No. 878,949. PATENTED FEB. 11, 1908.

J. H. HANSON.

ELECTRIC WIRE INSULATOR.

APPLICATION FILED JAN. 12, 1907.

Fig. 1

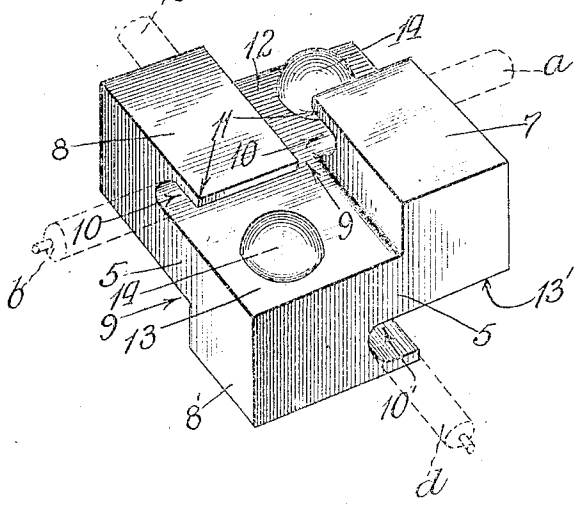


Fig. 3

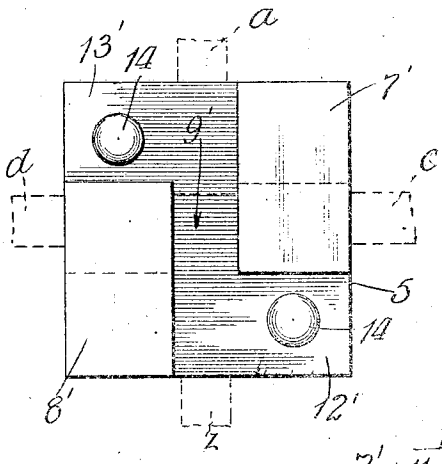


Fig. 2

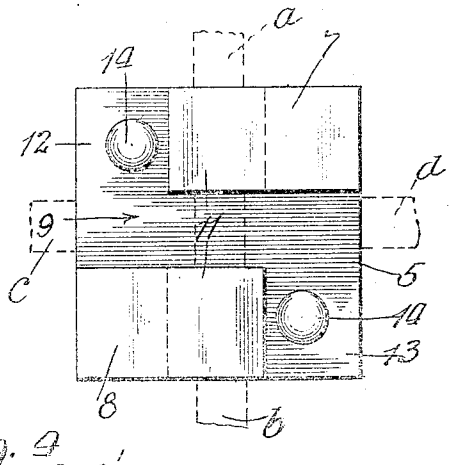
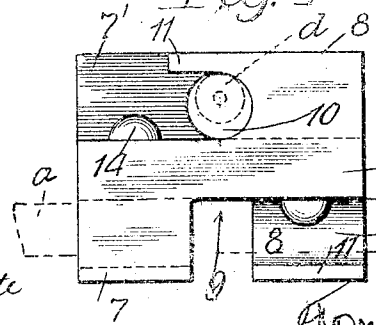


Fig. 4



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN H. HANSON, OF CHICAGO, ILLINOIS.

ELECTRIC-WIRE INSULATOR.

No. 878,949. Specification of Letters Patent. Patented Feb. 11, 1908.

Application filed January 12, 1907. Serial No. 351,952.

To all whom it may concern:

Be it known that I, JOHN H. HANSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electric-Wire Insulators, of which the following is a specification.

My invention relates to electric-wire insulators, and more particularly to cross-over insulators for insulating from each other crossing wires forming part of an electric circuit or circuits.

One of the primary objects of my invention is to provide a device of the character described, of one piece construction, which may be easily and cheaply made, which is simple in construction, easy of application to wires already strung, and efficient in operation.

Other and further objects of my invention will become apparent to those skilled in the art from the following description taken in conjunction with the accompanying drawing, wherein;

Figure 1 is a perspective of a cross-over insulator embodying my invention; Fig. 2 is a plan view of the article shown in Fig. 1, with the side to the left in Fig. 1 turned downward; Fig. 3 is a plan of the opposite face, with the article turned over on its edge to the left in Fig. 2 as an axis; Fig. 4 is a side elevation taken from the left side of Fig. 3.

Throughout the drawing like numerals of reference refer always to like parts.

In the embodiment of my invention illustrated, I provide a body of insulating material, preferably a single piece of porcelain or glass, comprising a central insulating portion 5, which I may term the separating portion, lying in a central plane, and provided on opposite faces with heads, numbered 7, 8 and 7′, 8′, the heads 7 and 8 being on one face of the central separating portion, and the heads 7′ and 8′ being on the opposite face thereof. Considering the heads 7 and 8, they are disposed in diagonally opposite areas of the face from which they protrude, with their proximate sides along one line, separated to leave therebetween a wire entrance groove 9, preferably straight, transversely of the face, and straight vertically of the face, so that a wire laid straight along one median transverse line of the face may pass down without distortion to the bottom of the groove to rest upon one face of the separating central portion 5. Along another line at an angle to the line of the entrance groove 9, usually at right angles thereto, said heads provide complementary portions of a wire receptacle, or channel, overlain by projections from one or both of the heads, to a suitable extent to retain the wire in the receptacle against any strain on a line taking vertically through the body 5. Specifically, I prefer that the heads 7 and 8 be counterparts, each providing channel 10 overlain by a lip or flange 11, and opening laterally in substantially the plane of the bottom of groove 9, toward the plane portions 12 and 13 of the face of body 5, respectively adjacent opposite ends of such groove 9. Thus it will be seen that with respect to a stationary or fixed wire, *a*—*b*, the same may be positioned in the wire receptacle, or channel 10, by first moving the insulator to position including the wire within the entrance groove 9 and then turning said insulator on an imaginary vertical axis coincident with the intersection of groove 9 and channel 10, so that the plane portions 12 and 13 on the opposite side of such axis, pass beneath corresponding parts *a* and *b* of the wire, until such parts of the wire enter the laterally open channel portions 10, to be overlain by the lips 11 of heads 7 and 8 respectively.

To prevent accidental displacement of the insulator by reverse rotation on its imaginary axis aforesaid, while permitting such rotation when intentionally attempted, I provide obstructions in the path of egress of the wire from its receptacle, and to this end I preferably provide as an integral part of the structure, obstructing knobs 14, disposed, in the specific embodiment shown, upon the plane portions 12 and 13 of the central part 5 of the body, just in front of the overhanging lips 11.

The arrangement of the heads 7′ and 8′ upon the opposite face of the insulator is similar, in functional characteristics, to the arrangement heretofore described, it being understood that the entrance groove 9′ between such heads 7′ and 8′ may be at the angle, usually a right angle, to the entrance groove 9, corresponding with the normal angle of the wires to be insulated from each other. Also the wire receptacle, or channel,

10′, constituted by the coacting parts of the heads 7′ and 8′ is at the same relative angle to channel 10, and further the heads 7′ and 8′ are in the diagonal areas of their face of the article, which underlie the plane corners 12′ and 13′ of the opposite face, or otherwise stated, the heads on one side are in quartering relation to the heads on the other side. Further it will be observed that all of the channel-parts 10 and 10′ open in like direction with respect to the imaginary vertical axis of rotation of the article. Now it will be apparent that my improved insulator may be readily applied to two wires, *a*—*b*, and *c*—*d*, already tightly strung and fastened in crossing position. To this end an insulator having its grooves disposed relative to each other at proper angles approximating the angle of the crossing wires, is forced between the crossing wires in such position that the wires may spring into the entrance grooves 9, 9′, and then the structure is rotated on its imaginary vertical axis, forcing the obstructions 14 past the wires and seating the wires in the respective receptacles 10 and 10′, which are also in the proper angular relation to each other. Now the wires are retained in separated relation, and the insulator is supported wholly from the wires, rotary movement of the insulator relative to the wires being prevented by the obstructions 14, and vertical displacement being prevented by the overhanging and overlapping lips 11.

While I have herein described in some detail a specific embodiment of my invention, which I have found to be convenient in its specific construction, I do not desire to be understood as limiting myself to the particular configuration herein shown further than as specified in the claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent, of the United States, is:

1. In a cross-over insulator, a body of insulating material comprising a central separating portion provided on opposite faces with overhanging heads, the heads on each face being disposed in and covering only diagonally opposite areas of said respective faces, the pair of heads protruding from one face being located at substantially right angles to the pair of heads of the other face, the heads of each face separated along an intervening line by an entrance groove, and along a line at an angle to such entrance groove, providing complementary portions of a wire receptacle vertically restricted by an overhanging head portion to retain the wire, such reception portions respectively opening toward opposite ends of the entrance groove.

2. In a cross-over insulator, a body of insulating material comprising in a central plane a solid separating portion, and on opposite faces thereof separated overhanging heads located on and covering only diagonally opposite areas of the respective faces, the heads of each face being along one separating line disposed to leave therebetween a substantially straight entrance groove, and along the other separating line shaped to constitute a wire receptacle vertically closed against egress of the wire, and laterally opened toward the plane areas of the separating portion, said grooves and receptacles on opposite faces of the separating portion being disposed at an angle relative to each other.

3. In a cross-over insulator, a body of insulating material comprising in a central plane a separating portion, on each of the opposite faces thereof, separated heads located in and covering only diagonally opposite areas of the face, the heads on each face being disposed along one separating line to leave therebetween an entrance groove, and along the other separating line shaped to constitute a wire receptacle vertically overlain by portions of the head, and laterally open toward the plane areas of the separating portion, such lateral opening being partially obstructed, and the grooves and receptacles, on opposite faces of the separating portion of the body being disposed at an angle relative to each other.

4. In a wire holding device, a body of insulating material, providing on one face two diagonally opposite heads, each head covering substantially one fourth of the area thereof the heads being separated along one line by a straight entrance groove, and along a line at an angle to such entrance groove providing complementary portions of a wire receptacle vertically restricted, and laterally opening toward the plane portions of the body adjacent opposite ends of the entrance groove, and obstructions for resisting the lateral egress of the wire from such receptacle portions.

5. In a cross-over insulator, a central separating portion having on each face thereof two heads, the heads on each face being located on and covering only diagonally opposite areas of such face, and along one separating line disposed to leave therebetween a substantially straight entrance groove, and along the other separating line providing oppositely opening lateral channels constituting complementary parts of a wire receptacle, the heads on one face of the insulator being disposed in the diagonal areas, which are plane upon the other face, and all of the laterally open channels opening in the same direction with respect to an imaginary vertical axis of rotation.

6. In a cross-over insulator, a portion 5, overhanging heads 7 and 8 protruding therefrom on diagonally opposite areas thereof

and obstructing knobs 14 to prevent the accidental displacement of the wires.

7. In a cross-over insulator, a body of insulating material comprising a central separating flat portion substantially rectangular in form, two securing heads protruding from the face and in diagonally opposite corners of said separator and on both sides thereof and obstructing knobs located in the front of the securing portions of each head.

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

JOHN H. HANSON.

In presence of—

GEO. T. MAY, Jr.,

MARY F. ALLEN.