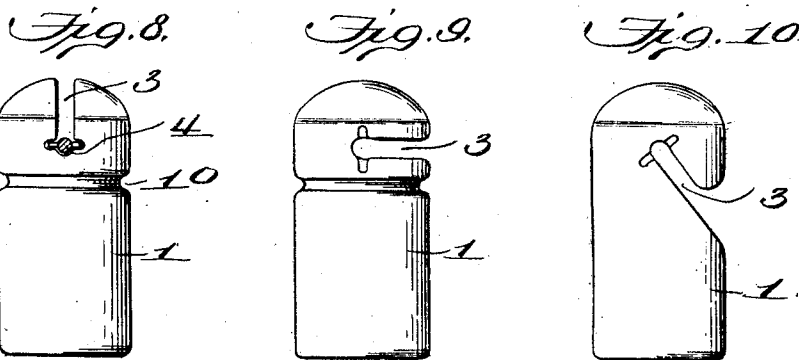
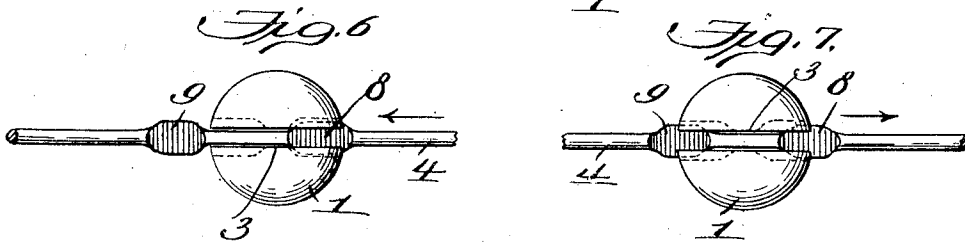
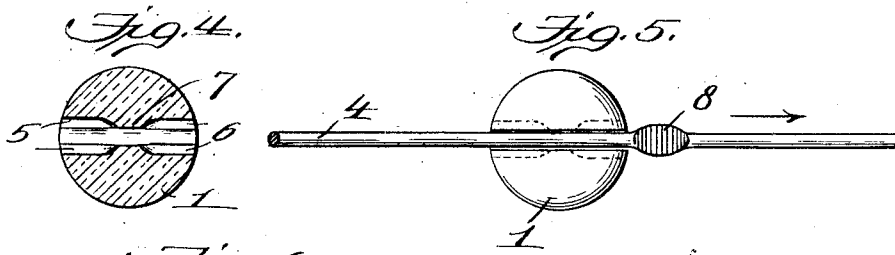
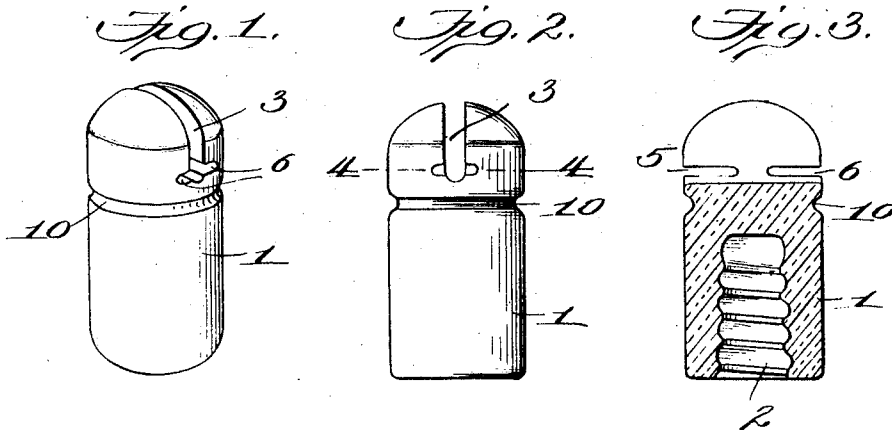


W. H. S. NELSON.
INSULATOR.
APPLICATION FILED FEB. 20, 1911.

1,038,418.

Patented Sept. 10, 1912.



Witnesses:
[Signature]
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William H. S. Nelson
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UNITED STATES PATENT OFFICE.

WILLIAM H. S. NELSON, OF CAPON SPRINGS, WEST VIRGINIA.

INSULATOR.

1,038,418.

Specification of Letters Patent.

Patented Sept. 10, 1912.

Application filed February 20, 1911. Serial No. 609,745.

To all whom it may concern:

Be it known that I, WILLIAM H. S. NELSON, a citizen of the United States, residing at Capon Springs, in the county of Hampshire and State of West Virginia, have invented new and useful Improvements in Insulators, of which the following is a specification.

My present invention relates to improvements in insulators for electric wires, and it has for its object primarily to provide an improved insulator having a groove to receive the wire without requiring the wire to be tied, bent or coiled and said groove is formed with shoulders and also with laterally widened slots at opposite sides of the shoulders to cooperate with flattened or otherwise expanded portions of the wire to limit or prevent longitudinal shifting of the wire and to prevent lateral displacement thereof relatively to the insulator.

To these and other ends, the invention consists in certain improvements, and combinations and arrangements of parts, all as will be hereinafter more fully described, the novel features being pointed out particularly in the claims at the end of the specification.

In the accompanying drawing:—Figure 1 is a perspective view of an insulator constructed in accordance with one embodiment of my invention; Fig. 2 represents an elevation of the insulator, as viewed lengthwise of the wire-receiving groove; Fig. 3 represents a central vertical section of the insulator taken in a plane coincident with the wire-receiving groove; Fig. 4 represents a transverse section of the insulator on the line 4—4 of Fig. 2; Figs. 5, 6 and 7 are diagrammatic views showing the manner in which the wire is applied and locked with respect to the insulator; Fig. 8 is a view similar to Fig. 2 showing the position of the wire when locked to the insulator; and Figs. 9 and 10 show in side elevations modified forms of the insulator.

Similar parts are designated by the same reference characters in the several views.

In the present instance, the insulator comprises a body 1 which may be composed of glass, porcelain, or other insulating material, and it may be formed with the usual thread 2 or other suitable means for mounting it upon a cross-arm or other support. In that form of the invention shown in Figs. 1 to 8 inclusive, the body of the insulator is

formed with a wire-receiving groove 3 which extends vertically and downwardly from the top of the insulator. This wire-receiving groove is sufficiently wide to receive the wire 4, the groove by preference being slightly wider than the wire to be used in connection with the insulator. At or adjacent to the bottom of the wire-receiving groove, recesses 5 and 6 are formed in one or both of the walls of the wire-receiving groove, these recesses being formed in both walls of the groove in the present instance. These recesses extend from diametrically opposite points on the periphery of the insulator inwardly but terminate short of the center of the insulator, the intermediate portions of the walls of the wire-receiving groove separating the recesses 5 and 6 and forming shoulders or abutments 7, the distance between the shoulders or abutments 7 being equal to or slightly more than the normal diameter or size of the wire and less than the spaces or slots which are formed at the opposite sides thereof by the recesses 5 and 6.

In applying the wire to the insulator, the wire is introduced into the wire-receiving groove, the wire is then drawn in the direction indicated by the arrow in Fig. 5 to remove slack, and the wire is then flattened by a suitable tool to form a laterally expanded portion 8 immediately adjacent to the periphery of the insulator. After this flattened portion 8 has been formed in the wire, the strain thereon is relieved and the tension on the wire will then cause the expanded or flattened portion 8 of the wire to enter the recesses 6 in the insulator, the inner end of the flattened or expanded portion of the wire then abutting against the shoulders 7, as shown diagrammatically in Fig. 6. While the wire is in this position, the wire is flattened to form a laterally expanded portion 9 at the opposite side of the insulator and, under normal conditions, the tension on the wire at opposite sides of the insulator will cause both of the expanded portions 8 and 9 of the wire to rest in the recesses 6 and 5, respectively. But under any conditions, the flattened areas of the wire are separated a distance less than the diameter of the insulator, hence, one of said flattened areas will also engage its corresponding notch or recesses in the insulator, and so the wire is prevented or locked from rising in the wire-receiving groove or other-

wise disengaging from the insulator, the expanded portions of the wire being of a lateral dimension greater than the width of the wire-receiving groove and, moreover, longitudinal movement of the wire is limited or prevented by the shoulders or abutments 7 which occupy a position between the laterally expanded or flattened portions of the wire.

10 In some special cases, it may be desirable or necessary to employ the usual tie wire for securing the line wire to the insulator and, for this purpose, the insulator may be formed with the usual circumferential groove 10 to receive the tie wire. To prevent accumulation of snow or ice in the wire-receiving groove or seat in the insulator, the wire-receiving groove may extend inwardly from one side of the insulator and horizontally, as shown in Fig. 9, or, the wire-receiving groove may extend in an inclined direction upwardly and inwardly from one side of the insulator, as shown in Fig. 10, the construction of these insulators being otherwise similar to the one first described.

In constructing an insulator in accordance with my invention, the peripheral ends of the wire-receiving groove are widened or undercut at points adjacent to the bottom or inner terminus of the groove whereby the flattened or laterally enlarged portions of the wire interlock with these undercut walls to prevent displacement of the wire from the groove, while that part of the groove between the widened or undercut portions is of a width corresponding to the remainder of the groove, thereby forming shoulders or abutments to cooperate with the widened or expanded portions of the wire to limit or prevent undue longitudinal movement of the wire relatively to the insulator.

I claim as my invention:—

45 1. An insulator comprising a body having a straight inwardly extending wire-receiving groove the inner terminus of which is widened laterally at opposite sides and at each end of the groove to form abutment shoulders to cooperate with and prevent displacement of the wire from the groove.

2. The combination of an insulator com-

prising a body having a wire-receiving groove the walls of which are undercut at points adjacent to the inner terminus of the groove, and a wire extending through said groove and having expanded portions engaging the undercut portions of the walls thereof to prevent displacement of the wire from the groove.

3. An insulator comprising a body having a wire-receiving groove the two walls of which are recessed at points adjacent to the inner terminus of the groove to form laterally widened slots which extend laterally beyond the walls of the groove and limiting shoulders between them.

4. An insulator comprising a body having a wire-receiving groove the opposed walls of which are formed with two pairs of opposed recesses at points adjacent to the inner terminus of the groove and the periphery of the insulator body to form slots which are wider than the groove and intervening limiting shoulders.

5. An insulator comprising a body having a wire-receiving groove corresponding in width to substantially the diameter of the wire to be used, the two walls of the groove being formed with pairs of opposed recesses at points adjacent to the inner terminus of the groove and toward the periphery of the insulator body, the portions of the walls between the recesses forming shoulders which separate the recesses.

6. The combination of an insulator comprising a body having a wire-receiving groove the inner terminus of which is widened laterally toward the opposite peripheral surfaces of the insulator body and forming limiting shoulders between the widened portions, and a wire resting between the limiting shoulders and having laterally expanded portions disposed at opposite sides of said limiting shoulders and engaged in the respective widened portions of the groove.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM H. S. NELSON.

Witnesses:

L. J. S. NELSON,
CHAS. F. NELSON.