

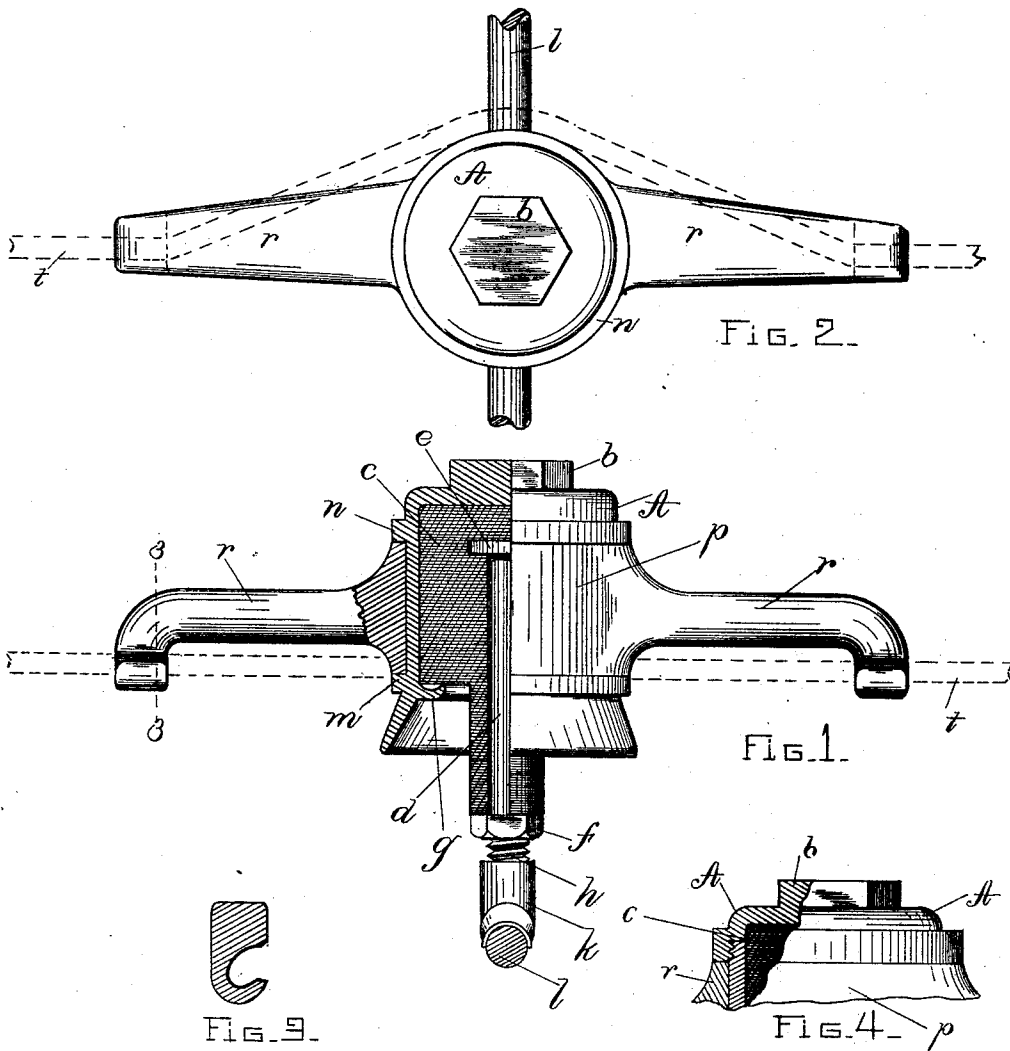
(No Model.)

C. T. LEE.

INSULATOR FOR ELECTRIC RAILWAY CONDUCTORS.

No. 485,105.

Patented Oct. 25, 1892.



WITNESSES _____

Arthur F. Randall.
Robert - Wallace.

INVENTOR

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by
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his attys.

UNITED STATES PATENT OFFICE.

CHARLES TENNANT LEE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
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INSULATOR FOR ELECTRIC-RAILWAY CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 485,105, dated October 25, 1892.

Application filed March 17, 1892. Serial No. 425,271. (No model.)

To all whom it may concern:

Ue 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 drawings.

10 My invention has for its object to produce a durable and efficient insulator for electrical purposes of the class known as "overhead insulators" intended for use in the overhead construction of electric railways.

15 Such insulators as now commonly made, so far as known to me, are not easily secured to the overhead conductor or trolley-wire; and the chief object of my invention is to provide an insulator which may be easily and quickly
20 secured to the overhead conductor, while at the same time a very strong and efficient insulator is obtained; and it consists in an insulator so constructed that the body portion thereof, which contains the insulated stem through which connection is made with the
25 trolley-wire, may be rotated independently of the supporting-arms by means of which the insulator is secured to the span-wire, thus enabling the insulated portion to be joined to the clip, which is soldered or otherwise secured to the trolley-wire by means of a screw
30 connection between the said stem and the clip, all as hereinafter set forth, and the novel features of which are pointed out in the claims which are appended hereto and made a part
35 hereof.

In the accompanying drawings I have shown my invention in the best form now known to me. Figure 1 of said drawings shows a side
40 elevation of my insulator, partially in section to more clearly show the construction of the same. Fig. 2 is a plan view. Fig. 3 is a section on line 3 3, Fig. 1. Fig. 4 is a detail showing a modification.

45 A is a bell, preferably of metal and provided on the top with a projection *b*, adapted to receive a wrench. The projection shown is hexagonal; but it will be clear that the precise shape is immaterial. The inside of the
50 bell is preferably parallel-sided and is adapted to receive the block of insulating material

c, which is preferably composed of a series of sheets of mica, within which the stem *d* is embedded. The sheets of mica are cut to the desired shape and provided with a hole
55 through which the stem *d* may pass. After a sufficient number of sheets are strung upon the stem *d*, they are compacted and compressed thereon between the head *e* of the stem and the nut *f*, which is screwed onto the
60 lower end thereof. The sheets of mica above the head *e* of the stem and between the head and the top of the bell are first placed in the bell, and then the sheets which surround the head
65 *e* are placed in the bell, each of the said sheets being provided with a hole or aperture large enough to receive said head. The stem, which has previously been covered with mica, as
70 above set forth, is then placed within the bell and the flange *g* pressed or turned over to hold the mica within the bell. The insulating-block thus constructed must be of a size to fit the interior of the bell or case very
75 closely and so that considerable pressure is required to force the insulating-block into place within the case. This is necessary to prevent the insulating-block from turning independently of the case. In like manner the
80 stem *d* must fit the socket or hole provided for it so closely that it will not turn independently of the insulating-block in which it is embedded. These results may be readily
85 obtained by the aid of great pressure or by shrinking the shell or case to its seat on the insulating-block, as shown and described in my application for Letters Patent for insu-
90 lator, Serial No. 411,925, issued September 20, 1892, No. 482,872. That portion of the stem *d* which projects beyond the mouth of the bell is covered with a series of smaller
95 sheets of mica, which serve to insulate it thoroughly from the nearest metallic portion of the bell, as shown. The lower end of the stem *d* may be provided with a screw-thread, as shown at *h*, to adapt it to be screwed
100 into a threaded socket in the clip *k*, which is soldered or otherwise secured to the trolley-wire *l*. The outside of the bell is provided with two annular projections, the lower one *m* being near the top of the skirt of the bell and the upper one *n* being preferably near the upper portion or top of the bell. The

space between the projections $m n$ is adapted to receive the collar p , from which the arms r project. The collar p and arms r may be cast in one piece and they may be secured to the bell A by removing the projection n and slipping the collar p over the bell and replacing the projection n thereon. To admit of this, the projection n should be screwed onto the outside of the bell, so that it may be readily detached and replaced, or the top of the bell may be made to screw onto the lower portion or body thereof, in which case the projection would be preferably integral with the top or cover, as shown in the modification, Fig. 4. It is, however, not essential to make the projection n removable. It may be cast integral with the bell, as shown, Fig. 1, and the collar and arms may then be cast in place, well-known means being employed to prevent the collar from being united with the bell in the process of casting. This latter method of construction is preferable because it is cheaper, and, so far as known to me, equally efficient. The span-wire is shown at t by dotted lines. The outer ends of the arms r are curved, preferably downwardly, and provided with a hook-shaped end, as shown, Fig. 3, to receive the span-wire. The arms r may be made in any well-known form. In using the insulator the clip k is soldered or otherwise secured to the trolley-wire l , the insulator is attached to the span-wire, and a wrench is applied to the projection b on the top of the bell A. The threaded end of the stem h is then applied to the socket in the clip k and the body of the insulator turned by means of the wrench until the stem is firmly screwed into the clip. In this way the overhead conductor may be easily and rapidly secured to its support. As

will be obvious, the precise form of the stem or bell or the manner of securing the insulating-block in place within the bell is not essential to my invention.

What I claim is—

1. An insulator comprising a case A, an insulating-block within said case, a connecting-stem insulated from said case by said block, a collar surrounding said case and loosely secured thereto, and means for securing said collar to the insulator-support, whereby the case and the insulation and insulated parts contained therein may be rotated within the collar, for the purposes and substantially as shown and described.

2. The combination, in an insulator, with the case A, having the projections $m n$, one of which is removably connected with the body of the case, of the collar p and means for securing the collar to its support, substantially as shown and described.

3. The combination, in an insulator, of a case A, having a projection b to receive a wrench, and projections $m n$, and a collar p , provided with securing-arms r , substantially as shown and described.

4. The combination, in an insulator, of a case A, having a projection b to receive a wrench, and annular projections $m n$, one of which is screwed upon the case and made removable, and a collar p , provided with securing-arms r , substantially as described.

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

CHARLES TENNANT LEE.

Witnesses:

WM. A. MACLEOD,
ROBT. WALLACE.