

HOW TO USE Meccano Parts

VI.—RODS, CRANKS, etc. (CLASS M)

For the purpose of this series of articles we have grouped all the Meccano parts into two main sections, termed the Structural and Mechanical Sections, and these sections have been further divided into a number of separate classes. The complete grouping is as follows: Structural Section: Class A, Strips; Class B, Girders; Class C, Brackets, Trunnions, etc.; Class D, Plates, Boilers, etc.; Class E, Nuts and Bolts, Tools and Literature. Mechanical Section: Class M, Rods, Cranks and Couplings; Class N, Wheels, Pulleys, Bearings, etc.; Class O, Gears and Toothed Parts; Class P, Special Accessories; Class Q, Miscellaneous Mechanical Parts; Class T, Electrical Parts; Class X, Motors, Accumulators, etc.

THIS month we describe the Meccano parts included in Class M, the first class in the Mechanical Section. The grouping of the Meccano Accessories was fully described in the first article of this series, but it may be advisable to repeat that in the Mechanical Section we have endeavoured to group all those parts that are intended principally for assembly in mechanical movements (gear boxes, driving mechanisms, etc.), as opposed to parts that are used principally in the construction of the frames and bases, etc., of models.

The Meccano Axle Rods

The Meccano Axle Rods are made to a diameter of .160 inches and are supplied in lengths from 1" to 11½". If greater lengths are required two Axle Rods may be joined end to end by means of a Coupling. In addition to their obvious uses as shafting or spindles for rotating machinery, the Rods are often employed as levers, guides for sliding mechanisms such as the work-table of a lathe or planing machine, tie rods or struts in structural work, etc.

In assembling rotating machinery the bearings should receive very careful attention, especially if the shafts are to rotate at great speed or are to withstand excessive strain. In either case it is a good plan, instead of journalling the Rod in a hole in a single Plate or Strip, to reinforce the bearing by bolting a Wheel or Crank to the Plate so that the Rod may turn freely in the boss. If the Wheel is bolted so that the set-screw hole is uppermost, an excellent oil receptacle will be provided. Alternatively, several short Strips can be bolted to the Plate so that the width of the bearing surface is increased. Unless these precautions are adopted the rotating shaft will gradually increase the diameter of the hole in which it is journalled.

For all ordinary purposes the set-screws provided with the various Meccano Wheels and Cranks should be sufficient to hold the parts rigidly in position on the Axle Rods. In the latest Meccano parts, however, the set-screw hole has been extended right through the boss so that two set-screws can be inserted if desired, one on each side. In certain cases, even two

set-screws may not be sufficient to prevent the wheels slipping upon the shafts. A case in point is the winding drum of the Meccano Clock, which must withstand over many hours the direct pull of the 18 lb. weight. To meet such conditions a small flat should be filed on each side of the Rod to receive the ends of the set-screws. If these flats are filed very carefully a wheel may be

carefully a wheel may be made quite immovable on the shaft, and yet when required it may easily be slipped off merely by loosening the set-screws. On the other hand, unless the flats are cut very carefully the set-screw will slip partially round the Rod and become firmly wedged.

The Crank Handles, which are obtainable with either 3 $\frac{1}{2}$ " or 5" shafts are in reality ordinary Axle Rods with their ends bent to form convenient handles. In addition to their obvious uses, they may be employed where a bent handrail is required, or as a crankshaft when the crank is required at one end only and not in the centre as in part No. 134. The stroke of the crank so provided is roughly 14".

Part No. 134 may be used in numerous cases where it is required to convert rotary motion to reciprocating motion, or vice versa. It gives a stroke or total rectilinear movement of 1". An ordinary Meccano Strip is intended to be used as the connecting rod. It should be slipped into place in the centre of the crank portion and held in position by two Spring

Clips. If desired a more elaborate connecting rod may be built-up as shown in Fig. 11. As will be seen, it consists of an Axle Rod 2, the big-end bearing being formed from two $1\frac{1}{2}$ " Strips mounted on the crank and bolted to a Coupling 1. The Strips are held in place by a $\frac{1}{2}$ " Bolt 3 passing completely through the end of the Coupling, and by a pair of set-screws 4, which serve also to grip the connecting rod in the Coupling. The position of the connecting rod in the centre of the crank is maintained by a Spring Clip 5 mounted between two Washers.

Screwed Rods and Their Uses

The Meccano Screwed Rods are cut throughout their lengths with the Meccano standard thread



Fig. 1

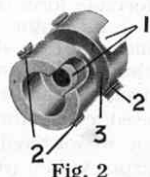


Fig. 2