

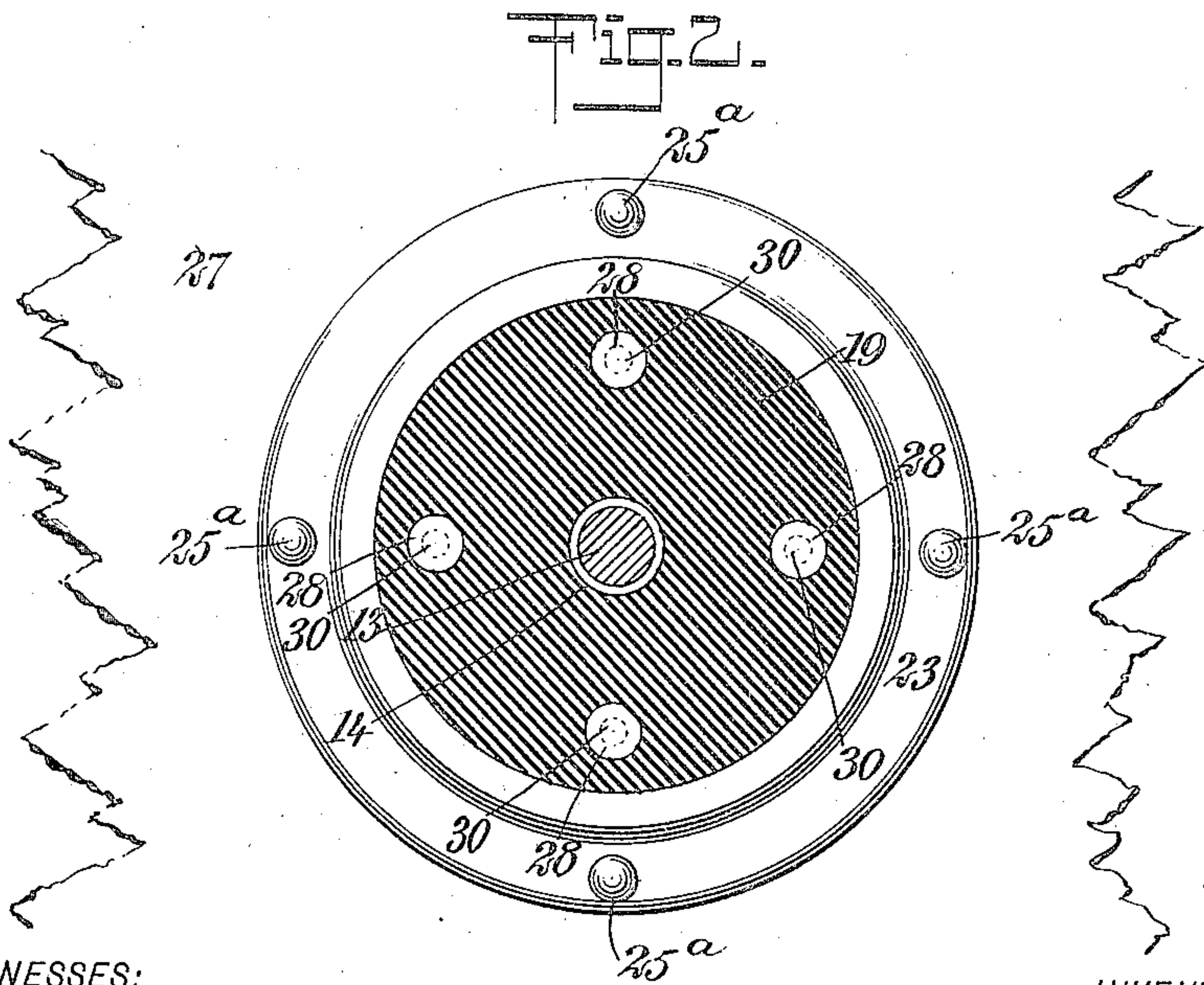
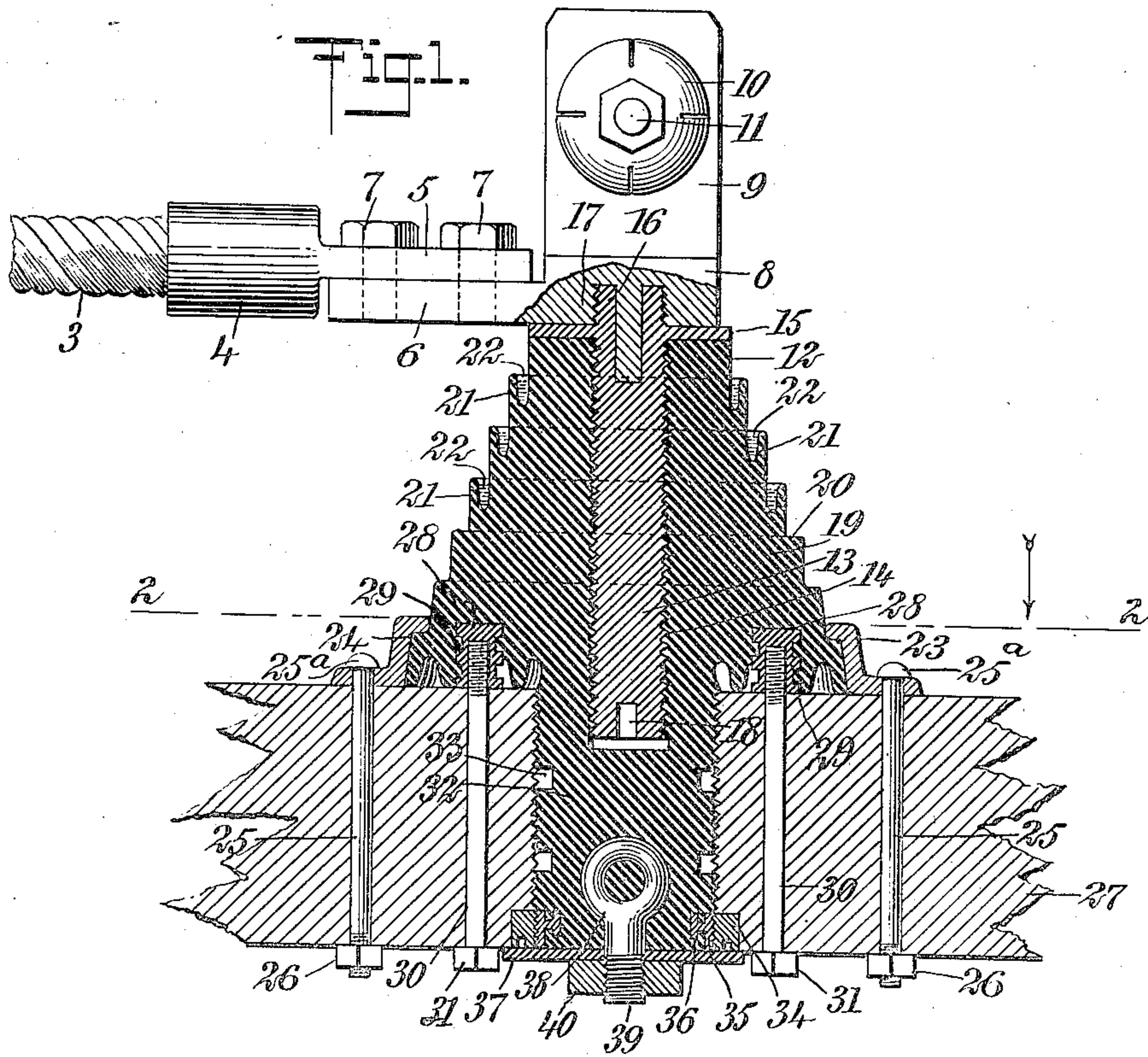
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PATENTED DEC. 4, 1906.

L. STEINBERGER.

INSULATOR.

APPLICATION FILED DEC. 11, 1905.



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LOUIS STEINBERGER, OF NEW YORK, N. Y.

INSULATOR.

No. 837,749.

Specification of Letters Patent.

Patented Dec. 4, 1906.

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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 Insulator, of which the following is a full, clear, and exact description.

My invention relates to insulators for electric conductors of the type especially adapted for supporting conductors carrying high-tension currents.

The essential features of the invention comprise an insulator provided with a body portion having a large superficial insulating-surface, great strength, and improved and novel means for securing it in position upon a switchboard, wall, floor, or other supporting member.

The object of the invention is to effectually insulate the conductor from its support and to prevent any leakage of current or the establishment of a destructive arc between the conductor and the support.

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 all the figures.

Figure 1 is a vertical cross-section showing one of my improved insulators as used for supporting a knife-switch pivot; and Fig. 2 is a horizontal section, through the insulator, upon the line 2 2 of Fig. 1 looking in the direction of the arrow.

A cable is shown at 3 and is provided with a terminal 4, having a flattened portion 5, which engages a plate 6, being secured thereto by means of bolts 7. The plate 6 is of metal and is integral with a head 8, from which projects upwardly one or more standards 9, carrying one or more spring-washers 10 and a pivot-pin 11, upon which the switch-knife is adapted to swing. The head 8 is provided with a central boss 12, which extends into a stem 13, provided externally with a thread 14, the upper end 16 of this stem being tubular, as indicated in Fig. 1. An annular flange 15 is integral with the tubular portion 16, which is threaded externally and fits into a socket 17 in the head 8, this socket being threaded internally. The lower end of the stem 13 is provided with a slot 18, which may be used as an anchorage in case it is desired to mold or cement the stem 13 into the insulating material. The body of the insulator is shown at 19 and is provided with

annular steps 20. These steps will materially increase the surface of the insulator. Annular beads 21 project upwardly, the spaces 22 between these beads and the main body portion being filled with oil 22, thus constituting oil-cups for the purpose of increasing the insulation. If desired, the oil may be omitted, in which event the annular beads 21 serve merely to increase the surface, and thereby prevent waste from surface leakage.

An annular collar 23 engages an annular step 24 at the bottom of the insulator. Bolts 25 are provided with heads 25^a and are threaded through the annular collar 23. These bolts are provided with nuts 26, threaded thereupon and pass through a floor or partition 27. By tightening the bolt 26 the collar 23 is drawn tightly against the partition or floor, and thus holds the body portion 19 firmly in position. Molded within the bottom of the body member 19 are thimbles 28, threaded internally, as shown, and provided externally with anchorages 29, whereby they are firmly held within the insulating material, being preferably molded therein at the time when the insulator is formed. Bolts 30 engage the thimbles 28, being threaded for the purpose, and are provided with heads 31. These bolts also extend through the partition or floor 27. Integral with the body portion 19 is a stem 32, threaded externally, as shown, and provided with anchor-holes 33. These anchor-holes are of service for holding cement or other plastic material in case it is desired to secure the stem 32 rigidly in position so that it cannot be readily unscrewed. An annular collar 34 is threaded internally and is mated by another annular collar 35, the latter being provided with an annular anchorage 36, molded directly in the stem 32 and practically forming a part thereof. The collar 35 may be turned relatively to the collar 34. A clamping-plate 37 engages the lower end of the stem 32 and is held thereagainst by means of an eyebolt 38, embedded into the stem portion 32, the threaded portion 39 of which passes centrally through the clamping-plate. A nut 40 engages the threaded stem 39 and is used for forcing the clamping-plate against the lower end of the stem 32 and against the collar 34, as will be seen from Fig. 2.

It will be borne in mind that insulators used for supporting switch-knives and analogous members supported in connection with currents of great amperage and higher

potential must be firmly secured in order to prevent danger to life and property by being displaced, and thus caused to make unexpected contact with neighboring objects. I seek, therefore, to so mount the standard 9 and metallic parts supporting the same that these parts cannot be readily knocked down, displaced, or broken. To this end I make the body portion 19 of substantially pyramidal form, and the annular collar 23 is arranged at the bottom of the pyramid and in good position to prevent the insulator-body 19 from being turned over, even should it be broken. The stem 32 I make, preferably, of large size, so as to give it as much strength as possible, and the clamping-plate 37 effectively prevents this stem from being withdrawn by accident. The bolts 25 by passing directly through the partition or wall 27 hold the collar 23 as firmly as could be expected, and the bolts 30 hold the thimbles 28 independently of the binding action of the bolts 25. Since, therefore, the thimbles 28 are firmly embedded within the body portion 19, it follows that the action of these bolts is to some extent independent of the action of the bolts 25—that is to say, while the bolts 25 act upon the extreme outer portion of the body member the bolts 30 act upon portions of the body member disposed nearer to the center of the same and the clamping-plate 27 acts only upon the extreme body of the stem 32. The body portion 19 is therefore held down throughout practically its entire diameter as distinguished as being held down only by a superficial clamping member. Such being the case it is almost impossible to displace the pivot 11 or the connections for the cable 3 without breaking the body portion 19 of the insulator into a number of separate pieces, and even if it were broken by accident the insulation will probably hold until the accident was reported and protective measures taken accordingly. In this connection it will be noted that the stem 19 is rigidly connected with the plate 8, projecting along a comparatively long distance down into the body portion 19 so that the lower end of the stem is encircled by the floor or partition 27. This insures strength throughout as much of the body portion 19 as is not specially strengthened by the bolts 30.

Owing to the manner above described for obtaining requisite strength, the body portion 19 may, if desired, be made of considerable height or length, and its proportions may be varied considerably without undue loss of strength. The insulator therefore is adapted to quite a variety of distinct uses.

I do not limit myself to the exact construction shown nor in all instances to the precise conformity represented for the several parts. Neither do I limit myself to any particular materials to be employed, nor to any specific use to which the invention is ap-

plied. While preferably I make the body portion 19 of "electrose," I do not limit myself to the use of this substance.

For ordinary purposes it will not be necessary to employ at one time all of the securing members herein shown. For instance, in insulators of medium size the securing members 38, 37, and 40 will be all that will be required. For the next larger size the members 38 and 31 may be added, and so on.

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

1. An insulator, comprising a body portion of insulating material provided with a stem, a metallic member embedded within said stem and projecting therefrom, and a clamping-plate engaging said member thus extending.

2. An insulator, comprising a body portion of insulating material provided with a stem of insulating material, a metallic member embedded within said stem and projecting therefrom, said metallic member being provided with a threaded portion, a clamping-plate encircling said metallic member, and a fastening member engaging said metallic member and adapted to exert pressure upon said clamping-plate.

3. An insulator, comprising a body portion of insulating material provided with annular steps and also provided with annular flanges, said annular flanges being turned upwardly for the purpose of containing oil, and means for securing a conductor upon the upper end of the body portion of said insulating material.

4. An insulator, comprising a body portion of insulating material provided with a threaded stem also of insulating material, and a plurality of bolts for holding said body portion in position independently of said stem.

5. An insulator, comprising a body portion of insulating material, a plurality of metallic thimbles embedded therein, bolts for engaging said thimbles and thereby supporting said body portion, and means for securing an electrical conductor upon said body portion.

6. An insulator, comprising a body portion of insulating material provided with an annular step, a collar encircling said body portion of insulating material and provided with a portion engaging said annular step, and bolts for engaging said collar and holding the same against a supporting partition or floor.

7. An insulator, comprising a body portion provided with a threaded stem, an annular metallic member encircling said stem and threaded externally, a threaded annular member engaging said threaded annular metallic member, a clamping-plate adapted to engage said annular member, and means for securing said clamping-plate upon the end of said stem.

8. An insulator, comprising a body portion

of insulating material and of substantially pyramidal form, said body portion being provided with upturned flanges, a metallic threaded stem connected with said body portion of insulating material, and means for mounting an electrical conductor upon said metallic threaded stem.

9. An insulator, comprising a body member of insulating material, a metallic collar encircling the same, means for securing said metallic collar upon a fixture, thereby holding the peripheral surface of said body member, thimbles anchored within said body member of insulating material, and bolts engaging said thimbles.

10. An insulator, comprising a body portion of insulating material, a metallic stem provided with a thread and projecting into said body portion, said metallic stem being further provided with an annular flange engaging said body portion, and a head mounted upon said metallic threaded stem and provided with means for engaging an electrical conductor.

11. An insulator, comprising a body portion of insulating material, a stem integral therewith, a metallic member mounted within said body portion and extending into the stem thereof, said metallic member being provided at one of its ends with a thread, and another metallic member threaded to fit said end last mentioned and provided with means for engaging an electrical conductor.

12. As an article of manufacture, an insulator comprising a body portion of insulating material of substantially pyramidal form provided with annular steps of different diameters, and means for mounting said body portion.

13. As an article of manufacture, an insulator comprising a body portion of insulating material of substantially pyramidal form provided with projecting annular ring portions of different diameters, said ring portions being integral with said body portion but forming air-spaces between said body portion and said ring portions, and means for mounting said body portion.

14. An insulator, comprising a body portion of insulating material provided with a threaded stem, also of insulating material, and clamping mechanism connected to said threaded stem for holding the same in place.

15. An insulator, comprising a body portion of insulating material provided with a stem, also of insulating material, a metallic member partially embedded within said stem, clamping mechanism connected with said metallic member, and means for securing an electrical conductor upon said body portion.

16. An insulator, comprising a body portion provided with a stem, an annular metallic member encircling said stem and threaded externally, and an annular metallic clamping member threaded internally and engaging

the externally-threaded portion of said first-mentioned metallic member.

17. An insulator, comprising a body portion of insulating material provided with a stem, a metallic member partially embedded within said stem, and clamping mechanism connected to said metallic member.

18. An insulator, comprising a body portion of insulating material of substantially pyramidal form, said body portion being provided with terraces of different diameters, a metallic stem connected with said body portion of insulating material, and means for mounting an electric conductor upon said metallic stem.

19. An insulator, comprising a body member of insulating material, thimbles anchored within said body member of insulating material, and bolts connected to said thimbles for the purpose of securing said body member upon a support.

20. As an article of manufacture, an insulator comprising a body portion of insulating material of substantially pyramidal form provided with annular surfaces of different diameters, means for mounting the same, and means for supporting a conductor.

21. An insulator, comprising a body portion of insulating material provided with an annular step and with a portion of substantially pyramidal form, a collar encircling said body portion and provided with a portion engaging said step, means for securing said collar upon a support, and means for supporting a conductor upon said body portion.

22. An insulator, comprising a body portion of insulating material provided with annular steps of different diameters, and also provided with annular grooves of different diameters, said annular grooves being adapted to contain liquid insulating material, means for securing a conductor upon said body portion, and means for mounting said body portion.

23. An insulator, comprising a body portion provided with a stem, an annular metallic member encircling said stem and threaded externally, and a threaded annular member engaging said threaded annular metallic member for the purpose of securing said body portion upon a support.

24. An insulator, comprising a body portion of insulating material and of substantially pyramidal form, said body portion being provided with upturned flanges, a metallic stem connected with said body portion, means for connecting an electrical conductor to said stem, and means for securing said body portion upon a support.

25. An insulator, comprising a body portion of insulating material provided with annular steps of different diameters, a metallic stem disposed within said body portion, said metallic stem being provided with a flange, said flange engaging said body portion,

means for connecting an electrical conductor to said stem, and means for securing said body portion to a support.

26. An insulator, comprising a body portion of insulating material provided with a stem integral therewith, clamping mechanism connected to said stem, and means for connecting a conductor to said body portion.

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