A Model Tower Crane

ALL who have seen a tall modern building under construction will almost certainly know what a tower crane looks like. It has a comparatively small base, running on rails alongside the building site, and consequently it takes up little room. An illustrated description of a tower crane of this type appeared in the *M.M.* for February 1957, and this month here is a simple version of another typical design that can be built with the parts in a No. 5 Outfit.

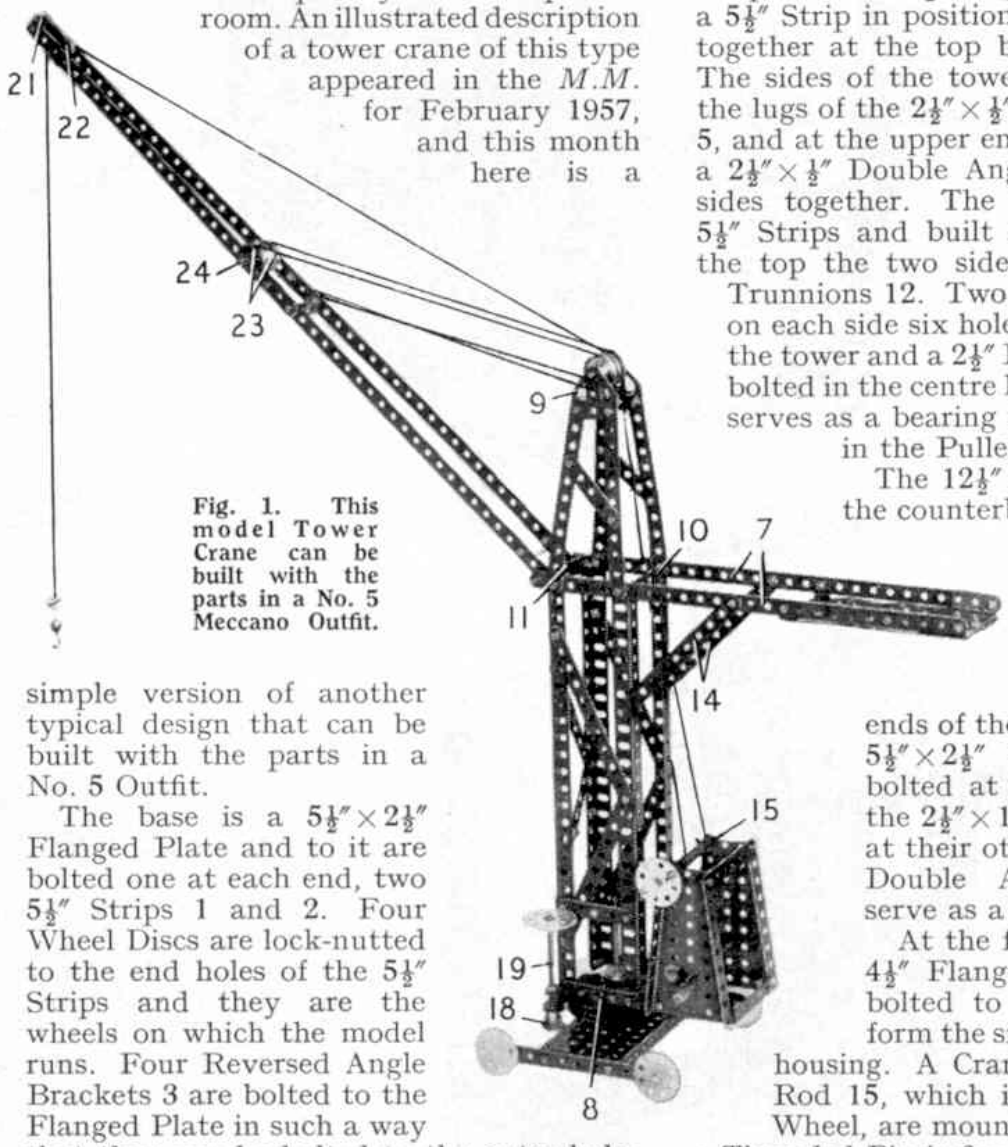

Fig. 1. This model Tower Crane can be built with the parts in a No. 5 Meccano Outfit.

The base is a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate and to it are bolted one at each end, two $5\frac{1}{2}''$ Strips 1 and 2. Four Wheel Discs are lock-nutted to the end holes of the $5\frac{1}{2}''$ Strips and they are the wheels on which the model runs. Four Reversed Angle Brackets 3 are bolted to the Flanged Plate in such a way that they can be bolted to the outer holes of a 3″ Pulley 4, which forms the lower section of the bearing on which the tower swivels. A second 3″ Pulley, which has two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 5 bolted to it but spaced from it by two Washers on the shanks of $\frac{3}{8}''$ Bolts, is placed directly on top of the lower Pulley and a $4\frac{1}{2}''$ Rod is held in the boss of the lower Pulley. A 1″ Pulley 6 is placed on the Rod to keep the upper 3″ Pulley in place.

Each side of the tower is made up of two $12\frac{1}{2}''$ Angle Girders which are joined at their upper ends by a $12\frac{1}{2}''$ Strip 7 and at their lower ends by a $5\frac{1}{2}''$ Strip 8 as shown. Each bolt that serves to hold the $12\frac{1}{2}''$ Strips to the $12\frac{1}{2}''$ Angle Girders holds also a $5\frac{1}{2}''$ Strip in position and they are joined together at the top by Flat Trunnions 9. The sides of the tower are then bolted to the lugs of the $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 5, and at the upper ends a $2\frac{1}{2}''$ Strip 10 and a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 11 join the sides together. The tower is braced by $5\frac{1}{2}''$ Strips and built up $4\frac{1}{2}''$ strips. Near the top the two sides are joined by two Trunnions 12. Two $2\frac{1}{2}''$ Strips are bolted on each side six holes from the bottom of the tower and a $2\frac{1}{2}''$ Double Angle Strip 13 bolted in the centre holes of the $2\frac{1}{2}''$ Strips, serves as a bearing for the $4\frac{1}{2}''$ Rod fixed in the Pulley 4.

The $12\frac{1}{2}''$ Strips 7, which form the counterbalance structure, are supported by two $5\frac{1}{2}''$ Strips 14. A $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate is bolted through its flanges to the ends of the $12\frac{1}{2}''$ Strips and four $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates are bolted at one of their ends to the $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate and at their other ends to a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip. These serve as a counterbalance.

At the foot of the tower two $4\frac{1}{2}''$ Flanged Sector Plates are bolted to the $5\frac{1}{2}''$ Strips 8 to form the sides of the mechanism housing. A Crank Handle and a $4\frac{1}{2}''$ Rod 15, which is fitted with a Bush Wheel, are mounted in the Plates and a Threaded Pin is fixed to the Bush Wheel to form a handle.

A Pivot Bolt 16 is fixed to the Bush Wheel and by sliding the $4\frac{1}{2}''$ Rod 15 the Pivot Bolt catches in one of the flanges of the $4\frac{1}{2}''$ Flanged Sector Plates and acts as a brake. The slideable distance of the Rod is controlled by Spring Clips. The Crank Handle also is free to slide and Spring Clips are placed on it. A brake is provided by a Spring Clip bearing against the Angle Bracket 17,