



The Editor of Handy Man's Workshop will be glad to receive any hints for this department and pay for them if available.

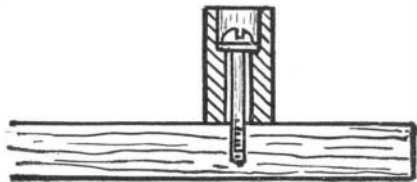
**FURNISHING THE WORKSHOP.—II.**  
BY L. G. BAYLEY.

(Continued from the issue of December 19, 1908.)

**DESK OR DRAWING TABLE.**

A shop should be furnished with some kind of a writing shelf or desk, and since it is often necessary to make sketches or accurate drawings of details, a drawing board and desk combined will answer well. Very often an old drawing board can be obtained, which can easily be trimmed up, and made into a drop-leaf arrangement secured to the wall. A good size is 23 by 31 inches, which will accommodate a standard-size sheet of paper, but on account of the construction in this case, the width had better be 24½ inches.

Soft pine, free from knots and well seasoned, should be procured, and accurately planed and glued together along the joints. Two battens running across the grain of the board should be secured to the underside,

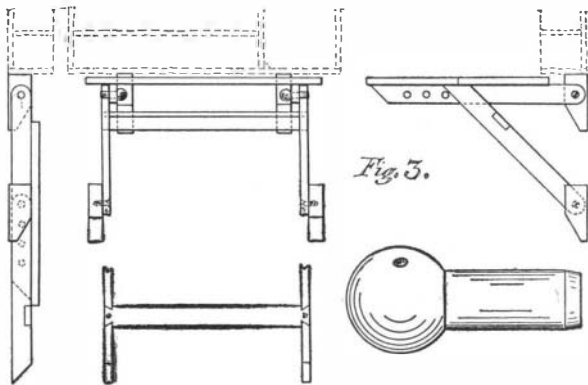


**HOW THE BATTENS ARE SECURED TO DRAWING BOARD.**

by means of round-headed screws, sunk in below the surface, and bearing upon iron washers. (See sketch.) The holes should be bored larger than the screws, the hole in the washer being the same size. This will prevent the board warping, and it is very easily constructed. Make the board 1 inch thick; the battens and braces also; the cupboard from ¾-inch stuff; and the shelves, pigeon-hole partitions, and small cupboard of ½-inch material.

Fig. 3 is drawn to scale, showing the front and side views. The cupboard (see Fig. 4) is 6 inches deep outside measurement, and 3 feet in length. The shelves are 4½ inches apart, making the total height 16 inches. The small cupboard is 9½ inches square inside. It should be furnished with hinges and lock. A small block of wood, tacked in the corners, will prevent the door closing too far inside. The pigeonholes can be either plain or furnished with drawers, and the general design altered to suit individual tastes, but an arrangement of some kind in which to keep pens, ink, pencils, writing material, smaller and finer grades of tools, notes, sketches, books, and clippings from the press or magazines. Nothing can be more useful to a boy than a place to keep all such things, for accumulate they will.

The brackets upon which the cupboard rests, and to which the battens are connected, and also the brackets at the foot of the braces, can be made from 2 by 3 stuff cut 7½ inches in length, and secured firmly to the wall of the shop. Make the battens and braces 1 inch by 2½, of hard wood, secured to the brackets with

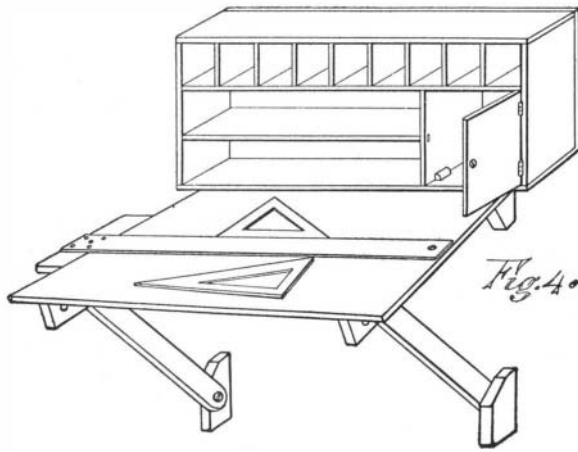


**DETAILS OF THE DRAWING BOARD.**

large screws, the holes being a trifle large in the battens, and the screws not driven all the way home. The cross-brace is dovetailed into the supporting braces, as shown in Fig. 3. The length of the battens and braces is 2 feet 4 inches and 2 feet 1 inch, out to out, beveled to an angle of 45 degrees at one end and rounded at the other. Care must be taken to secure the fixed ends not more than 1¼ inches from the near edge of the wall brackets, or the board will not close up properly when folded against the wall, as shown to the left of Fig. 3.

Three holes for adjusting the board at several angles

are bored 2½ inches apart, the first one being 4½ inches from the end. A round peg, shown in larger detail in Fig. 3, is made to fit the holes, and kept from getting lost when the board is down, by a short length of wire attached to a staple in the underside of the board. Make the bottom of the cupboard about 3 feet 6



**GENERAL VIEW OF THE DRAWING BOARD AND CUPBOARD.**

inches from the floor, which will give about an inch clearance for the braces when the board is down, out of use.

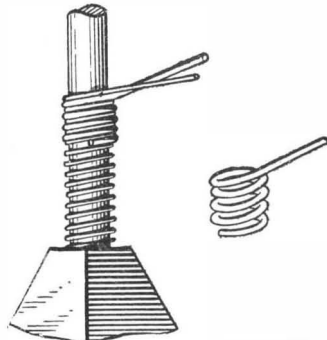
The working edge of the drawing board should be trued up for the butt end or head of the T-square to work against. In selecting a T-square, sight along the working edge, to see that there are no imperfections, and select one where the blade is on top of the head, so that the triangles will slide over it. A T-square, two triangles, triangular scale, and a small set of instruments can be purchased at a very reasonable cost.

Fig. 4 gives a fairly good idea of how the board and cupboard will look when complete. If much sketching or laying out is to be done, a high stool will be found convenient.

**HOW TO WIND A SPACED COIL SPRING.**

BY CHARLES LURCOTT.

When it is desired to wind a spring with a coil spaced a uniform distance apart, a simple method is to use a former or guide, made of wire which is as thick as the space desired between the coils. The accompanying cut shows how this is done. The guide consists of a few coils which are spaced the requisite distance apart, and one end of the wire projects outward tangentially. The spring is then wound on the arbor between the turns of the guide. As the wire is fed on the arbor it is crossed over the extending end of the guide, in the manner shown, so that it presses inward against the coils of the former. As the arbor is turned the guide is automatically fed along the arbor, and the coils of the spring are uniformly spaced by the coils of the former.

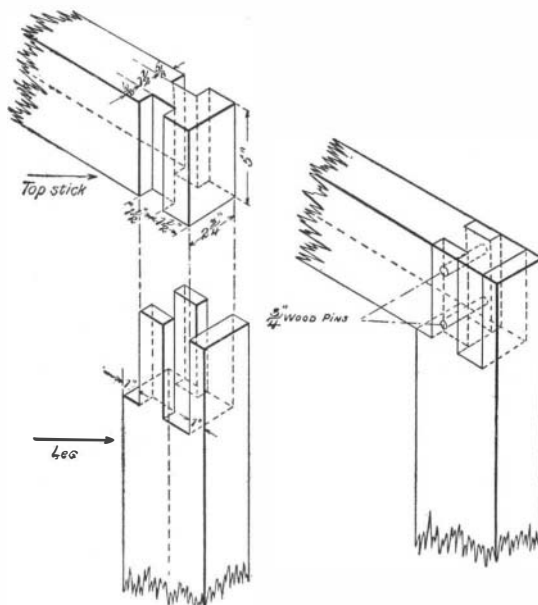


**HOW TO WIND A SPACED COIL SPRING.**

**A JOINT FOR THE WORK BENCH.**

BY C. A. PITKIN.

When constructing the bench for the Handy Man's Workshop, and it is desired to use the old but efficient screw and heel pattern woodworker's vise, the question of a suitable joint for the upper end of the front leg must be considered. The pressure applied to narrow work, reaching not farther below the bench top



**JOINT FOR HANDY MAN'S WORK BENCH.**

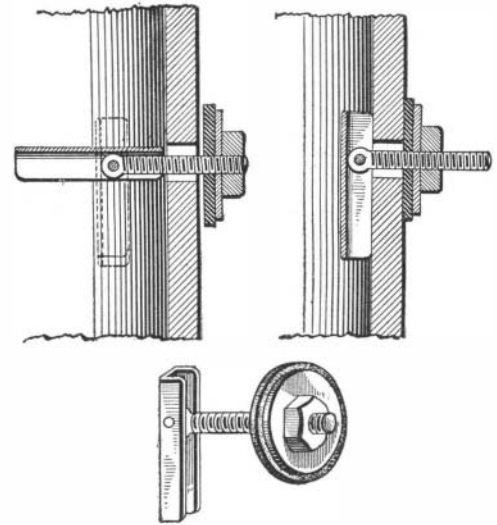
than its own thickness, tends to draw the front leg from position, and one soon finds he has a loose and "rickety" joint.

None of the usual mortise or dovetail joints are satisfactory, but the one shown below is very powerful and cannot be drawn from place. The detail drawing shows its construction and proper proportions. After the glue has set, two ¾-inch wooden pins should be driven in the holes.

**PATCH FOR KITCHEN BOILERS.**

BY T. FAWAN.

When by reason of rust, corrosion, or any other agency, the shell of the kitchen boiler is punctured, the problem of stopping the leak should not cause Handy Man any worry. A little device like that shown below can readily be made, and it will effectually and permanently close the hole. It consists of a square-headed brass machine screw, with head flattened and pierced to receive a pin, whereby it is pivoted between the walls of a channel-shaped brass bearing piece. The opposite end of the screw is fitted



**PATCH FOR THE KITCHEN BOILER.**

with a leather washer, a broad metal washer slightly curved to fit the contour of the boiler, and a nut.

The illustration shows how the device is applied. The puncture is enlarged sufficiently to admit the bearing piece. The latter is swung into alignment with the screw and passed through the hole. The overhanging part of the bearing screw should be longer, and hence heavier, than the other portion, so as to make the bearing piece swing to a vertical position as soon as it clears the inner surface of the boiler shell. The screw will then be retained by the bearing piece, and the nut can be screwed up to clamp the leather against the outer surface of the shell. This done the projecting part of the screw can be cut or filed off.

**ANOTHER METHOD OF MAKING METAL LAMP SHADES.**

BY FRED G. WARNER.

Lamp shades, electric-light shades, shades for drop lights, and shades for candelabra can readily be made as follows: The material should be sheet brass, in thickness ranging from 1/40 of an inch to 1/64 of an inch according to the size and character of the work. If the shade is to be quite large and to contain glass or other heavy materials, it is necessary to use the heavier brass or that of 1/40-inch in thickness. In light work



**METAL LAMP SHADE.**

like that of the candelabrum shades, the 1/64-inch brass is more desirable.

To make the candelabrum shade it is necessary first to draw the pattern on paper. Then, placing the paper upon the brass, an outline of the pattern should be made with a very soft pencil. With a heavy pair of scissors this pattern can be cut out of the brass, but it is impossible to cut any design in the brass pattern with the scissors without wrinkling the metal. The neatest way is to burn out the design with nitric acid. First the design should be drawn upon the brass pattern with a soft pencil. Then the pattern should