

(No Model.)

2 Sheets—Sheet 1.

R. G. COLLINS & F. W. FOLEY.
INSULATOR.

No. 544,959.

Patented Aug. 20, 1895.

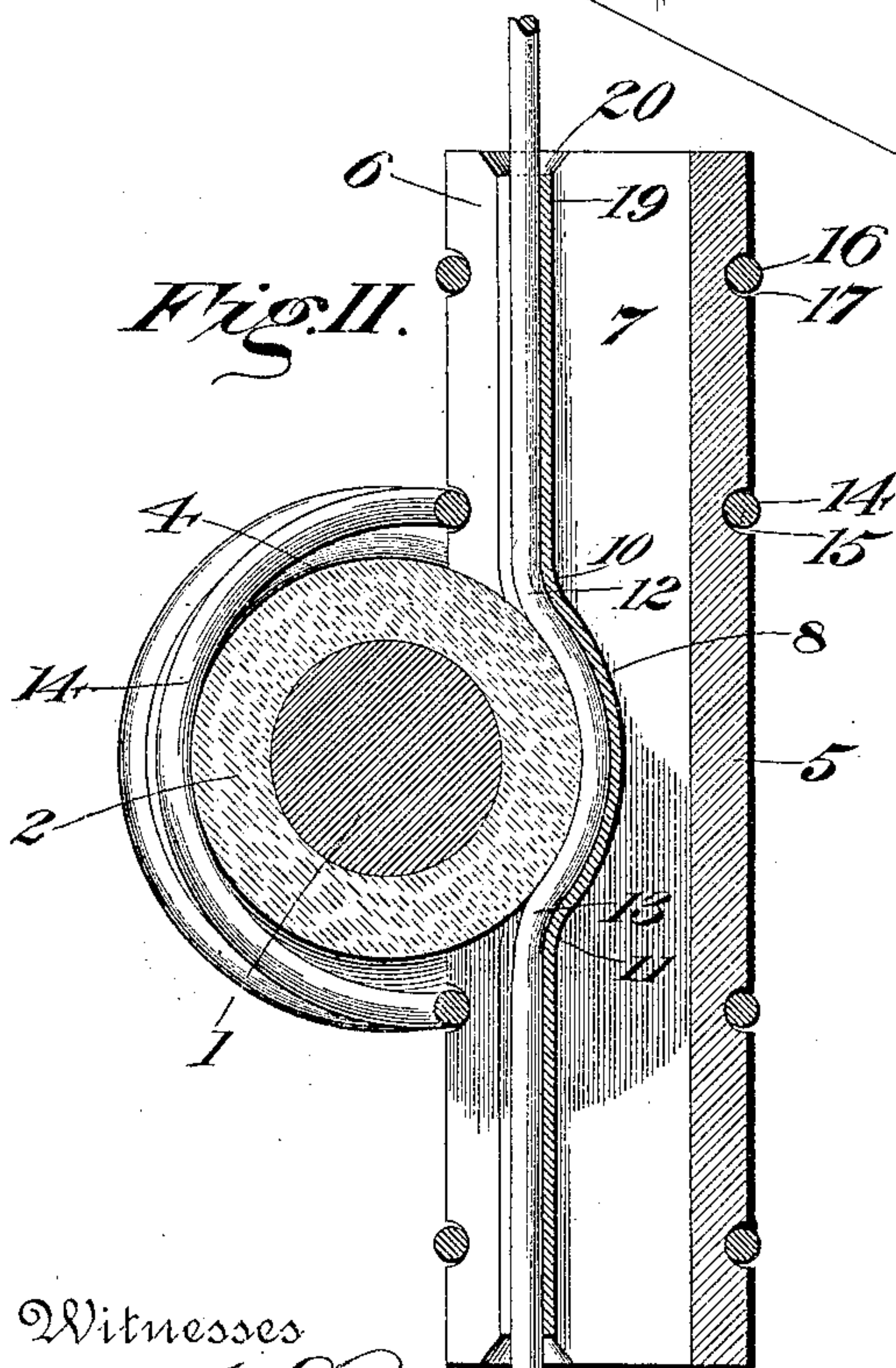
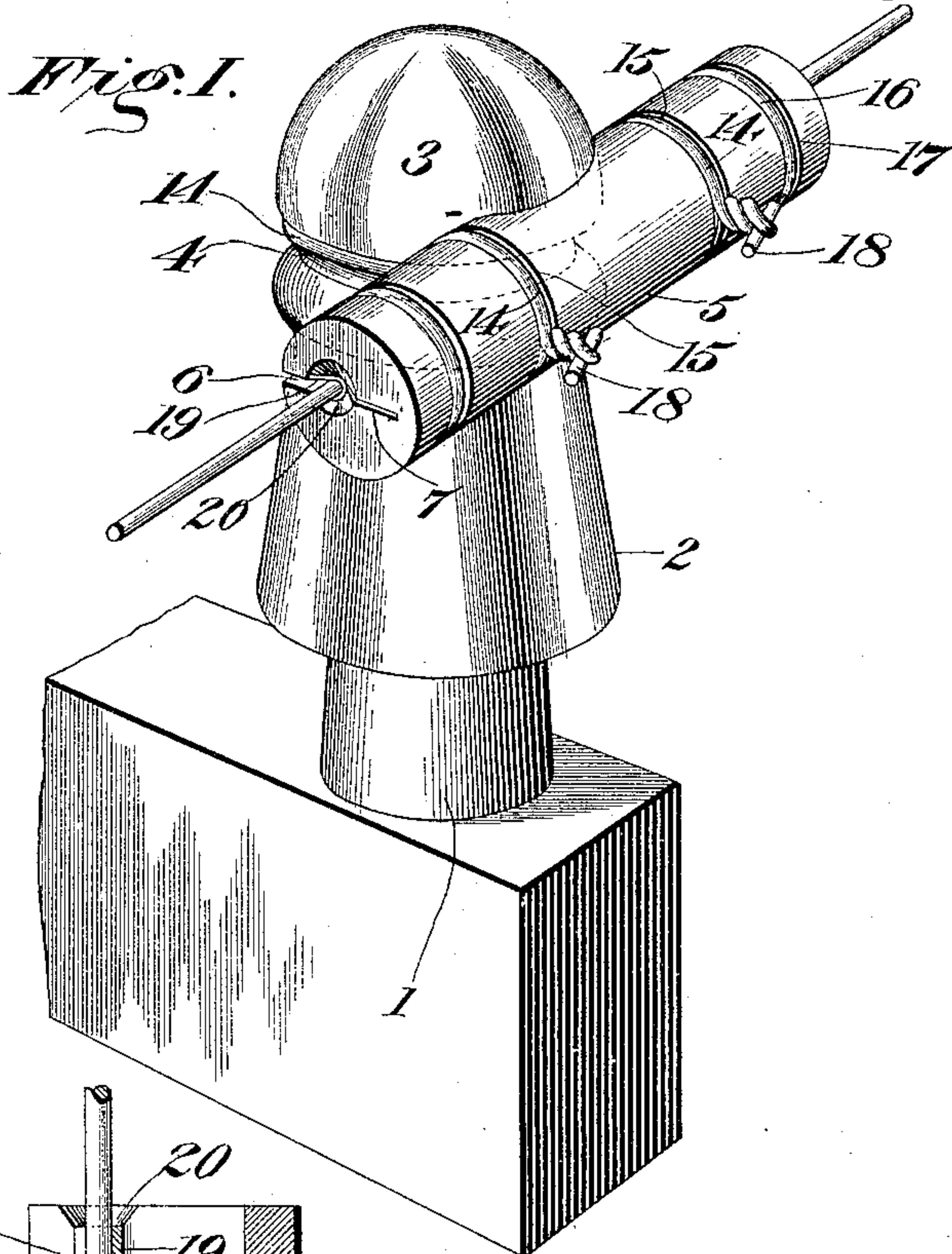
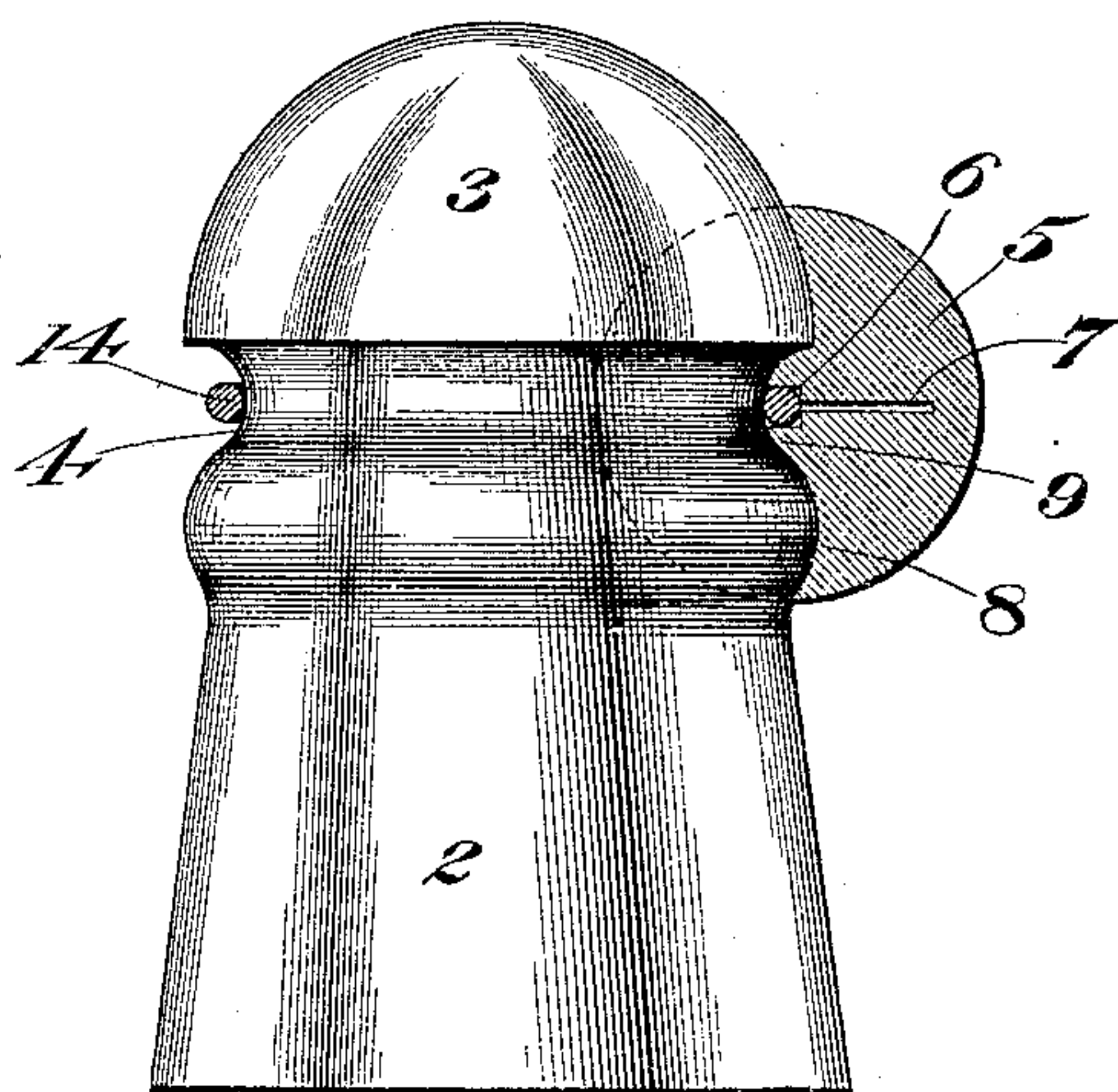


Fig. III.



Witnesses

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Fig. IV.

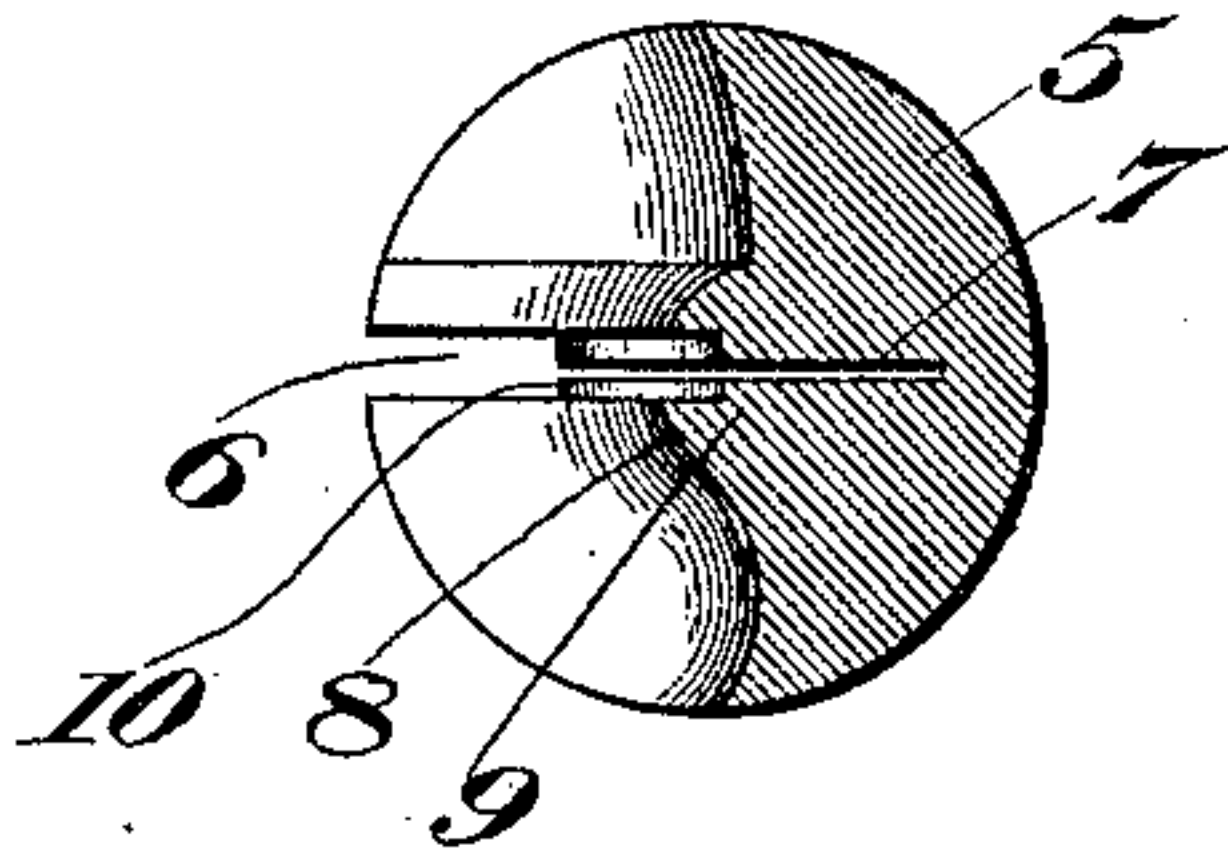


Fig. V.

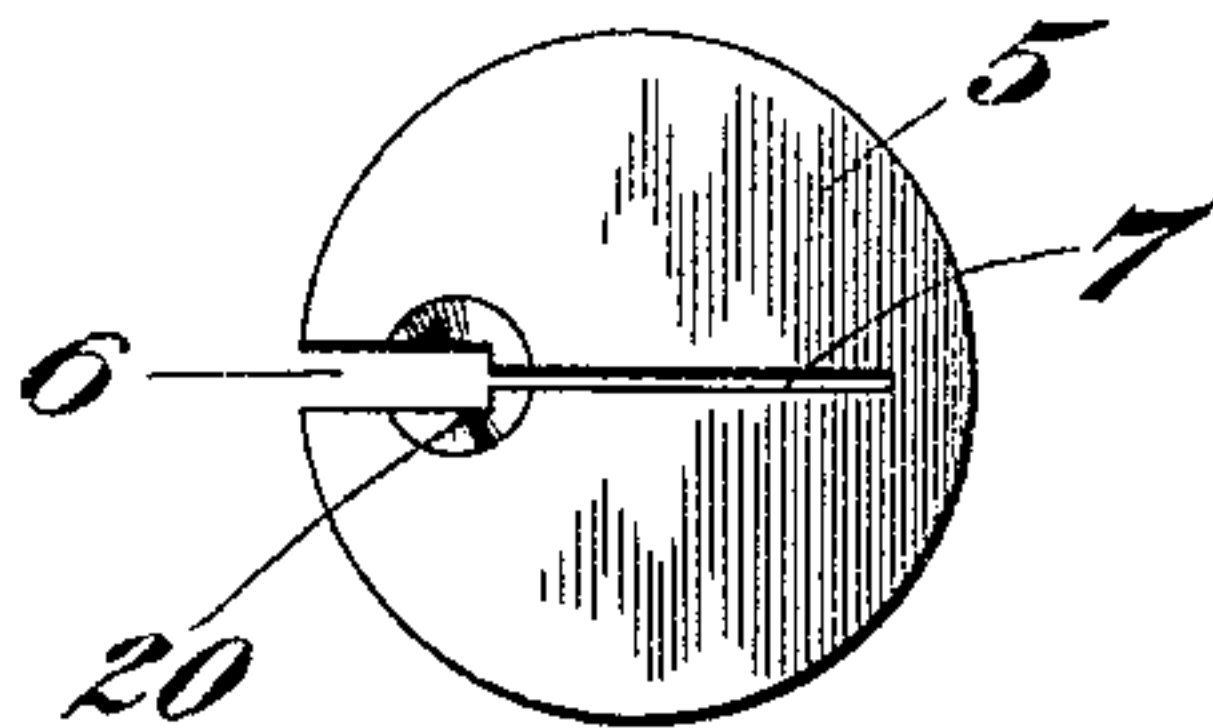


Fig. VI.

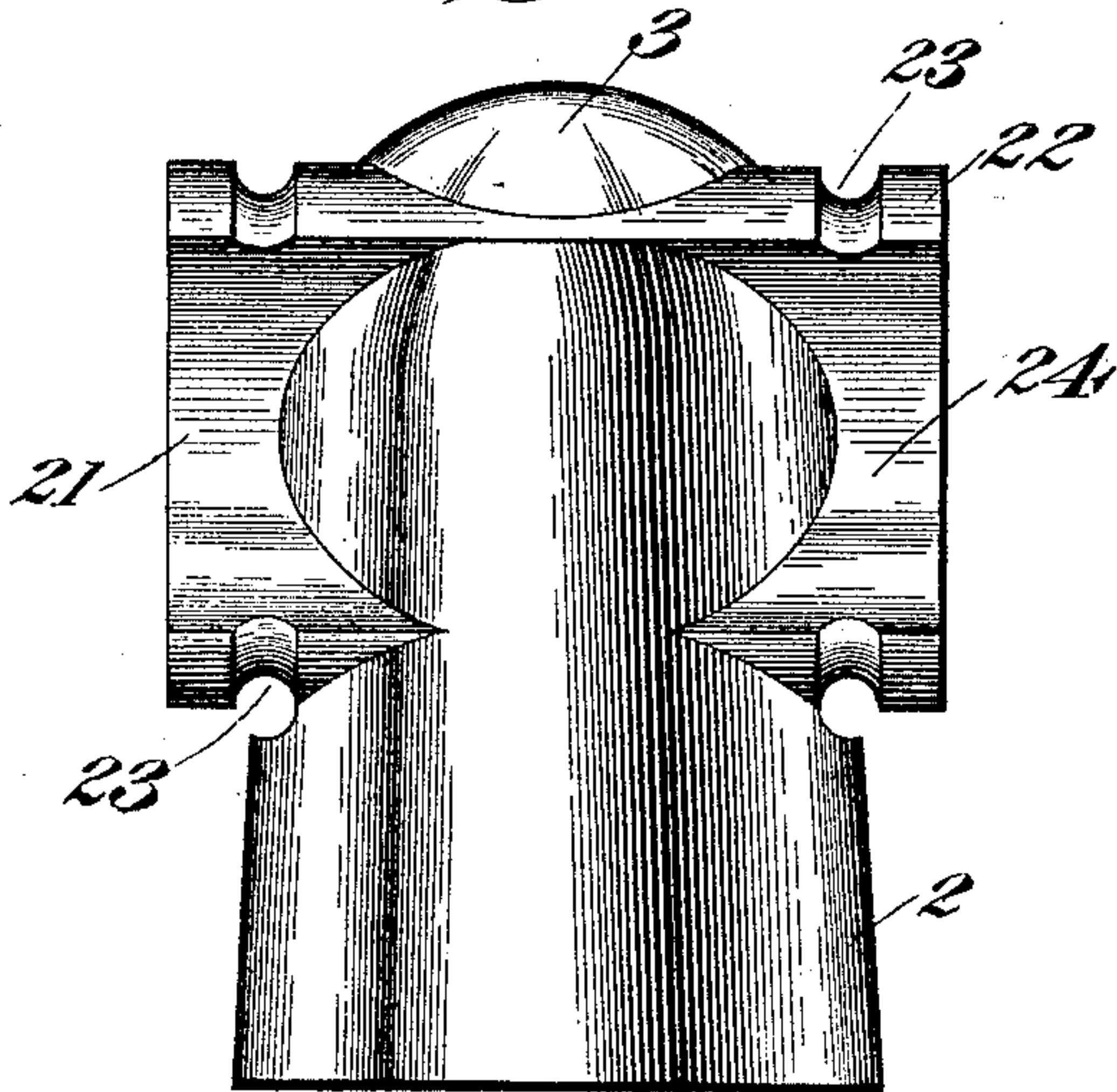
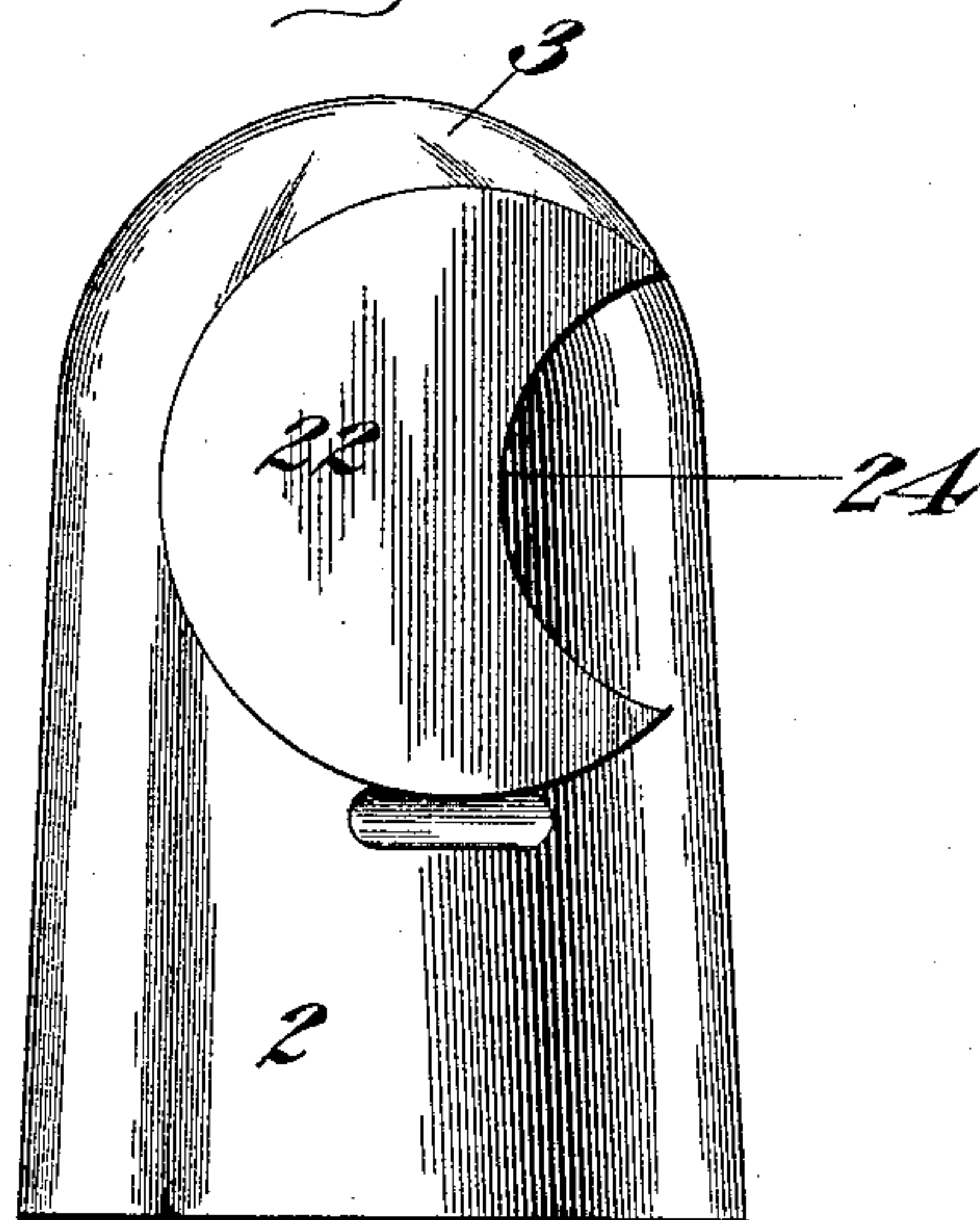


Fig. VII.



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UNITED STATES PATENT OFFICE.

REUBEN G. COLLINS AND FRANK W. FOLEY, OF DOLLAR BAY, MICHIGAN.

INSULATOR.

SPECIFICATION forming part of Letters Patent No. 544,959, dated August 20, 1895.

Application filed February 25, 1895. Serial No. 539,598. (No model.)

To all whom it may concern:

Be it known that we, REUBEN G. COLLINS and FRANK W. FOLEY, of Dollar Bay, county of Houghton, State of Michigan, have invented certain new and useful Improvements in Insulators, of which the following is a specification, reference being had to the accompanying drawings.

The object of our invention is to produce an insulator by means of which a wire can be quickly and securely fastened upon a suitable support and insulated therefrom without producing abrupt turns or bends in the wire calculated to break its shell or hard surface, which serves to weaken it, and which is an objectionable accompaniment of insulators now known to the art.

A further object of our invention is to supplement the frictional contact between the gradually-curved portion of the wire and the insulator by means of a simple and efficient device for clamping the straight strand, or portion of the wire beyond the curve. This serves not only to more securely clamp the wire to the insulator, but removes the tensile strain from what we will call the "shoulders" of the wire, by which we mean the comparatively sharp turns in the wire at the junction of the straight and curved portions thereof.

In the accompanying drawings, Figure I is a perspective view of our insulator, showing the wire in place. Fig. II is a horizontal section through the shield and sheath. Fig. III is a vertical section through the sheath, showing it in place upon the shield shown in elevation. Figs. IV and V are a central vertical section and end view, respectively, of the sheath. Figs. VI and VII are a side elevation and end view, respectively, of a modified form of shield.

Referring to the figures on the drawings, 1 indicates a suitable support, such, for instance, as the insulator-finger upon the cross-arm of a telegraph-pole.

2 indicates a hollow shield made of glass or other non-conductive material, supported upon the part 1. The shield is preferably cylindrical in form and has a semispherical top 3, surmounting an annular groove 4.

5 indicates the sheath, of hard wood, vulcanized fiber, or the like, which is also cylindrical in form and of considerably greater

length than the diameter of the shield. The sheath is provided, as illustrated, with a longitudinal clamping-slot 6, of a diameter corresponding to the diameter of the wire to be supported, and with a weakening-slot 7, extending diametrically from the bottom of the clamping-slot to within a suitable distance of the opposite side of the sheath. The sheath is also provided at its center and upon the same side as the clamping-slot with a cut-out portion or bite 8, for the reception of one side of the shield. It will be observed that the periphery of the bite is of a proper contour to bring its walls in close contact with the somewhat irregular contour of the shield, a bead 9 being formed to fit into the groove 4 and the clamping-slot continuing along the rear side of the bite for the reception of the curved portion of the wire, the sheath being also cut away to form gradually-curved shoulders 10 and 11, against which the shoulders 12 and 13 of the wire are adapted to rest.

As illustrated in Fig. II, the sheath is placed upon the wire and is then clamped against the side of the shield, the curved side of which constitutes, with the curved contour of the bite, a clamp which sustains the wire and forces it to assume the form illustrated. The sheath is secured to the shield by means of binding-wires 14, passing around the shield and around the sheath at either side thereof, the peripheral binding-wire grooves 15 being provided in the sheath for the reception of the binding-wires.

In order to accomplish the clamping of the straight portion or strand of the wire, to relieve the longitudinal or tensile strain upon the wire, which tends to weaken it at the shoulders, we provide what we will term "sheath-clamping mechanism," which consists in encircling the sheath with a clamping-wire 16, seated in a peripheral groove 17 and provided with terminal mechanism—as, for instance, a twist-button 18—by means of which the ends of the wire may be twisted together and the sheath thereby clamped upon the wire, the weakening-slot allowing for the slight yielding of the sheath under pressure.

In order to facilitate the clamping of the wire by augmenting the frictional contact between it and the sheath, we superimpose upon the sides of the clamping-slot a fric-

tional surface 19—as, for instance, a mineral paint or a thin layer of rubber or soft metal.

20 indicates conical recesses in the ends of the sheath and surrounding the wire, adapted 5 to prevent a sharp turn or bend being made in the wire when it slacked from a distant point, or when it is swayed by the wind.

The modified form of shield illustrated in Figs. VI and VII consists in providing the 10 shield illustrated in the other figures with lateral projections 21 and 22, provided with peripheral grooves 23 and with a concave face 24, and against which the shield is adapted to be secured. For all ordinary pur- 15 poses, however, we have found the device illustrated in Fig. I to be efficient and durable.

We do not desire to limit ourselves to the details of construction herein shown and described, but reserve to ourselves the right to 20 modify and vary them at will within the scope of our invention.

What we claim is—

1. In an insulator, the combination with a support, of a sheath provided with a tortuous 25 groove or slot for the reception of a wire, substantially as specified.

2. In an insulator, the combination with a shield, of a sheath, and means for clamping a wire between the shield and sheath, sub- 30 stantially as specified.

3. In an insulator, the combination with a shield, of a sheath, means for clamping a wire

between the shield and sheath, and separate and independent sheath clamping mechanism, substantially as set forth. 35

4. The combination with a shield, of a sheath provided with a clamping slot, and a weakening slot, means for clamping the sheath to the shield, and sheath clamping 40 mechanism, substantially as specified.

5. In an insulator, the combination with a cylindrical shield, of a sheath provided with a bite, or recess, adapted to conform to the contour of the shield, with a clamping slot and 45 with a weakening slot, means for clamping the sheath to the shield, and sheath clamping mechanism adapted to clamp the straight portion of the wire upon either side of the bite, substantially as specified.

6. In an insulator, the combination with a 50 cylindrical shield, of a sheath provided with a bite, clamping slot 6 gradually rounded shoulders 10 and 11, weakening slot 7, and with conical recesses 20, binding wires adapted to clamp the shield, and clamping 55 wires adapted to clamp the sheath upon the wire, substantially as specified.

In testimony of all which we have hereunto subscribed our names.

REUBEN G. COLLINS.
FRANK W. FOLEY.

Witnesses:

W. H. ROWE,
JAS. MCRAE.