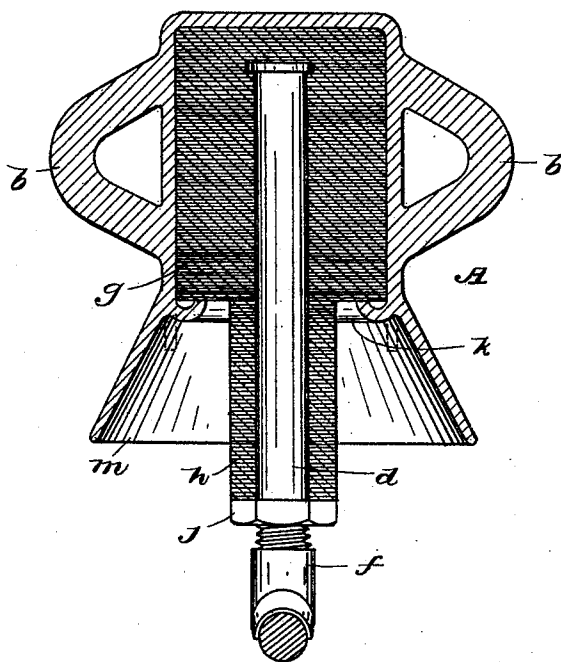


(No Model.)

C. T. LEE.
INSULATOR.

No. 467,942.

Patented Feb. 2, 1892.



WITNESSES.

Robert-Wallace,
A. H. Morrison

INVENTOR,

Charles Tennant & Lee
by
MacLeod Colverson & Randall
his attys.

UNITED STATES PATENT OFFICE.

CHARLES TENNANT LEE, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO THE GOULD & WATSON COMPANY, OF SAME PLACE.

INSULATOR.

SPECIFICATION forming part of Letters Patent No. 467,942, dated February 2, 1892.

Application filed November 11, 1891. Serial No. 411,566. (No model.)

To all whom it may concern:

Be it known that I, CHARLES TENNANT LEE, 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 drawing.

My invention has for its object to produce a strong and durable insulator chiefly for use for electrical purposes, although, as will be obvious, it may also be employed as a heat-insulator. It consists of a metallic casing which contains within it an insulated metallic rod, the insulation being effected by means of sheets of mica laid and pressed together, and the inclosing portion of the metallic shell or casing being constructed in one piece, all as hereinafter set forth, and the novel features of which are more particularly pointed out in the claims, which are appended hereto.

My invention is shown in the accompanying drawing in the best form now known to me. Said drawing shows a trolley-wire hanger in vertical section.

A represents a casing or shell, which is of metal formed in one piece and having a cylindrical body. The precise cross-sectional shape of the body is not material, although the circular form is preferred.

b represents lugs or projections by means of which, in case the device is used as a trolley-wire hanger, it may be secured or supported.

d is a rod by which the clip f, which is secured to the trolley, is supported. The rod d terminates in a button or head, which serves to prevent the rod from being withdrawn. A number of sheets of mica g, which have first been cut into the right shape to fit the interior of the case A and which have been provided with a central aperture through which the rod d may pass, are strung upon the rod, the quantity of mica used being sufficient to fill the body of the bell or case A. The space at the crown of the case A and surrounding the head of the bolt d may, if desired, be filled with flake mica or mica in small pieces or scales. The end of the rod d which projects from the case

A is screw-threaded to receive the clip which holds the trolley-wire, and that portion of the rod between the clip and the mica g within the case is covered or partially covered by a series of sheets of mica h of smaller diameter than the sheets of mica g. Said sheets h have a central aperture through them and are strung on the rod d. These washers of mica h insulate the projecting portions of the rod d, so that the distance between the uncovered metallic parts is largely increased compared with what it would be if the stem was not so protected. A retaining-nut j may be screwed onto the rod d, as shown, to keep the sheets of mica h in place. After the sheets of mica g are placed on the rod d they are inserted in the case A, and they may be retained in the case by short projections k, which are secured at intervals to the mouth of the bell or case A and which are turned down, as shown, against the mica g after the mica is inserted in the case, or instead of the projections k a ring or projecting edge of the case A may be turned down against the sheets of mica to retain them within the case, the latter form of construction being preferable because it is stronger.

For the purpose of shedding moisture when the insulator is employed as a hanger a skirt m, preferably of metal, may be connected with the case A, preferably by being formed integral therewith, as shown.

I am aware that trolley-wire hangers have been made having the case which is supported by the cross-wires insulated from the stem which supports the clip by sheets of mica; but such insulators, so far as known to me, have employed a shank or stem with a head larger than the aperture or opening in the metallic portion of the bell or case, which necessitated dividing the bell or case into two portions, thus increasing the expense of construction, rendering the case liable to admit moisture, and impairing its strength and efficiency.

What I claim is—

1. An insulator comprising an outer case and a rod or stem placed within the said case and insulated therefrom by a series of sheets of mica and having that portion of the stem

which projects beyond the mica in the case partially covered by a series of sheets of mica placed thereon, substantially as set forth.

2. An insulator comprising an outer case A, 5 constructed in one piece, and a rod or stem d, placed within the said case and insulated therefrom by a series of sheets of mica, the said rod or stem having the portion thereof which projects beyond the mica in the case 10 partially covered by a series of sheets of mica

g, the said case having retaining projections h turned down, substantially as shown and described.

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

CHARLES TENNANT LEE.

Witnesses:

WM. A. MACLEOD,

ROBERT WALLACE.