

(No Model.)

C. E. CONOVER.
INSULATOR.

No. 520,412.

Patented May 29, 1894.

Fig. 1

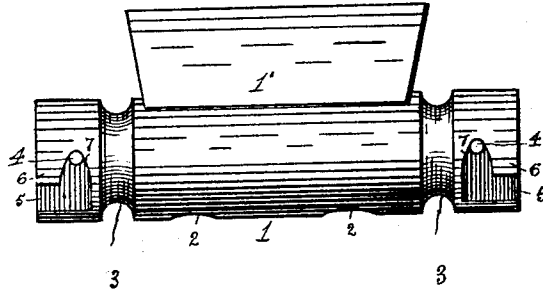


Fig. 2

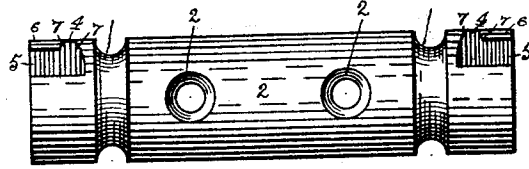


Fig. 3

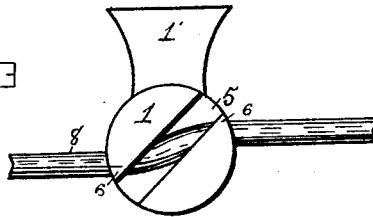
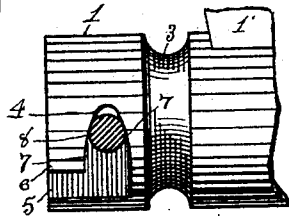


Fig. 4



Witnesses:

C. H. Albee
Herman Miller

Inventor:

Chauncey E. Conover,
by G. H. Albee,
his Atty.

UNITED STATES PATENT OFFICE.

CHAUNCY E. CONOVER, OF CINCINNATI, OHIO.

INSULATOR.

SPECIFICATION forming part of Letters Patent No. 520,412, dated May 29, 1894.

Application filed May 20, 1893. Serial No. 474,968. (No model.)

To all whom it may concern:

Be it known that I, CHAUNCY E. CONOVER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Insulators, of which the following is a specification.

My invention relates to an insulator for use principally with electric lighting wires, but may be applied for the insulating of wires for any purpose for which the insulators may be adapted, and the object of my improvement is to provide an insulator with gripping qualities for retaining the wires therein without the use of tie wires, whereby a line of lighting, or other wires in being arranged for use, can be strained to the necessary tension as the work progresses and said tension be preserved until the completion of said line, and a saving thereby made of both the cost of the tie wires and of the time of the workman in applying said tie wires.

Figure 1 is a side elevation of the insulator; Fig. 2 a top view thereof showing the lower side of Fig. 1; Fig. 3 an end view of the right hand end of the insulator, having a short piece of line wire therein, the opposite end corresponding in its construction with it; and Fig. 4 a side elevation of the left hand end of Fig. 1 upon an enlarged scale, showing a line wire in section, in the line wire groove, as it appears when strung.

Similar figures of reference indicate like parts in the several views.

1, indicates the cylindrical part of the insulator; 1', a rectangular base of the insulator; 2, screw or nail holes through said parts; 3, annular grooves around the part 1; 4, a line wire groove, or seat near each end of the cylindrical part; 5, a groove arranged in a diagonal direction with the groove 4 and leading from said groove to the outer end of the insulator; 6, ears which project over the line wire groove 4 at the circumference of the insulator upon each side thereof; 7, the sides of the line wire groove, which sides in meeting nearly form a V; 8, a short section of line wire which is shown in its position in the insulator in Figs. 3 and 4.

The insulator consists of a cylindrical part,

1, having a base 1', integral with it, the insulator being shown in Figs. 1, 3 and 4, with the base piece uppermost, which is the position it will occupy when it is secured to a ceiling. It is provided with holes, 2, through which nails or screws may be inserted for securing it in position. Each end of the cylindrical part extends beyond the base 1', and has an annular groove 3, in which to secure a line wire for "dead ending" purposes, and has also, outside of each annular groove a line wire groove 4, and a groove 5 arranged diagonally with it, and extending outward to the end of said cylindrical part 1. The arrangement of the groove 5 diagonally with the groove 4 produces the triangular shaped ears 6, near each end of said grooves, each ear forming a narrow space between it and the inner side of the line wire groove 4. The sides 7 of this space instead of being parallel with each other approach like the sides of a V, and their meeting point may be an acute angle, or the arc of a circle of less diameter than the diameter of the line wire to be used in the insulator. The result of this is that a V shaped seat for the line wire is formed between the ear and inner side of the groove 4, upon which the line wire will only rest at two points of its circumference, and said V shaped seats are so arranged upon opposite sides of the insulator that the line wire is made to form two bends in passing through the insulator, and as said wire is drawn up tight it is drawn into wedge shaped seats with such force as to prevent the wire from slipping. A tie wire is therefore unnecessary for securing the line wire to the insulator, as the ears 6 together with the form of the line wire seats between said ears and the inner side of the groove 4, not only retain the line wire within the insulator, but preserve any strain which has been given to the wire in arranging a line of it. Said V shaped seats, it will be observed in Fig. 1, show but a small hole at 4, through the insulator, one much smaller than the line wire is shown to be in Fig. 3, the reason of which is, that their position upon opposite sides of the insulator is such as to cause the wire in passing through the insulator to make two bends, as above mentioned, and to make its entrance

and exit from said seats in planes which are at different elevations, although parallel with each other and with the plane of the upper side of the part 1'.

- 5 Among the several points which are combined in the construction of this insulator, and which I believe are new and produce one which is superior to those heretofore made are the following: It is formed in one piece
10 and can be secured in position with nails as well as with screws. The locking or gripping quality is not dependent upon the tension of its fastening screws, but is produced by its form of construction, and thereby lessens the breakage of its fastenings. Each
15 end of it is a complete insulator, having an annular groove 3, for "dead ending" purposes, and a line wire groove, or seat which is adapted for holding various sizes of wire
20 under the necessary strain without the use of a tie wire, and thereby permitting either one of two lines which may be carried by it to be loosened without affecting the tightness of the strain upon the line in the opposite end.
25 The wire holding part retains the cylindrical form of the ordinary porcelain insulator and is provided with annular tie wire grooves for "dead end" wires. By its use when it is attached to a ceiling the line wire is held at a
30 distance therefrom and a perfect insulation of the wire is preserved, while the disfigurement of said ceiling by reason of the accumulation of dust and the gathering of smoke between the wire and ceiling, is prevented.
35 Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an insulator, a line wire groove transversely thereof and so arranged as to require
40 the wire in passing through the insulator to enter and leave the same in different parallel planes and thereby to form upon said wire intermediate the ends of said groove, two bends, and a groove arranged diagonally
45 with said line wire groove and leading outward from it to the end of the insulator and forming thereby ears, one at each end of said line wire groove for retaining said line wire therein, substantially as described.
50 2. In an insulator, a line wire groove transversely thereof and so arranged as to require the wire in passing through the insulator to enter and leave the same in different parallel planes, and thereby to form upon said
55 wire two bends intermediate the ends of said groove, and a groove arranged diagonally with said line wire groove and leading outward from it to the end of the insulator and forming ears, one at each end of said line
60 wire groove for retaining the wire therein, the sides of said line wire groove between each ear and the main part of the insulator forming a seat for the wire of approximately a V form, whereby the insulator is adapted
65 for wires of different sizes, which at their

entrance and exit therefrom will bear only upon two points of their circumference, and the tightening of said wire will cause it to be gripped between the sides of said V form seats, substantially as set forth.

3. An insulator, consisting of a cylindrical body having greater length than diameter, and a base piece integral therewith of less length than said cylindrical part, said parts being provided with one or more holes transversely thereof for receiving a screw or nail for securing the insulator in position, said cylindrical part having, intermediate its ends, two annular grooves, in combination with a line wire groove in each projecting end, transversely of said cylindrical part, and a groove arranged diagonally with each of said line wire grooves and leading outward from it to the end of the insulator and forming ears, one at each end of the line wire groove for retaining a line wire therein, substantially as described.

4. An insulator, consisting of a cylindrical body having greater length than diameter and a base piece integral therewith of less length than said cylindrical part, said parts being provided with one or more holes transversely thereof for receiving a screw or nail for securing the insulator in position, said cylindrical part having intermediate its ends, two annular grooves, in combination with a line wire groove, outside of each annular groove transversely of said cylindrical part, said line wire grooves being so arranged as to require the wire in passing through the insulator to enter and leave the same in different parallel planes, and thereby form upon said wire two bends intermediate the ends of said groove, and a groove arranged diagonally with each line wire groove and leading outward from it to the end of the insulator, and forming ears, one at each end of each line wire groove for retaining a line wire therein, substantially as set forth.

5. An insulator, consisting of a cylindrical body having greater length than diameter and a base piece integral therewith of less length than said cylindrical part, said parts being provided with one or more holes for receiving a screw or nail for securing the insulator in position, said cylindrical part having intermediate its ends two annular grooves, in combination with a line wire groove outside of each annular groove, transversely of said cylindrical part, said line wire groove being so arranged as to require the wire in passing through the insulator to enter and leave the same in different parallel planes, and thereby form upon said wire two bends intermediate the ends of said groove, and a groove arranged diagonally with each line wire groove and leading outward from it to the end of the insulator, and forming ears, one at each end of each line wire groove for retaining a line wire therein, the sides of the

latter groove between each of said ears and the main cylindrical part forming a seat for the wire of approximately a V form, whereby the insulator is adapted for wires of different sizes, which at their entrance and exit therefrom will bear only at two points of their circumference, and the tightening of said wire will cause it to be gripped between the sides of said V form seats, substantially as described.

CHAUNCY E. CONOVER.

Witnesses:

E. EDWARDS,
W. N. CONOVER.