A. H. WEISS.

SWITCHBOARD PLUG.

APPLICATION FILED MAY 17, 1918.

1,401,217. Patented Dec. 27, 1921.

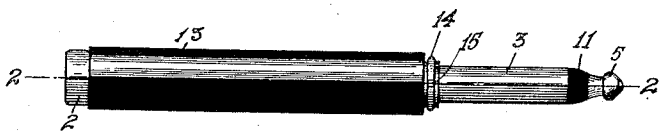


Fig. 1.

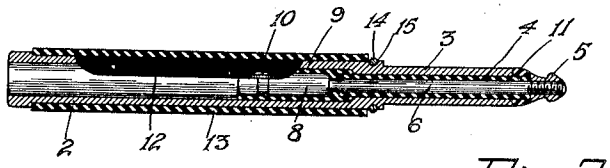


Fig. 2.

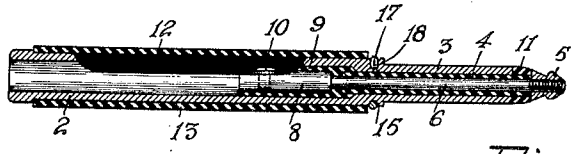


Fig. 3.

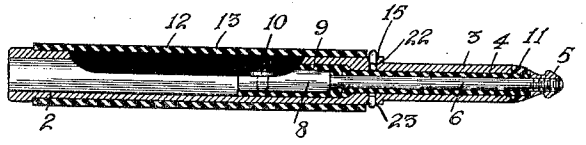


Fig. 4.



Fig. 5.



Fig. 6.

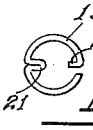


Fig. 7.

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UNITED STATES PATENT OFFICE.

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SWITCHBOARD-PLUG.

1,401,217. Specification of Letters Patent. Patented Dec. 27, 1921.

Application filed May 17, 1918. Serial No. 235,057.

To all whom it may concern:

Be it known that I, ALFRED H. WEISS, a citizen of the United States of America, and resident of Wilmette, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Switchboard-Plugs, of which the following is a specification.

My invention relates to improvements in plugs, and more particularly to switchboard plugs employed in telephone switchboards for connection purposes.

The usual form of switchboard plugs is provided with a main body portion, which body portion is provided with a protective sleeve of suitable insulating material and held against displacement or movement upon the body of the plug by means of a small screw which passes through the sleeve and screws into the body of the plug. This form of fastening necessitates the machining of parts as to drilling and tapping, thus adding to the cost of manufacture.

It is often necessary to change a damaged plug, or to change a damaged switchboard cord for another, and with the usual method employed the screw which holds the protective sleeve in place, being small, is apt to be lost. The screw is also hard to handle due to its smallness and requires considerable time to remove and replace the same, thereby making the repairing of switchboard plugs slow and tedious. Rapid repairs are essential in telephone switchboard work so as not to tie up any cord plugs for any length of time when making repairs. With the plug of my invention, all this amount of extra labor and time is eliminated.

An object of my invention is to construct a plug in which means is provided in the form of a split ring which rests in a groove in the forward end of the body portion of the plug to retain the protective sleeve in place on the body of the plug, thus doing away with the small screw which is almost universally used for holding the protective sleeve in place.

Referring now to the accompanying drawing, I illustrate several forms of my invention in which like reference characters in the several views denote like parts, and in which—

Figure 1 is a view of the two-conductor plug assembled;

Fig. 2 is a sectional view of the plug taken on the line 2—2 of Fig. 1;

Fig. 3 is a sectional view of the plug, similar to Fig. 2, but showing a modified form of my invention;

Fig. 4 is a sectional view of a plug similar to Fig. 2, but showing still another modification of my invention; and

Figs. 5, 6 and 7 are views of different forms of split rings which may be used.

Referring now more in detail to my invention as illustrated and more particularly to Figs. 1, 2 and 5, the plug comprises a hollow body portion 2 having an extension 3 extending from one end of the body portion 2. The extension or sleeve of the plug 3 has an opening which extends the length of the said sleeve 3 and is of a size to receive the sleeve 4, which sleeve is of suitable insulating material. A stem 6 of a size to pass through the insulating sleeve 4 is provided, the end of the said stem 6 being threaded to receive the plug tip 5 of the plug, which tip 5 engages the tip contact of the spring jack, and the sleeve 3 of the plug being adapted to engage the sleeve of the spring jack, as is well understood. The stem 6 is provided with an enlarged portion 8 which is insulated from the body portion 2 by means of an insulated sleeve 9. This enlarged portion 8 of the stem 6 is provided with a binding screw 10, which screw 10 has screw threaded engagement with a tapped hole in the said enlarged portion 8. The binding screw 10 is adapted to hold the tip conductor of the cord in electrical contact with the tip stem 6. A ring of insulation 11 is passed between the sleeve portion 3 and the tip 5 to insulate one from the other. The body portion 2 has its wall partly cut away to form an aperture 12 so that the binding screw 10 is accessible therethrough. Surrounding the body portion of the plug is a protective sleeve 13 of suitable insulating material, such as fiber or hard rubber, which is slipped over the body portion 2 of the

plug. To hold the sleeve 13 upon the body 2 and prevent longitudinal movement of said sleeve 13, I provide a split ring 14 which rests in an annular groove 15, which groove is cut in the forward end of the body portion 2 of the plug. To remove the split ring 14 from the groove 15, as illustrated in Figs. 1 and 2, the split ring is sprung by a suitable tool, such as a small screw driver, and slipped over the forward end of the body portion 2 of the plug. When the ring 14 is thus removed from the groove, the protective sleeve 13 may be removed. To replace the sleeve 13 and hold it in place upon the body portion 2 of the plug, the said sleeve 13 is slipped over the body 2 and when in place the split ring 14 is sprung until it may be passed over the forward end of the body portion 2. The ring when it enters the groove 15 springs back in place in the said groove 15, and as the diameter of the split ring 14 when resting in the groove 15 is slightly larger than the interior diameter of the protective sleeve 13, the said sleeve 13 is held in place upon the body portion 2 of the plug.

Referring now to Figs. 3 and 6, I show in Fig. 3 a plug constructed similar to the one shown in Figs. 1 and 2. In Fig. 6 I show a modified form of split ring 16, the said ring having a prong 17, which prong 17 enters a suitable orifice 18 in the groove 15 for the purpose of guarding said ring against rotation and also for preventing it from being forced off the body of the plug by pressure exerted upon it by the sleeve 13. The split ring 16 when in position in the groove 15, after the protective sleeve 13 has been slipped over the body portion 2 of the plug, holds the said protective sleeve 13 in place, as previously described.

Referring now to Figs. 4 and 7, I illustrate in Fig. 4 a plug similar to the one already described. In Fig. 7, I show another modified form of split ring 19. The split ring 19 is provided with a prong 20 at one of its free ends, and diagrammatically opposite the prong 20 is a second prong 21 formed by means of a forming operation in which a portion of the split ring is forced inward until a U-shaped prong is developed in which the two legs of the U-shaped prong 21 are substantially parallel and in close proximity to each other. Two suitable orifices 22 and 23, diagrammatically opposite each other, are provided in the groove 15 which is cut in the forward end of the body portion 2 of the plug. The said orifices 22 and 23 receive the prongs 20 and 21 of the split ring 19. The prongs 20 and 21 when in engagement with the orifices 22 and 23 prevent the ring 19 from rotating in the groove 15 and also serve to prevent the said ring from being displaced by pressure which may be placed upon it by the sleeve 13. The split ring 19 holds the protective sleeve 13 in place, as already described in connection with the rings shown in Figs. 5 and 6.

While I have described and illustrated several forms of my invention, I do not wish to be limited to the exact structure as shown, as other modifications will readily suggest themselves to those skilled in the art, and I aim to cover all such changes and modifications as come within the spirit and scope of the appended claims.

What I claim as new, and desire to secure by United States Letters Patent is:

1. A switchboard plug of the character described including a main body portion having an orifice, an enlarged end portion for said main body portion, a sleeve of insulating material adapted to fit over said body portion and to abut against said end portion, an annular groove in said body portion, a ring adapted to fit into said groove to prevent displacement of said sleeve, and an inwardly turned end portion for said ring adapted to fit into said orifice to maintain the said ring in position against the pressure exerted by said sleeve.

2. A switchboard plug of the character described including a cylindrical member provided with an enlarged end portion, said cylindrical member being also provided with an annular groove cut in the cylindrical portion of said member and an orifice extending downward from said annular groove, a sleeve adapted to fit over said cylindrical portion, a circular ring adapted to fit into said groove to prevent displacement of said sleeve in one direction, the displacement of said sleeve in the opposite direction being prevented by the enlarged end portion of said cylindrical member, and a hooked end portion for said ring adapted to fit into said orifice to prevent said ring from becoming displaced by pressure exerted upon it by said sleeve.

3. A switchboard plug of the character described including a cylindrical body portion provided with an enlarged end, a sleeve of insulating material adapted to fit over said body portion and abut against said end, said cylindrical portion being provided with an annular groove, a ring adapted to fit into said groove to prevent displacement of said sleeve, and means for preventing displacement of said ring by said sleeve.

4. A switchboard plug of the character described including a cylindrical member provided with an enlarged end, a sleeve of insulating material adapted to fit onto said cylindrical member and abut against the enlarged end, said cylindrical member being provided with an annular groove, a ring adapted to fit into said groove to prevent displacement of said sleeve, and means for preventing displacement of said ring by said sleeve when said plug is in use.

5. A switchboard plug of the character described including an elongated metallic member provided with an enlarged end portion, a sleeve adapted to fit onto said member and to abut against said enlarged end portion, an annular groove formed in said metallic member, a spring ring adapted to fit into said groove to prevent displacement of said sleeve, and means formed integrally with said ring for preventing rotation of the same and for preventing displacement of said ring by pressure placed upon it by said sleeve.

6. A switchboard plug of the character described including an enlongated metallic member provided with an enlarged end portion, a sleeve adapted to fit onto said metallic member and to abut against said enlarged end portion, said metallic member being provided with an annular groove and a pair of orifices extending below the inner circumferential diamter of said groove, a spring ring adapted to fit into said groove to prevent displacement of said sleeve, and integrally formed portions for said spring ring adapted to fit into said orifices of said metallic member to secure said ring in position against displacement of the pressure of said sleeve and also to prevent the rotation of said ring in said groove.

Signed by me at Chicago, in the county of Cook and State of Illinois, this 15th day of May, 1918.

ALFRED H. WEISS.