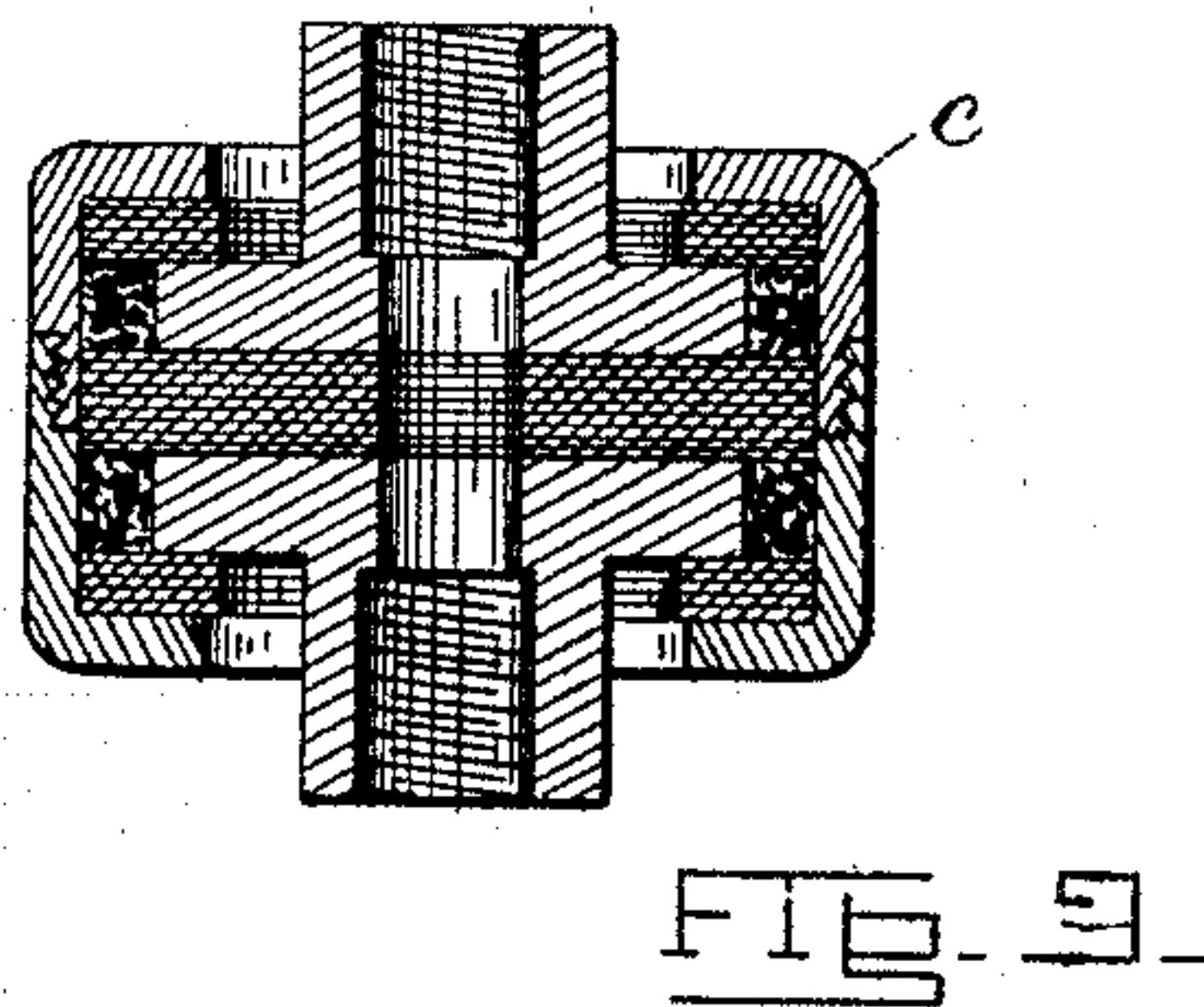
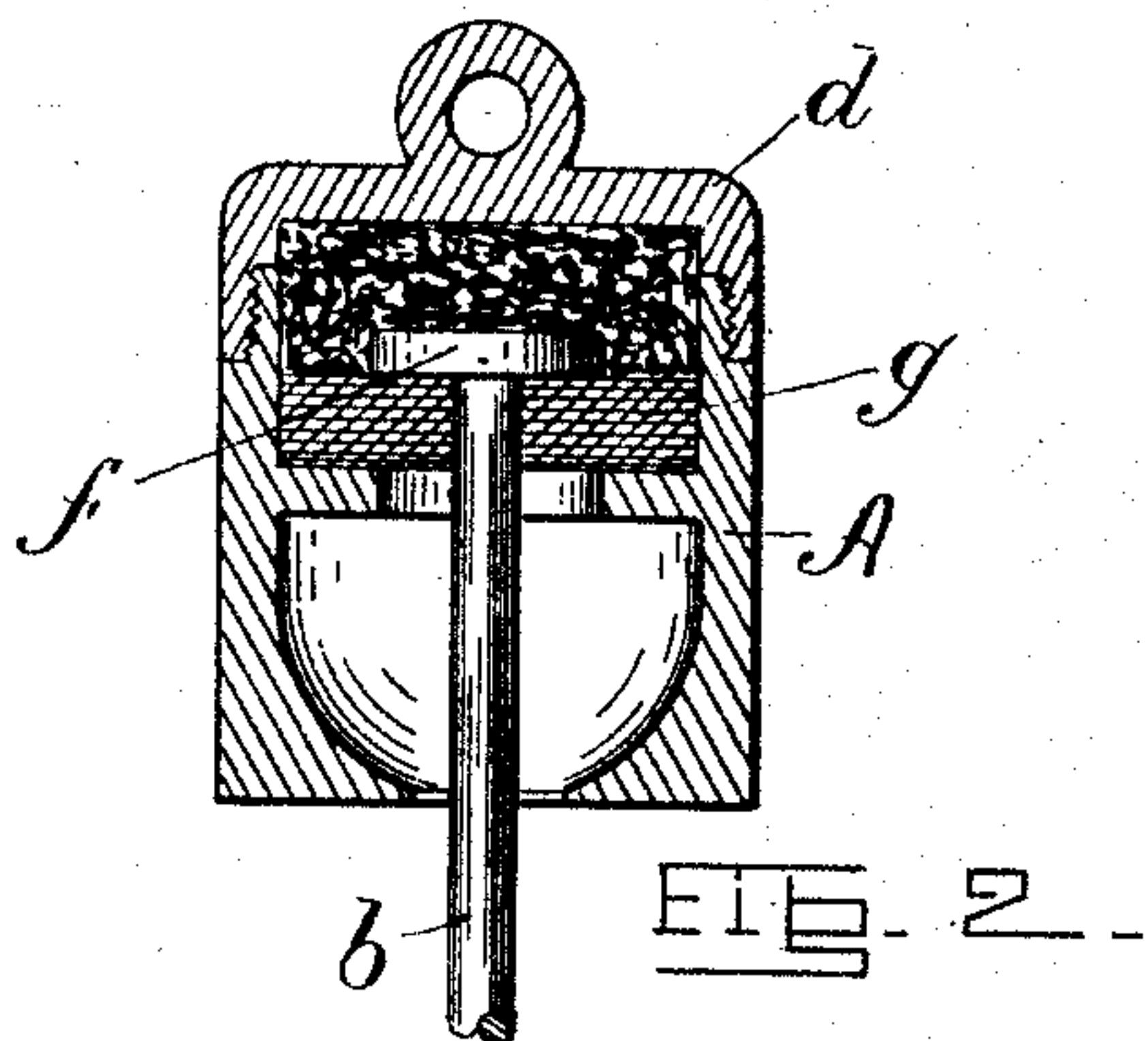
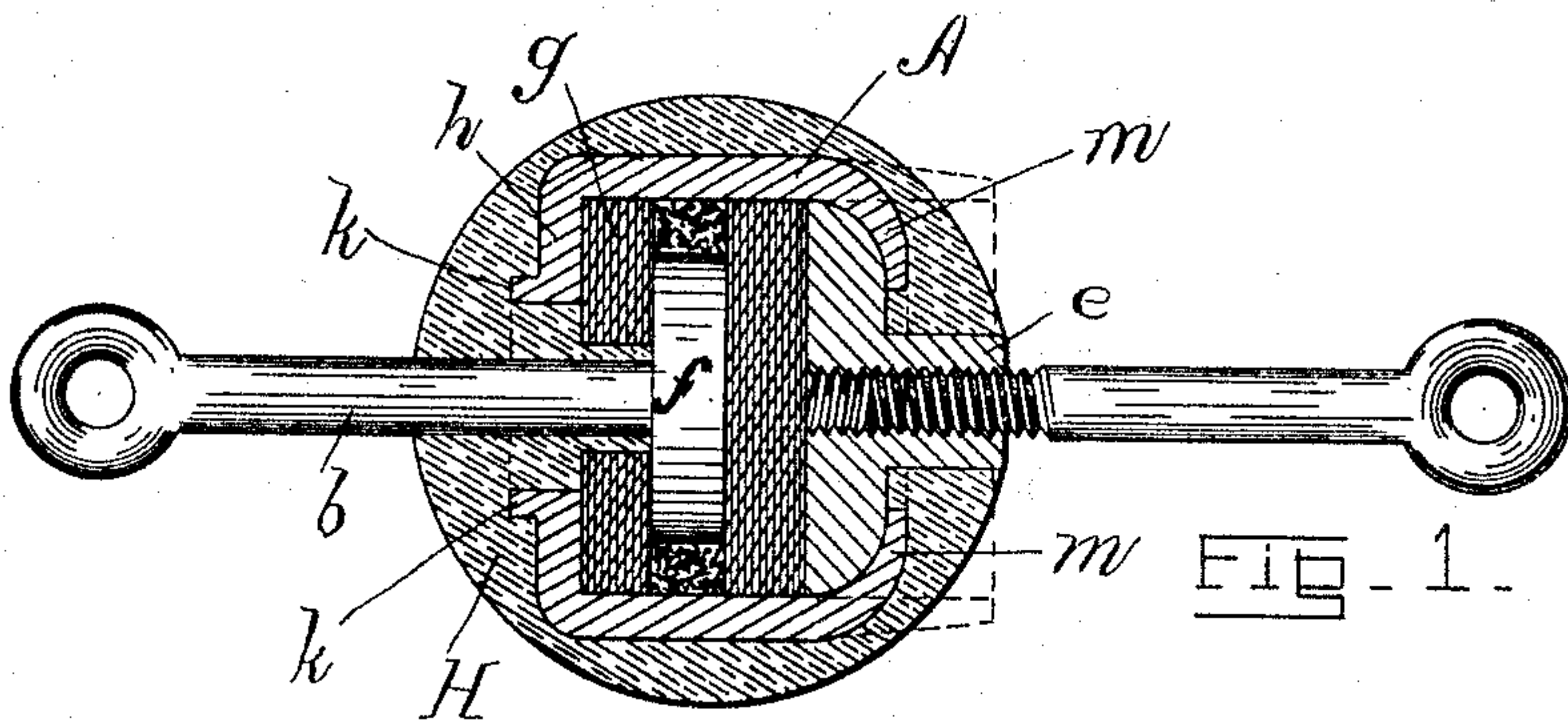


(No Model.)

L. McCARTHY.  
INSULATOR.

No. 490,302.

Patented Jan. 24, 1893.



WITNESSES.

Arthur F. Raudall.  
Robert Wallace.

INVENTOR

Louis M. Carthy  
By Mackord Calver & Raudall  
his attorneys.



# UNITED STATES PATENT OFFICE.

LOUIS MCCARTHY, OF BOSTON, MASSACHUSETTS.

## INSULATOR.

SPECIFICATION forming part of Letters Patent No. 490,302, dated January 24, 1893.

Application filed July 8, 1892. Serial No. 439,379. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS MCCARTHY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Insulators, of which the following is a specification, reference being had therein to the accompanying drawings.

My present invention is an improvement on that shown and described in Letters Patent, No. 449,943, dated April 7, 1891, granted to me. I have found that a considerable portion of the expense of constructing an insulator made in accordance with said patent is attendant upon the cutting and fitting of the rings or washers of mica which surround the connecting piece or bolt.

The object of my present invention is to provide an insulator as durable and efficient as that set forth in my said patent above referred to which may be more easily and cheaply constructed, and it consists chiefly in replacing a portion of the sheet mica employed to insulate the connecting piece with comminuted or flake mica, which is pressed and compacted around the said connecting piece, as hereinafter set forth.

My invention embraces certain other details of construction hereinafter set forth.

The novel features of my device are pointed out in the claims which are appended hereto and made a part hereof.

In the accompanying drawings I have shown my invention as embodied in three forms of insulators.

Figure 1 is a sectional view of a strain insulator such as is employed in the overhead construction of electric railways. Fig. 2 is a similar view of a trolley wire insulator or "pull-off." Fig. 3 is a similar view of a pipe insulator or coupling.

The invention will be readily understood from the following description in which reference is made to the drawings.

A is a shell or case of metal or other suitable material and which may be of any desired shape. The shell or case is open at one end to accommodate the bolt or connecting piece *b*. The other end of the shell or case may either be open and provided with a retaining ring screwed thereto as shown at *c*,

Fig. 3, or it may be closed by means of a cap as shown at *d* Fig. 2 or this end of the case may be turned over a flanged nipple as shown at *e*, Fig. 1. These changes depend upon the use to which the insulator is to be applied and are well-known in the construction of such insulators. The connecting piece *b* is provided with a head *f* which lies within the case A. A number of sheets of mica *g* which have a central aperture cut therein are strung on the connecting piece *b* adjacent the head thereof and serve to separate the head of the connecting piece from the flange *h*, at the open end of the case A, the sides of the head *f* are surrounded by comminuted mica, or mica which has been ground or broken into small fragments. This comminuted mica is then packed and pressed firmly and solidly around the head *f* to insulate the head from the case. This filling of comminuted mica is inexpensive and may be readily placed in the shell or case around the head of the connecting piece and then tamped down or firmly compacted in any suitable manner and it serves as a solid and effective insulation which may be readily and cheaply obtained and put in place. A series of sheets of mica are then employed to fill up the remaining space within the shell or case A, or this space may be filled by the ground or comminuted mica as shown at Fig. 2. The shell or case is then closed by screwing on the cap *d* or by inserting the nipple *e* and pressing down the end of the shell or case thereon as shown at *m*, Fig. 1. The position of the end of the shell A before it is turned down over the nipple is shown by dotted lines Fig. 1. The sheets of mica *g* which are strung on the connecting piece *b* may either come in contact with the connecting piece as shown Fig. 2 or the aperture in said sheets may be made of a considerably larger diameter than the diameter of the connecting piece *b* as shown Fig. 1. In this latter case I prefer to embed the insulator in an outer molded covering H of insulating composition which is molded while in a plastic state around the insulator and then allowed to harden. When this is done the material of the outer covering will flow into and fill the space at the opening in the case A and between the sheets of mica *g* and the connecting piece *b* protecting the whole



from moisture and the effects of atmospheric change.

At *k* Fig. 1, I have shown an annular projection at the opening of the case A which serves not only to secure the outer molded covering H but also as a brace to take any lateral strain to which the insulator may be subjected and to thus hold the connecting piece *b* stiffly and strengthen it against lateral strain.

10 An insulator similar in construction to the one herein shown and described is disclosed in an application for Letters Patent filed by me August 8, 1892, No. 442,418 to which reference is hereby made.

15 What I claim is:—

1. An insulator comprising a case, a metallic connecting piece placed therein, insulating material consisting of comminuted mica and sheet mica surrounding said piece to insulate the same from said case, said sheet mica being interposed between the connecting piece and the open end of the said case, substantially as set forth.

2. An insulator comprising a case, a headed connecting piece placed therein, a series of

30 sheets of mica interposed between the head of the connecting piece and the end of said case to insulate the connecting piece therefrom and a mass of comminuted mica surrounding the head of the said connecting piece to insulate the sides thereof from the said case, substantially as set forth.

3. An insulator comprising a case, a headed connecting piece placed therein, a series of sheets of mica surrounding said connecting piece adjacent the head thereof, and a mass of mica surrounding the other portions of the connecting piece to insulate the same from said case, and an exterior molded covering surrounding the case and filling the opening therein and the space between the connecting piece and the surrounding sheets of mica, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS MCCARTHY.

Witnesses:

WM. A. MACLEOD,  
ROBERT WALLACE.