Among the Model-Builders

By "Spanner"

A Meccano South-seeking Chariot

Regular readers will remember the interesting article by Mr. F. W. Cousins, A.M.I.E.E. in the September 1955 *M.M.* describing a South-seeking Chariot said to have been used by the Chinese about 2634 B.C. This article described in detail the mechanical arrangement and the method of operation of the Chariot, the main feature of which was a form of differential mechanism.

I fully expected Meccano model-builders to be intrigued by the ingenious mechanism of the Chariot, and I was sure that sooner or later I would receive details of a Meccano model of the device. My expectations were realised some time ago when I heard from Mr. M. J. Oliver, Morpeth, a keen model-builder who succeeded in reproducing the mechanism of the South-seeking Chariot neatly and efficiently. Mr. Oliver's model is illustrated in Fig. 1.

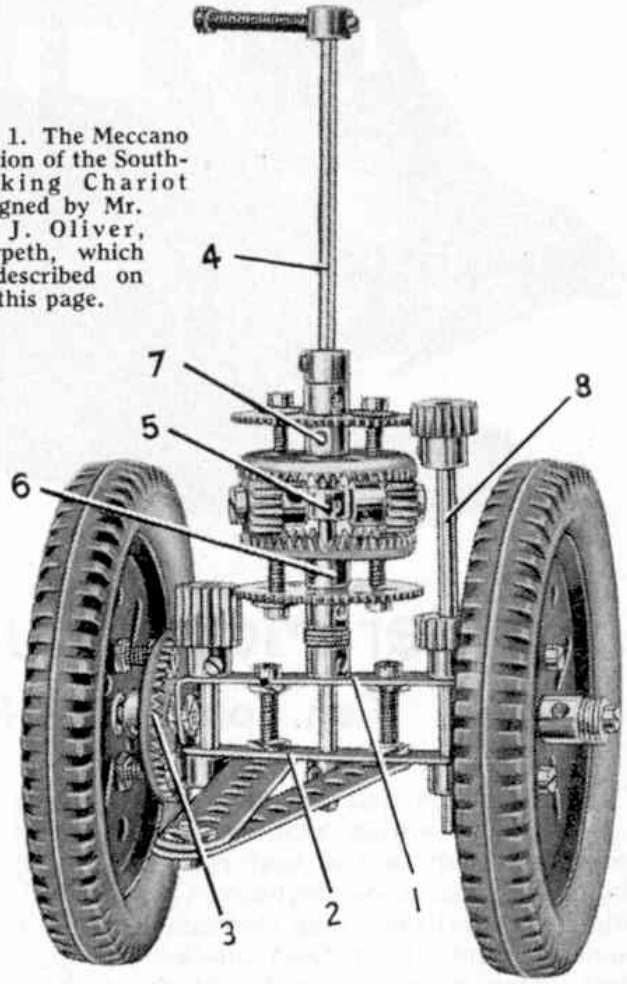
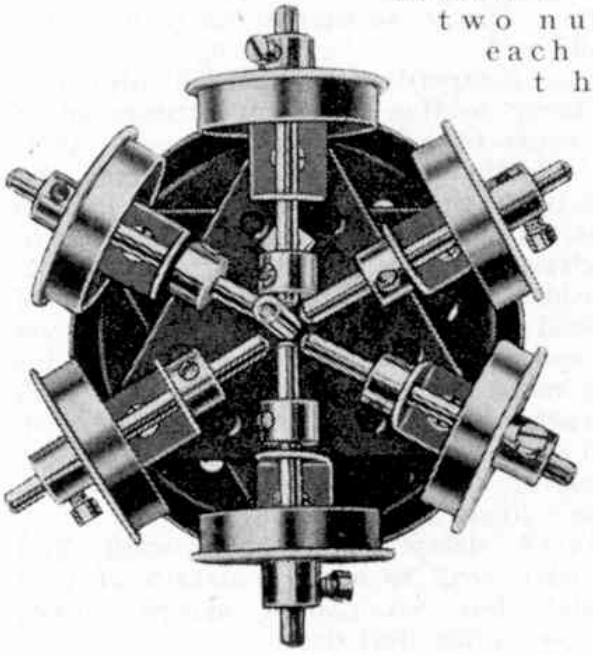


Fig. 1. The Meccano version of the South-seeking Chariot designed by Mr. M. J. Oliver, Morpeth, which is described on this page.

The frame of the Chariot consists of a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 1 and a $2\frac{1}{2}''$ Strip 2 connected by two $\frac{3}{4}''$ Bolts. These Bolts secure also two $5\frac{1}{2}''$ Strips that form a towing bar. The road wheels are 3" Pulleys with Tyres and they are mounted freely on $1\frac{1}{8}''$ Bolts. A $1\frac{1}{2}''$ Contrate 3 is connected to each Pulley by $\frac{1}{2}''$ Bolts, and the $1\frac{1}{8}''$ Bolts are attached by two nuts each to the lugs of Double Angle Strip 1. It is important to make sure that the distance between the centres of the road wheels is exactly the same as the diameter of the Tyres on the wheels, and the wheels should be spaced on the Bolts by Washers until the two measurements are identical.

The centre shaft of the mechanism is a $6\frac{1}{2}''$ Rod 4. This carries a "spider" 5 from a Swivel Bearing and two gear assemblies 6 and 7, each of which consists of a $1\frac{1}{2}''$ Contrate and a 57-tooth Gear connected



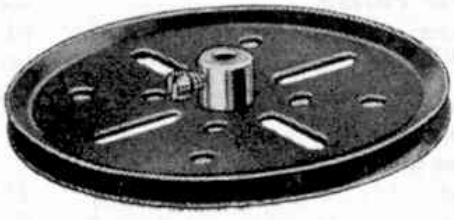
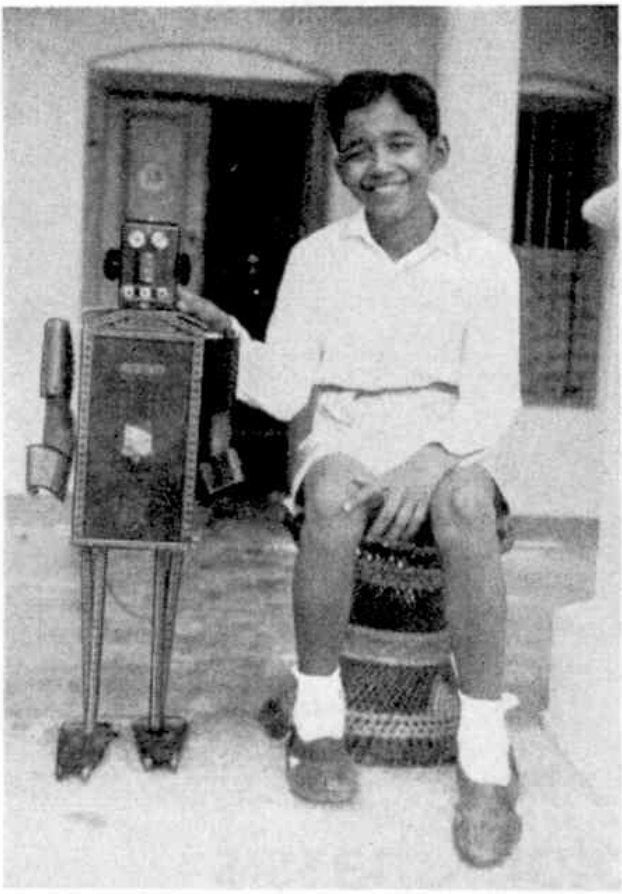


Fig. 2. A good use for the Meccano large Triangular Plate is shown in this six-roller bearing designed by E. H. L. Roden, Truro. Details are given on the next page.



This cheerful Indian boy is Chandrashekar Murthi, Vellore, India, and he is obviously very proud of the model mechanical man seen in the picture, which he built with his No. 8 Outfit.

by $\frac{3}{8}$" Bolts. The gear assemblies are loose on Rod 4, but the "spider" is fixed on the Rod and carries two Pivot Bolts, each of which is fitted with a $\frac{1}{2}$" Pinion. These Pinions mesh with the $1\frac{1}{2}$" Contrates of the gear assemblies. A $\frac{1}{2}$" diameter, $\frac{1}{2}$" face Pinion connects the assembly 6 to one of the Contrates 3, while the assembly 7 is connected to the other Contrate 3 by two $\frac{1}{2}$" Pinions on a Rod 8.

The indicating pointer fixed to the upper end of shaft 4, will be found to point always in the same direction no matter how the Chariot turns as it is towed along the ground.

A Novel Six-Roller Bearing for Cranes

Every model-builder knows that an outstanding feature of the Meccano System is the adaptability of the parts included in it. Practically every part has many uses, and from time to time my correspondence includes details of yet another example of a new use that has been found for one of the parts in the range. An example of this occurred recently when I received a letter from Mr. E. H. L. Roden, Truro, describing a compact roller bearing unit he has found very useful. This roller bearing is shown in Fig. 2.

The part for which a novel use has been found in this bearing is No. 76, $2\frac{1}{2}$" Triangular Plate. Two of these Triangular Plates are overlapped and bolted together in such a way that they form a six pointed star-shaped member. A Double Bracket is bolted to each point, with Washers under three of the Double Brackets to ensure that all six parts are at exactly the same level. A 2" Rod is passed through each Double Bracket, is fitted with a $1\frac{1}{8}$" Flanged Wheel and is held in place by a Collar.

The fixed member of the roller bearing is a 3" Pulley. This is bolted to the base of the crane and a Rod of suitable length is held in its boss. The Rod is passed through the centre holes of the Triangular Plates, a second 3" Pulley is placed on it and the assembly is held together by a Collar fixed on the Rod.

When this bearing is used in a crane the model can be slewed or rotated by passing a Driving Band round the fixed 3" Pulley and round a small Pulley held on a Rod mounted in the rotating superstructure.

Meccano in the Laboratory

An interesting application of Meccano outside the run of ordinary model-building was brought to my *(Continued on page 50)*

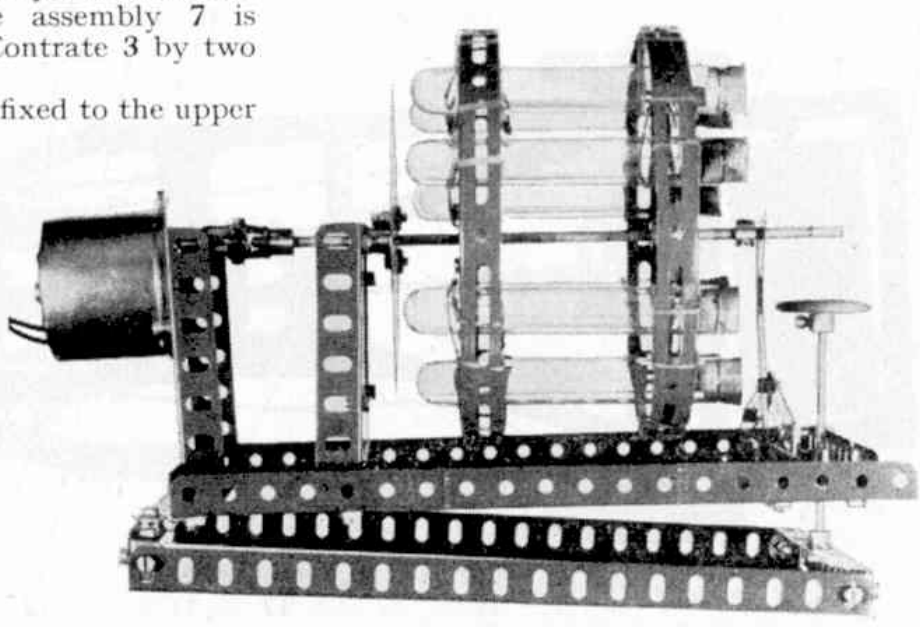


Fig. 4, Laboratory apparatus built in Meccano for use in tissue-culture processes. It is referred to on this page.