Handy Man's Workshop

FURNISHING THE WORKSHOP.—VI.

BY I. G. BAYLEY.

(Continued from the issue of April 3rd.)

THE LATHE.

The lathe shown in dotted lines, in Fig. 13 of the last instalment, is illustrated and described in the following notes.

The legs, *A*, are made from 2 x 4-inch timber, 3 feet 3 inches in length. They are spread 5 inches at the top, and 1 foot 6 inches at the bottom; the 4 x 6-inch pieces, *B*, being cut to fit between each pair.

The lathe-bed, *C*, is 5 feet 6 inches long, made of 3-inch by 7½-inch lumber. A 2-inch-wide slot is cut out of the center, running the length of the pieces, to within 2 inches of each end, as shown in the general view of the lathe, and in larger detail in Fig. 17. A more accurate job will be the result, if a slot is cut in a solid piece of timber, instead of using two lengths, joined together at each end, with distance pieces.

The right-hand pair of legs shown in general view, Fig. 16, is 6 inches from the end of lathe-bed, while the other pair is 9 inches, on account of the head stock which overhangs them. The half joints for these legs are marked 1 in Fig. 17, a section being given bearing the same number.

The joints, marked 2, are for the head stock, *D*. There is need for only one of these, on the belt side of the lathe, but two are shown in case the lathe should be turned into a foot-power machine. A section is given marked 2, to correspond with the plan, in which it will be seen that the slope of the cuts is about ½ or ¾ of an inch from the edges of the 2-inch groove, or slot, at the top, and the same distance from the outside edge at the bottom.

Fig. 19 shows the details of the head-stock, *D*, and tail-stock, *E*. The tongue of the latter must have a moving fit, so that when the wedges are taken out, the stock can be adjusted to suit the various lengths of material to be turned. The tongue of the head-stock, *D*, can be a tight fit, and when once set up accurately, need not again be moved.

The height of the head-stock is 10 inches, including the tongue, which is 6 inches. The running length is 6½ inches, the width being the same as the bed of the lathe, namely, 7½ inches. The V-shaped opening for the belt is 2½ inches wide, being a continuation of the section marked 2, in Fig. 17. The mortises for the wedges are spaced 1½ inches from the ends and should be cut 2¾ inches from the bearing face of the head-stock, so that when the wedges are driven home the stock will be drawn up tight. The wedges are made from hard wood, rounded along the edges and ends. They are about 6 inches long, and should have a taper of about ½ inch, likewise the mortises.

The tail-stock, *E*, is 7½ inches wide, to suit the width of the lathe-bed. The guide, *a*, is 1 inch thick by 7½ inches long. It is secured to the stock with screws, allowance being made for enabling the stock to slide, as already referred to. It is 4 inches wide, there being but one wedge. The full height, including the tongue, which is the same as that of the head-stock, is 13 inches. The location of the plates, *g*, referred to elsewhere, will depend upon the size of the bearings, *I*, shown in detail in Fig. 18.

The tool rest and clamp *F*, *G*, and *L*, can be made of either hard wood, or metal. The length of the clamp *F* is 9 inches, width 2 inches, and thickness 1 inch, the body for the rest being 2¼ inches deep. A small plate *c* is tapped for a thumb-screw *f*, about 7/16 inch diameter. *L* is an ordinary square-headed bolt of suitable length, ⅝ inch diameter, furnished with a cruciform claw, 4 inches square, outside dimensions. A metal nut, *d*, 1¼ inch square, shaped to fit the groove in the clamp *F*, is threaded to take the bolt, *L*. The rest, *G*, can be made of either metal or wood. The pulley, *H*, has a 2-inch face, and is 3½ inches diameter. It is made of hard wood, and is secured to the spindle, *K*, in the same manner as the 6-inch pulley of the saw, described in the previous article. A plate, *J*, is secured to the outside edge of the head-stock, to take the thrust coming upon the spindle, or chuck, *K*, when work is being turned in the lathe. At *M* is shown a ⅝-inch adjusting screw, with the end brought to a cone-shaped point. The plates, *G*, are tapped to suit, and are secured to the stock, flush with the outside face, with wood screws. The corners throughout the job are chamfered, and the surfaces made smooth.

The power is obtained by running a belt from the 6-inch pulley under the table of the saw, as shown in dotted lines on Fig. 13, or can be run direct from the driving wheel, by lengthening the saw belt. Should it be desired to make a foot-power lathe, a couple of bearings can be secured to the blocks *B*, and a crank shaft run through. The fly-wheel should be heavy, and a light guard should be placed around, as it will have to be on the outside to come under the head-stock pulley, *H*.

Almost any kind of wood will do for the general construction, but yellow pine will be found serviceable, and give weight to the lathe, otherwise it may be found necessary to anchor it down to the shop floor, if driven by power from the saw.

In Fig. 20 are given the changes necessary for a foot-power lathe. A blacksmith will make the crank shaft for a small sum. The wheel can be procured from almost any junk dealer. The treadle is made from two 1-inch by 4-inch strips, hinged to the back stay, and a distance piece. An ordinary staple, clinched on the underside, will do for holding the eye end of the connecting-rod, a hook being formed at the other end to slip over the crank.

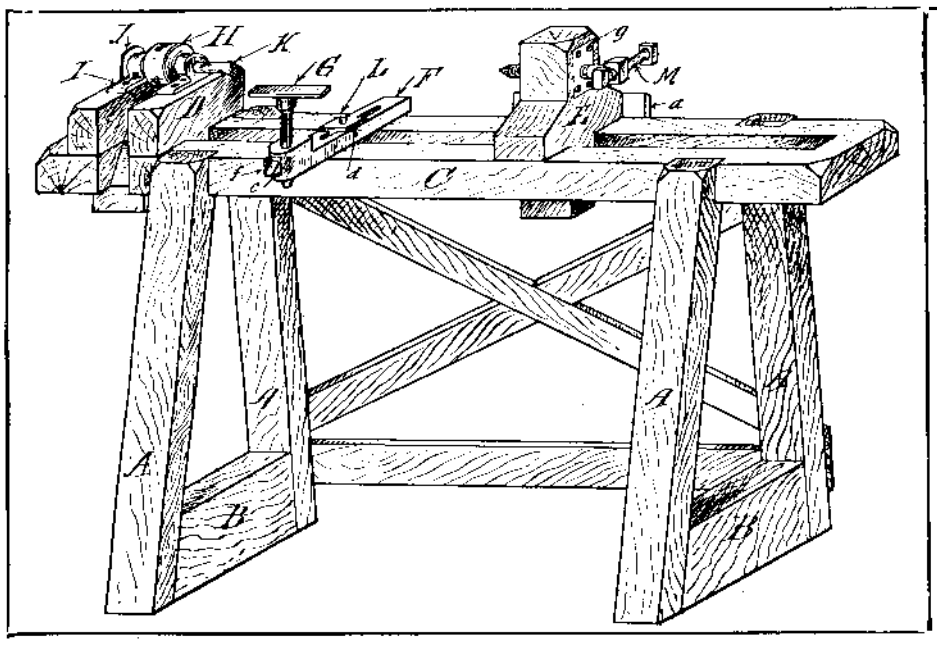


Fig. 16.—THE COMPLETE LATHE.

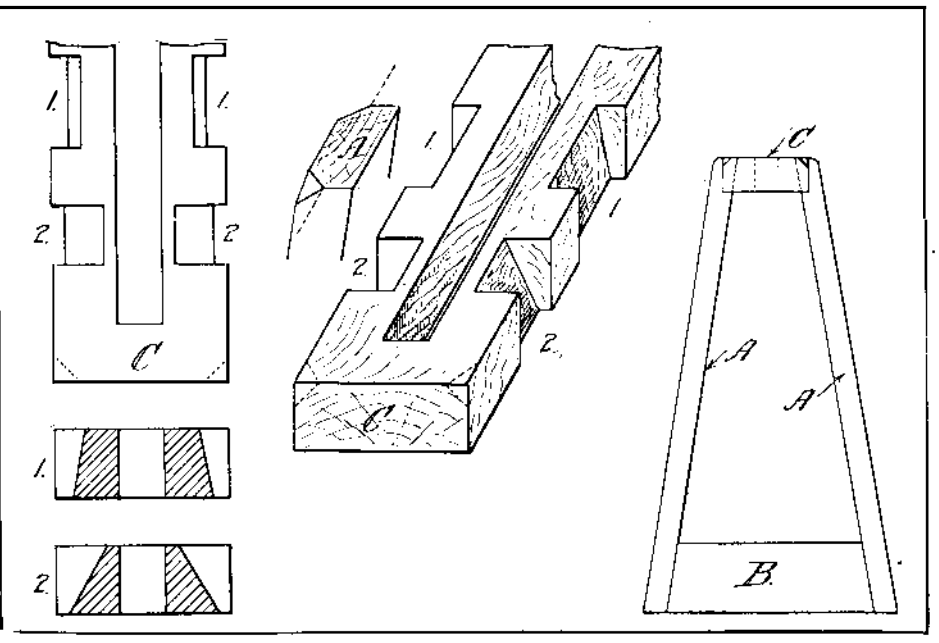


Fig. 17.—CONSTRUCTION OF FRAME.

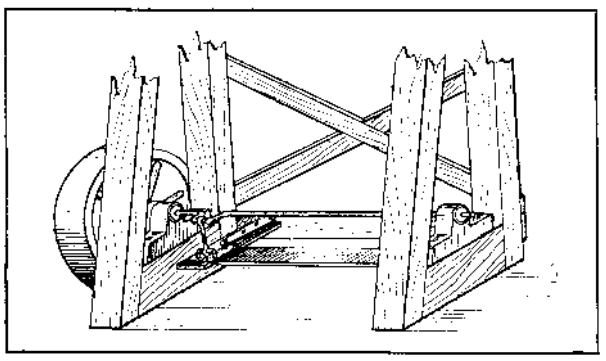


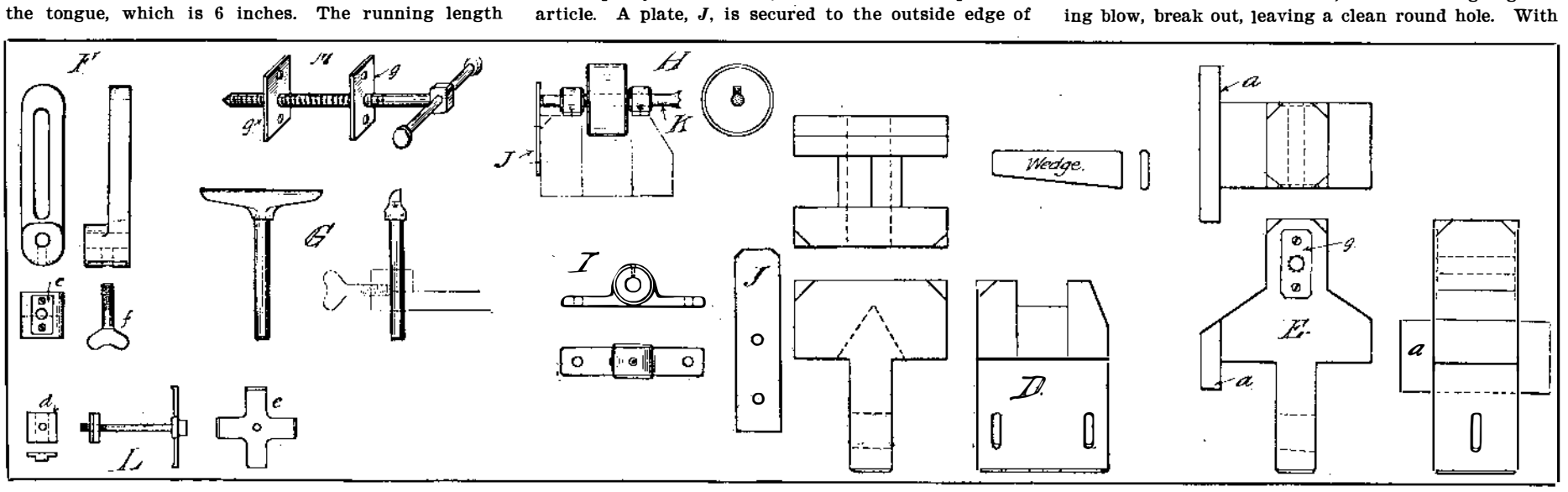
Fig. 20.—THE TREADLE MECHANISM.

CHEMICAL FLASKS FROM ELECTRIC LIGHT GLOBES.

BY K. RAGAN.

To those who work in chemistry, whether as amateurs or professionals, there is no more useful piece of apparatus than a flask. Anyone who can procure old electric light globes can make all the flasks he needs in a short time and at practically no expense. Various sizes of globes, from the small 2 candle-power to the 32 candle-power, may be used, thus giving a number of different sizes.

All the apparatus or tools needed are a Bunsen burner if gas is available, if not, a gasoline torch, and a three-cornered file. First hold the base of the lamp in the flame a few moments, until the wax holding it on is sufficiently softened to allow of pushing off the brass base with the tang of the file. Clean most of the wax off the glass, and with the file carefully make a scratch all around the glass just back of the place where the tube holding the filament is sealed in. The end will then, if struck a light glancing blow, break out, leaving a clean round hole. With



Figs. 18 and 19.—DETAILS OF THE TOOL REST, HEAD-STOCK AND TAIL-STOCK.