Oct. 27, 1931. G. R. WILLET 1,829,077

PLUG SEAT

Filed Jan. 23, 1929

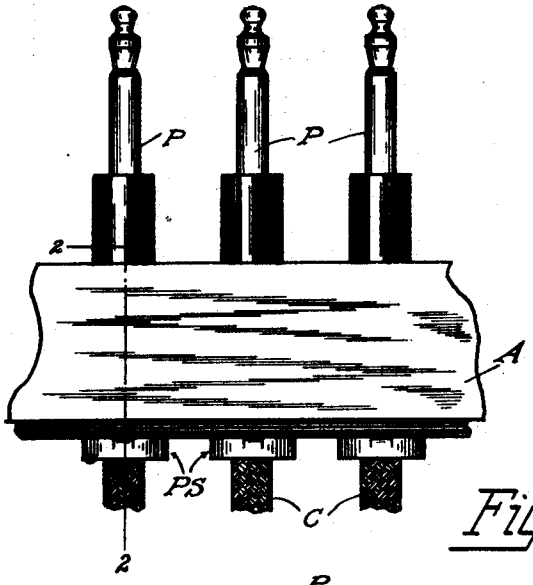

Fig. 1.

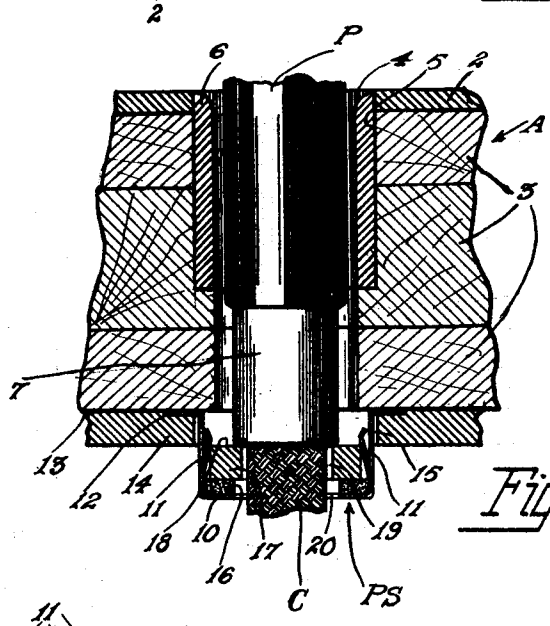

Fig. 2.

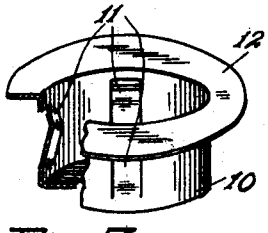

Fig. 3.

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UNITED STATES PATENT OFFICE

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PLUG SEAT

Application filed January 23, 1929. Serial No. 334,441.

My invention relates to means by which connecting plugs are supported on the plug shelves of a telephone exchange switchboard when not in use and more particularly to devices known in the art of telephony as plug seats against which the connecting plugs rest when in their normal or non-operative positions.

The plug shelf of an exchange switchboard of the present type is provided with a series of parallel openings in which the plugs rest in a vertical position. The bases of the plugs rest against a suitable strip of material secured to the bottom of the plug shelf which is provided with orifices in alignment with the openings in the plug shelf which are of sufficient size to permit the passage of the cords attached to the plugs. The contiguous area around the orifices in the plug seat strip becomes badly worn due to the blows delivered by the bases of the plugs when seating themselves after being restored under the influence of the cord-weight to their normal or non-operative positions. The badly worn orifices permit the plugs to fall through and in addition the cords in their travel through the orifices will become abraded necessitating frequent cutting back of the worn cords or the installation of new ones. With this type of plug seat it is impractical to renew a strip having worn plug seats as the present arrangement necessitates paralyzing the telephone service of the particular position of the switchboard during the installation of a new plug seat strip. Another complaint relative to the type of plug seat now in use is the amplified noise and jar in the operator's head set made by the plugs striking the plug seats which is very irritable and annoying to the operator.

To overcome these deficiencies as above pointed out of the present type of plug seat, I have devised an improved plug seat and a feature of my invention is the provision of a plug seat which is individually associated with each plug and removably positioned in a plug seat containing member.

Another feature of my invention is the provision of a pliant material positioned in the bottom of the plug seat containing member against which the plug seat rests and which serves as a cushion to absorb the blow delivered to the plug seat by the descending plug to deaden the noise caused by the base of the plug striking the plug seat.

Another feature of my invention is the provision of means integral with the plug seat containing member for positioning the plug seat therein and retaining the same in position against displacement.

Still another feature of my invention is the provision for the quick removal of a worn plug seat and the replacement of a new one without paralyzing the telephone service of a particular position of the switchboard.

The above features as well as others not specifically pointed out above will be more fully described in the ensuing specification.

For a more complete understanding of my invention reference may be had to the accompanying drawings in which like reference characters in the several views denote like parts and in which

Fig. 1 is a front elevation of a sectional strip of a typical plug shelf of a telephone switchboard;

Fig. 2 is a sectional view along the line 2—2 of Fig. 1; and

Fig. 3 is a perspective view of the plug seat cup member partially in section to clearly illustrate its construction.

Referring now more in detail to my invention as illustrated in the accompanying drawings the plug shelf A with which the plug seat PS of my invention is associated comprises a facing 2 of suitable material such as fiber and laminated sections 3 of wood. A cylindrical opening 4 extends through the plug shelf A and a counterbore 5 extending into the opening 4 is adapted to receive a sleeve 6 of suitable material such as fiber. The upper portion of the opening 4 in the plug shelf A is fitted with the fiber sleeve 6 as it is softer and less fibrous and of less splintery nature than wood and thus prevents the base 7 of the plug P from gouging the walls of the plug shelf opening 4 and prevents the cord C from becoming abraded.

The plug seat PS of my invention comprises a plug seat cup member 10 which is

provided with four interiorly extending integrally formed spring members or fingers 11 equally spaced around the wall of the plug seat cup member 10. The plug seat cup member 10 is provided with an annular flange 12 which, when in position relative to the opening 4 in the plug shelf A rests against the bottom face 13 of the key shelf A. A strip 14 of suitable material such as fiber is provided with an orifice 15 through which the plug seat cup member 10 extends and is secured to the bottom face 13 of the plug shelf A to clamp the flange 12 of the plug seat cup member 10 between the strip 14 and the bottom of the plug shelf A to position the cup member 10 relative to the opening 4 in the plug shelf A. A washer 16 of pliant material such as felt rests in the bottom of the plug seat cup member 10 and an annular ring member 17 of suitable material such as fiber forms a plug seat and rests in the plug seat cup member 10 on the felt washer 16 and is held in position by means of the spring fingers 11 of the plug seat cup member 10. The base 7 of the plug P rests against the top face 18 of the annular ring 17 and an opening 19 therein of sufficient size to permit the free passage of the plug cord C but not the base 7 of the plug P. The base of the plug seat cup member 10 is also provided with an orifice 20 which permits the free passage of the plug cord C.

A plug when in use is associated with a jack in the switchboard and to return it from its operative position to its non-operative position, the operator removes the plug from the jack in which it has been inserted and then allows the cord weight associated with the plug and cord to restore the plug in the plug shelf of the switchboard. The plug in its downward travel gains velocity due to its weight and the pull exerted by the cord weight and when the same finally reaches its seat and assumes its vertical position in the plug shelf opening it engages its plug seat with considerable force. The striking of the plug base against a plug seat of the type employed in the present switch board produces a sharp click or noise which is amplified in the operator's head set and the continual noise of restoring plugs is very irritable and annoying to the operator. To obviate this noise I have devised the plug seat of my invention and having previously described its construction, I will now describe how the plug seat absorbs the shock of the blow delivered by a plug when seating itself after being restored to its non-operating position.

Referring now to Fig. 2, I illustrate the plug P in its normal or non-operative position resting in the opening 4 in the plug shelf A with its base 7 resting against the face 18 of the annular ring shaped plug seat member 17. The plug P after being in use is restored as previously described causing the base 7 of the plug P to strike the annular ring shaped plug seat 17 and the blow delivered by the plug P to the seat 17 is absorbed by the felt washer 16 against which the seat 17 rests. The absorption by the felt washer 16 of the blow delivered to the seat 17 by plug P eliminates the irritable noise that is prevalent in plug seats of the type now in use. The cushioning effect of the felt washer 16 when the base 7 of the plug P strikes the plug seat ring 17 prevents the blow delivered by the descending plug P from expending its full effect on the plug seat ring 17. There is a slight rebound when the plug P strikes the ring 17 before the plug P finally comes to rest in its vertical position, caused by the flexibility of the felt washer 16 and this cushioning effect of the felt washer 16 prevents the area adjacent the opening 19 in the ring 17 from becoming worn in a short time as is the case with plug seats of the present type.

Because of its position in the plug seat cup member 10 the felt washer 16 is not subject to wear and the up and down movement of the plug cord C prevents the felt washer 16 from becoming packed and hardened. The annular ring shaped plug seat member 17 may be readily removed thus when cords become abraded and are cut back or new cords are installed an inspection of the plug seat 17 may readily be made and if the same is worn a new seat 17 and cushion 16 if needed may be inserted. To remove a worn plug seat 17 the same is forced past the retaining spring fingers 11 from which position it may be removed and another inserted as is readily apparent from the previous description. The plug seat 17 rests against the felt washer 16 and is held in position by the spring fingers 11 but is subject to every movement of the cord C as the same passes through, in its up and down movement thus lessening the destructive cord cutting of the present plug seat.

While I have illustrated and described a preferred embodiment of my invention it is readily understood that changes and modifications will readily suggest themselves, and I therefore aim to cover all such changes and modifications as come within the spirit and scope of the appended claims.

Having described my invention what I claim as new and desire to secure by United States Letters Patent is:

1. A telephone switchboard comprising in combination, a plug shelf, a connecting plug and cord therefor and an orifice in said plug shelf for the reception of said plug, a cup member secured to said plug shelf beneath said orifice, a plug seat detachably supported in said cup member against which said plug rests, cushioning means between said seat and the bottom of said cup member, and means in

tegral with said cup member for detachably securing said seat therein.

2. A telephone switchboard comprising in combination, a plug shelf, a connecting plug and cord therefor and an orifice in said plug shelf for the reception of said plug, a cup member secured to said plug shelf in alignment with said orifice, a plug seat detachably supported in said cup member against which said plug rests and cushioning means between said seat and the bottom of said cup member, and means integral with said cup member for positioning said seat therein.

3. A telephone switchboard comprising in combination, a plug shelf, a connecting plug and cord therefor and an orifice therein for the reception of said plug, a cup member, means for securing said cup member to said plug shelf in alignment with said orifice, an annular member of pliant material in the bottom of said cup member, an annular plug seat detachably supported in said cup member against said pliant member and means integral with said cup member for detachably retaining said seat therein.

4. A telephone switchboard comprising in combination, a plug shelf, a connecting plug and cord therefor and an orifice therein for the reception of said plug, a cup member secured to said plug shelf in alignment with said orifice, an annular plug seat positioned in said cup member against which said plug rests, an annular member of pliant material between said plug seat and the bottom of said cup member for absorbing the blow of a restoring plug when engaging said plug seat.

5. A telephone switchboard comprising in combination, a plug shelf, a connecting plug and cord therefor and an orifice therein for the reception of said plug, a cup member secured to said plug shelf in alignment with said orifice, an annular plug seat positioned in said cup member against which said plug rests, an annular member of pliant material between said plug seat and the bottom of said cup member for absorbing the blow delivered to said plug seat by a restoring plug, and means integral with said cup member for detachably securing said plug seat in said cup member.

6. A telephone switchboard comprising in combination, a plug shelf, a connecting plug and cord therefor and an orifice therein for the reception of said plug, a cup member, means for securing said cup member to said plug shelf and in alignment with said orifice, an annular plug seat positioned in said cup member against which said plug rests, an annular member of pliant material between said plug seat and the bottom of said cup member for absorbing the blow delivered to said plug seat by a restoring plug and spring members integral with said cup member engaging said plug seat for detachably securing the same therein.

7. A telephone switchboard comprising in combination a connecting plug and cord therefor, a plug shelf having an orifice therein and cushioning means secured in said orifice upon which said plug rests.

8. A telephone switchboard comprising in combination a connecting plug and cord therefor, a plug shelf having an orifice therein and cushioning means detachably secured in said orifice for holding said plug.

9. A telephone switchboard comprising in combination a connecting plug and cord therefor, a plug shelf, and cushioning means secured in said plug shelf for receiving said plug.

10. A telephone switchboard comprising in combination a connecting plug and cord therefor, a plug shelf and cushioning means detachably secured in said plug shelf for receiving said plug.

Signed by me at Chicago, in the county of Cook and State of Illinois, this 4th day of January, 1928.

GEORGE R. WILLET.