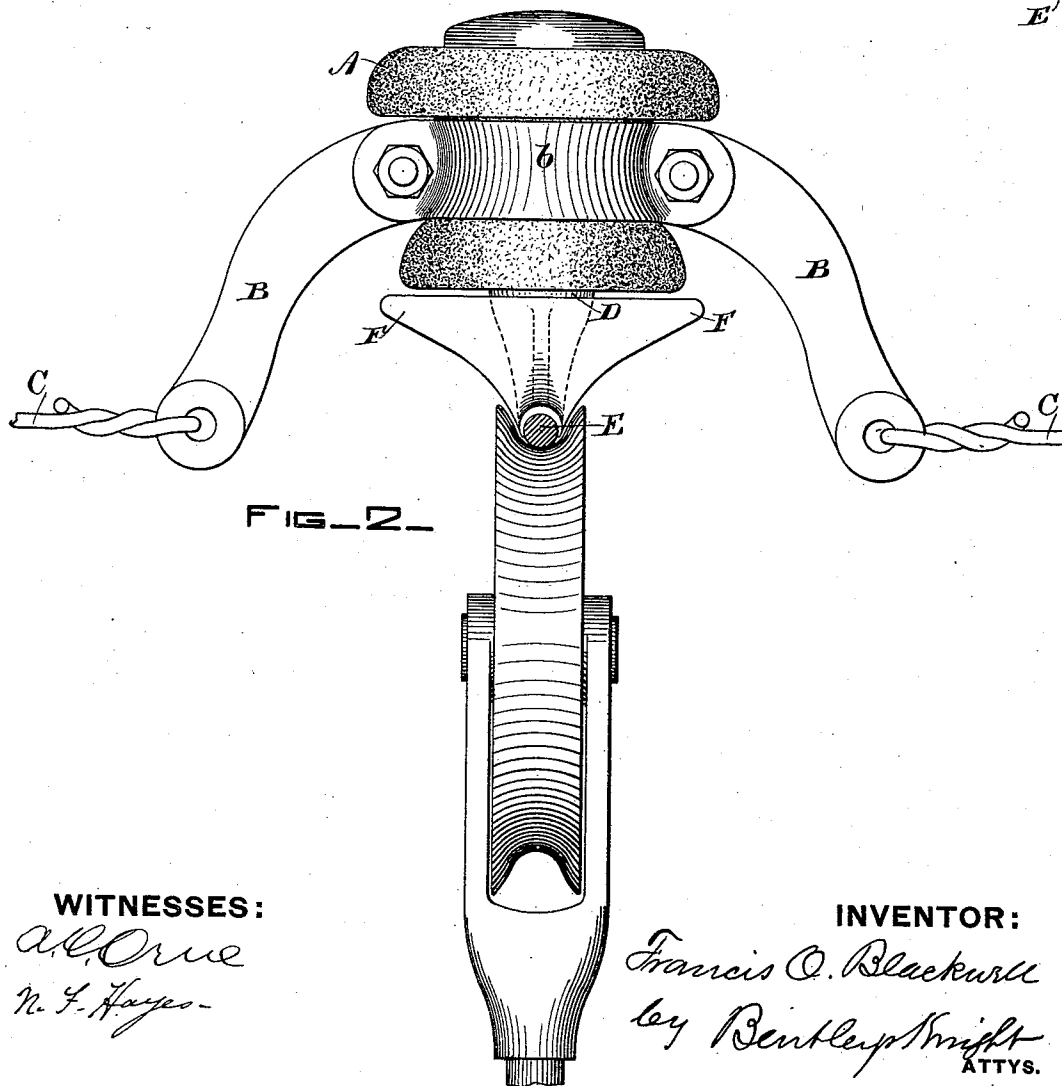
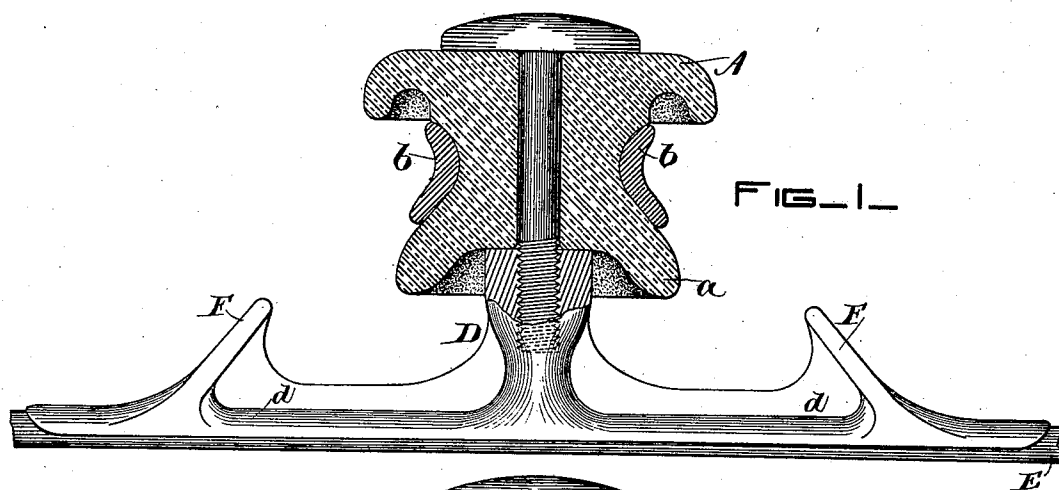


(No Model.)

F. O. BLACKWELL.
GUARD FOR TROLLEY WIRE INSULATORS.

No. 465,447.

Patented Dec. 22, 1891.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANCIS O. BLACKWELL, OF LYNN, MASSACHUSETTS.

GUARD FOR TROLLEY-WIRE INSULATORS.

SPECIFICATION forming part of Letters Patent No. 465,447, dated December 22, 1891.

Application filed May 29, 1891. Serial No. 394,506. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS O. BLACKWELL, a citizen of the United States, residing at Lynn, county of Essex, and State of Massachusetts, have invented a certain new and useful Improvement in Guards for Trolley-Wire Insulators, of which the following is a specification.

This invention relates to improvements in guards for trolley-wire insulators for preventing the trolley from striking the insulator when it is thrown off from the wire.

The object of the present invention is to so construct the guard that while effectually shielding the insulator it does not detract from the insulation thereof.

In the accompanying drawings, Figure 1 is a vertical section of a trolley-wire hanger or insulator provided with my improved guard. Fig. 2 is an end view of the same, showing the trolley-wheel bearing thereunder.

A represents the body of the hanger or insulator, supported in any suitable manner, as by arch B, attached to the cross-wires C. Any approved form of insulator may be used. That shown consists of an insulating body held in a metal clamp *b* on the arch. From the said insulator depends an ear or lug D for attachment to and support of the trolley-wire E. This ear extends, as usual, a little distance on each side of the insulator, so as to give sufficient hold on the trolley-wire. It is of course necessary that a portion of the support A should be of insulating material, and therefore more or less frangible, and, as generally constructed, the insulator has a downwardly-extending flange or rim *a* at its lower portion to more effectually shed the water from and insulate the portion of the insulator which is adjacent to the trolley-wire clamp, ear, or holder. In the absence of any guard a trolley which has run off the wire strikes this portion of the insulator and soon wears it away, and such guards as have been devised to prevent this were objectionable, because, occupying the space between the insulator and the trolley-wire, they diminished the air-gap and increased the likelihood of arcing and creeping of currents; and, moreover, the trolley-wheel was apt to bridge across from such guards to the conducting supporting parts of the holder or insulator.

To remedy these defects I leave the space beneath the insulator substantially free and open and form the guards on the arms or extensions *d d* of the trolley-wire holder. Said guards consist of outwardly and upwardly extending wings, lugs, projections, or enlargements F, which at no point approach nearer the insulator than the general body of the holder. I prefer to give these arms the upwardly-spreading form shown in Fig. 2, so as to deflect or throw the trolley outwardly when it comes in contact therewith and thereby throw it away from the insulator. Another advantage of locating the guards F at a distance from the central point of support from the trolley-wire holder is that they are thereby given a certain amount of elasticity, so that the impact of the trolley-wheel thereon is not transmitted with full force to the insulator.

What I claim as new, and desire to secure by Letters Patent, is—

1. A guard for electric-railway trolley-wires, consisting of a lug or projection formed on the trolley-wire holder at a distance from the point of support of said holder.

2. The combination of the insulator, the trolley-wire holder depending therefrom and extending along the wire, and the guard consisting of a lug or projection on such extended portion of said trolley-wire holder, substantially as described.

3. The combination of the insulated support and the trolley-wire holder depending therefrom and extending along the trolley-wire and having on its extended portion an upwardly and outwardly projecting lug or wing to serve as a guard.

4. The combination, with the insulated support, of the depending trolley-wire holder extending downwardly therefrom and along the wire, so as to leave the space beneath said insulated support substantially free and open, and a lug or enlargement formed on the extended portion of said holder and serving as a guard.

In testimony whereof I have hereto set my hand this 23d day of May, 1891.

FRANCIS O. BLACKWELL.

Witnesses:

JOHN B. BLOOD,

JOHN W. GIBBONEY.