MODEL OF THE MONTH

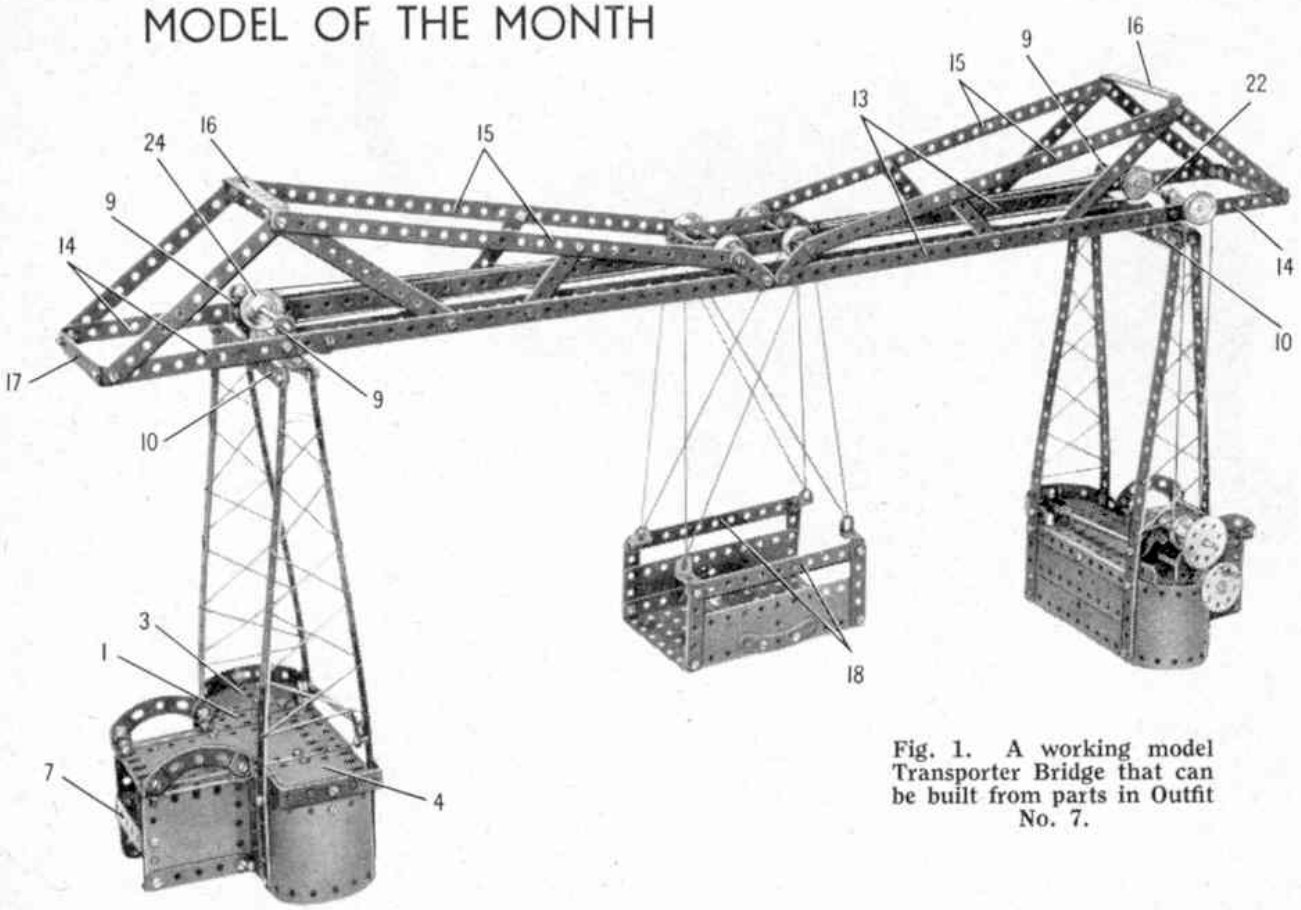

Fig. 1. A working model Transporter Bridge that can be built from parts in Outfit No. 7.

Transporter Bridge

WHEN it is desired to bridge a river, the local conditions must, of course, be taken carefully into consideration before the type of bridge can be decided upon. If the river is navigable the bridge must be placed at such a height that it will not interfere with shipping. But in cases where the river banks are almost on the same level as the river, the construction of a bridge many feet above the water line is not generally possible, owing to the cost or impracticability of building the necessary inclined approaches.

Such difficulties as these have been successfully overcome in a few cases by the construction of "transporter" bridges. These consist essentially of a girder, suspended at such a height that it clears the tallest ships' masts, and fitted with rails carrying a trolley from which a car is suspended by steel cables. The car is moved across the river by steam or electric power. Since the level of the car platform is the same as that of the approaches, traffic passes direct from the shore into the car, and vehicles and pedestrians are carried bodily across the river.

One of the most famous examples of a Transporter Bridge is that which crosses the River Mersey and the Manchester Ship Canal, between Runcorn and Widnes. Readers will remember that a picture and some details of this fine old bridge, soon to be replaced by a new high-level bridge now being constructed alongside it, were included in the April issue of the Magazine.

Although there are not many examples of this kind of bridge in actual practice, transporters are most interesting to watch in action and they make fascinating subjects for Meccano models. We have, therefore, chosen a Transporter Bridge as the subject of a further model in our "Model of the Month" series. The model is shown complete in Fig. 1 and a close-up of one of the shore towers, in which the operating mechanism is housed, appears in Fig. 2. The model is quite easy to assemble and

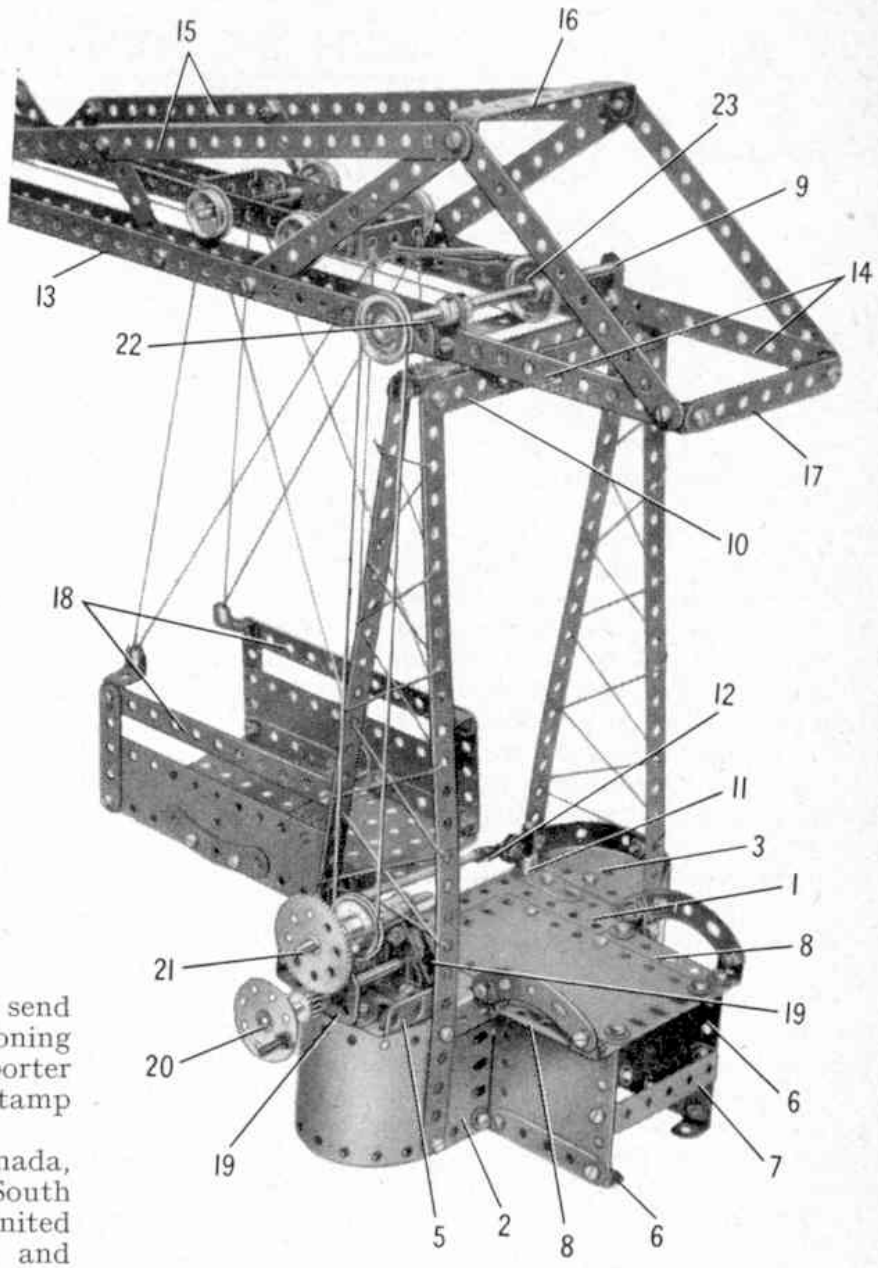

Fig. 2. The right-hand tower, showing the winding mechanism that controls the movement of the carriage.

can be built from parts in Outfit No. 7.

If the construction is neatly carried out the finished effect is most attractive, and for those model-builders who like experimenting on their own there is plenty of scope for them to modify, or elaborate on, the construction as much as they desire and the parts available to them will allow. It is also possible to fit a Clockwork or Electric Motor to drive the model in place of the manual operation for which the model illustrated is designed.

Many readers will no doubt want to build this Transporter Bridge and full constructional details and a list of the parts required are available free of charge on request. Readers living in Great Britain should send a letter to the Editor mentioning "Model of the Month—Transporter Bridge" and enclosing a 2d. stamp to cover postage.

Readers living in Canada, Australia, New Zealand, South Africa, Rhodesia, Ceylon, United States of America, Holland and Italy can obtain the instructions by writing to our main agents for these countries, also, of course, enclosing appropriate stamps for postage.

Please make your application early, otherwise you may find that supplies of the instruction sheets have run out. We have prepared sufficient copies of the instructions to cover an estimate of the number of requests we will receive from model-builders, but in the event of an unprecedented demand it is possible that supplies may prove inadequate. So send in your application as quickly as possible and avoid disappointment. This applies equally to readers in this country and overseas.

Easy Model-Building—(*Continued from page 295*)

Axle Rod also carries a 25-teeth Pinion 22, which meshes with a 50-teeth Gear Wheel 23. This Gear Wheel is carried on a 1½" Axle Rod 24 journalled in the Flanged Plate 2 and a 3½" Perforated Strip bolted to two 1½" Angle Girders attached to the Flanged Plate, which also carries a 19-teeth Pinion meshing with a 57-teeth Gear Wheel. The Pinion is fixed on a 1½" Rod 25 held in the 3½" Strip and the Flanged Plate. A 15-teeth Pinion 26 also secured to this Rod, meshes with a 25-teeth Contrate Wheel 27 mounted on the rear Axle. Two 1" Sprocket Wheels are fixed on this axle. Two ¾" Flanged Wheels 28 are secured to each of the Rods 8 and Wheel Discs and 1½" Flanged Wheels 29 are fixed to the front axle. Sprocket Chain is arranged as shown to form the tracks.

News and Ideas for Meccano Model-Builders—

(*Continued from page 303*)

The output shaft is mounted in the Double Angle Strip 2 and in the Double Bent Strip. It is fitted with a 1½" Contrate spaced from Double Angle Strip 2 by two Washers.

As the Worm Gear drives its 57-tooth Gear, the Strip 4 is moved from side to side, and carries with it the Rod 5. The sliding movement of Rod 5 brings the ½" Pinions into mesh alternately with the 1½" Contrate, and thus the direction of rotation of the output shaft is reversed periodically.

To adjust the mechanism the Rod 5 should be arranged with its 57-tooth Gear in the centre of the ½" face Pinion, while each ½" diameter Pinion should be just out of mesh with the 1½" Contrate.

MODEL OF THE MONTH.

Transporter Bridge.

Illustrated in the June, 1960, issue of the Meccano Magazine.

Construction of the Towers and Bases.

The towers and bases at the ends of the bridge are similar in general design. The top of each base is a 5½" x 2½" Flanged Plate 1 and the front is formed by two 5½" x 1½" Flexible Plates bolted together lengthways. Each end is a 5½" x 2½" Flexible Plate curved as shown and connected at its lower corners by a 2½" x ½" Double Angle Strip. A 2½" x 1½" Flexible Plate 2 is placed at each side of the back of the base.

One end of the top of each base is completed by a Semi-Circular Plate 3, and the other end of one base is filled in by a straightened 1.11/16" radius Curved Plate 4. A 2½" x 1½" Flanged Plate 5 is attached to the second base as shown. The Plate 4 is edged by a 2½" x 1" Double Angle Strip, which is connected to the base by a Fishplate.

The sides of each approach roadway are 2½" x 2½" Flexible Plates, attached to the Plates 2 by Angle Brackets and strengthened by 2½" Strips and 2½" x ½" Double Angle Strips 6. The sides are connected by a further 2½" x ½" Double Angle Strip 7. The top of each approach is formed by a 4½" x 2½" Flexible Plate and two 2½" x 2½" Flexible Plates 8, and is bolted to the Flanged Plate 1 and to the lugs of the Double Angle Strips 6. The handrails are 2½" Stepped Curved Strips attached to Angle Brackets.

Each tower of each base consists of two 12½" Strips connected at their upper ends by a Double Bracket, which supports a 1" x 1" Angle Bracket 9. The towers are connected by two 5½" Strips 10. Two Formed Slotted Strips are bolted to one of the towers to edge the Semi-Circular Plate 3.

The liftable barrier is made by fixing a 3½" Rod in a Crank 11 bolted to the Flanged Plate 1. A Right-Angle Rod and Strip Connector is fitted to the top end of the Rod, and a Rod and Strip Connector 12 is pivoted on a lock-nutted bolt as shown. The Rod and Strip Connector supports a 3½" Rod that forms the barrier.

When the barrier is lowered the end of the 3½" Rod catches behind a Fishplate, which is spaced from one of the towers by a Spring Clip on a ¾" Bolt.

Transporter Gantry.

The main girder 13 of the gantry consists of four 12½" Angle Girders arranged in pairs to form two U-section girders. The U-section girders are connected at the centre by a Fishplate and a 3" Strip, and are extended at their outer ends by 5½" Strips 14 that overlap the girder 13 by two holes each. Two 12½" Strips 15 are connected to each of the girders 13 by 5½" Strips, 2½" Strips and 1½" Strips. The girders 1 are joined by 3½" x ½" Double Angle Strips 16, and 3½" Strips 17 attached to the Strips 14 by Angle Brackets. The gantry is bolted to the lugs of the 1" x 1" Angle Brackets 9.

Trolley and the Travelling Carriage.

The trolley consists of two 3½" Strips joined at each end by a 1½" x ½" Double Angle Strip. The wheels are ¾" Flanged Wheels, and they are fixed on built-up rods, each made from two 1½" Rods joined by a Rod Connector. The wheels travel on the inner edges of the U-section girders 13.

The base of the travelling carriage consists of two 3½" x 2½" Flanged Plates and two 2½" x 1½" Flexible Plates, and the sides are 5½" x 1½" Flexible Plates. A 2½" Curved Strip and two 2½" Strips are bolted to each side as shown. The upper ends of the 2½" Strips support 5½" Strips 18 and ½" Reversed Angle Brackets. The carriage is suspended from the trolley by Cords as shown.

The Operating Mechanism.

Two Flat Trunnions 19 are bolted to Trunnions fixed to the Flanged Plate 5, and they support a 4" Rod 20 that carries a ½" Pinion and a Bush Wheel. A Threaded Pin in the Bush Wheel forms a winding handle. The ½" Pinion drives a 57-tooth Gear on a built-up rod 21, which is made from a 2" and a 1" Rod joined by a Coupling. A 1" Pulley on rod 21 is connected by a Cord belt to a 1" Pulley on a Rod 22, which is held by Collars in two of the Angle Brackets 9.

A length of Cord is tied at one end to a Driving Band fastened to the trolley. The Cord is taken round a 1" Pulley 23 on Rod 22, under the trolley and round