PLUGS
CLEANING AND POLISHING

1. GENERAL

1.01 This section describes methods for cleaning and polishing plugs at P.B.X. switchboards. The methods are as follows:

Method (a) Use of Plug Cleaning Tools.

Method (b) Use of Cotton Sleeving.

1.02 Method (a) may be employed at larger switchboards where the amount of cleaning warrants the use of a No. 384-A tool.

Method (b) may be employed at all P.B.X. switchboards.

1.03 One of the important items in P.B.X. work is to maintain plugs in satisfactorily clean condition. Dirty plugs are very likely to produce noise and cutouts which result in a decidedly unfavorable reaction on service. The methods of cleaning described insure that the portion of the plug most vital to a connection is properly cleaned; that is, not only the sleeve but also the ring and tip portions.

1.04 It has been found that, in general, the best cleaning results are obtained by using a mild abrasive applied under reasonable pressure and at relatively low speed. This condition is obtained with the hand method described herein.

2. TOOLS AND MATERIALS

Method (a)

2.01 Bell System Paste—Metal Polish.

2.02 No. 384-A Tool—plug cleaning fixture.

2.03 No. 385-C Tool—chuck for holding Nos. 109 or 110 plugs.

2.04 No. 385-B Tool—chuck for holding Nos. 137 or 152 twin plugs.

2.05 No. 385-A Tool—Chuck for holding No. 47 plugs.

2.06 No. 4 Solid Braid, white cotton unglazed cord 1/8 inch in diameter.

2.07 Two Wood Cord Adjusting Balls—Graybar List No. 4635—handles for cord (use is optional).

2.08 Cheesecloth.

Method (b)

2.09 Bell System Paste—Metal Polish.

2.10 Cotton Sleeving 5/32" wide.

2.11 Cheesecloth.

3. METHODS

(a) Use of Plug Cleaning Tools

3.01 When the No. 384-A tool and associated chuck is used in connection with cleaning plugs at the switchboard, the rear portion of the bracket should be adjusted for the thickness of the lock rail of the switchboard. A tight fit on the lock rail is not required and consequently it will not, in general, be necessary to change its adjustment except when moving from keyshelves of one type to those of another.

3.02 The chuck for the type of plug to be cleaned (see Tools and Materials) should be attached to tool No. 384-A. This is accomplished by passing the bolt of the chuck through the hole in the upright portion of the fixture, inserting the two pins attached to the upright into the small holes of the chuck, and tightening wing nut (A), Fig. 1.

3.03 Lever (B) should be attached to screw (C) so that approximately a quarter turn from the position shown in Fig. 1 to the position indicated by the dotted outline will clamp the plug sufficiently secure for the cleaning operation. By having the lever in this position, the operation of clamping and unclamping the plug can be readily performed with a minimum of effort, since it ties in directly with the operation of placing the plug in the cleaning fixture and picking up the cord used when cleaning the plug.

3.04 To clean plugs at the switchboard proceed as follows: Raise the keyshelf, at the position in which the plugs to be cleaned are located, sufficiently to place the fixture over the lock rail and then lower the keyshelf upon the fixture.

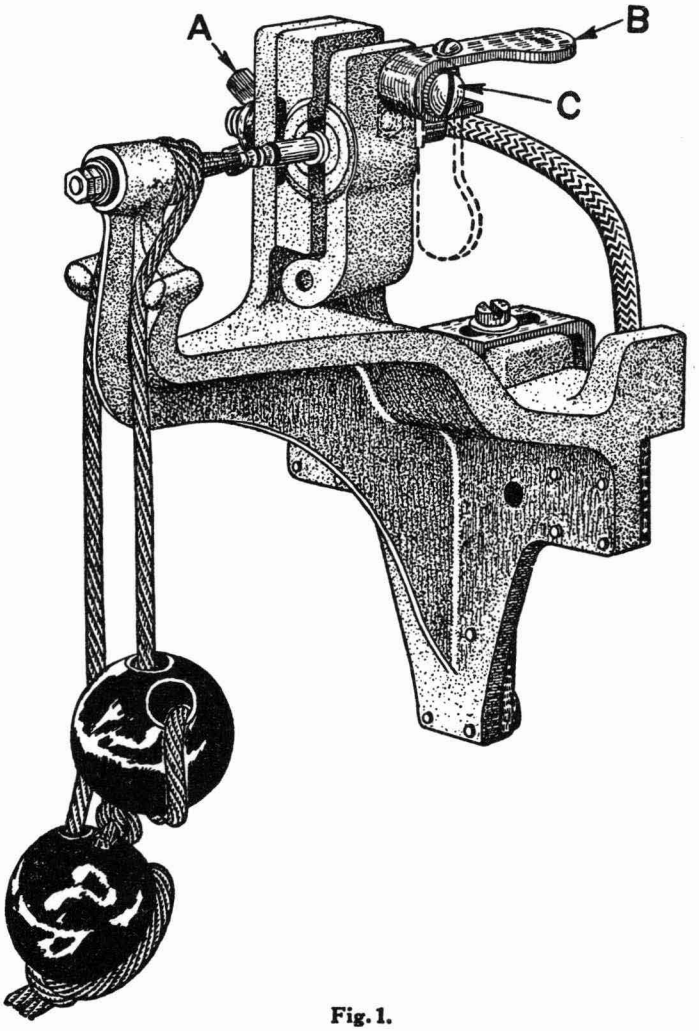

Fig. 1.

3.05 Wrap a piece of cord approximately two feet in length around the centering pin at the front end of the fixture. This cord should be wrapped around the centering pin and laid over the plug in the following manner; starting at the left, pass the cord over the centering pin, make one complete loop about this pin and bring the cord down at the right of the pin and to the rear of the first turn. (See Fig. 1.)

3.06 Place a small amount of Bell System paste evenly over about one-half the length of the cord, thereby reserving the other half for a finishing operation to remove any small amount of paste which might be left on the plug. It is necessary to use only a small amount of paste for satisfactory cleaning work and any excess amount should be avoided so as to prevent the paste accumulating on the plug.

3.07 The plug to be cleaned is inserted at the rear of the chuck until the tip centers in the cup-shaped portion of the centering pin. The clamping lever is turned down sufficiently to secure the plug. With the lever positioned as shown in Fig. 1, these operations can be made jointly.

3.08 Work the cord which is wrapped around the centering pin onto the plug. Then rub with an up-and-down motion, moving the cord backward and forward along the plug until all parts are clean. Care should be exercised so as not to put too much pressure on the plug or to work the cord too fast in order that the insulation of the plug is not damaged by this procedure.

3.09 After the plug has been cleaned, move the cord along until a clean part engages the plug and repeat operation 3.08, thus giving the plug a finishing cleaning in order to remove all the paste from the plug. An alternate method for this purpose is to use a clean piece of cheesecloth and wipe the plug after it is removed from the cleaning fixture.

3.10 Raise the lever and remove the plug from the fixture. The lever and cord should be left in the position shown in Fig. 1 preparatory to inserting the next plug to be cleaned into the chuck of the cleaning fixture.

3.11 For cleaning plugs of the Nos. 137 or 152 type the proper chuck (see Tools and Materials) should be attached to the fixture and, in general, the procedures outlined above followed. When this type plug is being cleaned the tip of one of the twin plugs is centered in the cup-shaped portion of the centering pin and after this member is cleaned, the twin plug should be reinserted in the fixture so that the tip of the other member centers in the cup-shaped portion of the centering pin and the cleaning operation repeated.

3.12 Tool No. 384-A may also be used elsewhere than at a switchboard, in which case the cleaning procedures outlined in the preceding paragraphs will obtain.

(b) Use of Cotton Sleeving

3.13 Cut a length approximately 3 feet long from a piece of cotton sleeving. Tie a large knot at the middle point of this length of sleeving.

3.14 To clean plugs at the switchboard proceed as follows: Raise the keyshelf, at the position in which the plugs to be cleaned are located, sufficiently to place the knot of the sleeving over the lock rail and then lower the keyshelf. This secures the sleeving and leaves two free ends for cleaning purposes.

3.15 Place a small amount of Bell System paste evenly over about one-half of the length of one of the sleevings. It is necessary to use only a small amount of paste for satisfactory cleaning work and any excess amount should be avoided so as to prevent the paste accumulating on the plug.

3.16 Hold the sleeving (containing the metal paste) with one hand. Place the sleeve of the plug to be cleaned on the sleeving near the end that is being held, and make a complete turn with the sleeving around the plug. Draw the sleeving taut so that when the plug is moved pressure will be brought to bear on the plug. Hold the plug slightly on the bias, with the tip pointing away from the switchboard. Move the plug downward toward the switchboard. This movement should cause the sleeving to pass from the sleeve of the plug to the ring. With several such movements the sleeve and ring of the plug should be cleaned.

3.17 Then place the tip of the plug on the sleeving and make a complete turn with the sleeving over the tip of the plug. Move the plug forward several times, turning the plug so that these motions clean the tip of the plug.

3.18 After the plug has been cleaned, place the plug upon the other sleeving and repeat operations 3.16 and 3.17, thus giving the plug a finishing cleaning in order to remove all the paste from the plug. An alternate method for this purpose is to use a clean piece of cheesecloth and wipe the plug thoroughly.

3.19 Proceed in this manner until all the plugs have been cleaned.

3.20 Remove the sleeving from the keyshelf and discard.