G. P. KNAPP.

CONVERTIBLE CAP FOR ATTACHMENT PLUGS.

APPLICATION FILED DEC. 5, 1917.

1,275,703. Patented Aug. 13, 1918.

Fig. 1

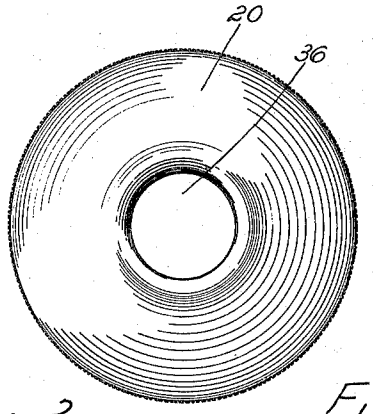


Fig. 2

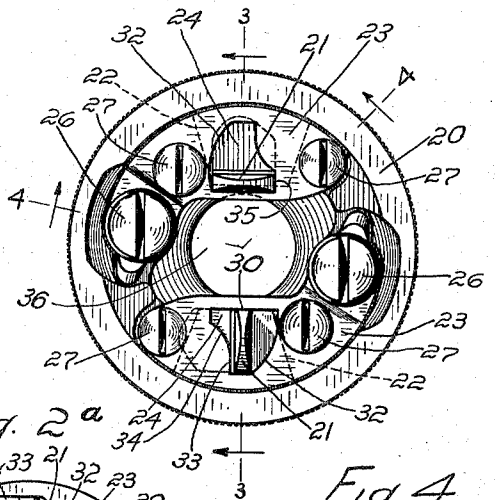


Fig. 3

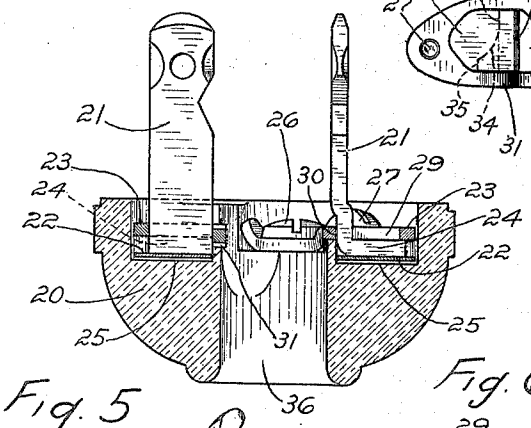


Fig. 2a

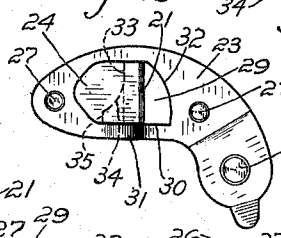


Fig. 4

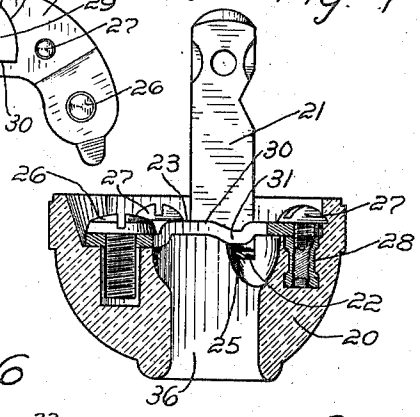


Fig. 5

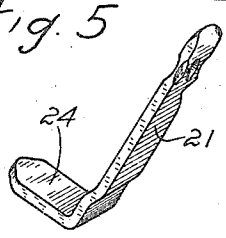


Fig. 6

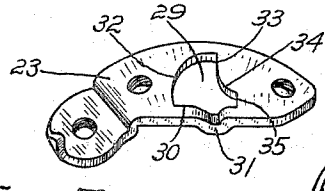


Fig. 7

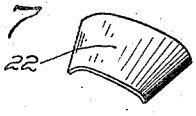


Fig. 8

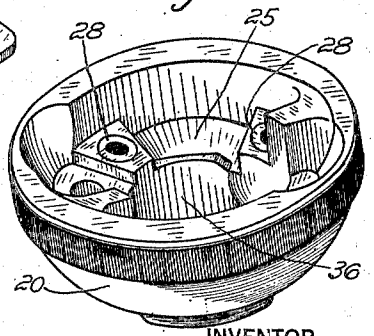


Fig. 9

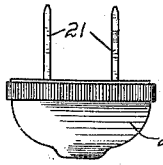


Fig. 10

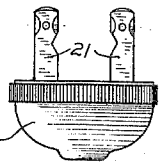
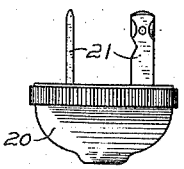


Fig. 11



INVENTOR

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BY

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UNITED STATES PATENT OFFICE.

GEORGE P. KNAPP, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO HARVEY HUBBELL, INCORPORATED, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

CONVERTIBLE CAP FOR ATTACHMENT-PLUGS.

1,275,703. Specification of Letters Patent. Patented Aug. 13, 1918.

Application filed December 5, 1917. Serial No. 205,631.

To all whom it may concern:

Be it known that I, GEORGE P. KNAPP, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Convertible Caps for Attachment-Plugs, of which the following is a specification.

This invention has for its object to provide a cap for attachment plugs (and receptacles as well) which shall be provided with floating contact blades adapted to be moved from one position to another, without detachment from the body, so as to adapt the cap for use in connection with attachment plugs having alined blade receiving slots, or parallel blade receiving slots, or polarizing blade receiving slots, that is slots adapted to receive the contact blades in polarizing position only, and likewise to make the cap readily convertible from the alined, or parallel, or polarizing type to either of the others. I am thus enabled to provide a single convertible cap adapted to serve equally well as an alined blade, or a parallel blade, or a polarizing blade cap.

With these objects in view, I have devised the novel attachment plug cap which I will now describe, the operative parts consisting of three members only, each duplicated, and all simple and inexpensive to produce.

In the accompanying drawing forming a part of this specification,

Figure 1 is a plan view, of my novel convertible plug cap,

Fig. 2 an inverted plan view, the contact blades being in the polarizing position,

Fig. 2ª a detail inverted plan view of the lower contact plate and contact blade, as seen in Fig. 2,

Fig. 3 a section on the line 3—3 in Fig. 2, looking in the direction of the arrows,

Fig. 4 a section on the line 4—4 in Fig. 2, looking in the direction of the arrows,

Fig. 5 a perspective view of one of the contact blades detached,

Fig. 6 a perspective view of one of the contact plates detached,

Fig. 7 a perspective view of one of the backing springs detached,

Fig. 8 a perspective view showing the interior of the body with the operative parts removed, and

Figs. 9, 10 and 11 are side elevations of my novel convertible plug showing, respectively the contact blades in the parallel, the alined and the polarizing positions.

20 denotes the body which is made of insulating material, 21 the movable contact blades, each provided with an angle arm 24, 22 the backing springs, and 23 the contact plates. The contact blades are not attached to any other member, but each rests upon a bowed backing spring, which lies in a recess 25 in the body. Each contact plate carries a binding screw 26 and is attached to the body by screws 27 which engage threaded plugs 28 molded into the body. The contact plates bridge recesses 25 which receive both the backing springs and the angle arms of the contact blades, the blades themselves passing through apertures 29, of special configuration in the contact plates. Each of the apertures is provided with a straight wall 30, having on its underside a lug 31, with a curved wall 32, with a backing wall 33, with a rounded bearing projection 34, and with a notch 35, opposite the curved wall. 36 denotes the usual hole in the body through which the electrical conductors, not shown, are passed.

In assembling, the backing springs are placed in recesses 25, the contact blades passed through the apertures in the contact plates, and then the contact plates and contact blades are placed in position, and the plates are secured in place by screws 27.

In use, the backing springs bear against the under side of the angle arms of the contact blades and hold them in frictional engagement with the under side of the contact plates, so that the contact blades will be retained in any position in which they may be placed. In the alined arrangement of the contact blades, as in Fig. 2ª, and at the left in Fig. 3, one edge of each angle arm will lie in engagement with a lug 31, said lug serving as a stop to limit further movement of the blade, and one face of the blade will lie against backing wall 33. This position of a blade with relation to the corresponding aperture, will, it is thought, be clearly understood from Fig. 2ª, in connection with Fig. 6. In swinging a contact blade from the alined to the parallel position, as at the right in Fig. 3, one face of the blade will pivot on projection 34 which serves as a fulcrum, one edge of the blade passing over curved wall 32 and the other

edge dropping into notch 35, this movement of the blade continuing until one face of the blade bears against straight wall 30 of the aperture, which stops further movement of the blade. In swinging a blade from the parallel position, as at the right in Fig. 3, to the alined position, as at the left in Fig. 3, the movement is simply the reverse of the one just described. One edge of the blade will pass over curved wall 32 until the face of the blade comes into contact with projection 34, when the blade will pivot on the projection as before, the edge of the blade opposite the curved wall swinging out of the notch.

This movement will continue until the face of the blade bears against backing wall 33 and one edge of the angle arm bears against lug 31, as before, which stops further movement of the blade.

In the polarizing arrangement, of the contact blades, one blade is placed in what I have termed the alined position and the other in what I have termed the parallel position. To convert the cap from the alined, or the parallel, or the polarizing position of the contact blades to either of the other positions, it is simply necessary to swing one or both blades to the required position. When the electrical conductors have been attached to the binding screws, they need never be detached in making any number of changes from one type of plug to another.

Having thus described my invention, I claim:

1. A convertible cap for attachment plugs, comprising a body, a movable contact blade having an angle arm, and a contact plate covering the angle arm and having an aperture through which the blade is passed, said aperture having a configuration adapted to permit the blade to be swung from parallel to alined position, or vice versa.

2. A convertible cap for attachment plugs, comprising a body, movable contact blades having angle arms, and contact plates covering the angle arms and having apertures through which the blades are passed, each aperture having a configuration adapted to permit the corresponding blade to be swung from parallel to alined position, or vice versa, and means for stopping the movement of the blade when swung to either position.

3. A convertible cap for attachment plugs, comprising a body, movable contact blades having angle arms, and contact plates covering the angle arms and having apertures through which the blades are passed, each aperture having a straight wall, a curved wall, a backing wall, a rounded projection and a notch, the rounded projection serving as a fulcrum for the blade in swinging from parallel to alined position, or vice versa, and the straight wall serving as a stop for the blade in the parallel position.

4. A convertible cap for attachment plugs, comprising a body, movable contact blades having angle arms, and contact plates covering the angle arms and having apertures through which the blades are passed, each aperture having a straight wall with a lug on its under side, a curved wall, a backing wall, a rounded projection and a notch, the rounded projection serving as a fulcrum for the blade, in swinging from parallel to alined position, or vice versa, and the backing wall being engaged by the blade, and the lug by the angle arm, in the alined position.

5. A convertible cap for attachment plugs, comprising a body, movable contact blades having angle arms, backing springs bearing upon the angle arms, and contact plates covering the angle arms, and having apertures through which the blades are passed, each aperture having a configuration adapted to permit swinging movement of the corresponding blade.

6. A convertible cap for attachment plugs, comprising a body having recesses, movable contact blades having angle arms, backing springs bearing upon the angle arms, said springs and arms being seated in said recesses, and contact plates covering the angle arms and springs and having apertures through which the blades are passed, said apertures permitting swinging movement of the contact blades.

7. An attachment plug cap having movable contact blades provided with angle arms, springs bearing on the angle arms, and stops for the blades in either the alined or parallel position.

In testimony whereof I affix my signature.

GEORGE P. KNAPP.