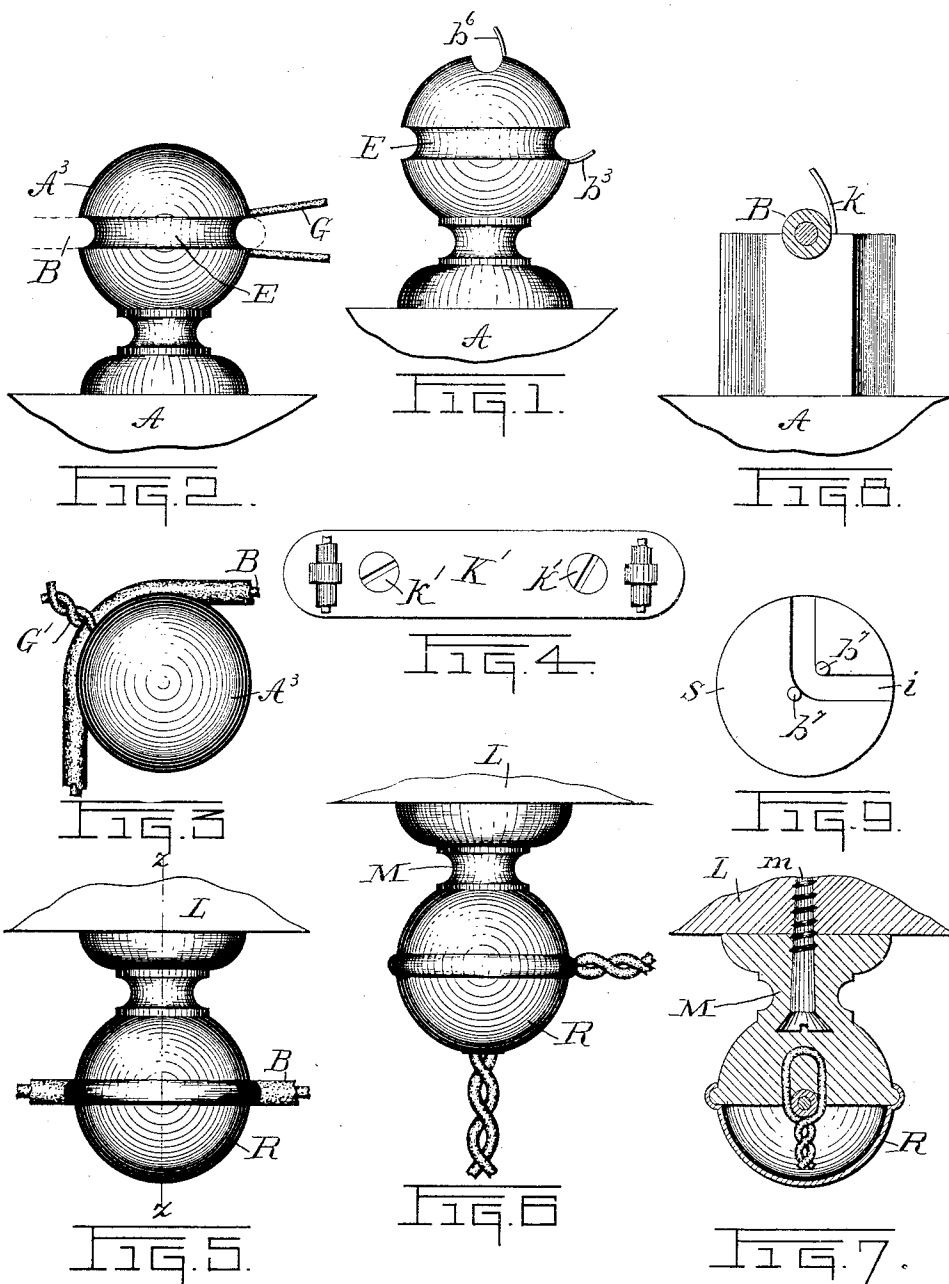


(No Model.)

D. M. ROTHENBERGER.
INSULATOR FOR ELECTRIC WIRES.

No. 532,101.

Patented Jan. 8, 1895.



Witnesses

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INSULATOR FOR ELECTRIC WIRES.

SPECIFICATION forming part of Letters Patent No. 532,101, dated January 8, 1895.

Application filed April 4, 1894. Serial No. 506,304. (No model.)

To all whom it may concern:

Be it known that I, DANIEL M. ROTHENBERGER, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in Insulators for Electric Wires, of which the following is a specification.

This invention relates to improvements in that class of insulators used for the securing of telegraphic or other electrical wires to their supports; and the objects of the improvements are, first, to form a better and more secure bearing for the support of the line-wire where it changes direction; and, second, to protect the connection between the line-wire and the insulator.

The invention consists in the construction and combination of the various parts, as hereinafter fully described, and then specifically pointed out in the claims.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of one of my insulators for supporting a straight line wire and a line wire forming an angle about the insulator. Fig. 2 is a side elevation of an insulator supporting the line wire at an angle formed thereby, and Fig. 3 a top view thereof. Fig. 4 is a face view of an insulating bracket forming the support for two line wires. Figs. 5, 6, and 7 are detail views of depending insulators having caps attached thereto. Fig. 8 is a side elevation of a hexagonal insulator, and Fig. 9 a top view of a modified form of insulator forming a support for an angle of a line wire.

Similar letters indicate like parts throughout the several views.

These insulators may be formed of any suitable non-conducting material formed or molded to the desired shape.

The principle upon which the line-wires are attached to the insulators shown in the various figures and described, is substantially the same; the line-wires being secured to the insulators by a retaining wire or wires, or by some other form of flexible metal attached to or molded into the insulator. Preferably the line-wire is engaged in a groove in the insu-

lator and there confined by a retaining wire or wires having one end permanently secured in the insulator adjacent to said groove. The free end of each retaining wire or wires is bent over the line-wire, so as to confine it in the groove; or two opposite retaining wires may be twisted together over the line-wire. Instead of the retaining wires a flexible plate may be used; the plate having one end embedded in the insulator and the free end adapted to be bent or turned over the line-wire to hold the same in place. Where the line-wire is to change direction a circular or angular groove is formed in the outer surface of the insulator and adapted throughout its whole extent to receive the line-wire, so that all the part of the line-wire in contact with the insulator has a full and even bearing in the groove.

Referring to the details of the drawings, A indicates any support on the top of which the insulator may be placed; K', an insulating bracket to which a plurality of line-wires may be attached; and L, a ceiling or other overhead structure from which an insulator may depend.

Figs. 2 and 3 illustrate an insulator, A^s, formed with an annular groove around its periphery and having a U-shaped retaining wire, the outer ends of which are open or spread apart to allow of the placing of the line-wire—B, in broken lines,—as shown at G, Fig. 2. The line-wire B is bent around the insulator and secured in the recess E by twisting the ends of the retaining wire, as shown at G', 85 Fig. 2.

Fig. 1 illustrates the manner in which the same insulator may be used for both a straight-line wire and as the support for the angle of a bent or deflected wire. Here single plates or wires b^s and b^e, are shown, similar to those illustrated in Figs. 3 and 4.

Fig. 4 represents an elongated insulator bracket, K', attached to a support by screws or other fastenings k', the line wires being secured by flexible plates, similar to those shown in Fig. 1.

Figs. 5, 6, and 7 illustrate the details of a bracket M, depending from a ceiling L, to which they are secured by a screw, m. In

this construction the connection between the insulator and the line-wire is covered by a cap R, adapted to be sprung over the adjacent edge of the insulator.

5 Fig. 12 shows an insulator having a female screw H, a groove b^2 , and a retaining plate b^3 .

Fig. 8 is an illustration of a hexagonal insulator, through a slot in which passes a line wire B, and having a retaining strip or wire k.

10 In Fig. 9 there is shown a top view of an insulator, S, in which is formed an angular groove z , through which the line-wire passes and from the center of which project fastening wires b^7 , to be used as other fastening
15 wires hereinbefore described.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an insulator, the combination, with a
20 wire, of a curved or angular groove formed in the outer surface of the insulator and constructed throughout its whole extent to receive said wire, and a retainer located by the side of the groove and having one end permanently
25 secured in the insulator and the other end

adapted to bind the wire in place, substantially as and for the purpose specified.

2. The combination, in an insulator having a device secured in it for fixing a wire thereto, of a cap covering said connection between the
30 insulator and the wire, substantially as and for the purpose specified.

3. The combination, in an insulator having a groove therein, a device located by the side
35 of the groove and having one end adapted to take over and secure a wire in the groove, and a cap covering the connection between the insulator and the wire, substantially as and for the purpose specified.

4. The combination, with an insulator, of a
40 wire, a retainer secured thereto and adapted to take over a wire and secure the same to the insulator, and a cap adapted to be sprung over the insulator and cover the connection between the same and the wire, substantially
45 as and for the purpose specified.

DANIEL M. ROTHENBERGER.

Witnesses:

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