

# Tool Chests

## PORTABLE TOOL BOXES

TOOL CHESTS are an obvious convenience, and are usually made by the workmen in all trades for convenience in storing their tools.

The box (Fig. 1) should be large enough to hold the hand-saw and the panel-saw in the lid. A useful size is 2 ft. 7 in. long,

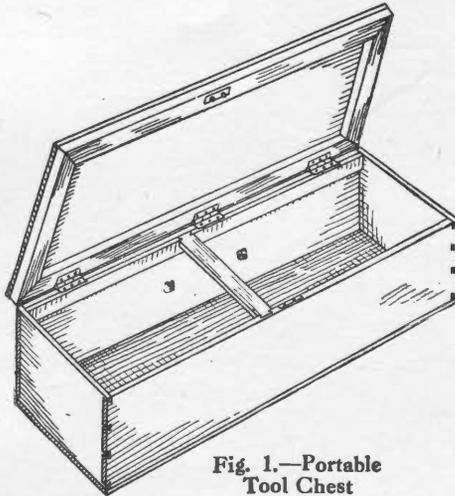


Fig. 1.—Portable Tool Chest

11 in. wide, and 7 in. deep, outside measurements. This is just large enough to take a 26-in. hand-saw and a 22-in. panel-saw. The box may be made a little narrower if the panel-saw is put with the rest of the tools in the body of the box. The sides, top, and bottom are made of  $\frac{1}{2}$ -in. stuff, preferably pine. The sides are dovetailed

together, and the bottom then screwed on. Pieces  $1\frac{1}{4}$  in. by 1 in. are screwed to the top to strengthen it, form a deep panel to hold the saws, and to afford good fastening for the hinges. The latter are three 3-in. brass butts. A strip  $1\frac{1}{2}$  in. by  $\frac{3}{8}$  in. is screwed to the inside top edge of the back to receive the hinges and to strengthen the back.

A handle is bolted to the back of the box for carrying purposes. To strengthen the back and front whilst carrying, a  $1\frac{1}{2}$ -in. by  $\frac{1}{2}$ -in. strip is dovetailed to the top edge of the front side and to the strip at the top of the back. This strip is removable, and is only placed in position when the box is to be carried. The box is fitted with a reliable box lock. The saws are held in the lid panel by cleats for the blade ends, and by wooden turn-buttons (about 2 in. by  $\frac{3}{4}$  in.) through the holes in the handles. The box should be given two coats of black paint, with the initials of the owner lettered in white on the top of the lid.

**Alternative Design.**—Fig. 2 is a photograph of an alternative design of box.

The framework of this may be  $\frac{5}{8}$ -in. cypress dovetailed at the corners, a suitable size being  $34\frac{1}{2}$  in. by 16 in., one half being 3 in. deep, the other 2 in. A rebate joint as shown enlarged in Fig. 5 joins the two parts, and prevents strain on the hinges when the case is closed. The tongue on the wider half measures  $\frac{1}{4}$  in. by  $\frac{1}{4}$  in., and a  $\frac{1}{16}$ -in. bead is also wrought on this edge to improve the appearance of the job.

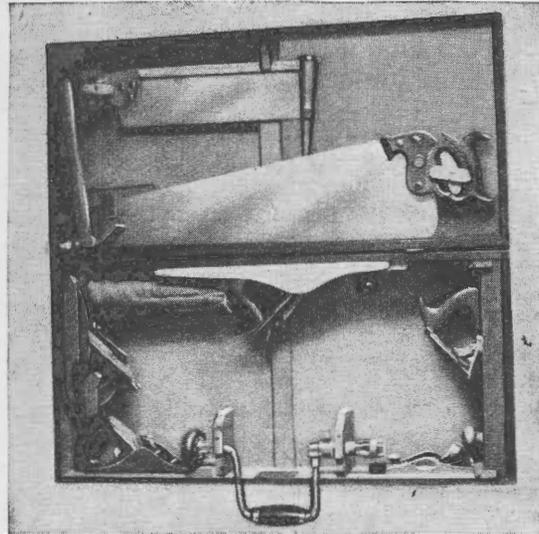


Fig. 2.—Alternative Form of Portable Tool-box

The sides of the framework are covered in with  $\frac{3}{8}$ -in. plywood. The bar across the middle of each side is a strengthening member, which should only be omitted if the sides are of thicker stuff, say  $\frac{1}{2}$  in. The sides are secured by gluing and screwing,  $\frac{3}{4}$ -in. brass button-head screws at 3-in. spacing being used.

As the photograph shows (Fig. 2), the brace is utilised as a carrying handle, two slots being cut in the deeper side of the chest to accommodate it, while the two brackets shown transmit the weight of the chest solidly to the chuck-neck and handle-neck respectively. The methods of accommodating the planes and saws will be obvious from the illustrations, Figs. 2

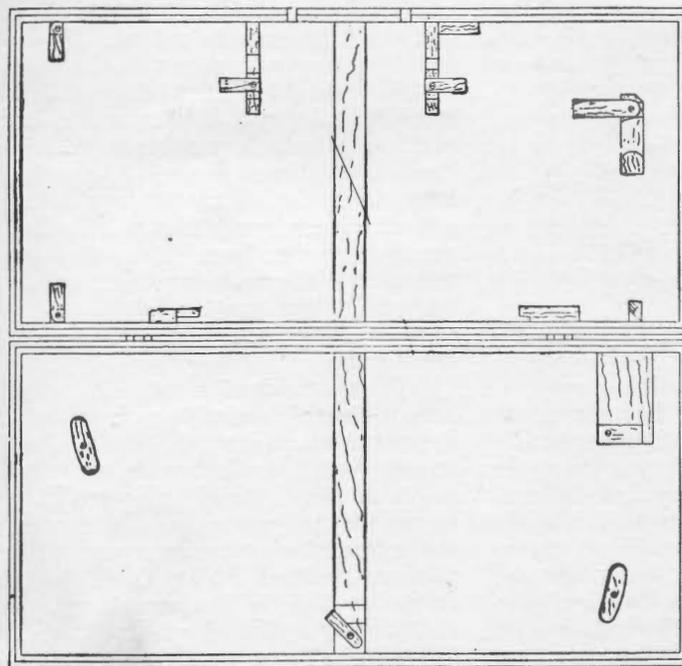


Fig. 3.—Plan of Tool-box, Open



Fig. 4.—Cross-section of Tool-box, Closed

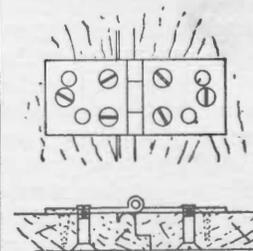


Fig. 5.—Details of Hinge Fastening

and 3. Attention may be drawn to the position of the square in the corner behind the rip-saw, the blade fitting into a saw-cut in the block shown. The handle of the smoothing plane fits into a shaped block lined with baize, wherein it is held by the turnbutton. All the planes, in fact, are secured by blocks appropriately shaped to hold one end, suitable turn-buttons fastening the other. All blocks attached to the three-ply sides are secured by screwing through from the outside plus gluing. Fig. 4 shows a cross-section of the box.

No special provision is made in building

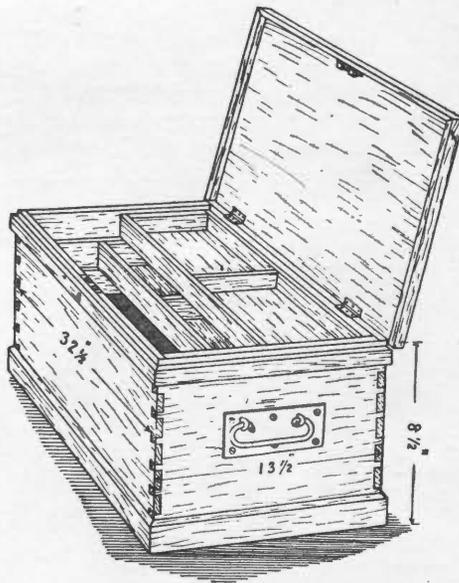


Fig. 6.—Patternmakers' Tool chest

the chest for the smaller odd tools, as the actual selection of these carried naturally varies very much with the nature of the work to be done, and therefore the construction of fittings likely to suit every possible grouping is impossible. The case is fitted with a lock and key; but for ordinary securing, a couple of strong hooks and eyes are fitted. The hinges for strength's sake are backflaps, and are secured as shown in Fig. 5. In addition to the ordinary wood-screws attaching the hinges, two  $\frac{3}{8}$ -in. Whitworth counter-

sunk screws are tapped through each flap from the inside, and the projecting points riveted over, thus rendering it impossible for the contents of the chest to be got at by tampering with the hinges. For greater protection against hard usage, iron corner-plates should be screwed to the eight corners of the chest.

No dimensions other than the external sizes have been given, as these will naturally differ according to the actual tool-carrying requirements of the individual maker.

### PATTERNMAKERS' TOOL-CHEST

A tool-chest to hold patternmakers' tools is shown in Fig. 6.

The largest tool likely to require accommodation is the jack plane, for which a box 18 in. long would be sufficient. But if a hand-saw is included it would require to be not less than 31 in. inside measurement. A trying plane is large and could not be dispensed with. A tenon saw is continually wanted, and if kept in the box must be easy to get at. The box should be long enough to take the longest tool, and should be less in depth than it is in width. A depth of 10 in. and a width of 12 in. should be ample; in fact, the depth might be cut down to 8 in. and still leave room for all the tools a patternmaker requires, provided they are suitably arranged in the box. This, of course, means that the tools must be packed in on top of one another, and the lower ones be inaccessible until those above are removed.

A plain interior with no fittings of any kind is scarcely desirable even when it is important to cut down the size. A simple arrangement is to fit two sliding tills, as shown in the illustration, for small tools, including the paring tools, and reserve the body of the box for large ones. These tills can be lifted out or slid to the back or the front of the box as required, their width being half that of the box. The ledges on which they slide are nailed or screwed to the ends, the lower ones being an additional thickness on the upper, so that the lower till is about  $\frac{1}{2}$  in. shorter

than the upper to allow of lifting out. The tills should not be very deep, or they will occupy too much of the interior space. A depth of  $1\frac{1}{2}$  in. for the top one and  $2\frac{1}{4}$  in. for the other is sufficient. They can be dovetailed or simply nailed.

The body of the box itself should be dovetailed. Either hard or soft wood can be used as preferred. A suitable thickness for the box is about  $\frac{5}{8}$  in. Tills need not be more than  $\frac{1}{4}$  in. to  $\frac{3}{8}$  in. thick. The sides and ends are prepared first, and are planed to thickness, width, and length. The length, both of sides and ends, will be the overall measurement if the corners are to be dovetailed; the width will be the inside measurement. Sometimes the sides are screwed or nailed temporarily face to face, while the edges and ends are planed and the dovetails marked and cut, as this is a little quicker than dealing with each piece separately. The ends are treated similarly except that the dovetail lines on them are usually transferred direct from the sides which they have to fit, each end in this case having its dovetails marked and cut separately. The dovetails may be measured and their angles marked with a bevel, or they may be simply divided and marked by free-hand, the lengths, of course, which correspond with the thickness of the wood, being gauged on both sides of the pieces in all cases. If this method is adopted each joint, at the time the transference of the dovetail lines to the end pieces is made, must have a number or other mark pencilled on each piece to show the position for fitting together.

When the sides and ends are fitted they are glued and nailed, and then the bottom is nailed on. It is important at this stage to see that the dovetailed frame is square, for the nailing on of the bottom fixes it unalterably. A piece for the cover is prepared similar in length and width to the bottom. There is the choice, however, of making the cover longer and putting its border strip across the under surface instead of on the end grain as illustrated.

Plinths are nailed round the bottom and top edges as shown, those at the top being  $\frac{1}{2}$  in. or so below the top edge, and

the border round the cover coming down to meet them when the cover is closed. Those at the bottom may be protected and strengthened by corner pieces of sheet-iron screwed on. The bottom, and the cover also, may be stiffened with battens across the grain. The grain of the bottom need not necessarily run lengthwise, as that of the cover and sides does. It may be composed of a number of short pieces with grain the other way.

Sometimes the under surface of the cover does not bear directly on the top edge of the box, but has a depth of 1 in. or more, so that saws and other suitable tools can be attached to the inside of the cover, and allow the latter to be closed with the box filled level with its top edge with other articles. The same effect can be produced by keeping the top till 1 in. below the top edge of the box and not packing tools above that mark. A plain flat cover, with the usual border, can then be used and still have fittings for the attachment of tools; but attachment in this way is scarcely convenient for tools in constant use, and is a matter of taste rather than convenience for tools seldom used.

When the box has to be packed for travelling, plenty of cotton waste or paper or other suitable material should be used to keep the tools immovable, as it must not be assumed that the box will always be handled carefully and kept the right side up. The cover also should be screwed down instead of merely locked.

#### WOODWORKERS' TOOL CHEST

In constructing the tool chest shown in perspective by Fig. 7, and cross-section by Fig. 8, the length must be sufficient to accommodate a rip-saw. This will make the chest 2 ft. 9 in. long internally, and if it is made 1 ft. 8 in. wide by 1 ft. 9 in. deep, it will be found convenient for all purposes.

The material for the outside case should be good white deal or yellow pine, and as the chest may have to stand some rough usage, it should not be less than 1 in. thick. In gluing up the front, back, and ends to

obtain the necessary width the joints should be tongued or doweled, the former being the better method. In dovetailing the chest together, the number of tails should not be stinted, and they should not be more than  $1\frac{1}{2}$  in. apart, as in Fig. 9, as the closer they are the stronger will the chest be. Care should be taken that the joints (see Fig. 10) do not come immediately opposite those in the ends.

The plinths run all round the chest, and should be 6 in. and  $2\frac{1}{2}$  in. wide and 1 in. thick, respectively, with one edge finished with a plain bevel. The plinths, or skirting, can be mitred at the corners, but it will be stronger to dovetail them. The top plinth, or rib under the lid, must be kept down about  $\frac{3}{4}$  in. from the top of the chest, so as to form a rebate for the lid to shut on. The bottom should be 1 in. thick, tongued and grooved, and nailed on crosswise; that

is, the grain to run from the front to the back of the chest.

The lid should be made from the same kind and thickness of material as the chest, with the joints tongued and grooved, and the ends clamped (Figs. 10 and 12); that is, the lid should be tenoned, and the clamp mortised through and glued and wedged. The lid should be fitted so as to overhang the chest all round about  $\frac{1}{8}$  in., and be hung with a pair of strong brass butts, and the lock (which should be a spring one,

self-acting) put on, after which the rim of the lid can be mitred together at the corners, and grooved in the front and the ends (see Figs. 13 and 14).

For the inside of the chest good yellow deal or pine is recommended, which can be finished by staining. If desired, a more fancy wood can be used. As shown in Figs. 15, 16, and 17, the chest is divided in width into three parts; A, for bead-

planes, plough, etc., this is 7 in. wide, and is covered by the sliding tills; B, for miscellaneous tools, best planes, or anything which is not in everyday use; and C (which is  $3\frac{1}{2}$  in. wide inside) is the saw till. These compartments are divided by the two partitions shown, that between A and B being 9 in. high, and that between B and C 1 ft. 2 in. The three tills G, H, and J slide to and fro to give access to the compartments beneath, and when in place at the back of

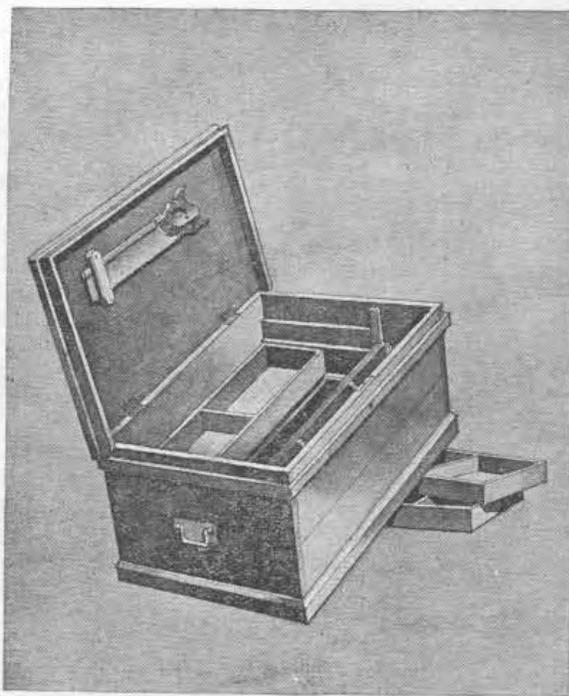


Fig. 7.—Woodworkers' Tool Chest

the chest, form a covering for compartment A; a sliding ledge D beneath the tills, when pulled out as shown by dotted lines, covers compartment B. The bench-planes, etc., can be packed away on the sliding board between the tills and the highest partition.

Fig. 16 shows one end of the chest with the cleats fixed, between which the partitions fit, and which are about 1 in. wide by  $\frac{1}{2}$  in. thick. Those which hold the partition between B and C should be fixed

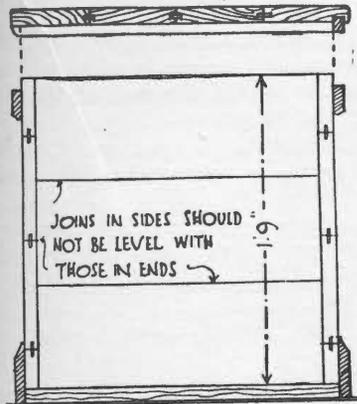


Fig. 8.—Cross-section of Tool-chest

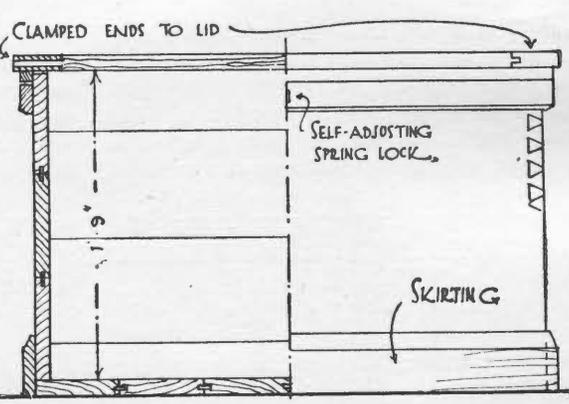


Fig. 10.—Half Longitudinal Section and Front Elevation of Tool-chest

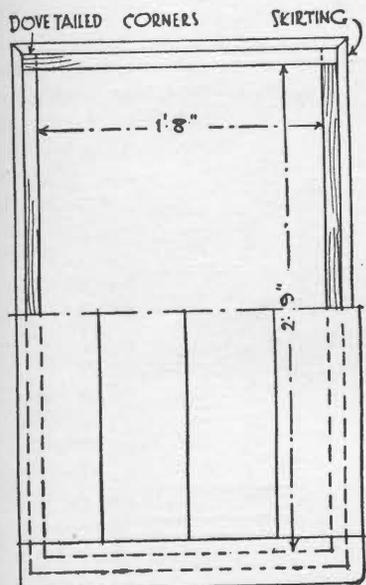


Fig. 11.—Half Plans of Lid and Chest

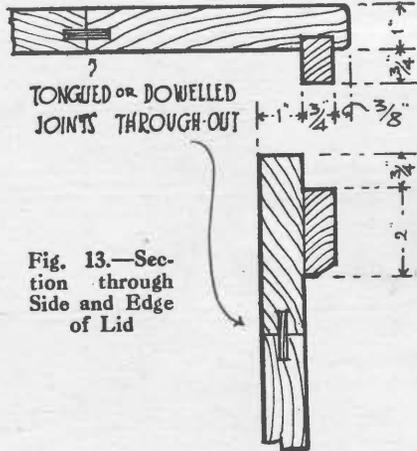


Fig. 13.—Section through Side and Edge of Lid

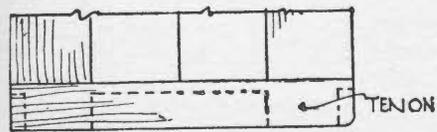


Fig. 12.—Clamped End of Lid

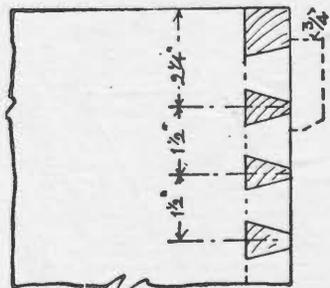


Fig. 9.—Dovetailing Sides Together

first,  $\frac{1}{2}$  in. apart, the one nearest the back of the chest reaching nearly to the top, the other, nearest the front, stopping at the same height as the partition. The back partitions having been placed in position, the horizontal cleats can be fixed,

the top edges of which must be  $9\frac{1}{2}$  in. from the bottom of the chest, and they must run from the back of the chest to the long upright cleat, as shown in Figs. 16 and 19. On these the sliding ledge D works, which is 9 in. by  $\frac{3}{4}$  in., clamped at the ends,

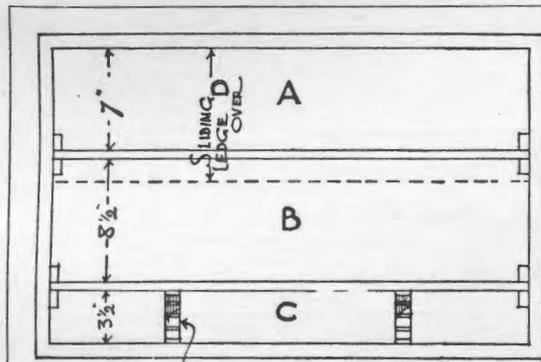


Fig. 15.—Horizontal Section through Lower Part of Chest

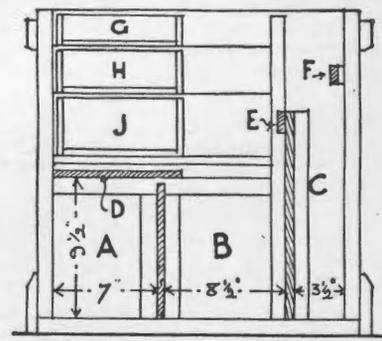


Fig. 16.—Cross-section showing Tills, etc.

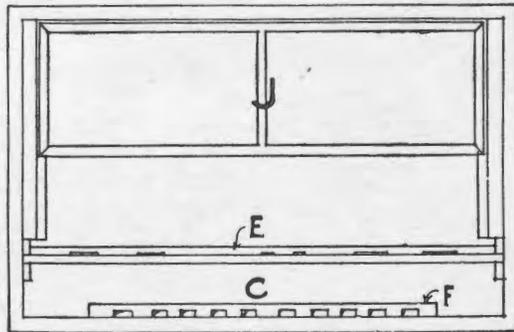


Fig. 17.—Horizontal Section through Upper Part of Chest

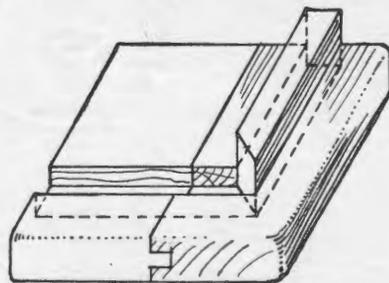


Fig. 14.—Corner of Lid Inverted showing Housed and Mitred Fillet

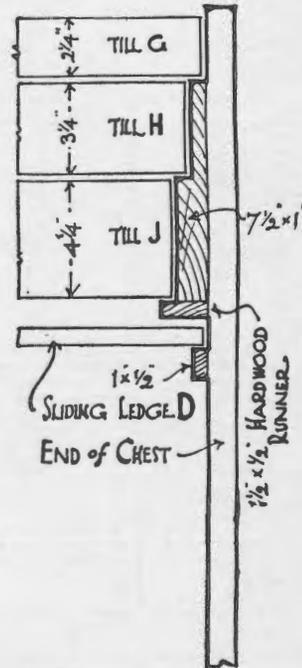
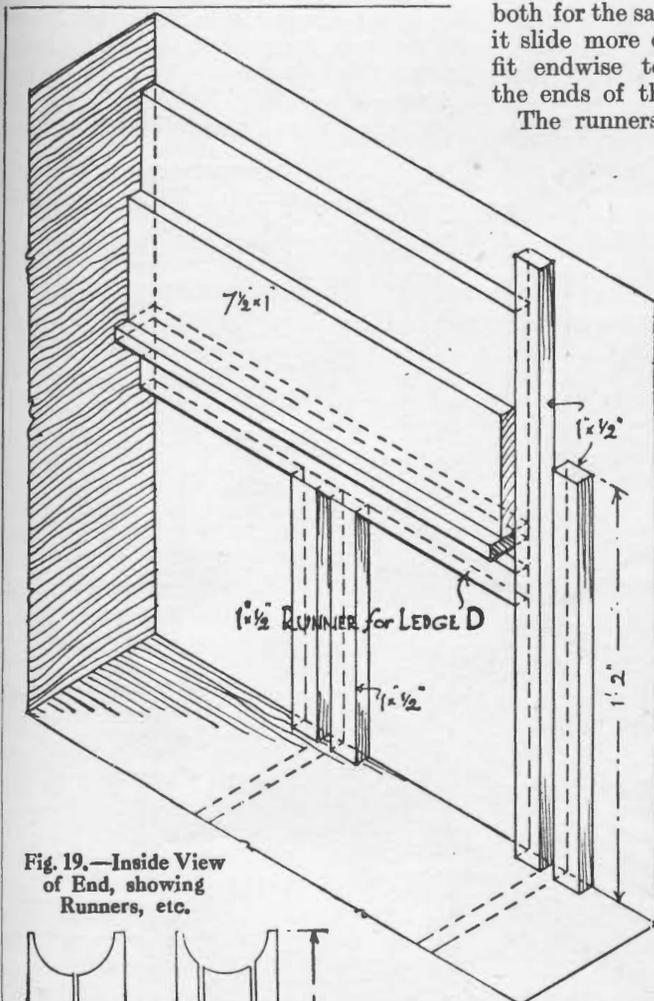


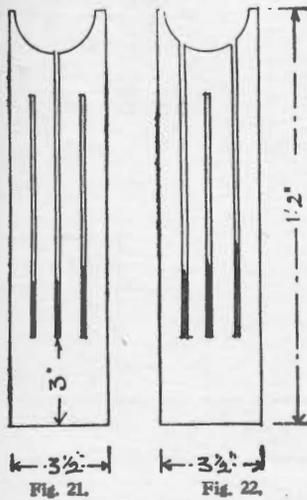
Fig. 18.—Section through Runners



both for the sake of strength and to make it slide more easily. It must be a good fit endwise to avoid jamming against the ends of the chest.

The runners for the tills (see Figs. 18 and 19) must be long enough to reach from the back of the chest to the long upright cleat, and should be of hardwood. The principal piece, which forms the runners for the two top tills, is  $7\frac{1}{2}$  in. wide by 1 in. thick, rebated to half its thickness for a depth of  $3\frac{1}{2}$  in., and having a piece of hardwood  $1\frac{1}{2}$  in. by  $\frac{1}{2}$  in., screwed on to the thick edge, forming the runner for the bottom till. These can be fixed in position, one on each end of the chest, leaving about  $\frac{1}{8}$  in. clearance between the bottoms and the top of the sliding ledge D. The partition between compartments B and C can be made and fitted between the cleats, having along its upper side a strip of  $1\frac{1}{2}$  in. by  $\frac{1}{2}$  in.

Fig. 19.—Inside View of End, showing Runners, etc.



Figs. 21 and 22.—Details of Saw Racks

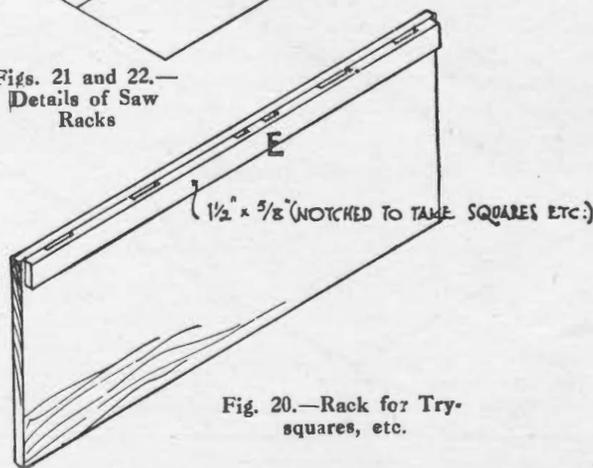


Fig. 20.—Rack for Try-squares, etc.

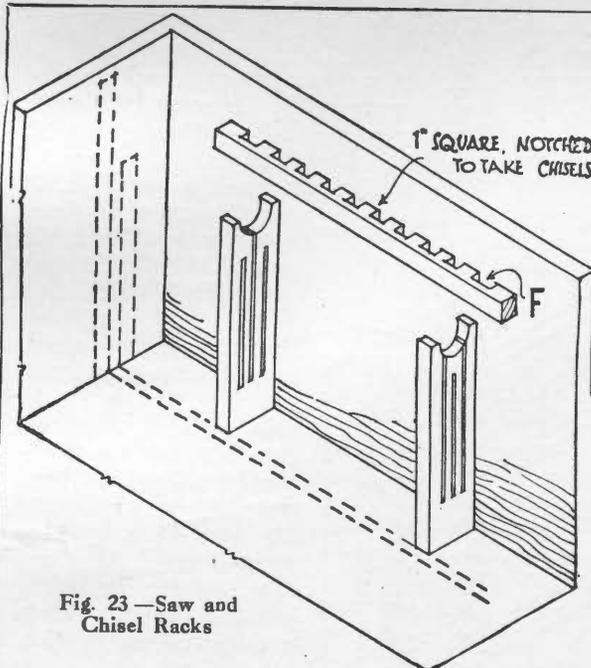
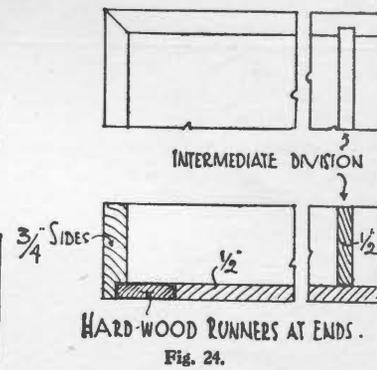


Fig. 23—Saw and Chisel Racks



HARD-WOOD RUNNERS AT ENDS.

Fig. 24.

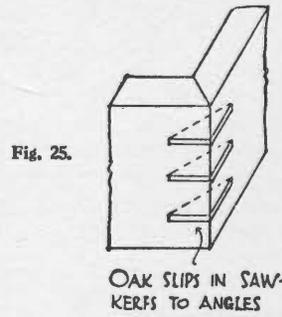


Fig. 25.

OAK SLIPS IN SAW-KERFS TO ANGLES

Figs. 24 and 25.—  
Details of Till  
Construction

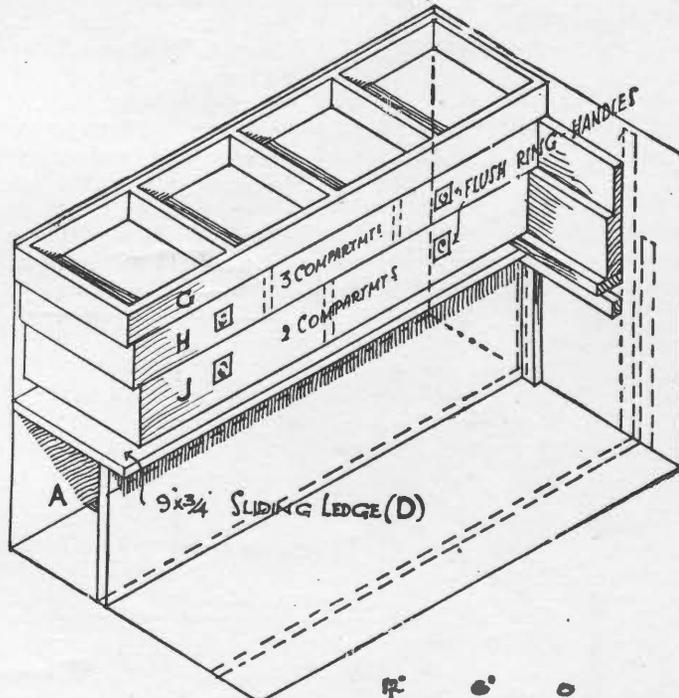


Fig. 26.—Interior of Chest  
showing Tills, etc.

SCALE FOR FIGS 1 TO 4 AND 9 TO 11.

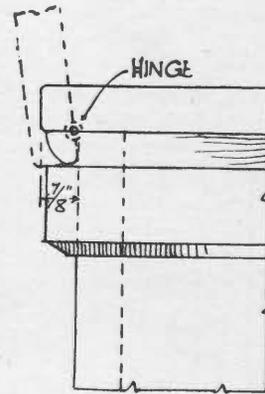


Fig. 27.—Method of  
Hinging Lid of  
Chest

deal, cut to fit between the cleats on each end of the chest, fixed level with the top edge, on the side nearest the front of the chest, and notched about  $\frac{1}{8}$  in. at intervals. The slots thus formed can be used for squares, etc., the stocks resting on top of the partition and the blades hanging down inside the saw till (see Fig. 20).

The saw-racks (Figs. 21, 22, and 23) are 1 ft. 2 in. long,  $3\frac{1}{2}$  in. wide, and 1 in. thick, shaped at the top ends, and with three slots made in each. The middle slot, in Fig. 21, runs from the top to within 3 in. of the bottom, the remainder stopping the same distance from the bottom, and about  $1\frac{1}{2}$  in. from the top. In the other (Fig. 22) the middle slot is stopped at both the top and the bottom, and the other cuts through at the top end. These two racks are fixed at about 8 in. from each end, by screwing through the horn at the top to the front of the chest, as shown in Fig. 23. The partition being then put into its place, screws can be put through it into each saw-rack, which will hold all in place. In placing the saws in the racks, the points are inserted in the closed slots, and the handle ends dropped into the open slots, one saw pointing one way and two the opposite.

A piece of hardwood, 2 ft. long and 1 in. square, with a series of notches cut into it wide enough to take the various chisels, etc., and with about  $\frac{1}{2}$  in. of solid wood left between each, can be screwed to the front of the chest just above the top of the partition (leaving an equal space at each end to allow room for the hand to be inserted to remove the saws) to furnish a resting-place for the larger chisels, the handles being just inside the front of the chest,

the blades hanging in the saw till (see Fig. 23).

The three sliding tills are of the same width, namely, 9 in. outside, but vary in depth. They should be of  $\frac{3}{4}$ -in. stuff, with  $\frac{1}{2}$ -in. bottoms and divisions, the rims dovetailed together, or mitred, as in Figs. 24 and 25. The fronts and back should be rebated to receive the bottoms, the grain of which should run across the width of the tills. At each end the bottom should be of hardwood. The divisions should be trenced into the sides, forming in G, H, and J respectively two, three, and four compartments (see Fig. 26). One of the bottom divisions should be fitted up for the brace and bits, with racks for the bits fitted round the brace, by which means one division can be made to accommodate the former and a whole set of the latter. Other divisions can be fitted with racks for small chisels, gouges, gimlets, brad-awls, and various other tools.

Turn-buttons to take the tenon and dovetail saws can be screwed to the underside of the lid, so that when it is closed they will be in position between the top till and the front of the chest. The sliding ledge D can be grasped underneath with the fingers when it is desired to draw it forward, and it should have a couple of thumb-holes cut in its top by which to push it back. Each till should have a pair of flush-rings inserted in the front, so that it can be pulled forward without touching the others.

Owing to the rib under the lid running round the box the method of hinging will be as shown in Fig. 27. A strong iron handle on each end of the chest will make it complete.