(No Model.) 2 Sheets—Sheet 1.

L. McCARTHY.

INSULATOR.

No. 449,943. Patented Apr. 7, 1891.

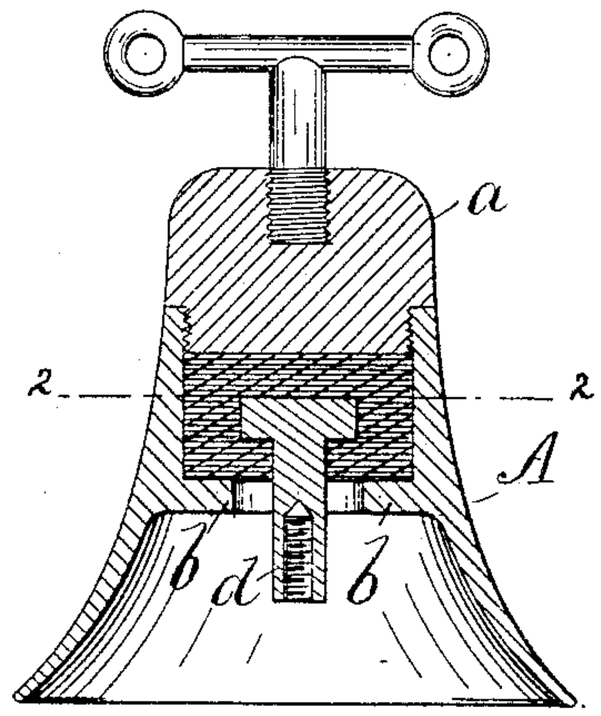

Fig. 1.

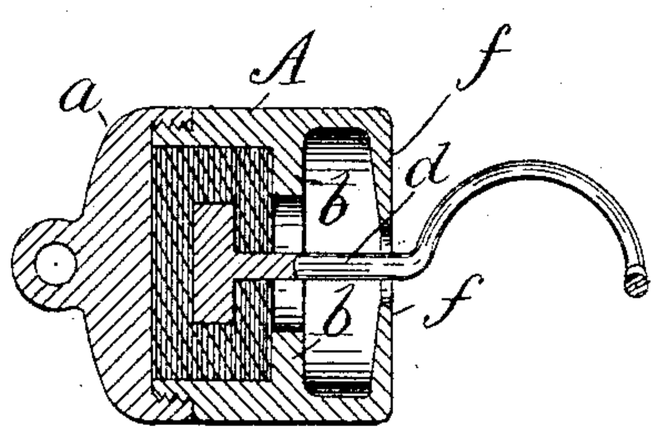

Fig. 3.

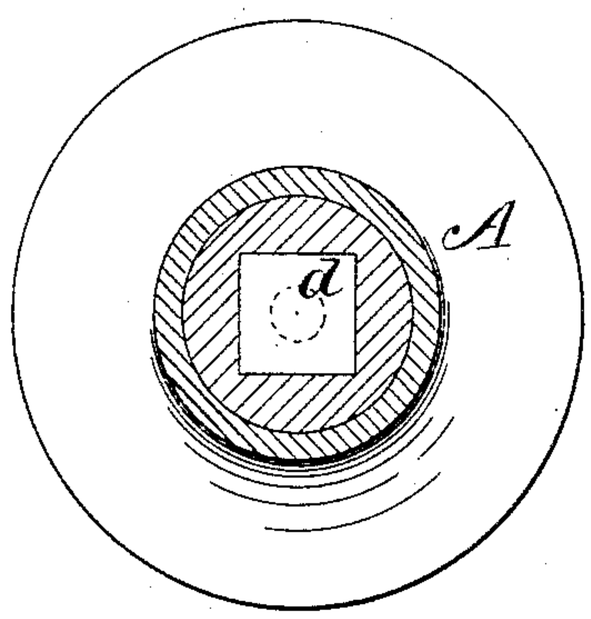

Fig. 2.

WITNESSES.

Robert Wallace.

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his atty

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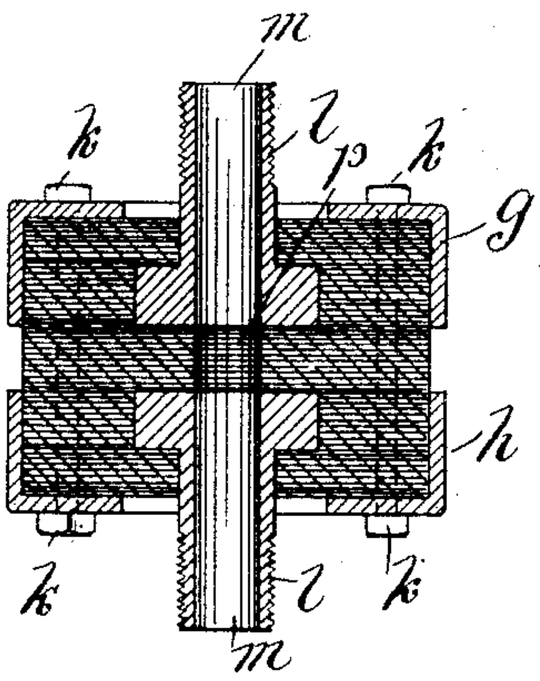

Fig. 4.

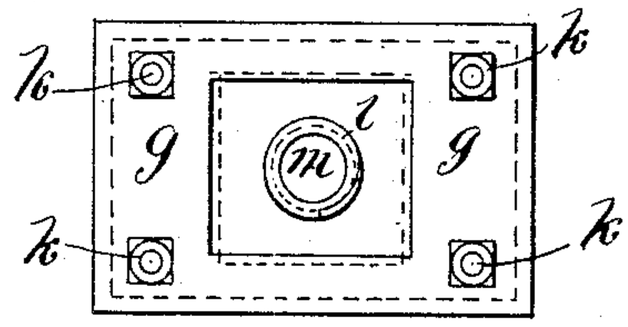

Fig. 5.

WITNESSES.

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UNITED STATES PATENT OFFICE.

LOUIS McCARTHY, OF BOSTON, MASSACHUSETTS.

INSULATOR.

SPECIFICATION forming part of Letters Patent No. 449,943, dated April 7, 1891.

Application filed January 16, 1891. Serial No. 377,982. (No model.)

To all whom it may concern:

Be it known that I, LOUIS MCCARTHY, of Boston, county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Insulators, of which the following is a specification, reference being had to the drawings accompanying and forming a part hereof, in which I have shown my invention in the best form now known to me.

Figure 1 is a section showing my invention embodied in a line-insulator for electric-railway purposes. Fig. 2 is a section on line 2 2, Fig. 1. Fig. 3 is a section showing my invention as embodied in a pull-off insulator for electric railways. Fig. 4 is a section showing my invention as embodied in an insulator for gasaliers or combined gasaliers and electroliers. Fig. 5 is a plan view of the device shown, Fig. 4.

My invention has for its object an insulator for electrical purposes which shall be cheap, durable, strong, and efficient; and it consists of an insulator the metallic or conductive parts of which are separated by layers or sheets of mica laid together, as hereinafter set forth, and as is more particularly pointed out in the claim which is appended hereto, and which forms a part hereof.

My improved insulator is simple and easily constructed, and will be readily understood from the following description.

A is a bell-shaped piece of metal or other suitable material such as is commonly employed for line-insulators. The upper portion or cap *a* of the bell is adapted to be screwed into the lower portion, as shown. To the cap arms or other projections may be secured, by means of which the insulator is held in place in the well-known manner. The bell below the cap is hollow and is provided at *b* with a flange or rib projecting inwardly, as shown. The bolt *d*, having a head of any desired shape, is provided with a number of layers or sheets of mica, each of which is perforated to receive the bolt, a sufficient number of sheets being used to fully insulate the head of the bolt from the bell. The cap *a* being removed, the bolt and the sheets of mica are then placed in the bell, the mica resting on the flange *b*. Other pieces of mica of the right shape and having a perforation or hole therein corresponding in size and shape to the head of the bolt are then placed in the bell around the head of the bolt, a sufficient number of sheets being used to fill up the space around the sides of the bolt-head to a level with the top thereof. The space above the bolt-head is then filled with other sheets of mica cut to proper size to fit snugly the inside of the bell, a sufficient number of sheets being used to fill the space between the top of the bolt-head and the cap *a*. The sheets of mica are thoroughly compressed and compacted either before insertion or afterward, forming a solid mass of great strength and durability and of high insulating quality. The cap is then screwed on and the insulator is ready for use. As will be obvious, the size and shape of the parts may be changed, so as to give a greater or less thickness of insulating material between the bolt *d* and the bell and to adapt the shape and size of the device to the conditions under which it is to be used. The skirt of the bell is allowed to project downwardly to shed the moisture, and in this way an insulator of great excellence and durability is produced.

At Fig. 3 I have shown a modification of my insulator adapted for use as a pull-off insulator. The construction is, however, substantially the same, as will be obvious, with the exception of the addition of a second flange or inward projection *f* outside of the projection *b*, which serves to more effectually shed the moisture when the device is used in a horizontal or substantially horizontal position, as is generally the case with pull-off insulators.

As will be clear, my device may be readily adapted to insulators of other forms and for other purposes than those above mentioned.

At Fig. 4 I have shown an insulator for gasaliers, which may be used to insulate the gasalier from the gas-supply pipe in cases where the gasalier is also provided with electric lights or insulation for any purpose is desired. In this case the bell-shaped case is changed in form, and consists, simply, of two caps or frames *g h*, which serve to hold the layers of mica together by the aid of the bolts *k*, which pass through the caps and through the mica. The pieces *l*, which correspond with the bolt *d*, have an aperture *m* through them, and there is a corresponding aperture through the

central portion of the mica, as shown at *p*, so that the gas may pass from the pipe to the gasalier. The piece marked *l*, Fig. 4, and the bolt *d*, Fig. 1, are merely forms of the metallic connection or support which is insulated and the precise shape of which will depend on the purposes for which the insulator is to be used.

In constructing an insulator for gasaliers, as shown, Fig. 4, it is desirable that the sheets of mica be laid together firmly by strong pressure and the bolts *k* inserted and secured while the mica is under pressure, in order that the mass of mica may be made as solid as possible to prevent the leakage of the gas. I deem it also desirable to check leakage of the gas by using varnish or a similar substance between the sheets and around the gas-passage, as also around the embedded portions of the pieces *l*. When such means are used, less pressure is necessary in firmly setting the sheets of mica together. The cap *a*, Figs. 1 and 3, is shown and I have described it as screwed onto the bell or holder A. It will be obvious, however, that it may be secured to the bell in any other well-known way.

What I claim is—

An insulator comprising a bell or case adapted to hold a series of sheets of mica, a metallic supporting-piece placed therein, and a series of sheets of mica surrounding said piece and adapted to insulate the same from said bell or case, substantially as and for the purposes set forth.

LOUIS McCARTHY.

Witnesses:
ROBERT WALLACE,
C. E. NOLTE.