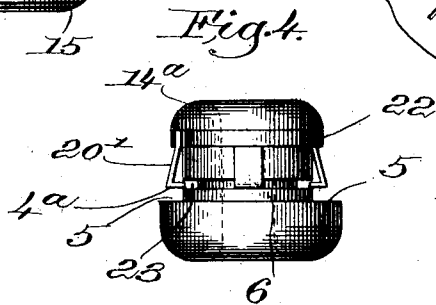
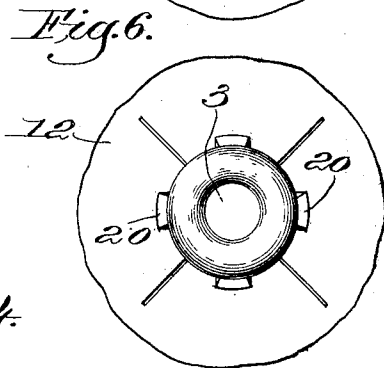
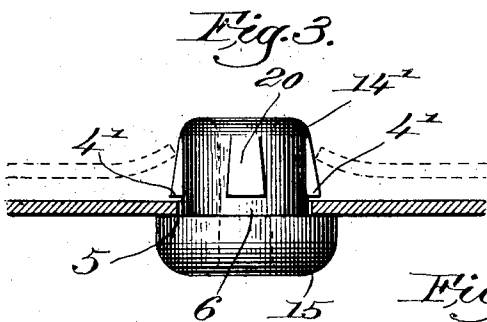
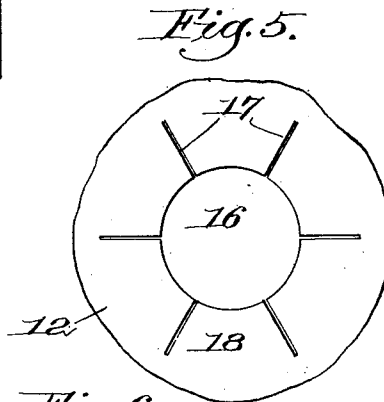
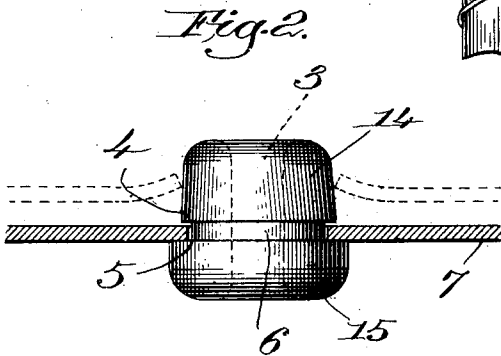
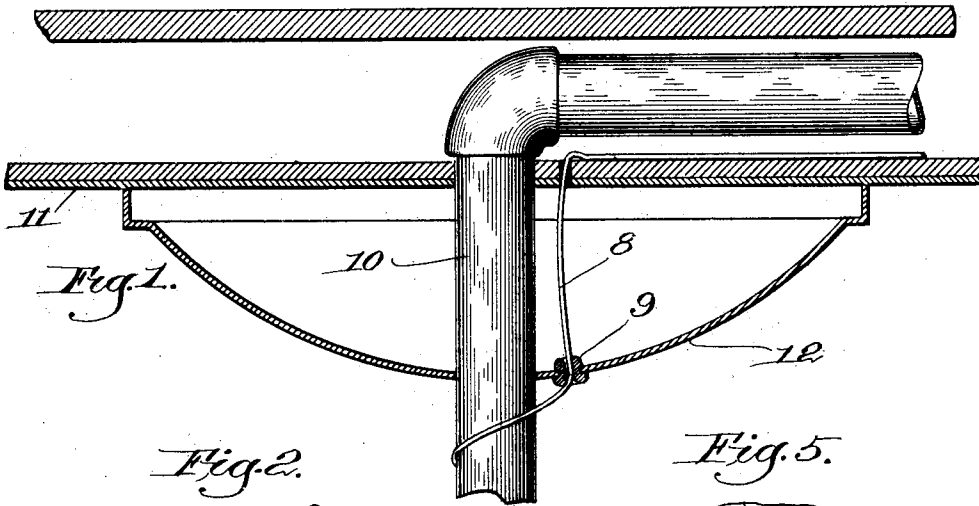


J. A. COLE.
INSULATING BUSHING.
(Application filed Aug. 10, 1901.)

(No Model.)



Witnesses:
Adolph S. Kaiser
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Inventor:
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UNITED STATES PATENT OFFICE.

JOHN APPLETON COLE, OF BOSTON, MASSACHUSETTS.

INSULATING-BUSHING.

SPECIFICATION forming part of Letters Patent No. 684,909, dated October 22, 1901.

Application filed August 10, 1901. Serial No. 71,587. (No model.)

To all whom it may concern:

Be it known that I, JOHN APPLETON COLE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Insulating-Bushings, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

In gas-fixtures which have an electric-lighting attachment connected to the burner it is customary to bring the wire for carrying the current to the lighting attachment through an aperture in the canopy of the gas-fixture, the said wire being wound about the gas-pipe and taken to the burner. It has been found in practice, however, that the sharp edge of the metal of the canopy at the aperture where the wire is taken through is very liable to cut through the insulation on the wire, and when this occurs the current is short-circuited through the canopy and gas-pipe and the electric-lighting attachment to the burner is of course inoperative.

It is the object of my invention to provide an insulating-bushing which may be inserted in an aperture in the canopy of the gas-fixture and through which bushing the wire may be carried, the said bushing serving to insulate the wire from the canopy and prevent the insulating thereon from becoming cut.

Figure 1 shows the manner in which my bushing is applied. Figs. 2, 3, and 4 show different forms of my bushing. Figs. 5 and 6 show one manner of slitting the canopy to allow of the bushing being inserted.

My device comprises a bushing having on its periphery oppositely-disposed shoulders, between which the material of the canopy is received, and the exterior surface of the bushing at one end is provided with conical portions, the said end of the bushing forming a conical nose which is adapted to be inserted in the opening through the canopy. One of the parts—that is, either the bushing or the canopy—is provided with a yielding portion where the two engage as the bushing is being inserted into the aperture in the canopy, whereby the said bushing may be forced through the aperture until the material is re-

ceived between the opposed shoulders thereon.

Fig. 1 shows the way in which my device is used, and in said figure, 10 indicates the gas-pipe, which is carried through the ceiling of the room and to which the gas-burners are attached in the usual way. The canopy 12 is of any usual construction and has inserted therein the bushing 9, preferably made of any suitable insulating material, through which bushing the wire 8, which leads to the gas-lighting attachment, passes.

In the form of my invention shown in Fig. 2 the bushing, which has the usual central aperture 3 therein, (shown in dotted lines,) has on its exterior the opposed shoulders 4 and 5, forming between them a neck portion 6 of a proper diameter and width to receive the metal of the canopy 7, the said metal being confined between the shoulders 4 and 5. The end 14 of the bushing is shown as slightly conical, the same forming a conical nose which is forced through the aperture in the canopy. The opposite or head end 15 of the bushing may be of any suitable shape, as shown.

In order to insert the bushing shown in Fig. 2 into the canopy, I provide the same with a suitable aperture 16 (see Fig. 5) and cut a series of substantially radial slits 17 in the said canopy to leave a series of yielding tongues 18. In putting the bushing in place the nose portion 14 is inserted through the aperture 16 in the canopy, the tongues 18 yielding, as shown in dotted lines, Fig. 2, and when the bushing has been fully inserted the tongues 18 are sprung into the groove 6, as shown in full lines, Fig. 2, thus retaining the bushing in place.

Fig. 3 shows a slightly-different form of my invention, wherein the nose portion 14' instead of conical and having a continuous surface, as in Fig. 2, has on its exterior a series of substantially conical surfaces, shown as being formed by a series of tapering ribs 20. The thickened ends of the ribs form the shoulders 4', which correspond to the shoulders 4 in Fig. 2, and between the shoulders 4' and the shoulder 5 is the neck 6, as in the modification above referred to. In other respects the device shown in Fig. 3 is the same as that

shown in Fig. 2, and it is inserted and held in the canopy 12 in the same manner. Instead of making the yielding portion between the engaging faces of the canopy and the bushing in the canopy as in Figs. 2 and 3, I may provide my bushing with a yielding portion, as shown in Fig. 4, and in this embodiment of my invention the nose portion of the bushing carries a series of yielding shoulders which correspond in function to the shoulders 4 and 4' of the other modifications, the said shoulders yielding as the bushing is inserted in the aperture in the canopy and springing out over the material of the canopy when the bushing is in place. One convenient way of making the yielding shoulders on the bushing is shown in Fig. 4, wherein the nose portion 14^a has secured thereto a series of spring-catches 20', having the shoulders 4^a, which are opposed to the shoulders 5. The catches 20' may be of any suitable elastic material and are shown as having an inclined surface, one end being secured to the nose portion by the band 22 and the other end being bent to form the shoulder 4^a and being received in a suitable groove 23. The neck 6, between the shoulders 4^a and 5, receives the material of the canopy, as in the other modification. With this form of the invention it is unnecessary to provide the canopy with the slits 17; but instead the bushing may be forced into the aperture in the canopy, the spring catches or shoulders 4^a yielding to permit this action and springing out over the canopy when the bushing is in place.

A bushing constructed as above described can be easily and inexpensively manufactured and also may be readily inserted in the canopy, and the construction is such that it does not in any way disfigure the canopy or gas-fixture, while at the same time it prevents the cutting of the insulating on the wire by the sharp edge of the apparatus through the canopy.

It will be obvious that the shoulders 4^a may be constructed to yield in a great variety of ways, and I do not desire to be limited to the precise construction illustrated in Fig. 4.

It will also be obvious that the other forms of my invention may be changed in minor details without departing from the spirit of my invention as expressed in the following claims.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A plate of metal or other material having an aperture therein, combined with a bushing inserted in said aperture, said bushing having on its periphery oppositely-disposed retaining-shoulders between which the plate is confined, one of said parts being yieldable whereby the bushing may be forced into the aperture.

2. A plate of metal or other material having an aperture therein, combined with a bushing inserted in said aperture, said bushing having on its periphery oppositely-disposed retaining-shoulders between which the plate is confined, the portion of the bushing between said shoulders being of substantially the same diameter as the aperture, one of said parts having a yielding portion whereby the bushing may be forced into the aperture.

3. An insulating-bushing for a gas-fixture canopy having a conical nose portion at one end and a head portion at the other, the said bushing between said nose and head portions having a neck of reduced diameter adapted to receive the material into which the bushing is inserted.

4. An insulating-bushing for a gas-fixture canopy having on its periphery opposed shoulders adapted to receive between them the material into which the bushing is to be inserted, the exterior surface of said bushing having substantially conical portions at one end whereby the said bushing may be inserted into an aperture in the material.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN APPLETON COLE.

Witnesses:

LOUIS C. SMITH,
JOHN C. EDWARDS.