

No. 684,736.

Patented Oct. 15, 1901.

A. J. WURTS.
BUSHING.

(Application filed Mar. 23, 1901.)

(No Model.)

Fig. 1.

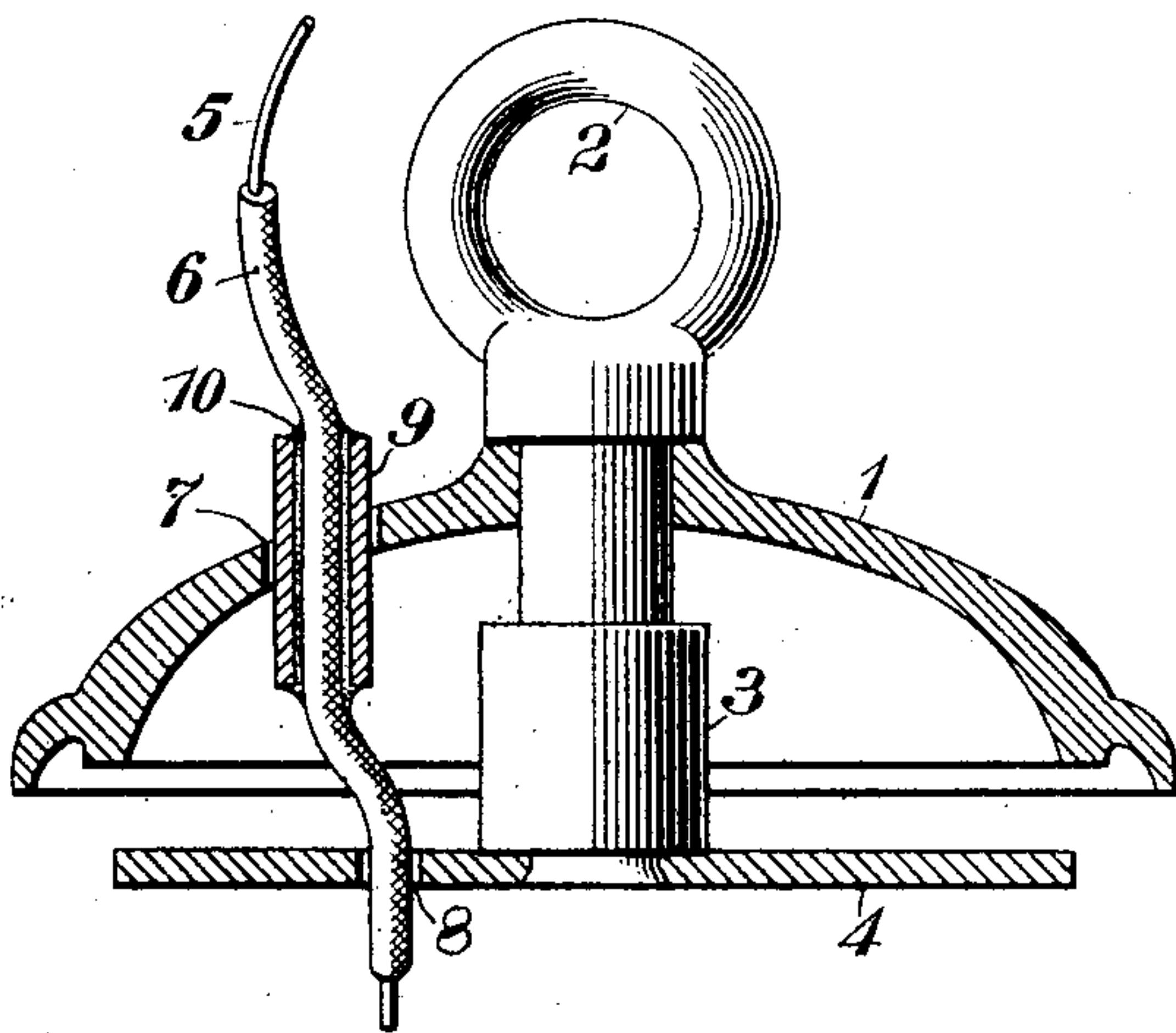


Fig. 2.

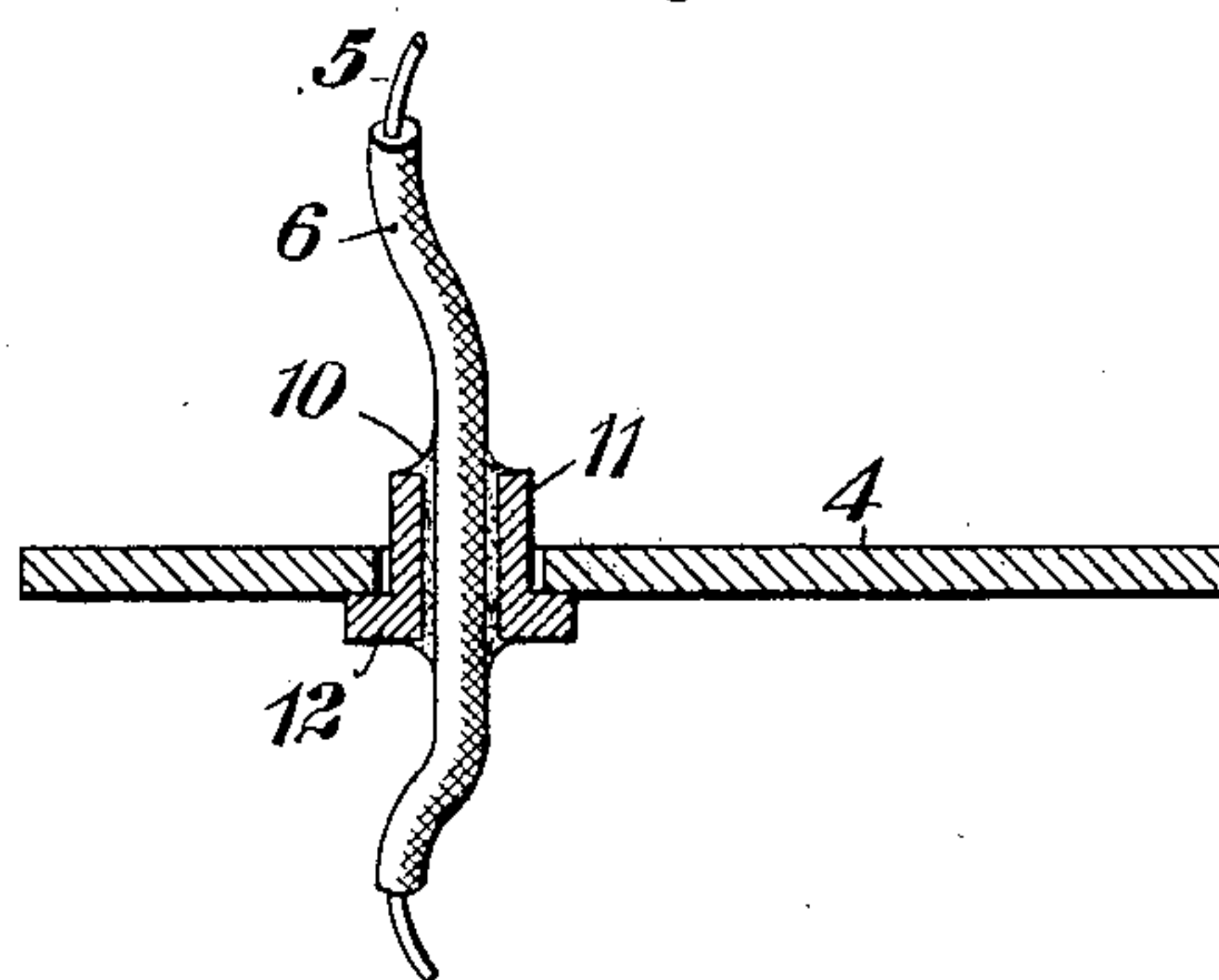


Fig. 3.

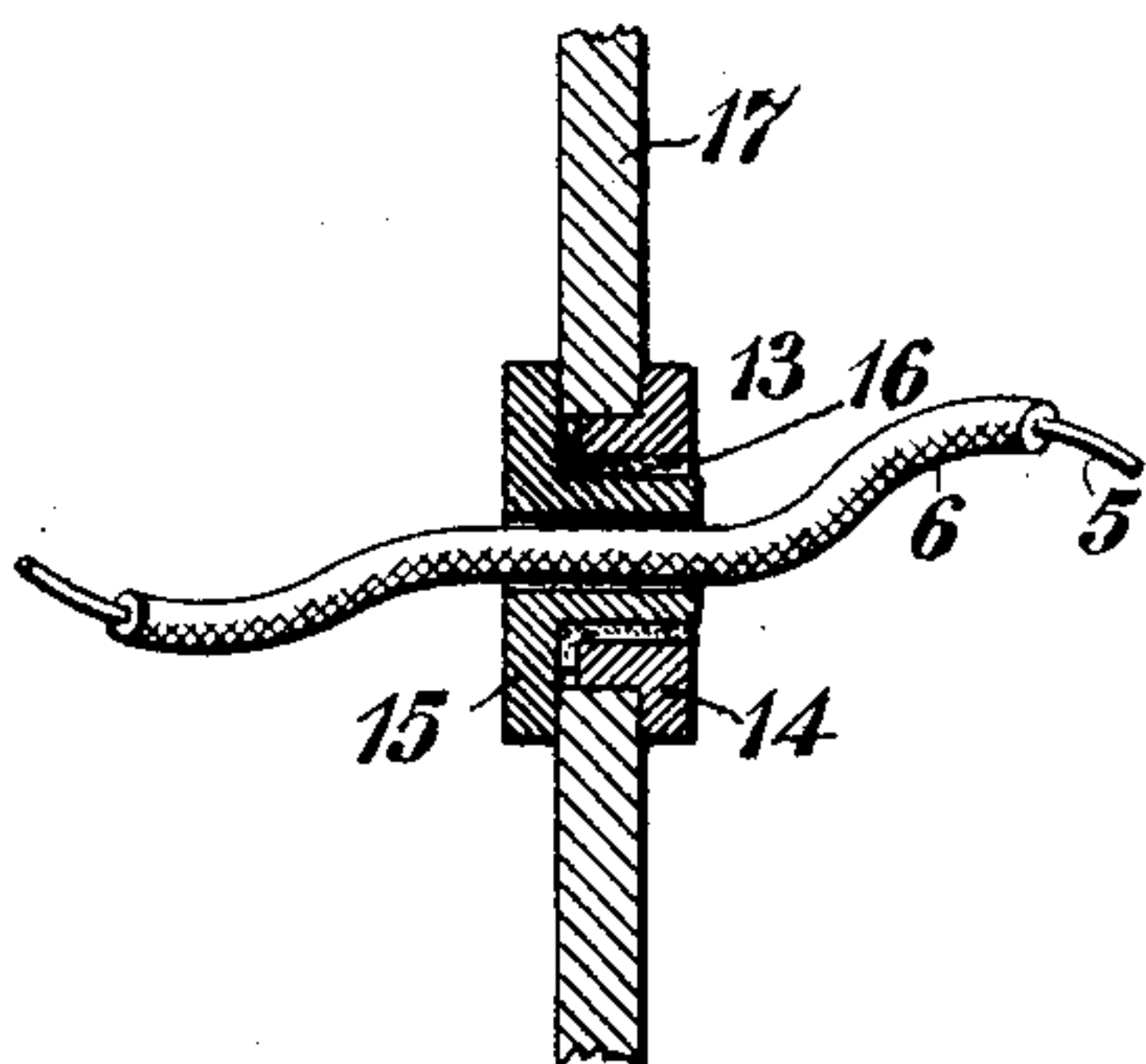
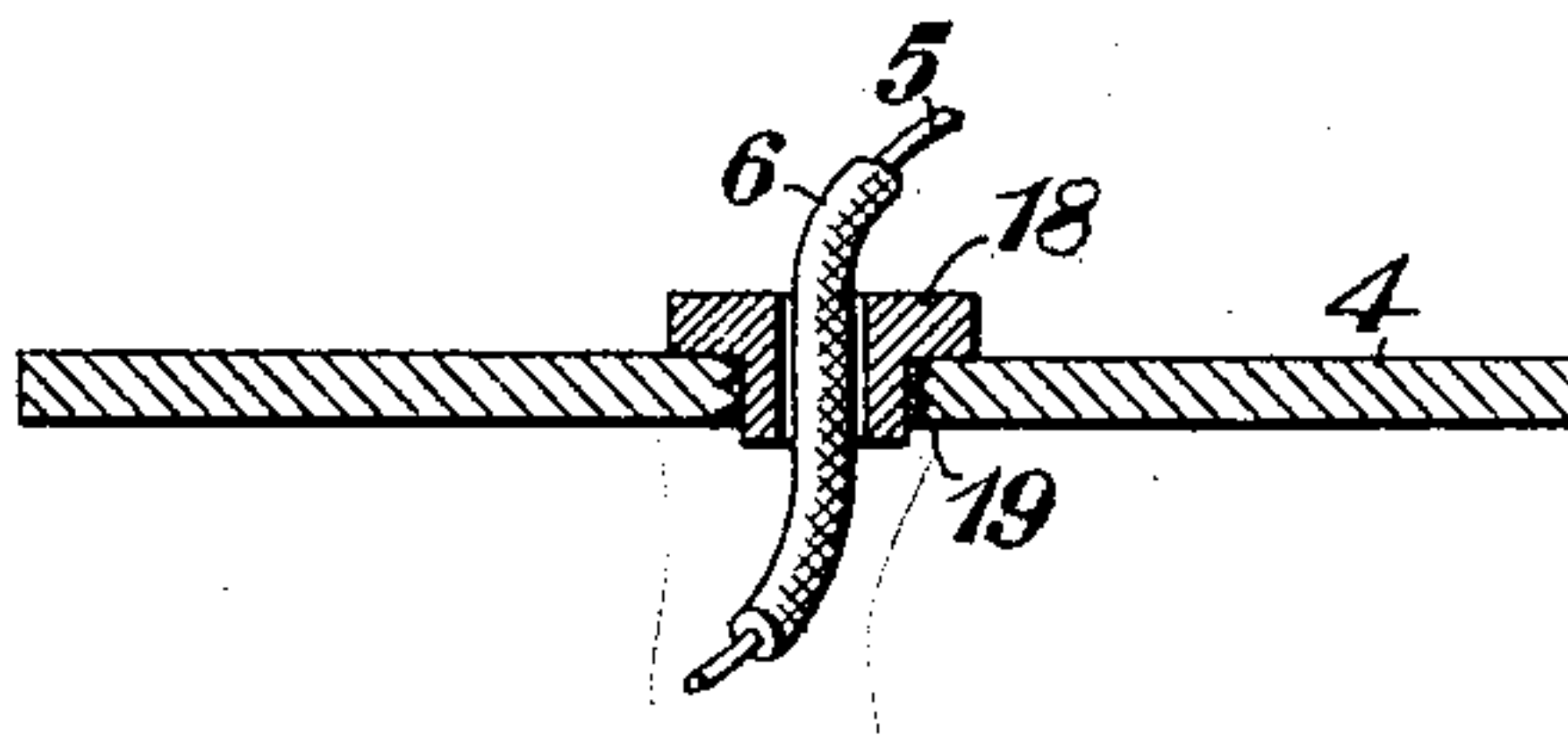


Fig. 4.



WITNESSES:

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ALEXANDER JAY WURTS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO
GEORGE WESTINGHOUSE, OF SAME PLACE.

BUSHING.

SPECIFICATION forming part of Letters Patent No. 684,736, dated October 15, 1901.

Application filed March 23, 1901. Serial No. 52,647. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER JAY WURTS, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Bushings, of which the following is a specification.

My invention relates to bushings, and has particular reference to devices of this general character which are employed in connection with electric conductors.

The object of my invention is to provide a device of the character indicated which shall be so constructed and combined with the electrical conductor in connection with which it is used as to prevent abrasion of the insulation.

A further object of my invention is to provide a simple and effective means for supporting bushings.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view of a portion of an electric-lamp structure provided with one form of my invention. Fig. 2 is a detail sectional view of a modified form of my invention. Figs. 3 and 4 are views similar to Fig. 2, but illustrating two additional modifications.

Heretofore bushings employed in electrical apparatus for protecting the insulation of electric conductors from abrasion by reason of contact with the walls of openings through which they project have usually been provided with a single flange located at one end of the bushing, and where the flange has been located below the opening, as was often the case in electrical apparatus, the bushing tended to move downward along the conductor, and after a time, if this movement were not prevented, it would get sufficiently out of position to be of no use for the purpose intended. Attempts have been made to prevent this movement of the bushing by winding tape around its body portion and the adjacent portion of the conductor. This has been found to be an unsatisfactory expedient, because of the liability of the bushing to work loose. It is also practically useless in connection with apparatus which is subjected to high temperatures.

In order to avoid the difficulties heretofore experienced, I have devised the means illustrated in the drawings.

In Fig. 1 the part 1 is the cap-piece of an electric-lamp housing and is provided with a supporting-ring 2 and with a downwardly-projecting rod or post 3, upon the lower end of which is mounted a plate 4, which may serve as a support for the operating parts of the lamp. The leading-in wire 5, provided with an insulating-covering 6, projects through an opening 7 in the cap 1 and also through a small opening 8 in the plate 4.

In the case of lamps provided with removable housings or removable caps more or less frequent removals of such parts are likely to be made in order to inspect or repair the inclosed mechanism. Such removals are liable to more or less seriously damage the insulation of the leading-in wires if no bushings are employed or if bushings are so fastened as to slide over the insulation.

In order to avoid injuries to the insulation by reason of relative movement between an insulated wire and a metal body through which it projects, I provide a bushing 9, of insulating material, and securely fasten it to the insulation 6 by means of a suitable cement 10. I have found in practice that a bushing of porcelain fastened to the insulation 6 by means of a cement made of whiting and water-glass is admirably adapted for the service indicated, though other materials may be employed, if desired. It will also be usually found desirable to employ a bushing that is unglazed over that portion to which the cement is applied.

It will be readily seen that if there is any relative movement between the wire 5 and the cap-piece 1 the resulting rubbing action will take place between the walls of the opening 7 and the bushing 9 unless the movement should be so great as to draw the bushing completely out of the opening 7, in which case the opening would be of sufficient size to permit of relative movement without injury to the insulation 6.

The construction is obviously adapted to other apparatus than lamps, and it will also be understood that a similar bushing 9 may be located at the point where the wire passes

through the opening 8, if desired, provided the opening be made large enough to accommodate such bushing.

In many cases where leading-in wires have been fastened to binding-posts or other internal mechanism it has been found necessary to tie knots in the wires in order that they may carry the weight of the apparatus.

In any case where it is deemed desirable to provide means for supporting the weight of a lamp or other structure upon the leading-in wires I provide such wires 5 with a bushing 11, as shown in Fig. 2, that is fastened to the insulation 6 by means of a suitable cement 10, as already set forth in connection with what is shown in Fig. 1. In this instance, however, I provide the lower end of the bushing 11 with a flange 12, so that it may engage with the bottom face of the plate 4, and thus support the plate and any apparatus that may be attached thereto.

The constructions illustrated in Figs. 1 and 2 and already described are especially useful where the leading-in conductors are so heavy and crooked that it would be difficult to slide bushings over them. With the type of bushing here shown there is no difficulty in removing the caps or plate without disturbing the conductor, since the opening normally occupied by the bushing is of much larger diameter than the conductor.

In case it is found desirable to provide a bushing that shall be held permanently in a given position, so that the insulated conductor may move therethrough, I may provide the construction shown in Fig. 3, in which the bushing 13 for the conductor 5, having an insulating-covering 6, comprises two flanged telescoping parts 14 and 15, fastened together by means of a body of suitable cement 16. The flanges of the parts 14 and 15 rest against opposite sides of the plate 17, through which the insulated wire projects. A bushing is thus provided which is firmly secured in position without any possibility of accidental displacement or removal. A slightly-simpler form of device for securing substantially the same results is shown in Fig. 4, in which a bushing 18 is provided with a single flange that rests upon the top of the plate 4, the hole through the plate being threaded and a body of cement 19 filled into the hole around

the body of the bushing, so as to hold it firmly in position. The threaded feature might be omitted, but this adds somewhat to the security of attachment between the plate 4 and the bushing.

My invention is obviously susceptible of modifications other than those indicated, and I desire it to be understood that the invention is not limited except as limitations may be imposed by the prior art. The apparatus in connection with which the invention is used may also be different from anything shown in the drawings or specifically described.

I claim as my invention—

1. An electric conductor provided with a bushing cemented thereto.
2. An insulated electric conductor having a cylindrical bushing and a body of cement interposed between the bushing and the insulated covering.
3. The combination with a body having an opening, of an insulated electric conductor projecting through said opening and having a non-conducting bushing surrounding and cemented thereto.
4. The combination with a metal body having an opening, of an insulated electric conductor projecting through said opening and having a flanged non-conducting bushing surrounding the same and cemented thereto.
5. A non-conducting bushing for electric conductors held in position by a body of cement.
6. A flanged non-conducting bushing for use with electric conductors and cemented to the body which supports it.
7. A flanged non-conducting bushing for use with electric conductors and a body of cement for holding the bushing in definite position with reference to its support.
8. A non-conducting bushing for electric conductors comprising two telescoping flanged members and a body of cement interposed between said members.

In testimony whereof I have hereunto subscribed my name this 20th day of March, 1901.

ALEXANDER JAY WURTS.

Witnesses:

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MARSHALL W. HANKS.