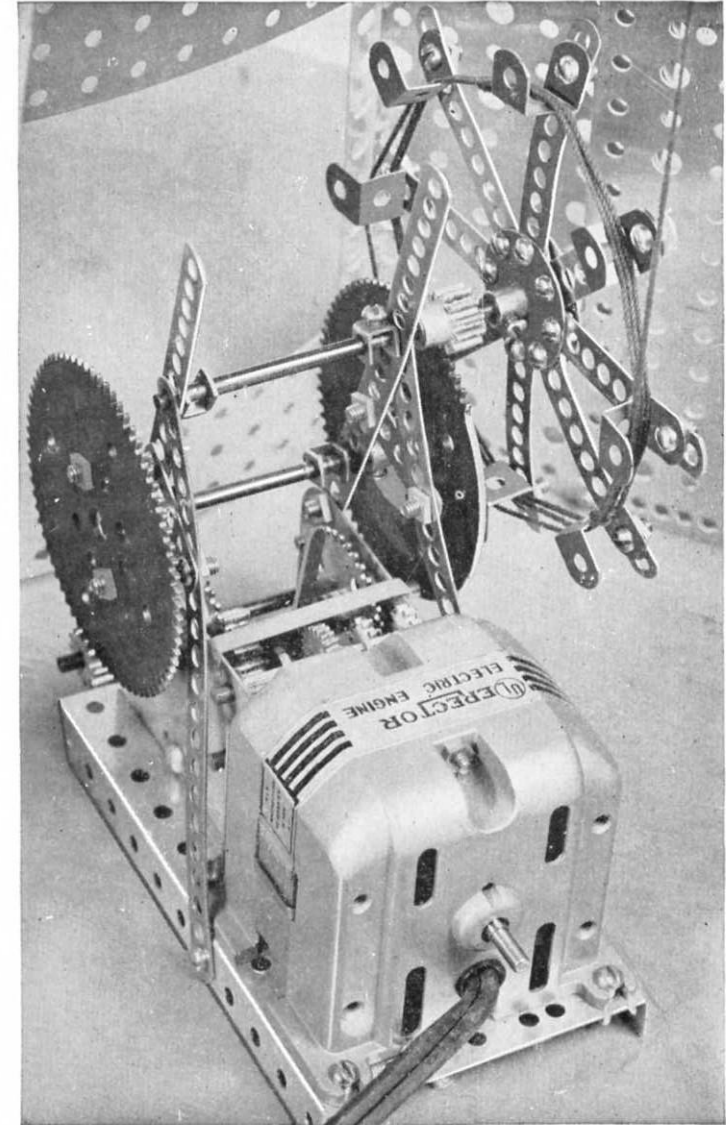


FIGURE 6



# Models Built with No. 10½ Erector

M2710

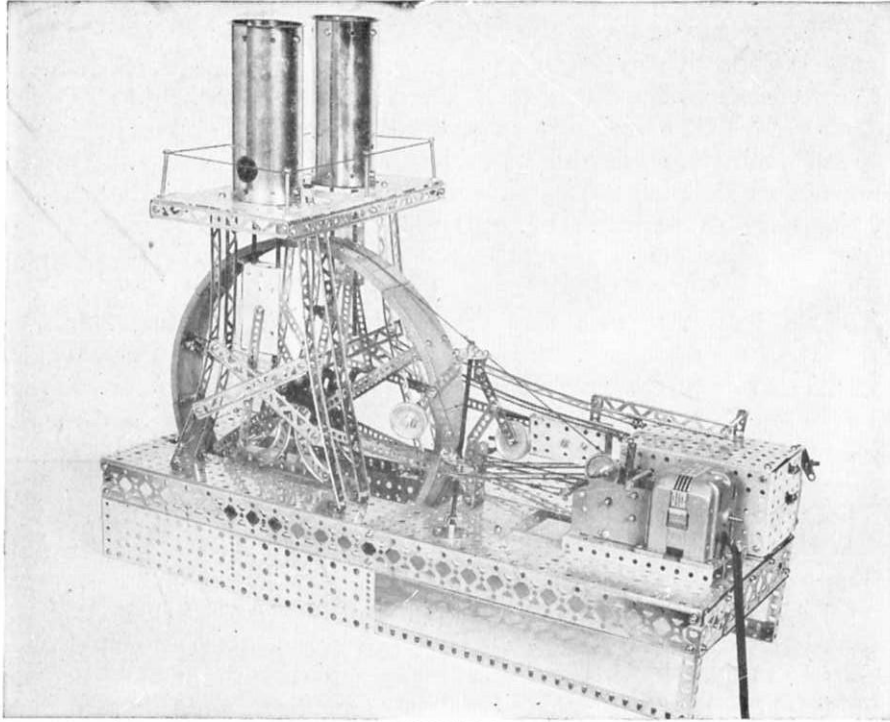


FIGURE 1

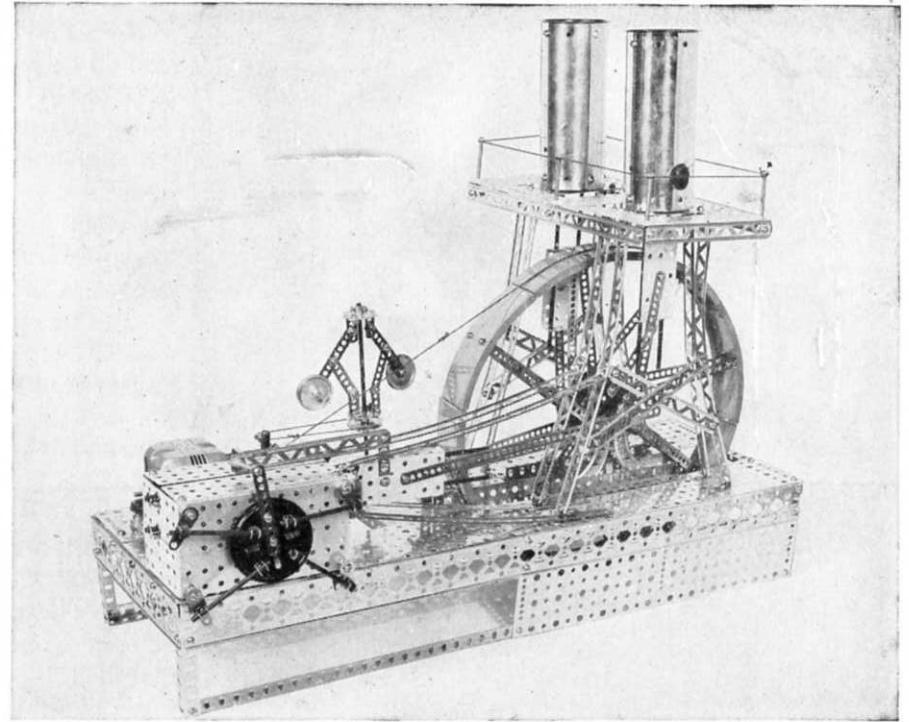


FIGURE 2

## 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.

### DETAIL OF VALVE ACTION

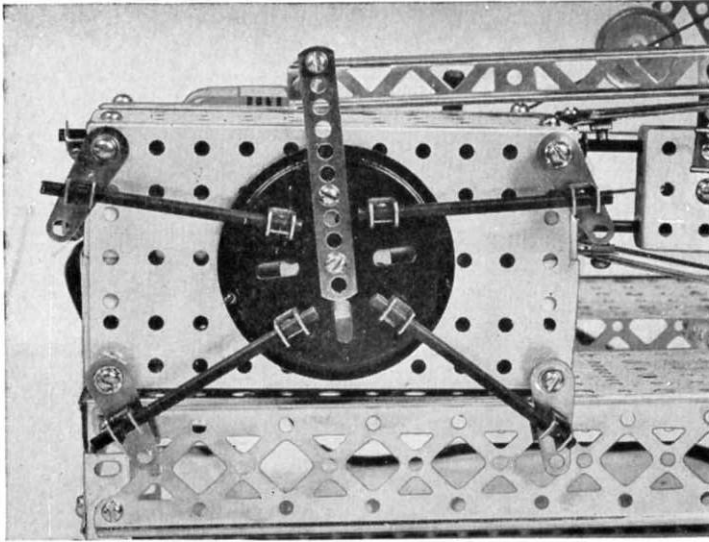


FIGURE 3

A replica of the steam cylinder with valve action is shown in Figure 3 and Figure 4. The steam cylinder is built with (MD)  $2\frac{1}{2}$ " x 5" base plates for sides and 2 (MF) 1" x 5" base plates on top. The ends are made with 2 (MC) 1" x  $2\frac{1}{2}$ " 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  $\frac{7}{8}$ " 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)  $2\frac{7}{8}$ " 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  $2\frac{1}{2}$ " 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  $\frac{1}{4}$  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  $\frac{1}{4}$  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  $2\frac{1}{2}$ " base plates with P37 collars. On these axle rods are fastened 2 (MC) 1" x  $2\frac{1}{2}$ " base plates held together with 2 S62  $\frac{7}{8}$ " x 8-32 screws. To one screw is fastened very tightly an (O) 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)  $1\frac{3}{4}$ " 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)  $2\frac{1}{2}$ " 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

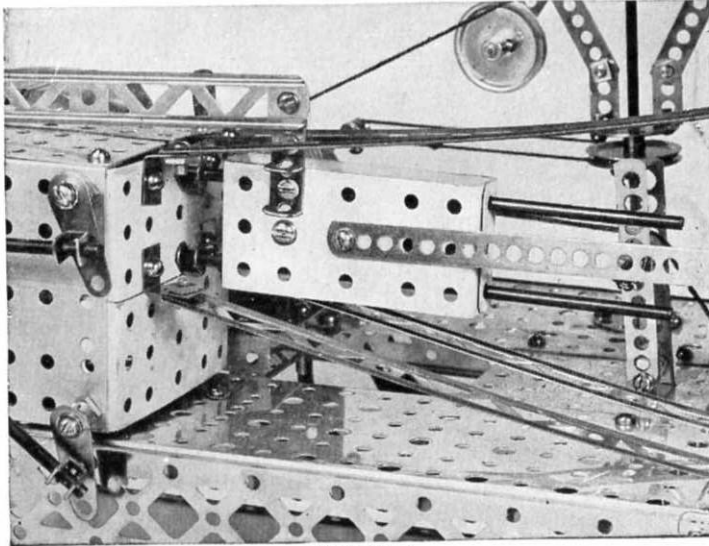


FIGURE 4

## 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) 13/4" 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)

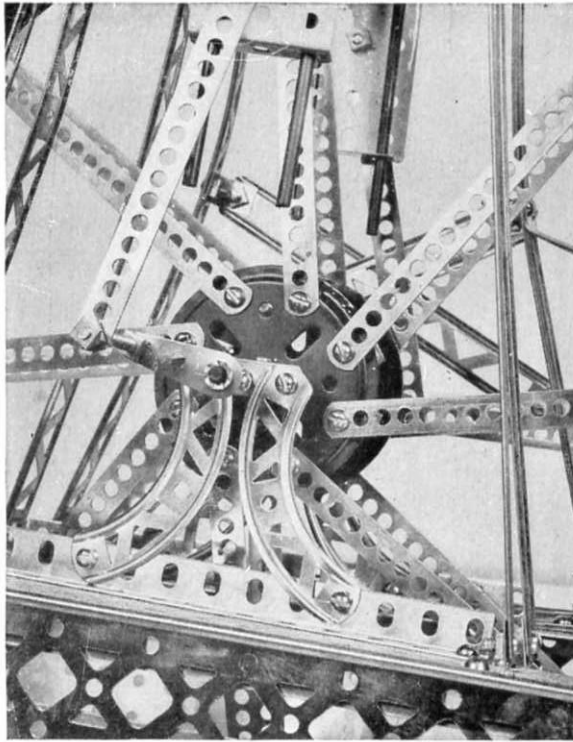


FIGURE 5

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.

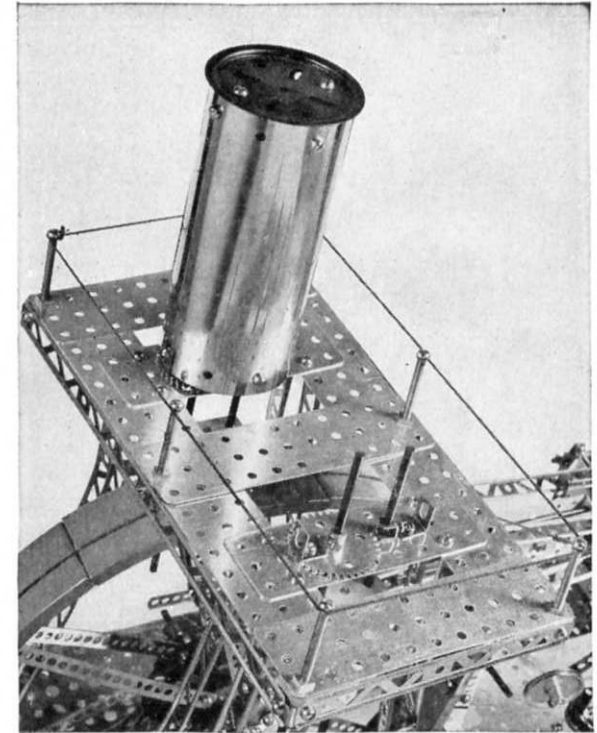


FIGURE 6

eccentric crank fastened to the 4" flywheel axle. To this eccentric crank is fastened an (I) 21 hole strip with an (FA) 13/4" x 8-32 screw. To the other end of the 21 hole strip is fastened an (MC) 1" x 2 1/2" 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.

## 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 2 1/8" axle and 2 P37 collars.

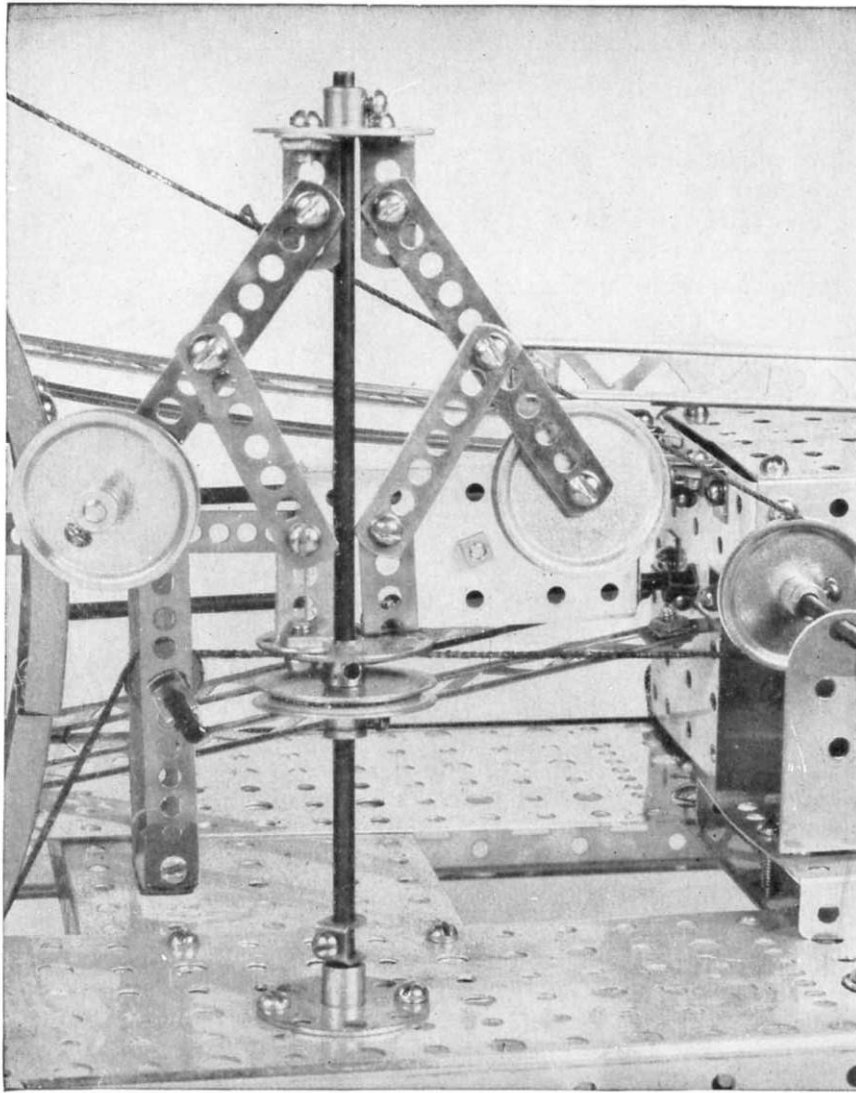


FIGURE 7

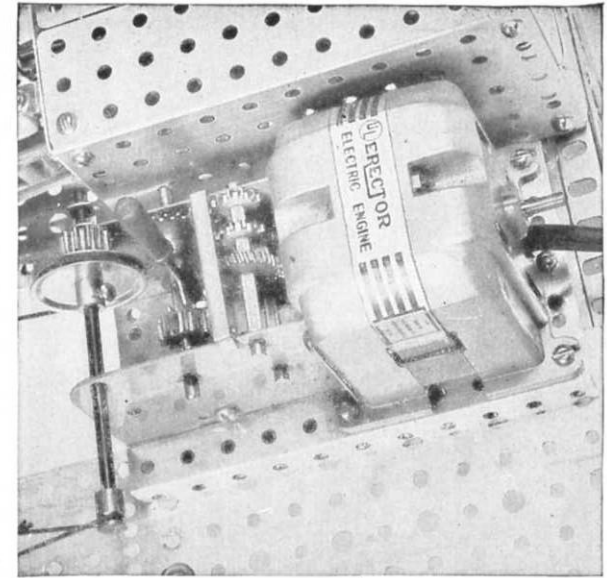


FIGURE 8

## POWER UNIT

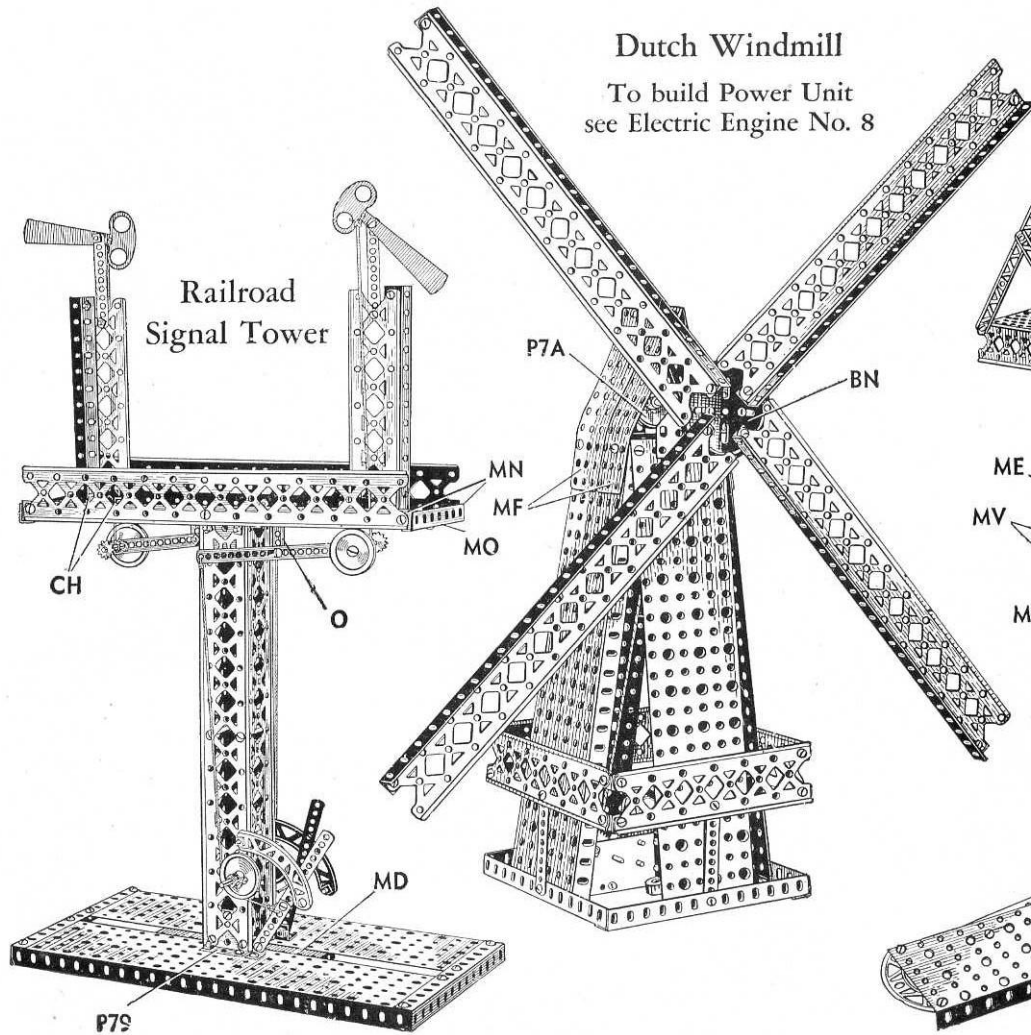
The power unit (Fig. 8) is an A-49 electric engine geared as shown. An (AT) 4" shaft is used with one P37 collar, P13-B 12 tooth pinion gear, P7-A pulley and a (DB) motor pulley. The power unit is mounted to an (MD) 2 1/2" x 5" base plate which is mounted to the base of model as shown. Two (B) 5" girders 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.



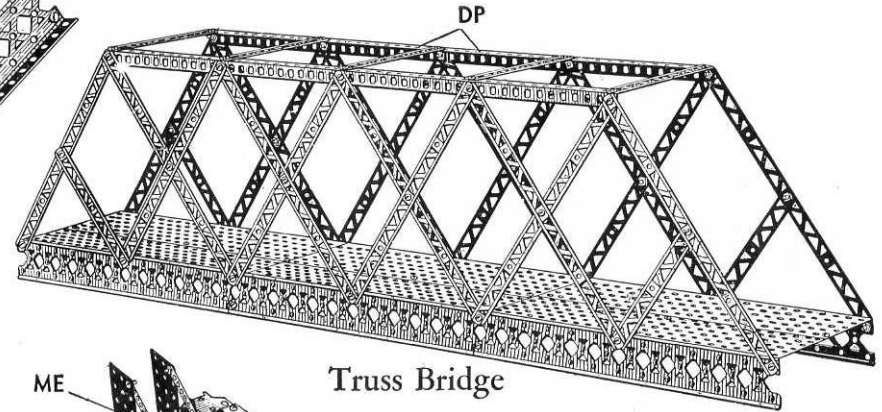
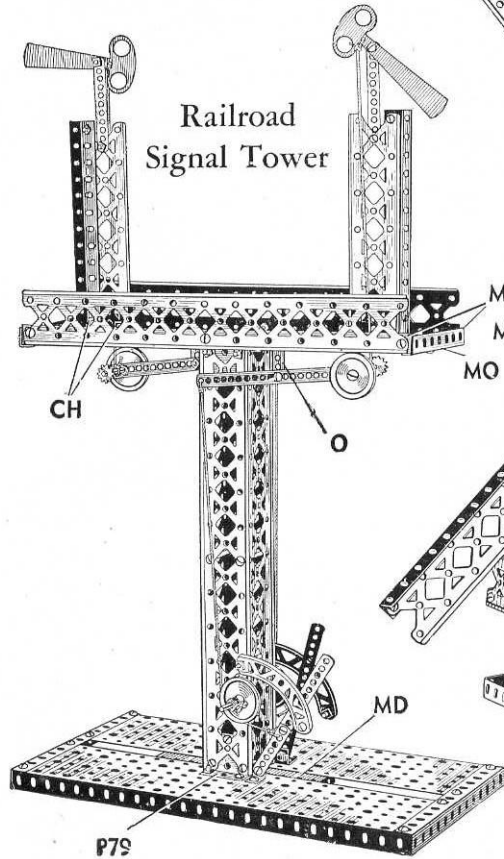
# Models Built with No. 10½ Erector

## Dutch Windmill

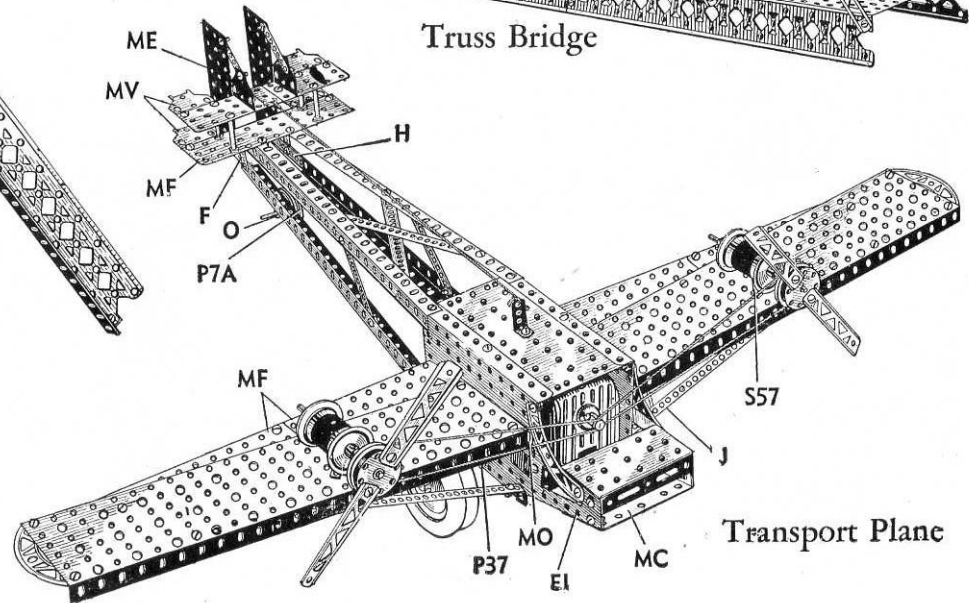
To build Power Unit  
see Electric Engine No. 8



## Railroad Signal Tower

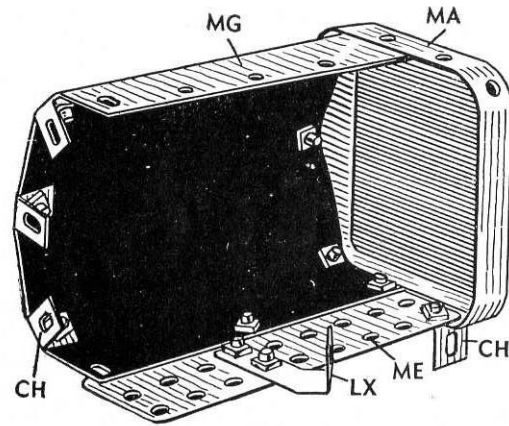


## Truss Bridge

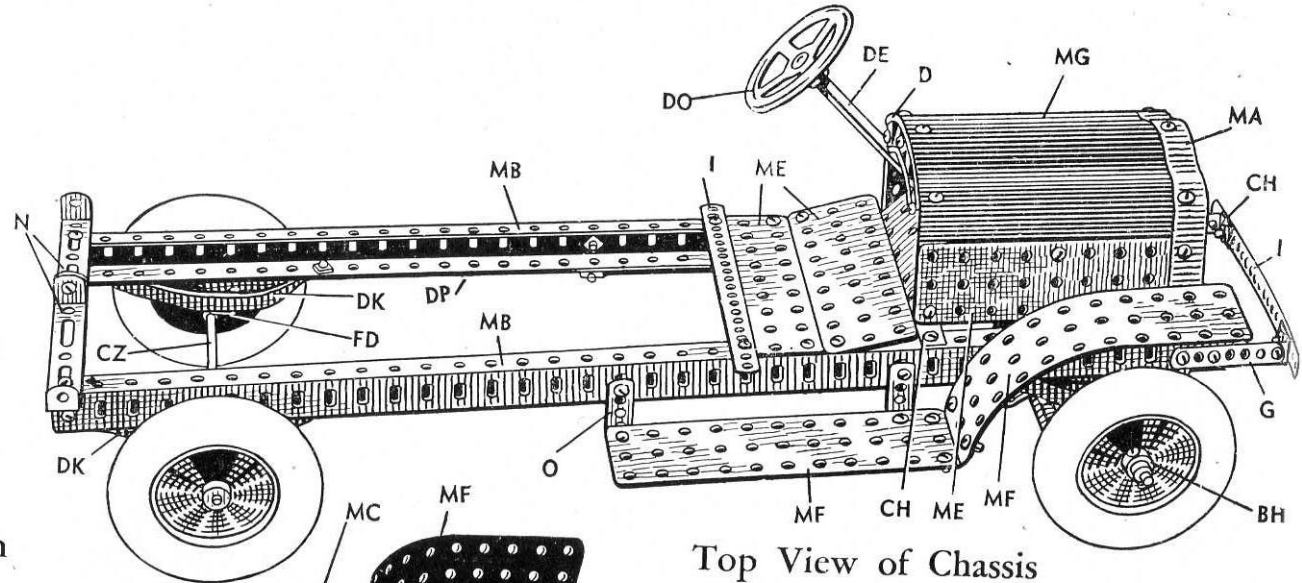


## Transport Plane

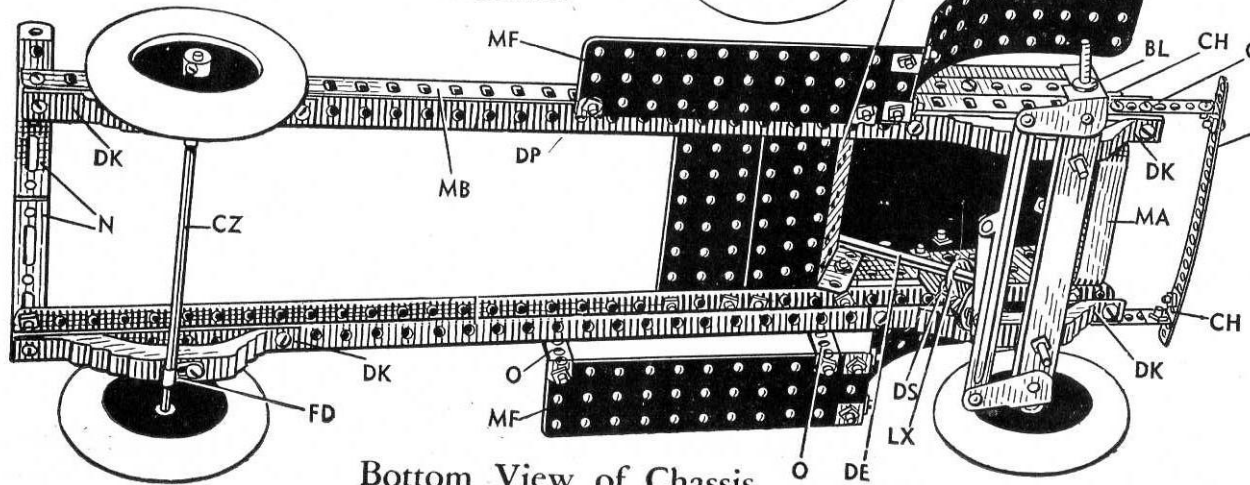
# Models Built with No. 9 and No. 10½ Erector



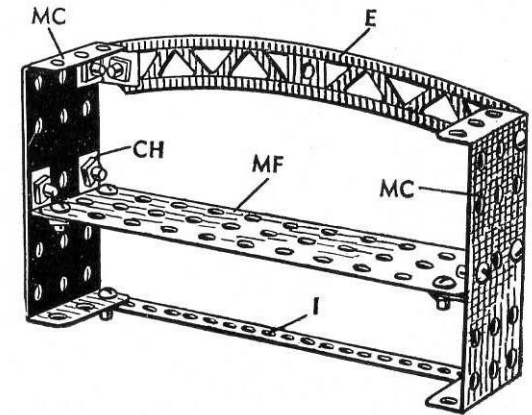
Hood Construction



Top View of Chassis

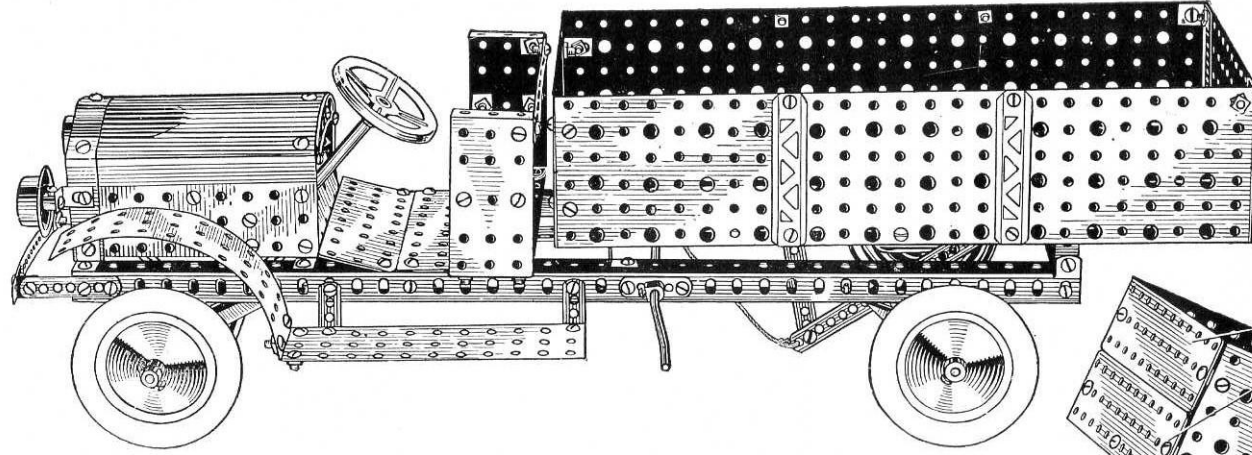


Bottom View of Chassis



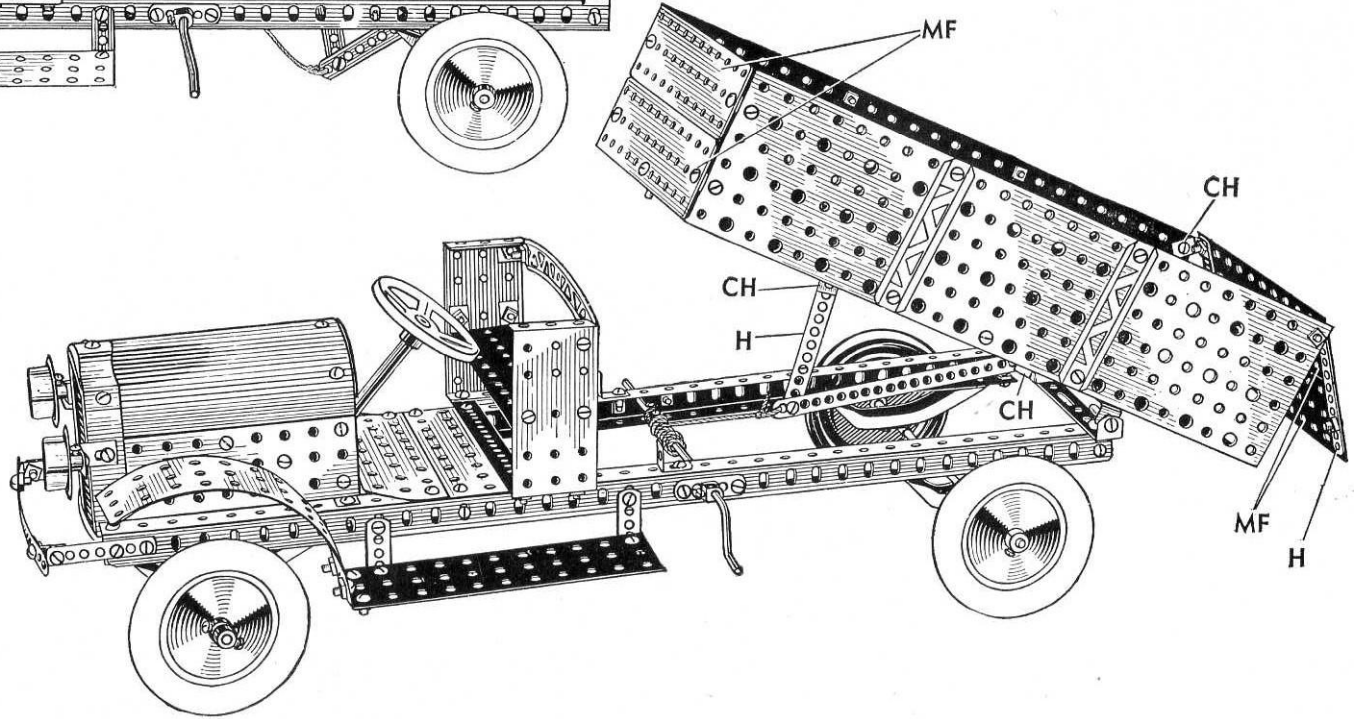
Seat Construction

# Models Built with No. 9 and No. 10½ Erector



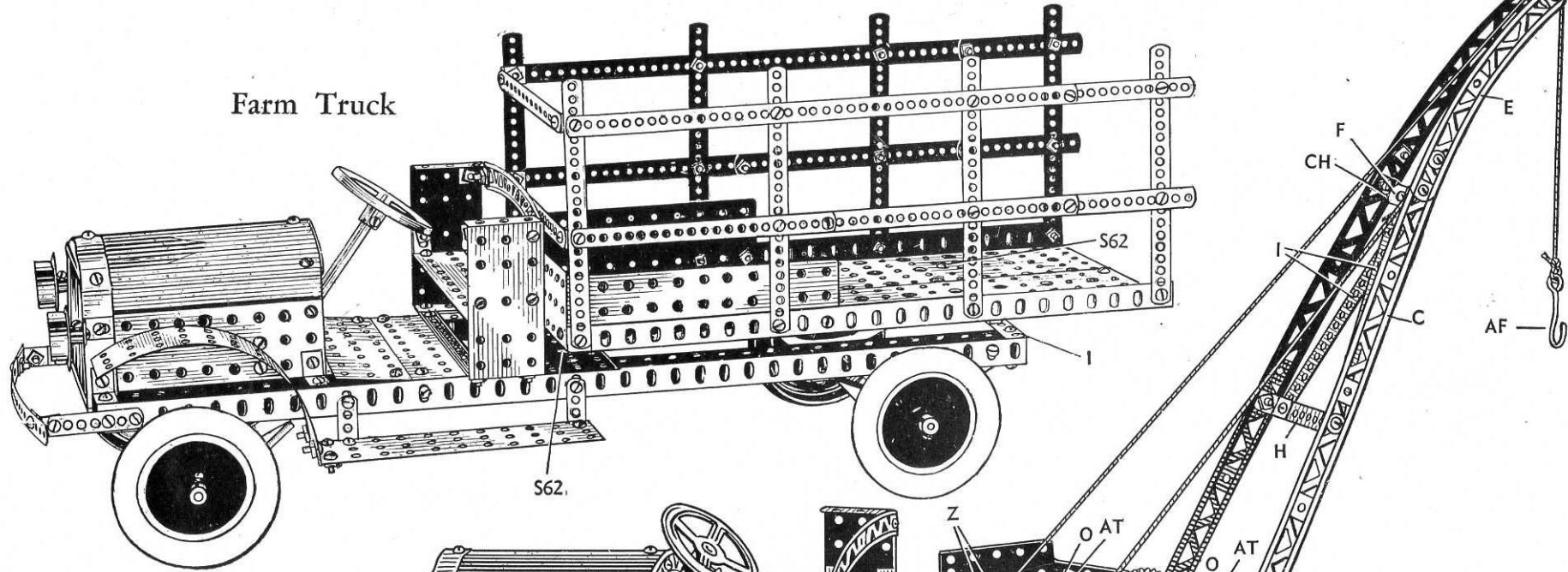
Dump Truck

Dump Truck  
Raised Position

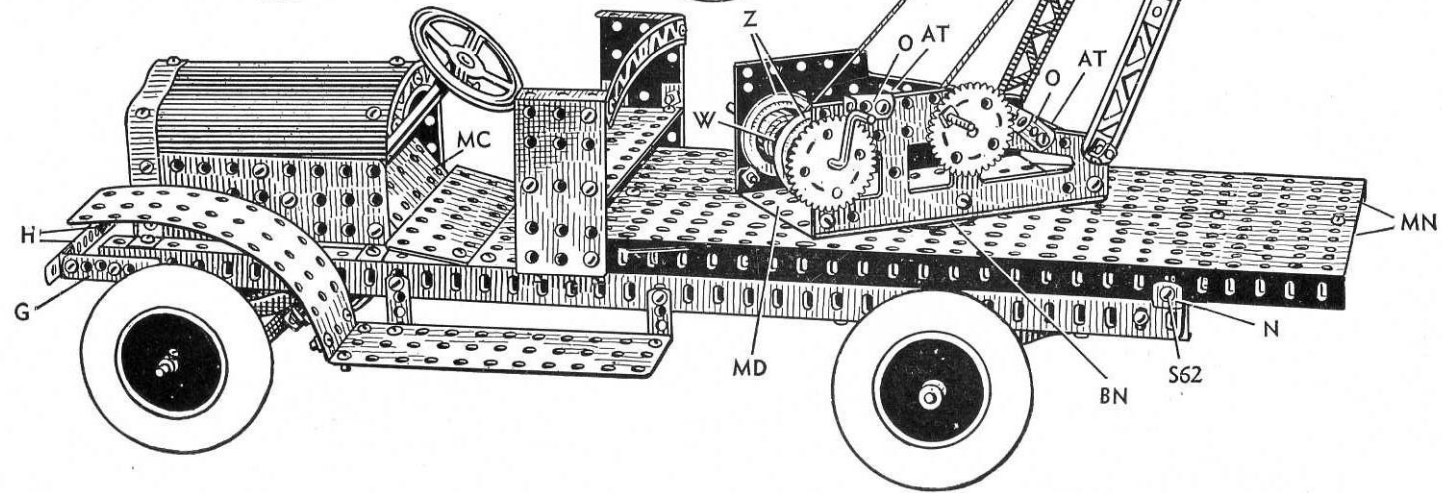


## Models Built with No. 9 and No. 10½ Erector

Farm Truck



Derrick Truck





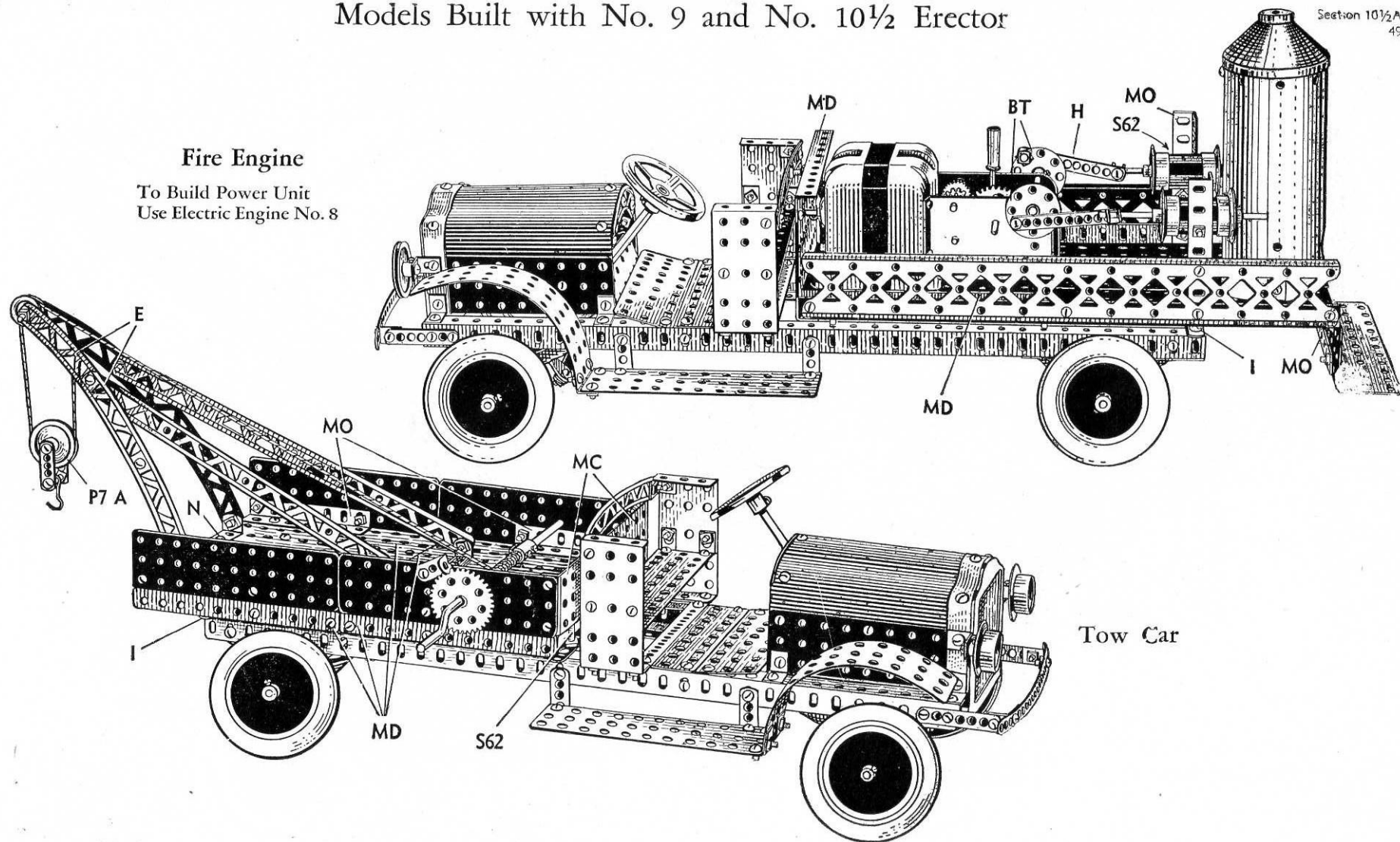
# Models Built with No. 9 and No. 10½ Erector

Section 10½A

49

## Fire Engine

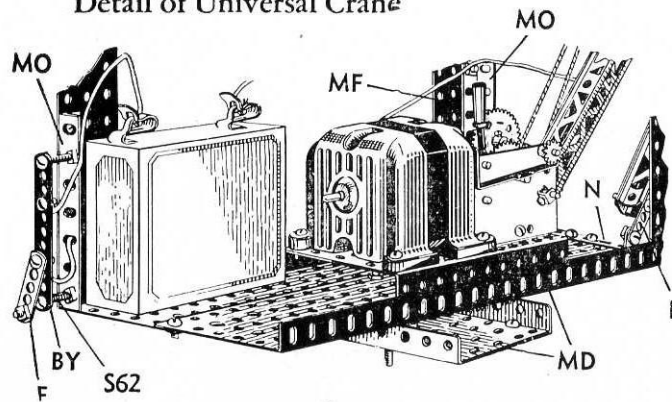
To Build Power Unit  
Use Electric Engine No. 8



Tow Car

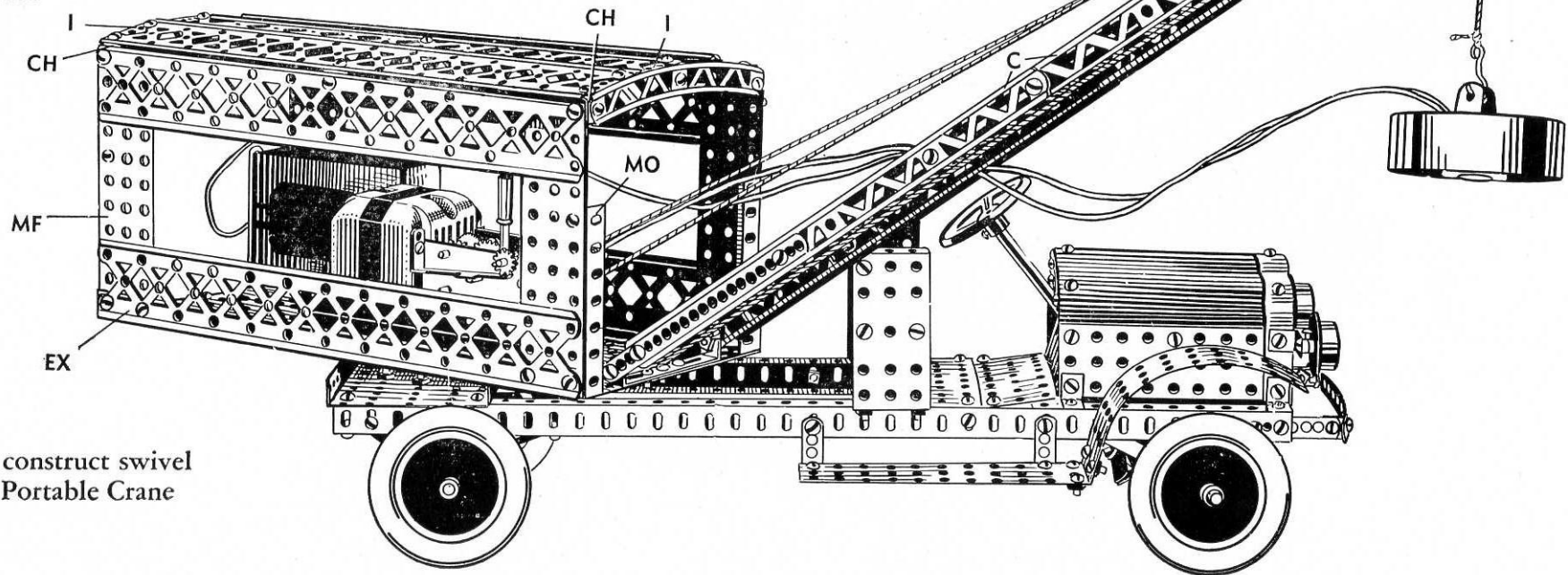
# Models Built with No. 9 and No. 10½ Erector

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

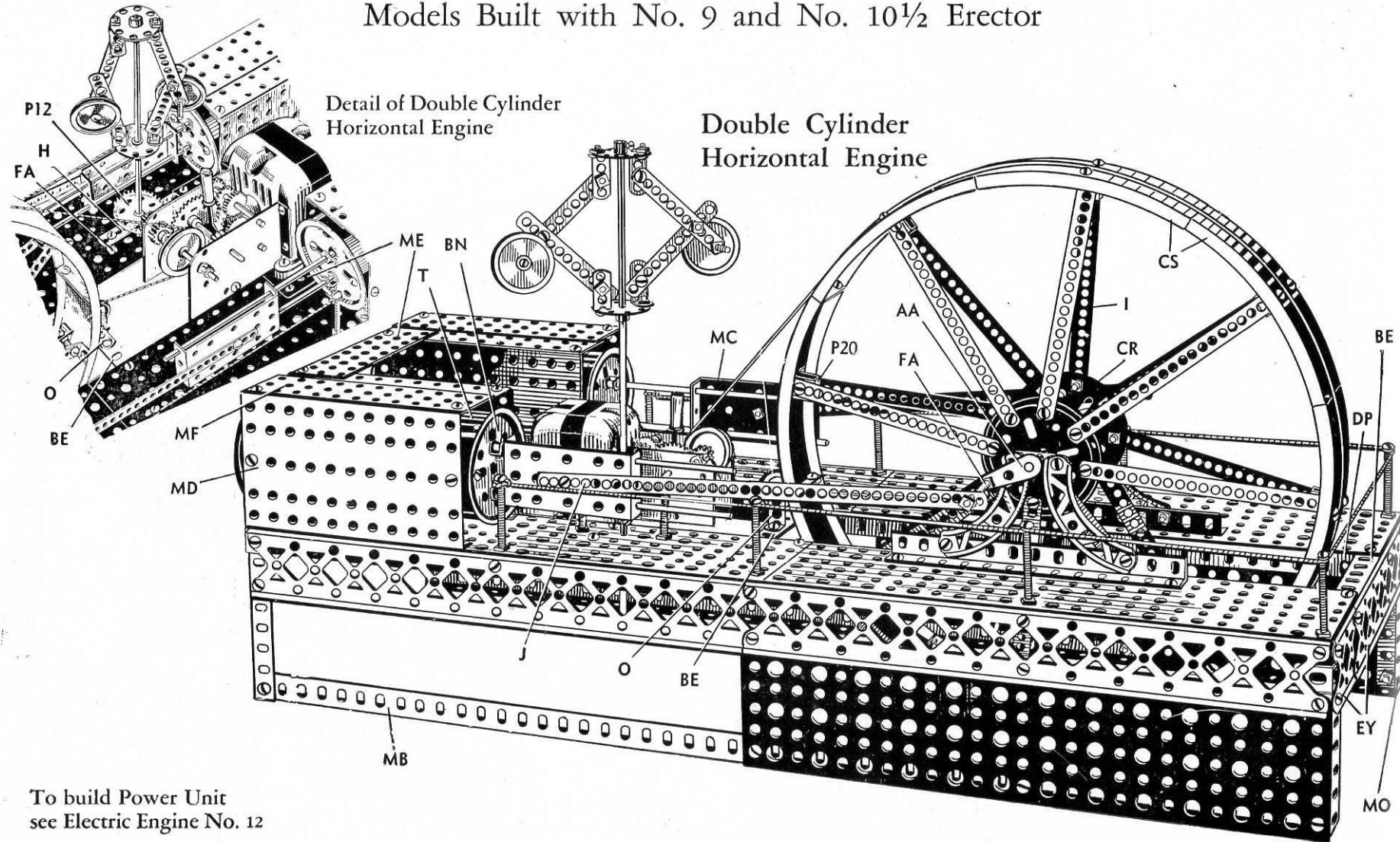
To Build Power Unit See Electric Engine No. 9

### 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

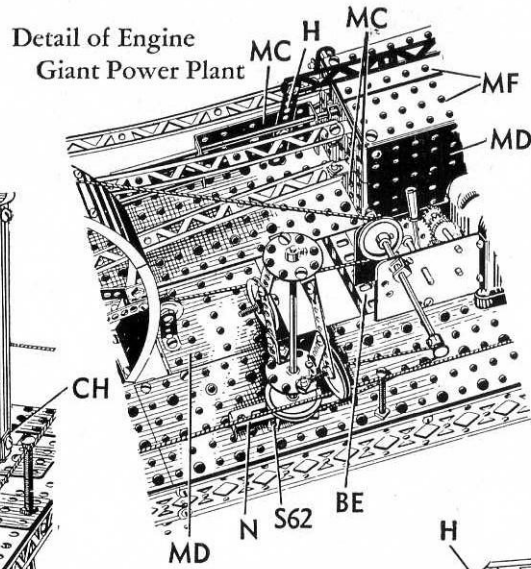


To build Power Unit  
see Electric Engine No. 12

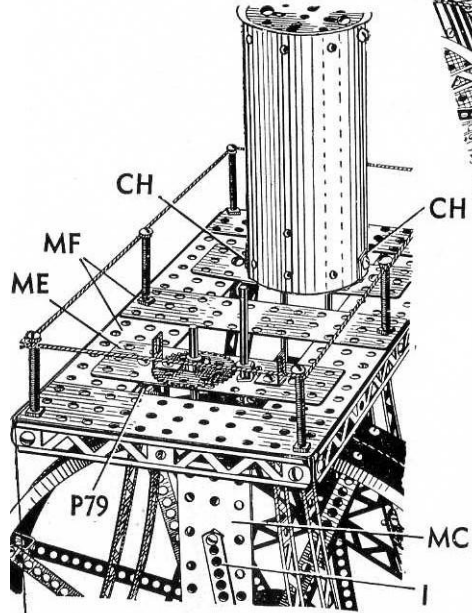


# Models Built with No. 9 and No. 10½ Erector

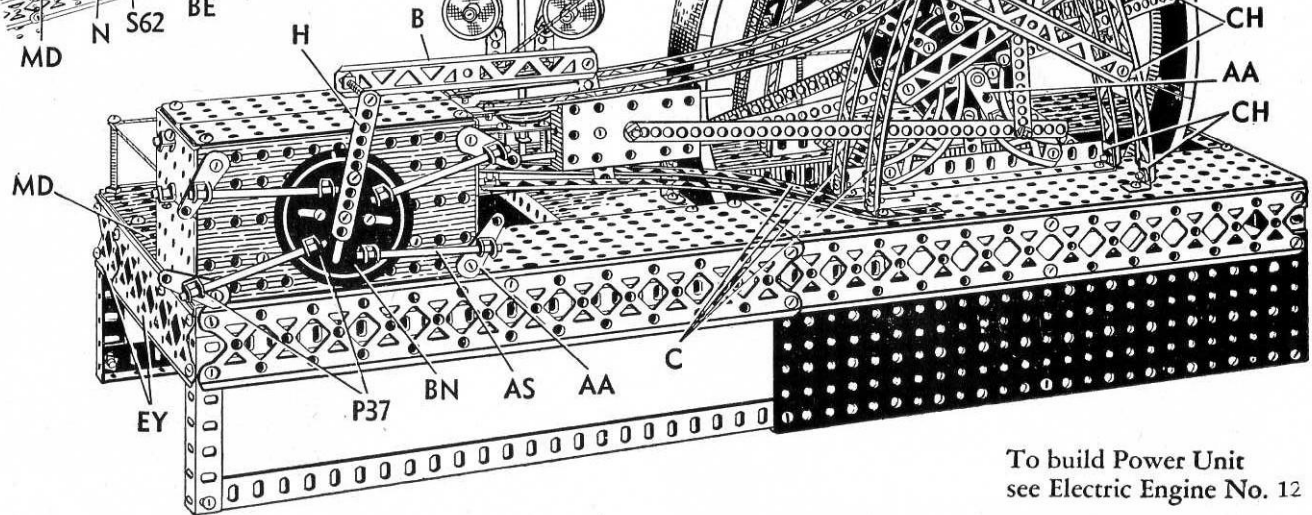
Detail of Engine  
Giant Power Plant



Giant Power Plant

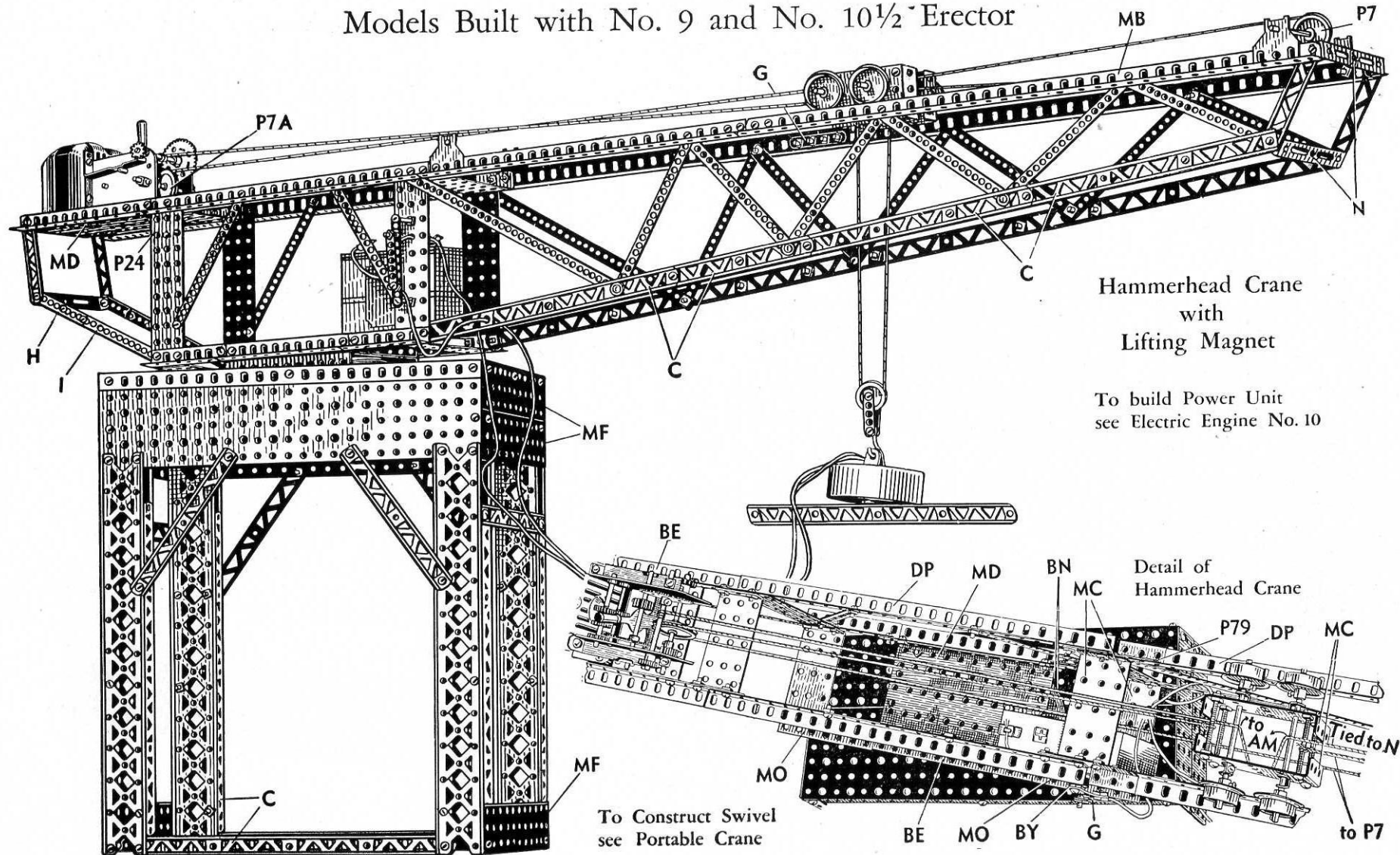


Detail of Compressor  
Giant Power Plant



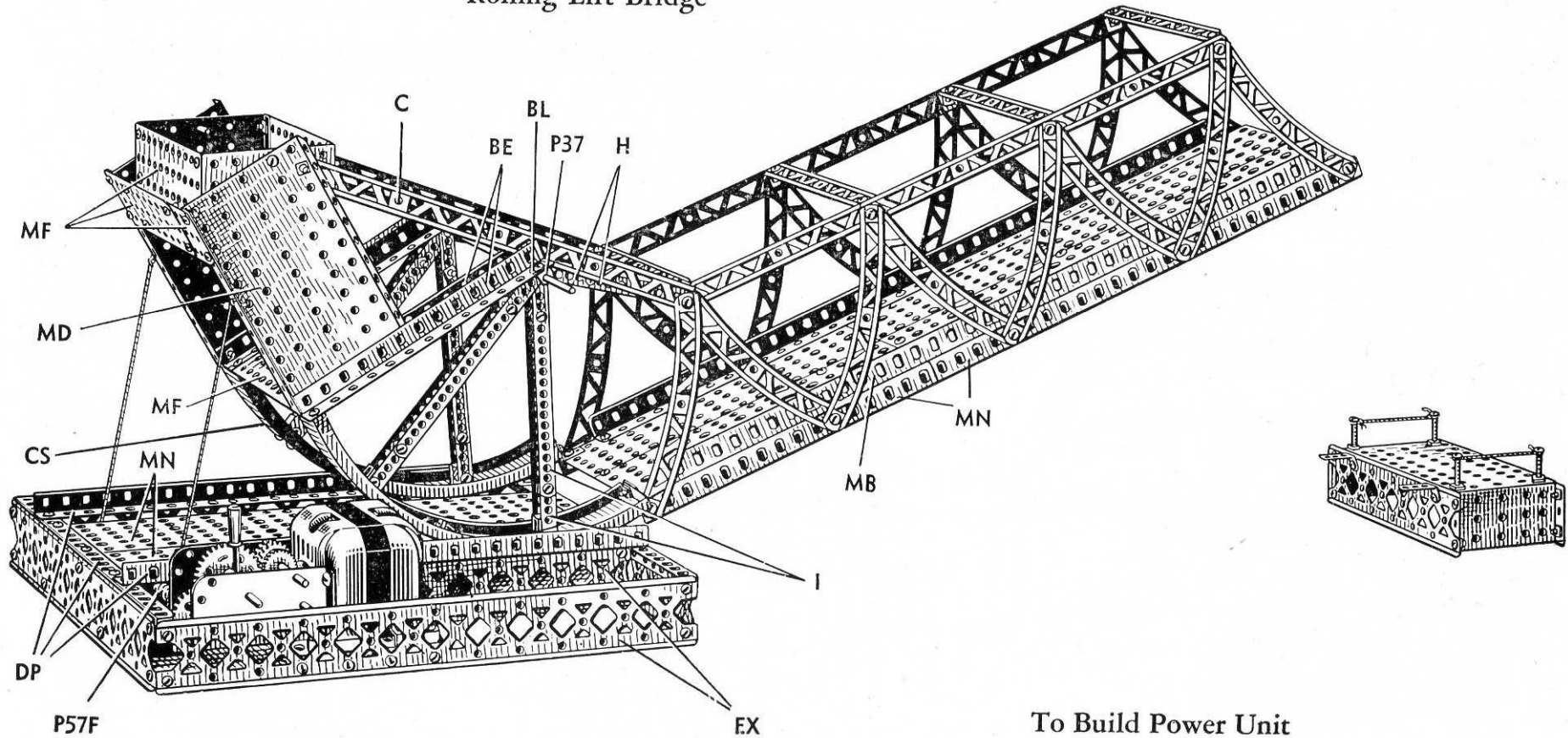
To build Power Unit  
see Electric Engine No. 12

# Models Built with No. 9 and No. 10½ Erector



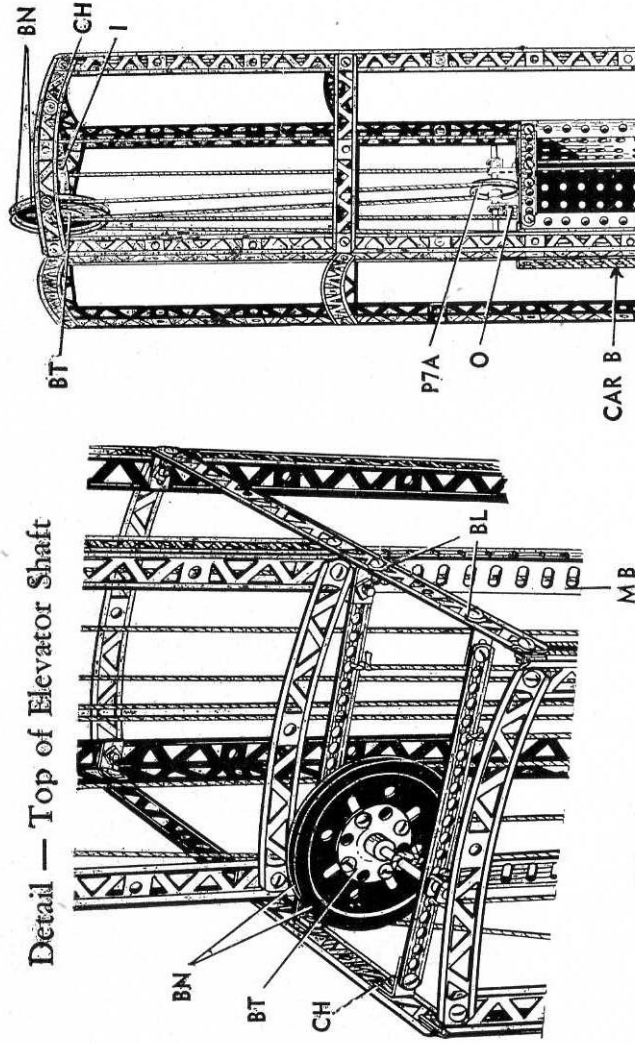
# Models Built with No. 9 and No. 10½ Erector

## Rolling Lift Bridge



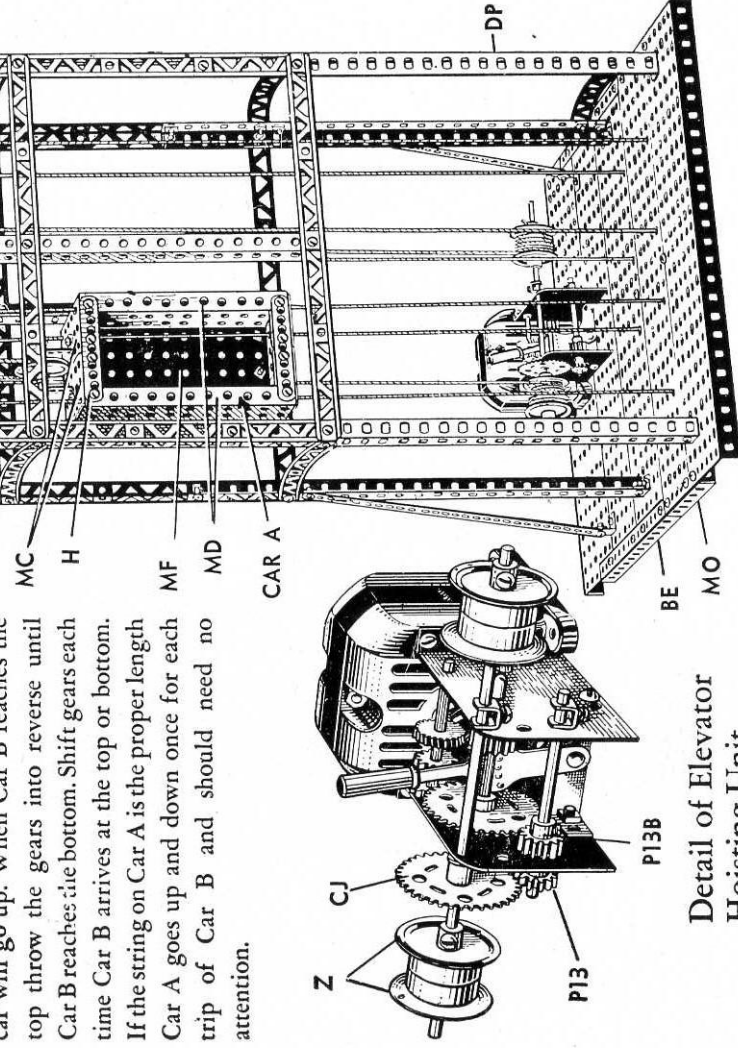
# Models Built with No. 9 and No. 10½ Erector

## Detail — Top of Elevator Shaft

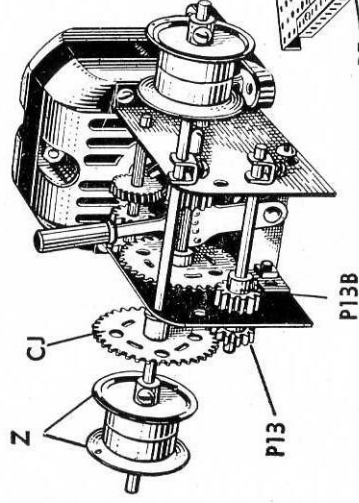


## Elevator

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 A 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

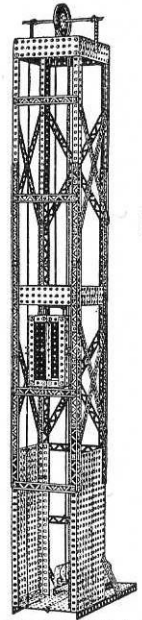




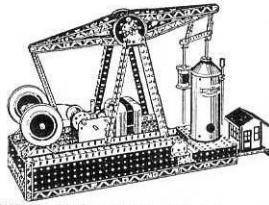
# Models Built with Famous ERECTOR Sets

SEC. X

M2952A

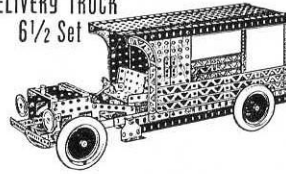


ELEVATOR 8 1/2 Set

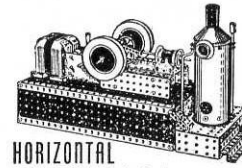
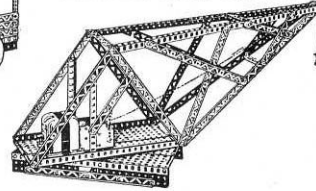


WALKING BEAM ENGINE 7 1/2 Set

DELIVERY TRUCK  
6 1/2 Set

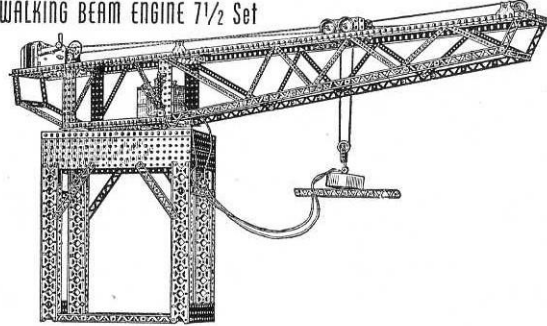
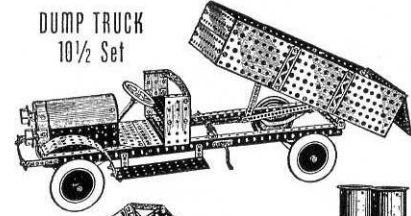


UNLOADING CRANE 6 1/2 Set



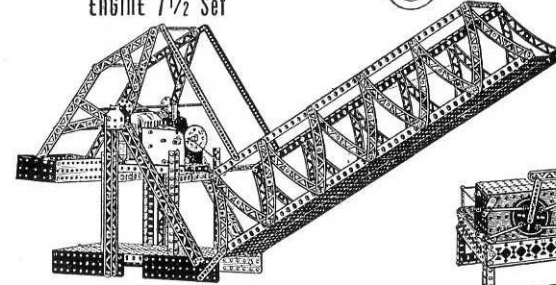
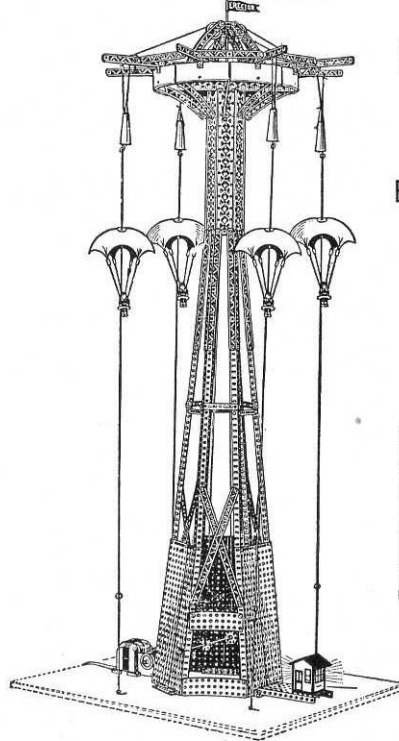
HORIZONTAL  
ENGINE 7 1/2 Set

DUMP TRUCK  
10 1/2 Set

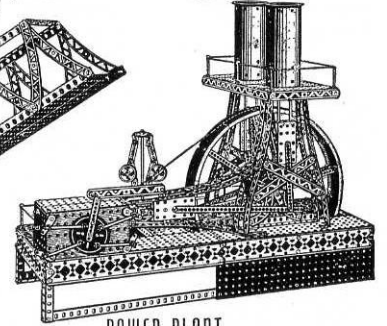


HAMMERHEAD CRANE with  
LIFTING MAGNET 10 1/2 Set

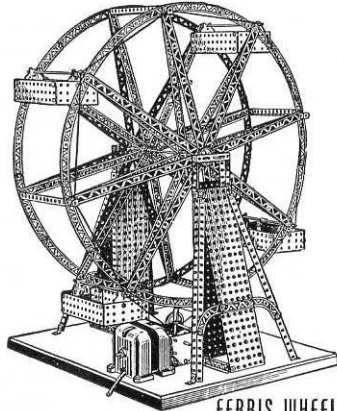
PARACHUTE JUMP 10 1/2 Set



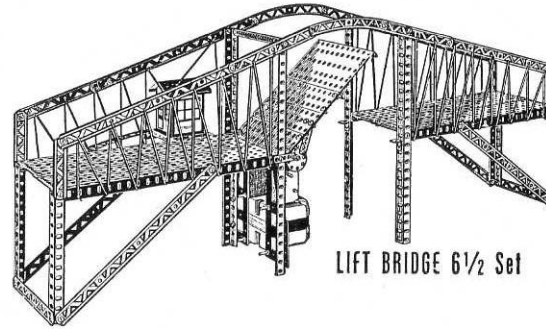
BASCULE BRIDGE 8 1/2 Set



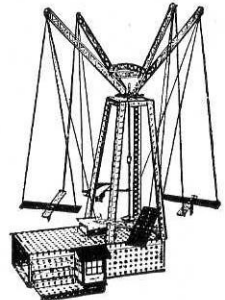
POWER PLANT  
10 1/2 Set



FERRIS WHEEL  
8 1/2 Set



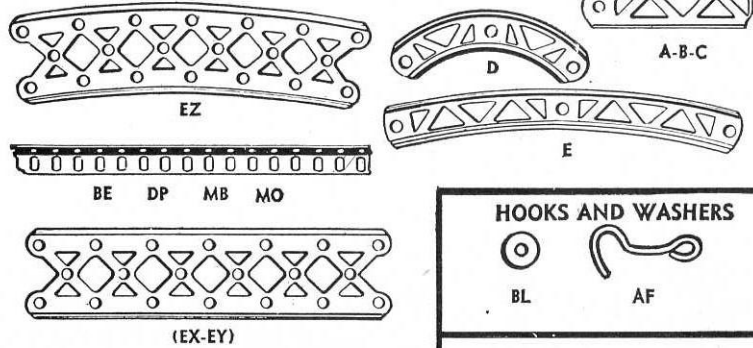
LIFT BRIDGE 6 1/2 Set



AIRPLANE RIDE  
4 1/2 Set

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## GIRDERS



## HOOKS AND WASHERS



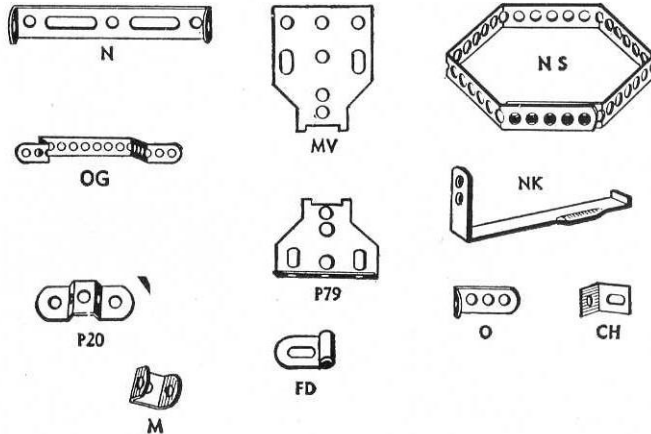
## COLLARS AND COUPLINGS



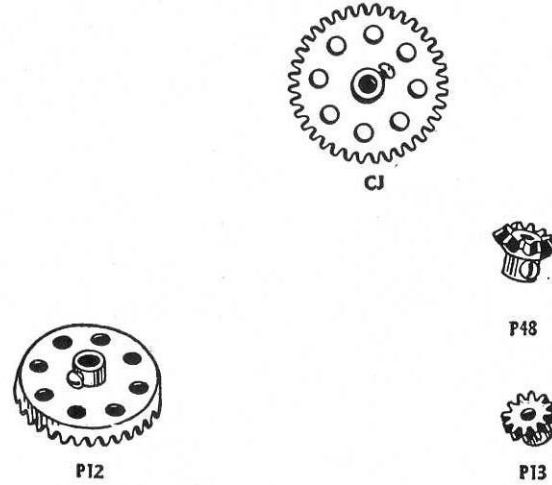
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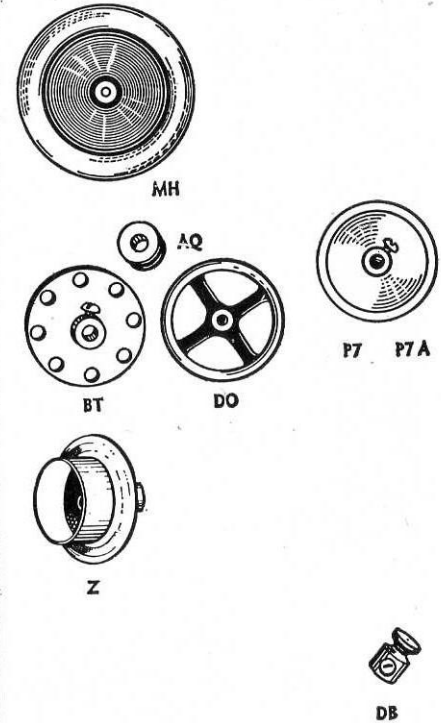
## ANGLES AND ANGLE PIECES



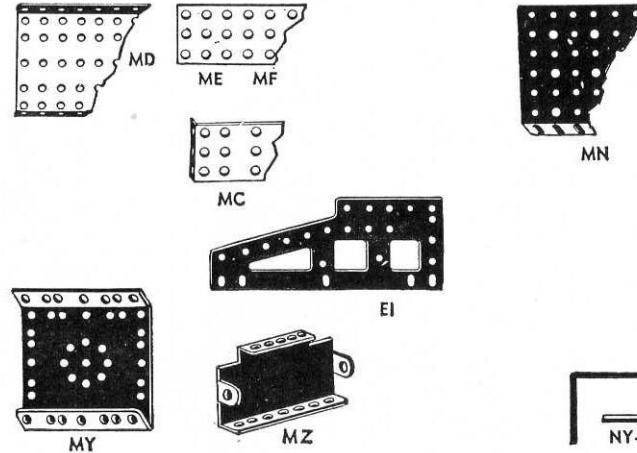
## GEARS



## WHEELS, DRUMS, DISCS AND PULLEYS



## BASE PLATES



## CRANK



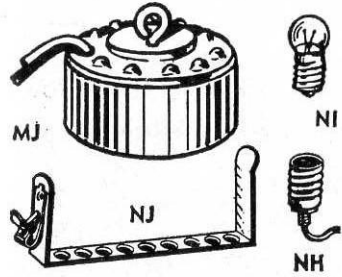
## AXLE RODS AND SHAFTING

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

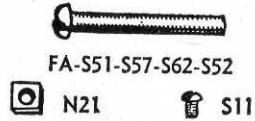
# ERECTOR SEPARATE PARTS

3

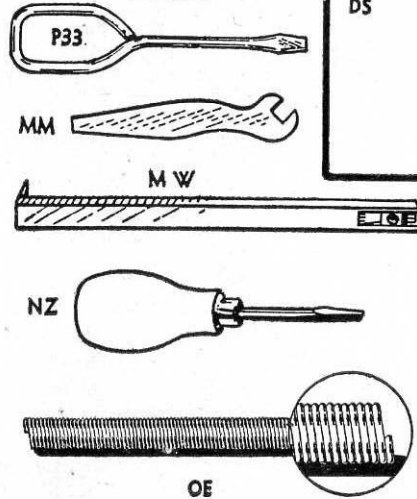
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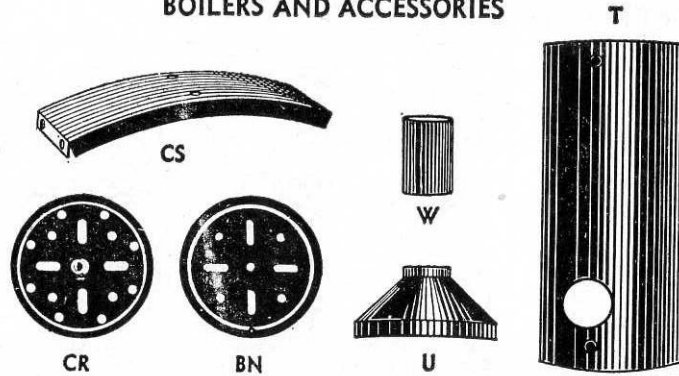
## SCREWS AND NUTS



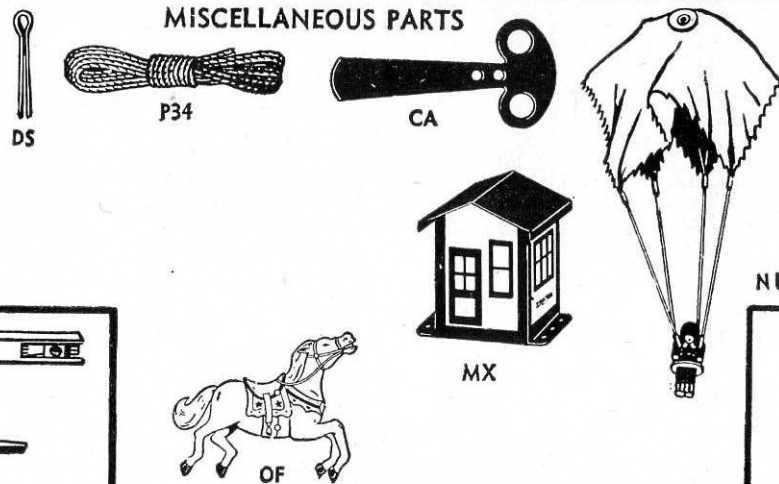
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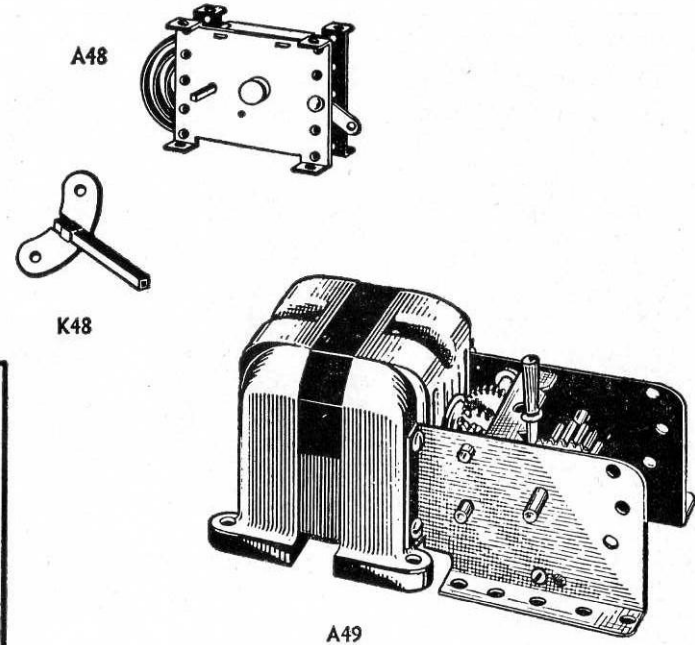
## BOILERS AND ACCESSORIES



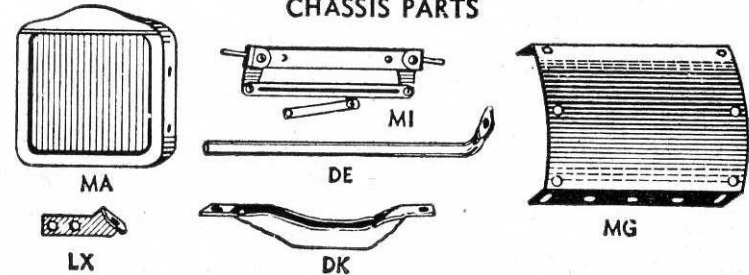
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P7A	1 1/8 Pulley Assy.	.10 ea.	BL	Small Washer	.05 doz.	MZ	Bearing Block	.10 ea.
P12	Crown Gear	.15 ea.	BN	Regular Turret Plate	.15 ea.			
P13	12-Tooth Pinion Gears 1/8"	.10 ea.	BY	11 Hole Fibre Strip	.05 ea.	NH	Lamp Socket Unit	.20 ea.
P13B	12-Tooth Pinion Gear 3/32"	.10 ea.				NI	Bulb—1 1/2 Volt	.10 ea.
P15	Coupling	.10 ea.	CA	Signal Arm	.10 ea.	NJ	Battery Holder	.15 ea.
P20	Five Hole Strip—Formed	.10 ea.	CH	Right Angle	.10 doz.	NK	Ratchet	.05 ea.
P24	Crank	.10 ea.	CJ	36-Tooth Gear	.20 ea.	NS	41—Hole Strip—Formed	.10 ea.
P33	Small Screw Driver	.10 ea.	CR	Special Turret Plate with Hub	.20 ea.	NU	Parachute	.40 ea.
P34	Hank of String	.10 ea.	CS	Wheel Segment	.15 ea.	NZ	Plastic Screw Driver	.25 ea.
P37	Collar	.25 doz.	CZ	7" Axle Rod	.10 ea.			
P48	Mitre Gear	.20 ea.				OE	6" Flexible Coupling	.20 ea.
P57A	2 1/8" Axle	.05 ea.	P57JA	7 1/2" Axle Rod	.05 ea.	OH	72 Tooth Gear	.25 ea.
P57D	6" Axle	.10 ea.	P57N	3 1/4" Axle Rod	.05 ea.	OI	Segment of 72 Tooth Gear	.25 ea.
P57E	8" Axle	.10 ea.				OF	Horse	.25 ea.
P57F	12" Axle	.15 ea.				OG	21—Hole Strip—Formed	.10 ea.
P79	Car Truck	.05 ea.						
			DB	Motor Pulley	.10 ea.	A48	Mechanical Motor	1.75 ea.
			DE	Steering Column	.15 ea.	K48	Key for Mechanical Motor	.20 ea.
			DK	Flat Spring	.10 ea.	A49	A49 Electric Engine Gear Shift	5.95 ea.
			DO	Steering Wheel with Hub	.15 ea.			
			DP	12" Angle Girder	6 for .50			
			DS	Cotter Pin	.05 doz.			
			EI	Standard Gear Box Side Plate	.15 ea.			
			EX	Big Channel Girder 12"	6 for .65			
			EY	Big Channel Girder 6"	.10 ea.			
			EZ	Big Channel Curved Girder 6"	.10 ea.			
			FD	Hinged Loop	2 for .10			
			LX	Steering Column Bracket	.10 ea.			
			MA	Radiator	.25 ea.			
			MB	18 1/2" Angle Girder	.25 ea.			
			MC	Base Plate 1" x 2 1/2"	.05 ea.			
			MD	Base Plate 2 1/2" x 5"	.15 ea.			
			ME	Base Plate 1" x 4"	.05 ea.			
			MF	Base Plate 1" x 5"	.05 ea.			
			MG	Radiator Hood	.20 ea.			
			MH	Large 3" Disc. Wheel	.25 ea.			
			MI	Front Axle Unit	.45 ea.			
			MJ	Electro Magnet with Cord	1.20 ea.			
			MM	Wrench	.05 ea.			
			MN	12" Base Plate	.40 ea.			
			MO	3" Angle Girder	.30 doz.			
			MV	Flat Car Truck	.05 ea.			
AA	Eccentric Crank	.10 ea.						
AF	Small Hook	.15 doz.						
AQ	Sheave Pulley	.05 ea.						
AS	27/8" Axle Rod	.05 ea.						
AT	4" Axle Rod	.05 ea.						

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No. 6 1/2	Erector How To Make 'Em Book..	.35
No. 7 1/2	Erector How To Make 'Em Book..	.35
No. 8 1/2	Erector How To Make 'Em Book..	.40
No. 10 1/2	Erector How To Make 'Em Book..	.60

FOREIGN PATENTS

Austria	Germany	
95874 Sept. 15, 1923	382595 July 31, 1923	
	380882 Sept. 13, 1923	
Belgium	Great Britain	
293536 Feb. 15, 1921	157084 April 30, 1915	
	105742 April 18, 1916	
Canada	105743 April 18, 1916	
175575 Mar. 6, 1917	140101 Mar. 11, 1919	
182504 Mar. 12, 1918	140169 Mar. 20, 1919	
203106 Aug. 17, 1920	284728 Feb. 4, 1927	
205335 Nov. 2, 1920	285851 Feb. 23, 1927	
284775 Nov. 13, 1928	289855 May 4, 1927	
284776 Nov. 13, 1928	290220 May 10, 1927	
284777 Nov. 13, 1928	291095 May 24, 1927	
287197 Feb. 12, 1929	307464 July 7, 1930	
287198 Feb. 12, 1929		
290387 June 11, 1929	Japan	
302272 Mar. 10, 1931		
313281 July 14, 1931	68488	
Czecko-Slovakia	Switzerland	
12677 Dec. 15, 1923	98816 Mar. 31, 1921	
France	Others Pending	
513535 Nov. 3, 1920		
513536 Nov. 3, 1920		
532888 Mar. 29, 1921		
1,079,245	1,202,388	1,412,110
1,161,131	1,242,202	1,412,117
1,164,686	1,242,892	1,454,965
1,166,688	1,289,014	1,454,970
1,171,816	1,253,973	1,614,958
1,193,089	1,355,975	1,619,298
1,196,258	1,361,937	1,812,498

Manufactured Under One Or More  
Of The Following Patents:

UNITED STATES OF AMERICA

14,250	1,523,764	1,863,320
(Reissue)	1,526,333	1,868,466
1,219,452	1,527,973	1,898,009
1,231,728	1,527,974	1,956,722
1,232,463	1,665,714	(D) 48,675
1,259,616	1,724,470	(D) 48,859
1,260,366	1,732,799	(D) 48,860
1,261,019	1,736,310	(D) 51,277
1,270,812	1,758,887	(D) 51,552
1,271,145	1,760,638	(D) 54,078
1,302,652	1,763,300	(D) 54,205
1,307,034	1,763,302	(D) 54,206
1,323,045	1,777,666	(D) 54,207
1,329,706	1,777,667	(D) 54,208
1,424,720	1,789,868	(D) 54,203
1,426,376	1,789,896	(D) 55,376
1,448,113	1,792,976	(D) 56,136
1,457,361	1,801,926	(D) 73,604
1,457,972	1,804,927	(D) 76,792
1,472,164	1,815,708	(D) 85,427
1,476,294	1,820,660	(D) 85,428
1,476,295	1,820,661	(D) 85,429
1,481,704	1,828,045	
1,492,597	1,860,835	

Other Patents Pending

ERECTOR  
HOW TO MAKE 'EM BOOKS

Same as copy included in Sets

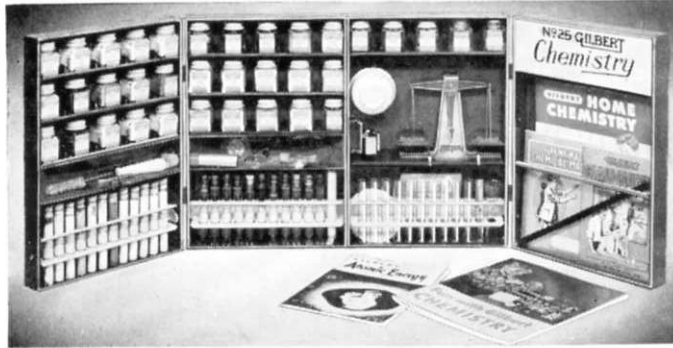
No.	Erector How To Make 'Em Book..	Price
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No. 4 1/2	Erector How To Make 'Em Book..	.25
No. 6 1/2	Erector How To Make 'Em Book..	.35
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