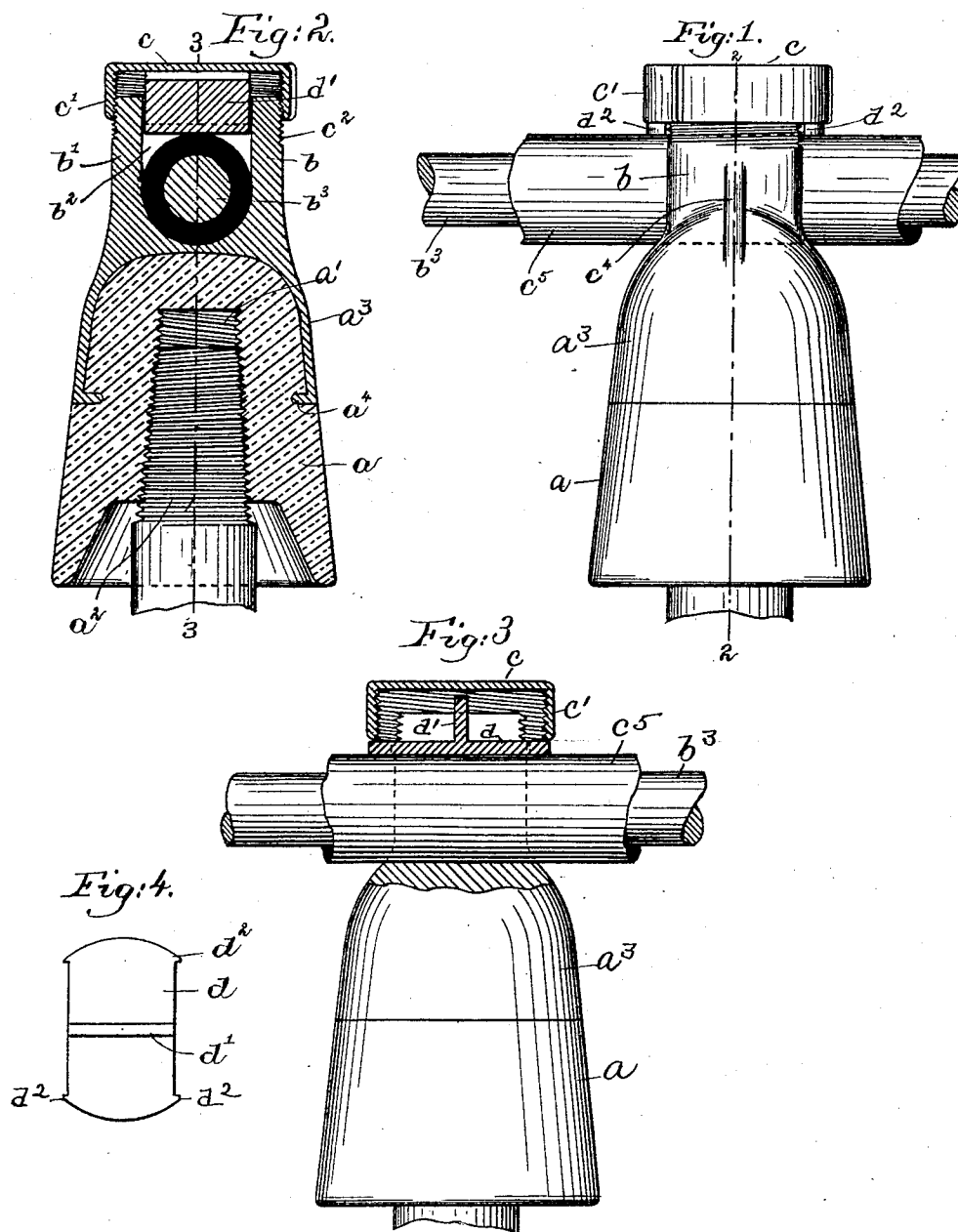


(No Model.)

J. M. ANDERSEN.
INSULATOR.

No. 522,175.

Patented June 26, 1894.



Witnesses.
Howard F. Eaton.
J. Murphy.

Inventor.
Johan M. Andersen
By Jas. H. Churchill
Att'y.

UNITED STATES PATENT OFFICE.

JOHAN M. ANDERSEN, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO ALBERT ANDERSON, OF SAME PLACE.

INSULATOR.

SPECIFICATION forming part of Letters Patent No. 522,175, dated June 26, 1894.

Application filed March 22, 1894. Serial No. 504,606. (No model.)

To all whom it may concern:

Be it known that I, JOHAN M. ANDERSEN, 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 on the drawings representing like parts.

This invention relates to a novel insulator especially designed and adapted to be used as a support for the feed wires of the overhead system of electric railways.

The invention has for its object to provide a simple and efficient insulator of the class referred to, capable of supporting substantially large wires or a cable of wires, and of such construction as will be described as to securely fasten the cable or wire to the insulator and yet permit of its being easily and quickly removed therefrom when desired, the said insulator being particularly well adapted to be used with metal supporting pins, as will be described.

In accordance with this invention, the main or body portion of the insulator is composed of insulating material molded or otherwise formed into the shape desired, and preferably provided with a threaded socket adapted to be screwed upon a threaded supporting pin, which may be of metal or wood, the said body portion being provided with a metal cap, top or crown having substantially upright arms or ears, forming a slot, channel or groove between them for the reception of the cable or wire to be supported, the said upright arms or ears having secured to them a cover or cap, by which the said slot or groove is closed at its top and the cable or wire locked therein. The upright arms or ears are preferably provided with screw threads to be engaged by screw threads on the cap or cover, and I prefer to employ a guard or shield in the slot or opening, to engage the upper surface of the cable or wire therein, and which is acted upon by the cap or cover, so that when the latter is fitted on and secured to the insulator, the shield will be pressed against the upper surface of the cable, and will prevent injury to the insulation of the same, as will be de-

scribed. The shield or guard will preferably be of novel construction to enable it to be locked in the slot or groove by the cover as will be described. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is a side elevation of a pole insulator embodying this invention; Fig. 2, a vertical section on the line 2—2, Fig. 1; Fig. 3, a partial section and elevation of the insulator on the line 3—3, Fig. 2, to more clearly show the guard or shield in its operative position, and Fig. 4, a top or plan view of the guard or shield preferred by me and shown in Figs. 2 and 3.

In the present embodiment of this invention, the insulator is shown as substantially bell-shaped, the main or body portion *a* of the insulator forming the lower part of the same, being composed of insulating material, which is preferably molded into the desired form or shape and is provided with a threaded socket *a'* for the reception of a threaded supporting pin *a''*, (see Fig. 2.) The body *a* of the insulating material is provided with a metal crown or top *a''* firmly secured to the said body, it being shown as substantially bell-shaped to conform to the shape of the body *a*, and provided at its lower end with an interior annular flange *a''* forming a locking projection embedded in the insulating body *a*, and by which the said metal crown or top is firmly secured to the said body. In practice, the insulating body *a* is molded into the bell-shaped crown or top *a''* and the said body is made of such size or height as to leave a substantially large body of insulating material below the bottom of the crown or top *a''* for a purpose as will be described.

In accordance with this invention, the metal crown or top *a''* is provided with two upright arms or ears *b b'*, preferably cast integral with the crown or top *a''* and of sufficient width to extend substantially across the same, to form a substantially long channel, slot or groove *b''* between the said arms, and within which the insulated wire *b''* or it may be a cable of wires, is extended. The substantially wide arms or ears *b b'* are preferably

curved or rounded at their lower inner side, so as to substantially conform to the rounded form of the insulated wire, so that the latter may have a bearing surface for substantially
 5 one-half of its circumference. The slot or channel or groove b^2 formed by the upright arms $b b'$ is inclosed at its top by means of a cap or cover c , preferably provided with an
 10 annular flange c' , the screw threads of which are adapted to engage screw threads c^2 on the upper portion of the upright arms, the said upper portion of the said arms being made in the form of an arc of a circle on their outer
 15 side, so that the cover c may be readily screwed upon and unscrewed from the said arms. The upright arms $b b'$ below the screw threaded upper portion are preferably strengthened by a reinforcing web c^4 , (see
 20 Fig. 1) connecting the upright arms with the metal crown a^3 , whereby the said upright arms are rendered sufficiently strong to withstand severe strain placed upon them by the swaying of the wire or cable supported by
 25 the insulator.

In order that the insulating covering c^5 of the wire b^3 may be protected against the cutting action of the depending flange c' on the cover or cap c , when the latter is fitted upon
 30 the upright arms and in position to firmly clamp the insulated wire to the insulator, I prefer to employ a preferably metallic guard or shield of substantially the construction shown in Fig. 4, it consisting of a plate d provided
 35 on its upper side with an upright web d' , the plate d being made of substantially the same width as the slot or opening b^2 , so as to fit substantially snug therein, and the said shield is provided at its ends on its opposite
 40 sides, with projecting corners, lugs or ears d^2 adapted to embrace or fit over the opposite ends or the upright arms or ears $b. b'$ as clearly shown in Fig. 1, to thereby lock the shield in the slot or opening b^2 against
 45 longitudinal movement or displacement. The upright web d' is preferably made of substantially the same width as the plate d so as to prevent canting of the shield, when the wire is not placed in the slot b^2 , and thereby enable
 50 the shield to be placed in the slot of the insulator and to be shipped without danger of its being lost.

The cover c when fitted to the insulator presses against the ends of the plate d beyond
 55 the arms $b b'$ (see Fig. 1) and forces the plate d down onto the upper surface of the insulating covering c^5 for the wire or cable supported by the insulator, to thereby firmly secure or, as it were, lock the wire in the slot or opening b^2 without danger of injuring the said insulation.

The wire b^3 may be supposed to be the feed wire of the overhead system of electric railways, and while this insulator is especially
 65 designed for use with such a wire, it is evi-

dent that it might be employed with a cable of wires or with a wire other than a feed wire.

I have herein represented the body a of the insulator as substantially bell-shaped in form, but I do not desire to limit my invention in
 70 this respect as the said body portion may be made of any other desired or suitable shape. I prefer to employ the threaded cap and to make the outside of the upright arm screw threaded in order that the threaded cap may
 75 be screwed upon the same, but I do not desire to limit my invention in this respect, for while this construction is superior, the said cap might be secured to the upright arms in other ways than that herein shown, but, as I
 80 believe, not with such good results.

The pin a^2 may be made of wood or it may be of metal, and when the said pin is made of metal, the insulator herein-described is especially advantageous, for the reason that
 85 the metal crown or top a^3 is separated from the metal supporting pin a^2 by a substantially large or thick body of insulating material, so that if the current in the wire b^3 should leak through to the metal crown or top a^3 , the
 90 danger of its jumping to the metal supporting pin or to the support for said pin is obviated or reduced to a minimum.

I claim—

1. An insulator composed of a body portion
 95 of insulating material, a metal crown having upright arms or ears forming a slot or channel for the reception of the conductor to be supported, and a cap fitted upon the said upright
 100 arms to close the said slot at its upper end, substantially as described.

2. An insulator composed of a body portion of insulating material, a metal crown having
 105 upright arms or ears forming a slot or channel for the reception of the conductor to be supported, a shield or guard fitted in said slot and adapted to engage the upper surface of the said conductor, and a cap fitted upon the said upright arms to close the said slot at its upper end and provided with a depending
 110 flange to engage the said shield or guard, substantially as described.

3. An insulator provided with a metal crown having substantially wide upright
 115 arms forming a slot or channel for the reception of the conductor to be supported, strengthening ribs connecting said upright arms with the said crown, and a cap provided with a threaded flange to engage screw threads on the upright arms, substantially as described.
 120

4. An insulator composed of a body portion of insulating material, a metal crown having
 125 upright arms or ears forming a slot or channel for the reception of the conductor to be supported, and a cap or cover detachably secured to said arms to close the said slot or channel at its top or upper portion, substantially as described.

5. An insulator composed of a body portion of insulating material, a metal crown having
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upright arms or ears forming a slot or channel for the reception of the conductor to be supported and provided with screw-threads, and a detachable cover or cap having screw-threads to engage the said screw-threaded arms to close the said slot at its upper end, substantially as described.

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

JOHAN M. ANDERSEN.

Witnesses:

JAS. H. CHURCHILL,

J. MURPHY.