

S. P. GRACE.
KNOB INSULATOR.
APPLICATION FILED JUNE 12, 1907.

948,321.

Patented Feb. 8, 1910.

Fig. 1.

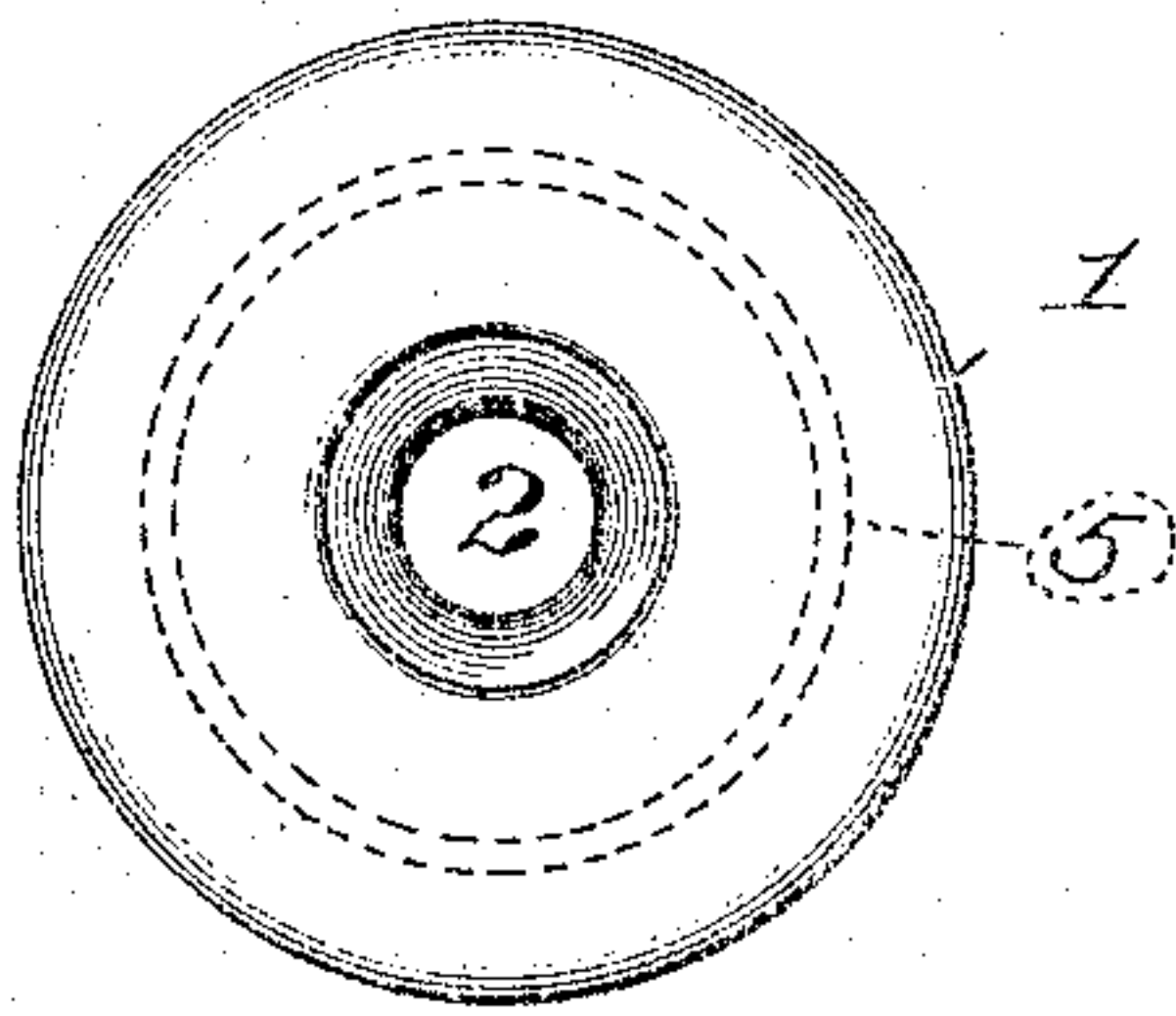


Fig. 2.

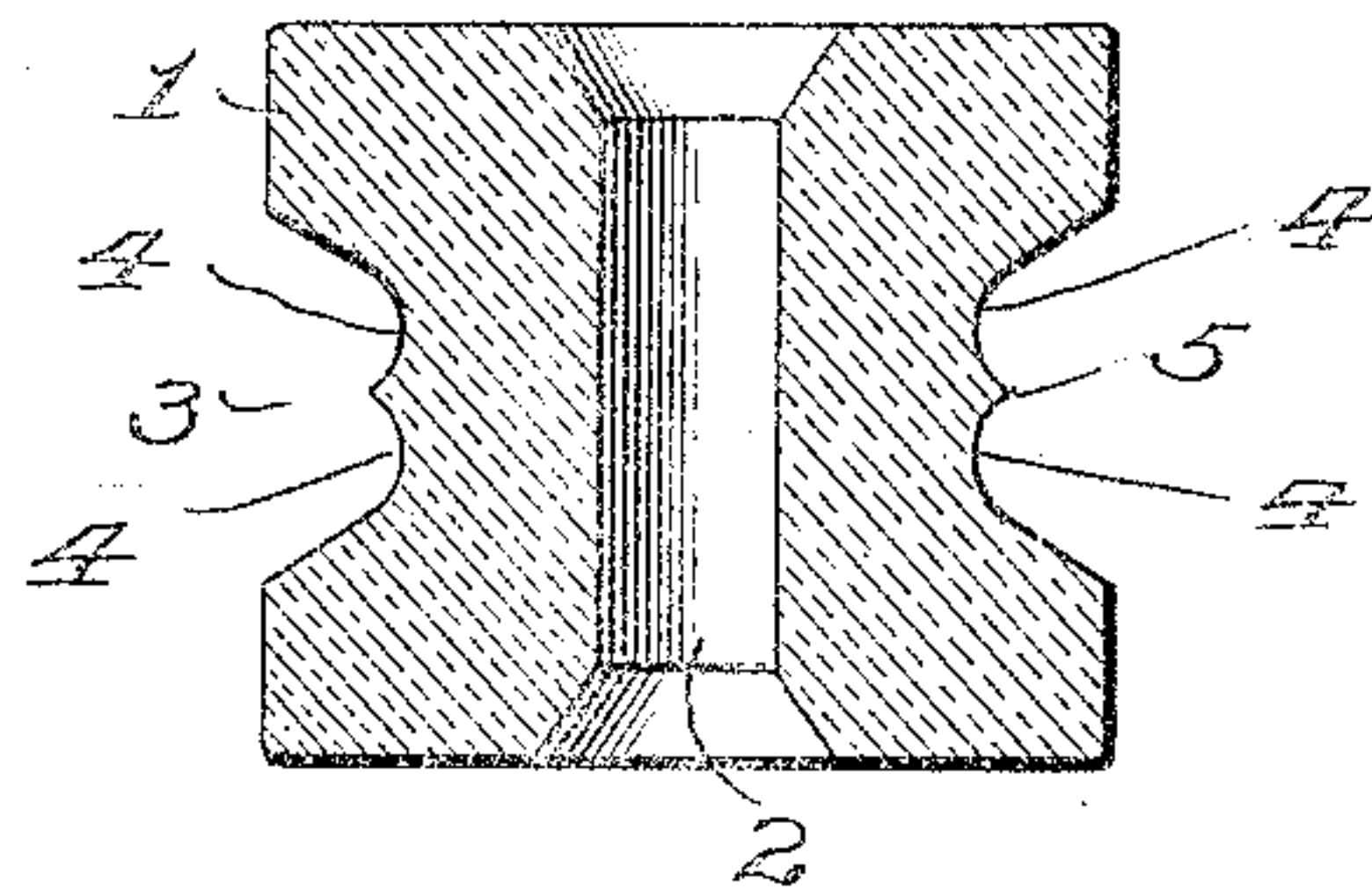


Fig. 3.

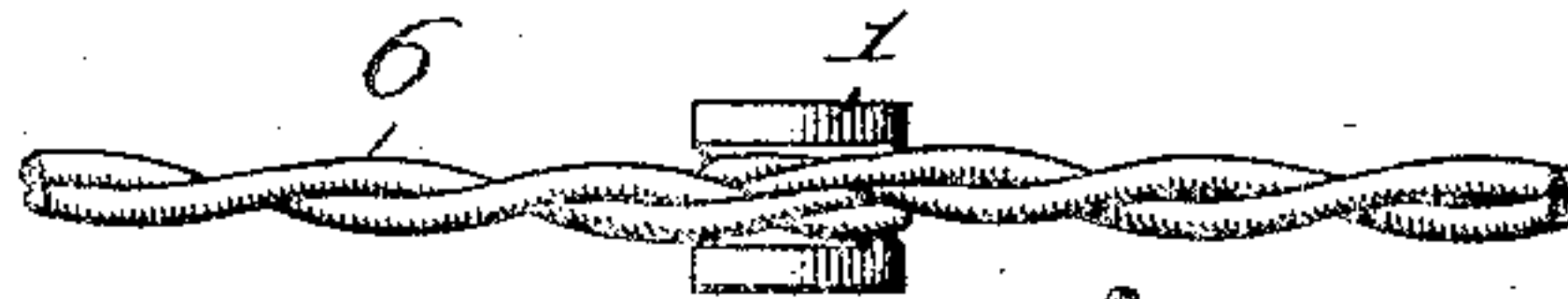


Fig. 4.

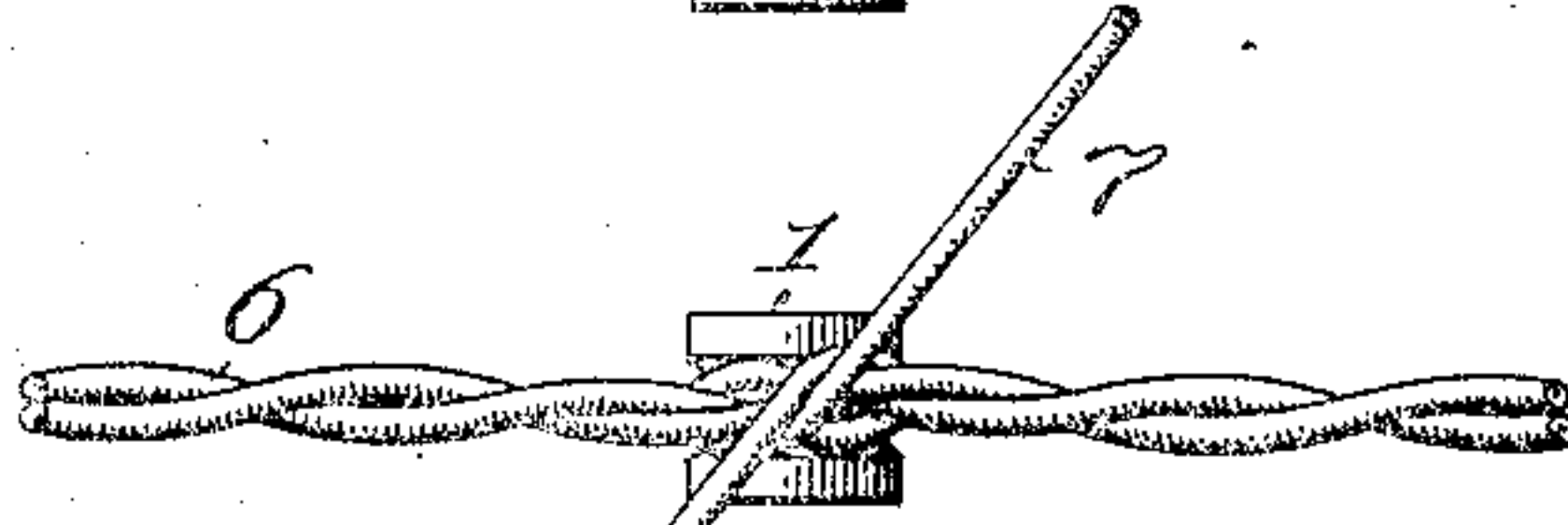


Fig. 5.

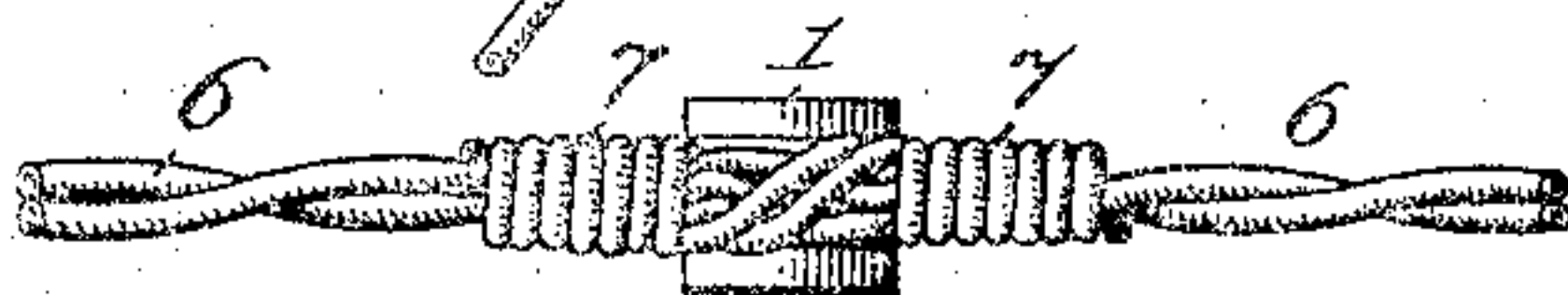
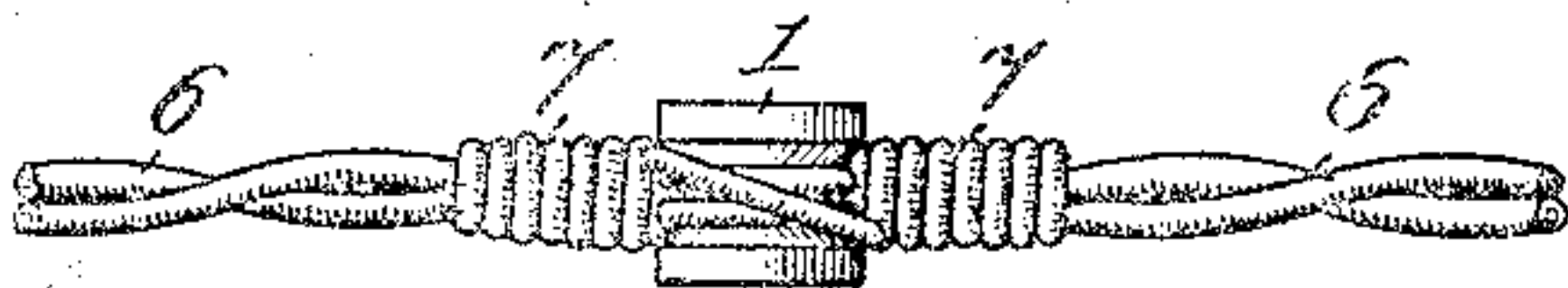


Fig. 6.



Witnesses:

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Sergius P. Grace,
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UNITED STATES PATENT OFFICE.

SERGIUS P. GRACE, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

KNOB-INSULATOR.

948,321.

Specification of Letters Patent.

Patented Feb. 8, 1910.

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To all whom it may concern:

Be it known that I, SERGIUS P. GRACE, citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Knob-Insulators, of which the following is a full, clear, concise, and exact description.

My invention relates to a knob insulator for supporting a twisted pair of wires, and its object is to provide an insulator that will support the wires without injuring them.

My invention consists of an insulator knob having two parallel grooves about its periphery, each groove being adapted to receive one wire of a pair, the wires being thus held in separate relation to each other around the knob. In its preferred form, the insulator comprises a cylindrical knob having a large groove around its circumference, and having two smaller grooves formed in the bottom of the larger groove, each of said smaller grooves being adapted to receive a single wire.

As is well-known, it is common to twist together two wires forming electrical conductors, such twisted wires each being coated or covered with insulating material. It has been found that if such a twisted pair be supported by being wrapped about the insulator in the usual manner, there is a great liability of the insulation being cut into and the wires consequently short-circuited at the point they cross each other about the insulating knob. This is obviously due to the fact that one of said wires is held against the insulating knob and supports the other, the stress or weight of the depending ends thus causing the wires to cut into each other. My invention provides an insulating knob which will hold the two wires in separate relation at their point of support and prevent their crossing each other. My invention also provides a better support for the wires, since the double groove insulator gives a greater bearing surface for each wire of the pair.

My invention will be more readily understood by reference to the accompanying drawing in which—

Figure 1 is an end elevation of the knob; Fig. 2 is a central longitudinal section thereof; Fig. 3 is a side view of the knob with a pair of wires wrapped thereabout, and show-

ing the same before the tie-wire is applied; Fig. 4 is a similar view showing the first position of the tie-wire; Fig. 5 is a front side view of the complete tie; and Fig. 6 is a rear side view of the complete tie.

Like parts are designated by similar characters of reference throughout the several views.

The knob 1 is formed of insulating material and is preferably of cylindrical form having an opening 2 through its longitudinal center, by means of which it may be secured upon the cross-arm, the side of a house or other suitable support in the usual manner. The outer circumference of said knob is provided with a large groove 3, the bottom of which is formed into two smaller grooves 4, 4, each of said latter grooves being of a size adapted to receive a single wire of the twisted pair. Said grooves 4, 4, are preferably separated by a ridge-shaped rib 5. In wrapping the twisted wires about the knob, said wires are more readily separated by means of the rib or ridge 5, and there is little likelihood of their crossing one over the other.

The method of tying the pair of wires to the insulating support is shown in Figs. 3, 4, 5 and 6, in which a twisted pair 6 is wrapped about the knob 1 in the groove 3. The portions of the pair surrounding the knob are separated by the ridge 5 and the wires lie in the groove 4 in parallel relation to each other as shown most clearly in Fig. 6. While in this position a short tie-wire 7 is placed around the knob and wire extending over the pair at the right of Fig. 4, and under the same at the left of said figure. The ends of the wires 7 are then wrapped about the pair as shown in Fig. 5 and Fig. 6 to form the complete tie. It is thus apparent that the wires of the twisted pair are securely held in separate relation around the circumference of the knob 1 and that it is impossible for them to cross one another, and hence any short-circuiting due to the strain of the span of wires against the knob is prevented.

As before stated, I preferably form the grooves 4, 4 in the bottom of the larger groove 3. By this construction the top portion of the groove 3 is adapted to receive the tie wire 7 and prevents any possibility of the wires slipping off of the insulator knob.

The knob insulator of my invention is de-

signed more particularly for use with the usual twisted drop or house wires which extend from the cross arms of poles which support the telephone line wires to the house in which the telephone substation is located. In modern practice, it is common to form such drop wires of a twisted pair of rubber-covered wires. The insulating knob of my invention is particularly adapted to form a support for the ends of the drop wires at the points of their connection to the line wires and the house to which said drop wires extend, the knob being of such construction, as hereinbefore stated, that the twisted pair may be readily secured to the same without endangering the insulating covering of the wires.

I claim:—

1. An insulator comprising a knob of circular cross-section provided with a groove in its circumference and having an annular rib extending completely around the knob at the bottom of said groove, said rib being of a height less than the depth of said groove

and dividing the bottom of the groove into two smaller grooves.

2. The combination with a twisted pair of conducting wires, of an insulator support therefor consisting of a cylindrical knob provided with an annular main groove and having an annular rib with a sharp-pointed vertex located at the bottom of said groove, said rib being of a height less than the depth of said groove and dividing the bottom of the main groove into two smaller grooves, and a tie-wire for tying said pair of wires to said knob; said rib serving to separate said wires, when said pair of wires is wrapped about said knob, and to leave a space in the main groove above said rib for receiving said tie-wire.

In witness whereof, I, have hereunto subscribed my name this 7th day of June A. D., 1907.

SERGIUS P. GRACE.

Witnesses:

J. F. McKenna,
E. J. McKenna.