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PATENTED OCT. 30, 1906.

R. A. FALKENBERG & S. S. SIMON.

INSULATOR.

APPLICATION FILED AUG. 29, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

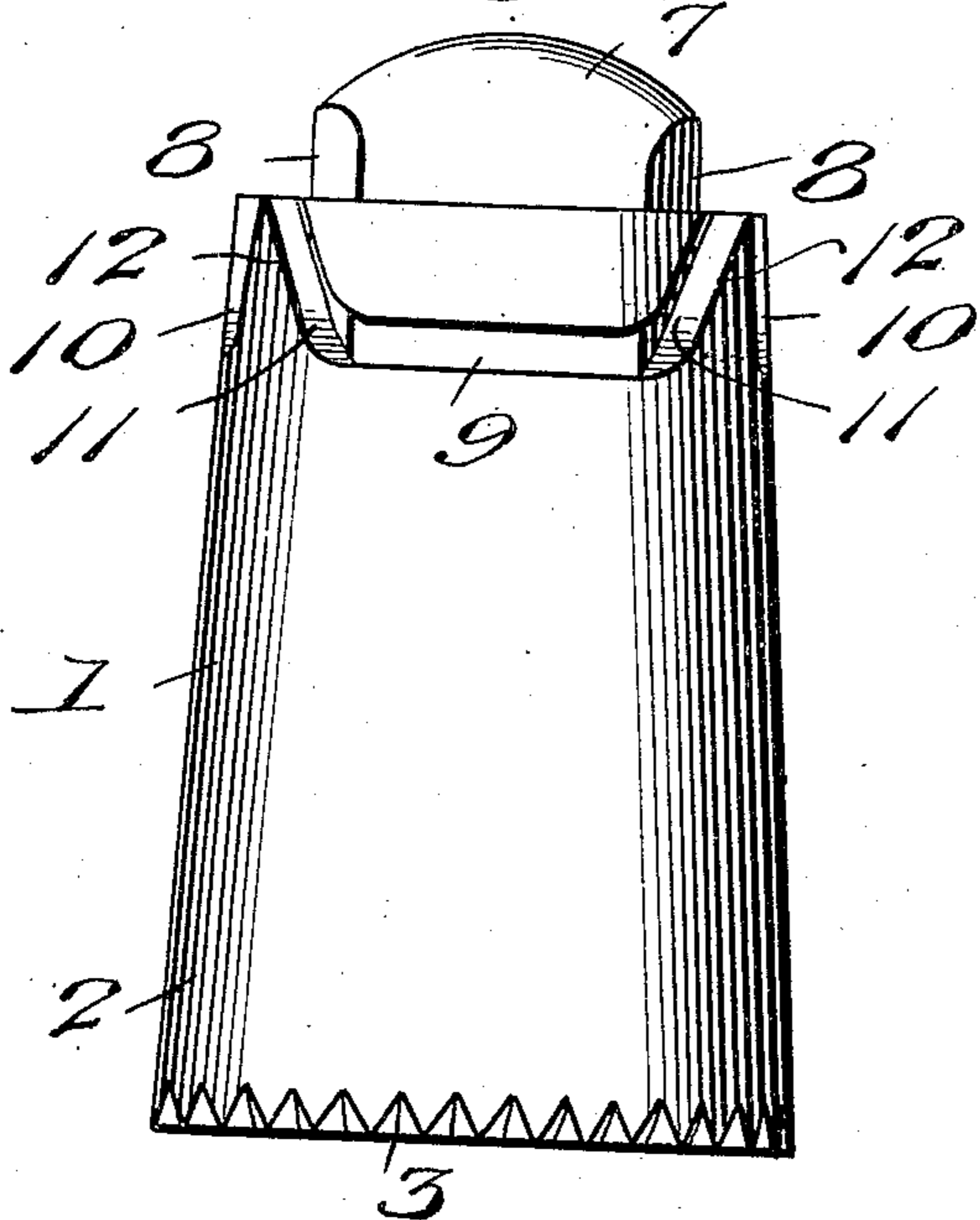


Fig. 2.

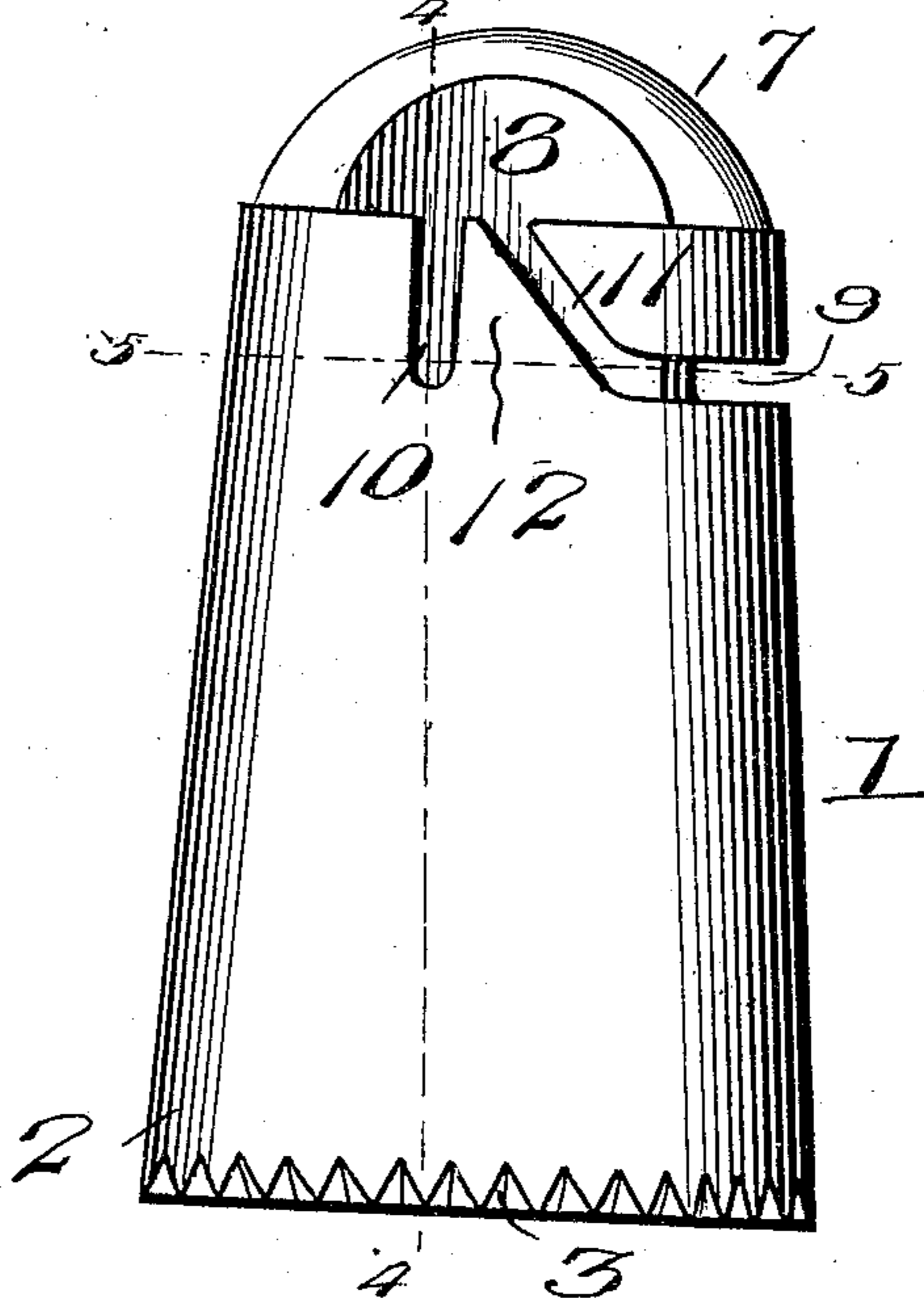


Fig. 4.

Fig. 3.

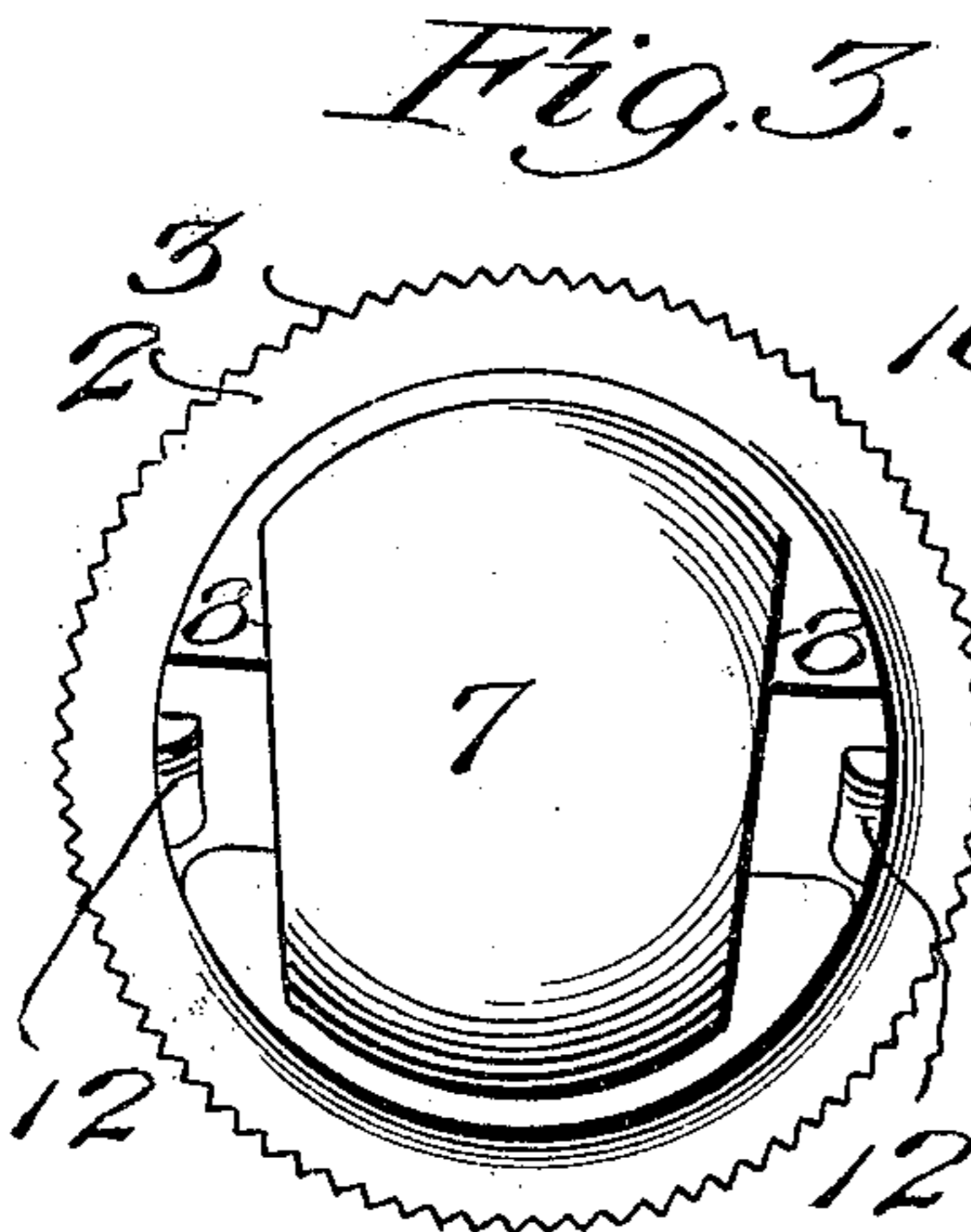
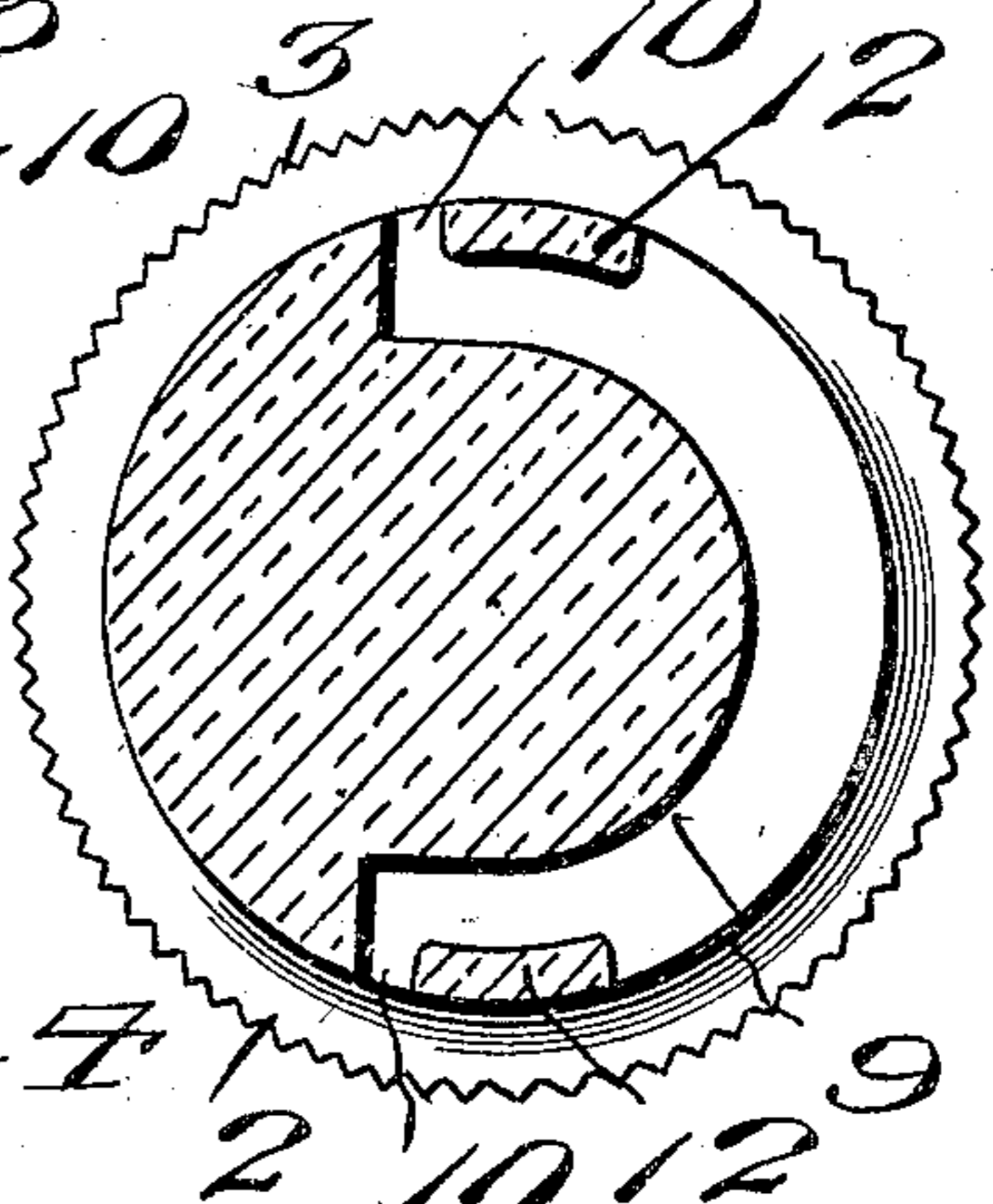


Fig. 5.



Witnesses

Wm. North.
A. M. Langley

By

Inventors
R. A. Falkenberg,
S. S. Simon,
Victor J. Evans.
Attorney

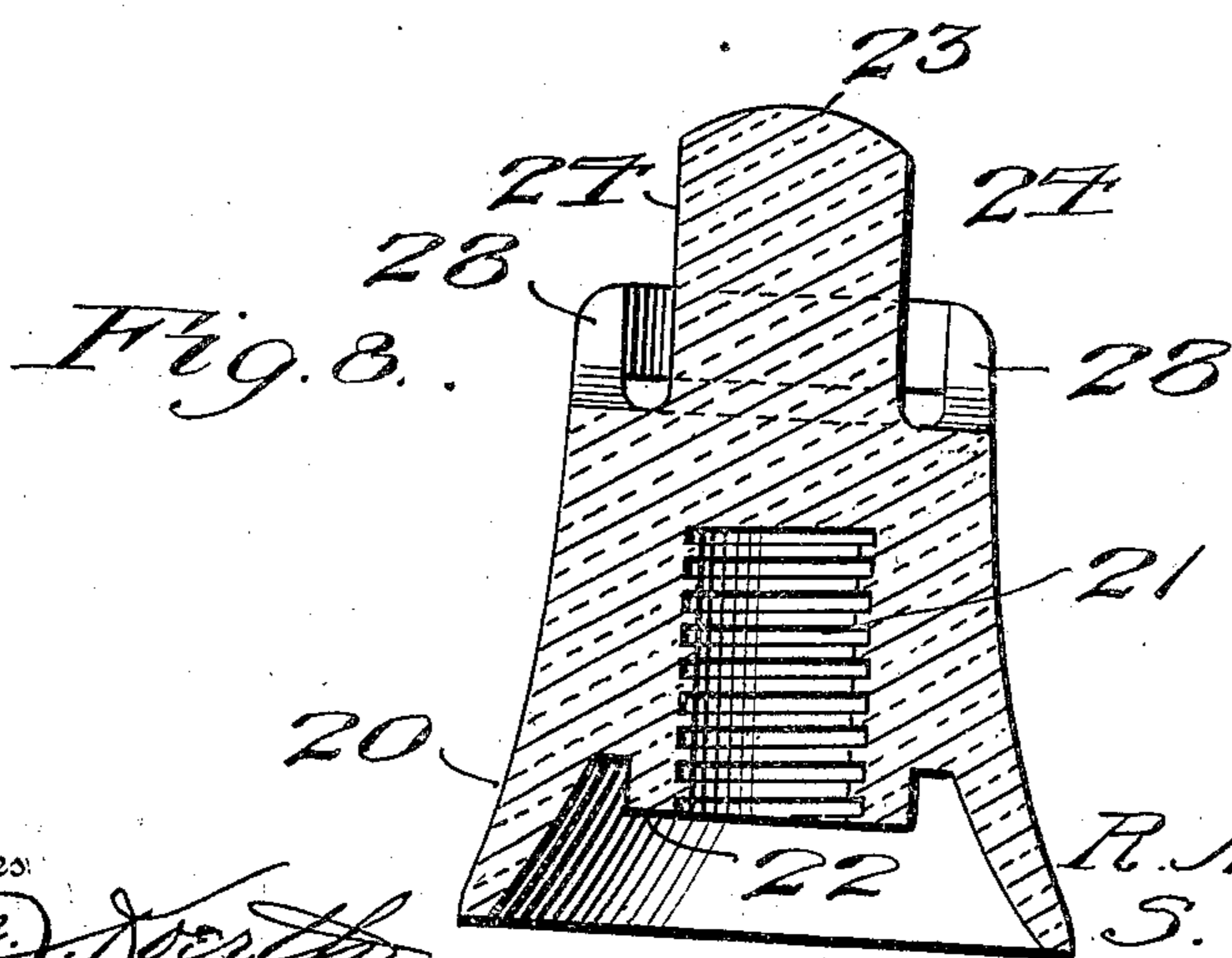
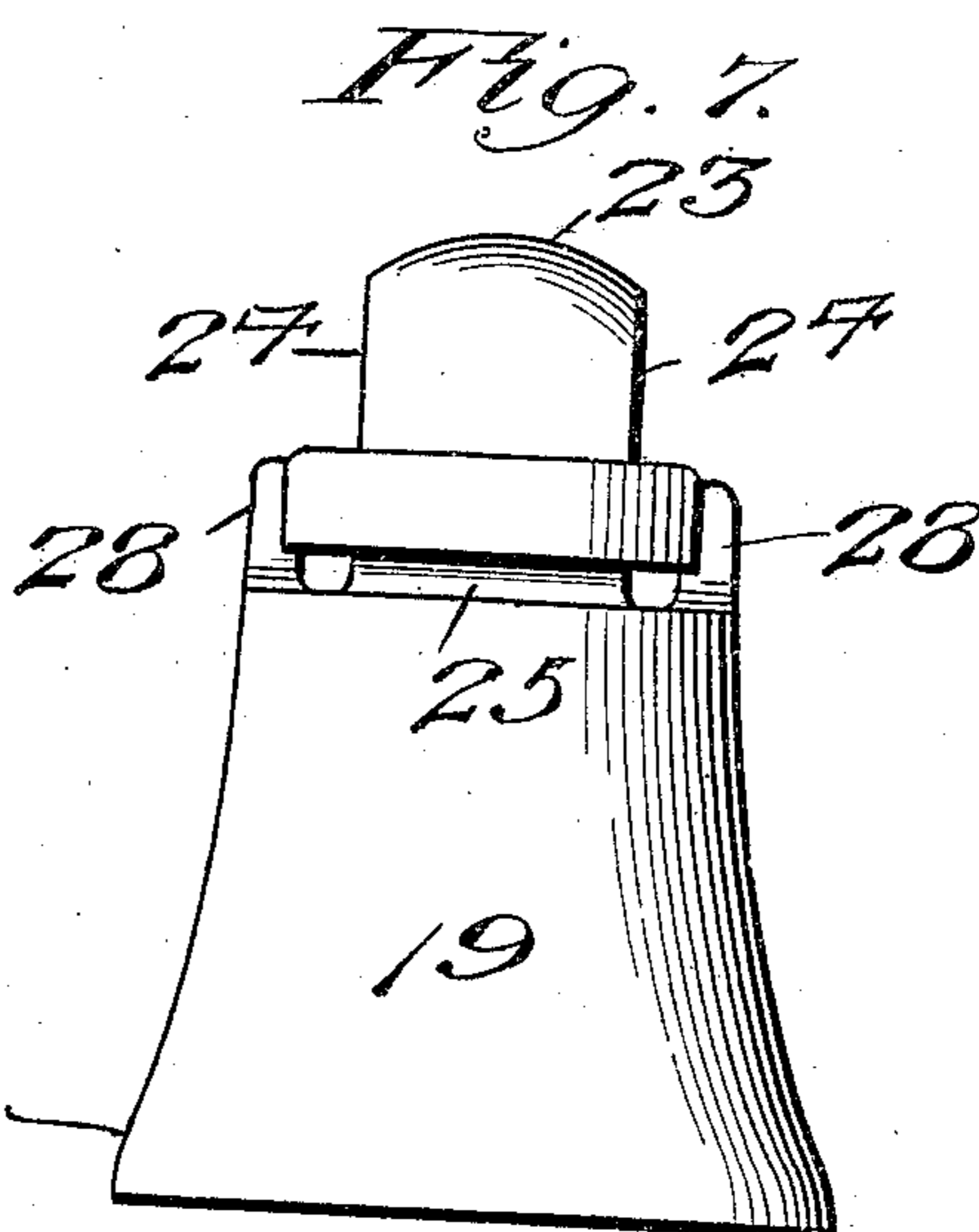
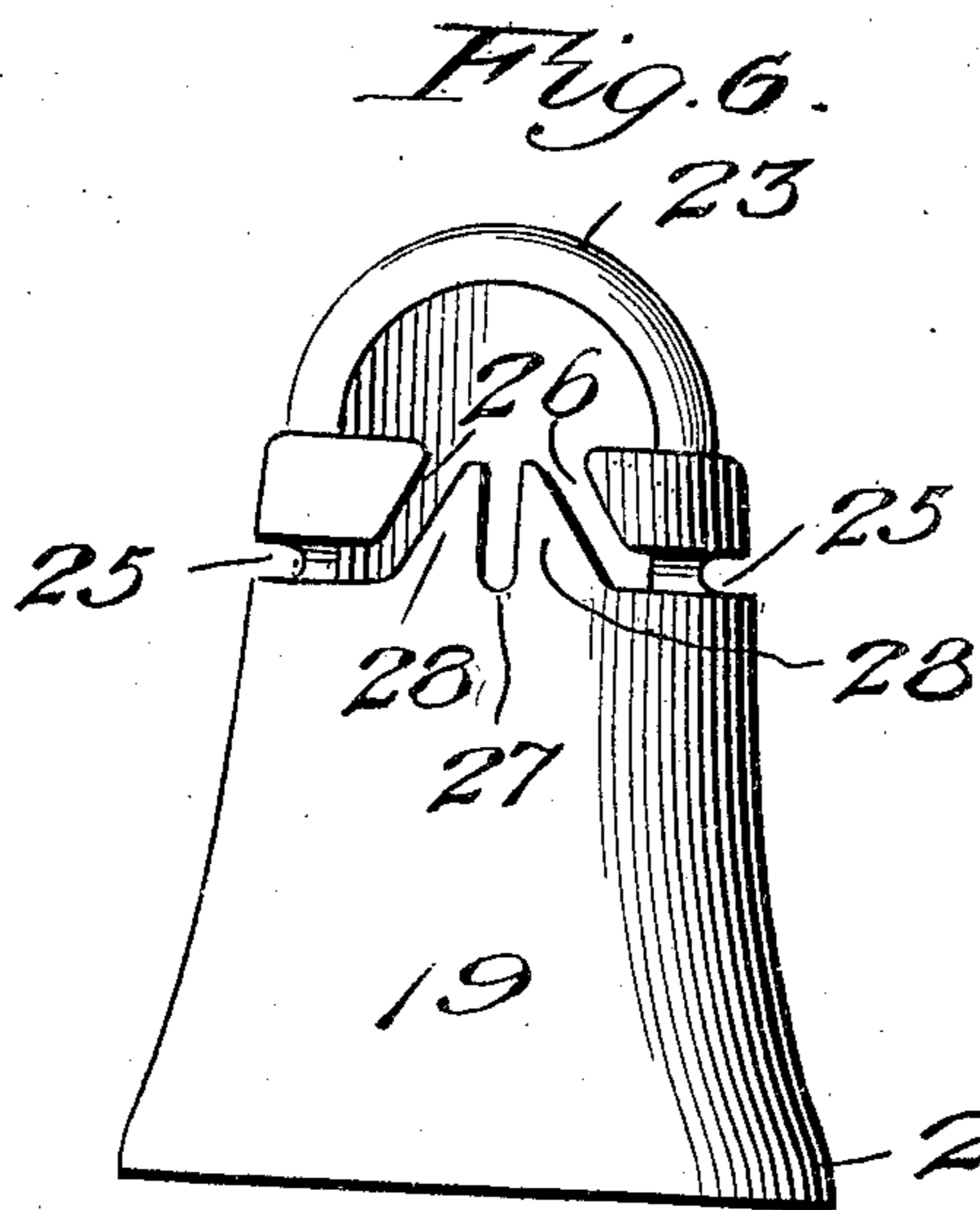
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2 SHEETS—SHEET 2.



Witnesses:

Wm. Koerth.
A. M. Langley

By

R. A. Falkenberg
S. S. Simon
Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

RICHARD A. FALKENBERG AND SOLOMON S. SIMON, OF SAN FRANCISCO,
CALIFORNIA.

INSULATOR.

No. 834,567.

Specification of Letters Patent.

Patented Oct. 30, 1906.

Application filed August 29, 1905. Serial No. 276,283.

To all whom it may concern:

Be it known that we, RICHARD A. FALKENBERG and SOLOMON S. SIMON, citizens of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Insulators, of which the following is a specification.

The invention relates to an improvement in insulators designed, primarily, for the support of electrical conductors, such as electric-light, telephone, and telegraphic wires.

The main object of the present invention is the provision of means in a device of the class described to permit the ready and convenient securing of the wire in place without the use of tie-wires, the construction further providing against grounding of the current.

The preferred details of structure of our invention will be described in the following specification, in which reference is had particularly to the accompanying drawings in three sheets, wherein—

Figure 1 is a view in elevation of our preferred form of insulator; Fig. 2, a similar view taken at right angles to the view in Fig. 1; Fig. 3, a top plan of the same; Fig. 4, a vertical section of the same, taken on the line 4 4 of Fig. 2; Fig. 5, a transverse section on the line 5 5 of Fig. 2. Fig. 6 is a view in elevation of another form of insulator; Fig. 7, a similar view taken at right angles to Fig. 9, Fig. 8, a vertical central section of the same.

Referring particularly to Figs. 1 to 5, inclusive, of the drawings, wherein is shown our preferred form of insulator, it will be noted that the same comprises a body 1, of glass, porcelain, or other insulating material, preferably circular in cross-section and tapering slightly from the lower end toward the top. The lower end of the body is formed with a concentric edge flange or petticoat 2, the free edge of which is serrated at 3. The body is formed with a centrally-arranged threaded opening 4 to provide for engagement with the pin of the cross-arm, the edge wall of this opening projecting below the body proper of the insulator and providing what we term an "inner" petticoat or bell 5. Intermediate the petticoats 2 and 5 the body is formed with an additional depending petticoat 6, arranged approximately centrally be-

tween and concentric with the petticoats 3 and 5.

At the upper end the body is formed or provided with a head 7, rounded in transverse planes and practically coextensive in one diametrical dimension with the upper end of the body. At right angles to said greatest dimension of the head the side edges of the latter are cut away to provide shoulders 8, which incline toward each other transversely of the head, as shown in Fig. 3.

The body 1 a short distance below its upper end is formed with a groove or recess 9, extending transversely of the body and approximately equal in length to half the circumference of the body. Centrally of the shoulders 8 the body 1 is formed with a notch or recess 10, cut through the surface of the body, with its rear wall terminating on a plane with the surface of shoulder 8. The lower portion of the recess 10 is in open communication with the groove 9, said groove in its opening through the surface of the body terminating in its horizontal direction somewhat short of the recesses 10 and being inclined upwardly in the form of guideways 11 and terminating approximately coincident with the upper end of the recesses 10. The construction described provides spurs 12 on opposite sides of the head and about centrally of the shoulders 8 which spurs are free of connection with the body except at their lower ends, the side edges of the spurs being formed, respectively, by the walls of the recesses 10 and the guideways 11.

While we have shown and described the groove 9 as preferably formed on but one side of the body, it is obvious that, if desired, a duplicate groove may be provided on the opposite side.

In Figs. 6, 7, and 8 we have illustrated an insulator having a truncated-cone-shaped body 19, provided at the lower end with a concentric flaring petticoat 20. The body is formed with a central threaded opening 21 for engagement with the pin of the cross-arm, the wall of the opening projecting below the lower surface of the body to provide an inner bell or petticoat 22.

The upper end of the body is provided with a head 23, of rounded contour and cut away to provide shoulders 24 on opposite edges similar in all respects to the shoulders

8 in the preferred form. Below the head the body is formed with diametrically opposite grooves 25, having inclined guideways 26 at their terminals, said guideways inclining upwardly and meeting a depending recess 27, formed in the body about centrally below the shoulders 24, the material in rear of the projections 28, formed by the recess 27, being cut away to leave said projections free from the body or head of the insulator, thus providing a space coextensive with the groove 25 and extending entirely around the body, being in communication at diametrically opposite points with the recesses 27.

In use the wire is passed around or partially around the body of the insulator, resting in the groove formed therein, and is further engaged and held by being passed laterally from the insulators from in rear of the spurs heretofore described. In the form shown in Figs. 1 to 5, inclusive, the wire after passing around the insulator in the groove 9 is passed up the inclined way 11 and in rear of the spur 12, projecting from the insulator-body through the recess 10.

In the forms illustrated in Figs. 6, 7, and 8 the wire resting in the groove 15 is passed partially around the insulator-body and in rear of the particular spurs 28 and laterally from the body through the recess 27.

It will thus be seen that the wire is supported on the insulator, or, more properly speaking, on one side thereof, in a plane concentric with the surface of the insulator and then projected from the insulator at approximately right angles to said circumferential portion through the slots adjacent the spurs. By this construction the wire is firmly held against longitudinal movement, and the form assumed by the wire in its connection with the insulator is such as to avoid sharp angles or bends in the wire length, thereby preventing breakage of the insulation or of the wire.

It will be further noted that the wire in its connection with the various forms of insulator is partially, if not completely, housed within the respective receiving-grooves, whereby to protect the insulation and wire against the elements.

It is to be understood that the free edges of the insulator shown in Figs. 6 to 8 are to be serrated, as in the other form, if desired, and that such serrations are material in that they provide for the effective discharge or separation of the water finding its way down the body of the insulator from said lower edge, and thereby prevent said water reaching the inner parts or petticoats of the insulator.

The various petticoats described provide for the effective dripping of the water from the insulator without permitting the same finding its way to the connection or junction

between the insulator and the pin of the cross-arm.

The spurs illustrated in the various forms may be in any desired shape in elevation or section, as they are adapted to provide means for projecting the wire diametrically from the insulator, thereby providing an even strain on the insulator when the wire is in place. Furthermore, as the wire in its passage circumferentially of the insulator is held beneath an overhanging projection and passed at an angle to said portion between vertically-arranged spurs it is evident that when once in place the wire cannot be removed, except by slackening its ends and lifting it from beneath the overhanging projection, so that with the wire secured in place and the usual tension thereon accidental separation from the insulator is guarded against.

Having thus described our invention, what we claim as new is—

1. An insulator comprising a body portion formed near the upper edge with a transversely-arranged groove and with longitudinally-arranged recesses adjacent the terminals of the groove, and a head projecting from the body portion and cut away at diametrically opposite points to provide a space between it and the upper edge of the body portion adjacent each of the recesses.

2. An insulator comprising a body portion formed near the upper edge with a transversely-arranged groove terminally inclining toward said edge and with longitudinally-arranged recesses adjacent the terminals of the groove, and a head projecting from the upper end of the body portion and cut away at diametrically opposite points to provide spaces between the head and body portion, said spaces being in communication with the terminals of the groove and with the recesses.

3. An insulator comprising a body portion, and a head projecting from the upper end thereof and cut away at diametrically opposite points to provide projections spaced from the head and integral with and wholly within the plane of the body portion, said body portion being formed with a transversely-arranged groove terminally communicating with the spaces between the head and projections and with openings extending longitudinally of the projections.

4. An insulator comprising a body portion formed at diametrically opposite points with depressions to provide spaced projections, the body portion being formed near the upper end with a transversely-arranged groove terminally communicating with the spaces in rear of the projections and with longitudinally-arranged openings extending through the projections and communicating with the spaces in rear thereof.

5. An insulator comprising a body portion,

and a head projecting from the upper end of the body portion, said head being cut away at diametrically opposite points and on converging planes, the upper end of the body
5 portion being vertically recessed coincidently with the cut-away portion of the head to provide spurs projecting from the body portion and spaced from the head adjacent the cut-away portion, the upper end of the body portion being formed with a transversely-
10 arranged groove having upwardly-inclined ter-

minals in open communication with the spaces in rear of the spurs, said grooves being arranged transverse the narrowed end of the head.

In testimony whereof we affix our signatures in presence of two witnesses.

RICHARD A. FALKENBERG.
SOLOMON S. SIMON.

Witnesses:

WILLIAM BRUER,
BEN. F. RECTOR.

15