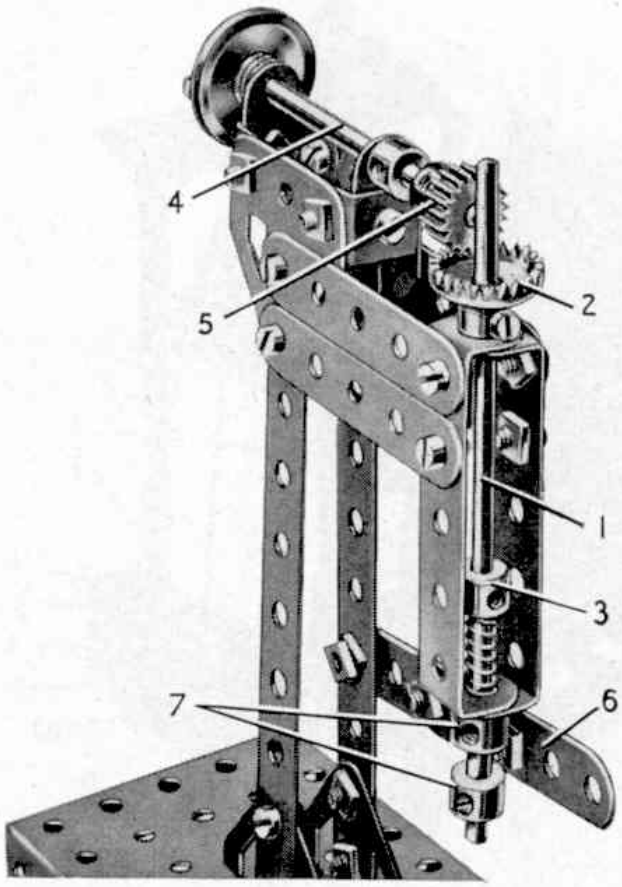


Fig. 3. An application of the Rod with Keyway to form the drill spindle of a model drilling machine. By its use the spindle is free to rise and fall without interruption to the drive.

the Gear or Pinion turns with the Rod. Several applications of the Rod with Keyway are shown in the Gears Outfit "B" Instructions Book and three examples are shown in Figs. 2, 3 and 4 on these pages.

Fig. 2, from the Instructions Book, illustrates how to build with the gears in the Outfit a Twin Drive Unit that will be found useful in many models such as cranes, in which it is necessary to drive two separate movements from a single Motor. With this mechanism a drive can be transmitted to two shafts, either independently or together; and one of these shafts can be used to operate the hoisting movement of a crane, while the other controls raising and lowering of the jib.

The second mechanism, also taken from the Instructions Book, shows how a drive can be transmitted to a Rod that must be free to slide in its bearings. This particular example is a drive to the shaft of a model drill, and shows how the Rod with Keyway and the Key Bolt enable the shaft to be raised or lowered without affecting the drive.

The gear-box for model vehicles shown in Fig. 4 has been designed as a further example of the way in which the new Rod with Keyway can be used with standard Meccano gears in the assembly of compact mechanisms of various kinds. This gear-box provides three forward speeds and a reverse drive, and it requires a few gears in addition to those contained in the Gears Outfit "B." It serves to illustrate how easily the new parts can be used not only with the parts in the Gears Outfit but with other parts in the Meccano System.

Referring to Fig. 4 the gear-box input shaft is a Rod 1 that carries a ½" Pinion in constant mesh with a 57-tooth Gear on a Rod with Keyway 2. The other gears on the Rod with Keyway are free to slide but they are made to turn with the Rod by Key Bolts screwed into their bosses. The sliding gears are grouped in pairs, and each pair is linked by connecting arms to a selector shaft. The sliding gears can be moved into mesh with corresponding gears on the output shaft 3. The movement of the selector shafts is controlled by the gear lever 4, which is universally mounted.

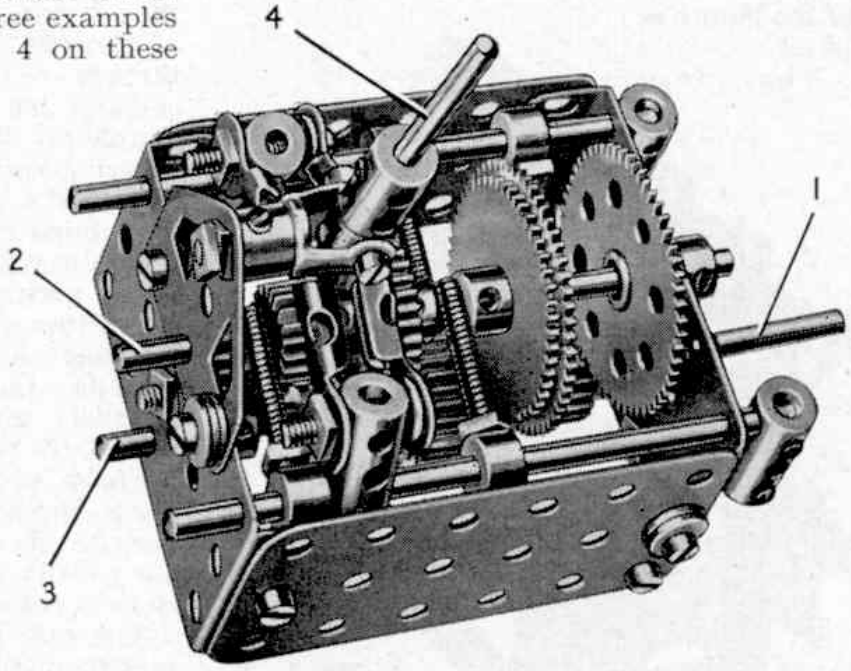


Fig. 4. One of the most useful applications of the Rod with Keyway is to be found in gear-boxes. It is used in this three-speed and reverse example, and helps in keeping it compact.

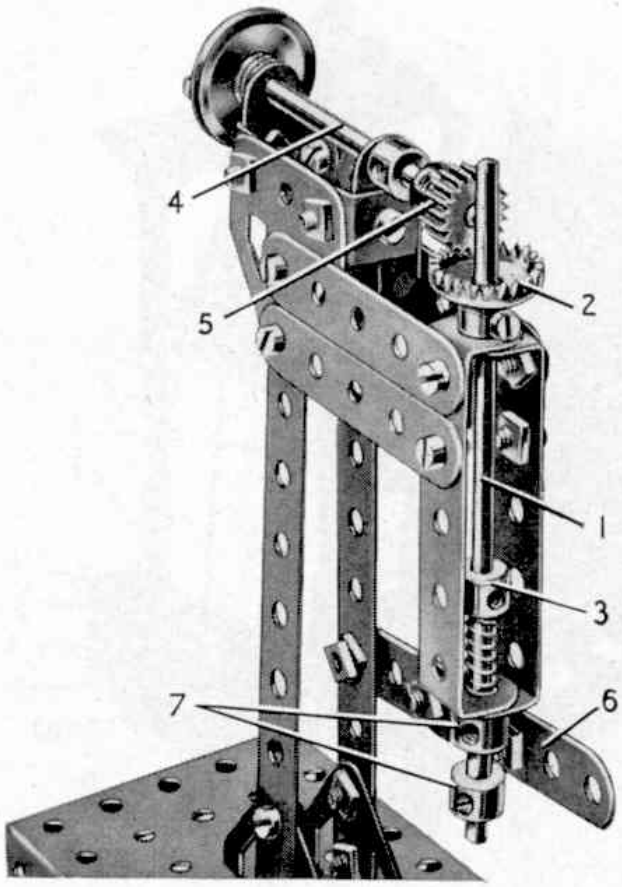


Fig. 3. An application of the Rod with Keyway to form the drill spindle of a model drilling machine. By its use the spindle is free to rise and fall without interruption to the drive.

the Gear or Pinion turns with the Rod. Several applications of the Rod with Keyway are shown in the Gears Outfit "B" Instructions Book and three examples are shown in Figs. 2, 3 and 4 on these pages.

Fig. 2, from the Instructions Book, illustrates how to build with the gears in the Outfit a Twin Drive Unit that will be found useful in many models such as cranes, in which it is necessary to drive two separate movements from a single Motor. With this mechanism a drive can be transmitted to two shafts, either independently or together; and one of these shafts can be used to operate the hoisting movement of a crane, while the other controls raising and lowering of the jib.

The second mechanism, also taken from the Instructions Book, shows how a drive can be transmitted to a Rod that must be free to slide in its bearings. This particular example is a drive to the shaft of a model drill, and shows how the Rod with Keyway and the Key Bolt enable the shaft to be raised or lowered without affecting the drive.

The gear-box for model vehicles shown in Fig. 4 has been designed as a further example of the way in which the new Rod with Keyway can be used with standard Meccano gears in the assembly of compact mechanisms of various kinds. This gear-box provides three forward speeds and a reverse drive, and it requires a few gears in addition to those contained in the Gears Outfit "B." It serves to illustrate how easily the new parts can be used not only with the parts in the Gears Outfit but with other parts in the Meccano System.

Referring to Fig. 4 the gear-box input shaft is a Rod 1 that carries a ½" Pinion in constant mesh with a 57-tooth Gear on a Rod with Keyway 2. The other gears on the Rod with Keyway are free to slide but they are made to turn with the Rod by Key Bolts screwed into their bosses. The sliding gears are grouped in pairs, and each pair is linked by connecting arms to a selector shaft. The sliding gears can be moved into mesh with corresponding gears on the output shaft 3. The movement of the selector shafts is controlled by the gear lever 4, which is universally mounted.

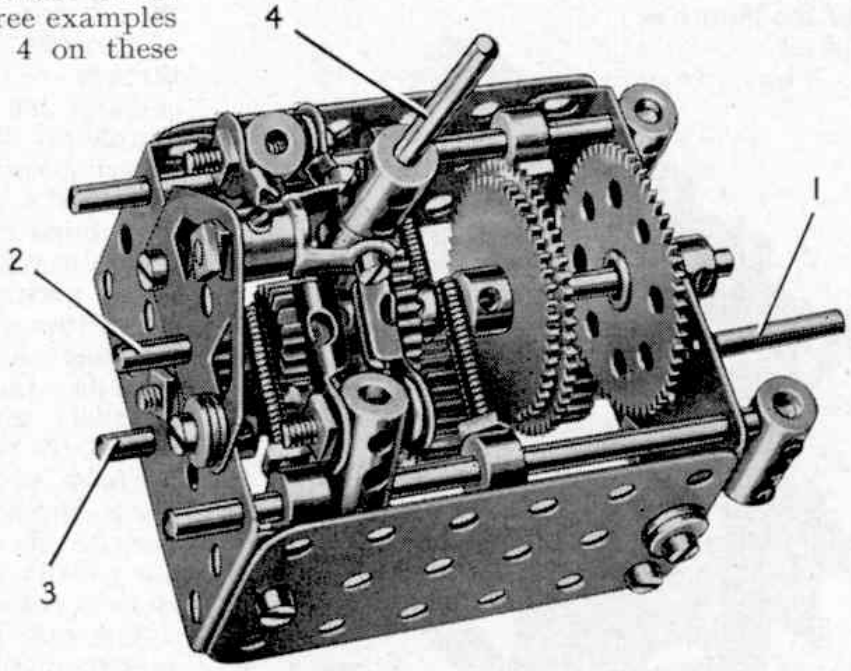


Fig. 4. One of the most useful applications of the Rod with Keyway is to be found in gear-boxes. It is used in this three-speed and reverse example, and helps in keeping it compact.

Among the Model-Builders

By "Spanner"

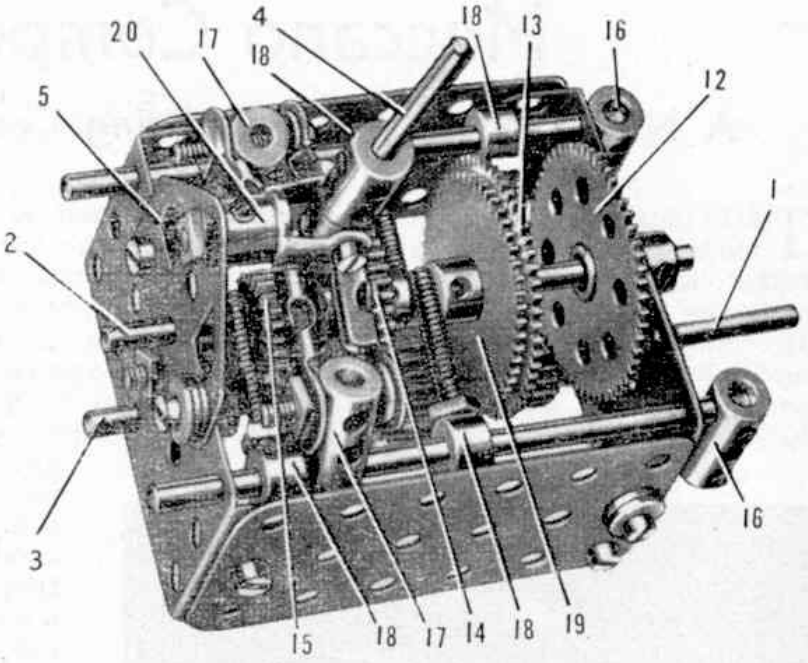


Fig. 1. A three-speed and reverse gear-box that makes use of the new Rod with Keyway, Part No. 230.

A Three-Speed and Reverse Gear-Box

The special article in the August issue of the *M.M.* announcing the new Gears Outfit 'B' included a picture of a gear-box that makes use of the Rod with Keyway, part No. 230. Since the picture appeared several readers have asked for further details of the gear-box, and this month I am including a full description of the mechanism, which is shown in Figs. 1 and 2.

The housing is made from two 3" × 1½" Flat Plates connected by 2½" × 1½" Flanged Plates, and a Flat Trunnion 5 is bolted to one end. It should be noted that Washers are placed next to some of the bolt heads as shown so that the shanks of the bolts clear the Gears and the Rods. The input shaft 1 is supported in one end of the housing and in a Double Bent Strip, and it carries a ½" Pinion 6. The end of the input shaft projects slightly into a ½" Pinion 7 on the output shaft 3. The output shaft carries also a ¾" Pinion 8, a 1" Gear 9 and a ½" Pinion 10. A ½" reverse Pinion 11 is free to turn on a ¾" Bolt that is attached to the housing by two nuts, and this Pinion is in constant mesh with Pinion 10.

The layshaft is a 4" Rod with Keyway 2, and it carries two 57-tooth Gears 12 and 13, a 50-tooth Gear 19, a 1" Gear 14 and a ½" Pinion 15. The Gear 12 is fixed on the shaft and is in constant mesh with Pinion 6, but the other gears are free to slide and are made to turn with the shaft by Key Bolts screwed into their bosses.

The selector shafts are 3½" Rods and each carries two Couplings 16 and 17 and two Collars 18. A 1" Rod in Coupling 16 is free to slide in a hole in one of the Flanged Plates and serves to prevent the selector shaft from turning. A 1" Screwed Rod is screwed into one of the holes in each of the Collars 18 and is fixed in place by a nut. The two Screwed Rods on one side are arranged so that they form a fork with two prongs that engage one on either side of the Gears 13 and 19, and the two Screwed Rods at the opposite side are similarly

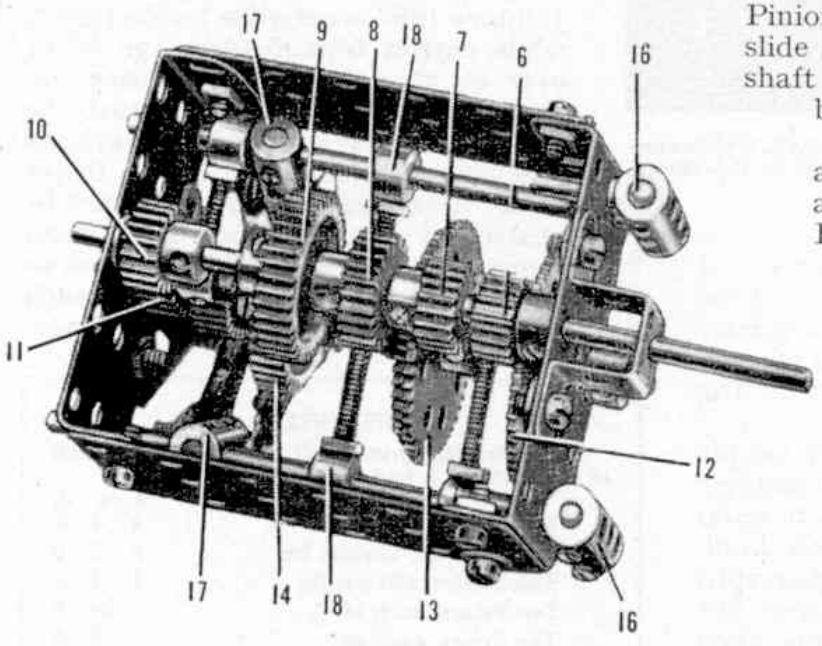


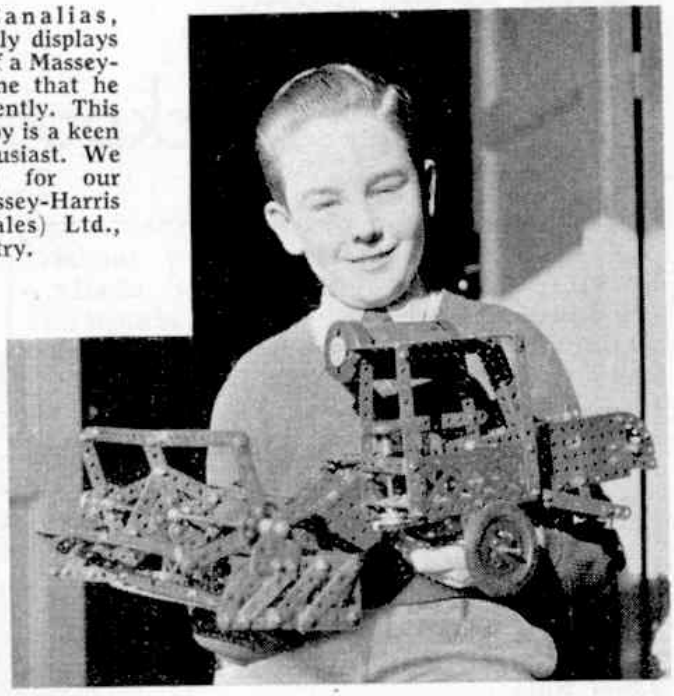
Fig. 2. The three-speed and reverse gear-box seen from underneath.

arranged to engage the Gear 14 and the Pinion 15.

The gear-change lever is a 1½" Rod 4 fitted in a Short Coupling that is fixed to a Centre Fork held in a Swivel Bearing 20. The Swivel Bearing is mounted on a ½" Bolt that is lock-nutted to the Flat Trunnion 5. The Centre Fork engages between pairs of Rod and Strip Connectors on each side, fixed by ¾" Bolts in the Couplings 17.

Low or first gear is engaged by moving the lever 4 so that the Centre Fork engages the lower pair of Rod and Strip Connectors (Fig. 1), then by sliding these to the right the Gear 14 is moved into mesh with the Gear 9. Movement of the lever 4 in the opposite direction results in Pinion 15 engaging Pinion 11 to provide reverse gear.

Second and third gears are engaged by sliding the Centre Fork between the upper pair of Rod and Strip Connectors (Fig. 1). Second gear is engaged by sliding Gear 19 into mesh with Pinion 8, and top gear is provided when Gear 13 engages the Pinion 7.



F. Pares Canalias, Madrid, proudly displays a fine model of a Massey-Harris Combine that he completed recently. This 11-year old boy is a keen Meccano enthusiast. We are indebted for our picture to Massey-Harris Ferguson (Sales) Ltd., Coventry.

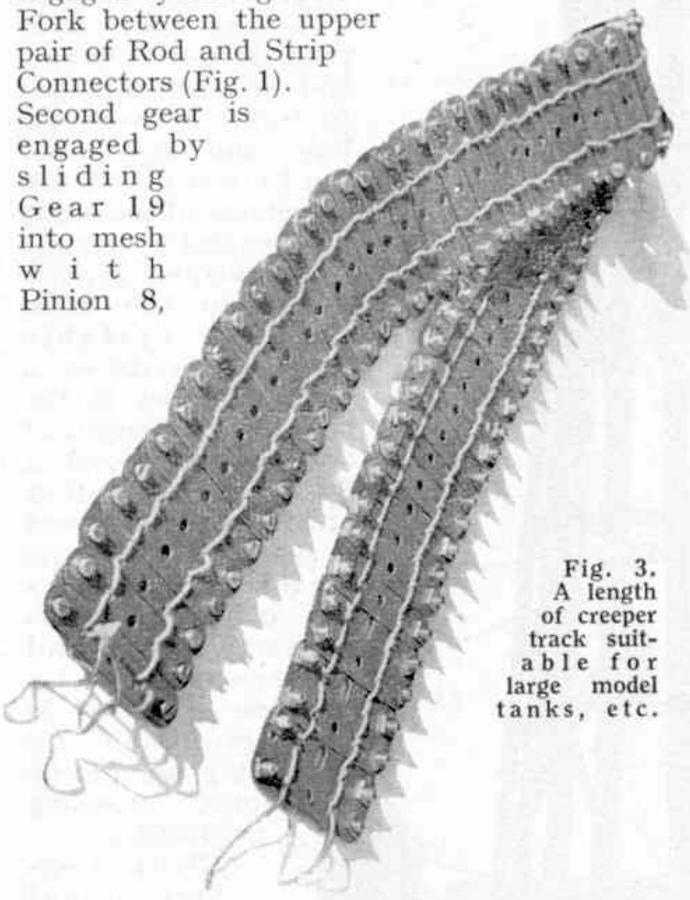


Fig. 3. A length of creeper track suitable for large model tanks, etc.

Creeper Track for Large Models

One of the points that comes up time and time again in my correspondence concerns the assembly of creeper tracks for tractors, excavators, etc., and it is evident that many model-builders would like guidance on this subject.

The provision of tracks for small models presents no difficulty, as lengths of standard Sprocket Chain can be used with realistic effect, but a wider and heavier track is required for large models. I have previously illustrated one or two examples of suitable built-up creeper tracks. To help model-builders who missed the previous examples, however, this month I am including details of a creeper track arrangement devised by Lt. Col. J. G. M. Keeling, who used this method for making the tracks of a model excavator he entered in a Meccano competition.

The track plates used in this arrangement consist of a series of 2½" Flat Girders and made-up flat girders formed by 2½" Strips connected by Fishplates. To assemble the plates to form an endless track of the

(Continued on page 544)

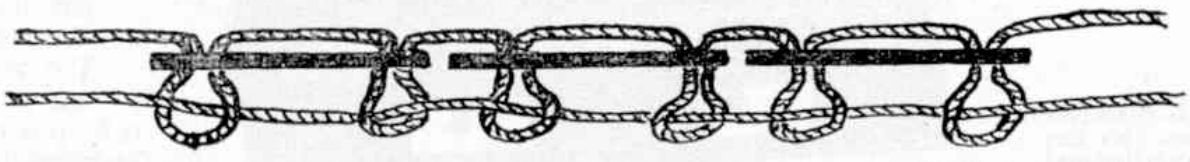


Fig. 4. A sketch showing the arrangement of the cords in building creeper track of the kind seen in Fig. 3.