

# 2 MECHS FROM 'SPANNER'

- Heavy duty geared roller bearing
- Simple free-wheel unit

**B**EFORE the last war, Meccano Limited produced a heavy duty Geared Roller Bearing as a complete item. This was an extremely useful, if rather expensive part, but unfortunately it was never reintroduced after the war, as the tools used in its manufacture were no longer in existence.

While agreeing that this is a regrettable state of affairs, I do not believe it to be the terrible blow to the Meccano system that many people maintain. Why? Simply because a reasonably serviceable heavy duty bearing can be built up from current standard parts—and probably at a fraction of the cost of a commercially manufactured example. The first item illustrated here is just such a composite bearing, and one which is often used by the Model-Building Department of Meccano Limited.

The bearing itself is, of course, the section between and including the two Flanged Rings, this being fixed on a suitable mounting, depending upon the model in which it is being fitted. For the purpose of the article, however, it has been attached to a strong base framework that we have found can often be incorporated as a complete unit in a model.

## Framework

A square is built up from four 9½ in. Angle Girders 1, connected at each corner by a 4½ in. Angle Girder 2, at the same time bolting two Corner Gussets in place. A second square, obtained from another four 9½ in. Angle Girders 3, is bolted to the top of Girders 2, Corner Gussets again being added for strength. Girders 1 and 3 at opposite sides are connected by two 4½ in. Angle Girders 4 and these, in turn, are connected at the top and bottom by another two 9½ in. Angle Girders 5 and 6. Corner Gussets are positioned at the bottom.

Bolted between each Angle Girder 5 and 6, in the positions shown, are three 4½ in. Angle Girders 7 and 8, all being overlaid by 4½ in. Strips along one flange. Fixed between each pair of Girders 7 and 8 are two 2½ in. by 1 in. Double Angle Strips 9 and 10. A 2½ in. by 2½ in. Flat Plate 11 is bolted to the top of Strips 9.

## Bearing unit

Two 9½ in. Strips 12, at right angles to each other, are secured to a 3½ in. Gear Wheel by means of Bolts screwed into four Threaded Bosses 13. A 9⅞ in.

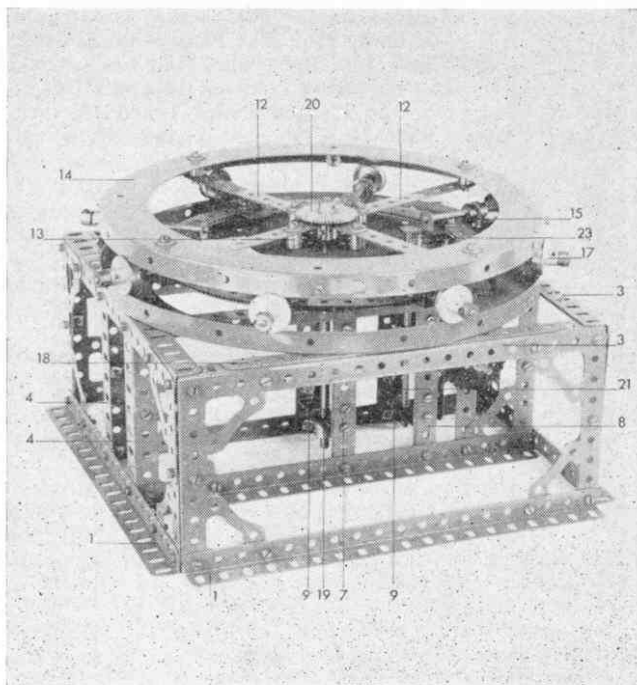
diameter Flanged Ring 14 is then fixed to the Strips, again using Threaded Bosses as shown.

Eight 1½ in. by ½ in. Double Angle Strips 15 are bolted, in equidistant positions, between two 7½ in. diameter Circular Strips 15. Held by Collars in each of these Double Angle Strips is a 3 in. Rod that carries a loose ¼ in. Flanged Wheel 17 held on the Rod by a Collar. A second 9⅞ in. Flanged Ring is bolted to Girders 3, at the same time fixing two 7½ in. Strips 18 to two of the Girders to provide anchoring points.

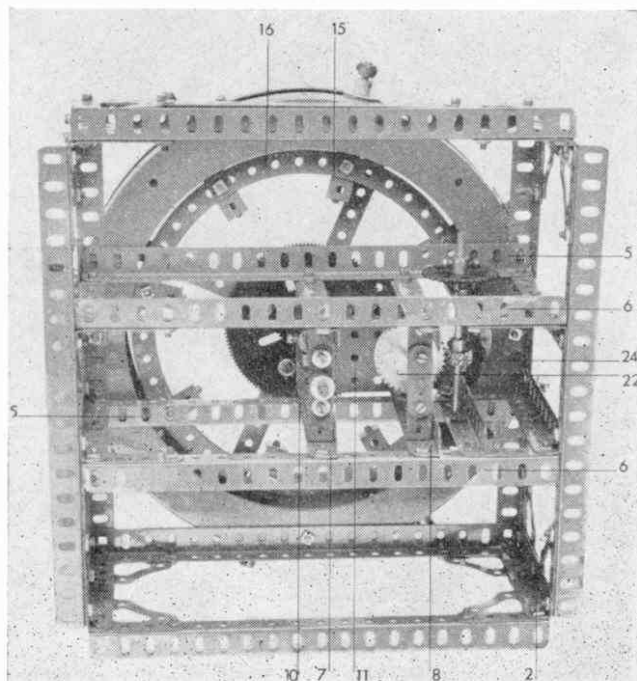
A 6½ in. Rod 19 is journaled in Flat Plate 11 and one of the Angle Strips 9 and 10, a 1½ in. Strip first being bolted to the underside of each Double Angle Strip to provide an extending bearing for the Rod. At this stage the Rod is loose in its bearings. The Circular Strip arrangement is now positioned with the flanges of Flanged Wheels 17 resting on the vertical flange of the lower Flanged Ring. Once in position, the upper flanged Ring and 3½ in. Gear construction is slipped on to Rod 19 with the vertical flanges of the Ring also resting on the flanges of Wheels 17. A 50-teeth Gear Wheel 20, fixed on the Rod, holds the arrangement in position while a Collar beneath the two Double Angle Strips 9 and 10 prevent the Rod from slipping out of its bearings.

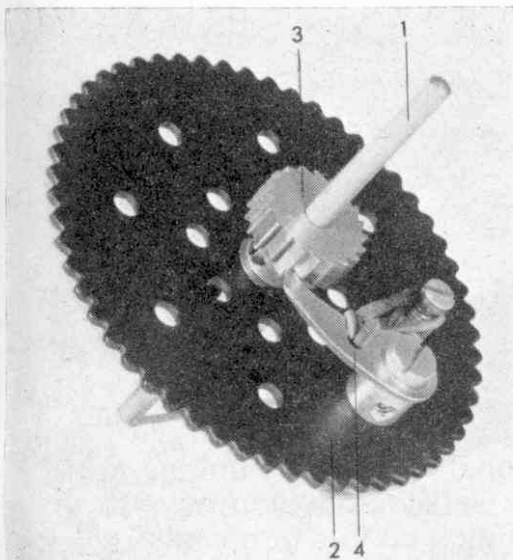
Journalled in Flat Plate 11 and the other two Double Angle Strips 9 and 10 is a 5 in. Rod 21, with three 1½ in. Strips first being bolted to the underside of both Double Angle Strips to provide extended bearings. Mounted on this Rod is a 1½ in. Helical Gear 22, a Collar and a ½ in. Pinion 23 with a ½ in. face, the latter being spaced from the Plate by several Washers. A ½ in. Helical Gear 24

*This composite geared roller bearing can be built up entirely of Meccano standard parts*



*An underneath view of the bearing showing the supporting framework and drive mechanism*



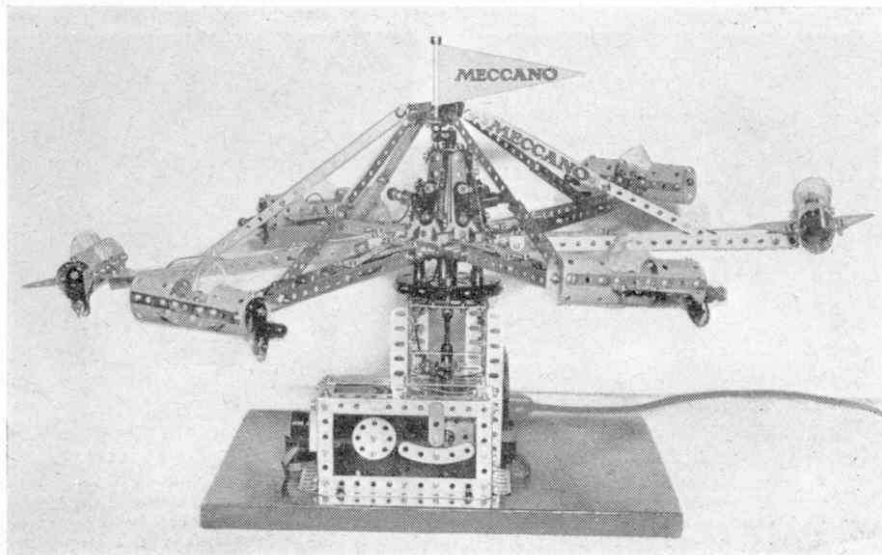


This simple free-wheel mechanism will prove invaluable when incorporated in many Meccano models

on another 5 in. Rod journalled in two of the vertical  $4\frac{1}{2}$  in. Angle Girders and held in place by Collars, meshes with Helical Gear 22. Three  $3\frac{1}{2}$  in. Strips are bolted to each of the  $4\frac{1}{2}$  in. Girders to provide extended bearings for the Rod on the ends of which are fixed  $1\frac{1}{2}$  in. Sprocket Wheels, which are driven by the Motor powering the model in which the bearing is being incorporated.

Readers may notice that the main centre shaft and corresponding collars are not standard Meccano parts. This is because the actual bearing illustrated was last used in a very large experimental model where a particularly strong centre-shaft was advisable. You, however, should find a standard Meccano Rod and Collars more than adequate for your requirements. I must stress, incidentally, that the above building instructions are for the complete unit shown in the pictures. You will be able to modify

At the National Models Show, this fairground 'Octopus' aroused a lot of interest. It incorporates a free-wheel mechanism just like the one described above



at least the framework and drive mechanism for your own purposes.

### Parts required

2 of No. 1a	8 of No. 20b	29 of No. 59
2 of No. 1b	1 of No. 26a	8 of No. 64
4 of No. 2a	1 of No. 27	1 of No. 72
14 of No. 6a	1 of No. 27b	2 of No. 95a
12 of No. 8a	114 of No. 37a	20 of No. 108
14 of No. 9a	122 of No. 37b	2 of No. 145
1 of No. 14	24 of No. 38	2 of No. 167b
2 of No. 15	4 of No. 46	1 of No. 211a
8 of No. 16b	8 of No. 48	1 of No. 211b

### Free-wheel mechanism

Free-wheel arrangements can prove almost a necessity at times. For example, if you have a model such as a fairground octopus on public display, you will find that admirers are tempted to 'help' the arms along by pushing them around. Normally, this could damage the driving mechanism but, with a free-wheel arrangement incorporated, the arms could be moved without fear of damage.

The mechanism illustrated on this page is amazingly simple in design, yet perfectly successful in operation. Rod 1 represents the driven shaft used in the particular construction in which the mechanism is included. Loosely mounted on this shaft is a 3 in. Sprocket Wheel 2 held in place by a Ratchet Wheel 3 and a Collar, the latter hidden in the illustration. The Ratchet Wheel must be tight against the Sprocket Wheel.

A Pawl with Boss 4 is mounted on a Pivot Bolt, which is fixed in one of the holes in the face of the Sprocket Wheel. Finally, a  $2\frac{1}{2}$  in. Driving Band is threaded through the small hole in the Pawl and the ends slipped over a  $\frac{3}{8}$  in. Bolt fixed in the Sprocket Wheel. This provides tension to keep the Pawl in contact with the Ratchet Wheel. The drive from the Motor is, of course, taken to the Sprocket Wheel via Sprocket Chain.

### Parts required

1 of No. 27b	1 of No. 111c	1 of No. 148
2 of No. 37a	1 of No. 147	1 of No. 186
1 of No. 59		

## Dinky Toy Winners

BELOW is a list of fifty names of readers whose entries for last month's 'Silhouette' competition were the first correct answers to be selected by the Editor. If your name appears in this list, then write on a postcard to: *Silhouette Prize, Meccano Magazine, Thomas Skinner & Co. Ltd., St. Alphage House, Fore Street, London, E.C.2.* and claim your FREE Vauxhall Viva. If your name does not appear in this list, even though you entered for the competition, don't be too disappointed—try again!

T. M. Allsop, York Road, Bridlington, Yorks. G. Austin, Holmwood Ave., Shenfield, Brentwood, Essex. D. Bellingham, Widemere Road, Oatmers Cross, Tettenhall, Staffs. S. Blair, Willow Drive, Hemsworth, Nr. Pontefract, Yorks. J. Blaszczyk, Uffington Rd., London S.E.27. Brian Burgess, Moulton Rd., Tivetshall, Norwich. R. Carrick, Kelk Villas, Welwick, Hull, E. Yorks. A. W. Cheek, Huntingdon Road, Thorpe Bay, Essex. Andrew Cholerton, Blenheim Drive, Allestree, Derby. J. N. Clarke, Esher Grove, Mapperley Park, Nottingham. Michael Clark, Waterloo Ave., Leiston, Suffolk. A. Collier, Paget St., Grangetown, Cardiff. M. Dean, Tudor Ave., Worcester Park, Surrey. V. Dodd, Farnborough Rd., Clifton, Nottingham. D. Eastwood, Gipsy Lane, Kettering, Northants. A. Ellis, Manygates Lane, Sandal, Nr. Wakefield, Yorks. Charles Ellison, Hunters Grove, Kenton, Harrow, Middx. D. P. Fox, Bridle Rd., Shirley, Croydon, Surrey. I. Gillett, Lower Shelton Road, Marston, Beds. R. Green, Cyprus Rd., Mapperley Park, Nottingham. A. Greenwood, Rochester Rd., Lodge Moor, Sheffield 10, Yorks. D. Harrison, Woodlands Park Rd., Kings Norton, Birmingham, 30. Gerald Holland, Alum Rock Road, Alum Rock, Birmingham, 8. J. Hunter, High Field Road, Swinton, Mexborough, Yorks. P. Jackson, York House, Castles Estate, Bletchley, Bucks. A. Jones, Wheatfield Way, Cranbrook, Kent. R. Jones, Panteg, Penrhyncoch, Aberystwyth, Cards., Wales. D. Keen, Bidford Close, Solihull, Warwickshire. M. Lisser, William Rd., Hitchin, Herts. J. Lorkin, Lawrence Ave., New Malden. J. Lovell, Balmoral Rd., Longwell Green, Nr. Bristol. R. Mansell, Beacon Close, Amesbury, Wilts. K. Marchant, Harlequin Close, Radcliffe-on-Trent, Nottingham. D. McCreery, Aylestone St., Leicester. A. Miles, Pearsall Rd., Longwell Green, Nr. Bristol. Lesek Modelski, Mobblerley Hall, Mobblerley, Ches. M. L. Owens, King Edward Close, Rainhill, Liverpool. D. Parrett, Lord Williams Grammar School, Thame, Oxon. A. Pell, Henly Hostel, George St., Kettering. M. Penny, Seaton Rd., Yeovil, Somerset. D. Root, Fairbaun Road, Chesterton. A. Scales, Carrholm Crescent, Chapel Allerton, Leeds 2. Trevor Stevenson, Colworth Cottages, Sharnbrook, Bedford. Roger Smith, Roundwood, Shipley, Yorks. T. Stubbs, Islay Road, Dumfermline, Fife, Scotland. R. Taylor, Stanhope Rd., Longwell Green, Bristol. G. Webb, Booth Ave., Colchester Essex. Paul Williams, Tamar Drive, Keynsham, Bristol. D. Wheeler, Wesley Ave., Hounslow, Middx. Stephen White, Ringmore Rd., Walton-on-Thames, Surrey.