(No Model.)

L. McCARTHY.

INSULATOR.

No. 491,729. Patented Feb. 14, 1893.

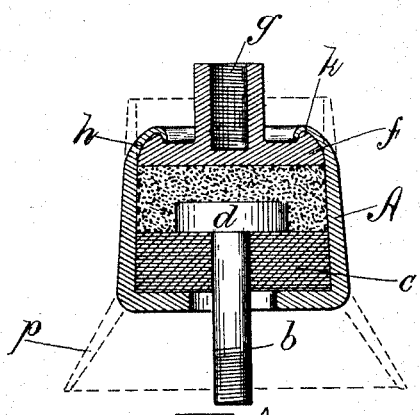

FIG. 1.

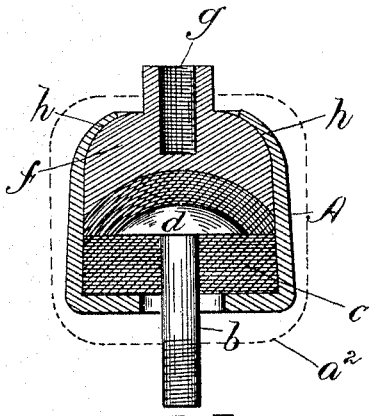

FIG. 2.

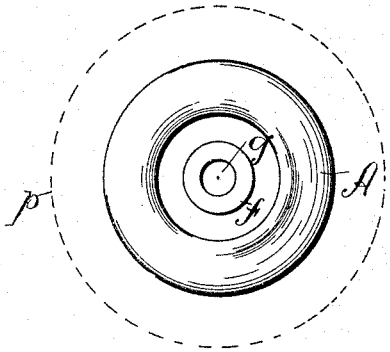

FIG. 3.

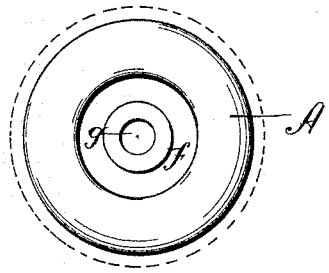

FIG. 4.

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UNITED STATES PATENT OFFICE.

LOUIS McCARTHY, OF BOSTON, MASSACHUSETTS.

INSULATOR.

SPECIFICATION forming part of Letters Patent No. 491,729, dated February 14, 1893.

Application filed August 8, 1892. Serial No. 442,418. (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.

Insulators have previously been constructed which employ a metallic case within which the suspending or connecting piece has been placed and from which said piece has been insulated by means of mica or similar material. The insulating material has been packed within the case and the cap or end piece of the case has then been secured in position in a suitable manner usually by bolting the cap to the case or by screwing it thereon. The value and efficiency of the insulation obtained by the employment of mica either comminuted or in sheets is increased substantially in proportion to the solidity with which the mica is packed or compressed. Under very heavy pressure a mass of mica may be made practically solid so that although composed of a large number of pieces it appears like one piece and will ring like glass when struck. Moisture will not pass through such a solidified mass; it is very strong and its insulative quality is very high.

Difficulty has been experienced in constructing an insulator, the parts of which are insulated in a thorough and effective manner by compressed or solidified mica and especially to do so quickly and cheaply.

My invention has for its object to produce such an insulator and it consists more particularly in the manner in which the parts of the case which contain the mica insulation are constructed and put together, all as hereinafter set forth.

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

In the drawings, Figure 1 is a vertical central section of one form of insulator embodying my improvement. Fig. 2 is a similar view of a slightly modified form of insulator. Figs. 3 and 4 are plan views of the insulators shown in Figs. 1 and 2 respectively.

Having reference to the drawings, A is a metallic case, preferably of substantially cylindrical form open at one end and having an aperture at the other end to accommodate the connecting piece *b*, a portion of which is contained within the case and which is insulated therefrom by a surrounding mass of mica *c*. The original shape of the open end of the case A is shown by dotted lines. The connecting piece *b* is preferably headed as shown at *d*, and a number of sheets of mica which have been cut to fit the interior of the case A and which are provided with a central aperture to accommodate the stem of the connecting piece *b* are strung on the connecting piece next the head thereof. The connecting piece with the mica sheets or disks strung thereon is then placed within the case A and the space around the head of the connecting piece and above the same is filled with a sufficient amount of mica either comminuted or in the form of sheets as may be desired. Comminuted mica is nearly or quite as efficient for this purpose as sheet mica and is less expensive and more easily handled.

In Fig. 1 the space around and above the head of the connecting piece is filled with ground or comminuted mica while in Fig. 2 the head of the connecting piece is convex and the space between it and cap *f*, which is correspondingly concave, is filled with sheets of mica. A cap or follower *f* which may have a screw socket as shown at *g*, for the reception of a bolt or connection and which is beveled or rounded at the edge as shown at *h*, is placed within the open end of the case A and is preferably in contact with the mica within the case. The insulator is then placed in a suitable press and is subjected to a high degree of pressure. I have employed a pressure of of thirty tons. The parts of the press are fitted to bend or turn the open end of the case A over the edge of the cap *f*, and the edge of the cap being beveled or rounded the end of the case as it is bent over forces the cap or follower *f* downwardly onto the mica and the mica is compressed or solidified under great pressure. When the mica has been compressed as much as it can be by the pressure used the cap will come to a bearing and the end of the case which has been gradually bent as the cap has been forced downwardly will be found to be turned down forming a bead over the raised

portion *k*, of the cap or follower, or if the cap or follower be made without the raised portion *k* as in Fig. 2 the end of the case will be turned smoothly over the edge of the cap. In this way the mica insulation is not only compressed and solidified in a very effective manner but the cap or follower is firmly secured in place while the mica is under compression, a tight joint is formed between the cap and the case and the whole neatly finished. This insulator may be provided, as indicated by the dotted lines a^2, Fig. 2, with an outer covering of insulating composition to more effectively insulate the exterior portions of the metallic parts and to protect them from the effects of weather, moisture &c., as also to improve the appearance of the finished device and the insulator may be made in various forms as for example a central aperture may be provided through the metallic portions and the interior mica insulation and the device may then be employed as an insulative coupling for pipes and the like.

It will be noted that the walls of the case are thinned down somewhat at the end where the cap *f* is inserted; this is for the purpose of facilitating the turning of the end over the cap.

In case the insulator is to be used as a trolley wire insulator it may be provided, if desired, with a skirt or projection such as is commonly employed in such insulators and which may be either secured to the case or be integral therewith as indicated by dotted lines at *p*.

I do not desire to limit myself to the use of mica as an insulating material as ground glass and some other substances of similar character might be employed. I have used mica however and consider it preferable to any other substance now known to me.

An insulator similar in construction to the one herein shown and described is disclosed in an application for Letters Patent filed by me July 8, 1892, Serial No. 439,379, to which reference is hereby made.

What I claim is:—

1. An insulator comprising a case adapted to contain a connecting piece, an insulating material for insulating said connecting piece from said case, and a cap for said case said cap having beveled or rounded edges and being secured in place by bending or turning the case over the edges of said cap, substantially as set forth.

2. The process herein described of constructing an insulator which consists in employing a case, a connecting piece contained therein and a mass of insulating material surrounding said connecting piece within said case to insulate said piece therefrom, then placing a cap having beveled or rounded edges within said case and then subjecting the whole to pressure to compress and solidify the insulating material within the case and bend and set the end of the case over the cap to secure it in place while the insulating material is under compression, substantially as shown and described.

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

LOUIS McCARTHY.

Witnesses:
WM. A. MACLEOD,
ROBT. WALLACE.