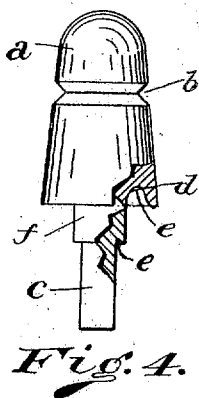
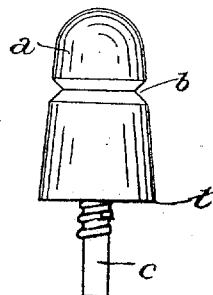
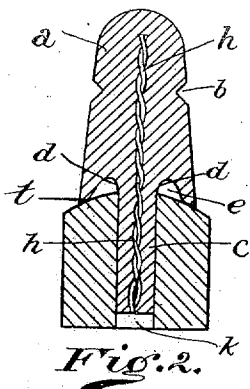
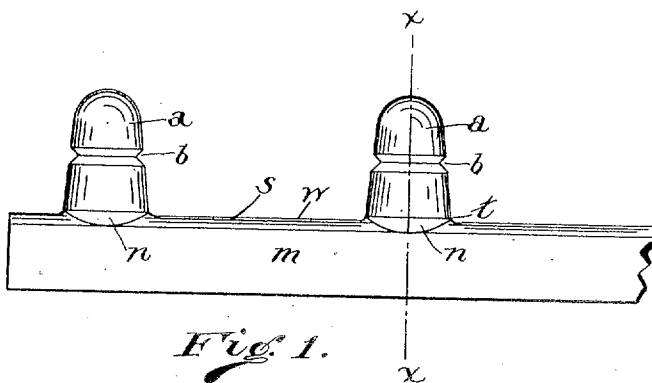


J. H. CAMPBELL.
INSULATOR.

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972,994.

Patented Oct. 18, 1910.



Witnesses
George H. Rick
Katie Strehli

Inventor
John H. Campbell
By J. W. Strehli
Attorney

UNITED STATES PATENT OFFICE.

JOHN H. CAMPBELL, OF RIPLEY, OHIO.

INSULATOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN H. CAMPBELL, a citizen of the United States, residing at Ripley, in the county of Brown and State of Ohio, have invented certain new and useful Improvements in Insulators, of which the following is a specification.

My invention relates more particularly to insulators used on the cross-arms of telegraph and telephone poles and for stringing in any place telegraph or telephone wires. These insulators must be made of glass or some other non-conductor of electricity. The insulator most commonly used is formed of a glass head interiorly screw threaded, screwed onto the screw threaded upper end of a pin or stick of wood, the lower end of the pin, fitting tightly into a hole in the cross-arm of the telegraph pole, and in this manner the insulator is secured in place. These wooden pins are expensive, costing more than the glass insulator itself, they rot, wear out, water seeps in between them and the cross arm in the hole in which they fit and rots them; they warp, break and bend and are otherwise objectionable. The screw thread in the glass insulator running nearly to its top, leaving an open space all around the pin; frost, snow, sleet and ice often enter and form on the inside of the insulator opposite to where the wire is attached and this is also objectionable.

The object of my invention is to overcome all these objections, and produce a cheap, simple and efficient insulator, one which can be depended upon during all changes of weather, making a perfect and reliable non-conductor.

I form the insulator and the stem which supports it, all out of glass, thus dispensing with the pin or stick, the most expensive and objectionable part of the insulator now used. Making the head of the insulator solid the insulation properties are enhanced. The glass stem or pin cannot rot, the life of the insulator is prolonged.

In the accompanying drawing forming part of this specification, Figure 1 is a view in elevation of a cross arm with my insulator in position, the cross arm being partly broken away at end. Fig. 2 is a sectional view taken at the line X. X. of Fig. 1. Fig. 3 is a view in elevation of my insulator showing means of rigid attachment to the cross arm or support. Fig. 4 is a form of my insulator as used where it is desired to elevate it up from

the cross arm or support, part of the stem being broken away to show construction.

The head *a* of the insulator is of a cone shape widest at the bottom and tapering toward the top where it is rounded off. The periphery of head *a* is broken midway of its length, by a groove or depression *b*; the line wire fitting in one side of this groove, held in place by a tie wire fitting the groove, and passing almost around the insulator.

Extending down from the insulator head *a*, and extending partly up beyond the lower extremity of the said head *a*, in the center of the head is a pin, extension or projection *c*, preferably widened at the point *d* where it joins the head *a*. In this manner strength is obtained. At the lower face or bottom of the head *a*, I form a groove, depression or recess *e*, which I may form shallow or deep, as preferred. When the insulator is formed as in Fig. 4, with an enlarged part as *f*, the groove or recess *e* is placed in the lower face of the part *f*, as shown in the broken away part in Fig. 4. The pin *c* is formed integral with the head *a*.

A rod of wire or iron *h*, or any other preferred material is pressed up through the pin *c*, extending partly up into the head *a*. This rod is put in place when the insulator is molded. The rod *h* gives strength, tenacity and firmness to the insulator. The pin *c* fits into the hole *k* in the cross arm *m*, the same as the wooden pin attached to the glass insulator now used. This cross arm *m* is provided, (around the hole into which the pin fits) with a raised portion, bead or watershed *n*. The lower part of the head *a* fits over and on this watershed *n*, the watershed extending up into the recess *e*, the lower peripheral edge *t*, being the part of the insulator head, which rests on the said bead or watershed *n*. It will be readily seen that this makes a close connection between the cross arm and the insulator, so that no frost, water or the like can force up into the insulator as the space is very small.

I could if desired place a washer of some kind between the bottom of the head *a* and the watershed *n*. I can if desired have the head *a* extended up, so that a space will be left between the bottom of the insulator head *a* and the cross arm *m*, or watershed *n*.

Between the insulator heads *a*, on the cross bar *n*, I form a concave part *s*, divided lengthwise by a ridge *w*, which acts as a watershed between the insulators. It will

thus be seen that I turn the water, dampness, snow, sleet and ice at every point on the insulator and the cross bar, thus producing a perfect device for the advantages sought to be accomplished.

The insulator may be made of any shape, size or contour or material. The pin may be wedge shaped on one or both sides. Means for tightly holding the insulator in the cross bar so that the pin will not lift out of the hole in the cross arm may be used.

In the drawing (Fig. 3,) I show one form of holding the insulator rigidly in the cross arm by means of a short screw thread placed at the upper end of the pin *c*, which screws in the screw thread in the upper part of the hole in the cross arm.

The iron rod in the pin may be dispensed with and the device strengthened in some other manner if desired. The insulator can be made out of any plastic or non-conducting material.

What I claim as new and of my invention and desire to secure by Letters Patent is:

1. In an insulator of the character described, a head portion, to which head the wire is attached, and a pin, said pin forming means of attachment to a support, a groove in the lower part of said head, in combination with a bead on the cross arm, over

which the head fits, said bead extending up into said groove, as and for the purposes set forth.

2. In an insulator of the character described, a head portion to which head the wire is attached, and a pin, said pin forming means of attachment to a support, an enlarged part or shoulder below said head, a groove in the bottom of said shoulder, a bead on the cross arm, said grooved shoulder and bead forming a watershed on the cross arm, as and for the purposes set forth.

3. In an insulator, a head portion, to which head the wire is attached, and a pin, said pin forming means of attachment to a support, said head and pin made integral, a groove in the bottom of said head, a shoulder at the lower part of the head, between said head and pin, said shoulder provided with a groove in its bottom, the shoulder with its lower edge and the groove tightly hugging the cross arm, thus preventing water or dampness from entering the hole in the cross arm by forming a tight joint at said point of connection with said cross arm, as set forth.

JOHN H. CAMPBELL.

Witnesses:

GEORGE H. RICKS,
KATIE STREHLI.