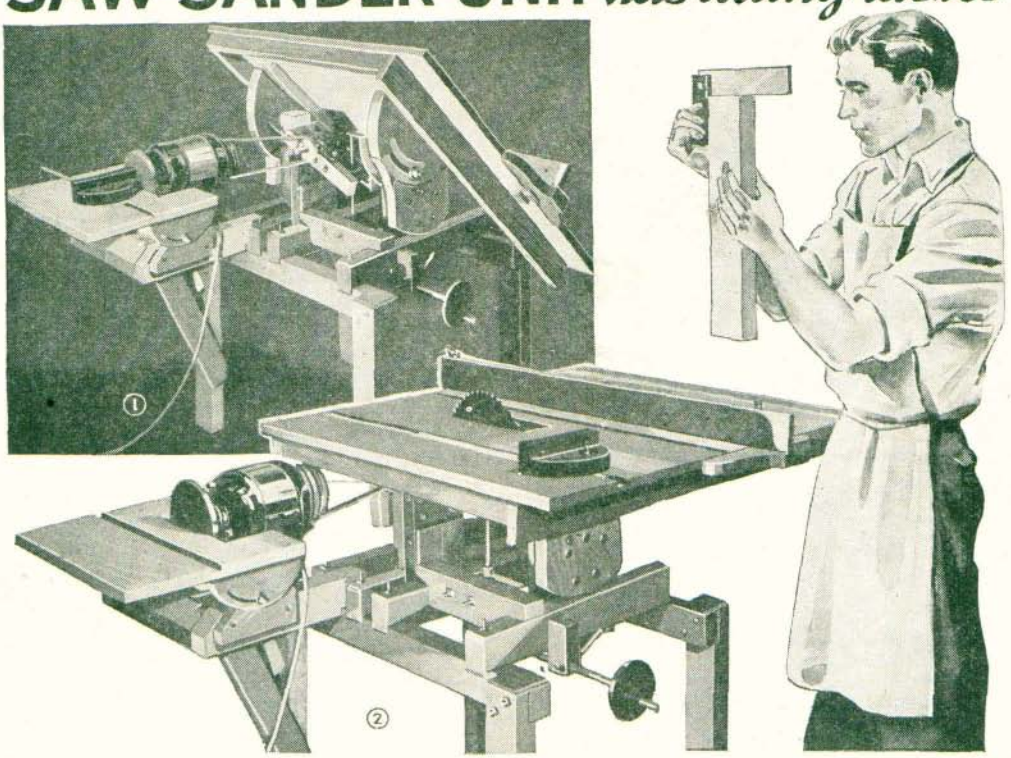
SAW-SANDER UNIT *has tilting tables*



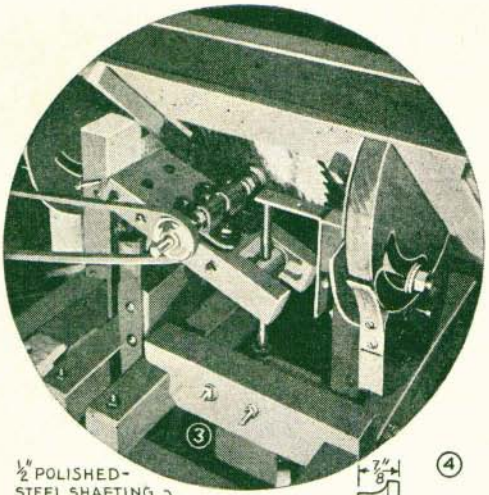
By Carl W. Bertsch

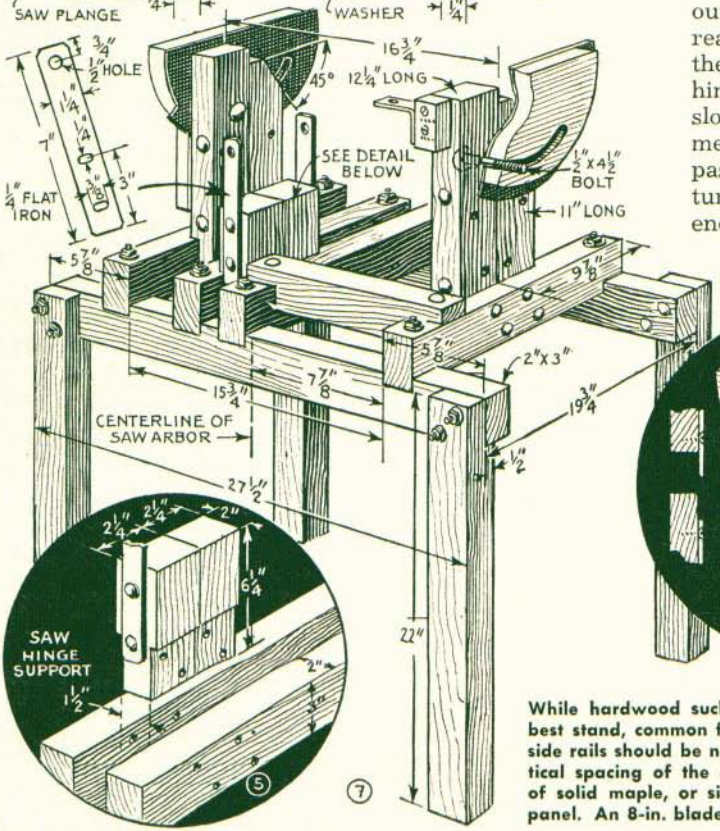
THIS combination workshop unit features an 8-in. saw having a 30 by 36-in. table that tilts 45 degrees, Fig. 1, a swinging saw mandrel, and a direct-drive disk sander. A ⅓-hp. motor operates both machines as shown in Fig. 2.

Construction begins with the stand. From Fig. 7 you can see clearly how it is put together with ¼-in. carriage bolts. All stock measures 2 by 3 in., and note that the upper ends of the legs are notched for rigidity. The position of the two-piece front and rear trunnion supports can be marked at this time, and the holes drilled, but it is best not to bolt them to the stand until after the complete trunnion assembly has been attached. The saw hinge support, detailed in Fig. 5, is set 4⅜ in. in from the end of the rails between which it is bolted. Now for the trunnions and their slides. Make these of ¾-in. birch or maple and take pains in laying them out from the pattern given in Fig. 8. The concave edge of the slide must make a perfect rubbing fit with the trunnion, and the curved bolt slot should equal the curve of the trunnion so that the latter will not bind. To the back side of each trunnion and its slide, guides of ⅛-in. hard-pressed board are fitted as shown in Fig. 6. These are cut as indicated to overhang the edge of the trunnions 1 in., forming a lip which overlaps the slide. Use flat-head screws for attaching the guides, countersinking the heads flush with the surface. The trunnion-bolt holes through the supports are bored 3$\frac{5}{16}$ in. down from the top. In locating the holes for bolting the slides to the trunnion supports, place the trunnion on its bolt and then with a thin cardboard shim between the slide and the support, center the slide beneath it and clamp the latter temporarily to the support. When you have the slide adjusted so that the trunnion works smoothly, drill four holes through both pieces for ¼-in. bolts. A semi-hard brass strap attached to the edge of each slide to bear against the edge of the trunnion (see side view Fig. 8) takes up the thrust of the table when tilted. In place of the cardboard, thin washers are

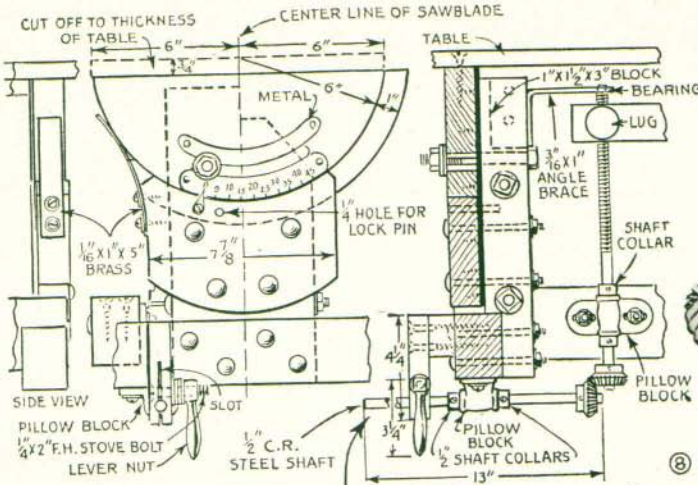
used on the bolts to provide the necessary clearance.

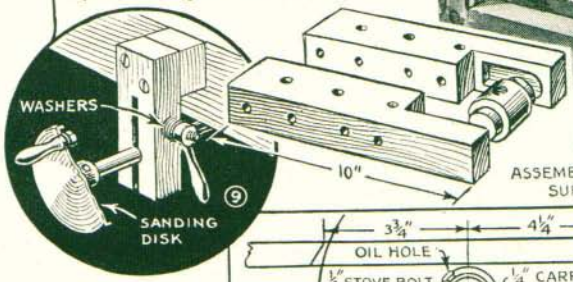
Fig. 3 gives a general idea of how the blade is raised and lowered. Essentially, it consists of a swinging mandrel which is elevated by a lug traveling on a vertical spindle. Fig. 10 shows how the block is made up of two pieces of oak which are recessed to house the tenoned ends of a turned lug. Dimensions for the block and the lug are given in Fig. 11. The latter should move freely in the routed opening with very little side play. Standard bronze-bushed pillow blocks set end to end serve as a bearing for the saw mandrel and as a hanger for pivoting the block between the arms of the saw hinge support. See Figs. 5 and 7. The exact position for mounting the pillow blocks is given in Fig. 11. To align each pair of blocks it may be necessary to shim them with thin pieces of metal. Fig. 4 details the saw mandrel which can be made by threading the end of a length of standard steel shafting and fitting it with a flange. Collars are used on the mandrel at each end of the bearing. The mandrel block must swing without side play and for this reason the holes in one of the flat-iron arms of the hinge support should be slotted to permit adjustment. The vertical spindle passing through the lug is turned down at the upper end to engage a hole in an



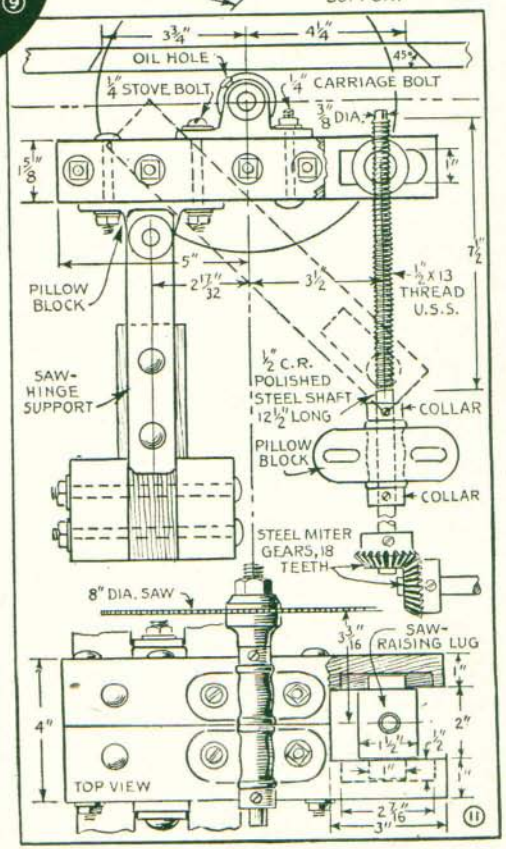


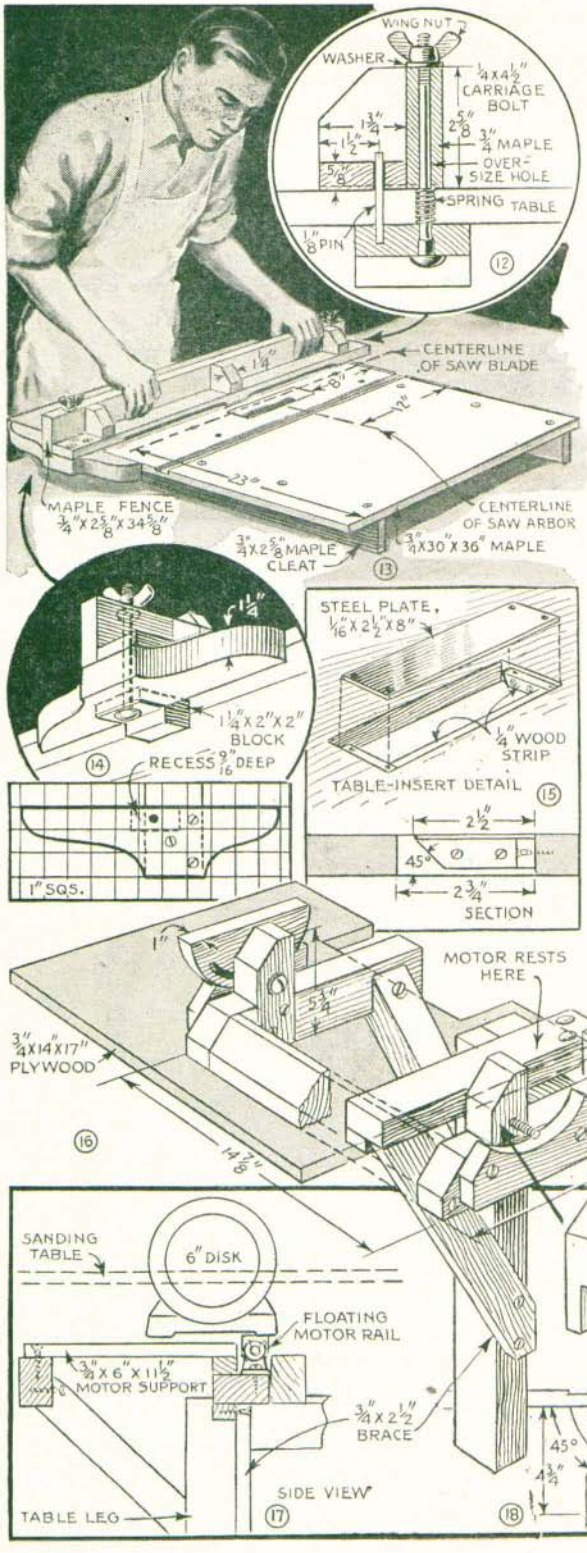
While hardwood such as birch or oak makes the best stand, common fir or white pine will do. Both side rails should be notched at once to assure identical spacing of the cross rails. The table can be of solid maple, or simplified by using a plywood panel. An 8-in. blade gives maximum cut of 2½ in.





L-shape bracket attached to the trunnion support, while at the bottom it is held by a pillow block which is fastened to a cross rail. See side view in Fig. 8. By means of steel miter gears the shaft is extended through a second pillow block to the front of the stand and fitted with a handwheel which can be made from a small sanding disk. A simple arrangement for locking the shaft is shown in Fig. 9. Now for the table and fence. The former is built up of random widths of maple, using dowels and glue. The blade opening is cut to the size given in Fig. 15 and is fitted with cleats to support a metal insert plate. After this, ⅜ by ¾-in. grooves are cut in the surface of each side of the blade opening to accommodate a standard miter gauge and then cleats are screwed to the underside as in Fig. 13. The underside of the table above the 2-in. mandrel pulley must be recessed to clear the latter when the blade is raised to its maximum height. The table is attached to each trunnion with three flat-head screws, aligning the grooves so that they are parallel with the saw blade. The T-square fence is undercut to ride the table at three points. Figs. 12 and 14 show how bolts and wingnuts are fitted at the front and rear to clamp it in position. With a T-bevel set at known angles, the scale on the front trunnion can be marked for degrees by holding the bevel in contact with the table





and the blade. A lock pin fitted through the front trunnion permits the table to be returned quickly to a horizontal position without need for checking the angle each time.

The framework of the sander and its tilting table, which is practically the same as the saw, is detailed in Figs. 16 to 19. Fig. 17 shows how the motor is mounted on a standard motor rail and fitted with a shelf on which to set when it is not belted to the saw. A 4-in. pulley on a 1,750 r.p.m. motor drives the saw at correct speed.

Three or four coats of clear lacquer or shellac will give the tables a smooth surface. Rub each coat lightly with No. 5-0 sandpaper and finish with wax.

Cast-Iron Pulleys Removed By Breaking

When cast-iron pulleys must be removed from a line shaft, one mechanic claims that he saves money by breaking them off instead of going to the expense and trouble of removing the shaft and a number of other pulleys in order to get the iron pulley off. The rim and spokes break easily, and two men can usually break off the hub in a short time. One of them holds an anvil against the top of the hub, while the other uses a sledge hammer on the underside. In this way, there is no danger of springing or otherwise damaging the shaft.

Coils cut from a small coil spring with a cold chisel will serve nicely as lock washers.