No. 867,901. PATENTED OCT. 8, 1907.

J. C. BARCLAY.

INSULATOR.

APPLICATION FILED JULY 22, 1907.

Fig. 1.

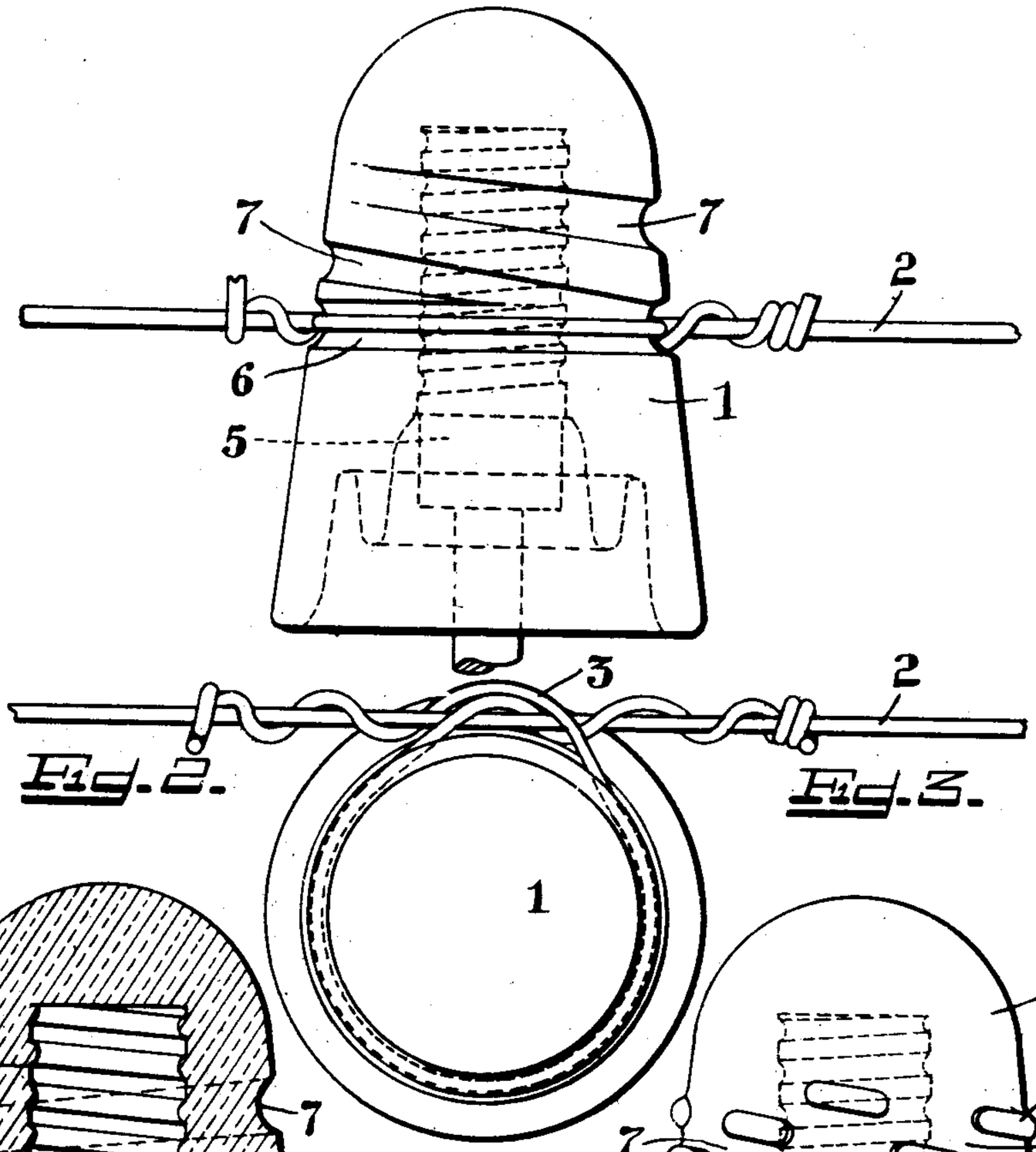


Fig. 2.

Fig. 3.

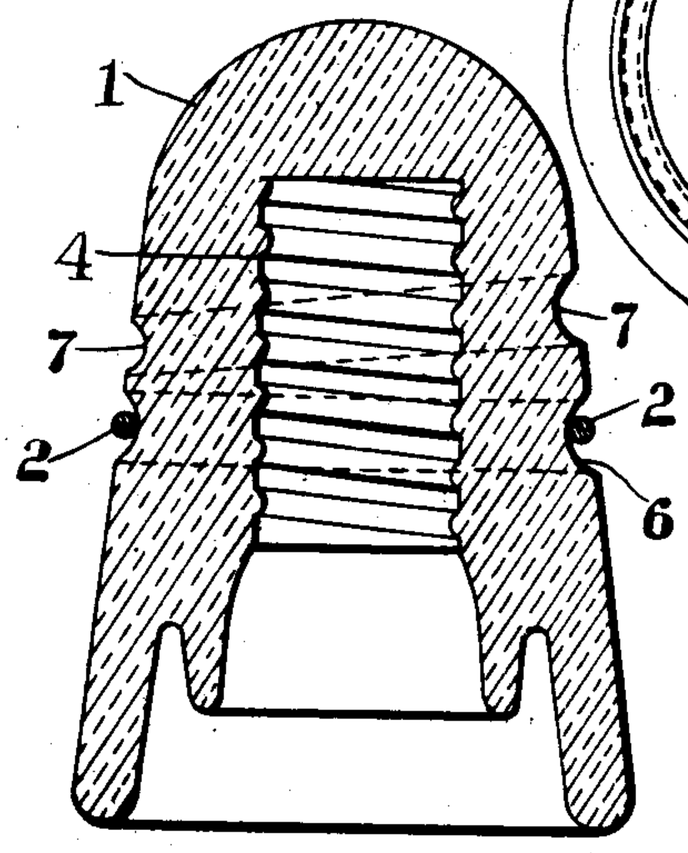
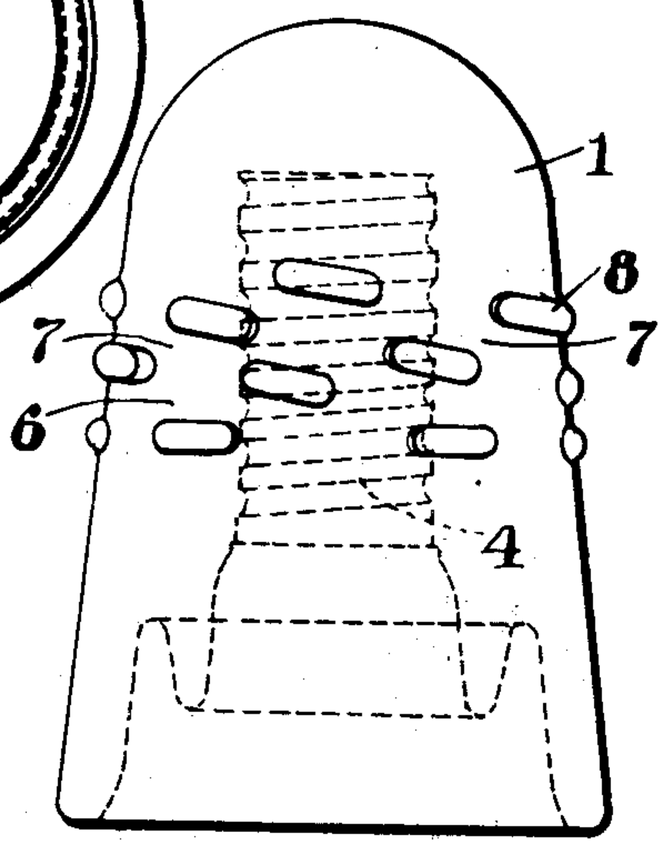


Fig. 4.



Attest:
C. D. Mitchell
Frank Koffman

by

Inventor:
J. C. Barclay
H. M. Marble
Atty

UNITED STATES PATENT OFFICE.

JOHN C. BARCLAY, OF NEW YORK, N. Y.

INSULATOR.

No. 867,901. Specification of Letters Patent. Patented Oct. 8, 1907.

Application filed July 22, 1907. Serial No. 384,999.

To all whom it may concern:

Be it known that I, JOHN C. BARCLAY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Insulators; and I do hereby declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in telegraph insulators, and comprises a novel construction thereof facilitating the detachment of electrical conductors therefrom, and constituting an improvement upon the invention set forth in my application filed May 6th, 1907, Sr. No. 372,167.

Insulators such as those to which my invention relates consist of an approximately conical body of glass or vitreous material having an internal bore adapted to receive a wooden or like peg by which the insulator may be fastened to a cross arm or the like, and having on its outer side a groove adapted to receive a tie wire by which the line wire is attached to the insulator. In practice, the line wire itself is not usually, if ever, wrapped around the insulator itself, but instead is led by and close to the insulator, and a separate short piece of wire, termed a "tie wire", is wrapped around the insulator and its ends wrapped around the line wire, so fastening the line wire to the insulator.

For various reasons it is necessary from time to time to renew insulators. They are not infrequently broken for one reason or another, and even if not broken the insulation resistance becomes impaired in time in many locations, owing to the formation on the surface of the insulator, of a film of dust or smoke-deposit which reduces materially the insulation resistance. The renewal or even the cleaning of insulators is commonly deferred as long as possible, however, not merely because of the cost of the actual renewals, including the labor and new tie wires required, but because in the renewal the line wire is adapted to be more or less nicked or twisted, and therefore is apt to break during cold weather. This last objection is the more serious because the line conductor, thus injured, is never as reliable as before, and the damage which may result from its injury cannot be estimated.

By the present invention I provide means whereby the insulators may be removed and replaced without unwrapping the tie wire from the line wire and without the slightest injury to the line wire; and it is moreover possible to renew and replace insulators much more rapidly than when the tie wire must be removed and replaced as heretofore. According to my present invention therefore, I not only save time in the removal of the insulators and save the cost of new tie wires, but I avoid the still greater expense resulting from injury to the line wire due to removal and replacing of the tie wires.

I will now proceed to describe my invention with reference to the accompanying drawings in which certain forms of insulators embodying my invention are illustrated.

In said drawings: Figure 1 shows a side elevation of a telegraph insulator constructed in accordance with my invention, with line wire and tie wire connected thereto; Fig. 2 shows a vertical section of such insulator; Fig. 3 is a side elevation of an alternative construction of insulator; and Fig. 4 a plan view of the insulator with the tie wire and line wire connected thereto.

According to my invention the insulator is provided not only with the ordinary circular groove to receive the tie wire, but is also provided with a spiral groove of corresponding size, opening out of said circular groove and winding upward around the insulator to a point at which, owing to decreased diameter of the insulator, the tie wire may be slipped on or off readily.

Referring first to Figs. 1, 2 and 4, 1 designates the insulator, which is of ordinary construction except as to the spiral groove above and hereinafter mentioned; 2 designates the line wire, and 3 the tie wire. The insulator is provided as usual with an internal screw threaded socket 4 adapted to receive a correspondingly threaded pin 5 by which it is supported. 6 designates the ordinary circular groove extending around the insulator at about midway of the length thereof, and 7 designates a spiral groove opening out of groove 6 and extending to a point near the top of the insulator such that, because of the reduced diameter of the insulator at such point as compared with its diameter at groove 6, the loop of the tie wire may be slipped off or on without difficulty.

It will be noted that the size of the spiral groove 7 is substantially the same as that of the circular groove 6; this being substantially essential in order that the tie wire may lie as well in groove 7 as in groove 6. It will also be noted that the direction of the spiral groove 7 is the reverse of that of the internal spiral thread 4 so that the same rotation of the insulator which screws the tie wire down in the groove 7 screws said insulator on to its pin 5, and so that the same rotation of said insulator that screws the tie wire upward in groove 7 screws the insulator off from this pin.

In my prior application Sr. No. 372,167 I showed an insulator substantially like that shown herein, except that it had not the circular groove 6; the intention being that the tie wire should lie normally in one turn of the spiral. In practice, however, it has been found that this is not satisfactory, and that the circular groove 6 is substantially necessary in order that the tie wire may lie correctly with reference to the line wire.

Instead of forming the circular groove 6 and thread

7 by continuous ribs as shown, I may form them by a series of projecting lugs 8, as shown in Fig. 3.

In using my said insulator, to remove the same it is necessary merely to give the loop of the tie wire a slight tilt while rotating the insulator, to cause it to pass from groove 6 to groove 7, and further rotation of the insulator then screws the tie wire up in groove 7 until the tie wire may be lifted off. In replacing the insulator the latter is screwed part-way on to the pin 5, the loop of the tie wire passed over the top of the insulator and engaged with the upper portion of the spiral thread 7, and then the insulator turned further so as to screw said tie wire loop downward into groove 6; after which the insulator may be turned as necessary to screw it tightly on to its pin, without affecting the tie wire.

I am aware that it has been proposed heretofore to provide an insulator with a projection above the pin-socket, which projection is provided with an external screw thread designed to receive a tie wire. Such construction, however, has the practical very serious objection that the strain on the wire (necessarily very severe at times) acting on this upward extension of insulator, exerts a considerable leverage with respect to the pin on which the insulator is mounted, tending to wear away the threads of the pin and to make the insulator work loose; moreover, as will be readily understood, such an upward projection is extremely likely to be broken off. To reduce leverage on the pin to the lowest extent and to make the insulator of compact regular form, essential in view of the material of which such insulator must be made, it is substantially necessary to have the tie wire bear normally at a point between the ends of the pin socket, as shown herein.

What I claim is:—

1. An insulator such as described, comprising a tapering body of vitreous material having a screw threaded pin-socket adapted to receive a supporting pin and having, between the ends of such pin-socket and in the exterior surface of the insulator, a tie-wire channel extending around the insulator and a spiral channel opening from such tie-wire channel and extending spirally around the insulator toward the smaller end thereof, and constituting a tie-wire-thread.

2. An insulator such as described, comprising a tapering body of vitreous material having a screw threaded pin-socket adapted to receive a supporting pin and having, between the ends of such pin-socket and in the exterior surface of the insulator, a tie-wire channel extending around the insulator and a spiral channel opening from such tie-wire channel and extending spirally around the insulator toward the smaller end thereof and constituting a tie-wire-thread, the direction of said tie-wire-thread and thread of the pin-socket being opposite.

3. The combination with a line conductor provided with a fastening loop, of an insulator consisting of a tapering body, having an external channel extending completely around it to receive such loop and having a spiral thread of approximately the size of such channel and opening therefrom, said channel located near the middle of the insulator.

In testimony whereof, I affix my signature, in the presence of two witnesses.

JOHN C. BARCLAY.

Witnesses:
C. A. VAN BRUNT,
H. M. MARBLE.