

L. STEINBERGER.
HIGH TENSION STRAIN INSULATOR.
APPLICATION FILED FEB. 18, 1910.

999,414.

Patented Aug. 1, 1911.

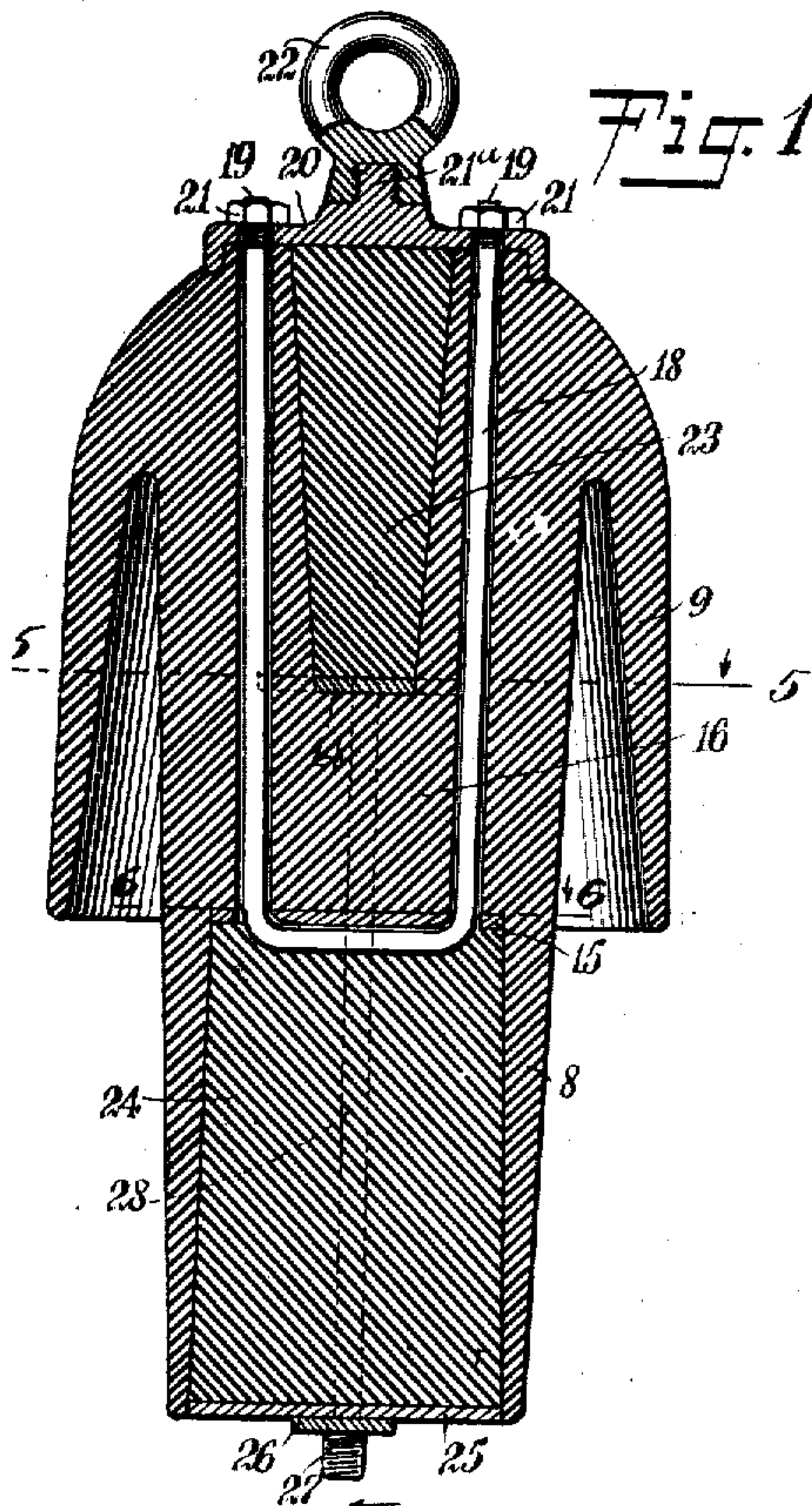


Fig. 1.

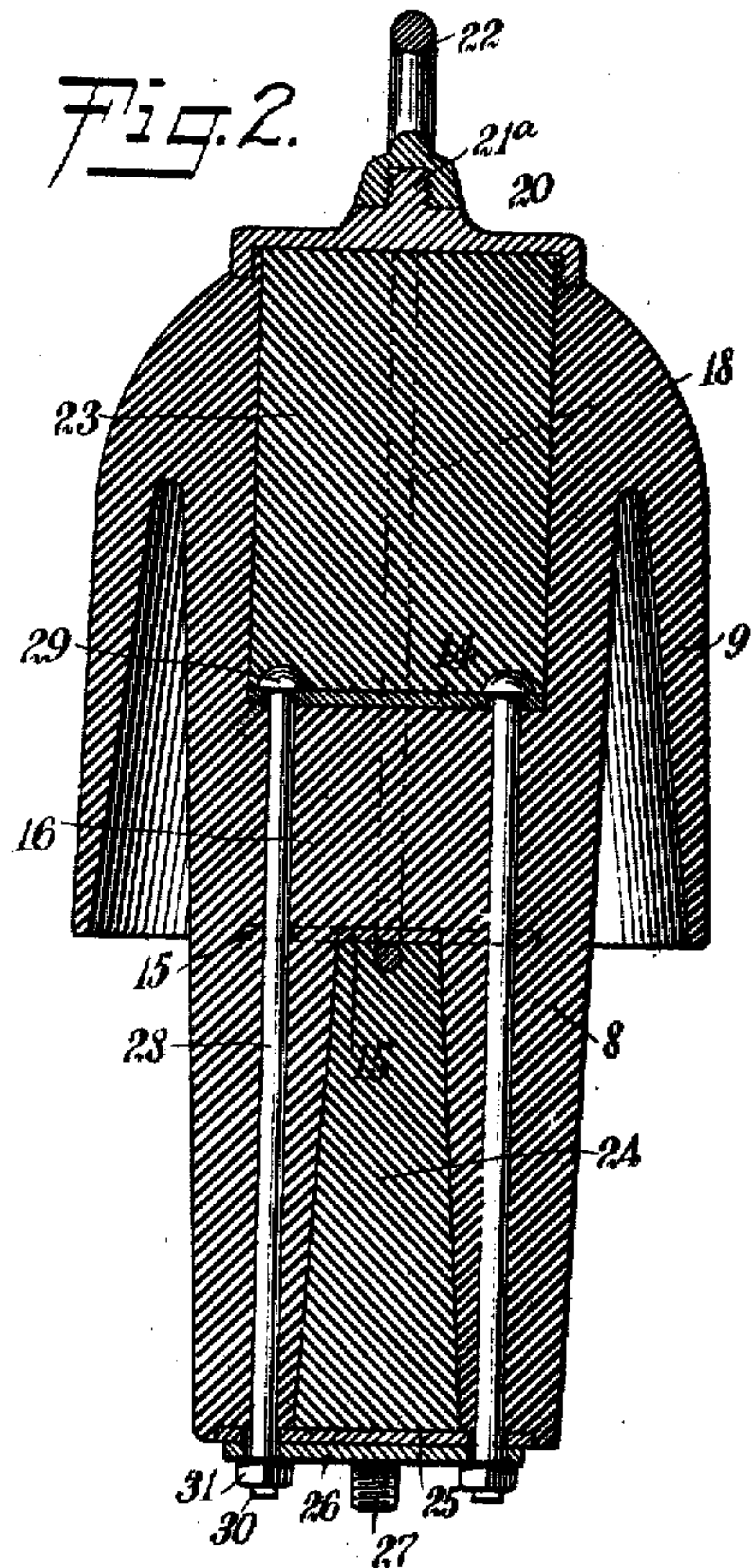


Fig. 2.

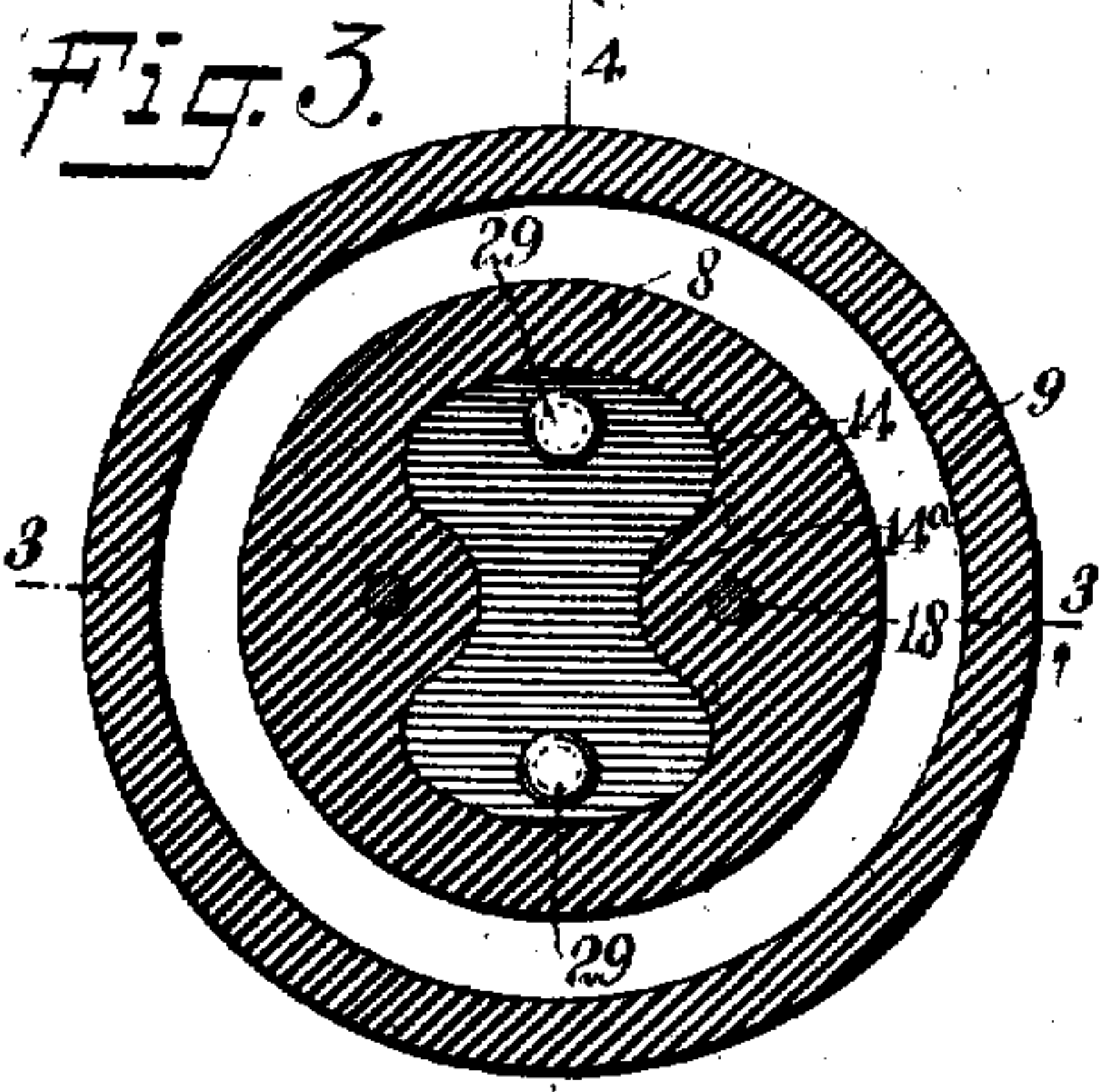


Fig. 3.

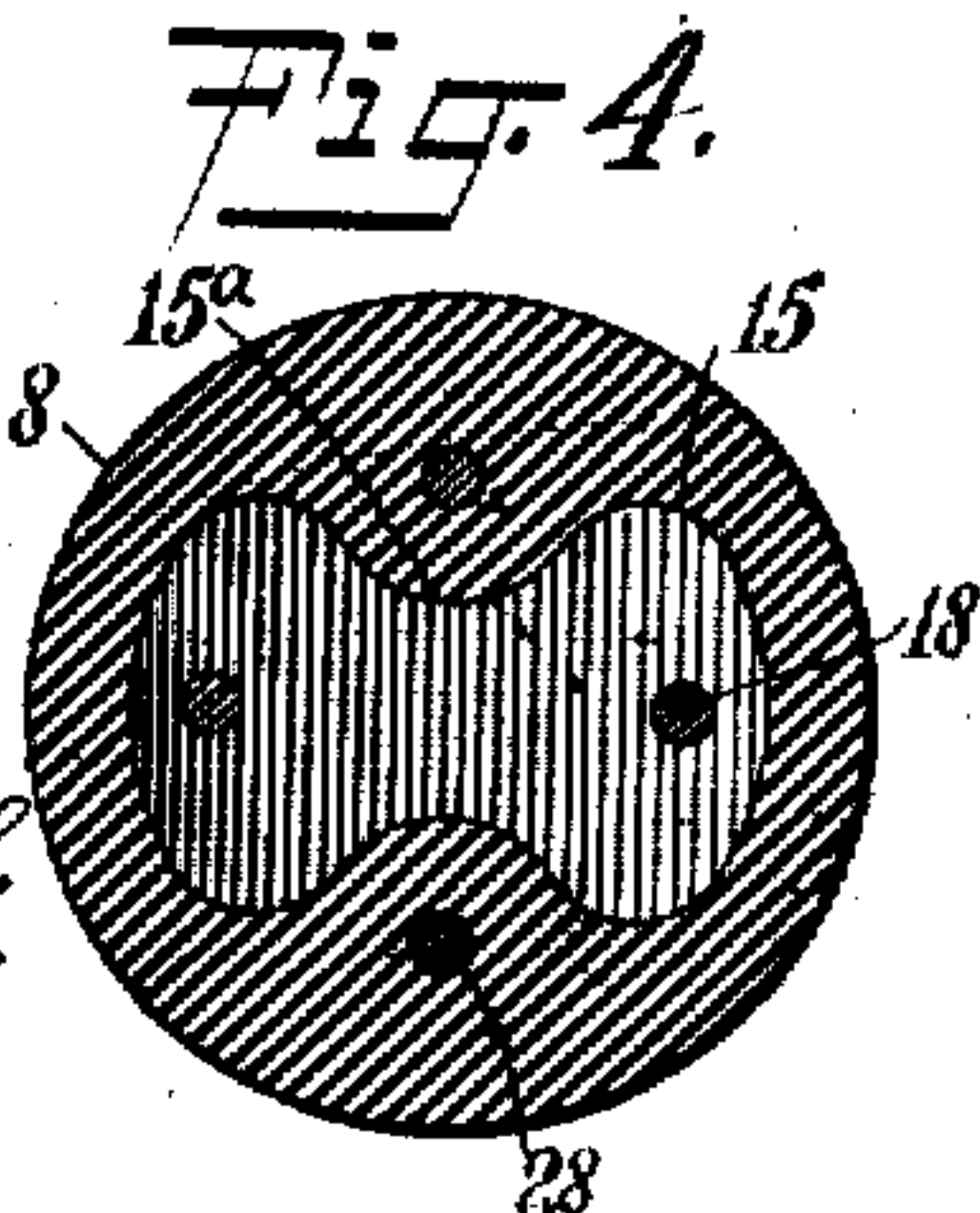


Fig. 4.

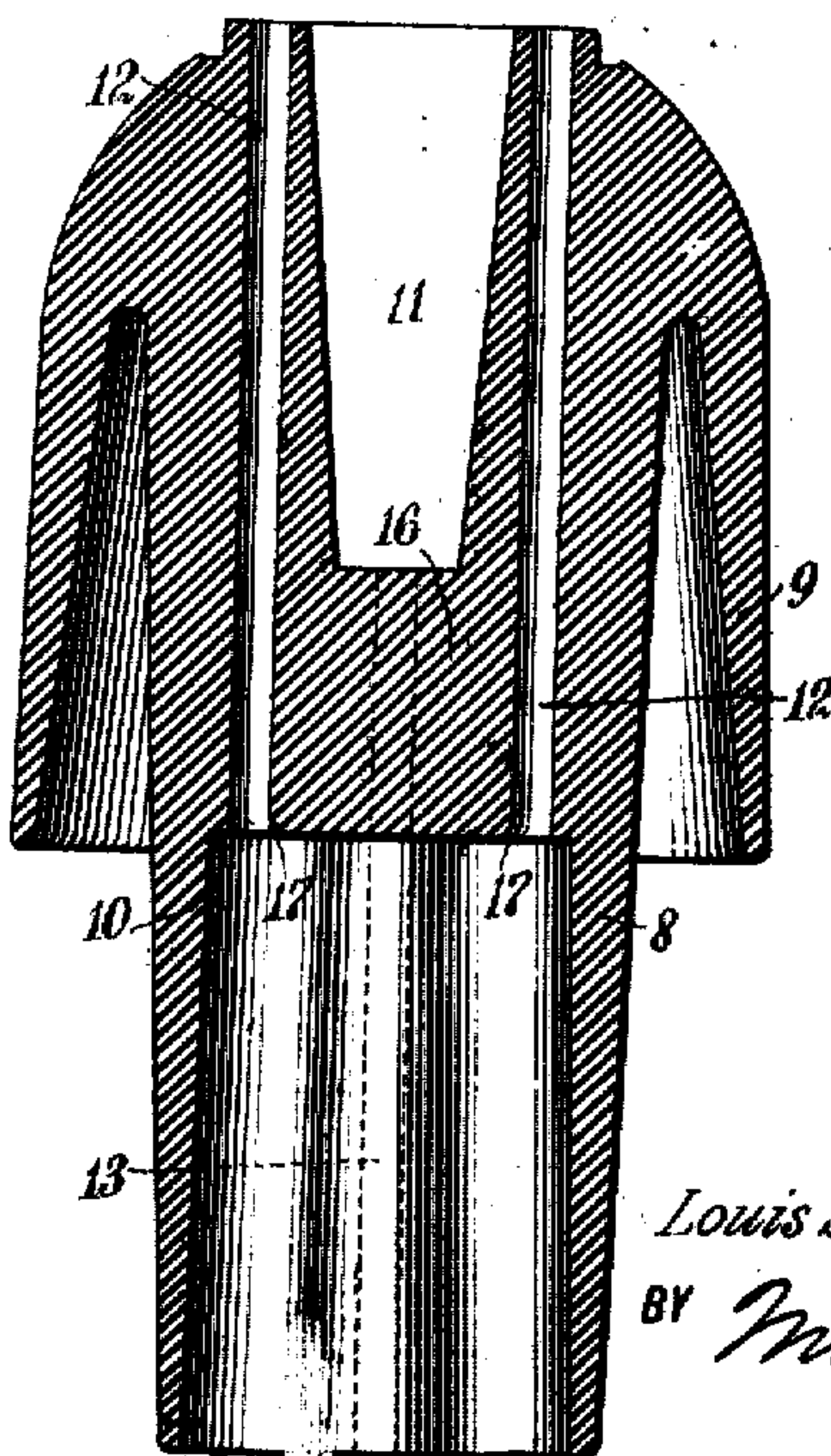


Fig. 5.

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LOUIS STEINBERGER, OF NEW YORK, N. Y.

HIGH-TENSION STRAIN-INSULATOR.

999,414.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed February 18, 1910. Serial No. 544,534.

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 High-Tension Strain-Insulator, of which the following is a full, clear, and exact description.

My invention relates to high tension strain insulators for general use, where currents of high potential are employed, they being especially well adapted for use in wireless telegraphy and telephony, my special purpose being to provide a number of novel constructional features in order to improve the general efficiency of the insulator, and to enable me to make it of an insulating material formed under pressure or molded, or of porcelain, glass or such like material, and to employ tension members of a rigid or of a flexible character, as may be desired.

More particularly stated, my improved high tension strain insulator is so constructed and arranged as to fulfil the following purposes, to wit: I. To enable the insulator to be suspended by aid of tension members which may be flexible or inflexible, as desired. II. To protect from the weather a portion of the body part of the insulator. III. To provide the body part of the insulator with protecting hoods. IV. To render the tension members more readily detachable. V. To provide the insulator with recesses to be used for inserting and taking out the tension members and to fill said recesses when desired with an insulating material separate from that of the body portion of the insulator. VI. To render the insulator readily attachable for use with its general axis of suspension either vertical, horizontal, or at any desired angle. VII. To render the terminals readily interchangeable in order to prolong the life of the insulator as a whole. VIII. To provide covers for the recesses and for the filling materials used. IX. To enable the covers to act as braces for the tension members. X. To provide the insulator body, as far as practicable, with straight holes extending through it and merging into the recesses, in order to facilitate the connection of various tension members. XI. To distribute to the best advantage the mechanical strains to which the bearing plates or members and certain internal parts of the insulator are

subjected. XII. To provide strain plates or members made of a rigid or a yielding material, as desired. XIII. To provide the insulators with improved means for connecting them together. XIV. To provide the insulator with a partition for the purpose of sustaining the stress when the insulator is under mechanical tension. XV. To provide the insulator with a portion to be subjected to compression when it is under mechanical tension.

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 section on the line 3—3 of Fig. 3, looking in the direction of the arrow and showing one of the units with a detachable eye whereby it may be suspended; Fig. 2 is a section on the line 4—4 of Fig. 3, looking in the direction of the arrow; Fig. 3 is a horizontal section on the line 5—5 of Fig. 1, looking in the direction of the arrow; Fig. 4 is a fragmentary section on the line 6—6 of Fig. 1, looking in the direction of the arrow; and Fig. 5 is a sectional view of the body portion of the insulator provided with its hood, the strain members not being yet connected with it.

The body portion of the insulator is shown at 8, and is provided with a hood 9 and with two recesses 10 and 11. The body portion 8 is further provided with a pair of holes 12 and another pair of holes 13, all of these holes being straight and extending through to the recesses.

At 14, 15 are two metallic plates provided respectively with narrow middle portions 14^a, 15^a. These plates are disposed in the bottoms of the respective recesses 10, 11, which are separated by a partition 16, integral with the body portion 8. The partition is provided with bevels 17, merging into the holes 12, and the holes through the plate 15 are slightly rounded, as indicated in Fig. 3, to match the bevels.

At 18 are tension members integral with each other and together forming a substantially U-shaped member. The ends 19 of this U-shaped member are threaded, as will be understood from Fig. 3.

At 20 is a cap made of metal and provided with holes, which receive the threaded ends 19. Revolvable nuts 21 are fitted upon the

threaded ends 19 and engage the cap 20. This cap is provided with a centrally-disposed threaded boss 21. An eye 22 is provided with a threaded socket, which fits
 5 upon the boss 21 through which connection may be made to a supporting member, conductor, or another insulator. Fillings 23 and 24 of insulating material, separate from the body portion 8, are disposed within the
 10 openings 11, 10, so as to completely fill the same.

At 25 is a cover plate for the recess 10. Engaging this cover plate is a plate 26, having a threaded boss 27 integral with it
 15 through which connection may be made to a supporting member, conductor, or another insulator. Two bolts 28, serving as tension members, and provided with heads 29, extend entirely through the holes 13 and also
 20 through the bearing plates 14, 15. These bolts are provided with threaded portions 30, which are engaged by nuts 31. By turning the nuts 21 and 31, any amount of initial stress may be placed upon the tension
 25 members 18, 28, and also upon the partition 16.

In assembling the parts, the bearing plates 14, 15 are placed in position, and the tension members extended through the holes 12, 13.
 30 The fillings 23, 24 are placed in position and the cap 20 is brought into engagement with the filling 23, the cover plate 25 being fitted against the filling 24. The nuts 21, 31 are next applied, so that the tension members and parts immediately affected thereby
 35 are subjected to the desired amount of initial strain. This completes the insulator, as ordinarily used, it being now ready for use in any relation where a high tension in-
 40 sulator may be employed.

When these insulators are made of porcelain, glass or such like material, it may be desirable to use a rope or other flexible tension member or a partly flexible and partly
 45 inflexible tension member instead of the inflexible tension members 18 and 28. To employ the flexible tension member, such as a rope, it is merely threaded through the holes 12 and 13. When desired, bearing plates or
 50 members made of a yielding material may be employed. Furthermore, it is of course immaterial whether the U-shaped members be in one piece or whether the legs of the U-shaped members be separate from the con-
 55 necting portions.

I do not limit myself to the precise shape of any part above described and herein shown, nor in all cases to the precise arrangement of the parts relatively to each
 60 other, nor to employing in every instance the tension members made of unyielding materials. Neither do I limit myself to the use of any particular material. I prefer, however, to use the insulating material known in
 65 commerce as "electrose".

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

1. An insulator comprising a body portion having a slot-like opening extending
 70 therinto from each end and having a median partition defining the inner ends of said openings, the planes of the lengths of said slots crossing each other, and there being an aperture extending through the partition at
 75 each end of each slot, the apertures that open from one slot passing through the material of the insulator on opposite sides of the other slot, substantially U-shaped tension
 80 members having their connecting portions respectively lying in the bottoms of said slots and their legs extending through the openings from said slots respectively and out beyond the ends of the insulator, and means
 85 connecting together the outer ends of the legs of each U-shaped member.

2. An insulator comprising a body portion having a slot-like opening extending
 90 therinto from each end and having a median partition defining the inner ends of said openings, the planes of the lengths of said slots crossing each other, and there being an aperture extending through the partition at each end of each slot, the apertures
 95 that open from one slot passing through the material of the insulator on opposite sides of the other slot, substantially U-shaped tension members having their connecting portions respectively lying in the bottoms of
 100 said slots and their legs extending through the openings from said slots respectively and out beyond the ends of the insulator, means connecting together the outer ends of the legs of each U-shaped member, and a
 105 filling of insulating material in each slot above the connecting portion that lies in the bottom thereof.

3. An insulator comprising a body portion having a slot-like opening extending
 110 therinto from each end and having a median partition defining the inner ends of said openings, the planes of the lengths of said slots crossing each other, and there being an aperture extending straight away through the partition at each end of each
 115 slot, the apertures that open from one slot passing straight away through the material of the insulator at opposite sides of the other slot, and substantially U-shaped tension members having their connecting portions
 120 respectively lying in the bottoms of said slots and having straight legs extending through the openings from said slots respectively and out beyond the ends of the insulator, and means connecting together the
 125 outer ends of the legs of each U-shaped member.

4. An insulator comprising a body portion having a slot-like opening extending
 130 therinto from each end and having a me-

5 dian partition defining the inner ends of
 said openings, the planes of the lengths of
 said slots crossing each other, and there be-
 ing an aperture extending through the par-
 10 tition at each end of each slot, the apertures
 that open from one slot passing through the
 material of the insulator on opposite sides
 of the other slot, substantially U-shaped ten-
 sion members having their connecting por-
 15 tions respectively lying in the bottoms of
 said slots and their legs extending through
 the openings from said slots respectively
 and out beyond the ends of the insulator,
 and means connecting together the outer
 20 ends of the legs of each U-shaped member,
 said means engaging the ends of the insula-
 tor respectively.

5. An insulator comprising a body por-
 tion having a main opening extending there-
 20 into from each end and having a median
 partition defining the inner ends of said
 openings, there being a pair of apertures ex-
 tending through the partition from each of
 said first named main openings, the plane of
 25 one pair of apertures intersecting that of
 the other pair, the apertures that extend
 from the bottom of one main opening pass-
 ing through the material of the insulator at
 opposite sides of the other main openings,
 30 and substantially U-shaped tension members
 having their connecting portions respec-

tively lying in the bottoms of said main
 openings and their legs extending through
 the apertures from said main openings re-
 spectively and out beyond the ends of the 35
 insulator, and means connecting together
 the outer ends of the legs of each U-shaped
 memb

6. An insulator comprising a body por-
 tion of insulating material, substantially 40
 U-shaped tension members having straight
 legs and straight connecting portions dis-
 posed entirely within said body portion, the
 free ends of the legs of one tension member
 extending beyond one end of the insulator 45
 body and the ends of the legs of the other
 tension member extending beyond the other
 end of the insulator, the connecting portions
 of said tension members crossing each other
 within said body portion but insulated from 50
 each other by intervening portions of the
 insulator body material, and means for con-
 necting together the extending free ends of
 the legs of each tension member.

In testimony whereof I have signed my 55
 name to this specification in the presence of
 two subscribing witnesses.

LOUIS STEINBERGER.

Witnesses:

WALTON HARRISON,
 PHILIP D. ROLLHAUS.