No. 853,745. PATENTED MAY 14, 1907.

L. STEINBERGER.

HORIZONTAL SUPPORT FOR CONDUCTORS.

APPLICATION FILED DEC. 10, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

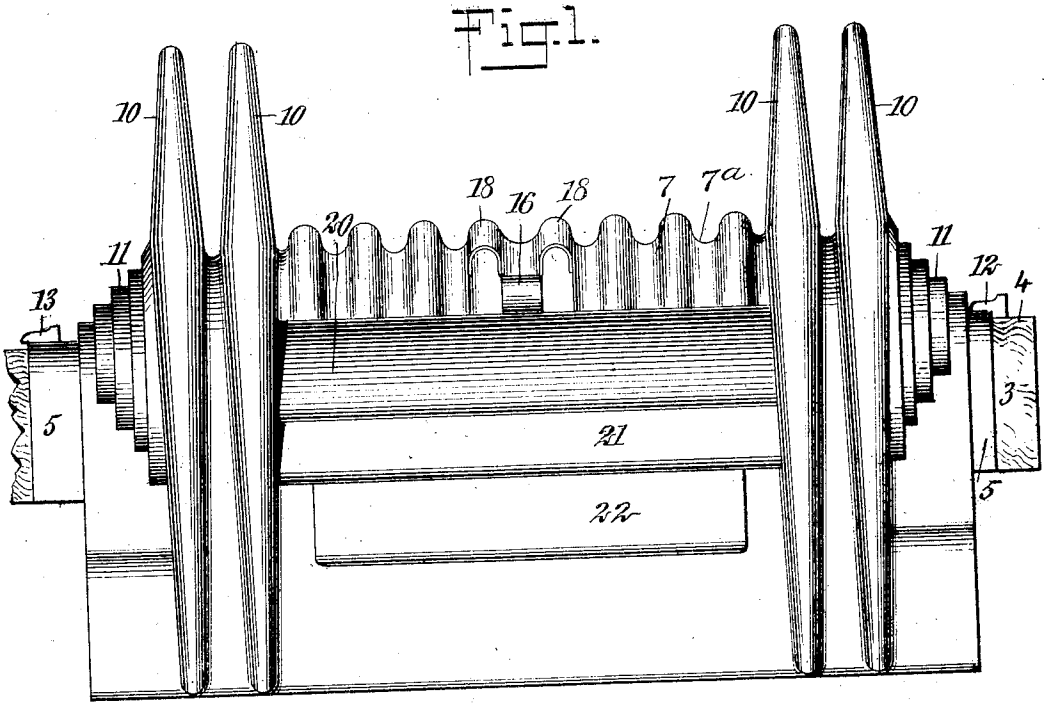
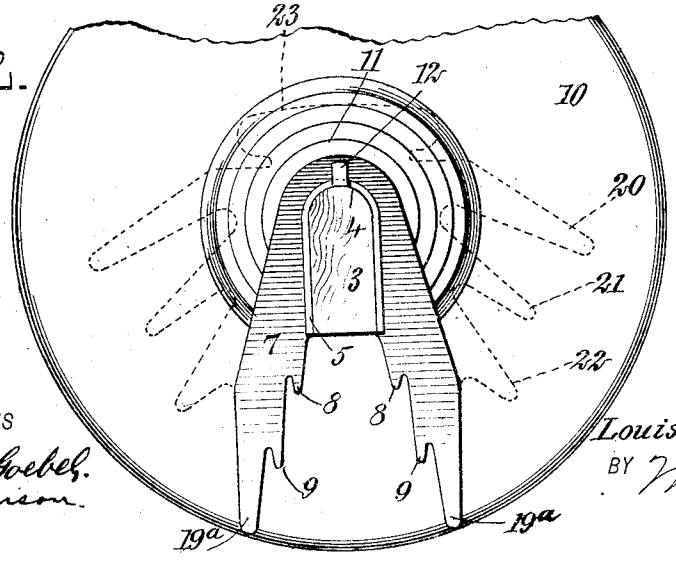


Fig. 2.



WITNESSES

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Fig. 3.

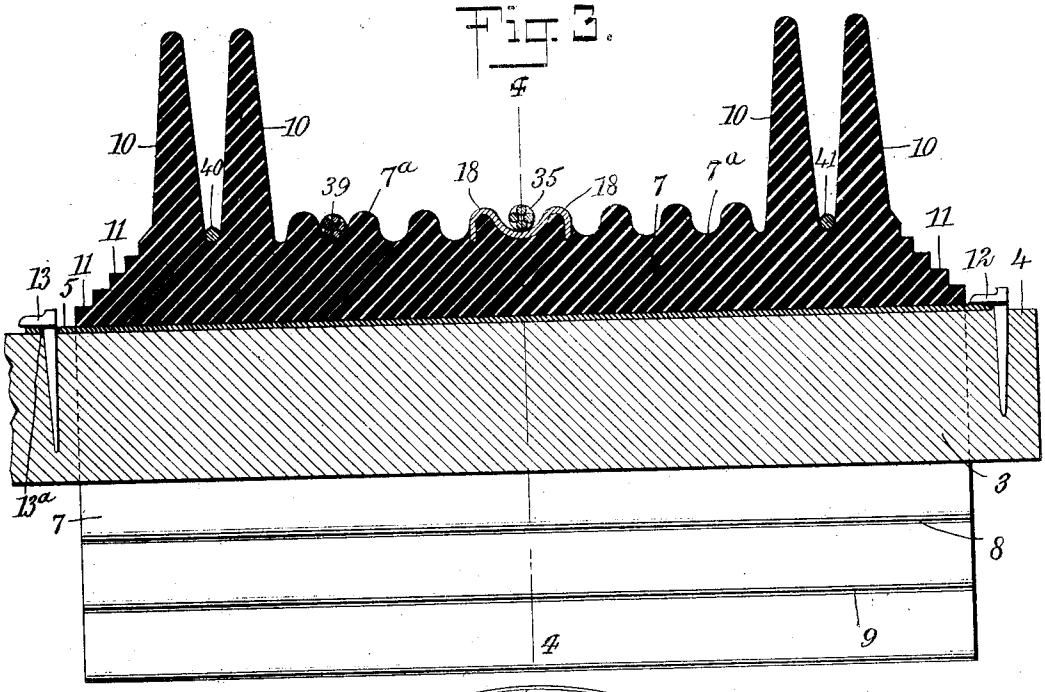


Fig. 4.

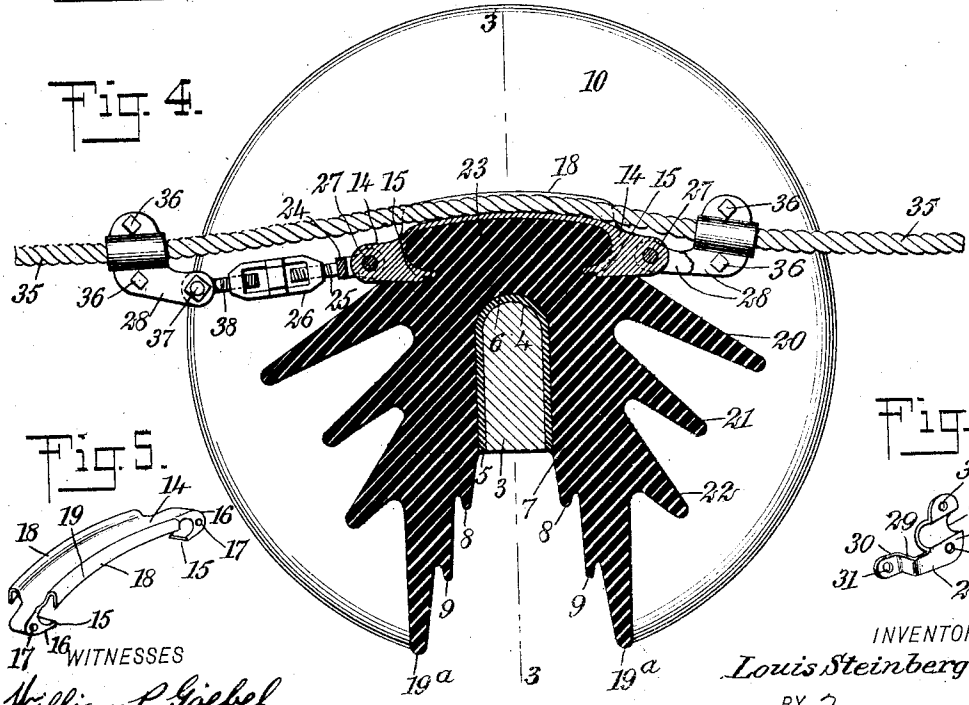


Fig. 5.

Fig. 6.

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UNITED STATES PATENT OFFICE.

LOUIS STEINBERGER, OF NEW YORK, N. Y.

HORIZONTAL SUPPORT FOR CONDUCTORS.

No. 853,745. Specification of Letters Patent. Patented May 14, 1907.

Application filed December 10, 1906. Serial No. 347,007.

To all whom it may concern:

Be it known that I, LOUIS STEINBERGER, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Horizontal Support for Conductors, of which the following is a full, clear, and exact description.

My invention relates to supports for conductors, such as cables, wires and the like.

Among the several objects sought by my improved device are the following: I. To provide an increased expanse of insulating material upon a cross arm or analogous member disposed horizontally, for the purpose of preventing leakage from the conductor to the arm; II. To increase the extent of surface of the insulator so as to reduce the amount of surface leakage; III. To prevent the formation of arcs, by lengthening the path through which the arc might otherwise tend to occur; IV. To provide improved facilities for mounting the insulator and for taking it down; V. To insure the retention of dielectric properties in the insulator, should a part of the construction be broken; VI. To prevent undue chafing or wearing of that part of the insulator upon which the cable or other conducting member rests; VII. To clamp the cable or analogous conducting member in a predetermined position relatively to the insulator; VIII. To provide the insulator with means for tightening and slackening the cable; IX. To secure the wearing plate firmly in position upon the insulator by appropriate anchorages; X. To provide for regulating the degree of clamping pressure upon the cable or analogous member incidental to holding the cable firmly in relation to the insulator; XI. To prevent undue rigidity in the clamping mechanism used for controlling the tension of the cable; XII. To reduce the number of poles usually required for a given distance; and XIII. To provide a line insulator of novel construction, which is mounted directly upon and is supported by the cross-arm, thus obviating the necessity of employing a pin, or other auxiliary device for supporting the insulator, and also providing the greatest possible strength in the support and permitting the employment of a greatly increased length of span between poles with perfect safety. XIV. To provide a practically storm-proof line insulator having means for securely supporting the cable in a manner so as to make each span an independent mechanical unit.

Reference is had to the accompanying drawings representing one form of my invention, in which drawings like characters of reference indicate like parts throughout the views, and in which

Figure 1 is a front elevation of the insulator, the wires and all movable parts being removed; Fig. 2 is a fragmentary side elevation of the construction shown in Fig. 1; Fig. 3 is a vertical longitudinal section through an insulator and support therefor, made in accordance with my invention, the section being taken along the line 3—3 of Fig. 4; Fig. 4 is a central cross section upon the line 4—4 of Fig. 3, showing the manner in which the cable is mounted, and in which the tension of the cable is controlled; Fig. 5 is a perspective of the wearing plate used upon the top of the insulator to prevent the material of the insulator from becoming chafed by the action of the cable; Fig. 6 is a perspective of one member of a two-part clamp used for gripping the cable or its equivalent.

The cross arm is shown at 3, and the upper edge 4 thereof is rounded. As indicated in Fig. 2 the dimension representing the width of the cross arm may be greater than the thickness thereof. Mounted upon the cross arm is a saddle 5 of metal, the upper portion of the same being rounded so as to fit the upper surface 4 of the cross arm. Molded rigidly upon the saddle 5 is a body portion 7 of insulating material made comparatively thick, and provided internally with petticoats 8 and 9, as will be understood from Fig. 2. A number of disks 10 are integral with the body portion 7, and are spaced apart, as indicated in Fig. 1, there being two of these disks adjacent to each end of the body portion. The ends of the body portion are sloped, or provided with steps 11 for the purpose of guiding rain and other forms of moisture off in two directions, without allowing it to run downwardly upon the cross arm. The middle surface of the body portion 7 is provided with corrugations 7^a, the latter serving the double purpose of causing moisture to flow in two directions at right angles to the general plane occupied by the cross arm, and of diminishing the chances of a surface leakage. The saddle 5 is held in position by metallic spikes 12, 13, which are driven into the cross arm. The spike 13 is here shown as

extending through a hole 13ª in the saddle 5 for the purpose of insuring that no displacement can take place as between the saddle and cross arm. A wearing plate 14 having a generally arched form, as indicated in Figs. 3, 4 and 5, is provided with under-cupping edges 15 having comparatively thick portions 16, and also having apertures 17. This wearing plate 14 is further provided with flanges 18 integral therewith, the lower edges 19 of these flanges, and also the under-cupping edges 15 being embedded within the general body of insulating material. The lower edges 19ª of the body 7 of insulating material are flush with the lower edges of the disks 10, as will be understood from Fig. 2. The body portion 7 is provided with horizontally disposed sheds 20, 21 and 22 which are spaced apart for the double purpose of and decreasing surface leakage, and of facilitating the drainage of moisture. The shed 22 is a little shorter than the sheds 20, 21, which are of the same length. The body portion 7 is further provided with a supporting portion 23, upon which the wearing plate 14 is mounted, and into which the edges 15 and 19 are embedded, as above described. A link 24 is provided with a threaded bolt 25 extending therefrom, and connected with this bolt is a revoluble buckle 26. Pins 27 pass through the thick portions 16 of the wearing plate 14, and serve as pivots for the link 24, and a clamp 28. There are two of these clamps, each made in halves, one of these halves being shown in perspective in Fig. 4. The member 28 is bent laterally at 29, and terminates in an eye 30 having a hole 31 therethrough. Said member 28 is further provided with an enlarged portion 32, having holes 33 therethrough, and bent into semi-cylindrical form at 34. Each pair of parts of the kind just described is clamped upon a cable 35, and held in position relatively thereto and to each other by bolts 36. One of the complete clamps just described, at the left of Fig. 2, is connected by a pivot 37 with a bolt 38, in such a manner as not to be readily turned in the direction of the axis of the bolt 38. This bolt engages the buckle 26. The bolts 25 and 38 are threaded oppositely so that the rotation of the buckle 26 tends to tighten or slacken the cable 35. The corrugations 7ª have a double office. They serve to break up the surface of the insulator, thus retarding the creep of moisture, and they also serve as rests for additional cables such as 39 (Fig. 3.) If for any reason, the cable 35 should become disconnected from its fastenings, it may still rest between the corrugations 7ª.

It will be noted that the upper ends of the disks 10 taper gradually in thickness and wires 40, 41, may therefore be inserted intermediate of these disks and may be wedged into position therebetween so as to be held firmly. In this way a telegraph or telephone wire or even a so-called "third" wire of a three-wire system will be supported without detriment to the general properties of the insulator.

My invention is used as follows: The parts being constructed as above described, the cable 35 rests centrally within the wearing plate 14, being retained therein partially by its own weight. The clamps and turn-buckles are next placed in position, and the bolts 36 are given the proper degree of tightness to hold the clamps firmly in relation to the cable. By this means any sawing action due to longitudinal movement of the cable in the direction of its length is unable to cause abrasion or chafing of the insulating material, for the reason that all wear is taken up by the wearing plate 14. If the cable should break, the slack caused by the break cannot extend any farther than the two insulators located upon the opposite sides of the break. If, now, it be desired to adjust the cable, for instance, according to the view shown in Fig. 2, to pull the cable to the right for the purpose of taking up slack toward the left, this may be done by turning the turn buckle 26 so as to pull the cable in the direction indicated. If need be, the clamp at the right of the Fig. 2 may remain tight, while this is done, in which event a small portion of the cable intermediate of the clamps will buckle slightly, thus transferring most of the strain from the top of the wearing plate 14 to the ends of the wearing plate. It will be understood, therefore, that the strain of the cable while, of course, sustained ultimately by the insulator, need not in every instance be upon the same identical part of the insulator, and may be distributed to considerable advantage so as to increase the strength of the insulator.

I do not limit myself to the particular combination shown nor to the exact form of any or all of the parts above shown or described; nor do I limit myself to the use of any particular insulating material, I prefer however, to employ the insulating material known in the art as "electrose."

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

1. An insulator, comprising a body of insulating material provided with a plurality of disks, and with sheds between said disks.

2. An insulator, comprising a body of insulating material provided with disks, and further provided with corrugations disposed intermediate of said disks, and with sheds extending from one of said disks to another.

3. An insulator, comprising a supporting arm, and a longitudinal member of insulating material partially encircling said arm but open upon one side thereof, and provided with a plurality of petticoats disposed opposite to each other and located below said supporting arm.

4. An insulator, comprising a body of insulating material, said body of insulating material being provided with longitudinal sheds extending parallel with the general direction of said insulator.

5. An insulator, comprising a body of insulating material, a wearing plate mounted thereupon and provided with a channel for supporting a conductor, and means connecting with said wearing plate for drawing a conductor in the general direction of its length relatively to said wearing plate.

6. An insulator, comprising a member of insulating material, a conductor adjustable relatively thereto, a clamp for gripping said conductor, and means for moving the general position of said clamp relatively to said body of insulating material.

7. An insulator, comprising a body of insulating material, a wearing plate supported thereby, a conductor adjustable relatively to said wearing plate, clamps for gripping said conductor, and means for moving one of the clamps relatively to said conductor.

8. An insulator, comprising a member of insulating material, a wearing plate mounted thereupon, a conductor engaging said wearing plate, a clamp for gripping said conductor and a turn buckle disposed intermediate said clamp and said wearing plate for the purpose of adjusting said conductor.

9. The combination of a body of insulating material, a wearing plate mounted thereupon and provided with edges embedded thereinto, a clamp mounted upon one end of said wearing plate, a turn buckle engaging the other end thereof, and a second clamp connected with said turn buckle and adapted to engage a conductor.

10. The combination of an insulator body, a metallic member mounted thereupon, pivotal connections for said metallic member, and means for securing said pivotal connections to a cable.

11. An insulator, comprising a saddle-shaped body of insulating material, and a saddle-shaped member of stronger material than the insulating body and on which the insulating body is mounted.

12. An insulator, comprising a longitudinal body portion of insulating material having a general saddle-like form and provided with a plurality of disks integral therewith and having their planes disposed vertically in relation thereto, said disks being disposed adjacent to each other so as to permit a conductor to be mounted therebetween, and means for mounting said body member.

13. An insulator, comprising a longitudinal body member of insulating material having a general saddle-like form, said body member being provided with a plurality of disks extending vertically in relation to the general length of said body member, and means for mounting said body member.

14. An insulator, comprising a longitudinal saddle-like metallic member, and a longitudinal saddle-like member of insulating material mounted upon said first-mentioned member, means for supporting a conductor upon said member of insulating material, and means for securing said metallic member upon a support.

15. An insulator, comprising a longitudinal saddle-like metallic member, and a body of insulating material disposed exteriorly of said metallic member, the metallic member having portions for engagement with a fastening.

16. An insulator, comprising a saddle-like body of insulating material, the sides of which project downwardly, forming between them a seat extending lengthwise of the insulator for engagement with a support, the said sides also ranging longitudinally of the body of insulating material.

17. An insulator, consisting of an elongated body of insulating material of saddle-like form, the back thereof forming a support for a conductor.

18. An insulator, consisting of an elongated body of insulating material of saddle-like form, the back thereof forming a support for a conductor, the said insulator having members rising at each end above the conductor-supporting portion, to impede surface leakage.

19. The combination with a supporting arm, of a saddle-like insulator disposed in direction of its length along said arm, the sides of the saddle-like insulator projecting downwardly below said arm.

20. An insulator, consisting of an elongated saddle-like body of insulating material having a support for a conductor disposed transversely of the said elongated body.

21. The combination with a support, of an insulator mounted thereon and having sides extending at the bottom below said support, the said insulator affording support for a conductor.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS STEINBERGER.

Witnesses:

WALTON HARRISON,

EVERARD B. MARSHALL.