

(No Model.)

C. H. DEY.
STRAIN INSULATOR.

No. 509,614.

Patented Nov. 28, 1893.

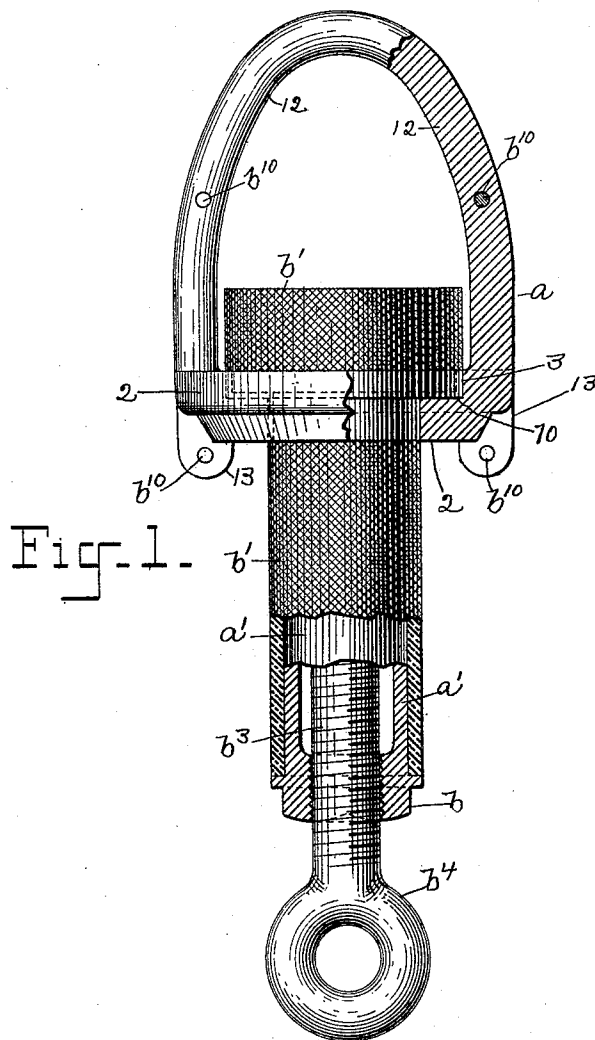
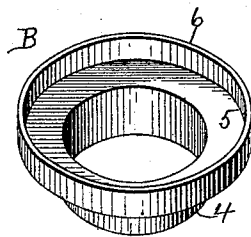


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES H. DEY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO ALBERT & J. M. ANDERSON, OF SAME PLACE.

STRAIN-INSULATOR.

SPECIFICATION forming part of Letters Patent No. 509,614, dated November 28, 1893.

Application filed June 5, 1893. Serial No. 476,608. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. DEY, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Insulators, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention is an improvement in insulating couplings of that class in which the insulating material is under compression when in use. Insulating couplings of the class described, and as now commonly constructed, 15 are composed of two members, one of which is provided with a covering of insulating material, which, in practice, bears against and makes contact with the other member of the coupling, which latter part is usually made of 20 metal. The couplings referred to are now commonly employed in the construction of the overhead system of electric railways and serve to connect two wires or parts of a wire, so that one wire or part of a wire is electrically disconnected from the other. In practice, it frequently happens that one of the 25 wires to which the insulator is connected becomes slack, which necessitates turning or rotating one member of the insulating coupling to take up the said slack. The turning or rotating of one member of the insulating coupling referred to, causes a cutting, grinding or trimming off of the insulating material separating the two parts of the coupling, which reduces 35 the amount of insulating material between the members and results in materially weakening the insulating capacity of the coupling.

My present invention has for its objects to construct the coupling as will be described, 40 so that either may be turned or rotated when the insulating material is under compression without danger of cutting, grinding or trimming off of the insulating material, and I effect this result by providing that portion of 45 the insulated member of the coupling with a metallic bushing, sleeve or bearing surface, which makes contact with the metallic surface of the other member of the coupling and which permits the insulated member of the 50 coupling to be rotated or turned without affecting the insulating material.

The particular features in which my invention consists will be pointed out in the claims at the end of this specification.

Figure 1 is an elevation partially broken 55 out of one form of insulating coupling embodying my invention, and Fig. 2, a detail to be referred to.

The insulating coupling shown in Fig. 1, consists of two members a a' , the member a 60 being represented as a metallic ring 2 provided with a shoulder 3, and the member a' being represented as a tube provided at one end with a threaded nut b integral with the said tube, the latter at its opposite end being 65 provided with an enlarged portion or head, not herein shown, but preferably disk-shaped, and which is covered by insulating material b' , the body of the tube a' being also covered 70 by the insulating material b' . The tube a' having the covering b' of insulating material is designed to be inserted through the ring 2 and have the lower surface of its head rest against the upper surface 10 of the ring. The threaded nut b of the tube a' is designed to 75 engage the threaded shank b^3 of an eye-bolt b^4 to which one wire or part of a wire is secured, the other wire or part of the wire being fastened to the member a .

To facilitate construction, the member a 80 may and preferably will be made in two halves or parts suitably secured together in any desired manner, as by rivets b^{10} extended through the yoke 12 and through ears 13, which construction enables the tubular portion of the 85 member a' to be made longer than the distance between the ring 2 and the extreme portion of the yoke of the member a . In practice, one wire or part of a wire is fastened or connected to the yoke of the member a , and 90 the bolt b^4 is then adjusted in the tube or member a' , so that a sufficient portion of the bolt may extend out of the tube a' to enable the other wire or portion of a wire to be fastened to the bolt b^4 , but when this is accomplished, 95 it may happen that the wires are slack and are not sufficiently taut to effectually operate, which requires the turning of the member a' by means of the nut b , so as to draw the eye-bolt b^4 within it.

When the member a' is turned or rotated, 100 it will be seen that the insulating covering of

the member a' of the insulated coupling, would be subjected to a grinding, cutting or trimming off action on the surfaces 10 and 3 of the metallic ring 2, which surfaces in practice are substantially rough, and also upon the inner periphery of the said ring, and the trimming off of the insulated material is objectionable as it materially weakens the insulating capacity of the coupling. To avoid this trimming or cutting away of the insulating material when the member a' is rotated as described, I have provided the insulated member a' with a metallic bushing or bearing or chafing surface, shown as a collar, ring or sleeve B, which is shaped to conform to the shape of that portion of the insulated member a' , which would normally make contact with the metal portion of the member a .

In the present instance, the metallic bushing or bearing surface B is represented as consisting of a tubular portion 4 designed to extend through the ring 2, a radial portion or flange 5 designed to co-operate with the upper surface 10 of the ring, and an annular upright flange 6 designed to co-operate with the annular shoulder 3 of the ring 2. The metal bearing surface B in practice may be fitted upon the member a' after it is covered with the insulating material b' , or it may be held in proper position on the member a' before the latter is covered with the insulated material, so that, when the insulating material is molded onto the member a' , the bearing surface b will be locked on the member a' by the insulating material.

From an inspection of Fig. 1, it will be seen that the member a' may be turned or rotated to take up the slack, and the grinding action will fall upon the metal bearing surface or bushing B, and as a result the insulating material b' is not trimmed or ground off but remains in its normal condition, thereby preserving the insulating capacity of the coupling.

I have herein shown one form of insulating coupling provided with a bearing or chafing surface on the insulated member, but I do not desire to limit my invention to any particular construction or form of coupling, as it is evident the metallic bearing or chafing surface may be used to advantage with other forms of insulating coupling in which one part or member is capable of rotation in the other part or member. The metallic bearing or chafing surface also acts to prevent the member a from cutting into the insulation of the member a' , when either member is rocked or tilted by the vibration of the wire attached to it.

I claim--

1. The combination with an insulating coupling consisting of two metallic members, capable of adjustment or movement toward and from each other when in operative position, one of which members is provided with a covering of insulating material, of a bearing or chafing surface fitted upon the insulated member and adapted to make contact with the other metallic member of the coupling, substantially as described.

2. The combination with an insulating coupling consisting of a metallic member a , provided with an opening, a tubular member a' provided with a head and having internal screw threads, as described, a threaded bolt extended into said tubular member, an insulating covering on the tubular member, of a metallic bushing or bearing surface on the said insulated tubular member and co-operating with the metallic member a , substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES H. DEY.

Witnesses:

JAS. H. CHURCHILL,
J. MURPHY.