

SCREWS AND SCREWDRIVERS

TOOL MANIPULATION No. 7

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THERE is an old proverb which says that "Familiarity breeds Contempt," and this is clearly illustrated in the case of the screw and the screwdriver. Every boy over twelve years of age can put in a screw with more or less success, but little consideration is given even by adults to the construction and manipulation of the screw and the screwdriver.

the improved American screw which, although of excellent design, has never made any headway in this country. Its stem is smaller in diameter than the thread portion, this obviating what is known as a "stem bound" screw; it is also next to impossible for the head of the screw to break in half, owing to the fact that the nick is an internal one.

Inserting Screws.

Screw holes should be bored as at Fig. 4, so that the screw will slip easily up to its head in

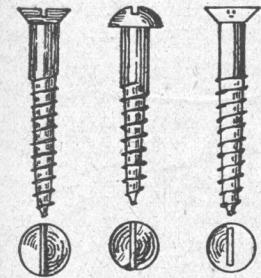


FIG. 1. SCREW, FLAT-HEADED. FIG. 2. ROUND-HEADED SCREW. FIG. 3. AMERICAN SCREW.

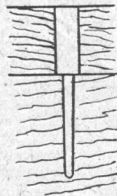


FIG. 4. HOLE BORED FOR SCREW.



FIG. 5. NOTE CLEARANCE AT A.

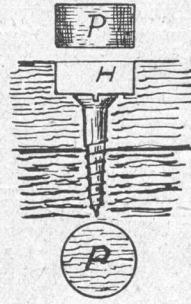


FIG. 6. SUNK SCREW WITH PLUG.



FIG. 7. STAIR EYE.

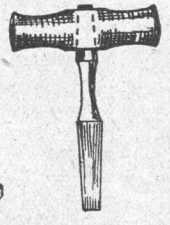


FIG. 8. HANDLED SCREWDRIVER BIT.



FIG. 9.—SCREWDRIVER BIT.



FIG. 10.—FORK-TURNING BIT.

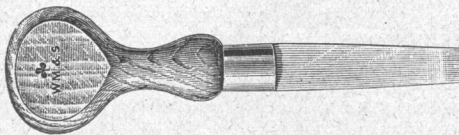


FIG. 11.—A 3-IN. SCREWDRIVER.



FIG. 12.

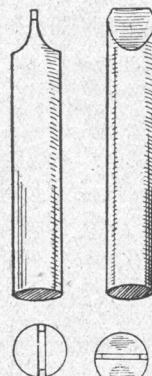


FIG. 13.

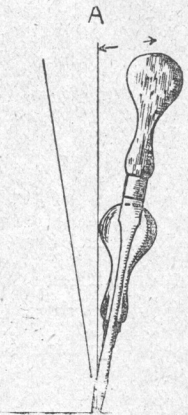


FIG. 14.—LONG SCREWDRIVER.

Prior to the year 1841, the ordinary steel screw used for wood and generally called a "wood screw" had one great defect; it had no proper gimlet point on it, and it was necessary to use a bradawl, gimlet or other boring tool to make a hole whose depth should be equal to the length of the screw.

SCREWS.—The usual type of flat-headed wood screw is illustrated at Fig. 1, and the round headed screw is shown at Fig. 2. Fig. 3 shows

the upper piece of wood and thread its way into the lower piece. If the neck of the screw fits tightly into the upper piece it will become "stem bound," and the screw will probably be broken off during its insertion. An excellent plan, and one worth adopting is to always grease a screw before putting it in position. (Twenty years ago nearly all joiners and cabinet makers used to carry in their kit of tools a small tin box which was filled with tallow made by melting

SCREWS AND SCREWDRIVERS

down a couple of tallow candles.) This method prevents the rusting of screws in the woodwork.

Fig. 5 shows a screw connecting two pieces of wood and the sketch indicates just sufficient clearance round the neck of the screw at A. Fig. 6 shows the screw head sunk, by boring a hole with a centre bit at H, and afterwards filing up the hole with the circular piece of wood P, thus hiding the screw head.

The method of putting in screws by boring a hole with a bradawl, and then driving in the screw almost up to its head by hitting it with a hammer and giving it a couple of turns with the screwdriver cannot be too severely condemned. A very quick and excellent method of inserting and withdrawing screws is by using a screwdriver bit, Fig. 9. This tool is used in con-

the hand when taking the return stroke and thus prevents the necessity of taking a fresh grip of the handle at every half turn of the screw.

Grinding Screwdrivers.

A few hints should now be given with regard to the grinding of screwdriver blades. Fig. 20 shows a wide and thin pointed blade which is a fairly common type. The end, being wider and thinner than any other part, the risk of breakage is great; again, when this blade is inserted in the nick of the screw, the blade will only touch at the points *aa* and fracture will result. This type of blade should be avoided. Fig. 12 shows a blade which is incorrectly ground. At A, the edges being rounded off too much. At B, the



FIG. 15.—USING THE RATCHET BRACE.

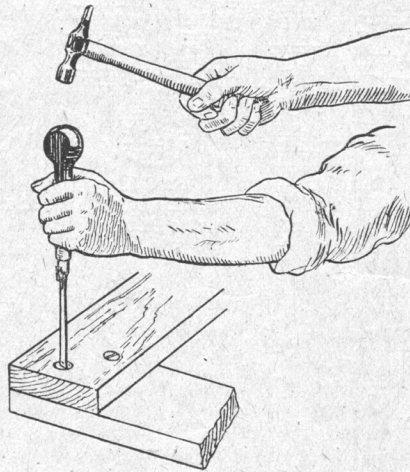


FIG. 16.—REMOVING STUBBORN SCREW.

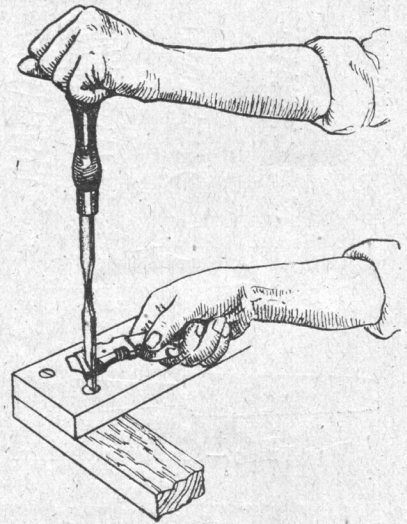


FIG. 17.—USING SCREW KEY TO REMOVE SCREW.

junction with the ratchet brace, as at Fig. 15, and gives a fair amount of leverage even when removing stubborn screws. Fig. 10 shows the fork turn-screw bit, which is used for tightening or removing the brass screw rivets that are used to connect the ordinary saw blade to the handle.

For the fixing of stair eyes (Fig. 7) in the confined positions such as they occupy, the Yankee spiral screwdriver (Fig. 18), is an acquisition to any worker. When using this tool the hand is not revolved, the necessary circular motion being imparted to the screwdriver by a spiral thread cut down the blade, and all that is necessary to rotate it is a forward push of the handle. For fixing blind brackets and similar awkward jobs, where the worker always feels the necessity of a third hand, this type of screwdriver is invaluable.

Fig. 19 shows another form of ratchet screwdriver which allows the handle to rotate idly in

grinding is too obtuse, with the result that, when the blade is engaged with the parallel nick and the worker begins to rotate the screwdriver, the tendency is for the blade to rise out of the screw-head with disastrous results to the surface of the woodwork, and in all probability a broken or damaged screw head.

Fig. 13 shows a theoretically correctly shaped blade which is sent out by many makers of ratchet spiral screwdrivers. In the edge view the blade is parallel for a distance slightly in excess of the depth of the nick of the screw; it is then ground away at a radius as shown. Little or no pressure is required to keep the blade on the screw head and the strength of a blade equal or greater than the diameter of the screw is given to the operator.

A long screwdriver frequently has an advantage over a short one for the removing of stubborn

SCREWS AND SCREWDRIVERS

screws (Fig. 14). The top of the handle is thrown over a considerable distance from the line A, which would be produced through the axis of the screw. A short screwdriver could not be so safely tilted to so great an angle as the longer one, owing to the fact that the screwdriver blade would leave the screw head.

Removing Stubborn Screws.

One of the commonest methods adopted is to take a stout screwdriver and engage it with the screw as at Fig. 16, smart blows are now given with

they hold the cast butt hinges in position.

Fig. 8 shows a home-made handle of tough hardwood which will accommodate a screwdriver bit; the handle, being loose and easily knocked off the blade when desired. This type of handle gives a great amount of purchase or leverage and is invaluable for removing stubborn screws. Fig. 11 shows a short and powerful screwdriver 3 ins. long, which is used for screwing on counter tops, etc., where it is often necessary that both the hand and the screwdriver have to be placed at the extreme back of the space which is generally occupied by a drawer.



FIG. 18.—“YANKEE” SPIRAL SCREWDRIVER.

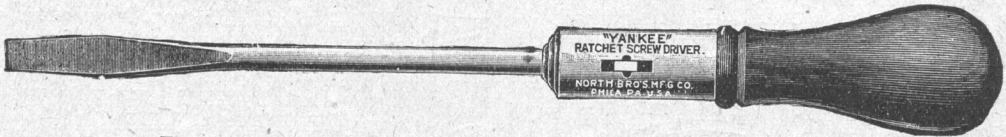


FIG. 19.—ANOTHER “YANKEE” TYPE OF RATCHET SCREWDRIVER.

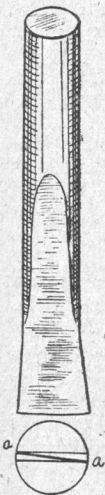


FIG. 20.

a hammer so as to disturb the screw and break the rust contact by vibration. Another simple and effective method (Fig. 17), is to take a screwkey and fix it on the screwdriver blade so as to increase the leverage, whilst the left hand gives the downward pressure necessary to keep the blade engaged with the nick of the screw. With regard to the method of putting the end of a red hot poker on the screw head, the writer does not consider it a good method as it invariably spoils the paint or polish in close proximity to the stubborn screw. Where screw heads are broken off close down to the wood and offer no possible chance to a pair of pliers, and the diameter of the offending screw is such that a new nick cannot be cut in the metal with a small cold chisel, the best way is to take a large shell bit about $\frac{1}{2}$ in. diameter, and insert it in the brace, then carefully bore around the broken screw, turning the brace and bit in an anti-clockwise direction; with care, a core of wood containing the broken screw will be bored away, after which the hole is carefully cleaned out, and a new hardwood plug inserted and glued in position. This method has to be frequently adopted when the screws of castors are broken in easy chair legs, and in cases where screws are broken in the door or door framing where

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