

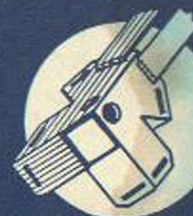
Feather

JOINT

MANUAL OF INSTRUCTIONS

MECCANO-MORECRAFT

The inside front cover
is blank



featuring the
MORE-CRAFT
BOLTLESS JOINT

MANUAL OF INSTRUCTIONS

MECCANO-MORECRAFT

MECCANO-MORECRAFT

"The toy that grows with the boy"

Do you like to make models of things you have seen? Enjoy finding out the *How's* and *Why's*? Want to build brand'new buildings?

The **MECCANO-MORECRAFT** outfit you now have gives you a chance to do all this and more, too; for **MORECRAFT**, in magic manner, equips you to do your own reproducing, inventing, and creating. Want to start right away? Good! Here's how to do it:

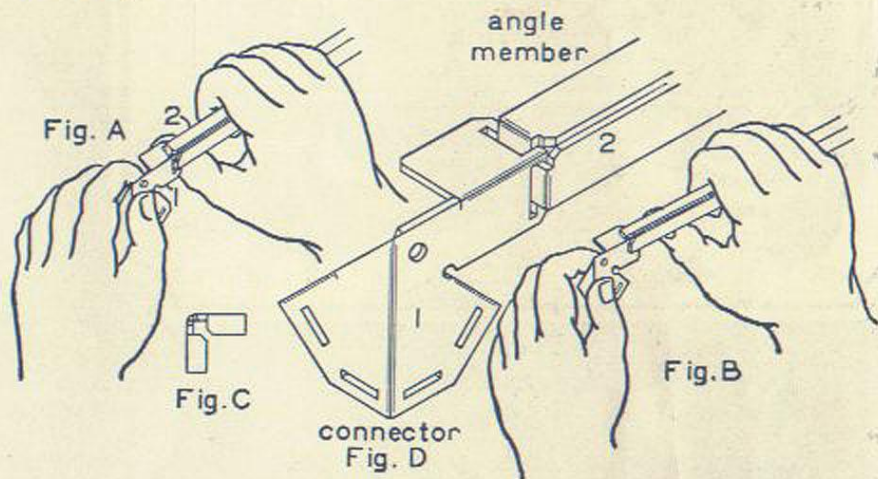
***FIRST:** Get acquainted with the new **MORECRAFT BOLTLESS JOINT**. Its business is to join parts without the use of nuts, bolts, rivets, nails, or rods. Try attaching and detaching the angle members or girders to the different connections or gussets; and learn how to adjust the ends of the angle-member to form a perfect joint. The illustration to the right shows you how. You will find yourself putting **MORECRAFT** together and taking it apart in an astonishingly short time. In the smaller sets of **MECCANO-MORECRAFT**, there are no nuts and bolts at all; yet you can build all the models shown for these sets in the **MANUAL OF INSTRUCTIONS** and many others you will think of yourself. With the larger sets, even, you will find you need very few nuts and bolts. Notice that the individual **MORECRAFT** joints are designed to be slightly flexible but that the completed structure is surprisingly rigid and strong.

****SECOND:** Study the pictures of the parts and the "CONSTRUCTION DETAILS" at the end of this manual. Engineers, Architects, and Educators all agree that the careful planning of **MORECRAFT** parts allows a larger number of different combinations with a smaller number of parts, and permits diagonal bracing, etc. making **MECCANO-MORECRAFT** the ideal construction toy.

*****THIRD:** Select a model to build, beginning with a simple one. You will find that there is an endless store of enjoyment for **MECCANO-MORECRAFT** builders whether they be boys or girls, young or old. The four-year-old, too young to build from pictures, will connect pieces here and there and discover for himself the principles of structural design. You can build readily, using model pictures in the manual, real models, or your imagination. Grown up boys particularly enjoy building "easy-to-put-together, quick-to-get-apart" structures to support complicated motor driven mechanisms.

******FOURTH:** Select your parts and start to build. The manual helps you, in building smaller models, by giving you, near each picture, a list of parts required. For the larger models, a blueprint is provided, in addition to the picture in the manual. This blueprint also includes a "BILL OF MATERIAL" and necessary instruction. The models pictured in the manual are suggestions. They do not begin to exhaust the possibilities of your set. As you use your **MECCANO-MORECRAFT**, new

ideas will come to you. You will gradually accumulate so much valuable knowledge of mechanics and engineering that you can develop these ideas and try your hand at inventing.



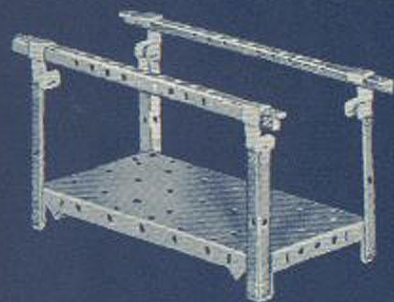
MORECRAFT BOLTLESS JOINT

The operation of the **MORECRAFT JOINT** is shown in Figs. A and B.

To attach, hold the members as shown in Fig. A with the right thumb under the slots of the connector, 1, and press the angle-member 2, down. The projecting ends of the angle-member will spring apart and enter the slots. The position of the parts for making the connection is shown more clearly in Fig. D. To disconnect, hold the parts with the right thumb under the split end of the angle-member near the connector and pull down on the connector with the left hand. The right thumb will spread the ends of the angle-member and the parts will separate. A slight twisting of the angle-member will assist in disconnecting the members. If properly adjusted, the joint is surprisingly strong and rigid. If it is not, the ends of the angle-member may have become bent. This may be corrected easily by bending the ends of the angle-member until they are in the position shown in Fig. C.

If you have any difficulty building models, if you want to ask questions about **MECCANO-MORECRAFT**, if you want to tell us about any of the discoveries that you make in connection with it, write to us! Meanwhile, happy times to you!

Sec. 1

Models built with the *Beginner Size*

PARALLEL BARS
For Your Toy Playground

PARALLEL BARS

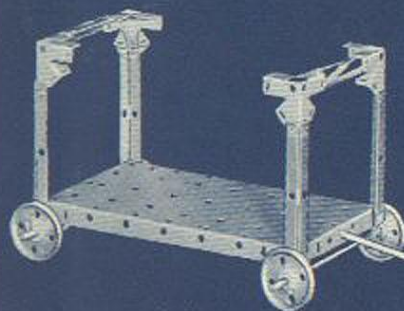
P-4	1
A-1	4
A-3	2
C-0	4

BAGGAGE TRUCK

P-4	1
A-0	2
A-1	4
C-90-X	4
W-2	4
R-2	2
R-4	1
K	4

(Rubber Band—
Not Supplied)

Put a rubber band several
times around the end of
the tongue before insert-
ing it into the hole in the
P-4.



BAGGAGE TRUCK

Parts required**SAND SIFTER**

P-4	1
A-0	1
A-2	2
C-135-ZR	1
C-135-ZL	1

WEATHER VANE

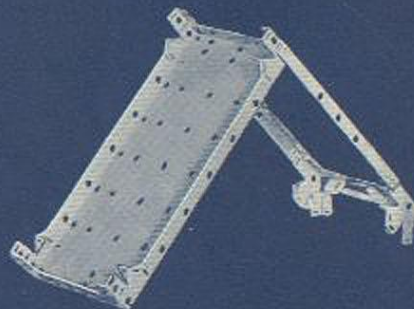
P-4	1
A-0	6
A-1	3
C-90-X	4
C-135-ZR	1
C-135-ZL	1
R-4	1
W-2	2
K	3

STIFF LEGGED DERRICK

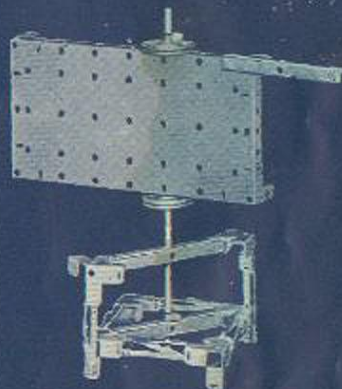
The boom will swing all over your block building. The vertical rod is held top and bottom between the ends of A-0's, reverse connected to the corner of the P-1 and the top C-90-X. See the "Construction Details".

P-4	1	C-135-ZR	1
A-0	6	C-135-ZL	1
A-1	3	W-2	4
A-2	2	R-4	1
A-3	2	CH-1	1
C-0	3	K	3
C-90-X	4	AF	1

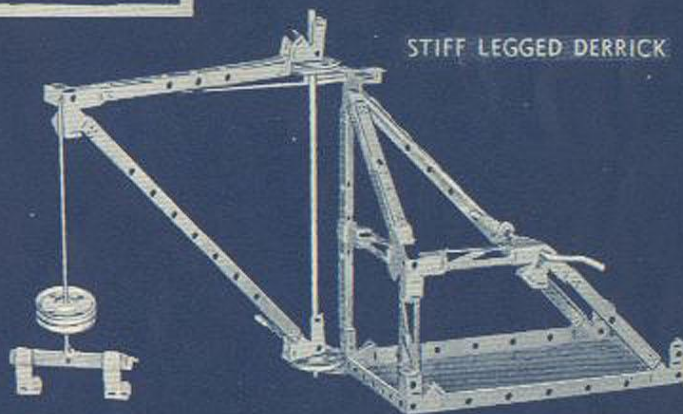
(String—Not Supplied)



SAND SIFTER



WEATHER VANE
The Finger Will Point to the
Direction from Which the
Wind Is Blowing



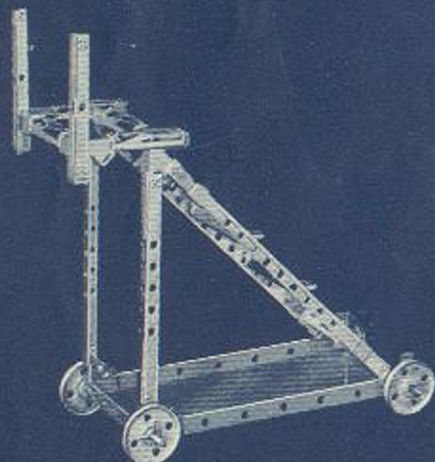
STIFF LEGGED DERRICK



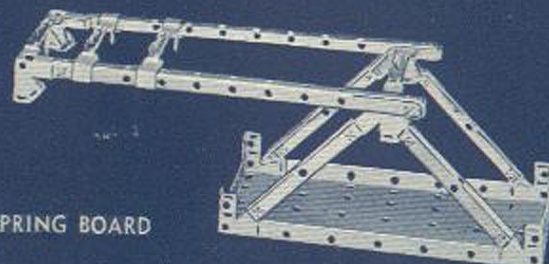
LIBRARY TABLE



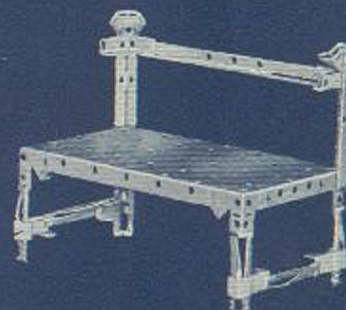
FLAT TRUCK



TROLLEY REPAIR TRUCK



SPRING BOARD



PARK BENCH

LIBRARY TABLE

P-4	1
A-0	6
A-2	2
C-90-X	4

FLAT TRUCK

P-4	1
W-2	4
R-2	2
K	4

TROLLEY REPAIR TRUCK

P-4	1	C-0	4
A-0	6	C-90-X	4
A-1	4	W-2	4
A-2	2	R-2	2
A-3	2	K	4

Parts required

SPRING BOARD

P-4	1
A-0	4
A-1	4
A-3	2
C-0	4
C-90-X	4

PARK BENCH

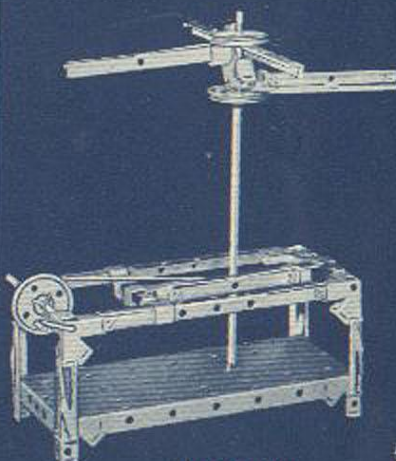
P-4	1
A-0	6
A-1	2
A-2	1
C-0	4
C-90-X	2

WHIRLIGIG

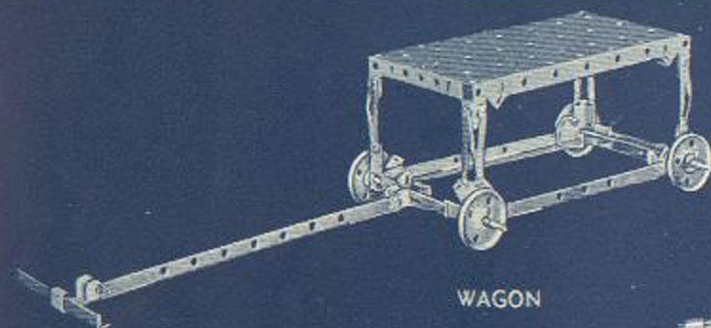
Note: For the construction of the hub of the whirligig see the construction details in the back part of this manual.

P-4	1	C-135-ZR	1
A-0	6	C-135-ZL	1
A-1	3	W-2	3
A-2	2	R-4	1
A-3	1	CH	1
C-0	4	K	4
C-90-X	4		

(Rubber Band—Not Supplied)



WHIRLIGIG
Illustrates the Transmission
of Circular Motion

Models built with the *Beginner Size*

WAGON

RAILWAY CROSSING GATE
For Your Toy Trains

HAND TRUCK

FOOT BRIDGE
(Just Right for Your Toy
Soldiers)

Parts required

WAGON

P-4	1
A-0	6
A-1	1
A-2	2
A-3	1
C-0	2
C-90-X	4
W-2	4
R-2	2
K	4

HAND TRUCK

P-4	1
A-0	5
A-1	2
C-90-X	2
W-2	2
R-2	1
K	2

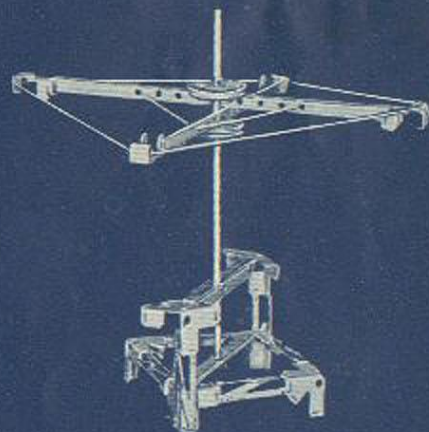
RAILWAY CROSSING GATE

P-4	1	C-135-ZR	1
A-0	6	C-135-ZL	1
A-1	2	W-2	1
A-2	2	R-2	1
A-3	2	CH-1	1
C-0	3	K	4
C-90-X	4		

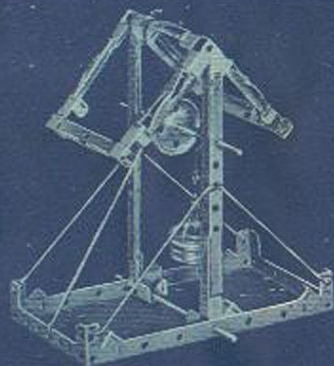
(String—Not Supplied)

Note: Spring apart the ends of the gate and
press together over the W-2.CLOTHES
REEL

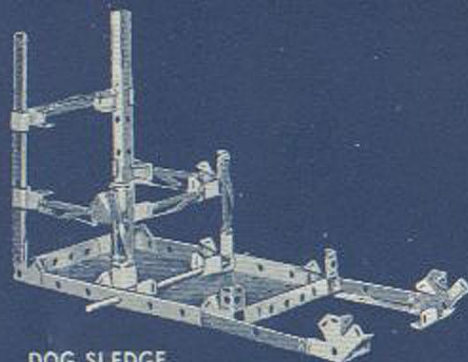
A-0	6
A-1	2
A-3	2
C-0	4
C-90-X	4
C-135-ZL	1
C-135-ZR	1
W-2	2
R-4	1
K	3
(String—Not Supplied)	



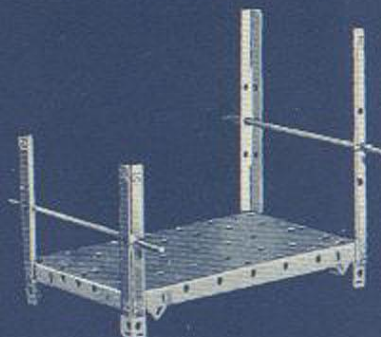
CLOTHES REEL

Models built with the **Beginner Size**

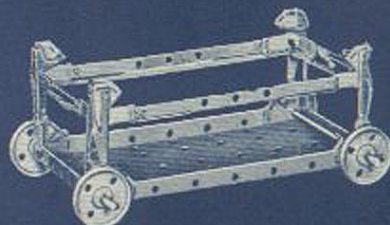
WELL
The Open Country Kind



DOG SLEDGE



FOUR POSTER BED



PACKAGE TRUCK



CATAPULT

Parts required

WELL		DOG SLEDGE		FOUR POSTER BED		PACKAGE TRUCK	
P-4	1	P-4	1	P-4	1	P-4	1
A-0	5	A-0	6	A-1	2	A-0	6
A-1	2	A-1	2	A-2	2	A-2	2
A-2	2	A-2	2	R-4	2	C-90-X	4
C-0	4	C-0	4	K	4	W-2	4
C-90-X	4	C-90-X	4			R-2	2
W-2	4	C-135-ZR	1			K	4
R-2	2	C-135-ZL	1				
K	3	K	2				
AF	1	R-2	1				

(String—Not Supplied)

CATAPULT

Place a wad of paper on the upper end of the arm, pull back and release. Wad may be accurately thrown.

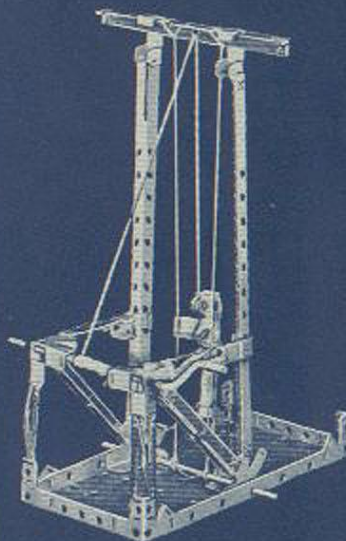
P-4	1	C-0	4
A-0	2	C-90-X	2
A-1	4	R-2	2
A-3	2	K	4

(Rubber Band—Not Supplied)

BUILDERS' HOIST

Note: This model illustrates the conversion of circular motion into straight motion.

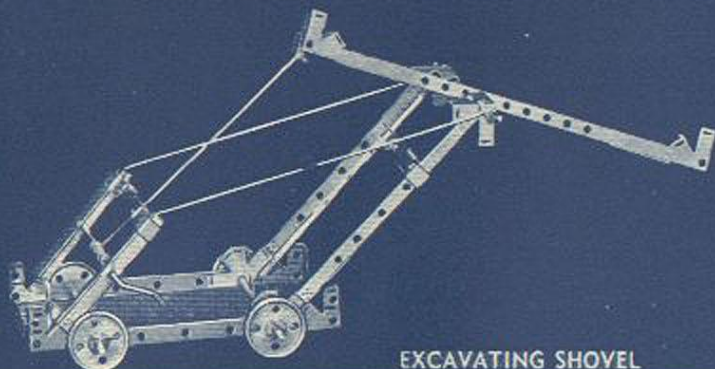
P-4	1	C-135-ZR	1
A-0	4	C-135-ZL	1
A-1	3	R-2	1
A-2	1	C-H	1
A-3	2	AF	1
C-0	4	K	2
C-90-X	4	(String—Not Supplied)	



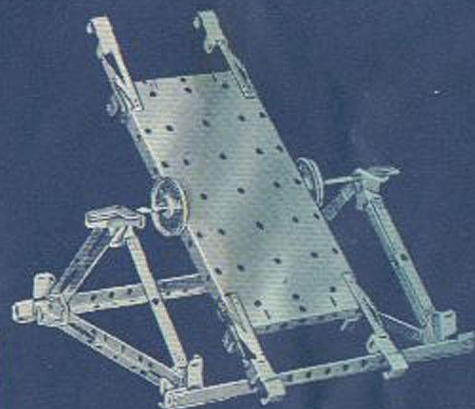
BUILDERS' HOIST
Used to Hoist Materials in
Buildings During
Construction

Models built with the *Beginner Size*

TABLE



EXCAVATING SHOVEL



SEE SAW



SAW-BUCK

Used to Saw Up Fire Wood

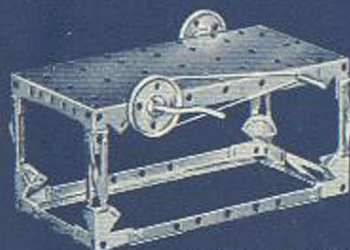
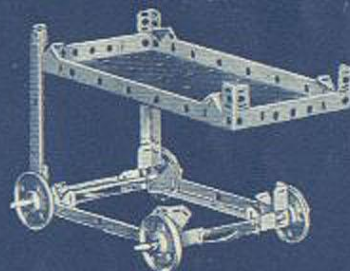
CIRCULAR SAW
As Found in Any Large
Woodworking Shop

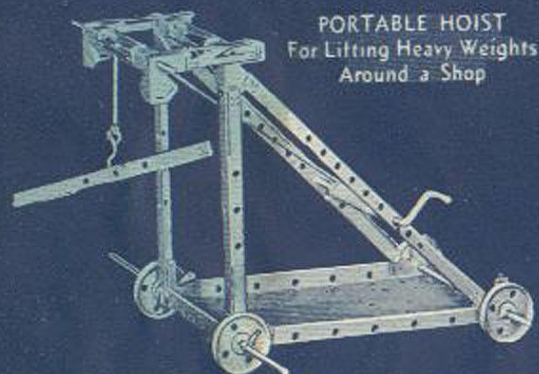
TABLE		Parts required		SEE SAW	
TABLE		EXCAVATING SHOVEL		SEE SAW	
P-4	1	P-4	1	P-4	1
A-0	6	A-0	2	A-0	4
A-2	2	A-1	2	A-1	4
C-90-X	4	A-2	2	A-2	2
		A-3	1	A-3	2
		C-0	4	C-0	4
SAW-BUCK		C-90-X	4	C-90-X	4
C-90-X	4	C-135-ZR	1	C-135-ZR	1
A-0	3	C-135-ZL	1	C-135-ZL	1
A-1	4	W-2	4	W-2	2
A-2	1	R-2	2	R-4	1
R-4	1	R-4	1	K	4
		CH-1	1		
CIRCULAR SAW		K	4	BEDSIDE TABLE	
P-4	1			P-4	1
A-0	6	(String—Not		A-0	2
A-2	2	Supplied)		A-1	4
C-90-X	4			C-90-X	4
W-2	2			W-2	4
R-2	1			R-2	2
C-H	1			K	4
K	3				

Note: The Circular Saw, shown
to the left, illustrates the trans-
mission of circular motion.

(Rubber Band—Not Supplied)



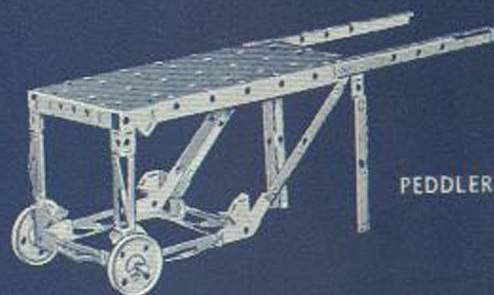
BEDSIDE TABLE

Models built with the **Beginner Size**

PORTABLE HOIST
For Lifting Heavy Weights
Around a Shop



STEP LADDER



PEDDLERS' CART



SLED

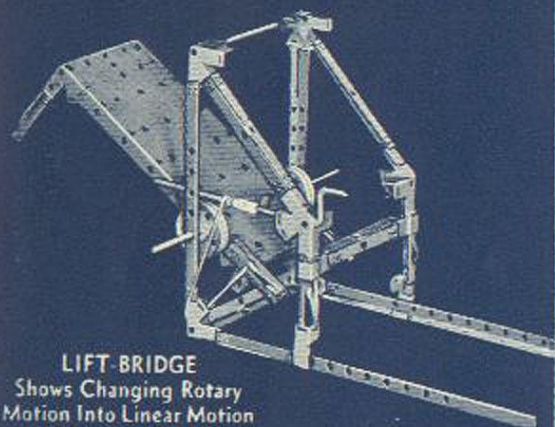
BAND SAW
For the Toy Workshop



Parts required			
PORTABLE HOIST		STEP LADDER	
P-4	1	A-0	5
A-0	4	A-2	2
A-2	3	A-3	2
A-3	2	C-0	4
C-90-X	4	C-90-X	4
R-2	2	C-135-ZR	1
R-4	1	C-135-ZL	1
W-2	4		
C-H	1		
K	4		
AF	1		
(String—Not Supplied)			
BAND SAW		PEDDLERS' CART	
P-4	1	P-4	1
A-0	6	A-0	6
A-1	4	A-1	4
A-2	2	A-2	2
A-3	2	C-90-X	1
C-0	2		
C-90-X	4		
(String—Not Supplied)			
		SLED	
		P-4	1
		A-0	4
		A-3	2
		C-90-X	2
		C-135-ZR	1
		C-135-ZL	1
		The runners are fastened together front and rear and the P-4 simply rests within them.	
		HAND CAR	
		P-4	1
		A-0	2
		A-1	4
		A-2	2
		C-0	4
		C-90-X	2
		R-2	2
		R-4	1
		W-2	4
		K	4



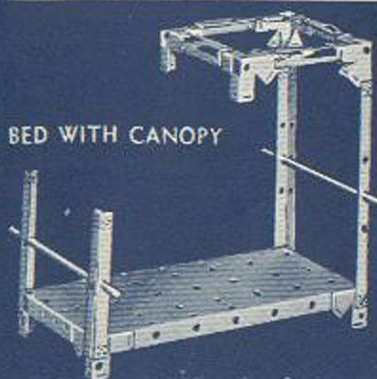
HAND CAR

Models built with the *Beginner Size*

LIFT BRIDGE
Shows Changing Rotary
Motion Into Linear Motion
and Changing Back Into
Rotary Motion



APOTHECARIES' SCALES
Used by the Druggist for
Prescriptions



BED WITH CANOPY

Used by Kings and Queens

Parts required

LIFT BRIDGE

P-4	1	C-135-ZR	1
A-0	6	C-135-ZL	1
A-1	4	W-2	4
A-2	2	R-2	1
A-3	2	R-4	1
C-0	4	CH-1	1
C-90-X	4	K	4

(String—Not Supplied)

APOTHECARIES' SCALES

P-4	1		
A-0	2		
A-1	2	BED WITH CANOPY	
A-2	2		
A-3	2	P-4	1
C-0	4	A-0	4
C-90-X	4	A-1	2
C-135-ZR	1	A-2	2
W-2	2	C-90-X	4
R-2	2	R-2	2
K	4	K	4

WAREHOUSE CRANE

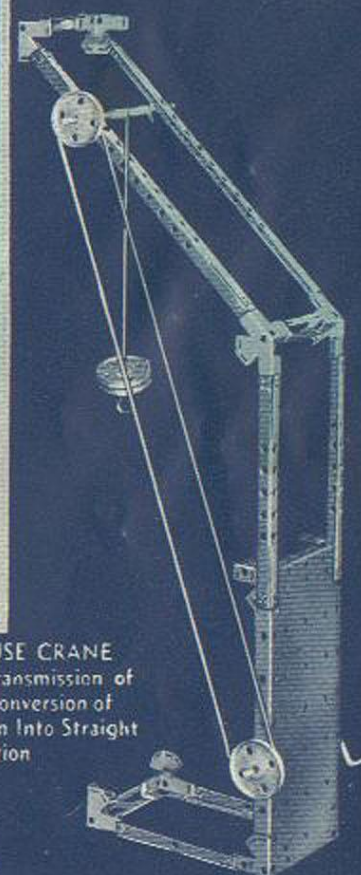
P-4	1	C-135-ZL	1
A-0	3	R-2	1
A-1	3	CH-1	1
A-2	2	W-2	4
A-3	2	AF	1
C-90-X	4	K	4
C-135-ZR	1		

(String—Not Supplied)

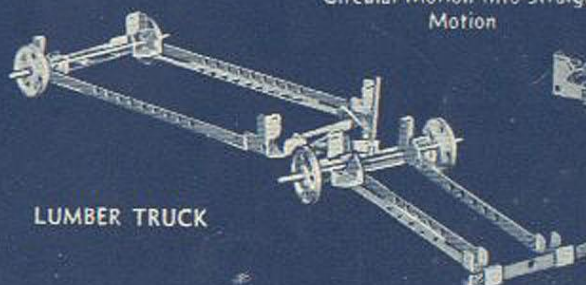
LUMBER TRUCK

A-0	4	C-135-ZR	1
A-1	2	C-135-ZL	1
A-2	2	W-2	4
A-3	2	R-0	1
C-0	2	R-2	2
C-90-X	4	K	4

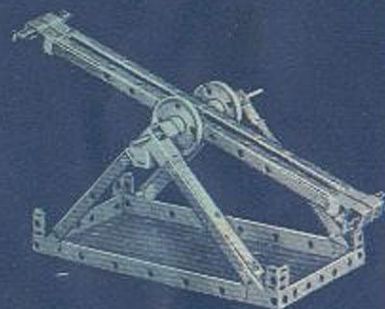
Note: The ends of the two A-0's, connected to the C-135's, are crossed and the end of the R-0 is inserted in a vertical position as shown through their slightly spread ends and between the R-2 and the A-1 of the front truck. See the Construction Details at the end of this Manual.



WAREHOUSE CRANE
Shows Belt Transmission of
Power and Conversion of
Circular Motion Into Straight
Motion



LUMBER TRUCK

Models built with the **Beginner Size**

TEETER

TEETER	
P-4	1
A-0	2
A-1	4
A-3	2
C-0	4
C-90-X	2
R-2	1
W-2	2

Parts required PLAYGROUND SLIDE	
P-4	1
A-0	5
A-1	2
C-0	4
C-90-X	2

ROPE SWING	
P-4	1
A-0	2
A-2	2
A-3	2
C-0	2
C-90-X	4
R-2	1

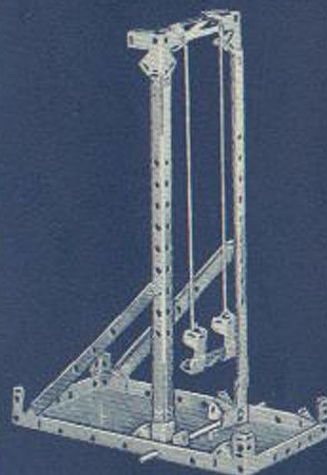
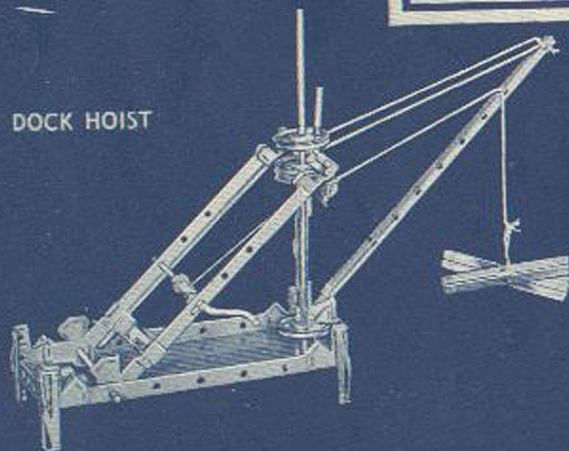
(String—Not Supplied)

DOCK HOIST			
P-4	1	C-135-ZL	1
A-0	6	W-2	4
A-1	3	R-0	1
A-2	2	R-2	1
A-3	1	R-4	1
C-0	4	CH-1	1
C-90-X	2	AF	1
C-135-ZR	1	K	4

(String—Not Supplied)

WAGON	
P-4	1
A-0	6
A-1	3
A-2	2
C-0	2
C-90-X	4
C-135-ZR	1
C-135-ZL	1
W-2	4
R-0	1
R-2	2
K	4

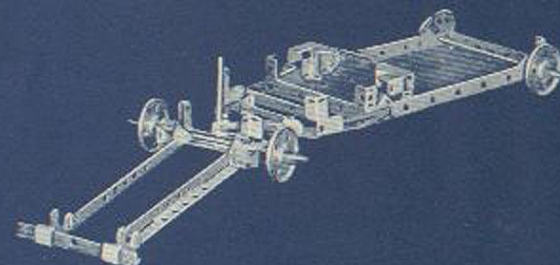
Note: The ends of the two A-0's, connected to the C-135's, are crossed and the end of the R-0 is inserted in a vertical position as shown through their slightly spread ends and between the R-2 and the A-1 of the front truck. The seat and foot rest are simply laid in the positions shown. See the Construction Details at the end of this Manual.

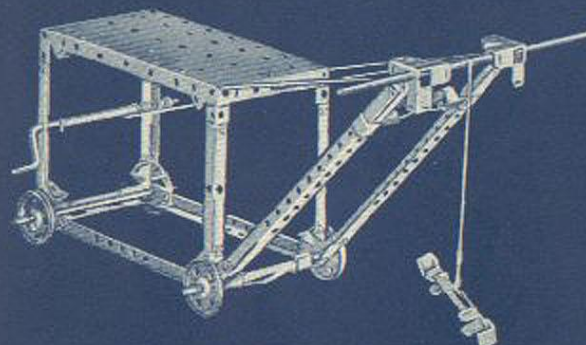
ROPE SWING
(For Your Toy Playground)

DOCK HOIST

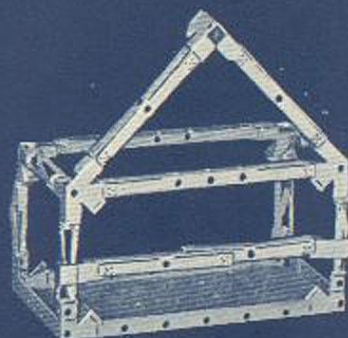


PLAYGROUND SLIDE

WAGON
Front Wheels Steer as in a
Real Wagon

Models built with the *Beginner Size*

PORTABLE CRANE
For Lifting Heavy Weights, as
in Ship Yards



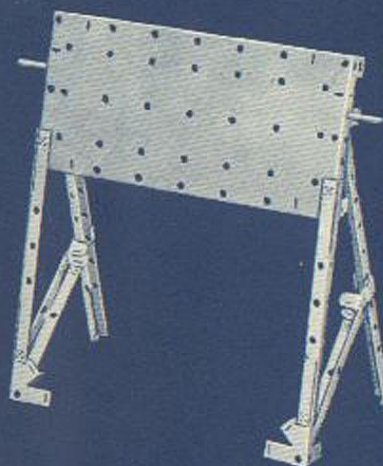
HOT DOG STAND
(Probably Has Ice Cream
Cones Also!)



TREE



TEA WAGON



BLACKBOARD

**PORTABLE
CRANE**

P-4	1
A-0	4
A-1	4
A-2	2
A-3	2
C-0	4
C-90-X	4
C-135-ZR	1
C-135-ZL	1
C-H	1
R-2	2
R-4	1
K	4
W-2	4
AF	1

(String—Not
Supplied)

HOT DOG STAND

P-4	1
A-0	6
A-1	4
A-2	2
C-0	2
C-90-X	3
C-135-ZR	1
C-135-ZL	1

BLACKBOARD

P-4	1
A-1	2
A-2	2
A-3	2
C-0	2
C-90-X	4
R-4	1

The Rod Holds Two C-90-X's in Place Behind the P-4.

Parts required

TREE

A-0	4
A-2	1
C-90-X	2

TEA WAGON

P-4	1
A-0	3
A-1	4
A-2	1
A-3	2
C-0	3
C-90-X	4
W-2	2
R-2	1
K	2

PILE DRIVER

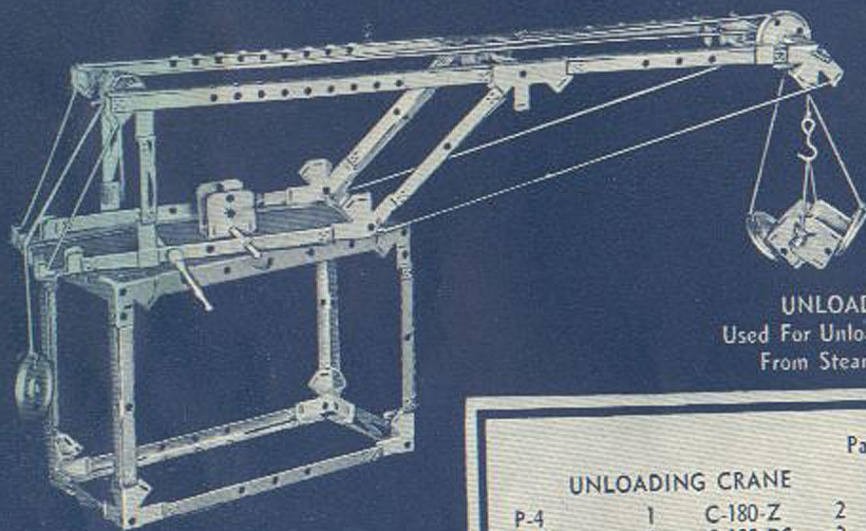
When the Hammer Is Up Unhook and Let It Drop.

P-4	1	C-135-ZR	1
A-0	5	C-135-ZL	1
A-1	4	W-2	4
A-2	2	R-2	1
A-3	2	C-H	1
C-0	4	K	4
C-90-X	4	AF	1

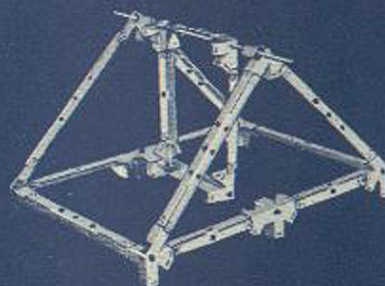
(String—Not Supplied)



PILE DRIVER

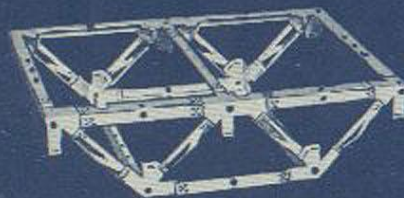
Models built with the *Craftsman Size*

UNLOADING CRANE
Used For Unloading Grain or Coal
From Steamers and Barges



PLAYGROUND SWING

**STEEL SCOW OR
INVERTED BRIDGE TRUSS**



Parts required

UNLOADING CRANE

P-4	1	C-180-Z	2
A-0	8	C-180-DS	3
A-1	7	W-2	4
A-2	6	R-0	1
A-3	2	R-2	2
C-0	6	CH-1	1
C-90-X	6	AF	1
C-135-ZL	2	K	6
C-135-ZR	2	SN	3

String—Not Included

Note: The C-180 DS is pivoted to the base plate P-4 by a snap rivet SN. The wheels W-2 are fastened to the C-180 DS by snap rivets. See Construction Details to make the clam shell bucket.

STEEL SCOW

A-0	8	C-135-ZL	2
A-1	6	C-135-ZR	2
A-2	5	C-180-Z	2
C-90-X	4		

PLAYGROUND SWING

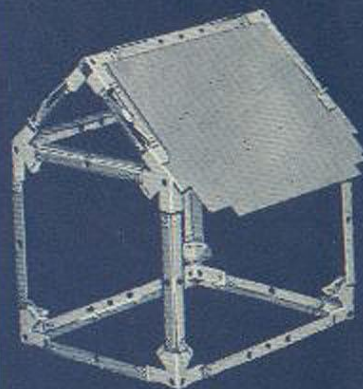
A-0	2	C-135-ZL	2
A-1	6	C-135-ZR	2
A-2	6	C-180-Z	2
C-90-X	6	R-4	1

The Craftsman Size MORECRAFT gives you 5 new parts. First there are two new connection members, the C-180-Z and the C-180-DS. Next there is a very useful pulley sheave, W-1. Then there is a new fastening member, the snap rivet, SN by means of which members may be connected through their holes. These rivets are very useful in forming a pivoted joint. The last new element is the special panel insert, by the means of which you may fill in surfaces of your structures to improve their appearance. Learn all these new parts and their uses from the pictures given at the end of the Manual.

SUMMER HOUSE

A-0	4	C-135-ZL	2
A-1	8	C-135-ZR	2
A-2	5	P-12	2
C-90-X	6		

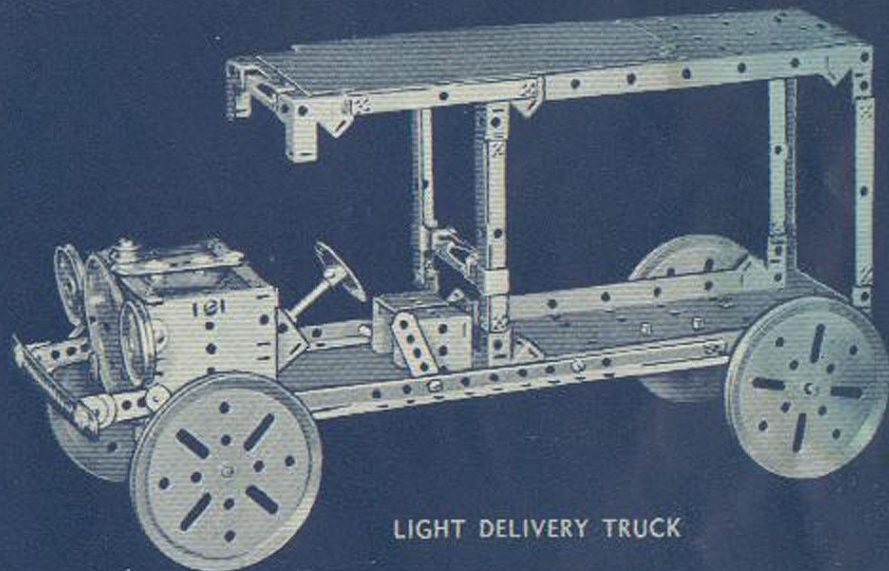
This is the first model to show the use of the panel inserts. See the Construction Details at the end of this Manual.



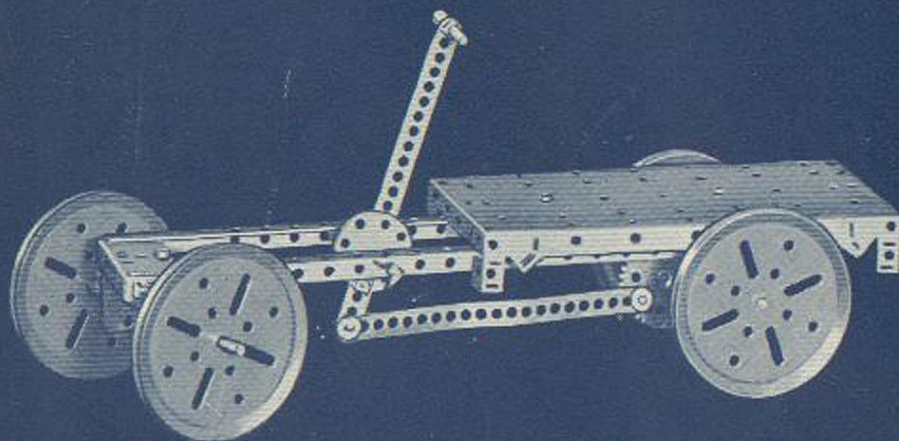
SUMMER HOUSE
Of Modern All Metal Construction

Models built with the *Fellow Size*

Note: To improve the appearance of the LIGHT DELIVERY TRUCK shown to the right insert panels P-12 into the sides to form a closed delivery wagon. See Construction Details at the end of this Manual.



LIGHT DELIVERY TRUCK



IRISH MAIL

Geared Just Like the Real Ones
See Detailed View to the Right



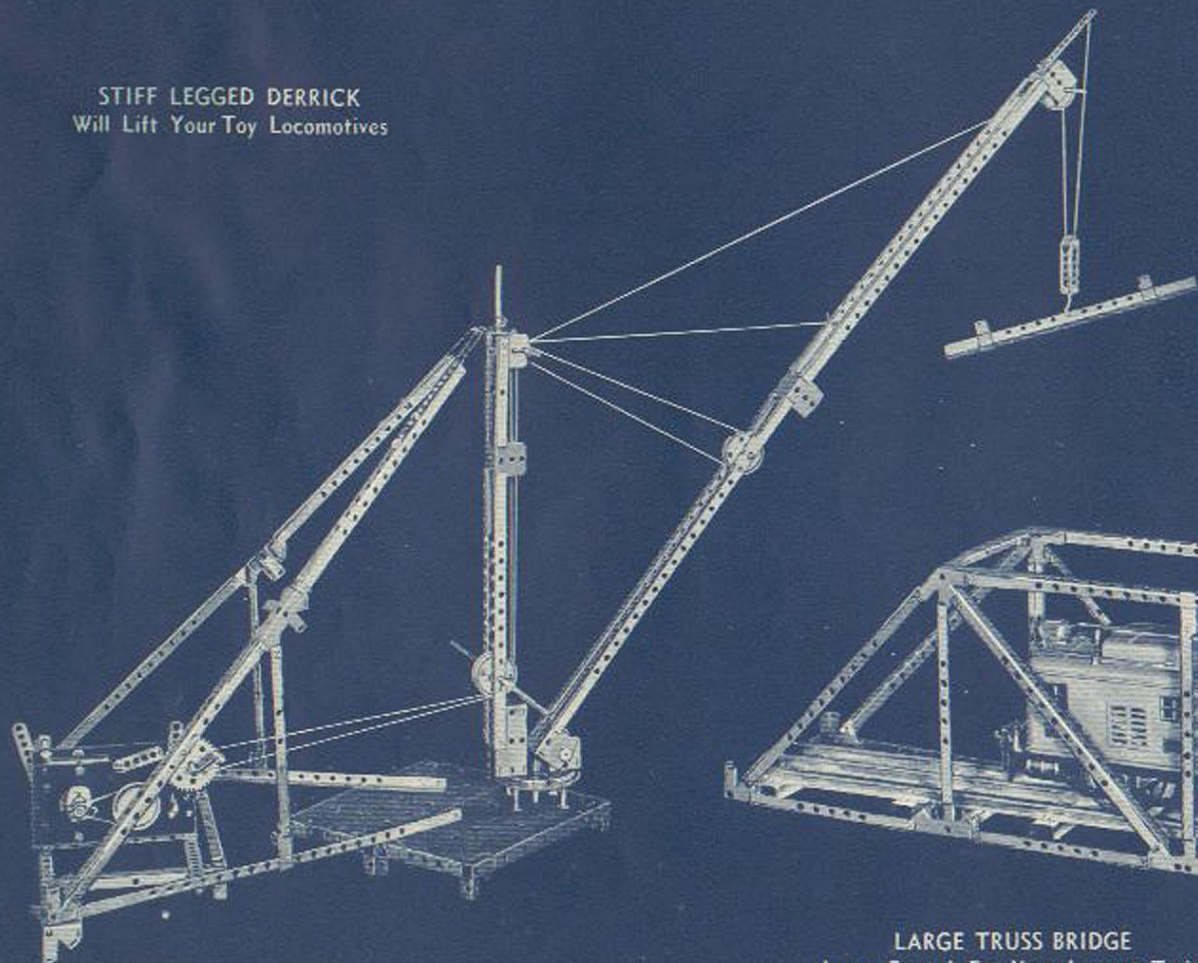
DETAIL OF IRISH MAIL

Shown to the Left. For Further Details
See Your Blueprints.

GRADUATE SIZE

This is to introduce the GRADUATE SIZE MORE-CRAFT. You have in this set a large amount of material. You have had three joining methods. You have learned to read blueprints. Therefore you are ready to proceed in the field of Invention and Engineering. Your opportunity to construct new and interesting models is limitless. A number of such models have been worked out for you. Two are given on this page. The Stiff Legged Derrick is motor driven. Try to work out a way to drive both the boom and the hook from the motor. The bridge is large enough for your largest train. However, you may make it longer or wider if you want to. Also you can put it up on abutments or make it a draw bridge. Use your blueprints as much as possible.

STIFF LEGGED DERRICK
Will Lift Your Toy Locomotives



LARGE TRUSS BRIDGE
Large Enough For Your Largest Train



MORECRAFT CONSTRUCTION DETAILS

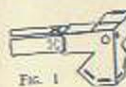


Fig. 1 shows a C-90-X connected to a single angle member.

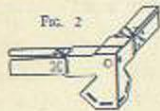


Fig. 2 shows a second angle member connected at a 90° angle to the first angle member.

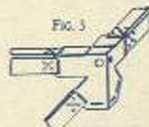


Fig. 3 shows a third angle member connected to the same connector at an angle of 45° to the first angle member.

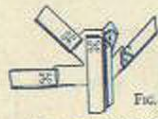


Fig. 4 shows a fourth angle member reverse connected to the connector C-90-X. This is a detail found in a large number of the MORECRAFT models.



Fig. 5 shows two angle members connected to a straight-angle connector C-180-Z. This type of connector is used whenever it is desired to make a long structure. The additional slots of the connector provide for bracing as shown in Fig. 6.

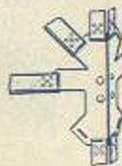


Fig. 6.

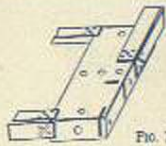


Fig. 7 shows a boom end, C-360. This connector as shown permits connecting angle members at right angles to the boom.

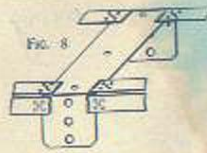


Fig. 8 shows a double straight angle connector, C-180-D, as used to extend the length of a double boom. A similar connector, the C-180-D5, (see MORECRAFT PARTS) is used the same as the connector shown here.

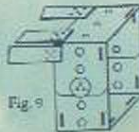


Fig. 9 shows the use of the C-180-D connector as the pivoted end of a boom. The lower and upper connectors may be pivoted by the rope struts shown or by a rod or bolted as described in Fig. 26.

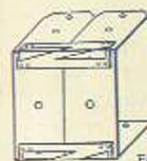


Fig. 10

Fig. 10 shows the use of A-O's to connect two C-180-D's. Other connections may be similarly connected. See Fig. 11.



Fig. 11.

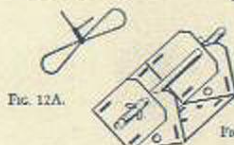


Fig. 12A.

Fig. 12.

Fig. 12 shows how to make a clamp-shell-bracket for use with your derricks, etc., using two C-180-D's. The end of the boat line may be tied as shown in Fig. 12A and one loop slipped over each end of the rod.

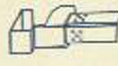


Fig. 13.

Fig. 13 shows the C-O, which is the most useful MORECRAFT connector. Fig. 14 shows a C-O in each of four positions on an angle-member to permit the attachment of an angle-member in each of four directions. The end C-O's prevent the angle-member upon which they are mounted, being detached. Fig. 15 shows how it is possible to locate a shaft rod in any desired position regardless of hole spacings.



Fig. 14.

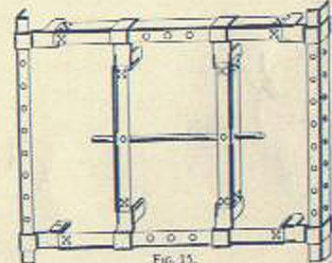


Fig. 15.



Fig. 16.



Fig. 16A.

Fig. 16 and 16A show how to form the hub used in the WHIRLIGIG and CLIMBING REEF models built with the BEGINNER SIZE. Put a rod through the holes in the tops of a pair of C-115-Z connectors. Rotate them into the position shown in Fig. 16. Then force them together as shown in Fig. 16A. Four angle members may be connected in the two connectors.

Fig. 17 and Fig. 17A are plan and side views, respectively, of the arrangement for connecting the front axle pivot in the 12-MAN TRUCK and WAGON models for the BEGINNER SIZE. The lower end of the rod is inserted between the axle rod and the angle-member of the front truck.



Fig. 17.



Fig. 17A.

Fig. 18 shows how to connect the upper end of the pivot rod of the model of the STIFF-LEGGED DERRICK shown for the BEGINNER SIZE. An A-O is connected to the corner of the base plate, P-4, under the A-O shown and the lower end of the rod passes between its ends. A wheel should be placed on the rod over each C-O.



Fig. 18.

Figs. 19 and 19A show the use of the MORECRAFT Key K, to fasten a MORECRAFT wheel W-2, to a rod. Place the key upon the rod where it is desired to have the wheel, then slide the wheel over the tongue of the key until it is held firmly in position.

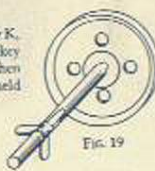


Fig. 19.



Fig. 19A.

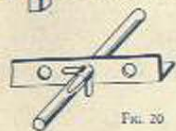


Fig. 20.

Fig. 20 shows the use of a key to limit the rotation of a rod lengthwise yet permit it to rotate freely.



Fig. 21.

Fig. 21 shows how to use a key to fasten the end of a string to wind it upon a crank, CH.

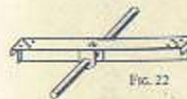


Fig. 22.

Fig. 22 shows how to fasten an angle member to a shaft rod. The screw of a collar is removed and the rod is inserted through the collar and one of a pair of holes in an angle member. Then the screw is inserted through the other hole in the angle member and tightened to hold the member in the desired position. A connector may be similarly secured. An example of this use is the HAND CAR built with the DESIGNER SIZE.

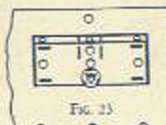


Fig. 23.

Fig. 23 shows how to use the snap rivet. The pieces to be joined are placed with holes in alignment and the rivet is inserted with thumb pressure. Use of a single rivet permits a swivel action to be obtained.

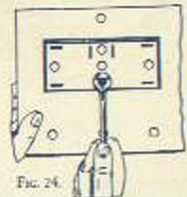


Fig. 24.

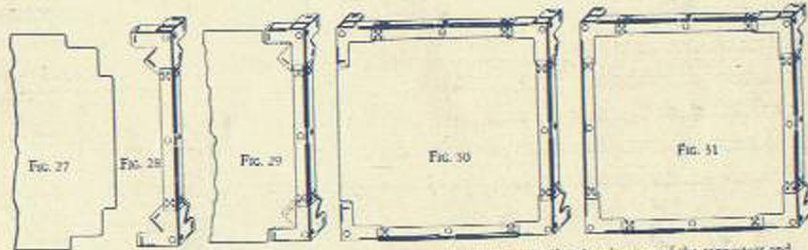
Fig. 24 shows the use of the HANDY RIVET EXTRACTOR to remove the rivets.



After use snap rivets may become compressed and thus lose their tension. To remedy this, insert the prong of the rivet extractor between the slot portions of the rivet and spread them open as shown in Fig. 25.

To lock two nuts in place put them upon a bolt inserted through holes in the members to be joined and turn in opposite directions as shown by the arrows in Fig. 26. This may be done by the use of the two wrenches furnished with all MORECRAFT SETS supplied with nuts and bolts.

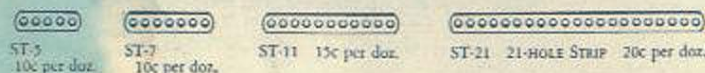
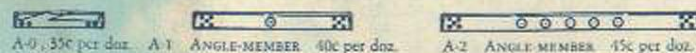
Fig. 26.



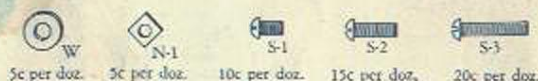
The above Figs. show how to use the MORECRAFT PANEL INSERT. The corners are to be placed on top of the connectors and the sides are to be below the angle members. First, place the panel shown in Fig. 27, with the assembly shown in Fig. 28, as shown in Fig. 29, then add the parts shown in Fig. 30, and, last, complete by connecting the left-hand corners with an angle member.

MORECRAFT SEPARATE PARTS

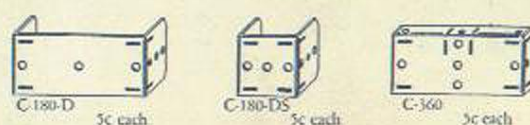
CONNECTORS



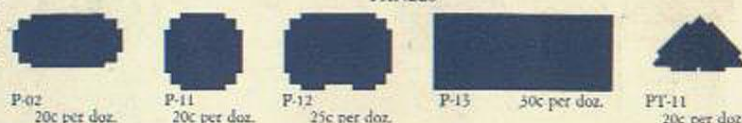
NOTE: The number of holes in the angle-members shown in the pictures of the MORECRAFT models may be different from those shown above. If the model shows 3 holes, the member is an A-2; and if it shows 5 holes, it may be either an A-2 or an A-3.



CONNECTORS



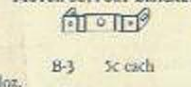
PANELS



ANGLE BRACKETS



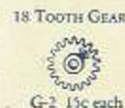
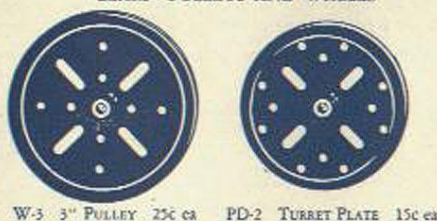
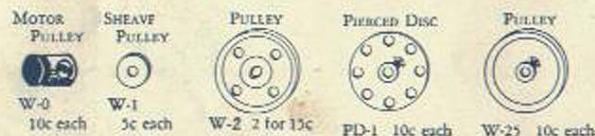
MOTOR SUPPORT BRACKET



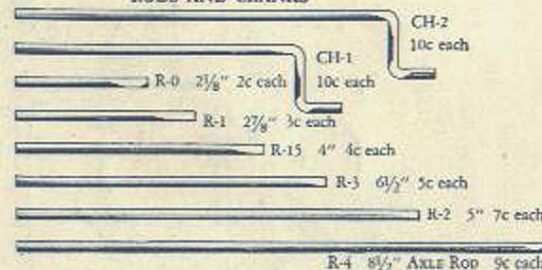
ECCENTRIC



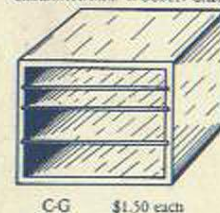
GEARS PULLEYS AND WHEELS



RODS AND CRANKS



GRADUATE SIZE WOODEN CABINET



Many dealers carry Separate Morecraft Parts. If your dealer cannot supply you, send check, money order, or stamps for the parts you want and we will send your order to you postpaid.

MECCANO COMPANY OF AMERICA
NEW HAVEN, CONN., U.S.A.

Sec. 3

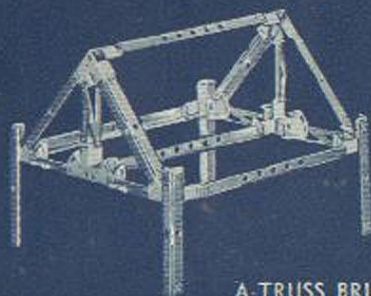
Models built with the Craftsman Size



WORK BENCH

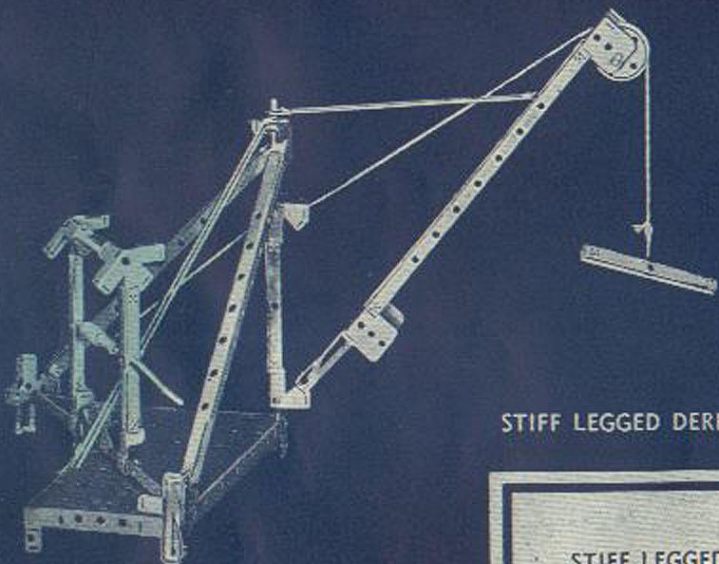


HORSE SULKY

HAMMERHEAD CRANE
With a Bucket That Opens Like a Real One

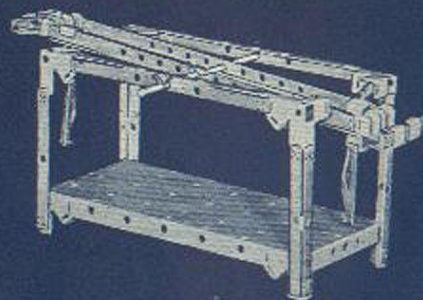
A TRUSS BRIDGE

HORSE SULKY				HAMMER HEAD CRANE			
Parts required							
A-0	6	C-135-ZR	2	P-4	1	C-180-DS	3
A-1	7	C-135-ZL	2	A-0	7	R-0	1
A-3	2	R-4	1	A-1	6	R-2	3
C-0	2	W-2	2	A-2	6	R-4	1
C-90-X	2	K	2	A-3	4	CH-1	1
				C-0	2	W-1	1
				C-90-X	6	W-2	4
				C-135-ZR	2	K	6
				C-135-ZL	2	SN	4
				C-180-Z	2		
				String and Rubber Bands—Not Supplied			
				NOTE: To make the bracket see Construction Details. Both the hoist line and the release line should be wound on the crank.			
WORK BENCH				A BRIDGE TRUSS			
A-0	8	C-135-ZR	1	A-0	6	C-90-X	6
A-1	8	C-135-ZL	1	A-1	8	C-180-Z	2
A-2	1	C-180-Z	2	A-2	4		
C-90-X	6						

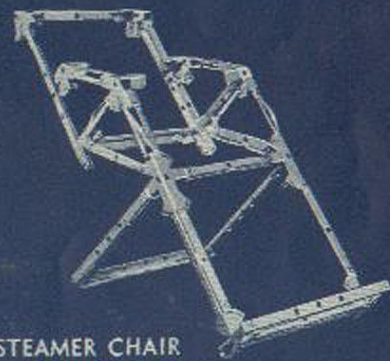
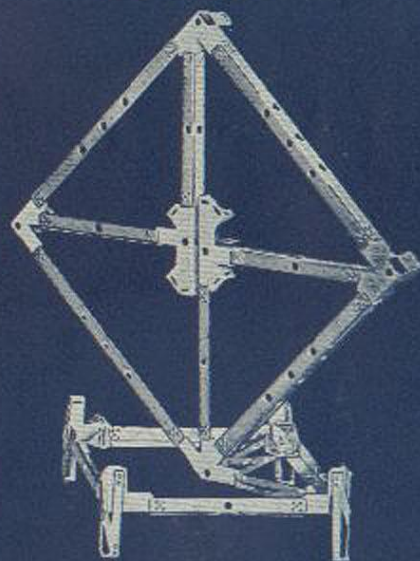


STIFF LEGGED DERRICK

PHARMACISTS' BALANCE
You May Actually Compare Weights With This



RADIO RECEIVING LOOP



STEAMER CHAIR
New Modernistic Design

Parts required

STIFF LEGGED DERRICK

P-4	1	C-180-Z	1
A-0	6	C-180-DS	2
A-1	6	AF	1
A-3	4	W-2	1
C-0	2	R-0	1
C-90-X	5	R-4	1
C-135-ZR	1	CH-1	1
C-135-ZL	1	K	4

String—Not Supplied

NOTE: The boom is double. Place a wheel on the vertical shaft rod between the boom pivot and the base plate and another at the top to fasten the guy line to.

STEAMER CHAIR

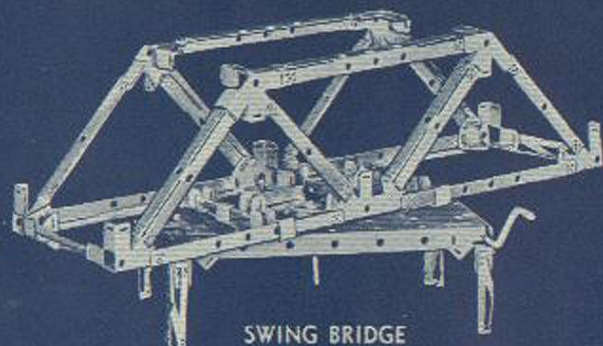
A-0	8	C-135-ZR	2
A-1	8	C-135-ZL	2
A-2	6	C-180-Z	2
C-90-X	6		

PHARMACISTS' BALANCE

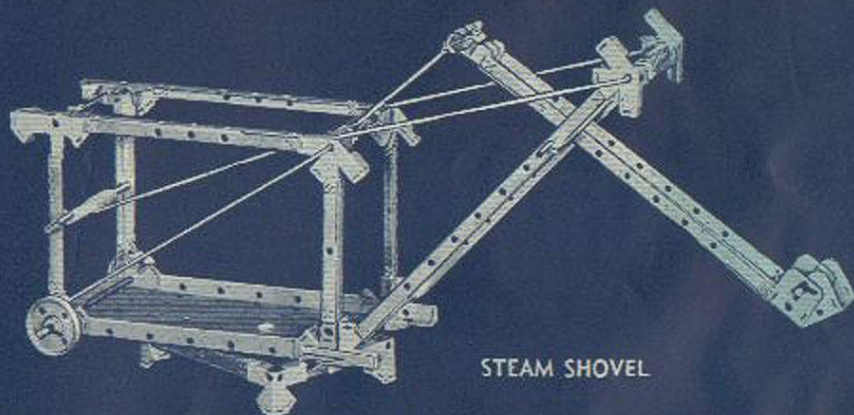
P-4	1	C-0	4
A-0	4	C-90-X	4
A-1	4	R-2	1
A-2	2	K	2
A-3	2		

RADIO RECEIVING LOOP

A-0	6	C-135-ZR	1
A-1	8	C-135-ZL	1
A-2	4	C-180-Z	2
C-90-X	6		

Models built with the *Craftsman Size*

SWING BRIDGE



STEAM SHOVEL

TENT FRAME



How Would You Like to Camp in one Like This?



STEP LADDER

Parts required

SWING BRIDGE			
P-4	1	C-135-ZL	2
A-0	8	C-180-Z	2
A-1	9	W-2	2
A-2	6	R-0	1
C-0	6	CH-1	1
C-90-X	4	K	4
C-135-ZR	2		

Rubber Band—Not Supplied

NOTE: Key a wheel to the lower end of the rod. Pass rod through center hole of the base plate and place wheel on top of plate. Place bridge span over rod and put second key on top end of rod inside the A-1. Rubber band passes around CH and the lower wheel.

TENT FRAME		STEP LADDER	
A-0	3	A-0	6
A-1	6	A-1	7
A-2	6	A-2	5
C-90-X	5	C-90-X	6
C-135-ZR	2	C-135-ZR	2
C-135-ZL	2	C-135-ZL	2
C-180	2	C-180	2
R-4	1	R-4	1

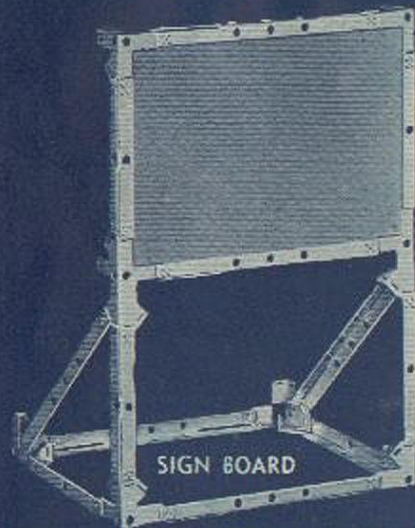
Parts required

STEAM SHOVEL			
P-4	1	C-180-Z	2
A-0	8	C-180-DS	2
A-1	7	R-0	1
A-2	4	R-2	2
A-3	2	CH-1	1
C-0	4	K	6
C-90-X	6	W-2	2
C-135-ZR	2	SN	1
C-135-ZL	2		

String—Not Supplied

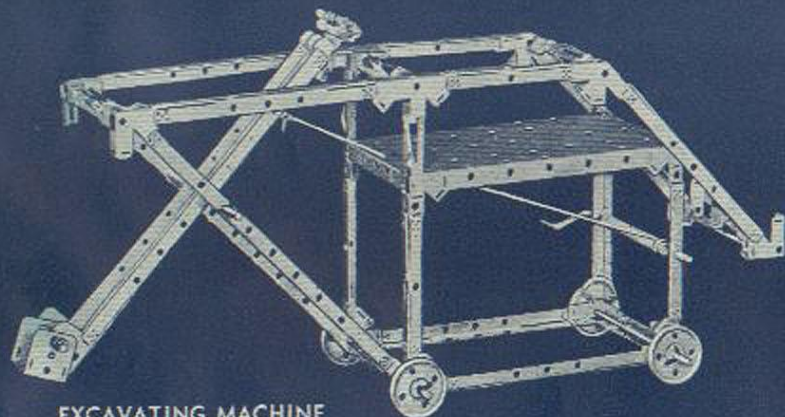
NOTE: The upper ends of the two boom members are connected by an A-0 held by the C-0's connected to the upper ends. The two ends of the base are connected by an A-1 connected to a C-0 at each end. A snap rivet provides a pivot.

SIGN BOARD			
A-1	6	C-180-Z	2
A-2	6	P-12	1
C-90-X	6		



SIGN BOARD

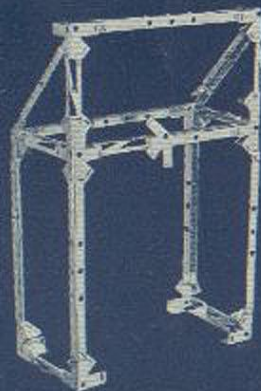
One Which Does Not Deface the Landscape

Models built with the *Craftsman Size*

EXCAVATING MACHINE



WAITING STATION



SIGNAL BRIDGE

A Simple Block Signal For Your Trains

EXCAVATING MACHINE

P-4	1	C-135-ZL	2
A-0	8	C-180-Z	2
A-1	6	C-180-DS	2
A-2	6	W-2	4
A-3	4	R-0	1
C-0	2	R-2	3
C-90-X	6	K	6
C-135-ZR	2	CH-1	1

String and Rubber Bands—Not Supplied

SIGNAL BRIDGE

A-0	7	C-135-ZL	1
A-1	3	C-135-ZR	2
A-2	6	C-180-Z	2
C-90-X	6		

Parts required

WAITING STATION

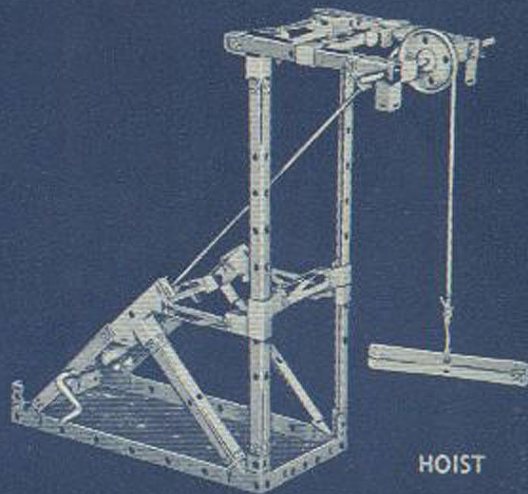
A-0	4	C-135-ZR	2
A-1	6	C-135-ZL	2
A-2	6	C-180-Z	2
C-90-X	6		

NOTE: Try your panels in the roof of this Model.

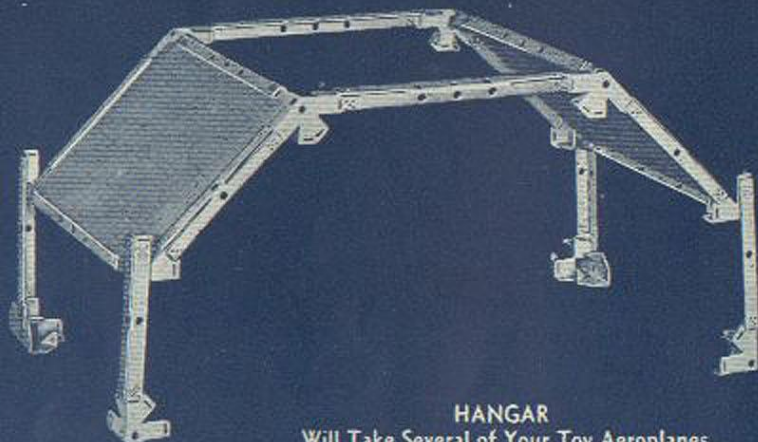
HOIST

P-4	1	C-180-Z	2
A-0	6	W-2	1
A-1	7	R-2	1
A-3	2	CH-1	1
C-0	6	AF	1
C-90-X	4	K	5

String—Not Supplied



HOIST

Models built with the *Craftsman Size***HANGAR**

Will Take Several of Your Toy Aeroplanes
Hole in the Roof is to Permit Observing the Weather

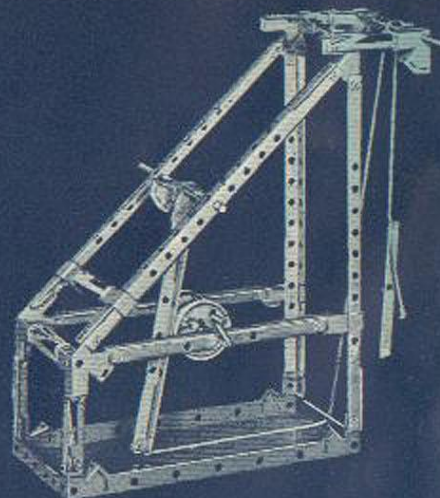
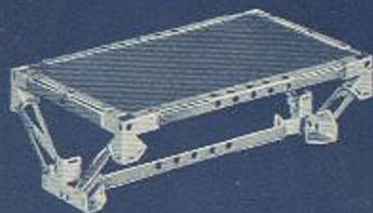
**WELL DIGGER**

TABLE
For the Board of Directors

Parts required			
HANGAR			
A-1	8	C-135-ZL	2
A-2	6	C-180-Z	2
C-90-X	6	P-12	2
C-135-ZR	2		

TABLE			
A-0	4	C-90-X	4
A-1	2	C-180-Z	2
A-2	3		

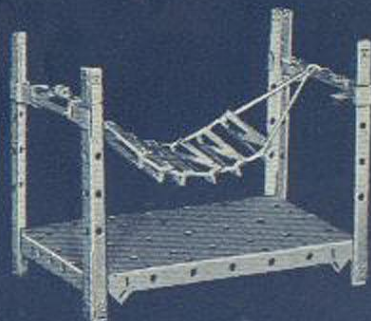
Parts required			
WELL DIGGER			
P-4	1	C-135-ZR	
A-0	8	C-135-ZL	
A-1	1	W-2	
A-2	3	R-0	
A-3	4	R-2	
C-0	4	CH-1	
C-90-X	6	K	

String—Not Supplied

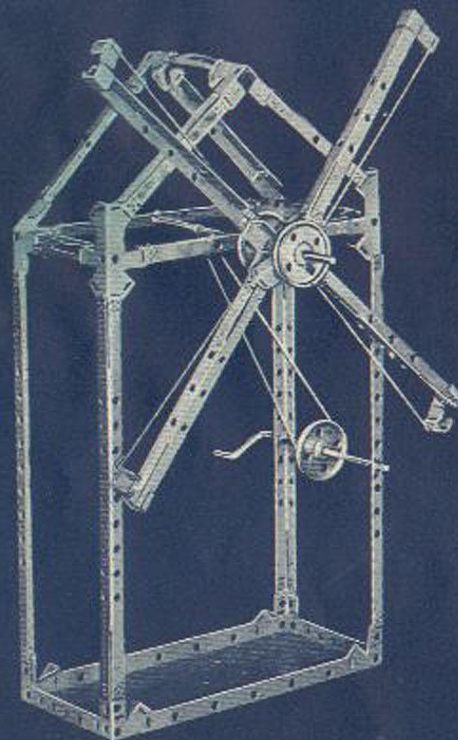
NOTE: Key the two wheels to the crank and pass the short rod through holes in the wheels and fasten into place with two keys. This forms an eccentric.

Parts required			
HAMMOCK			
P-4	1	A-2	4
A-0	8	C-0	4

String—Not Supplied



HAMMOCK
The Barrel Stave Kind

Models built with the *Craftsman Size*

WINDMILL

WINDMILL

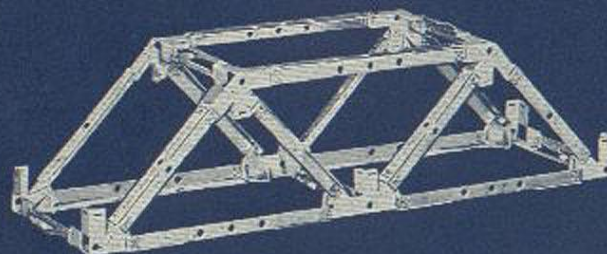
P-4	1	C-135-ZL	2
A-0	3	C-90-X	2
A-1	4	C-180-Z	2
A-2	6	W-2	3
A-3	4	R-4	1
C-0	4	CH-1	1
C-135-ZR	2	K	6

String and Rubber Band—Not
Supplied

NOTE: For the construction of the hub of
the Windmill see the Construction Details.

DOUBLE BRIDGE SPAN

A-0	5	C-135-ZR	2
A-1	8	C-135-ZL	2
A-2	6	C-180-Z	2
C-90-X	4		



DOUBLE BRIDGE SPAN

Parts required

CLOCK

A-0	6	C-135-ZL	2
A-1	6	C-180-Z	2
A-2	5	R-4	1
C-90-X	6	K	4
C-135-ZR	2		

NOTE: Let the pendulum swing freely on
the rod and it will cause the hand to creep
around the face of the clock.

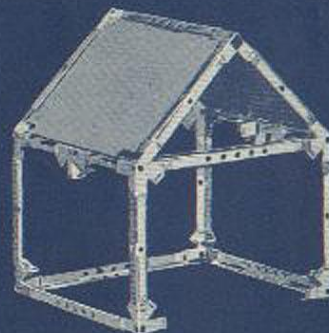
GARAGE

A-0	4	C-135-ZR	2
A-1	8	C-135-ZL	2
A-2	6	C-180-Z	2
C-90-X	6	P-12	2

NOTE: You may cut out 3 extra panels of
cardboard or heavy paper, to fill in the walls,
using one of your P-12's as a pattern.



CLOCK



GARAGE
Just Right For Your Toy Automobiles

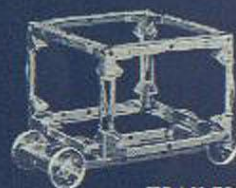
Models built with the *Designer Size*



FOUNDRY HOIST
For Lifting Castings and Moulds

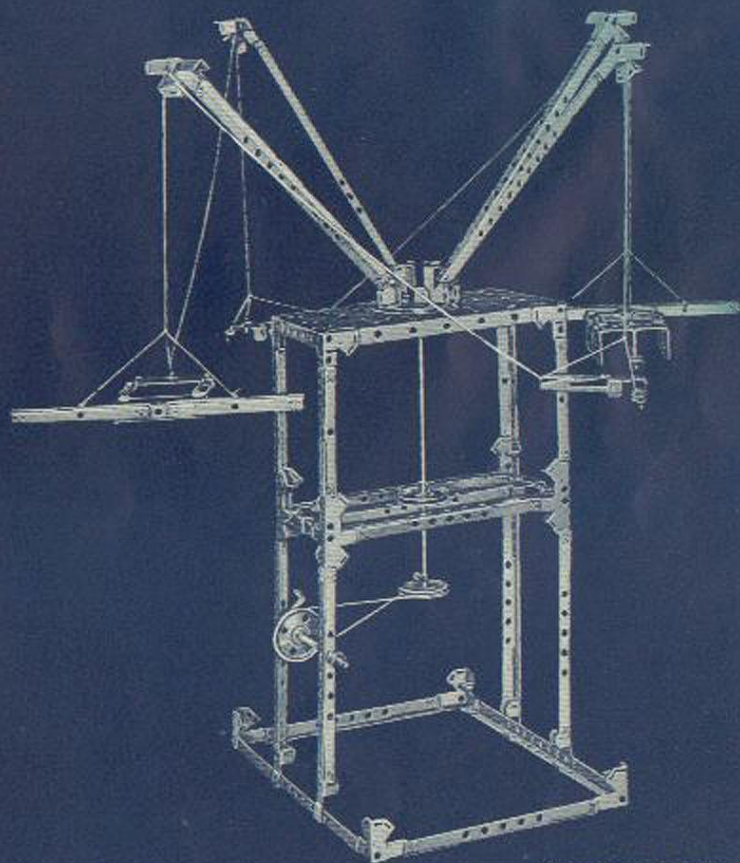


SEARCHLIGHT
May be Turned Right and Left
or Moved Up or Down By a
Single Control



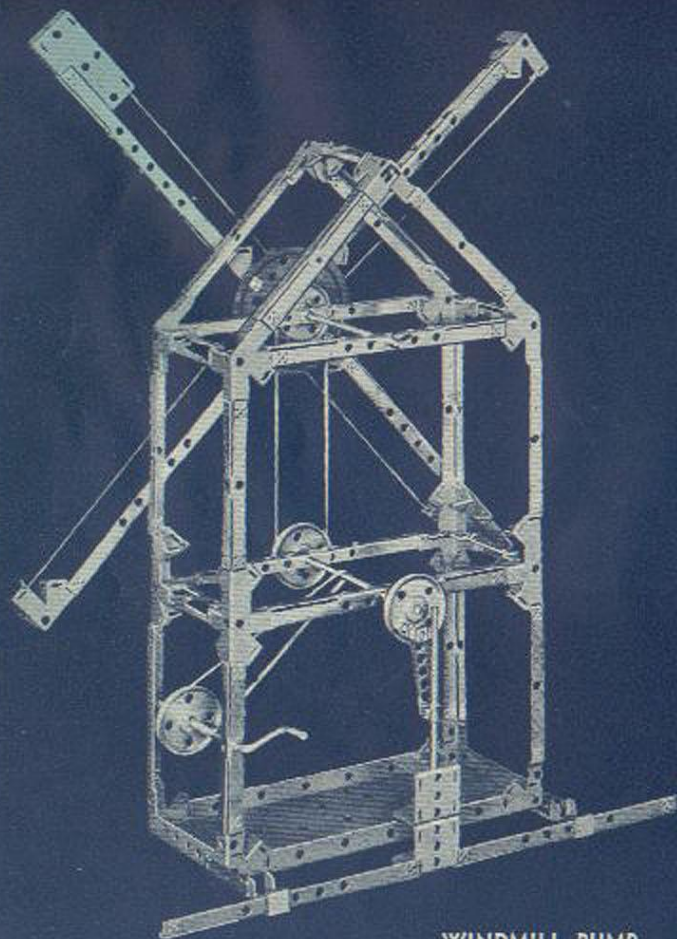
TRAILER

The **DESIGNER SIZE** inaugurates the use of blueprints to supplement the pictures given in the Manual. Refer to your blueprints to obtain detailed information where necessary and for lists of parts required to build the models.

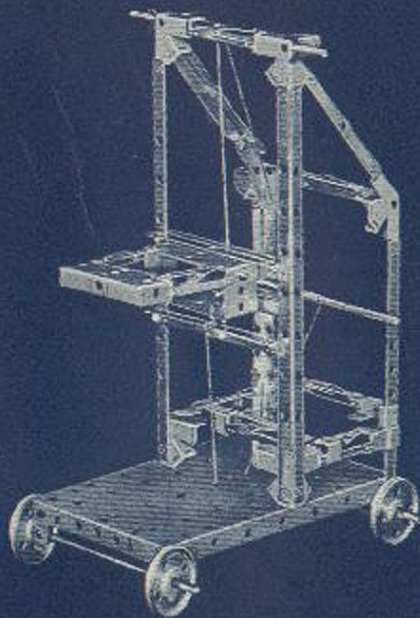


AEROPLANE RIDE

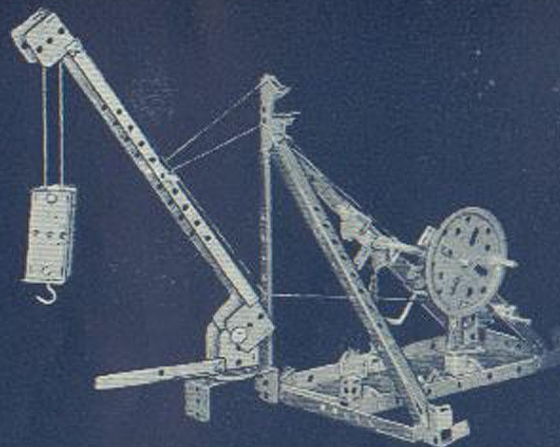
Models built with the *Designer Size*



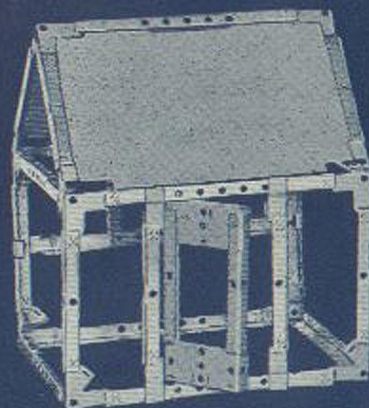
WINDMILL PUMP



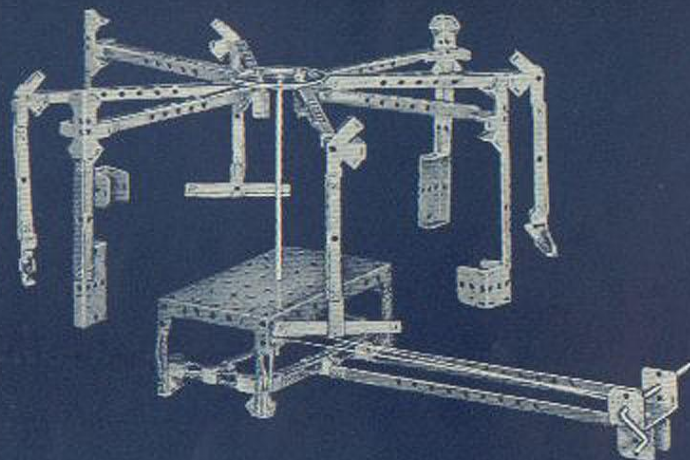
TIERING MACHINE



DERRICK



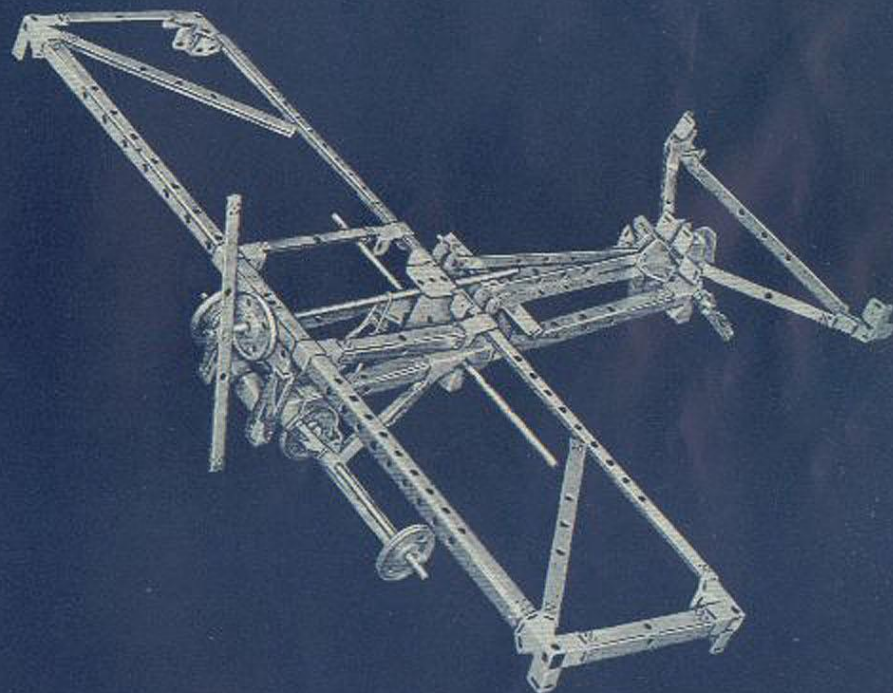
HOUSE WITH DOOR



MERRY-GO-ROUND

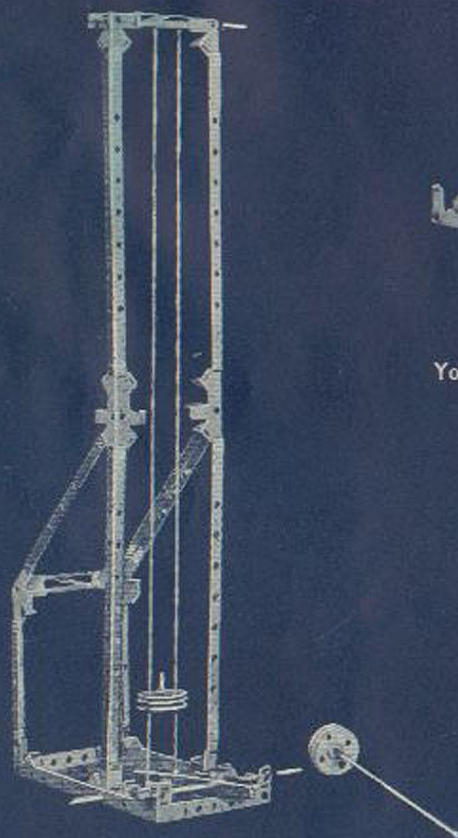


SWING BRIDGE

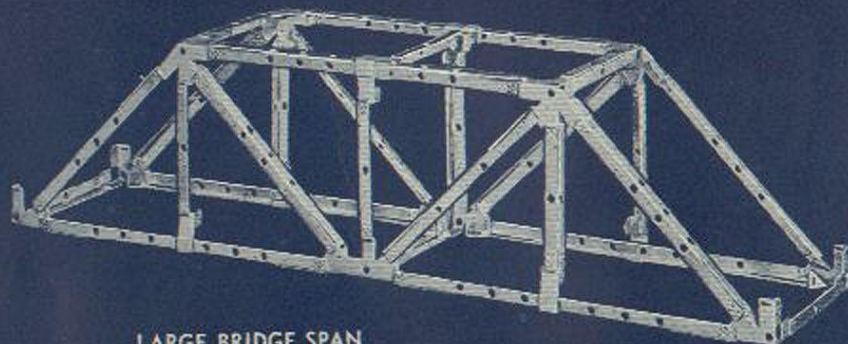


AEROPLANE

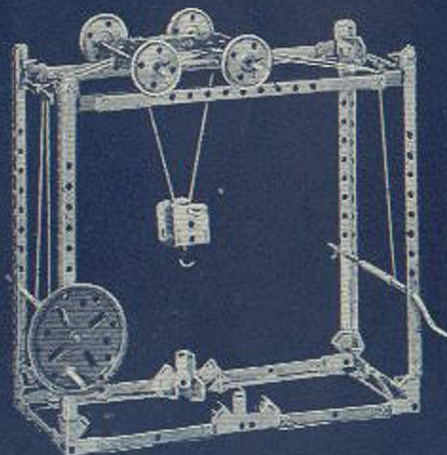
A Rubber Band Around the Center Wheel and the Propeller Shaft Makes the Propeller Rotate as the Plane is Moved Across the Floor



STRENGTH TESTING MACHINE
Use the Hammer to Test Your Skill



LARGE BRIDGE SPAN
You Can Use This With Your Small Electric Trains

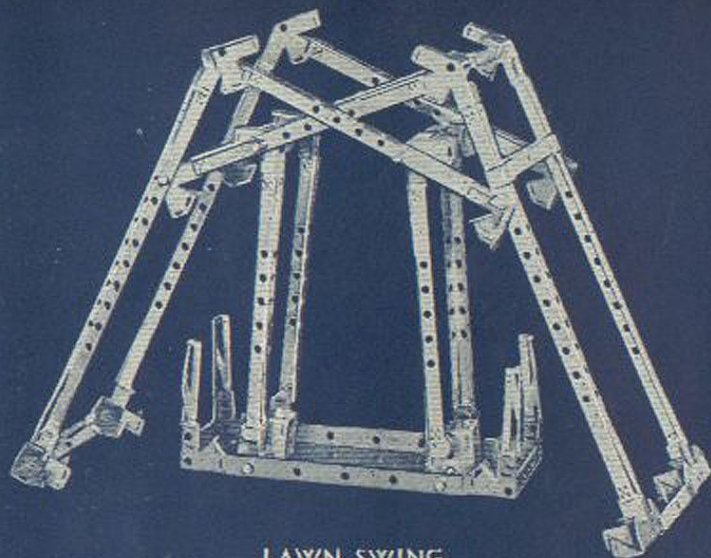


FOUNDRY HOIST
The Wheel Moves the Carriage From Left to Right
and the Crank Moves the Hood Up and Down

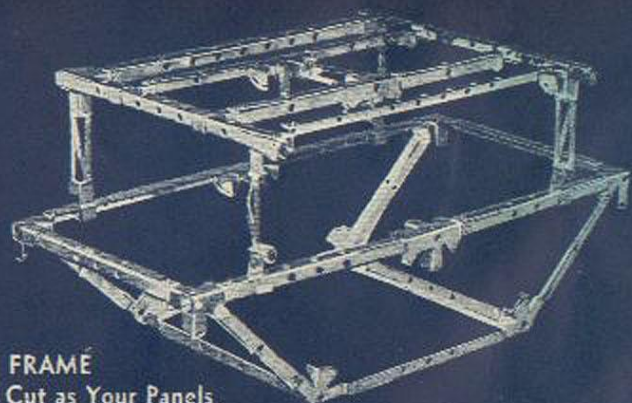


ELEVATOR
Fill in the Walls of the Building With Panels
Cut as Those of Your Set from Heavy Paper or
Cardboard

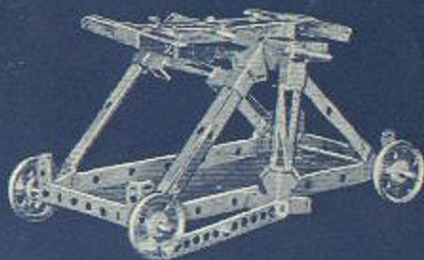
Models built with the *Designer Size*



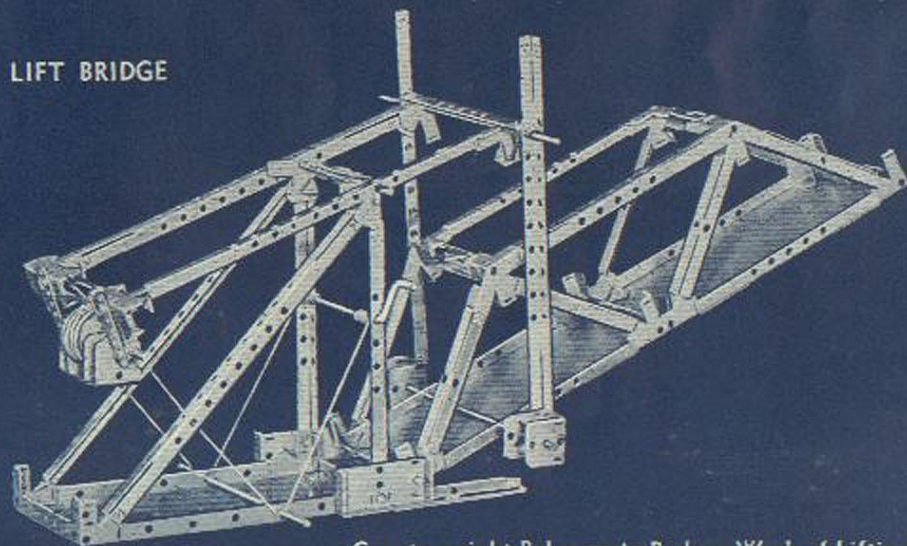
LAWN SWING



HOUSEBOAT FRAME
Cover With Cardboard Cut as Your Panels



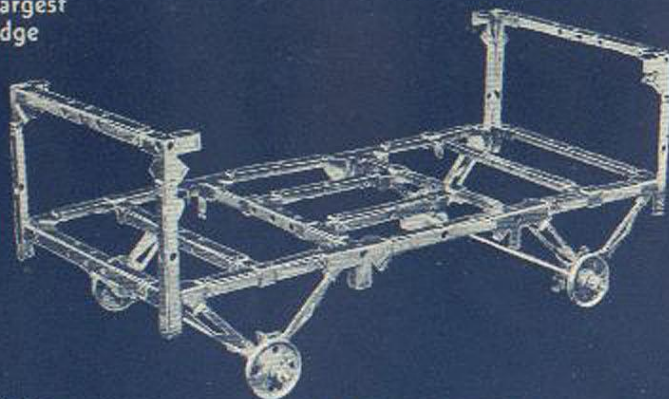
HAND CAR
The Handbars Will Make the Wheels Go 'Round



LIFT BRIDGE
Counterweight Balances to Reduce Work of Lifting



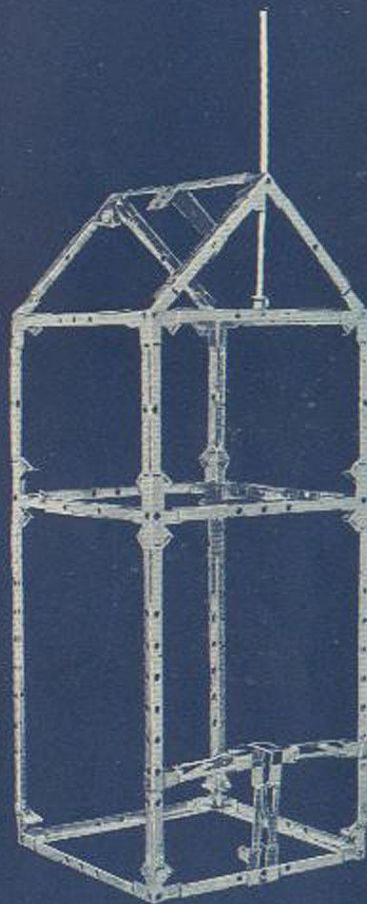
LONG BRIDGE
You May Run Your Largest
Train Over This Bridge



BAGGAGE TRUCK
Complete the Platform With Heavy Cardboard

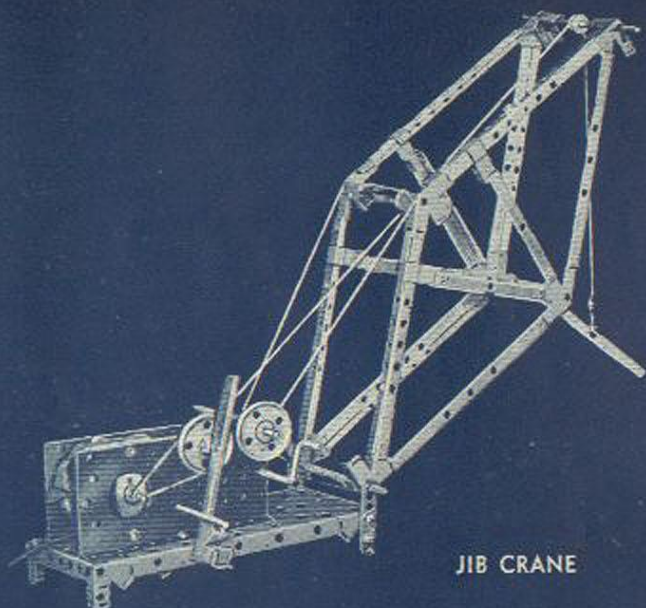


SMALL LIFT BRIDGE

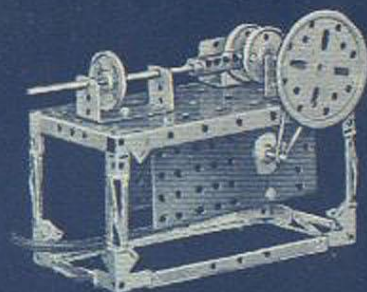


SKYSCRAPER
You May Put an Elevator in this Building

Models built with the Designer Special Size

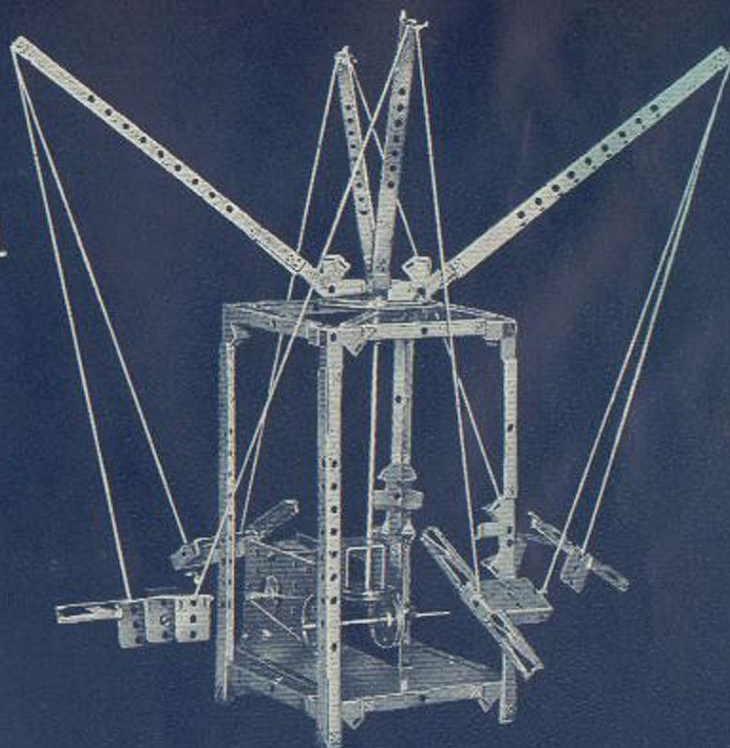
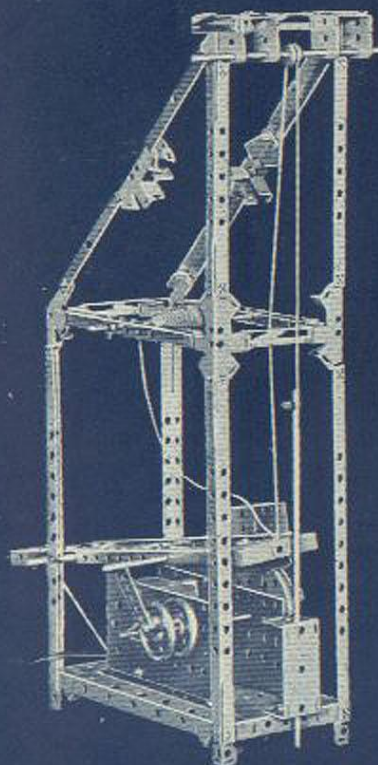


JIB CRANE



ENGINE

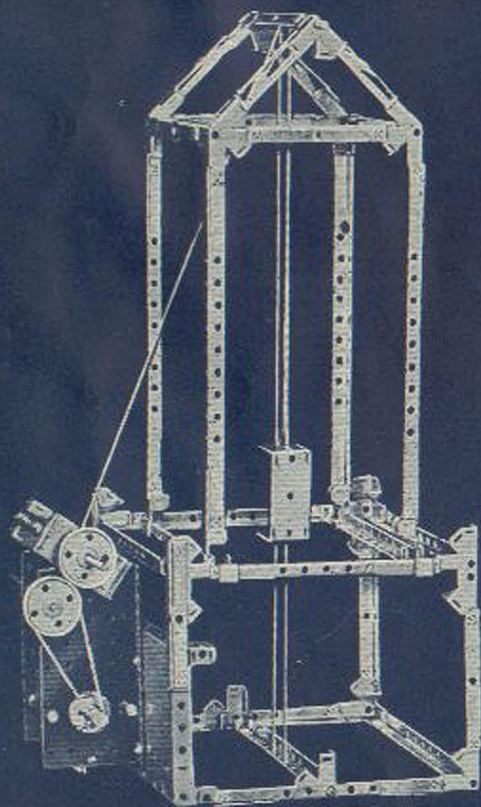
WELL DIGGER
Use a Key to Adjust the Drill So It
Will Be Lifted Each Stroke



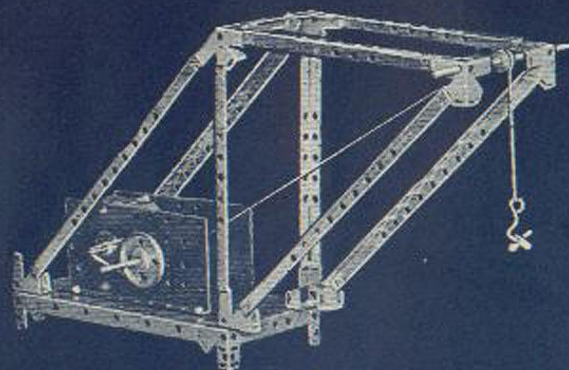
MOTOR DRIVEN AEROPLANE RIDE

THE DESIGNER SPECIAL SIZE introduces a motor to the MORECRAFT users. Each of the models shows a simple drive arrangement requiring no gearing. For details, see your Blueprints.

Models built with the *Designer Special Size*

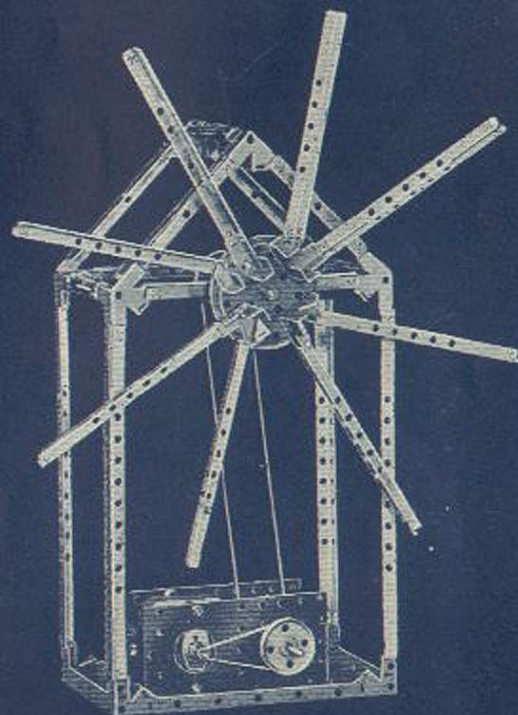


ELEVATOR
A Simple Clutch is Shown

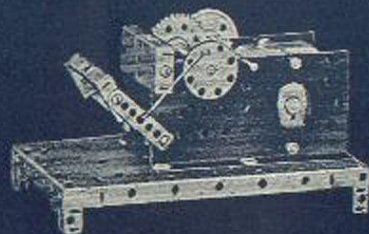


MOTOR HOIST

WINDMILL
Make This Into a Windmill Pump

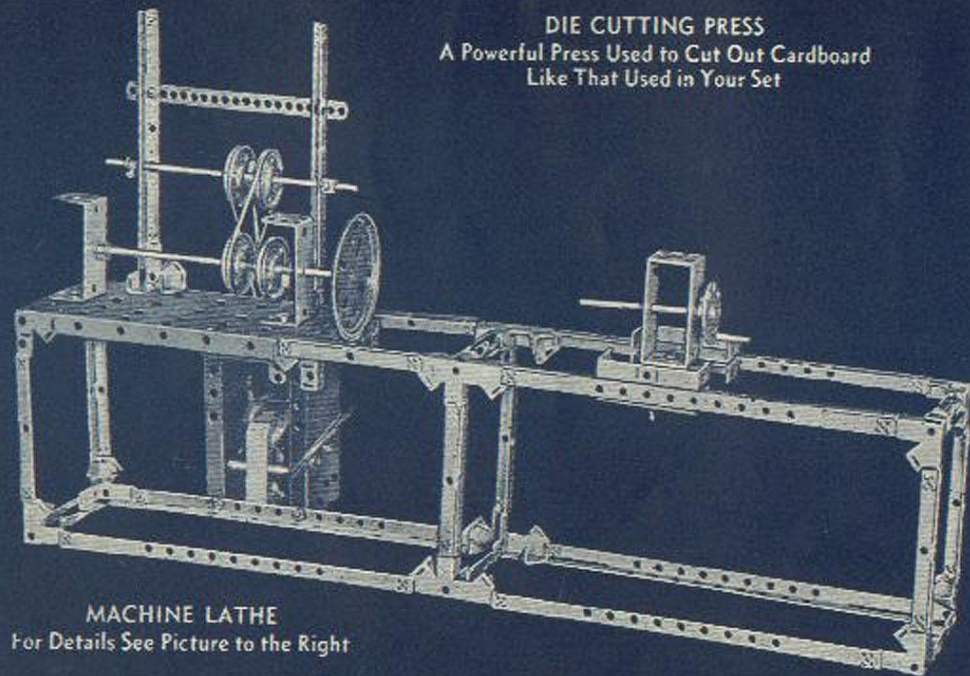
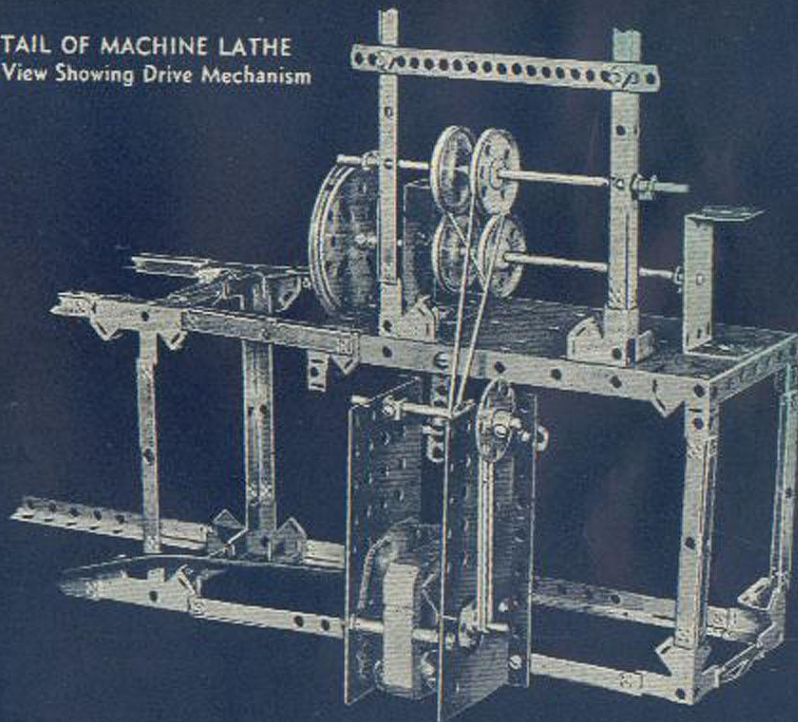


Models built with the *Graduate Size*



DIE CUTTING PRESS
A Powerful Press Used to Cut Out Cardboard
Like That Used in Your Set

DETAIL OF MACHINE LATHE
Rear View Showing Drive Mechanism

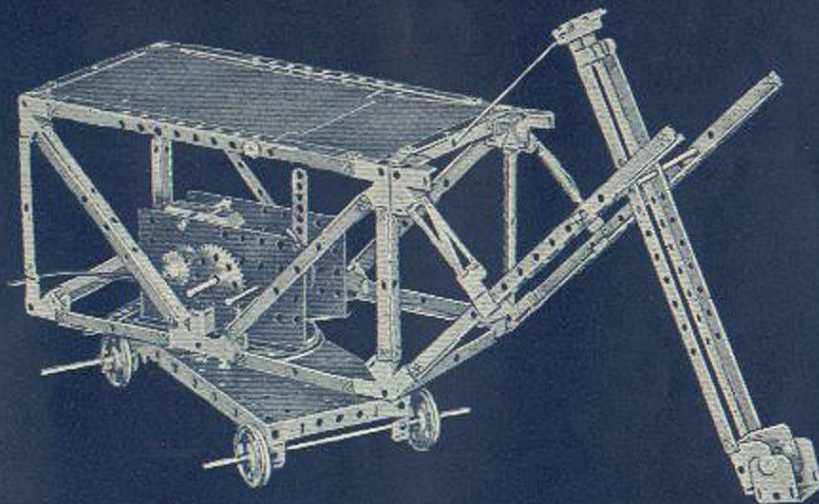
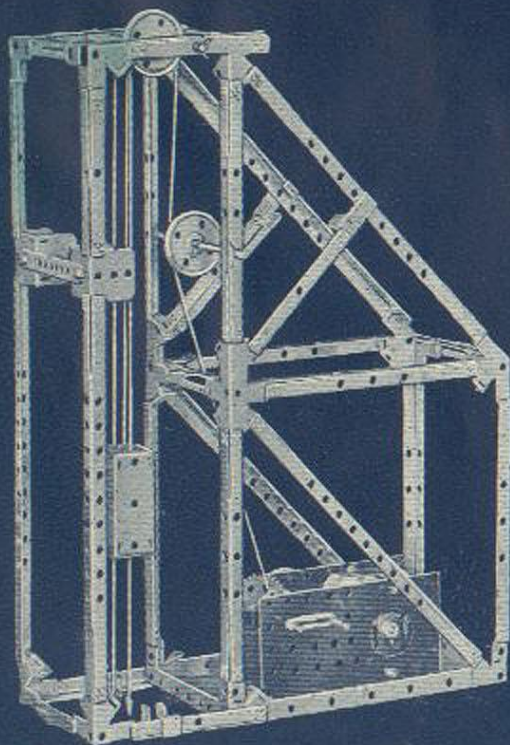


MACHINE LATHE
For Details See Picture to the Right

Models built with the *Engineer Size*

PIT HEAD GEAR

Used Over Mine Shafts to Operate an Elevator

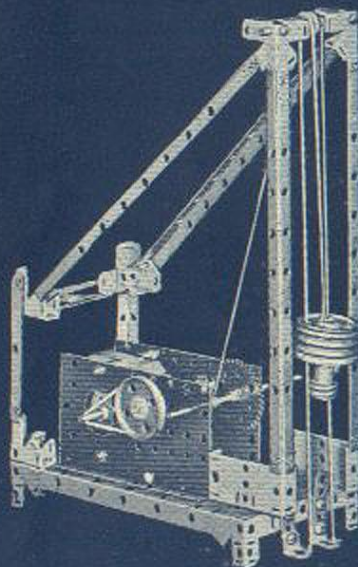


EXCAVATING MACHINE

See Your Blueprints for Construction Details

Try Putting Your Motor Into Some of the Models Shown in the First Part of This Manual.

PILE DRIVER



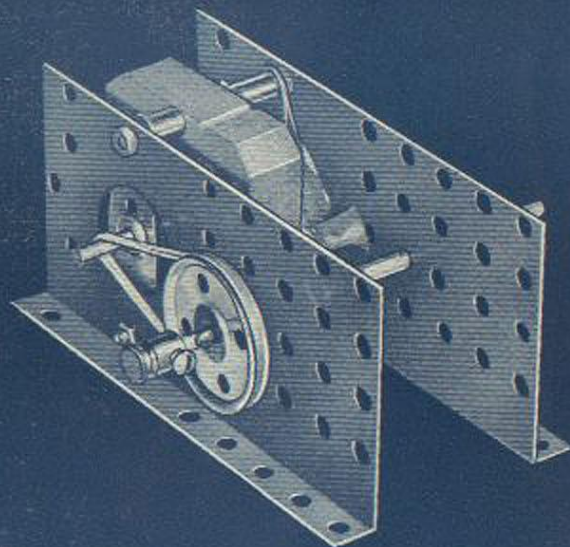
These Models Introduce the **ENGINEER SIZE**. See the **STANDARD GEARING** of the **ENGINEER SIZE** Manual

Sec. 5

Models built with the *Engineer* Size

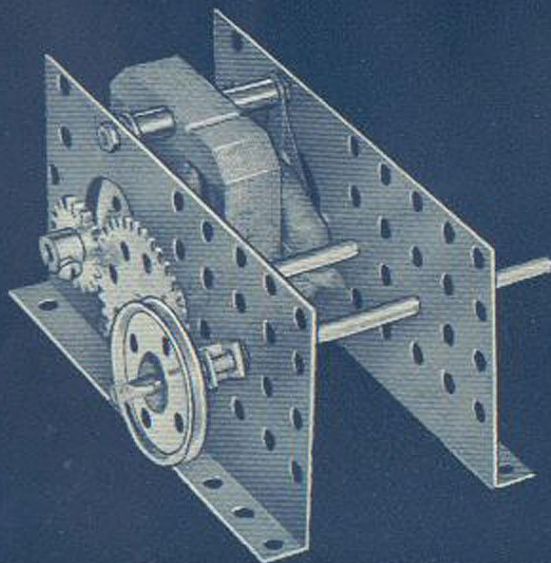
STANDARD GEARING

On this and the three following pages are shown six types of gearing combinations. Each type is designed to fill certain requirements and may be used whenever you have such requirements. Most of the models having motors use one of these gearing arrangements. The arrangement used is indicated near the picture of the model. Try alternative arrangements, note the different results, and use the most suitable combination.



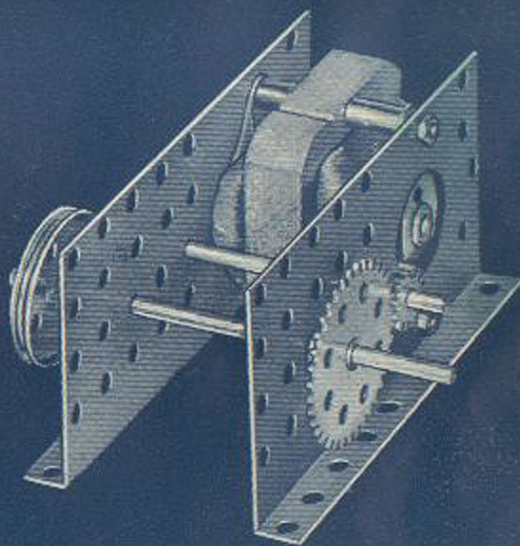
GEAR BOX No. 1

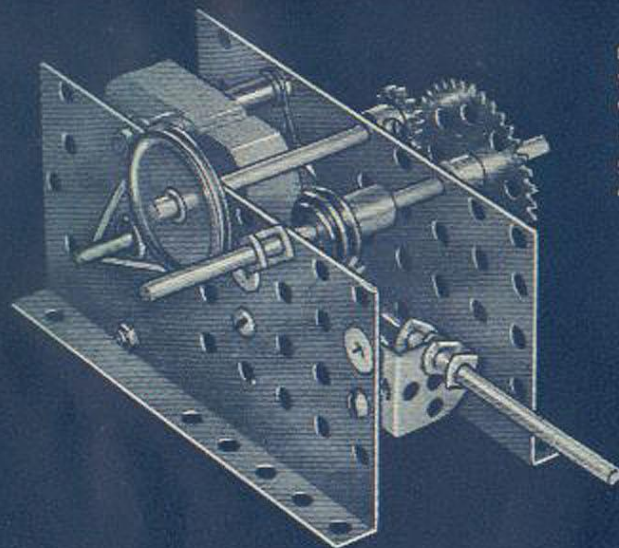
The arrangement shown above gives an 8:1 gear ratio. No gears are used. A rubber band transmits the power from the motor shaft to a pulley, W-2, keyed to the driven output shaft. A motor pulley, W-0, or any other pulley may be used to deliver the power to your mechanism. This arrangement is silent.



GEAR BOX No. 2

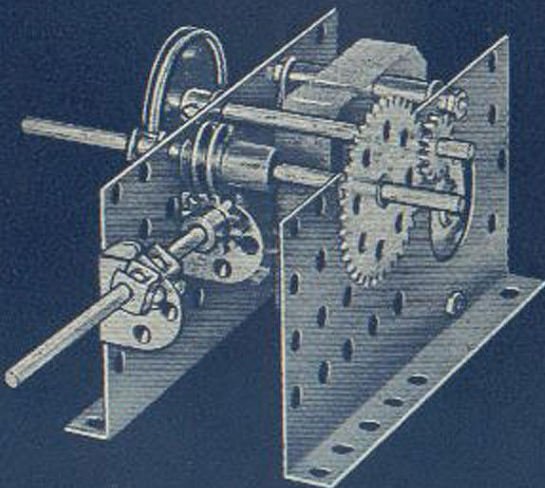
The gear box shown above and to the left gives a 6:1 drive ratio. A gear, G-2, is secured to the motor shaft and drives a gear, G-3, secured to an intermediate shaft. A gear, G-1, secured to the intermediate shaft drives the gear, G-3, secured to the driven output shaft. This arrangement gives a faster drive than gear Box No. 1 but is more noisy.



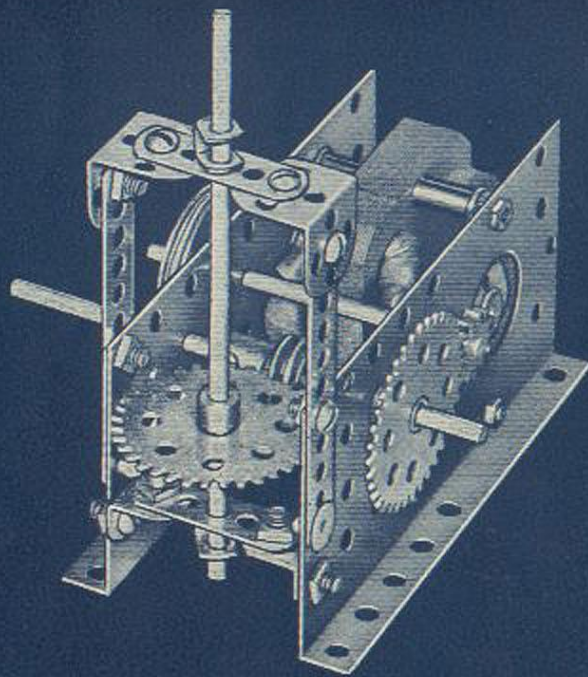
Models built with the *Engineer Size*

GEAR BOX No. 3

The gear box shown above and to the right has a gear ratio of 270:1. A rubber band drive is provided between the motor shaft and a pulley, W-25, secured to a first intermediate shaft. A pinion, G-1, secured to this shaft, drives a gear, G-3, secured to the second intermediate shaft. A worm gear, W-G, secured to this last shaft drives the driven output shaft by means of the pinion, G-1, secured to it.

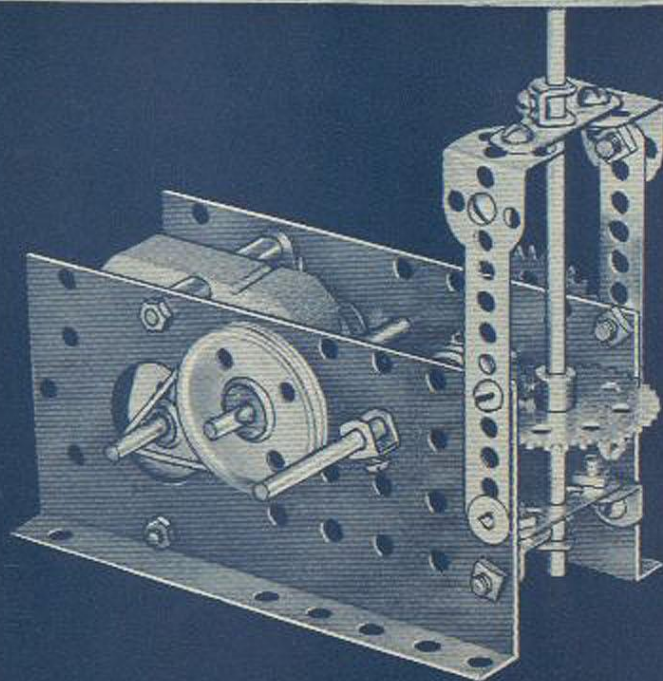


The gear ratio of any gearing combination is the relation of the speed of the input to the speed of the output. Gear Box No. 4 has a gear ratio of 864:1 which means that the motor makes 864 revolutions to one revolution of the output. Furthermore if the gearing is well oiled, the output shaft will have about 864 times as much power as the motor shaft



GEAR BOX No. 4

The gear box shown above and to the right has a gear ratio of 864:1. This arrangement is therefore suitable for swing bridges. However you may make the shaft horizontal and use it for draw bridges. In this case use an eccentric crank, CR, linked to a convenient point on your bridge. If a faster drive is desired use Gear Box No. 3 with the output shaft vertical if necessary.

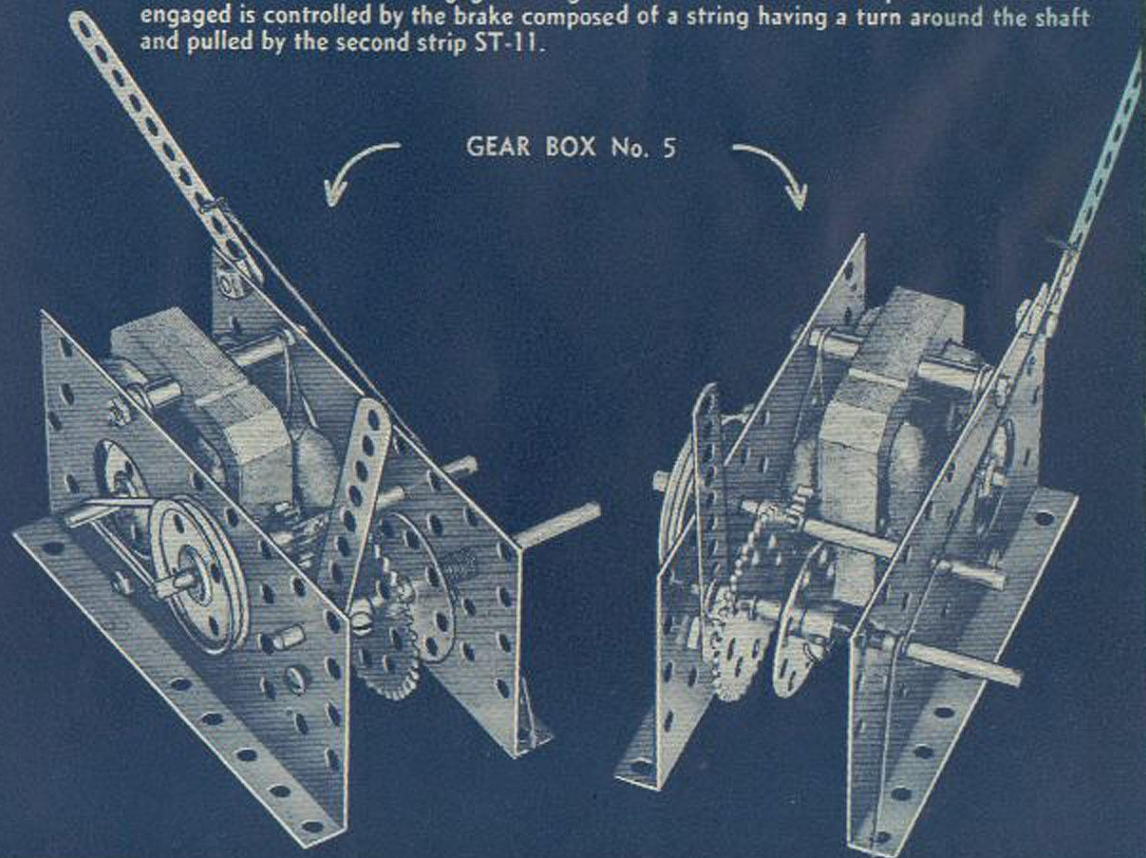
Models built with the *Engineer Size*

GEAR BOX No. 4

In this arrangement a first intermediate shaft is driven by a pulley, W-2, by means of a rubber band around the motor shaft. A second intermediate shaft is driven by a pinion, G-1, secured to the first shaft, meshing with a gear, G-3, secured to the second intermediate shaft. A worm gear, W-G, on the last shaft drives a gear G-3 on the vertical output shaft.

The combination shown below has a gear ratio of 24:1 and provides for a release and brake. It is suitable for all types of hoists and derricks. The output shaft provides a drum space for winding the hoist line between the pinion, G-3, and the pierced disc, PD-1. If desired a belt driven output may be used. The output shaft is moved to the right by the strip ST-11, to cause the gear, G-3, to engage the pinion, G-1, on the intermediate shaft and transmit power to the output shaft. The spring, SP, normally moves this shaft to the left to disengage these gears. The rotation of the output shaft when disengaged is controlled by the brake composed of a string having a turn around the shaft and pulled by the second strip ST-11.

GEAR BOX No. 5



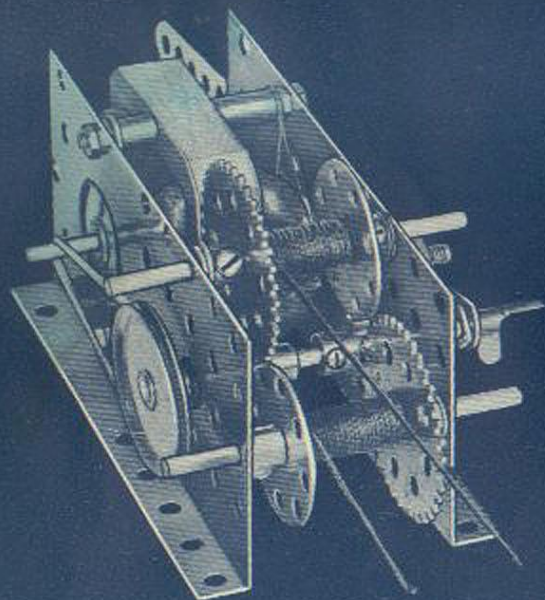
Models built with the *Engineer* Size

FIG. 1

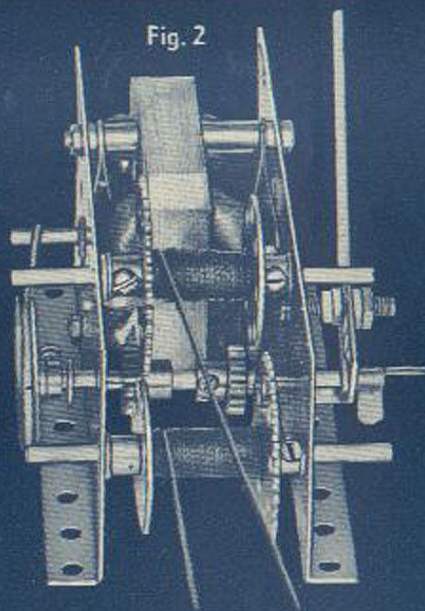


Fig. 2

GEAR BOX No. 6

Double Hoist With Release.

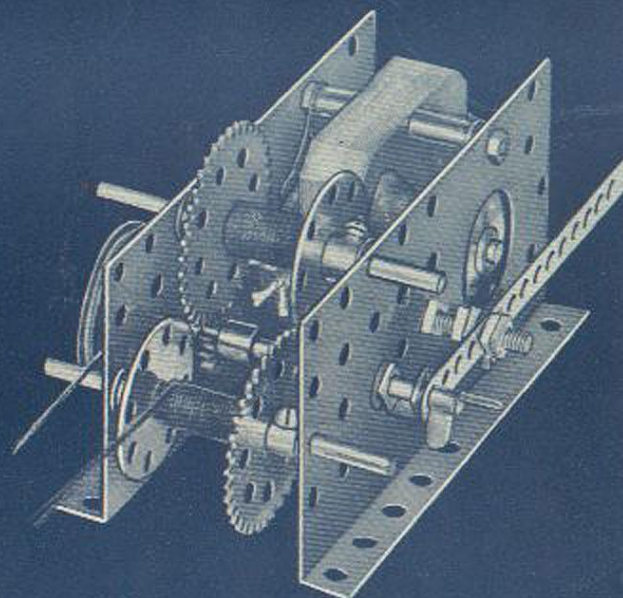
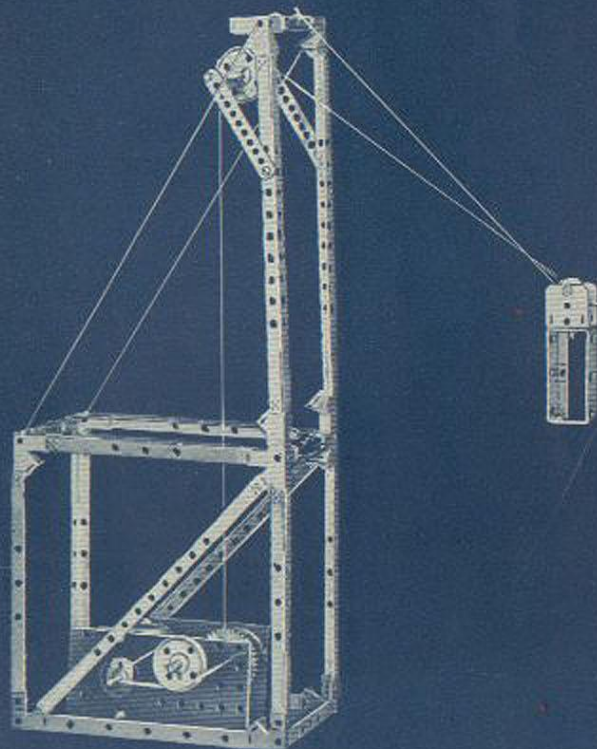


FIG. 3

In the arrangement shown above, two hoists may be handled by a single motor. A gear ratio of 24:1 is provided to each hoist. An intermediate or jig shaft is driven from the motor shaft by means of a rubber band passing around a pulley W-25 secured to the jig shaft. This shaft may be moved right and left by means of a strip ST-21. The jig shaft has two pinions, P-1, mounted thereon in such position that they may engage gears, G-3, mounted on each of the hoist shafts. As shown in Fig. 2 the jig shaft is moved to the extreme left and both hoist drums are disengaged. In Fig. 1 the jig shaft

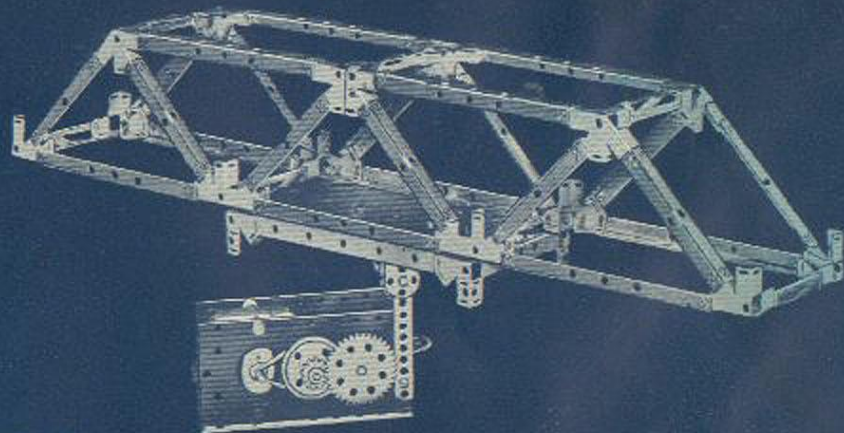
is moved to the extreme right and the lower hoist drum is engaged with the right hand pinion on the jig shaft. The upper drum is disengaged. In Fig. 3 the jig shaft has been moved to the right a short distance from the position shown in Fig. 2 and the upper drum is engaged with the left hand pinion on the jig shaft. The lower drum is disengaged. With the jig shaft moved a short distance to the left of the position shown in Fig. 1 both of the drums may be engaged. A brake constructed like that shown in Gear Box No. 5 may be provided for either of the hoist drum shafts.

Models built with the **Engineer Size**

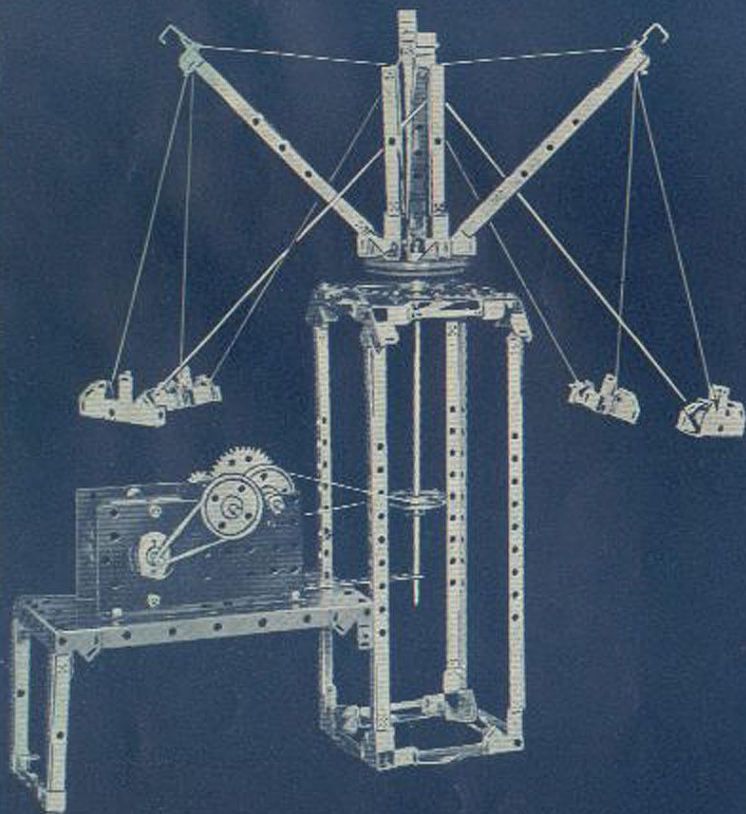


TELPHER SPAN

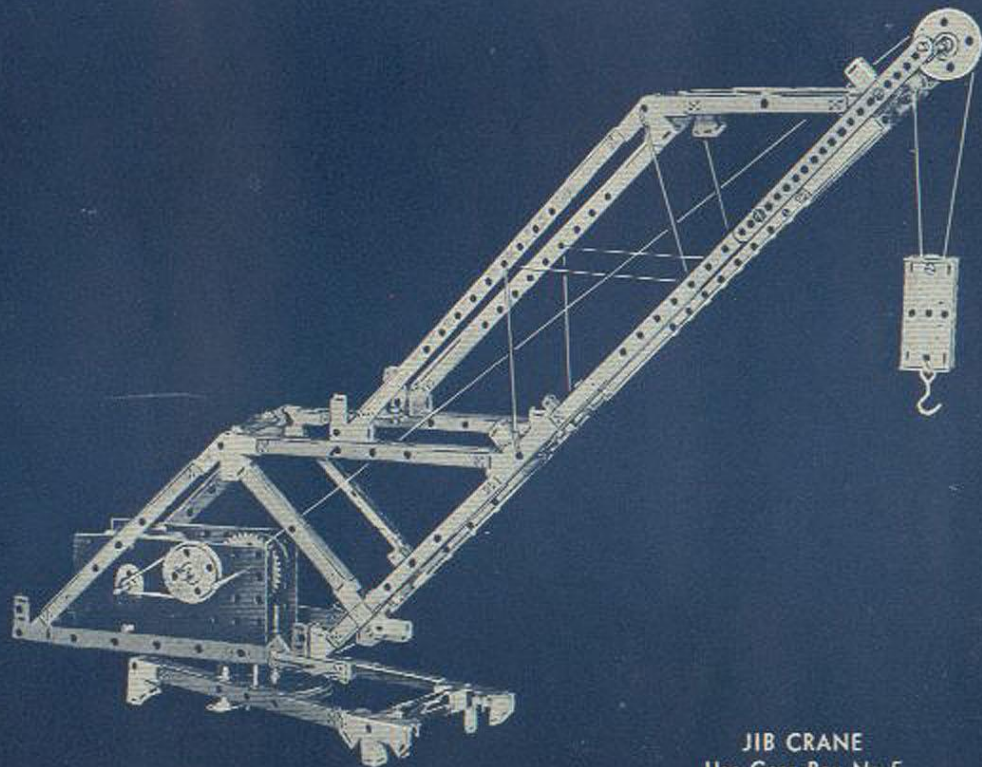
Use Gear Box No. 5. Place The Towers About
a Yard Apart And Secure in Place



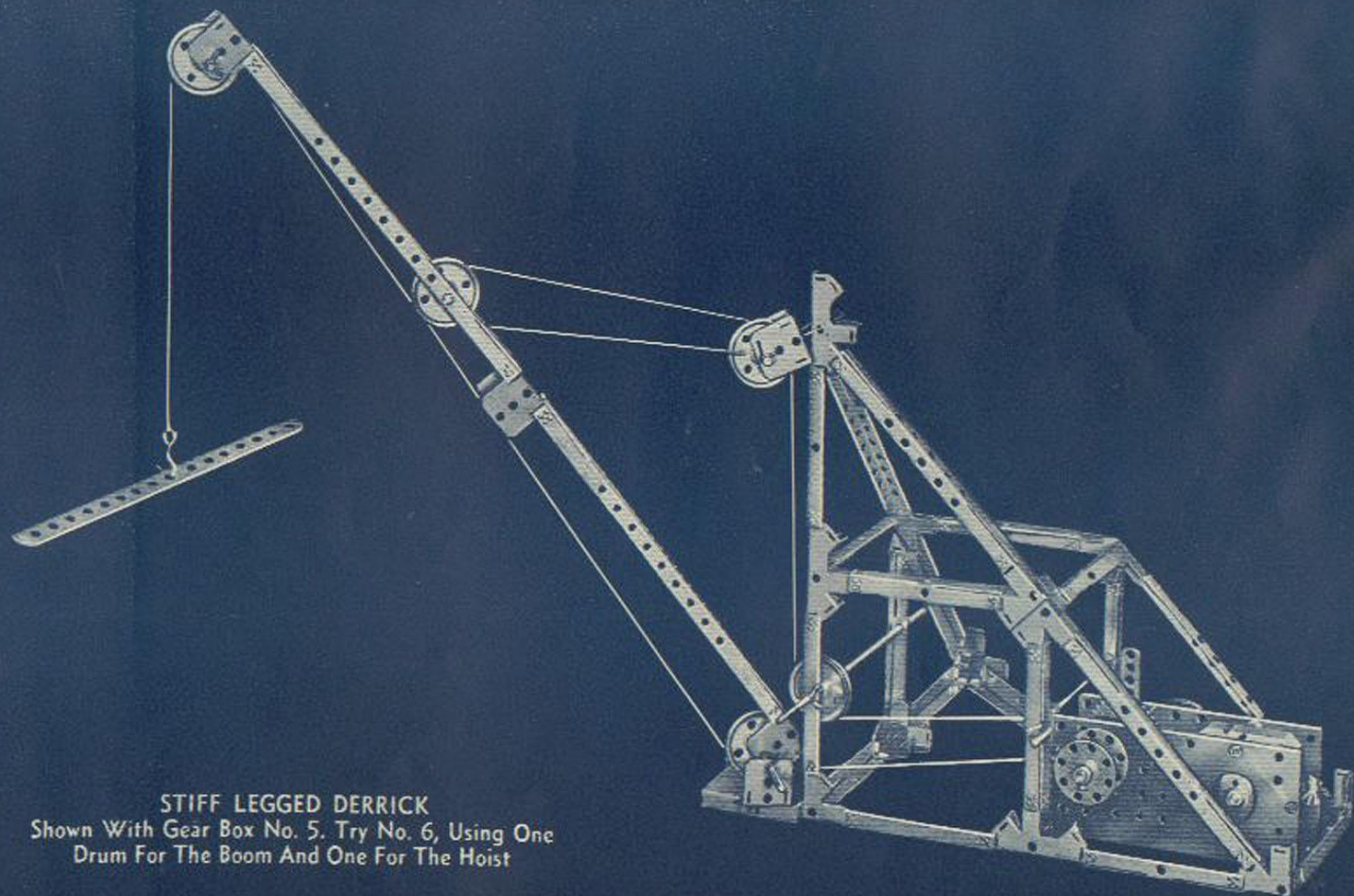
MOTOR DRAWBRIDGE
Use Gear Box No. 4



MOTOR DRIVEN ROUNDABOUT
Use Gear Box No. 5 Without Release Mechanism



JIB CRANE
Use Gear Box No. 5

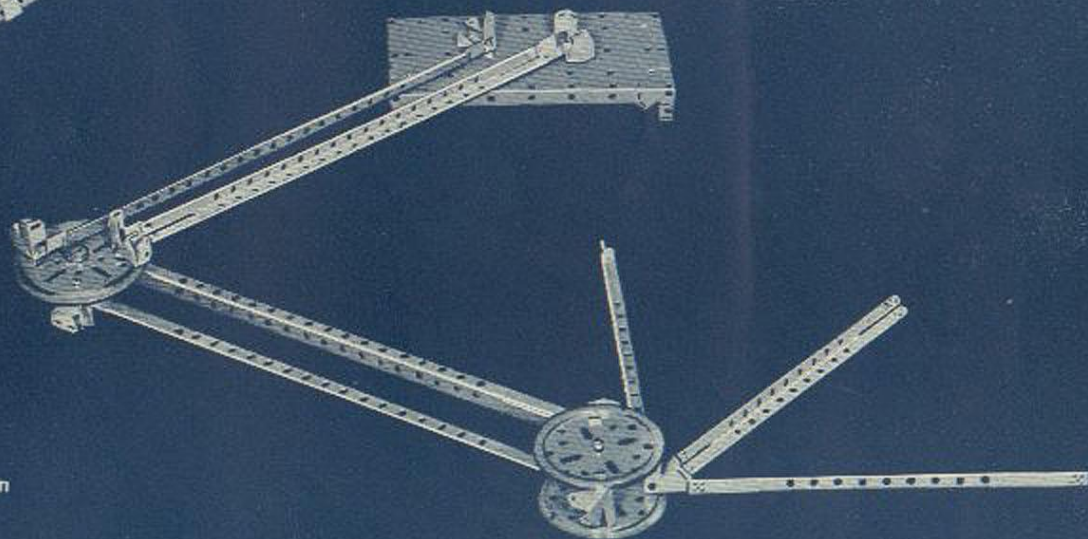


STIFF LEGGED DERRICK
Shown With Gear Box No. 5. Try No. 6, Using One
Drum For The Boom And One For The Hoist



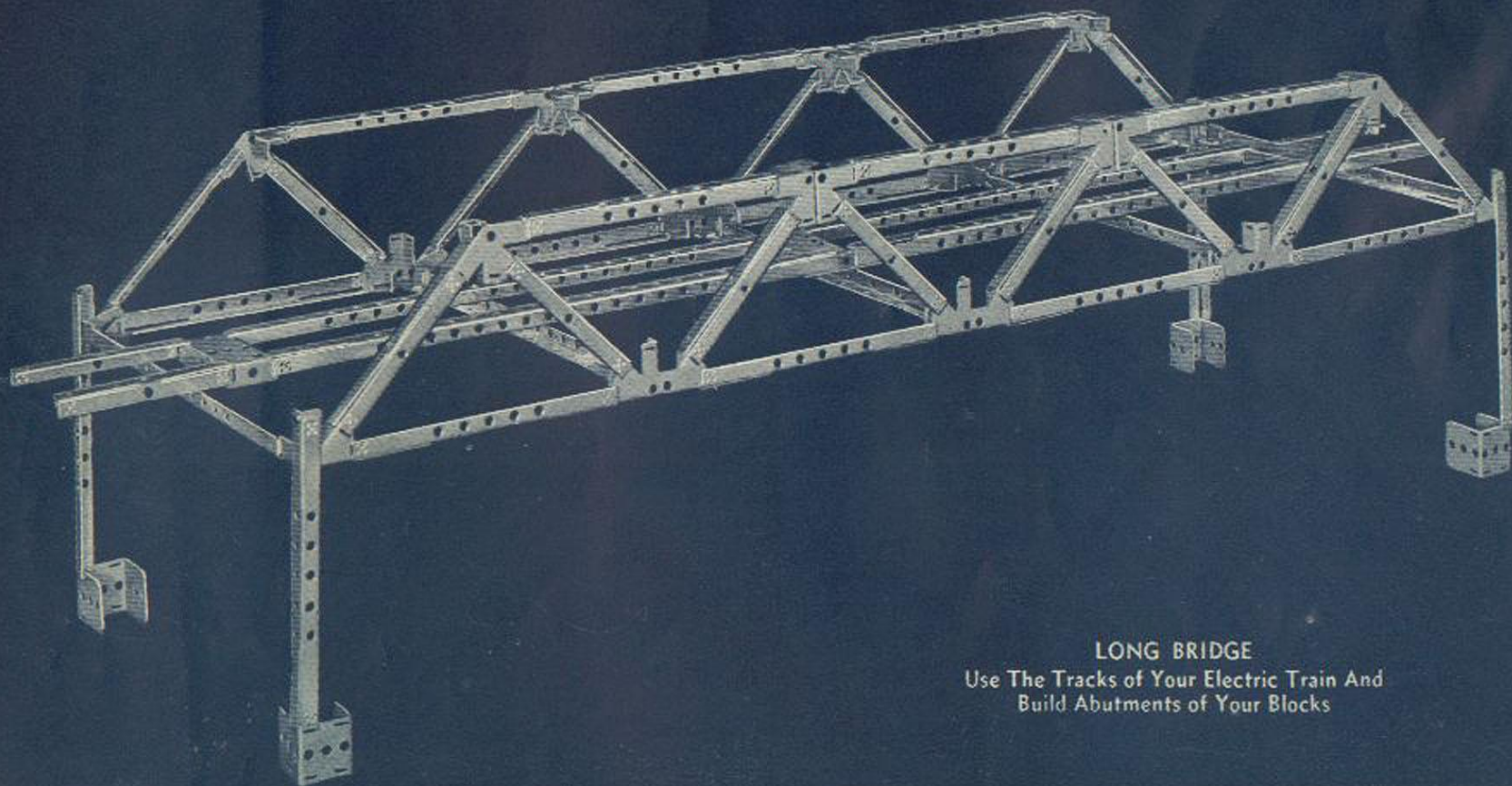
BASCULE BRIDGE

Notice That The Counterweight Almost Balances This Span
Use Gear Box No. 5

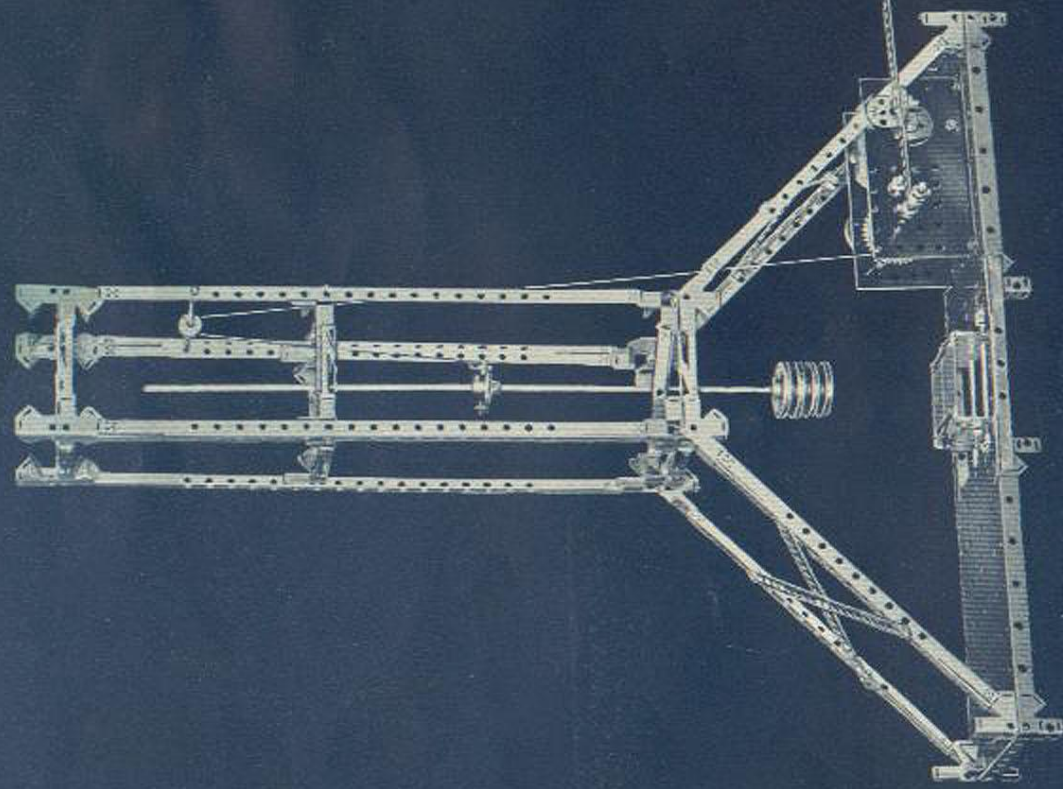


DRAFTING MACHINE

You May Actually Use This For Rough Sketching
Screw the Base Plate to the Upper Left
Corner of Your Board

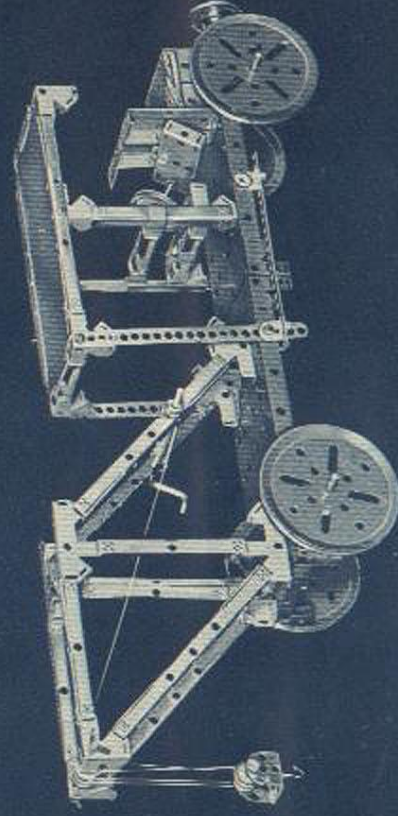
**LONG BRIDGE**

Use The Tracks of Your Electric Train And
Build Abutments of Your Blocks



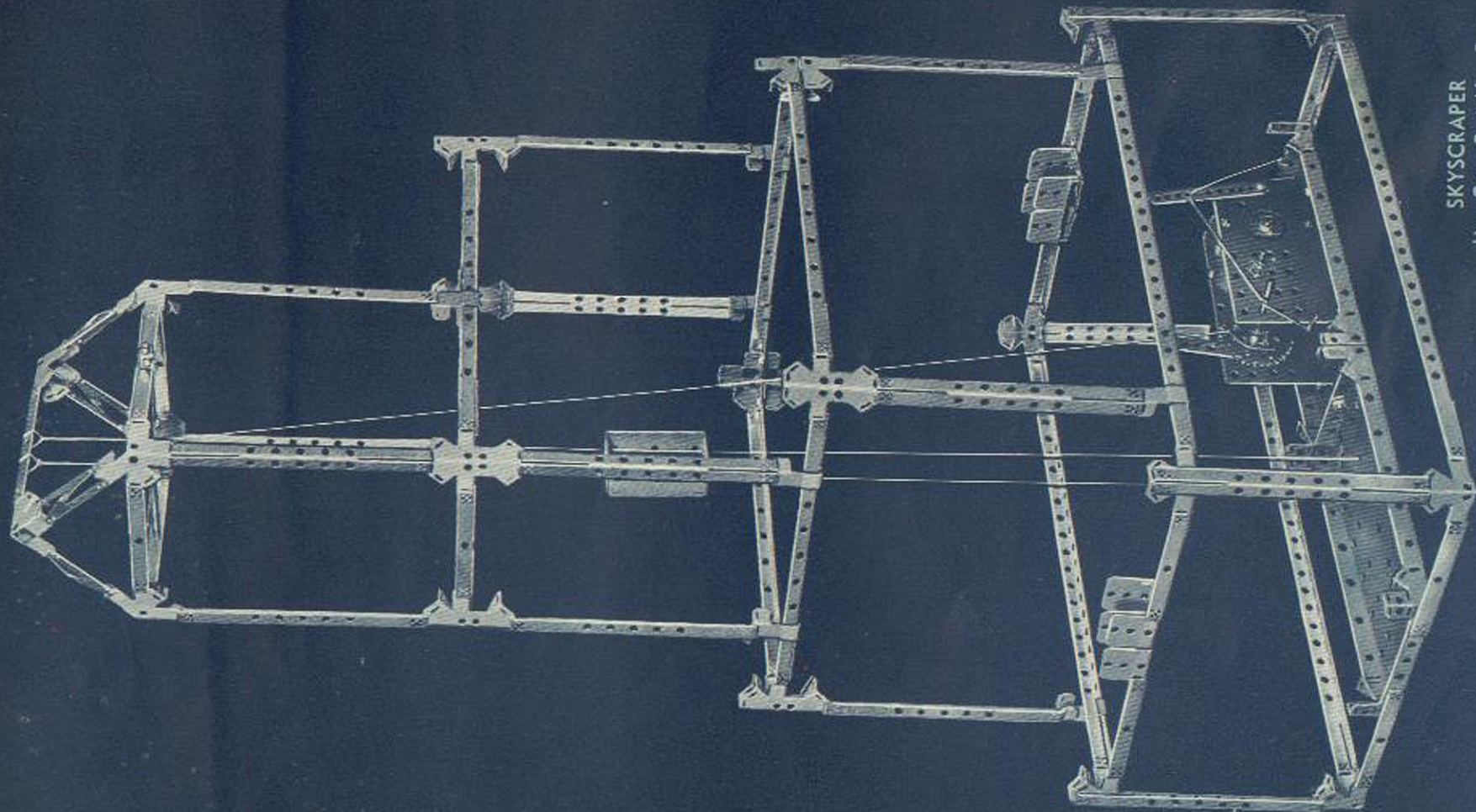
DROP HAMMER

Like That Used For Drop Forging
Use Gear Box No. 5 With The Control Shown

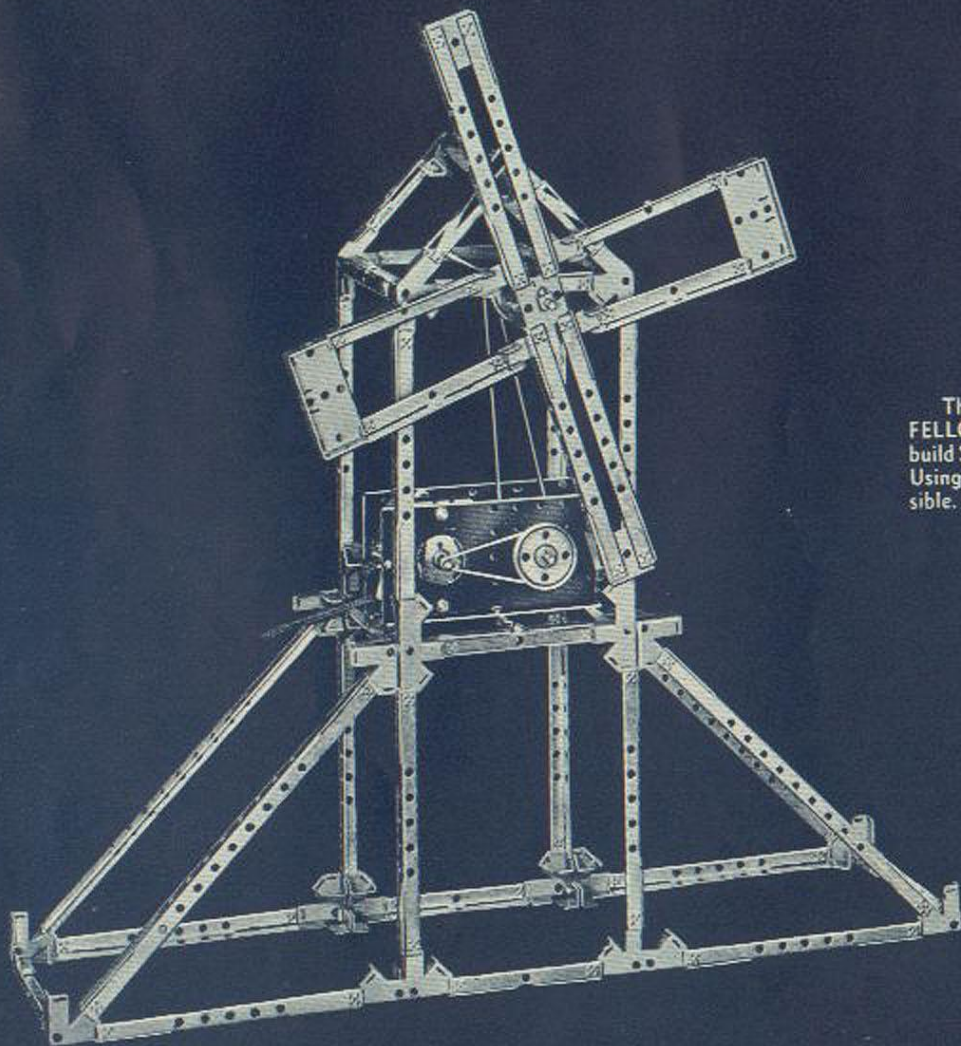


REPAIR AND TOW TRUCK

Models built with the **Fellow** Size

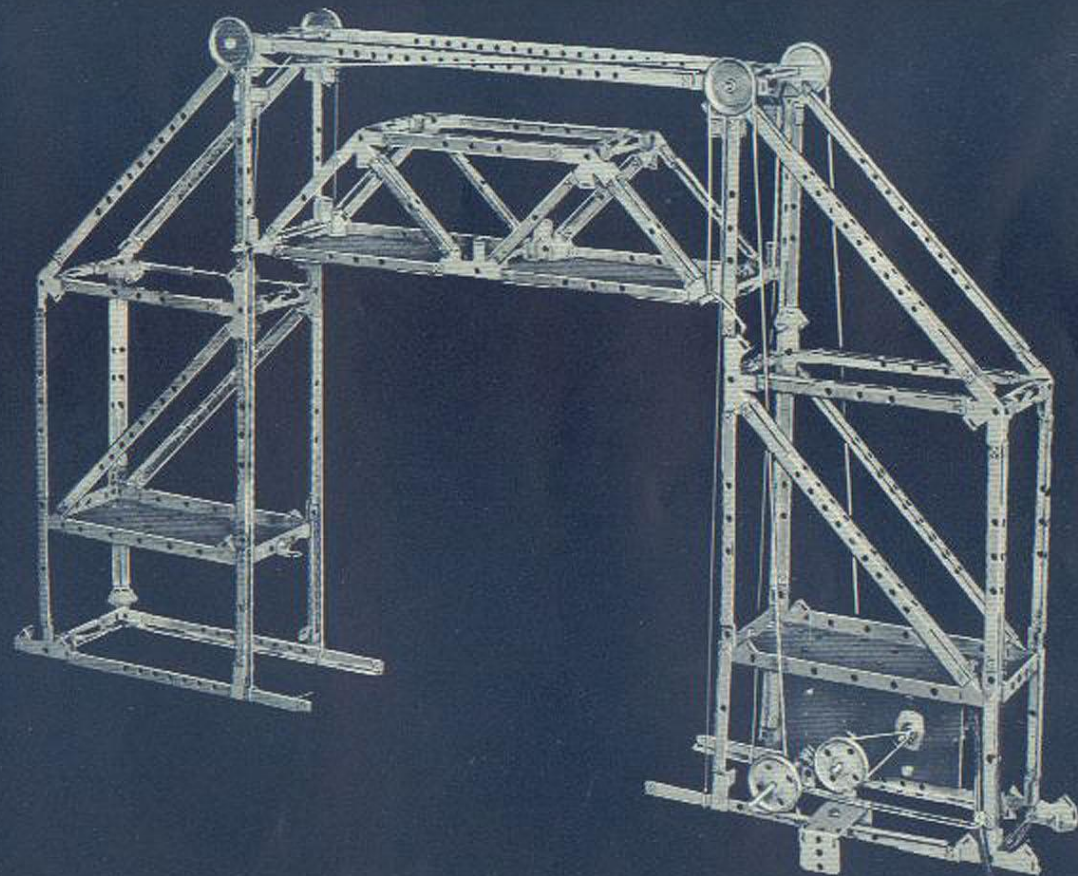


SKYSCRAPER
Use Gear Box No. 5

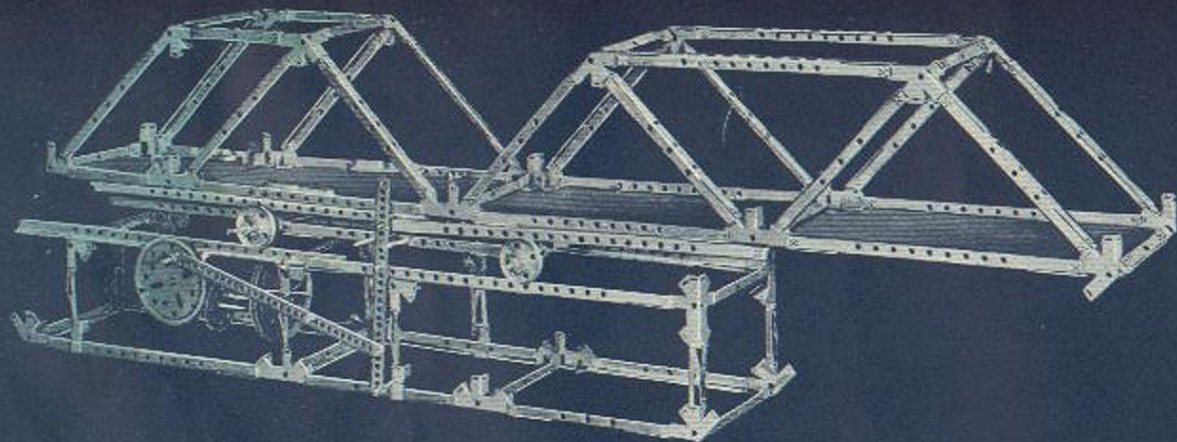
Models built with the **Fellow Size**

The Last Four Pages Illustrate Models Built With the **FELLOW SIZE**. You Should Be Able to Build Many More. Re-build Some of the Small Models in the Front Part of This Manual Using Your Motor and as Many of Your Parts and Panels as Possible. Try Making a Saw Mill.

DUTCH WINDMILL
Use Gear Box No. 1 With W-2 Drive Pulley



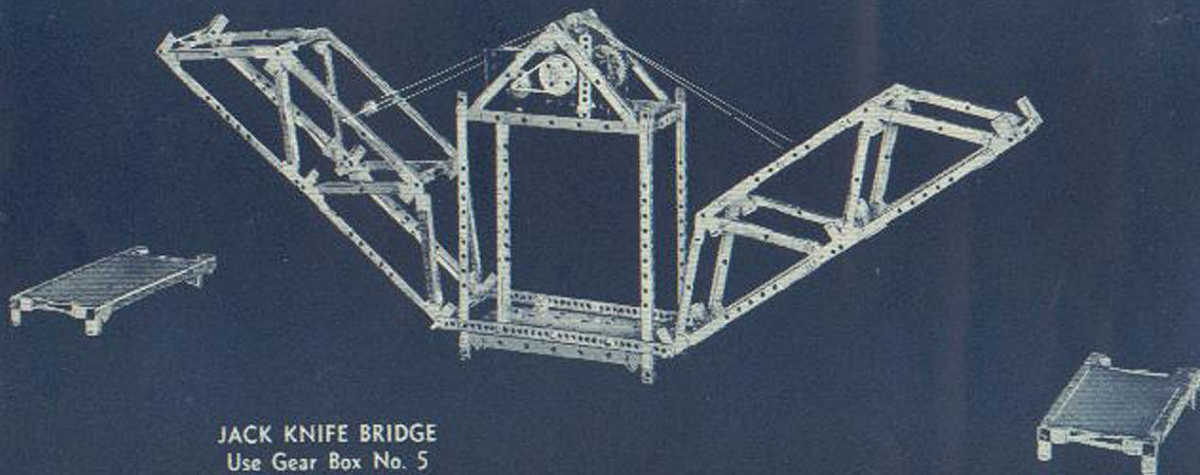
TOWER BRIDGE
Have You Ever Seen One Like This?
Use Gear Box No. 5



ROLLING BRIDGE

Use Gear Box No. 3. Notice That the Carriage
Travels Only Half as far as the Span

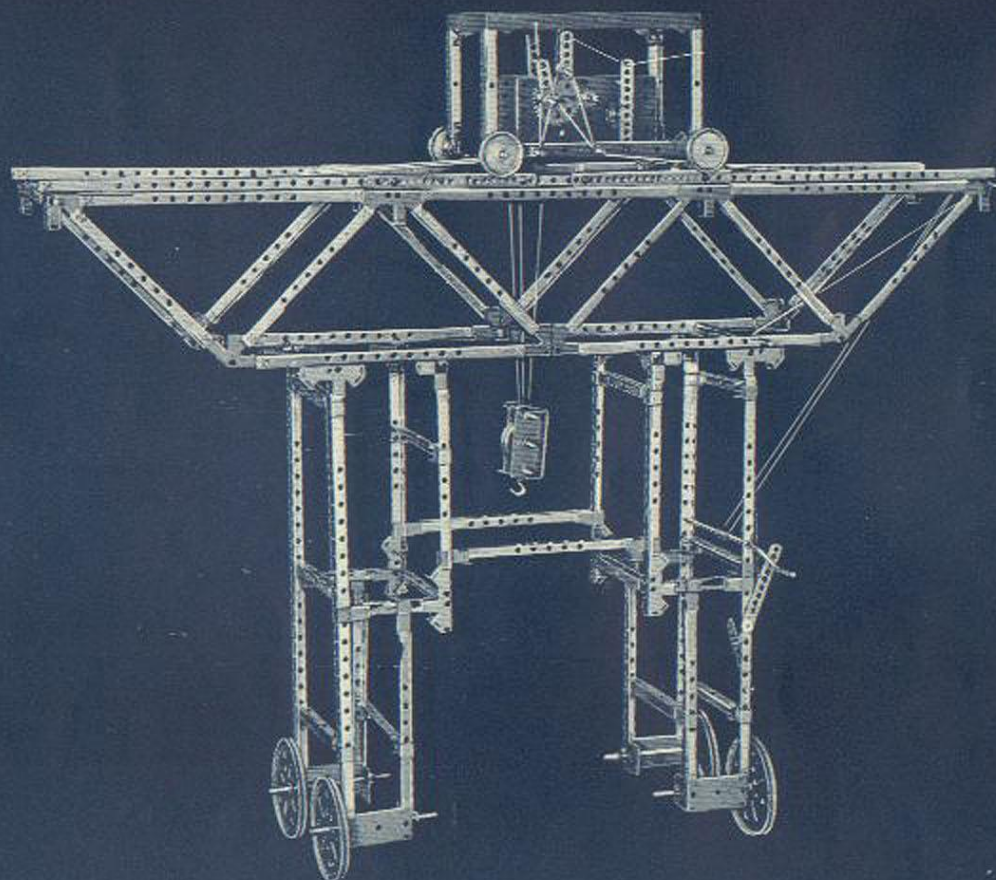
On This Page Are Shown Two Most Unusual
Bridges. If You Know of Any Type of Bridge Which
You Would Like to Build With Your MORECRAFT
Let Us Know About it.



JACK KNIFE BRIDGE

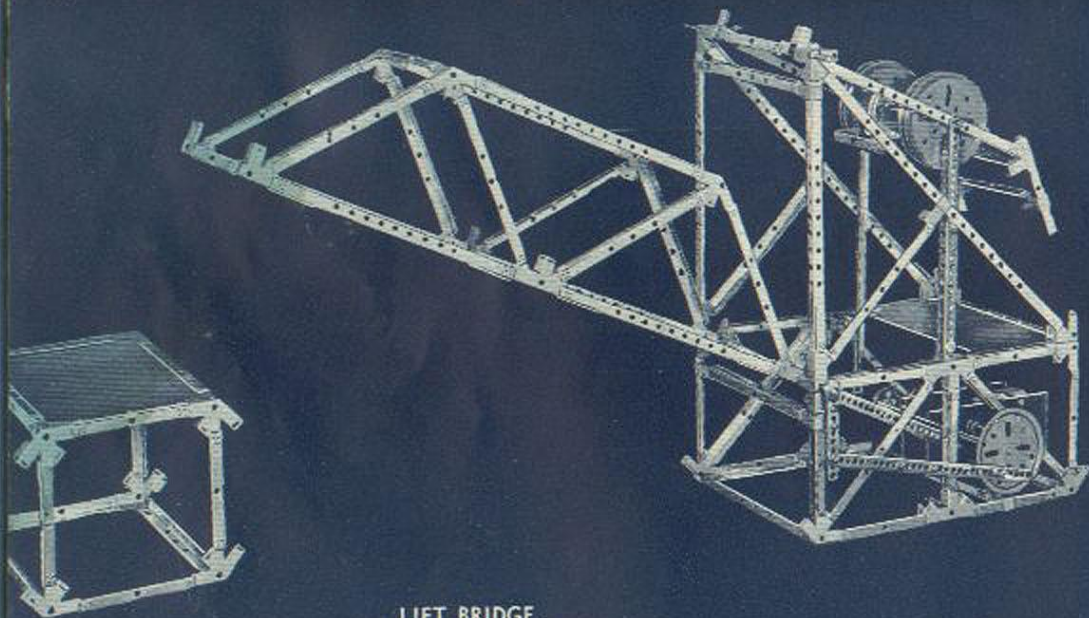
Use Gear Box No. 5

Models built with the Graduate Size



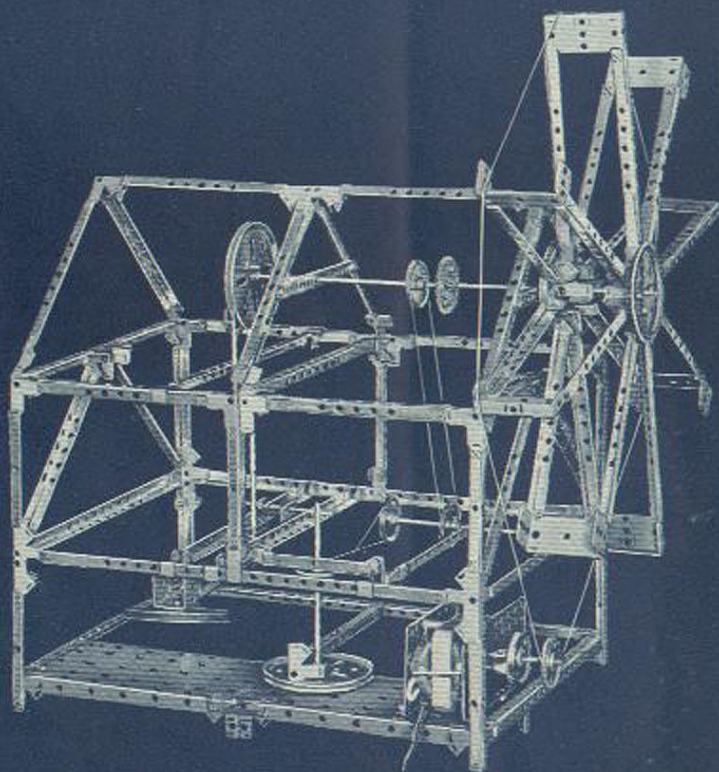
GANTRY CRANE

Use Gear Box No. 5. Notice the Remote Controls for the Release Mechanism and Brake



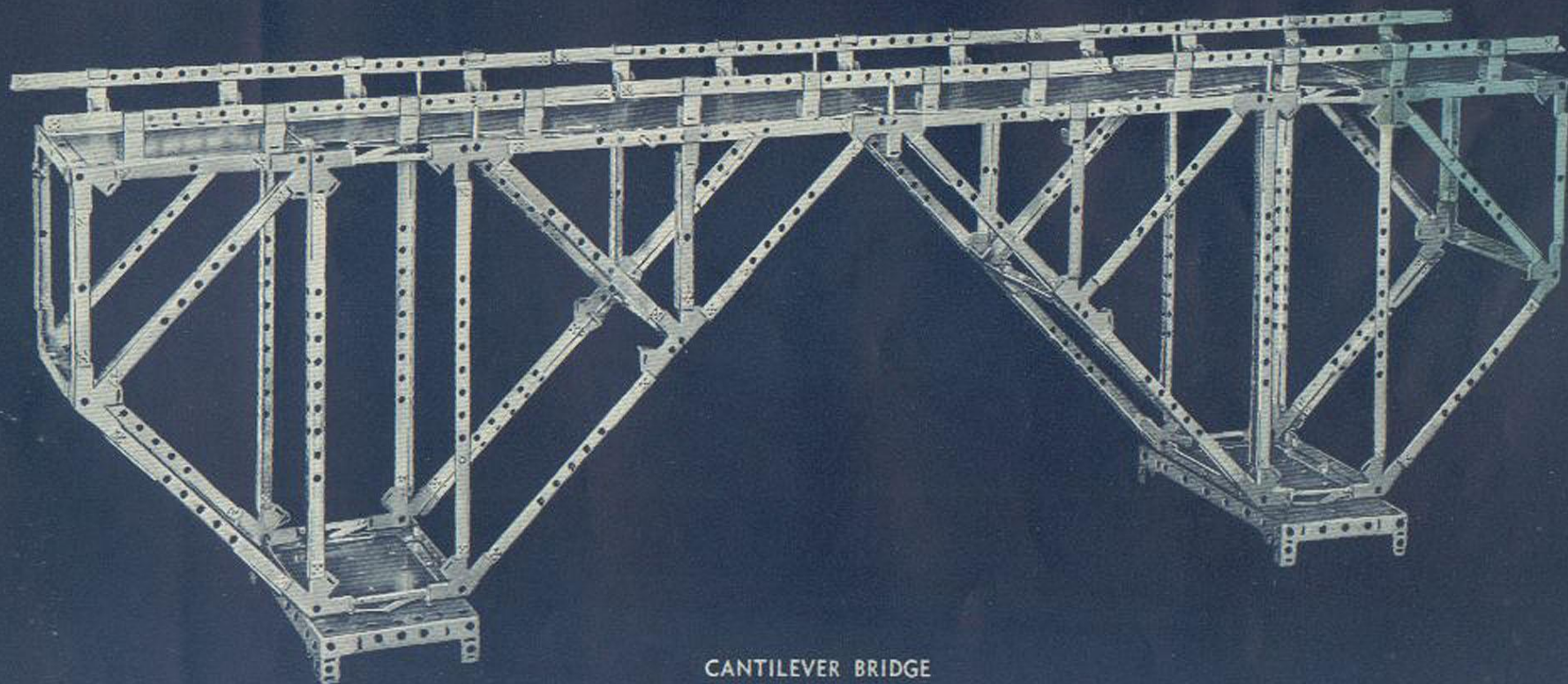
LIFT BRIDGE
Use Gear Box No. 3

The GRADUATE SIZE You Own Will Permit You To Construct Not Only All of the Models Shown in this Manual, but an Indefinite Number of Others Besides. We Would Like to Hear From You About Any Particularly Interesting Model You May Devise.



GRIST MILL
Combination Cracking and Grinding Mill
Use Gear Box No. 1 with W-2 Drive Pulley

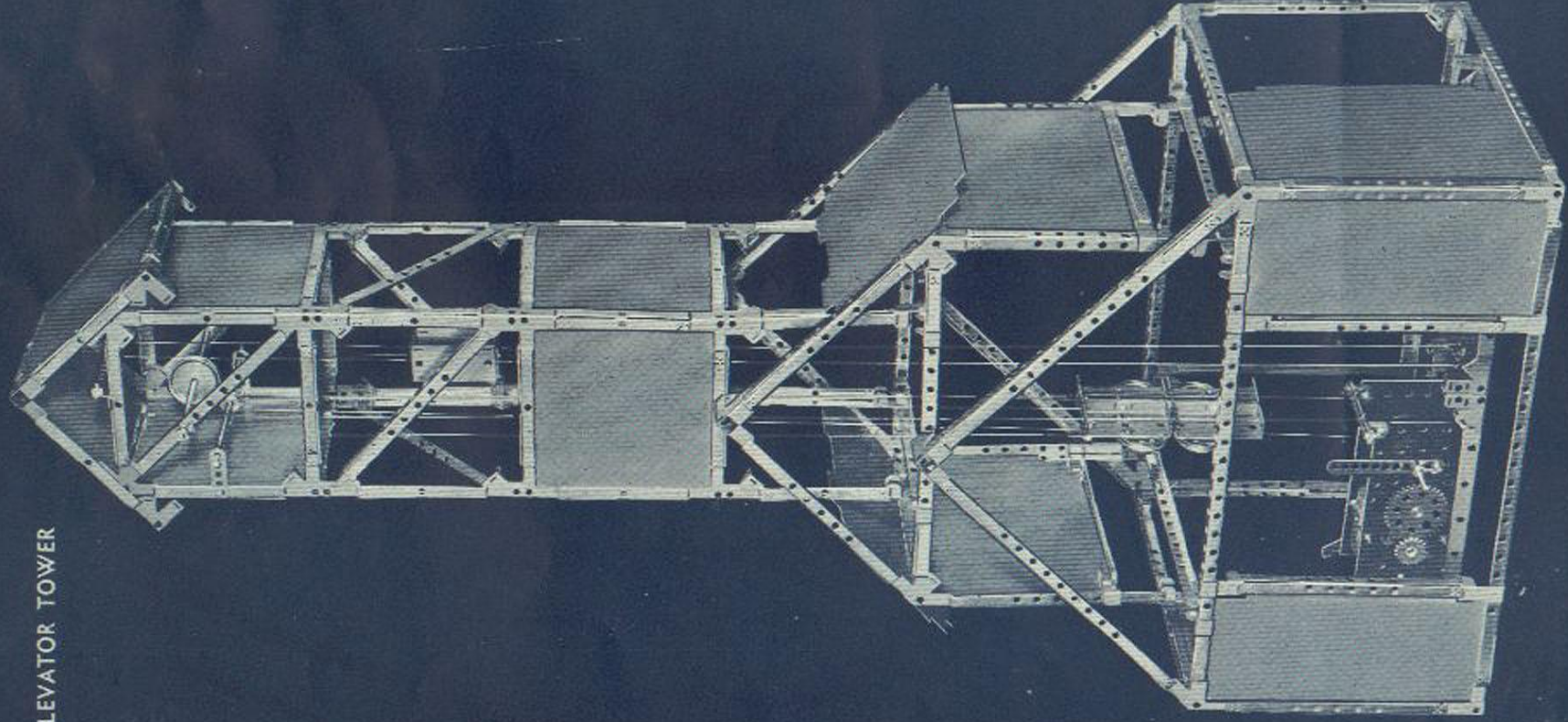
Models built with the *Graduate* Size



CANTILEVER BRIDGE

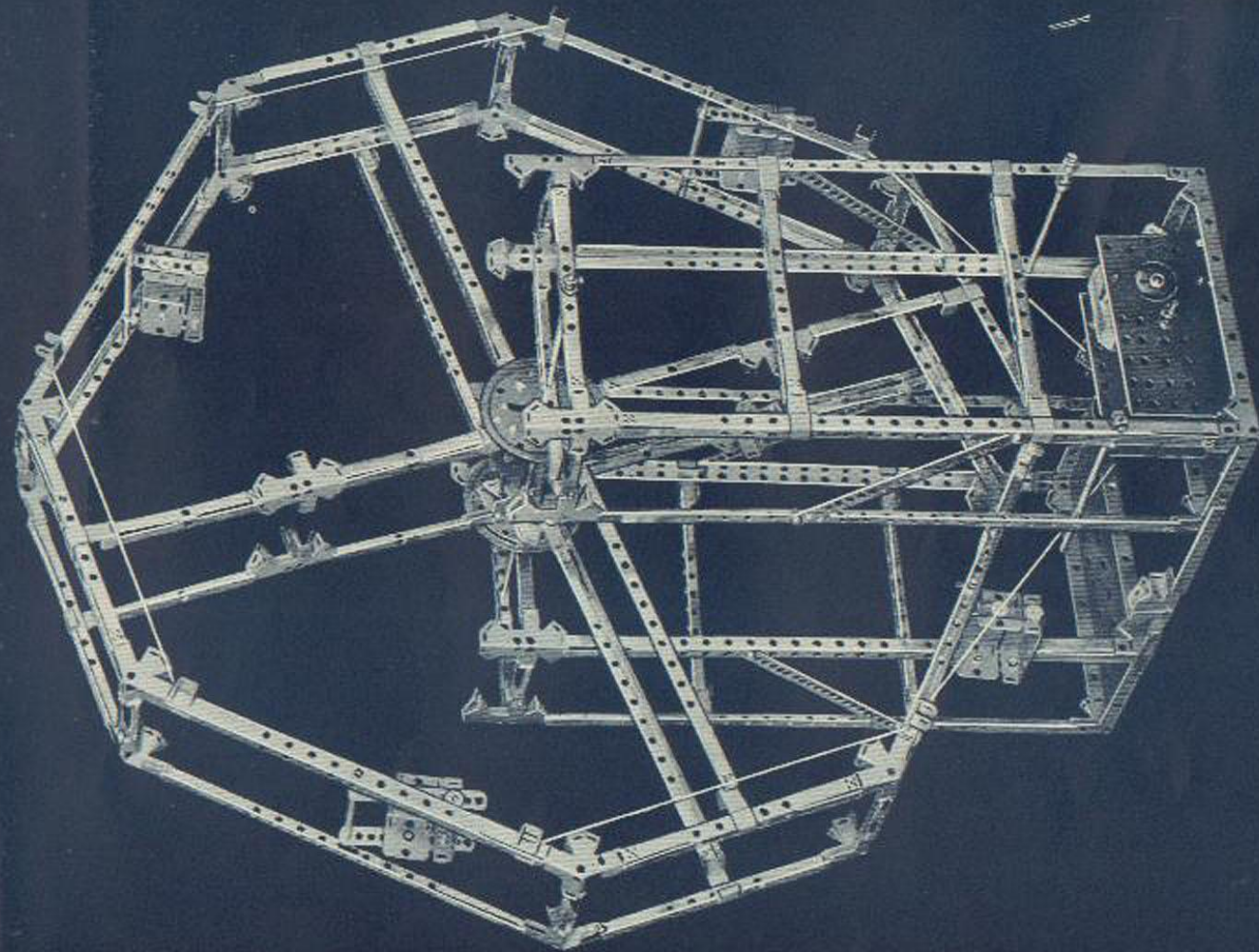
Models built with the *Graduate Size*

ELEVATOR TOWER



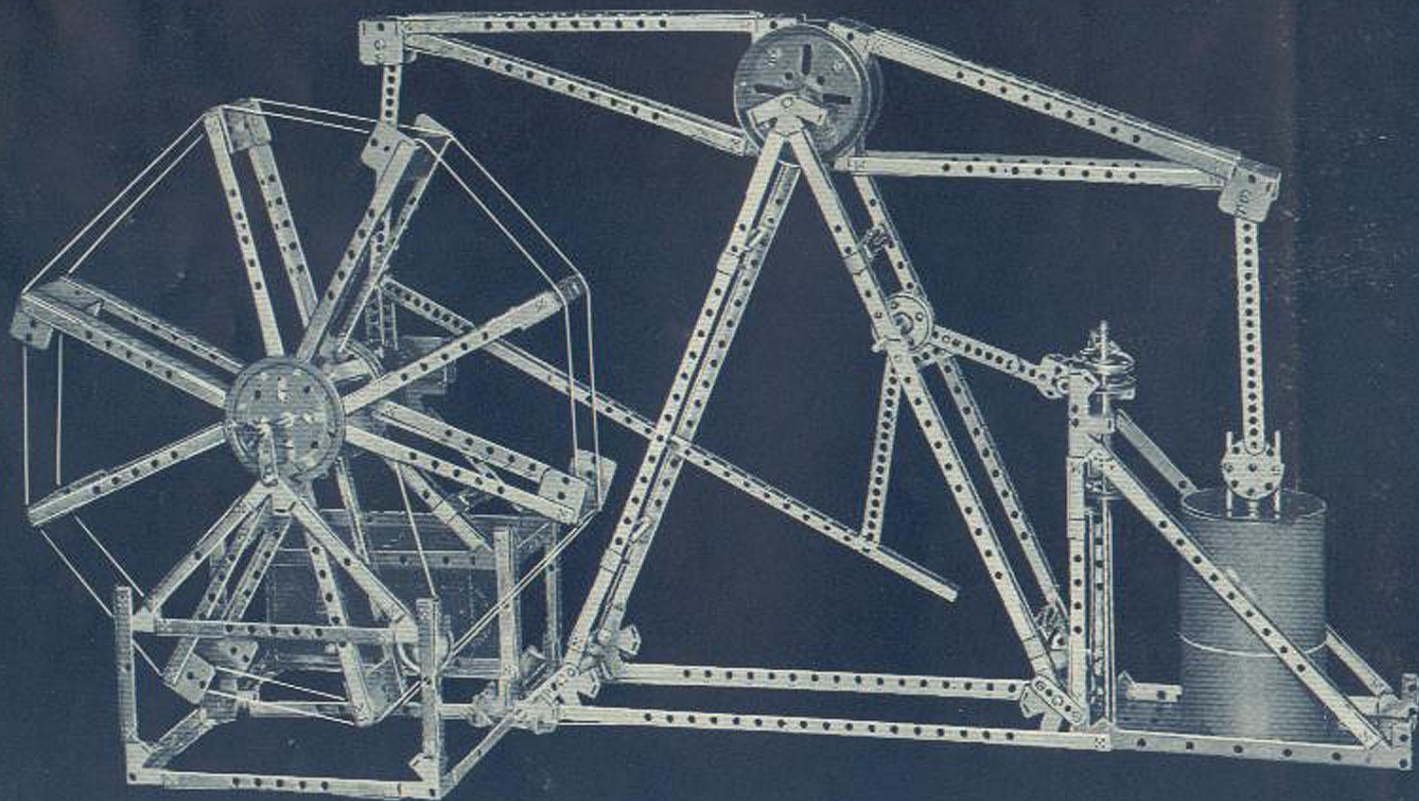
Notice the Elevator Moves Twice as Far as the Counterweight
Use Gear Box No. 2 with the Release Mechanism of Gear Box No. 5

Models built with the *Graduate Size*



FERRIS WHEEL
Use Gear Box No. 2 with W-1 Drive Pulley
on the Intermediate Shaft

Models built with the *Graduate Size*



WALKING BEAM ENGINE

Shows Single Paddle Wheel—Use Gear Box No. 2
With W-25's in Place of the W-2's Shown

The inside rear cover
is blank

