

SCREWDRIVERS

SELECTION, USE AND MAINTENANCE

1. GENERAL

- 1.01 This section is issued to cover the selection, use and maintenance of screwdrivers used in central offices.
- 1.02 Screwdrivers for general and special or specific uses in central offices are listed in the A700 division of the Bell System Practices.
- 1.03 Screwdrivers that are designed for special purposes such as offset screwdrivers, Phillips type, etc., should be replaced when they become inefficient or hazardous by being worn or defective.
- 1.04 Screwdrivers should be maintained in good condition at all times, and should be replaced when worn or defective to the extent that it would be impractical to repair them.

2. DESCRIPTION

- 2.01 The screwdriver is one of the most commonly used tools and is also one of the most misused. The principal purpose of a screwdriver is to loosen or tighten screws.
- 2.02 Fig. 1 illustrates the regular, cabinet and offset screwdrivers.
- 2.03 The offset screwdrivers have either one or two blades which project perpendicular to the handle or shank. The angles, however, that are listed in the Bell System Practices for the various types of offset screwdrivers are determined by the angle formed by the face of the blade and the handle (Fig. 1 illustrates a 90° offset screwdriver).

3. SELECTION OF SCREWDRIVER

- 3.01 Screwdrivers designed for specific purposes should be used only for the purpose or purposes specified.
- 3.02 A regular or cabinet screwdriver should not be used on a screw where the location of the screw is such that the screwdriver can not be used properly.
- 3.03 The offset screwdriver should be used when there is not sufficient space to work a straight screwdriver.

3.04 When a choice of screwdrivers to fit a particular screw is to be made the blade of the one selected should fit the slot of the screw without binding but with a minimum of side play so that the tip of the blade will seat evenly on the bottom of the slot. The width of the blade should be approximately the same as the length of the slot of the screw and should not be greater (see Fig. 2).

4. USE OF SCREWDRIVER

- 4.01 When using an offset screwdriver the tip of the blade should rest flush with the bottom of the slot in the screw. If there is room to use the free hand, apply pressure on the shank or handle directly above the screw in order to hold the tip of the blade firmly in place while the pressure is applied for the swinging motion. If there is not enough space to apply the pressure directly over the screw it should be applied to the handle as near as possible to the screw head.
- 4.02 When the swinging space of the offset screwdriver is limited, it may be necessary to reverse the ends of the screwdriver after each swing. If the screw can not be turned in this manner, two offset screwdrivers with blades at different angles may be used.
- 4.03 Extreme care should be taken while using offset screwdrivers so as not to injure the fingers or hand or burr the head of the screw by the blade slipping out of the slot of the screw.
- 4.04 Screwdrivers should be held firmly in place while applying the twisting force required to place or remove screws. The center line of the shank should be in line with the center line of the screw and the tip of the blade flush with the bottom of the slot (see Figs. 2 and 3). Sufficient pressure should be applied to prevent the blade from slipping out of the slot.
- 4.05 To loosen screws that are very tight or are stuck, hold the screwdriver as outlined in 4.04 and apply a short quick twist which will tend to turn the screw only a few degrees. If this fails to loosen the screw, hold the screwdriver in position and tap the butt end of the handle lightly two or three times with a 4 oz. riveting hammer and then proceed as above.

4.06 When starting a wood screw a lead hole is usually required unless the wood is soft and the screw small. In general, the size of the drill used should be as follows:

Size of Wood Screw		Size of Drill
Hard Wood	Soft Wood	
No. 6	No. 6	1/16 inch
No. 8 to No. 10	No. 8 to No. 10	3/32 inch
No. 12 to No. 14	No. 12 to No. 14	1/8 inch
No. 16 to No. 18	No. 16	11/64 inch

4.07 To start the screw in the lead hole insert the screw and place the blade of the screwdriver squarely in the slot, then hold the blade and the screw with the thumb and forefinger of one hand to steady and turn the screwdriver with the other. During this process keep the center line of the screwdriver in line with the center line of the screw (see Fig. 3).

4.08 If difficulty is experienced with turning the screws in hard wood, lubricate the threads with a small amount of soap or beeswax taking care that the lubricant does not enter the slot of the screw or coat the tip of the screwdriver.

4.09 Screwdrivers are designed for turning screws and should not be used as a drill, chisel or pinch bar.

4.10 Screws with damaged slots should not be used or if in service should be replaced when possible, especially when removed temporarily in the course of other work.

4.11 Avoid injury by keeping the head, arms and hands in such a position so that they will not be struck by the tip of the blade should the screwdriver slip. It should be remembered that the tip of the blade will have the greatest tendency to slip out of the slot just before each turn is completed.

4.12 When screwdrivers are carried in the pocket, place the blade in a downward position so that the blade is not exposed.

5. MAINTENANCE OF SCREWDRIVERS

5.01 Screwdrivers should be examined to determine their condition. The more important conditions to check are as follows:

- (a) Handle broken, split, cracked or butt end badly mushroomed.
- (b) Blade loose in handle.

(c) Soft tip (temper destroyed).

(d) Shank and blade bent.

(e) Blade broken.

(f) Point of tip chipped, worn or improperly shaped.

5.02 When condition (a) is found the screwdriver should be made serviceable by sanding the rough edges smooth. A screwdriver is considered serviceable when, after sanding, a firm grip is maintained and the handle does not irritate the palm of the hand.

5.03 When condition (b) or (c) is found the screwdriver should be marked defective and exchanged for one in good condition in accordance with the established routine.

5.04 When condition (d), (e) or (f) is found, the defect should be corrected as outlined in the following paragraphs. If, however, any of the conditions in (a), (b), (c), (d), (e) or (f) are found which are considered beyond repair, the screwdriver should be marked defective and exchanged at once for one in good condition in accordance with the established routine.

Shank and Blade Bent

5.05 To straighten a bent shank and blade, place the shank of the screwdriver in a vise in a horizontal position, with the point where the bend starts just outside of the jaws of the vise and with the bend parallel to the top of the workbench. Apply pressure at the handle or shank in a direction that will tend to straighten out the bent portion. If the bent portion is such that one operation does not entirely straighten the shank, readjust the screwdriver in the vise as the portion nearest the vise becomes straight. Continue in this manner until the entire shank is straight (see Fig. 4).

Reshaping Blade and Tip

5.06 The "single cut smooth" side of the H type combination file, RL482 is recommended for reshaping the blade and tip. The teeth of the file should be clean and in good condition so that it will cut evenly and with a minimum of effort.

Caution: Do not use an emery wheel for reshaping a screwdriver.

5.07 Whenever possible a vise should be used to hold the screwdriver while filing. The screwdriver should be placed in the vise so

that the part to be filed is parallel to the top of the workbench which can be used as a guide to determine that the file is being pushed straight across the surface (see Fig. 5).

5.08 If a vise is not available select a location so that the elbows will be level with the part to be filed. This should be a flat surface such as the standard switchroom workbench which can be used as a guide to determine that the file is being pushed straight across the surface being filed.

5.09 The tip should be squared first. If a vise is available place the screwdriver in the vise as outlined in 5.07. If a vise is not available hold the blade of the screwdriver perpendicular to the edge of the workbench using the index finger to steady it (see Fig. 6). Grasp the file securely so that it can be easily steadied and its movement controlled at all times. Move the file forward and parallel to the top of the workbench, applying sufficient pressure for the teeth to cut the metal. The pressure should be evenly distributed and maintained throughout the forward stroke. On the

return stroke hold the file slightly above the surface being filed so as not to dull the teeth. Continue filing until the broken, chipped or rounded edges have been removed and the tip is straight and at right angles to the shank.

5.10 The edges of the blade should then be dressed down restoring the width at the tip to its original size as closely as possible. The screwdriver should be held in the vise as outlined in 5.07. If a vise is not available hold the screwdriver and file as shown in Fig. 7 applying the file as outlined in 5.09.

5.11 The faces of the blade are then dressed down restoring the thickness of the tip to its original size as closely as possible. The angle or taper of the two faces should be the same and not greater than the original, but can be less if desired. This may be accomplished by making the faces of the blade longer. The faces of the blade should be flat. For this operation place the screwdriver in the vise as outlined in 5.07. If a vise is not available hold the screwdriver and file as shown in Fig. 8, applying the file to the entire broad flat face of the blade as outlined in 5.09.

OFFSET SCREWDRIVER

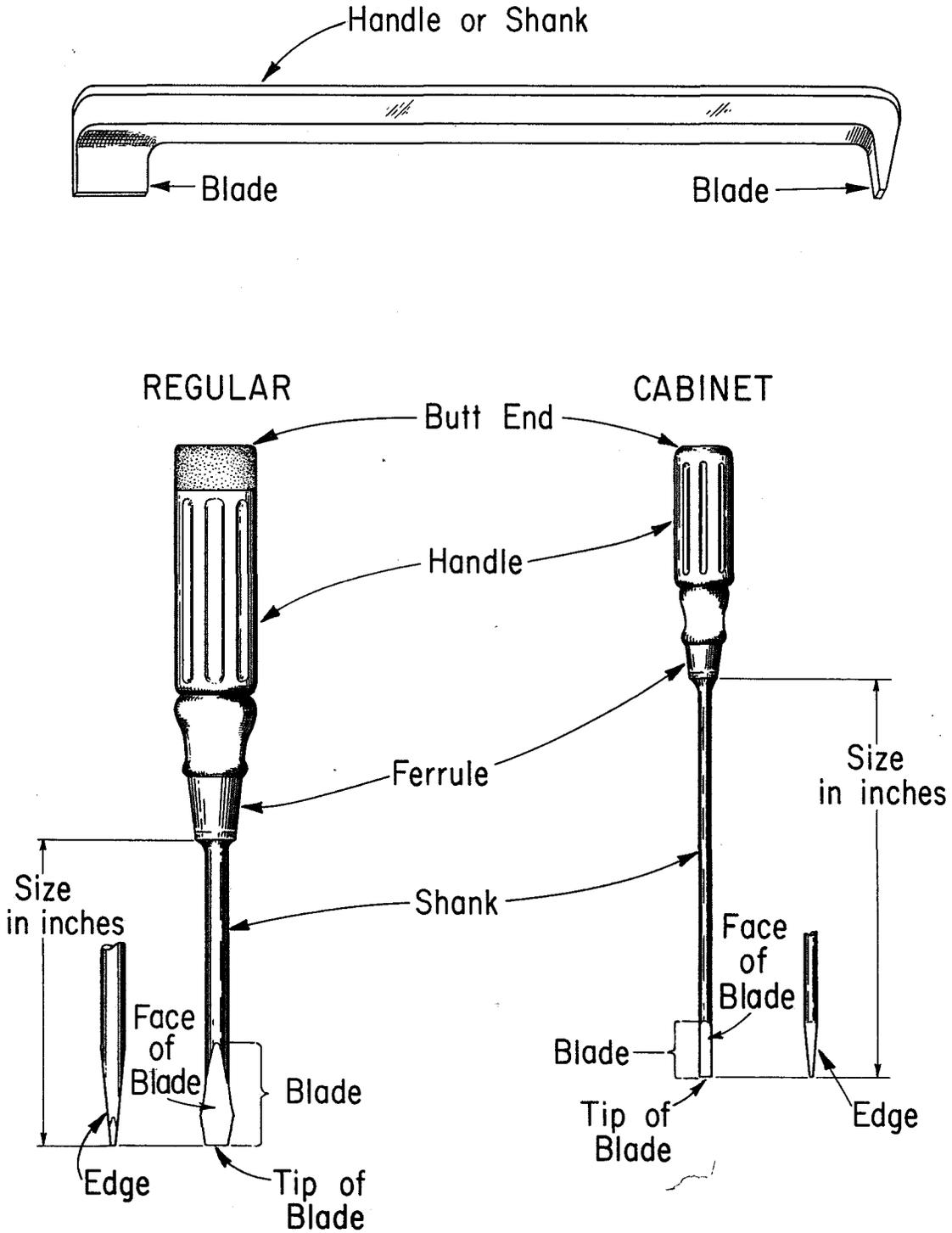


Fig. 1

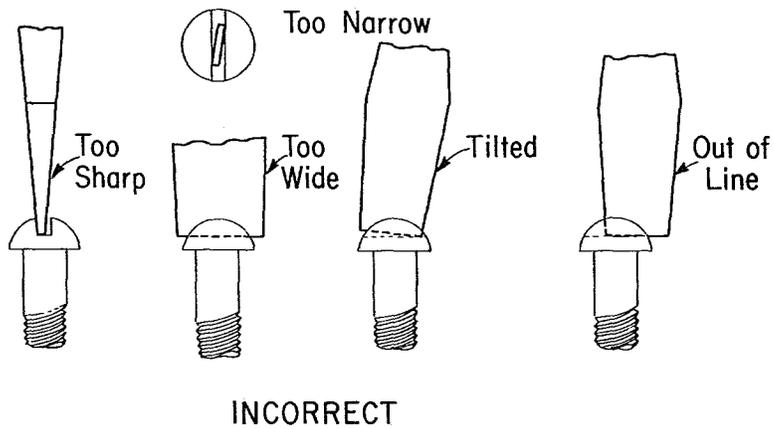
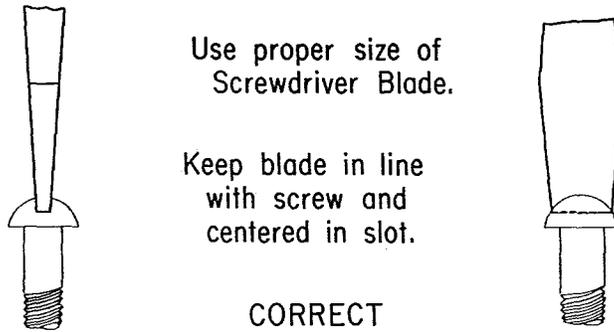


Fig. 2

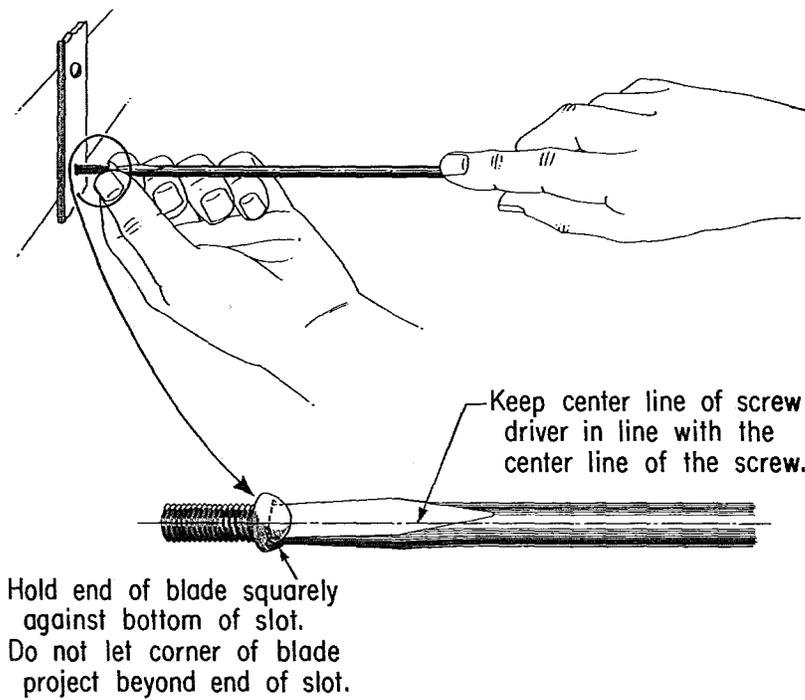


Fig. 3

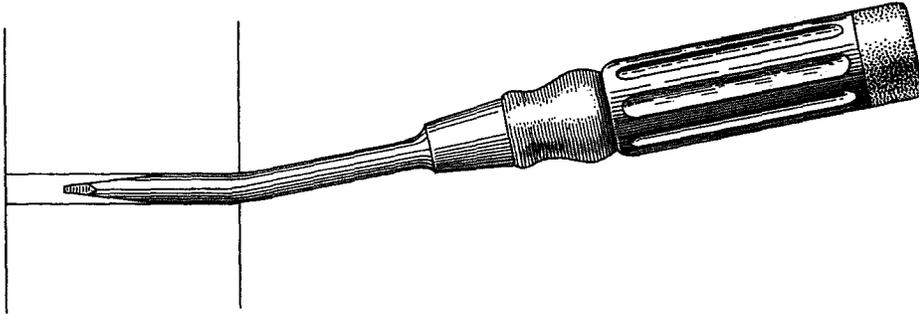


Fig. 4

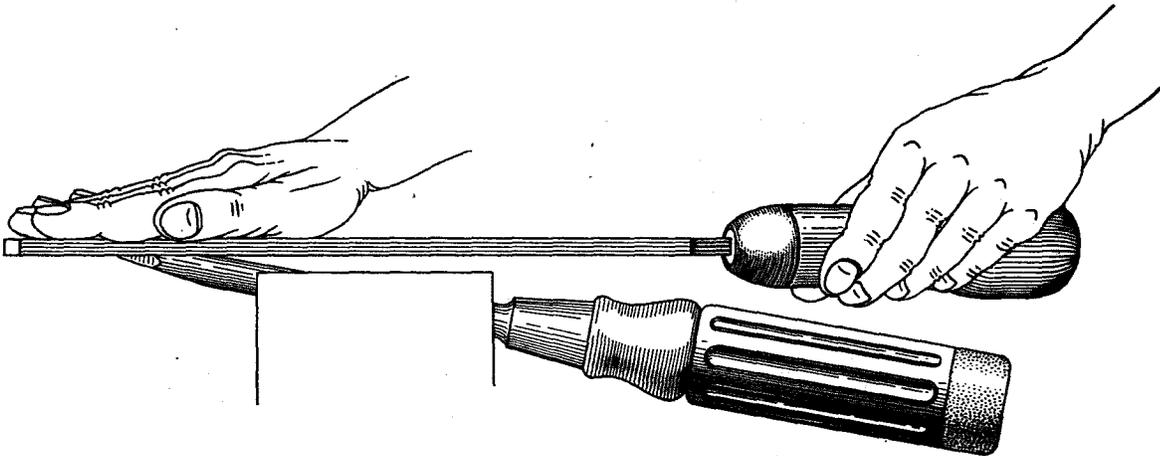


Fig. 5

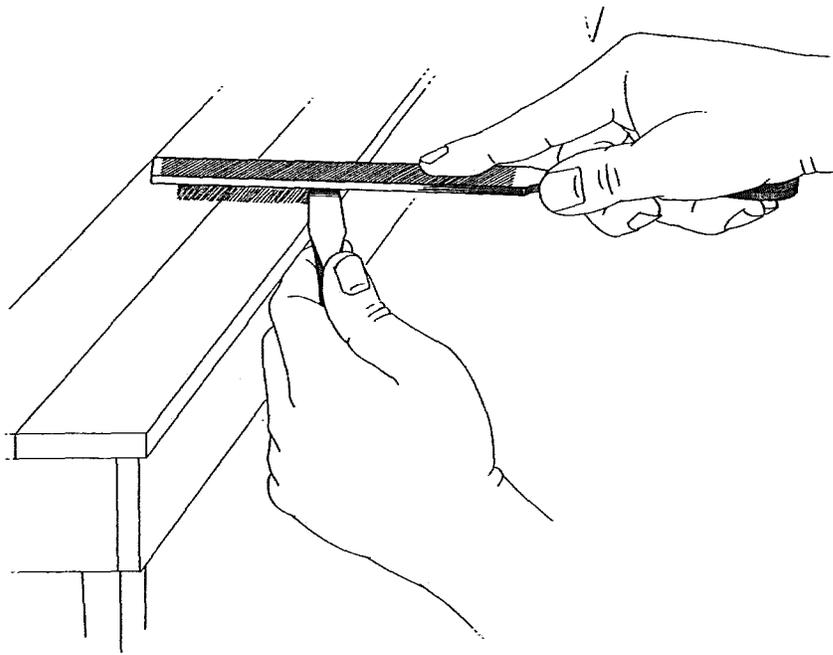


Fig. 6

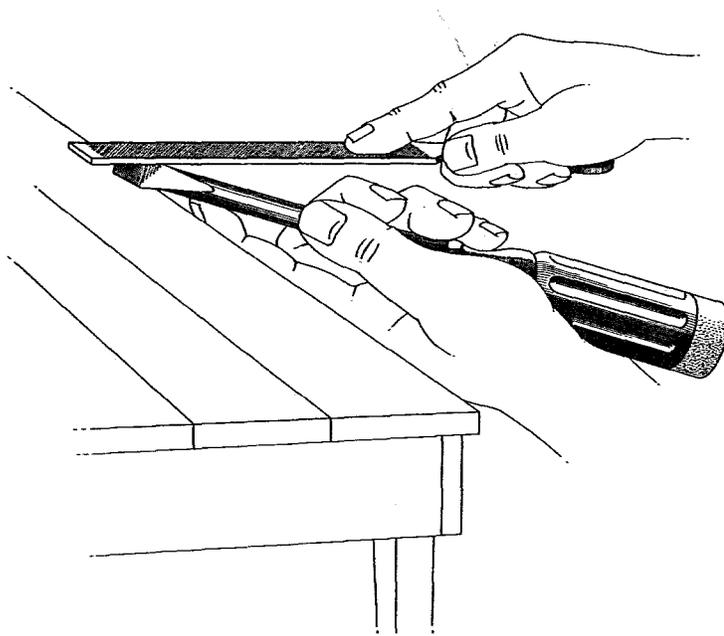


Fig. 7

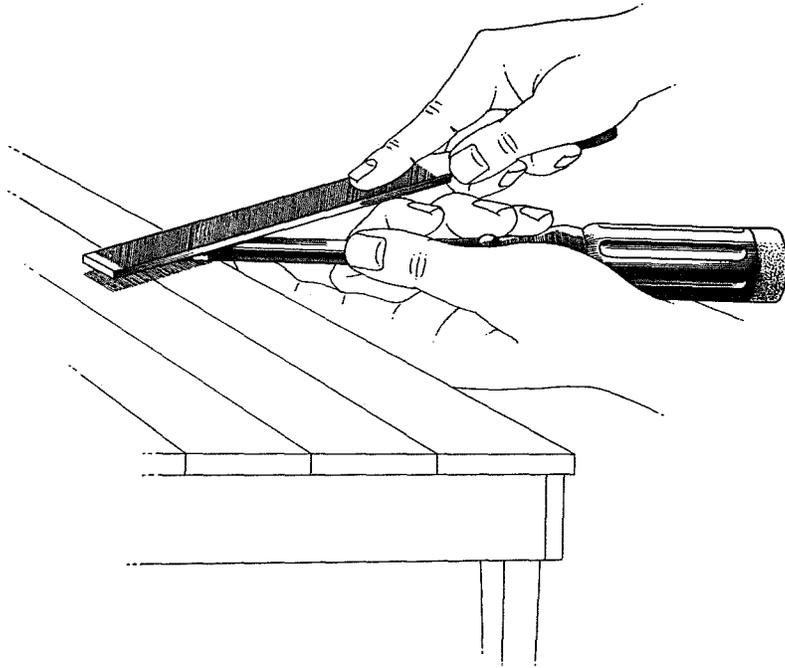


Fig. 8