

L. STEINBERGER.
INSULATING BUSHING.

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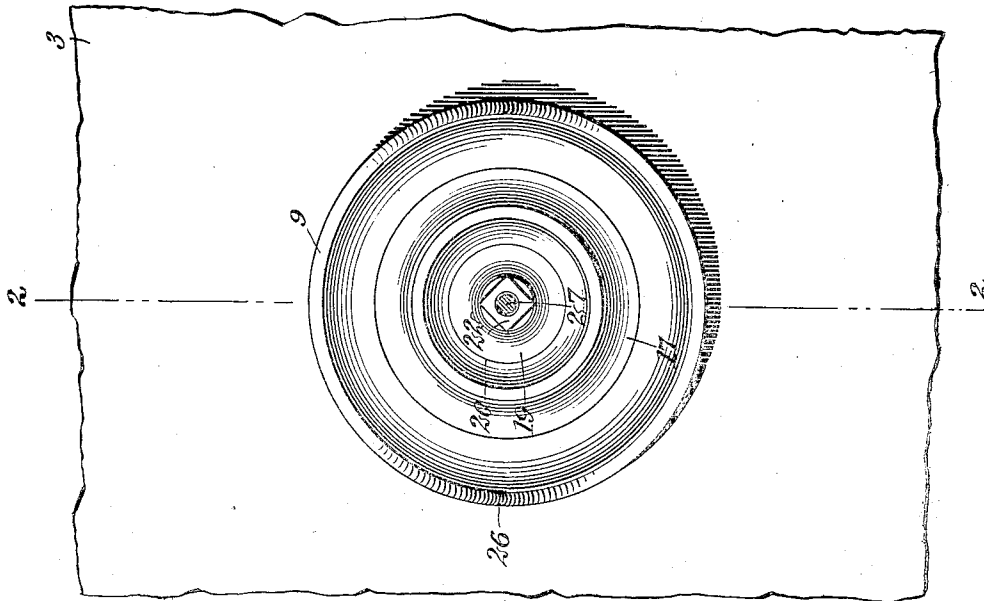
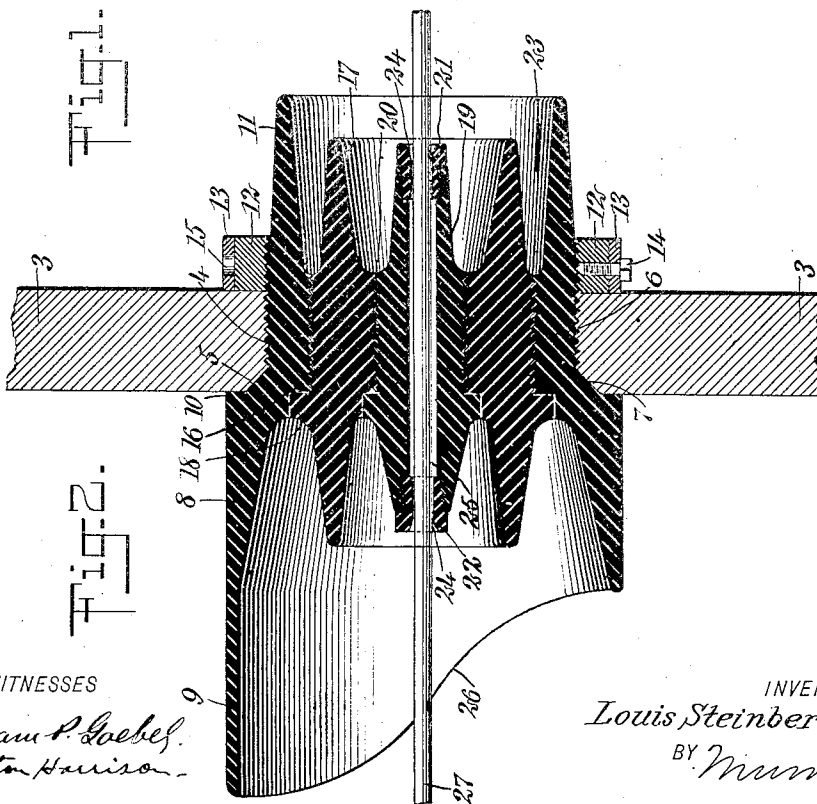


Fig. 2.

WITNESSES

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INSULATING-BUSHING.

No. 904,389.

Specification of Letters Patent.

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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 Insulating-Bushing, of which the following is a full, clear, and exact description.

My invention relates to insulating bushings such as may be employed in connection with high potential conductors and used at points where such conductors enter or leave a building or pass through a wall, panel, or other barrier of any kind.

Among the several objects sought to be accomplished by my improvements are the following: I. To secure the bushing as a whole relatively to its support so as to prevent the possibility of dislodgment. II. To provide the bushing with a number of concentric crowns, one projecting a little further than another, for the purpose of increasing the surface, thereby preventing surface leakage, and also of lessening the chance for moisture to do any damage. III. To seal up a portion of the conductor so as to preclude the possibility of its being reached by moisture. IV. To provide the bushing with a collar detachably secured thereto for the purpose of tightening or loosening the bushing relatively to its support. V. To build up the bushing of composite members detachably connected together and removable piecemeal. VI. To so fit these detachable members together as to improve their general efficiency as insulating members. VII. To give the bushing a surface consisting alternately of crowns of insulating material alternated with air spaces. VIII. To provide a ring of insulating material having a metal portion for strengthening the insulation and at the same time affording a strong portion for the reception of a wrench or other tool for tightening or loosening the ring. IX. To provide a bushing with an extended shield for the purpose of preventing the ready access or lodgment of rain or snow into the exposed end of the bushing and for improving the insulation. X. To provide a bushing of such conformity as to enable the operator to replace any of the several parts in case they become damaged or broken. XI. To provide a bushing of such conformity as

to enable one to increase the insulation and the leakage surface at will.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is an elevation showing how the bushing appears from outside the building; and Fig. 2 is a central vertical section through a bushing made in accordance with my invention and built up of a plurality of concentric cylindrical members terminating in crowns, this view showing also how the outer crown is extended so as to form a shed; this view is taken on the line 2—2 of Fig. 1.

At 3 is a barrier which may be a wall, a pane of glass, or a slab of insulating material, through which the conductor is to be passed. This part is provided with a hole 4 threaded and enlarged at 5. A cylindrical member 6 of electrose or other suitable insulating material, is threaded externally and internally and fits into the hole 4. This cylindrical member is provided with an annular shoulder 7 constituting a conoidal portion and is further provided with an enlarged portion 8 projecting outwardly a considerable distance, and thinned slightly at 9 so as to form a shed. An annular shoulder 10 representing a plane at right angles to the axis of the cylinder 6 engages directly the barrier 3. The cylindrical member 6 is provided with a portion 11 smoothed and tapered off thin.

Encircling the cylindrical member 6 is an annular collar 12 of electrose or other insulating material, and the outer periphery of this is bounded by a metallic band 13 secured thereto by molding or in any other suitable manner. A set screw 14 extends through the band, and holds the same against accidental movement. This band 13 is provided with one or more apertures whereby it may be engaged by a spanner wrench for the purpose of turning it and the collar 12 so as to tighten or loosen the collar 12.

The cylindrical member 6 is provided internally with an annular shoulder 16. A second cylindrical member 17 is provided with an annular shoulder 18 engaging the annular shoulder 16. This cylindrical member 17 tapers off thin at its ends which are

smooth. Its middle, however, is threaded externally for the purpose of mating the inner surface of the cylindrical member 6 which is also threaded.

5 A cylindrical member 19 is threaded about its middle for the purpose of mating the inner surface of the cylindrical member 17. The junction may be seen at 20. The cylindrical member 19 is tapered off slightly at
10 its ends. Its ends are partially closed by cylindrical plugs 21, 22, threaded externally so as to fit into the member 19, the ends of which are threaded internally for the purpose. The threaded junction between the
15 outer cylindrical member 6 and the next cylindrical member 17 is shown at 23. The openings 24 in the cylindrical plugs 21, 22 are flared so as to prevent chipping of the material of the plugs, or abrasion, of the
20 conductor. Intermediate of the cylindrical plugs is a cylindrical space 25. The end of the shed 9 terminates in a wavy line 26, the purpose of which is to give the construction a neat appearance, and also to increase the
25 protection of the internal parts against the entrance of moisture, and to improve the insulation. The conductor is shown at 27 and passes through the cylindrical plugs 21, 22 and the space 25.

30 From the above description the operation of my device will be readily understood. The insulating bushing as a whole may be first assembled and then mounted in position in practically the same manner as if most of
35 the parts were formed in a single space. If, however, it be desired to remove any one of the concentric cylindrical members, this can be readily done by simply unscrewing the part or parts from the parts encircling the
40 same. The shoulders 16, 18 serve as limiting stops and prevent any cylindrical member from being driven too far inward, and at the same time prevent the creeping of moisture from one end of the tube to the
45 other.

The plugs 21 and 22 may be made of a yielding material such as soft rubber, cork, etc., to more effectually prevent moisture from entering into the space 25.

50 I do not limit myself to any particular material out of which the parts above described are formed. I prefer, however, to use the insulating material commonly known in this art as "electrose". Neither do I
55 limit myself to any exact shape for any particular part nor to the precise arrangement shown, nor do I limit myself to making the bushing in every instance, of separable parts.

60 My invention may be employed in any relation where it is desired to support or insulate a conductor carrying high potential currents. It is of especial use in connection with wireless telegraphy wherein it is desirable to lead into the station a conductor

designated as "the cow's tail", and corresponding to the conductor 27.

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

1. An insulating bushing comprising an outer cylindrical member provided with a projecting portion serving as a shed, the top of said projecting portion extending further than the bottom part thereof, mechanism disposed within said outer member and for supporting a conductor extending through the same.

2. An insulating bushing comprising a cylindrical member provided with a shoulder and with a thread, and further provided with a projecting portion serving as a shed, a barrier provided with a portion engaging said shoulder, and means for supporting a conductor extending through said cylindrical member.

3. An insulating bushing comprising a plurality of concentric cylinders of insulating material threaded and fitted one into another, one of said cylinders being provided with a shoulder engaged by another of said cylinders and serving as a limiting stop therefor, the outermost of said cylinders being provided with a projecting portion serving as a shed.

4. An insulating bushing comprising a plurality of concentric cylinders detachably engaging one another, each tapering off thin at its ends so as to form air spaces between successive pairs of cylinders, the outermost of said cylinders having a projecting portion serving as a shed, and means for supporting a conductor within the innermost cylinder.

5. An insulating bushing comprising a plurality of concentric cylinders, one being provided with a portion projecting a considerable distance beyond the others so as to serve as a shed, and means for supporting a conductor within the innermost of said cylinders.

6. An insulating bushing comprising a cylindrical member for shielding a conductor, said cylindrical member having a greater diameter at one of its ends than at the other, said end of greater diameter being provided with a projecting portion serving as a shed.

7. An insulating bushing comprising a plurality of cylindrical members each provided externally with a shoulder and also provided internally with a shoulder, said cylindrical members being fitted one into another concentrically so that the internally disposed shoulder of one cylinder fits against the externally disposed shoulder of another cylinder, and means for supporting the outermost of said cylinders.

8. An insulating bushing comprising a

cylinder provided with a portion for engaging a barrier, and also provided with a threaded portion, a threaded collar of insulating material mounted upon said threaded portion and adapted to engage said barrier, and a metallic band encircling said collar so as to strengthen the same.

9. An insulating bushing comprising a central cylindrical member of insulating material provided at its middle with a threaded portion and at its ends with smooth portions, said cylindrical member being further provided with a shoulder, and a supporting cylindrical member engaging said threaded portion and engaging said shoulder.

10. An insulating bushing comprising a plurality of concentric cylinders of insulating material each provided both externally and internally with a shoulder, said cylinders being detachably fitted one into the other, and means for supporting the outermost of said cylinders.

11. An insulating bushing comprising a cylindrical member provided with a central space through which a conductor may be extended, and further provided with a threaded middle portion, a supporting member engaging said threaded middle portion, and plugs engaging the ends of said cylindrical member for the purpose of supporting a conductor extending therethrough.

12. An insulating bushing comprising a cylindrical member provided internally with a shoulder and with a middle supporting portion, a second cylindrical member dis-

posed within said first-mentioned cylindrical member and provided with a portion engaging said supporting portion, and further provided with a shoulder engaging said shoulder of said first-mentioned cylindrical member, said second-mentioned cylindrical member being provided with means for supporting a conductor extending through it.

13. An insulating bushing comprising a plurality of cylindrical members of different lengths detachably connected together, the outermost of said cylindrical members being longer than the innermost, and means for supporting the outermost of said cylindrical members.

14. An insulator comprising an outer member and an inner member, both of substantially cylindrical form, said inner member being provided externally with a thread and said outer member being provided internally with a thread, said threads mating each other for the purpose of detachably connecting said inner member and said outer member together by their middle portions, said members being provided with end portions tapering off in thickness and separated from each other.

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

LOUIS STEINBERGER.

Witnesses:

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WALTON HARRISON.