No. 835,427. PATENTED NOV. 6, 1906.

C. H. HILL.

RECEPTACLE.

APPLICATION FILED FEB. 11, 1905.

Fig. 1.

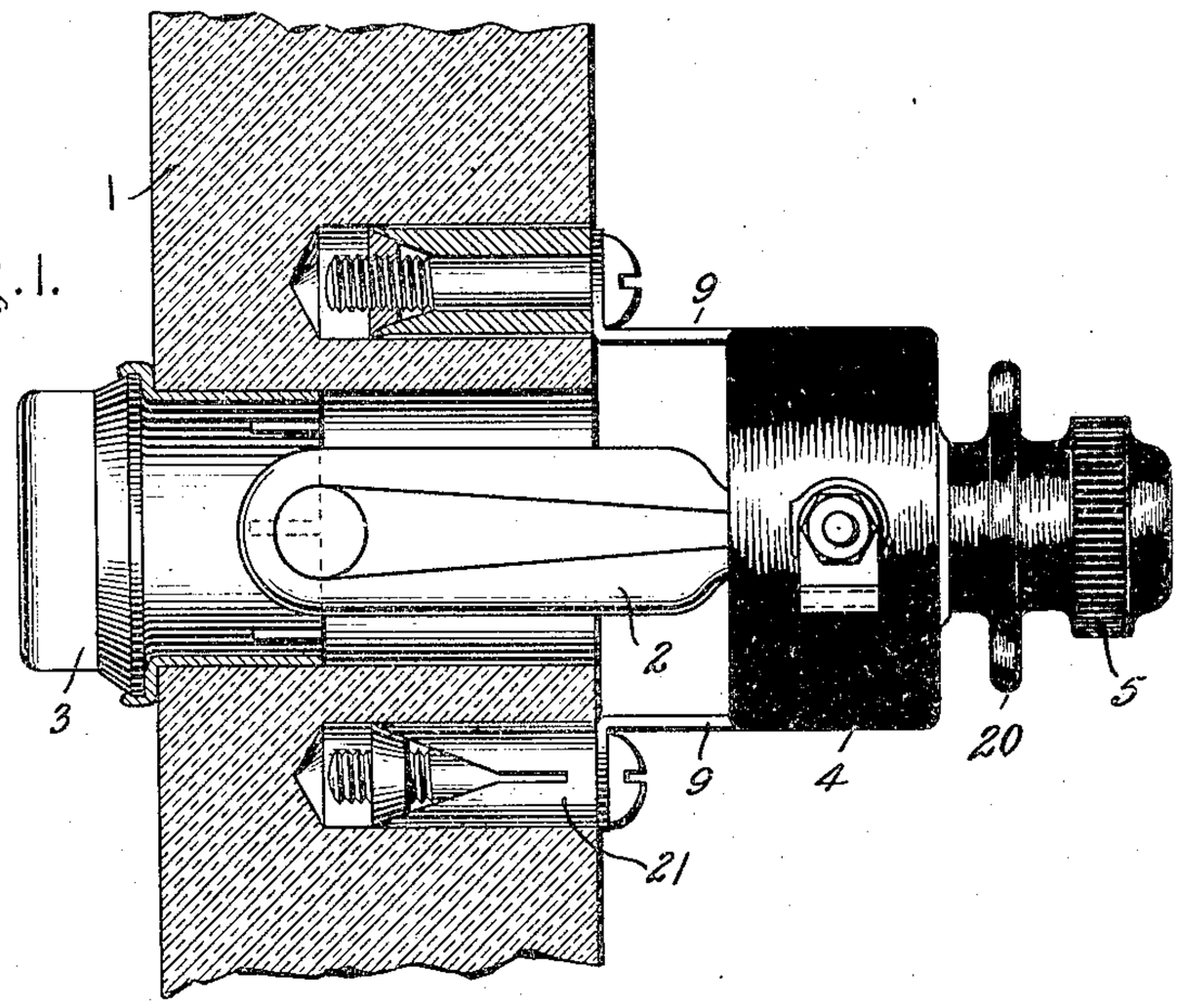


Fig. 2.

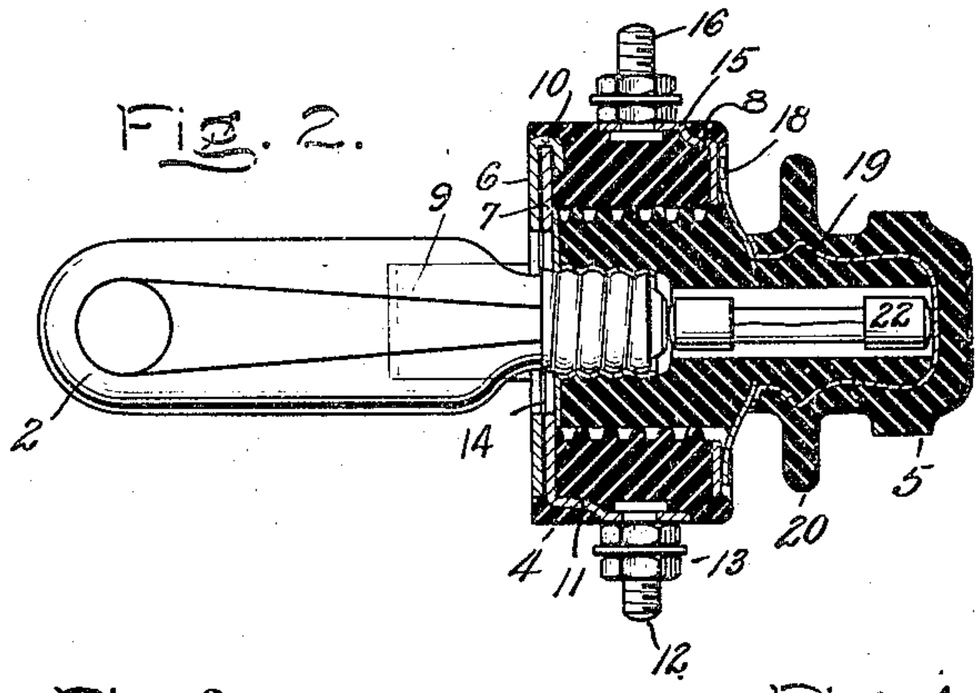


Fig. 3.

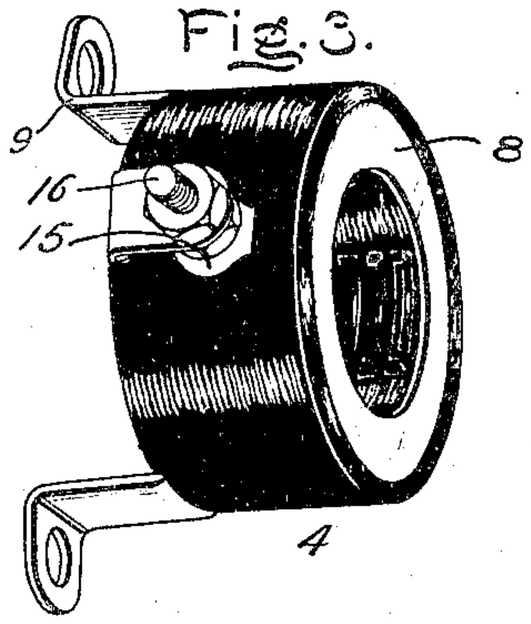
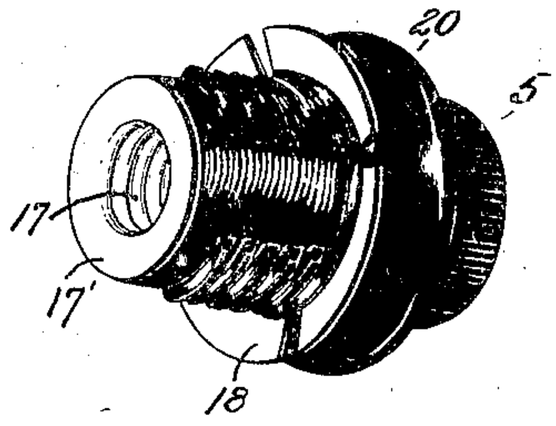


Fig. 4.



WITNESSES:
George H. Thurston.
Helen Alford

INVENTOIR:
Charles H. Hill,
By Albert G. Davis
Atty.

UNITED STATES PATENT OFFICE.

CHARLES H. HILL, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

RECEPTACLE.

No. 835,427. Specification of Letters Patent. Patented Nov. 6, 1906.

Application filed February 11, 1905. Serial No. 245,204.

To all whom it may concern:

Be it known that I, CHARLES H. HILL, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Receptacles, of which the following is a specification.

This invention relates to receptacles for incandescent lamps, with special reference to receptacles used for lamps for signaling purposes.

My improved receptacle is particularly adapted for lamps used on the switchboards of central stations to indicate the condition of circuits and especially to indicate the condition of large electrically-operated oil-switches, which are commonly located at a distance from the switchboard, only the wires of the control-circuit being carried to the board. It has become the common practice in such cases to provide a small double-throw switch on the switchboard to close in either direction or open the control-circuit for operating the large oil-switch and two signal-lamps, one showing a green and one a red light, which are cut into and out of circuit automatically to indicate that the large switch is open or closed. These indicating-lamps are usually mounted on the back of the panel of the switchboard, and the light shows through openings therein covered with suitably-colored lenses. For supporting these lamps it is desirable to have a receptacle which permits of the removal of the lamp for purposes of inspection or renewal from the back of the switchboard without interfering in any way with the electrical connections or risking a short-circuit on the control-circuit. My improved receptacle is designed particularly to fulfil these conditions; but I wish it understood that the features of my invention may be employed in sockets and receptacles for widely different uses.

The construction of my improved receptacle will be better understood by reference to the following description, taken in connection with the accompanying drawings, which show the preferred embodiment of my invention, and in which—

Figure 1 is an elevation of the receptacle, Fig. 2 is a section of the same. Fig. 3 is a perspective view of the holder, and Fig. 4 is a similar view of the plug which coöperates therewith.

The features of novelty which I believe to be characteristic of my invention will be definitely indicated in the claims appended hereto.

Referring to the drawings, 1 indicates a panel of a switchboard, having an opening therethrough into which the end of the signal-lamp 2 extends. At the front of the board the opening is closed by a suitably-colored lens 3. The receptacle consists of a holder 4, secured to the back of the board, and a plug 5, which fits into the holder. These two parts are of molded insulating material, having the necessary metallic parts held therein in proper relation. Molded in the holder 4 are three metallic rings 6, 7, and 8. The ring 6 has two integral extensions 9, which are bent, as shown in Figs. 1 and 3, to form feet for supporting the receptacle, and three projecting ears 10. The ring 7 is provided with an integral projection 11, which is bent, as shown in Fig. 2, and secured to an outwardly-extending bolt 12, on which are nuts and washers 13 for securing a wire to the bolt, and thus making electrical connection to one terminal of the receptacle. The rings 6 and 7 are insulated from each other by a mica washer 14, and the projecting ears 10 on the ring 6 and similar ears on the mica washer are bent over the ring 7, as shown in Fig. 2, to hold the two rings together rigidly, but insulate the ring 6, which is exposed and might be touched by the attendant. The ring 8 has a projecting portion 15, similar to the projection 11 on the ring 7, to which a bolt 16 is secured. This bolt is also provided with nuts and washers for securing a wire thereto by which electrical connection is made to the other terminal of the receptacle. Extending through the holder 4 is a bore, longitudinal sections of which are threaded, as shown in Fig. 3. This thread is not a continuous one throughout all the sections; but instead each section of threads is a duplicate of all the other sections. The opening in the ring 8 is the same size as the bore through the holder; but the opening in rings 6 and 7 is smaller than the bore and just large enough to permit of introducing the lamp 2 through it.

The plug 5 is also of molded insulating material and has a screw-threaded shell 17 held in its end to receive the threaded base of the signal-lamp 2. On the outer end of this shell is a flange 17′, which covers the entire

end of the plug, so that when the plug is inserted in the holder this flange makes contact with the ring 7. The end of plug 5 is provided with sectional threads to correspond with the threads in the bore of the holder 4. Molded within the plug 5 is a washer 18, of spring metal, the inner edge of which is soldered to a metallic connecting-piece 19. The middle portion of this piece forms the back of a long bore extending almost through the plug 5. The end of the plug is knurled, as shown in Fig. 1, and a flange 20 is formed in the plug to prevent accidental contact with the washer 18.

The receptacle is secured to the back of the panel by screws extending through openings in the feet 9. For this purpose I prefer to use expansion-bolts 21, as shown in Fig. 1, in order that openings need not be made entirely through the panel. The circuit-wires of the lamp are attached to the bolts 12 and 16 by means of the nuts thereon. A small inclosed fuse 22, such as that shown in Fig. 2, is dropped in the bore of the plug 5, and the base of the lamp 2 is screwed into the shell-contact 17 until the center contact on the base of the lamp engages the end of the fuse 22. The end of the lamp 2 is inserted through the bore in the holder 4, and the plug 5 is then turned until the threaded sections thereon are opposite the smooth sections of the bore of the holder. As the several sections of threads are duplicates of each other, there are several positions in which the plug will fit into the holder, and therefore only a partial turn of the plug is necessary to bring the parts to this relation. The plug is then pushed into the bore until the spring-washer 18 touches the ring 8 and is then turned until the coöperating threads on the plug and the bore of the holder draw the plug into the holder so far that further movement is prevented by the shell 17 engaging the ring 7 and the spring-washer 18 engaging the ring 8. The circuit of the lamp through the receptacle is then completed, it being from the bolt 16 through the projection 15 to ring 8, then to washer 18, connecting member 19, fuse 22, to the center contact of the lamp, then through the lamp to the shell-contact to shell 17, flange 17′, ring 7, and projection 11 to bolt 12.

It will be seen that if it is desired to remove the lamp in order to inspect it or replace it with a new one it is only necessary to give the plug 5 a partial turn and pull it and the lamp carried thereby through the bore in the holder 4; also, that this is done without disturbing any of the electrical connections. When a new lamp has been inserted in the shell 17 of plug 5, the lamp and plug may be quickly returned to their former positions. In addition to these advantages forming the plug and holder of molded insulating material with the metallic parts held therein in proper relation greatly reduces the cost of production.

The construction which I have shown and described herein may be changed in many details without departing from the spirit of my invention, and all such modifications I consider within the scope of my invention, and I aim to cover them in the claims appended hereto.

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

1. The combination with a panel having an opening therethrough, of an electric-lamp holder secured to said panel and having an opening in line with said panel-opening, a plug having a lamp secured in electrical contact therewith adapted to fit into said holder, said lamp adapted to pass through said holder and into said panel-opening, and coöperating contacts in said plug and holder.

2. The combination with a panel having an opening therethrough, of an electric-lamp holder secured to one side of said panel and having an opening in line with said panel-opening, a plug having a lamp secured in electrical contact therewith adapted to fit into said holder, said lamp passing through said holder and into said panel-opening, coöperating contacts in said plug and holder, and a transparent covering for the opposite side of said panel-opening.

3. The combination with a panel having an opening therethrough, of an electric-lamp holder secured to one side of said panel but out of contact therewith and having an opening in line with said panel-opening, a plug having a lamp secured in electrical contact therewith adapted to fit into said holder, said lamp passing through said holder and into said panel-opening, and coöperating contacts in said plug and holder.

4. The combination with a panel having an opening therethrough, of an electric-lamp holder secured to one side of said panel but out of contact therewith and having an opening in line with said panel-opening, a plug having a lamp secured in electrical contact therewith adapted to fit into said holder, said lamp passing through said holder and into said panel-opening, coöperating contacts in said plug and holder, and a transparent covering for the opposite side of said panel-opening.

5. A receptacle for an electric lamp comprising an annular holder, a plug provided with means whereby it may be secured within said holder and in electrical contact therewith, and a lamp secured in electrical contact with the inner end of said plug and adapted to be withdrawn therewith from the holder.

6. A receptacle for an electric lamp comprising an annular holder having contact-plates at opposite sides thereof, a plug provided with correspondingly-arranged con-

tacts, a lamp screwed into electrical contact with one end of said plug, an electrical conductor between one of said contact-plates and the interior of the plug at its opposite end, and a fuse secured in place between said lamp and said conductor by the pressure of the lamp.

7. A receptacle for an electric lamp comprising an annular holder having contact-plates at opposite sides thereof, a plug having correspondingly-arranged contacts and provided with means whereby it may be secured within said holder, a lamp screwed into electrical contact with one end of said plug and adapted to be withdrawn therewith from the holder, an electrical conductor between one of said contact-plates and the interior of the plug at its opposite end, and a fuse secured in place between said lamp and said conductor by the pressure of the lamp.

In witness whereof I have hereunto set my hand this 9th day of February, 1905.

CHARLES H. HILL.

Witnesses:

BENJAMIN B. HULL,

HELEN ORFORD.