

Scientific Apparatus in Meccano

Laboratory Accessories Constructed from Standard Parts

This article is the fifth of a series in which we describe various uses that have been found for Meccano in the field of science. In previous articles we have described an instrument for electrocuting small aquatic animals (see "M.M." for November, 1928); a photo-micrographic device and a microscopic slide projector (January, 1929); and a microtome for cutting sections of plant and animal tissue (February, 1929). In the fourth article in the series we dealt with various apparatus for use in chemical experimental work, and this month we describe several additional pieces of equipment for the chemist.

V.—FURTHER USEFUL EQUIPMENT FOR THE AMATEUR CHEMIST

IN the previous article in this series, in the April 1930 "M.M.", we described a number of mechanical appliances constructed from Meccano parts, for use in the chemist's laboratory. These included a bottle-shaking device, apparatus for agitating the contents of a beaker, test-tube shakers, and several other articles of use to the chemical experimenter. This month we describe further devices for use in the laboratory, including a tripod, a vertical holder for test-tubes, etc., and a motor-driven stirrer that will be found useful on occasions when it is necessary to keep the contents of a flask or beaker in continual motion for a considerable period.

A Meccano Tripod

A tripod stand is a simple but important piece of laboratory equipment. A tripod is used for supporting a beaker, flask or other vessel in such a manner that heat from a Bunsen burner or spirit lamp may be applied to it from below. Stands of this type may be purchased cheaply, but sometimes several are required for a single experiment, and often it is uneconomical to purchase the number required, as most of them will be of little use subsequently to the experimenter. Excellent tripods can be built up as required from standard Meccano parts, and thus the problem may be solved most satisfactorily, the stands that are not required afterwards being dismantled and the parts used again for other purposes.

A simple pattern of tripod constructed from Meccano parts is shown in Fig. 1. The triangular frame of the stand consists of three $4\frac{1}{2}$ " Strips, and six Cranks are bolted to these as shown in the illustration. The legs of the stand consist of $6\frac{1}{2}$ " Axle Rods, and these are pushed into the bosses of the Cranks and nipped securely by the Set-screws of the latter. The stand shown in Fig. 1 is a good average size that will be found generally suitable. One of the great advantages of building these stands from Meccano, however, is that different sizes and patterns can be built up by using additional parts.

The experimenter can thus devise stands that will be specially adapted to his own particular requirements.

Vertical Holder

A vertical holder for test-tubes, lengths of glass tubing, etc., will be found very useful in the laboratory, and a holder of this type constructed from Meccano parts is shown in Fig. 2.

The base of the holder consists of a $5\frac{1}{2} \times 2\frac{1}{2}$ " Flanged Plate, to which four $12\frac{1}{2}$ " Strips are secured. These Strips support a frame composed of two $12\frac{1}{2}$ " Angle Girders spaced apart at top and bottom by $1\frac{1}{2}$ " Strips. A sliding carriage is mounted on this frame. This carriage consists of a $3\frac{1}{2}$ " Strip having two $1\frac{1}{2}$ " Strips secured at each end, the $1\frac{1}{2}$ " Strips being placed on either side of the flanges of the $12\frac{1}{2}$ " Girders so that the carriage is retained in position in the frame, while capable of being moved up and down when

the holder is required to be adjusted. The carriage is normally held in position by means of a bolt passed through the perforations in one pair of $1\frac{1}{2}$ " Strips, and through the flange of one of the vertical Angle Girders.

A Double Bracket is secured to the sliding carriage and two $4\frac{1}{2}$ " Strips are attached to the Bracket, so that they form an arm in which the test tube may be gripped. This arm is held in a horizontal position by means of a strut consisting of a $3\frac{1}{2}$ " Strip attached to the lower part of the carriage by means of an Angle Bracket. Angle Brackets should be bolted to the free end of the horizontal arm so that a test-tube may be held securely in position.

Mechanical Stirrer

Every amateur chemist who has experienced the tedium of stirring liquids

by hand for long periods, will welcome the mechanical stirrer shown in Fig. 3.

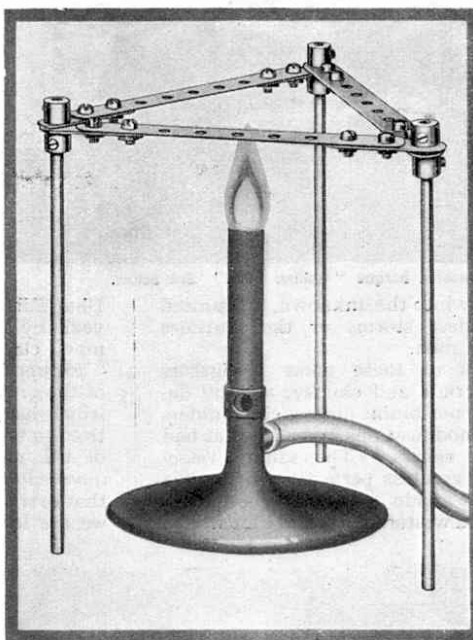


Fig. 1 (above). The Meccano tripod stand used in conjunction with a Bunsen burner. Fig. 2 (right). A useful vertical holder for test-tubes, etc.

