

(No Model.)

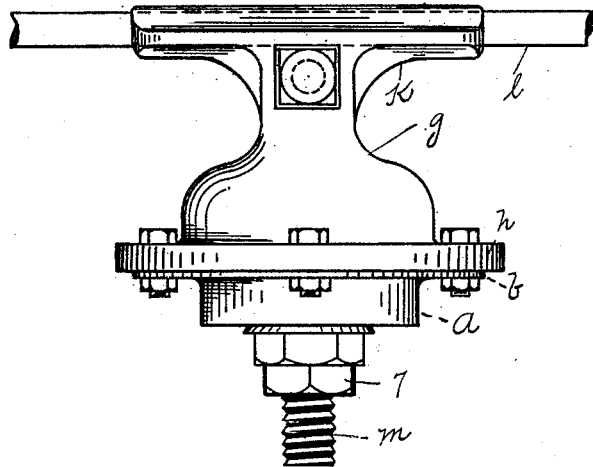
2 Sheets—Sheet 1.

L. YAKEL.  
TROLLEY WIRE SUPPORT.

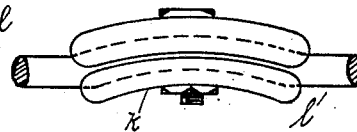
No. 524,014.

Patented Aug. 7, 1894.

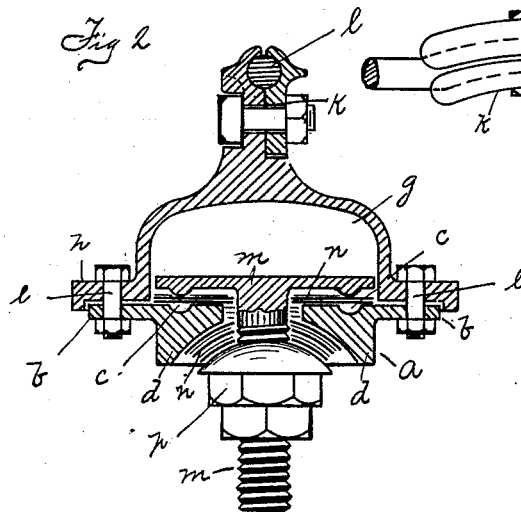
*Fig 1.*



*Fig 3.*



*Fig 2.*



WITNESSES  
C. A. Phillips.  
L. P. Stone

INVENTOR  
L. Yakel.  
By his atty  
John H. Roney

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Fig 4.

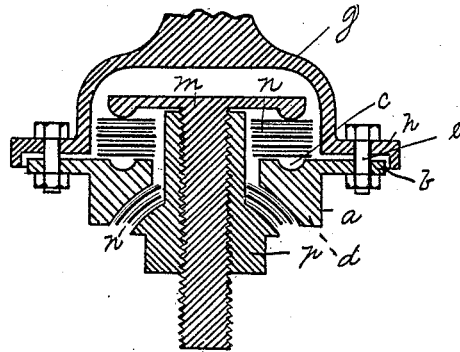


Fig 5.

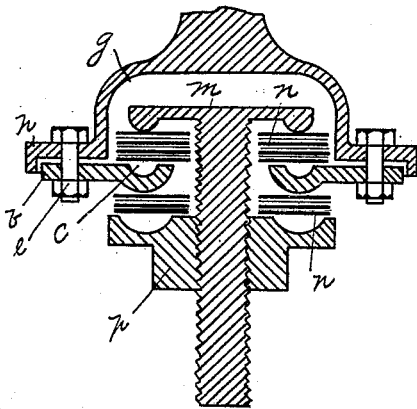
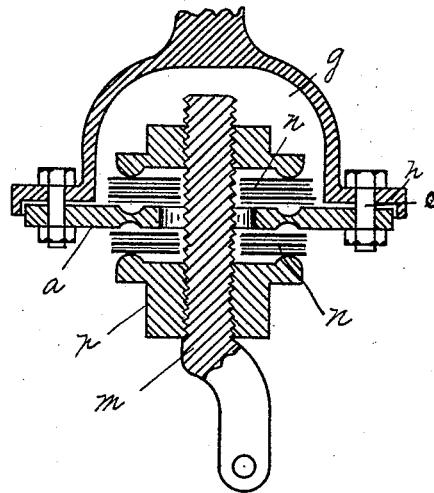


Fig 6.



WITNESSES  
C. A. Hilliawe.  
L. P. Stone

INVENTOR  
Levi Yakel  
By his atty  
Jas H. Roney

# UNITED STATES PATENT OFFICE.

LEVI YAKEL, OF ALLEGHENY, PENNSYLVANIA.

## TROLLEY-WIRE SUPPORT.

SPECIFICATION forming part of Letters Patent No. 524,014, dated August 7, 1894.

Application filed April 15, 1893. Renewed December 27, 1893. Serial No. 494,858. (No model.)

### *To all whom it may concern:*

Be it known that I, LEVI YAKEL, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Electric Insulators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 indicates an elevation of my improved insulator for overhead electric conductors. Fig. 2 is a central section and an elevation of the nut and lower portion of bolt. Fig. 3 is a plan of the jaws for holding span-wires. Figs. 4, 5 and 6 are central sections of modifications.

The object of my invention is to produce not only an efficient insulator, but also one that will be easily adapted to all the requirements of an overhead conductor, and at the same time durable. This I believe I accomplish by the device hereinafter described reference being had to the accompanying drawings forming part hereof in which like letters indicate like parts wherever they occur.

Referring to said drawings *a* is a ring having a flange *b* in the interior thereof the lower surface of which is concave, and the upper surface provided with series of indentations or depressions *c*. Said ring is also provided with a flange *d* projecting from the top at right angles to its sides, and is provided with a number of holes for the reception of bolts *e* for the purpose of securing the cap *g* the lower end of which is provided with a similar flange *h* to admit of this. The upper end of said cap terminates in the jaws *k* for the purpose of gripping the span wire *l* as shown, one of said jaws is integral with said cap and is provided with a bolt hole for the purpose of securing the other jaw thereto.

*m* is a threaded bolt whereon series of mica and asbestos disks *n* are alternately strung whereby the sides, top and bottom of said ring are effectually insulated from said bolt, the lower end of which carries the convex nut *p* whereby the disks of mica and asbestos are

tightly impacted between the lower surface of the head of said bolt and the upper surface of the flange of the ring and also between the lower surface of said flange and the top of said nut. The asbestos and mica disks are sufficiently large as to permit their being drawn partially over the head of said bolt when the same is tightened by the nut. Shellac is then poured over the head of said bolt, and it may also be poured over the lower end of said insulator and making it impervious to dampness.

If necessary the space between the head of the bolt and top of cap may be filled with asbestos or other insulating material.

I have not thought it necessary to show the manner of attaching the electric conductors with said insulator as any ordinary fin in any ordinary or usual way attached to the lower end of the bolt will answer.

One of the principal advantages of my insulator is that the projections on the under surface of the head of the bolt fitting tightly in the indentations and the convex nut prevent the bolt gouging out the insulating material, the asbestos alternating between the mica also preventing the easy fracture of the latter.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an electric insulator the combination of a bolt, the lower end of which is adapted to be secured to a fin for an electric wire, a series of asbestos and mica disks alternately strung thereon, a ring, a cap adapted to be secured thereto and means of securing said bolt in said ring and cap substantially as described.

2. In an electric insulator the combination of a ring having an interior flange, the upper surface of which is provided with indentations and its lower surface concave, a cap adapted to be secured upon said ring a bolt adapted to be secured within said cap and ring and a series of disks of asbestos and mica interposed between the bolt cap and ring of said insulator substantially as and for the purpose described.

3. In an electric insulator, the combination of a ring having an interior flange; a cap

adapted to be secured thereto, and terminating in jaws, one blade of which is integral with said cap and the other secured thereto by a transverse bolt, a bolt adapted to be secured within said ring and cap, and a series of disks of asbestos and mica interposed between the bolt and the flange of the ring; substantially as and for the purpose described.

In testimony that I claim the foregoing I hereunto affix my signature this 13th day of 10 March, A. D. 1893.

LEVI YAKEL.

In presence of—  
ALBERT J. WALKER,  
H. B. STONE.