

No. 791,668.

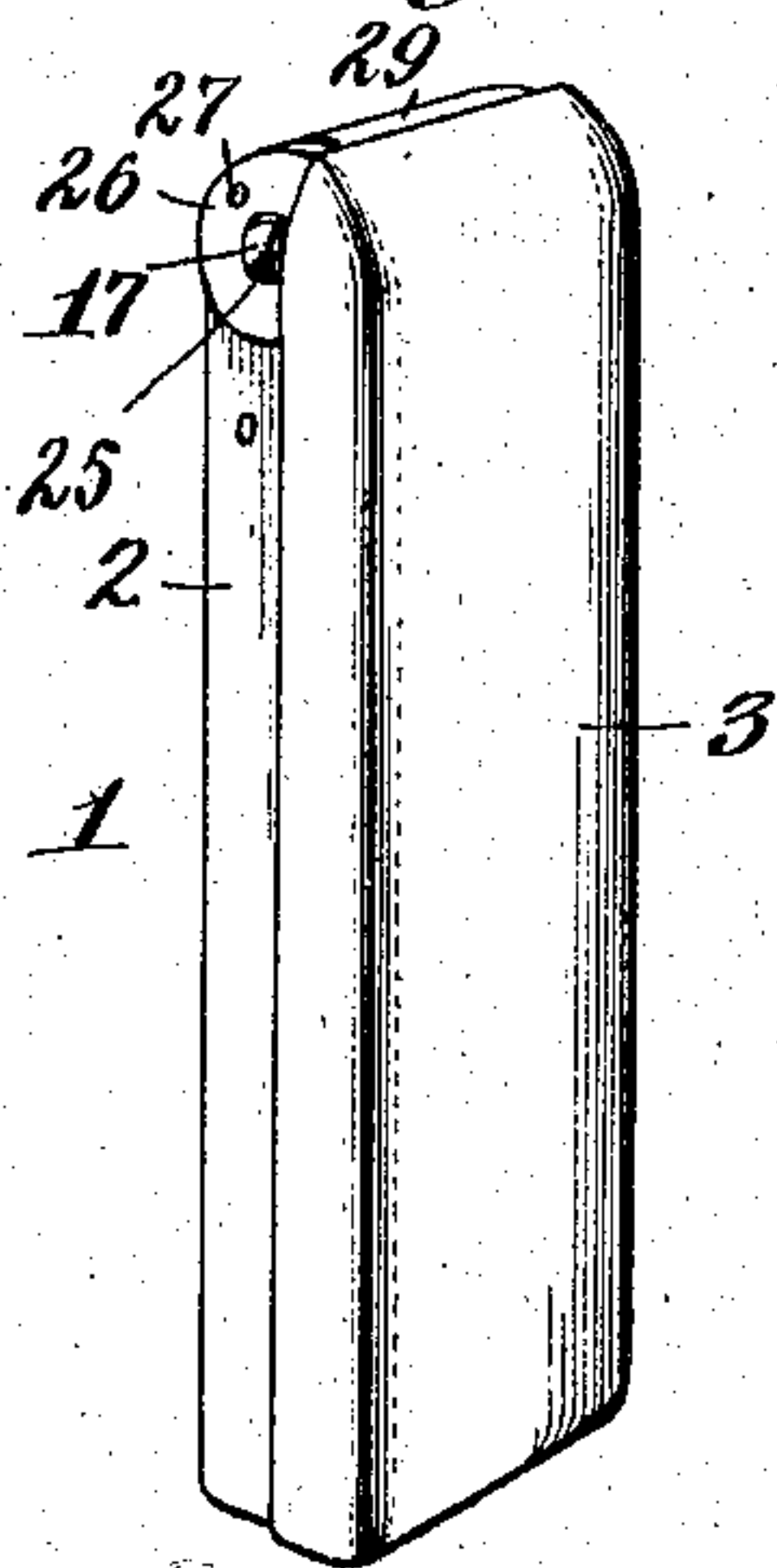
PATENTED JUNE 6, 1905.

F. H. APEL & S. A. MERKLEY.  
PROPHYLACTIC DENTAL APPLIANCE.

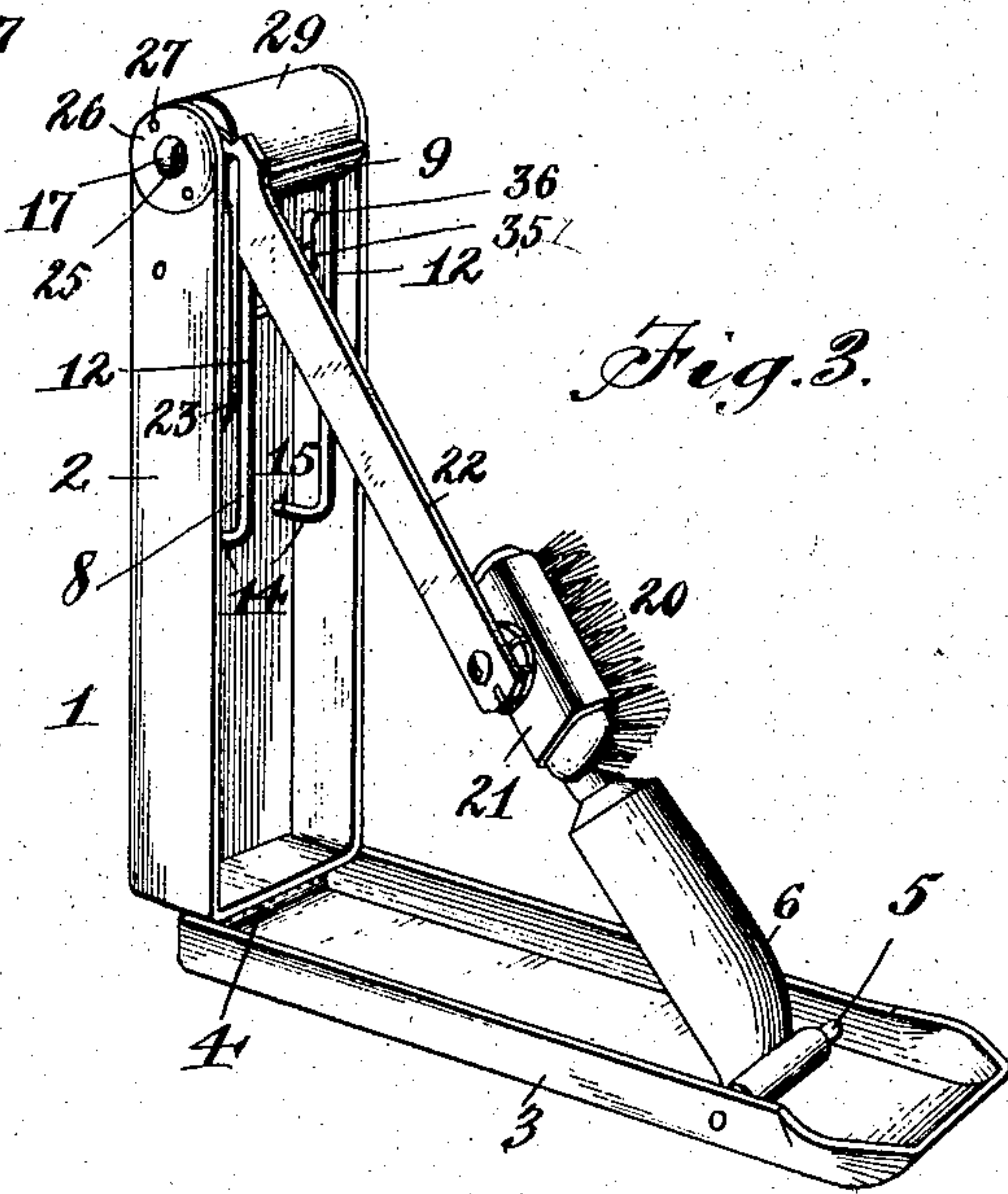
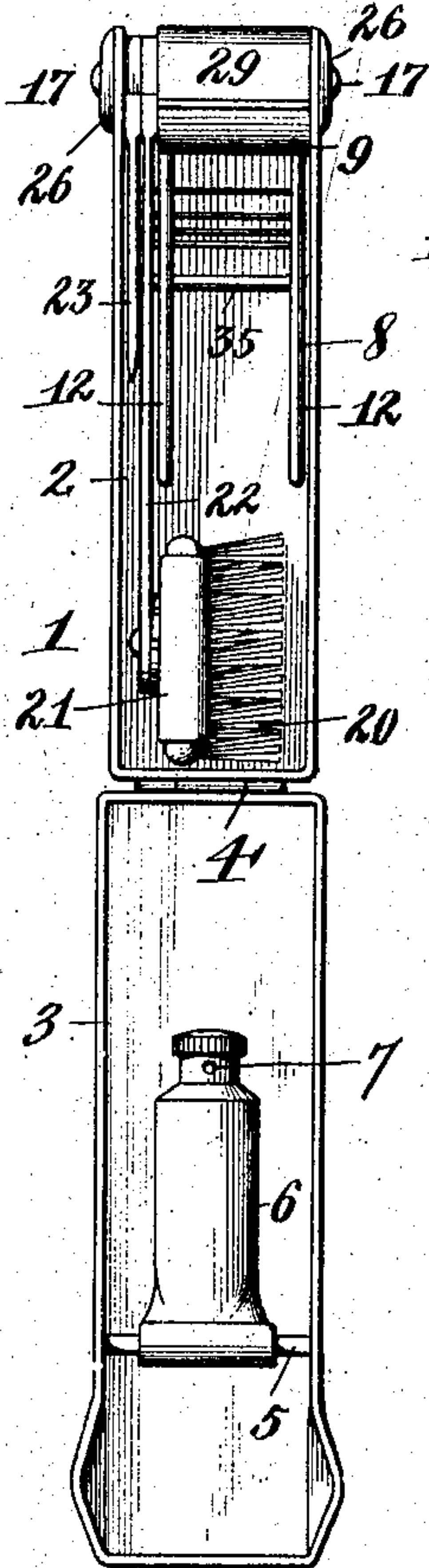
APPLICATION FILED FEB. 18, 1904.

2 SHEETS—SHEET 1.

*Fig. 1.*

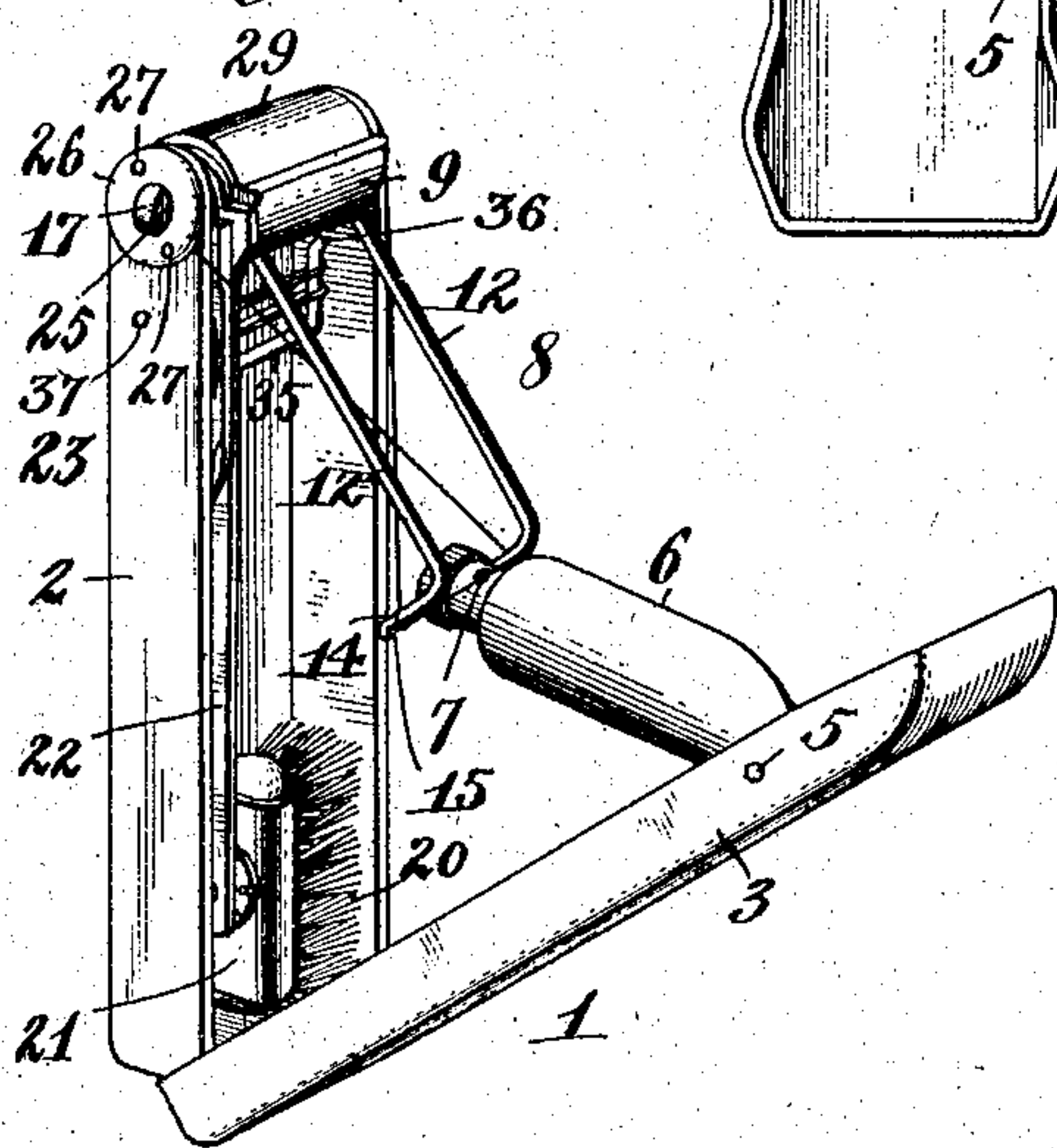


*Fig. 2.*

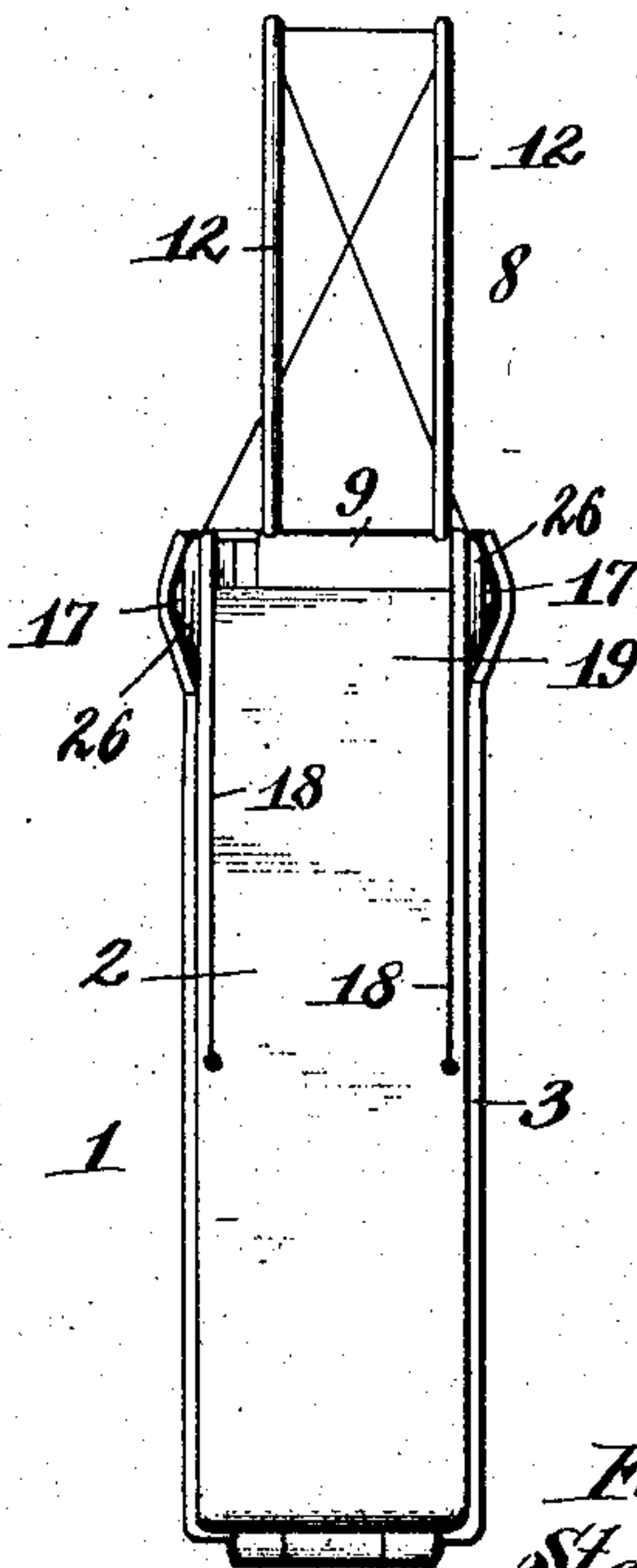


*Fig. 3.*

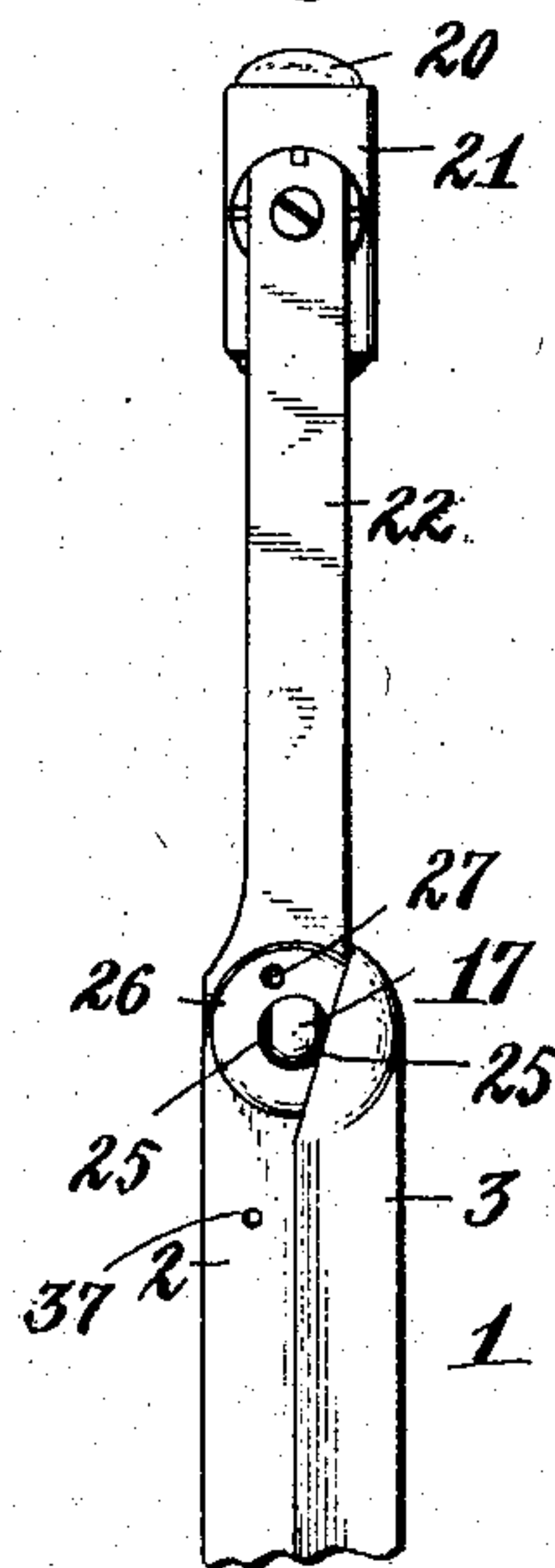
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



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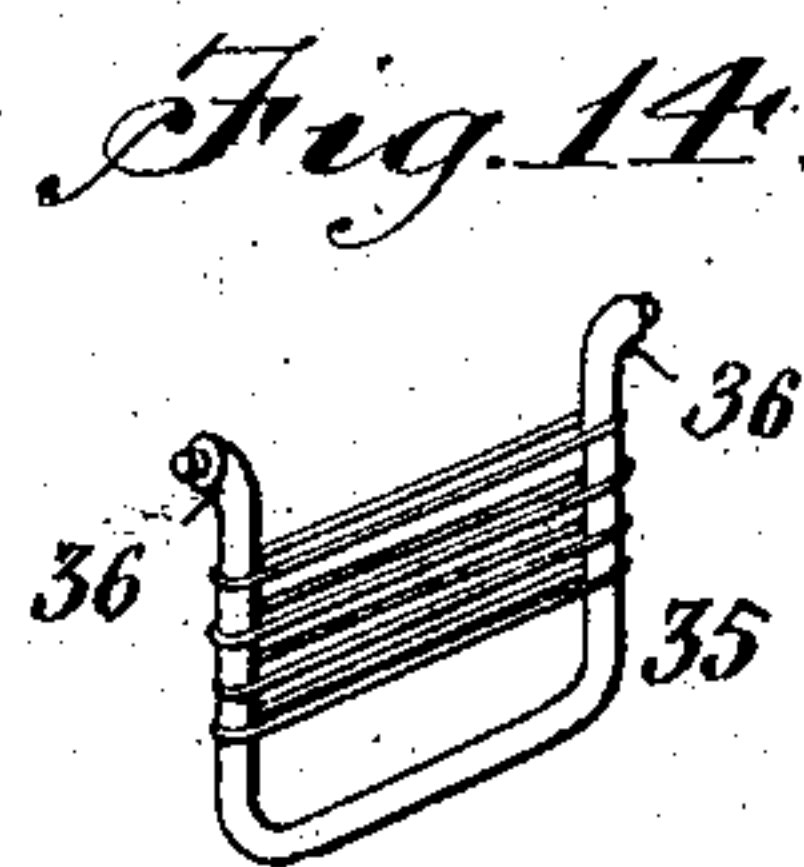
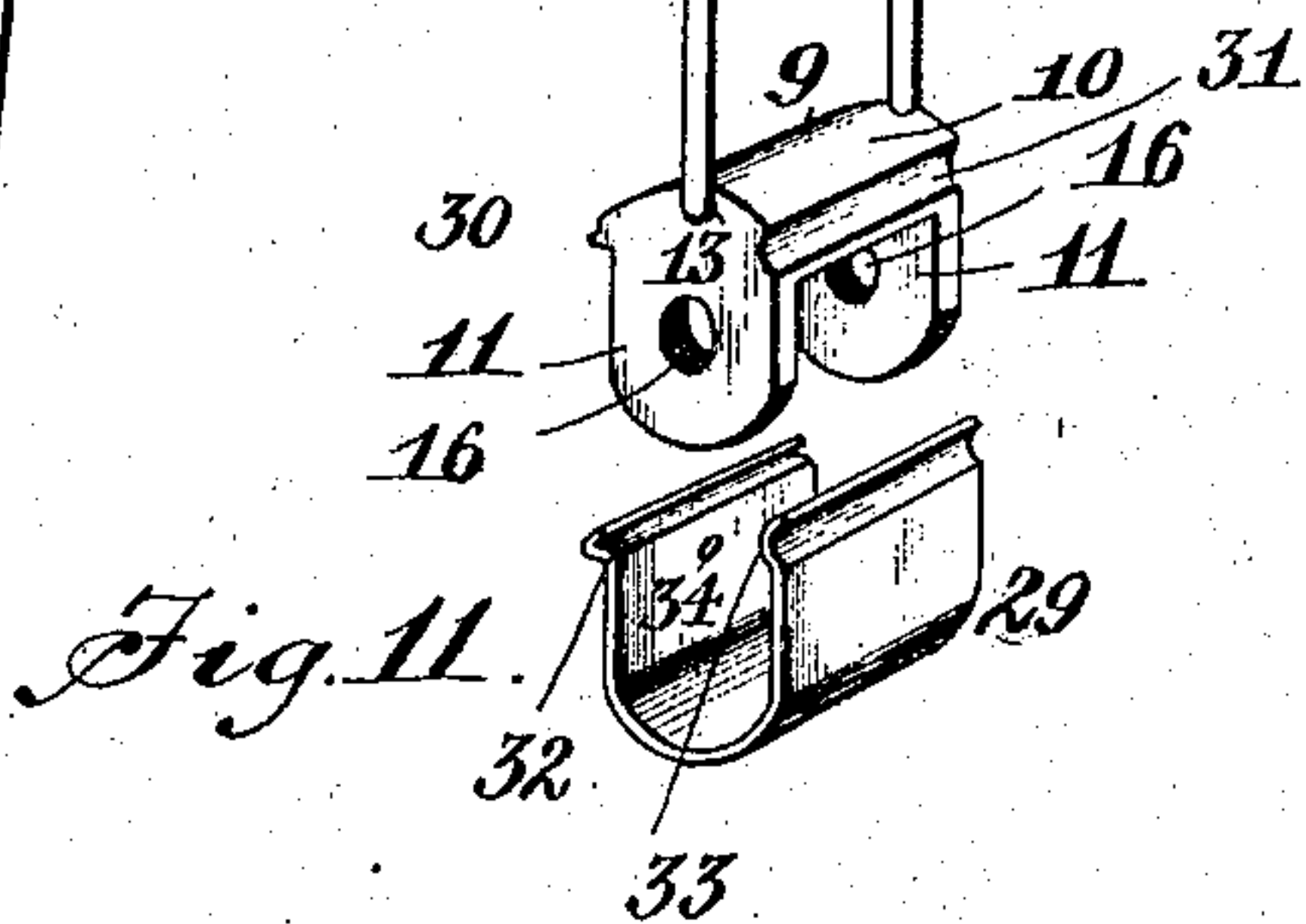
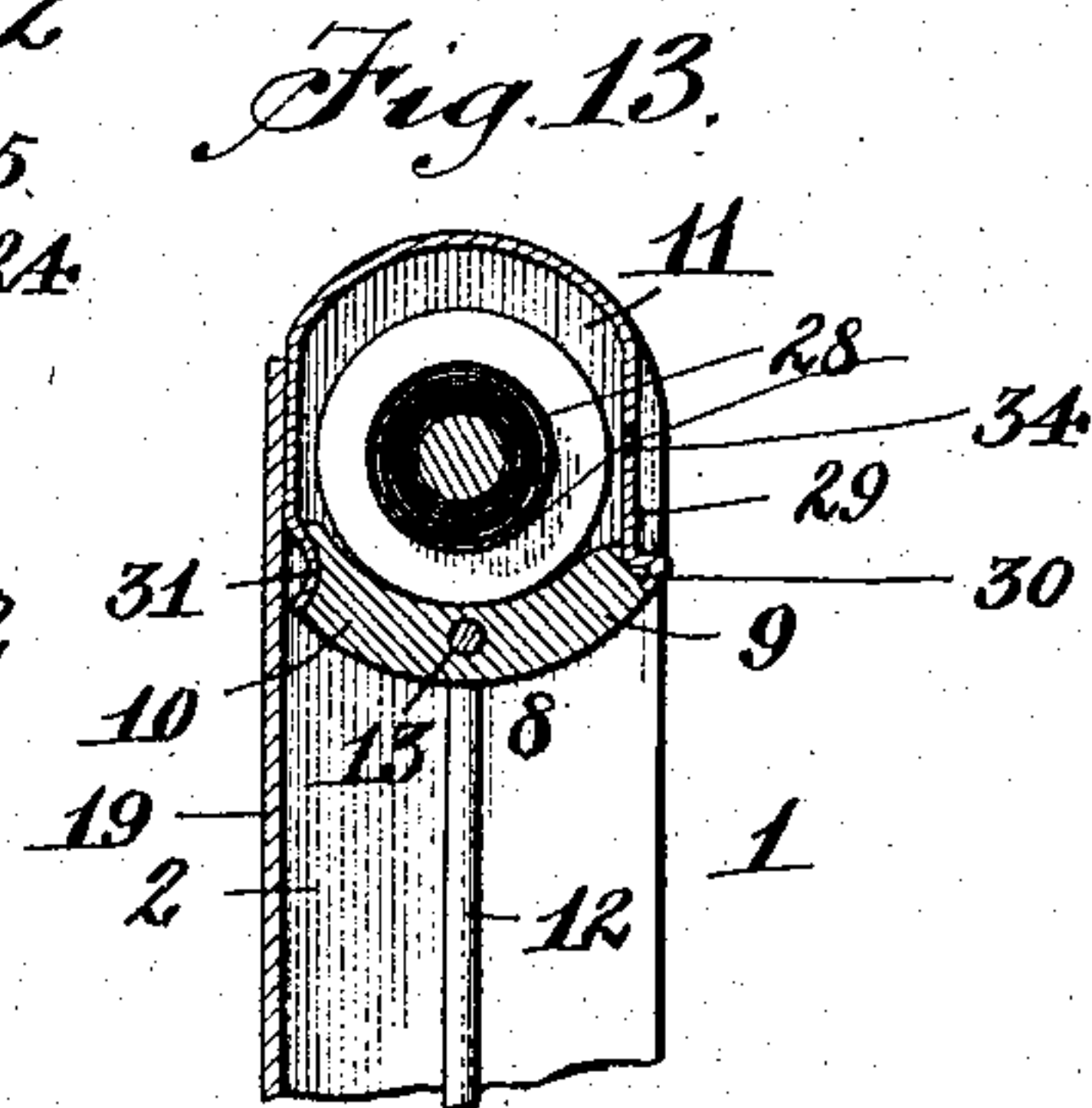
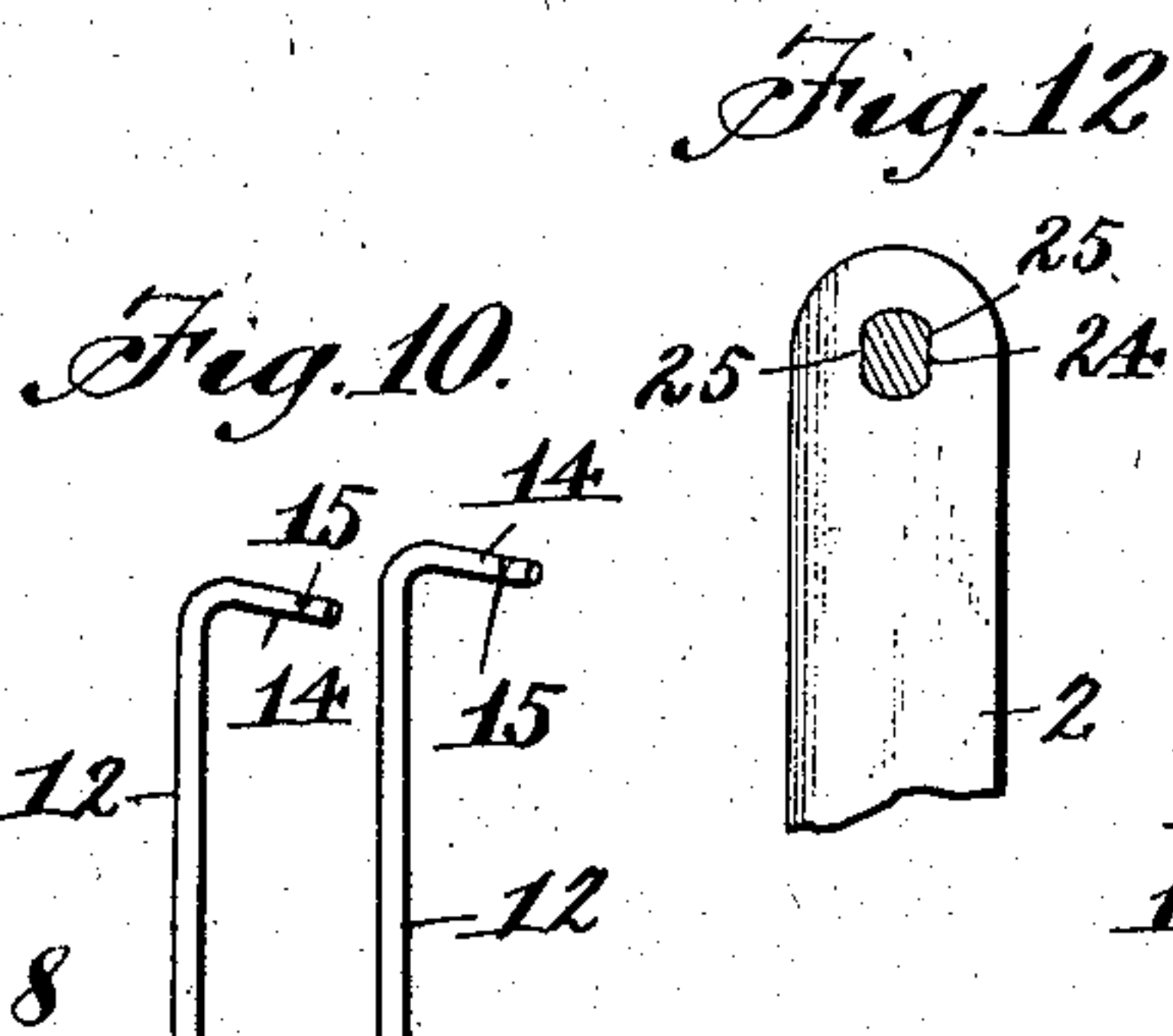
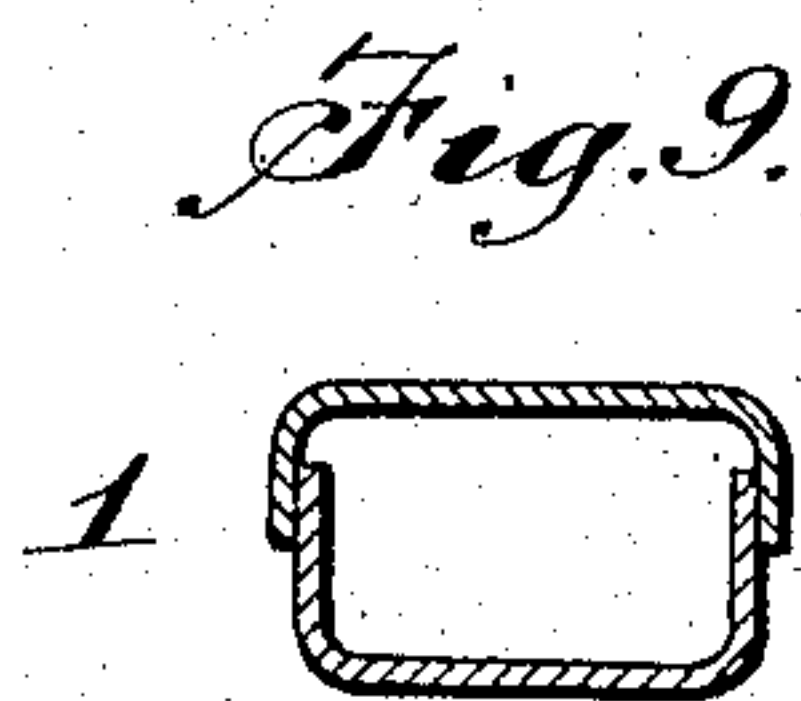
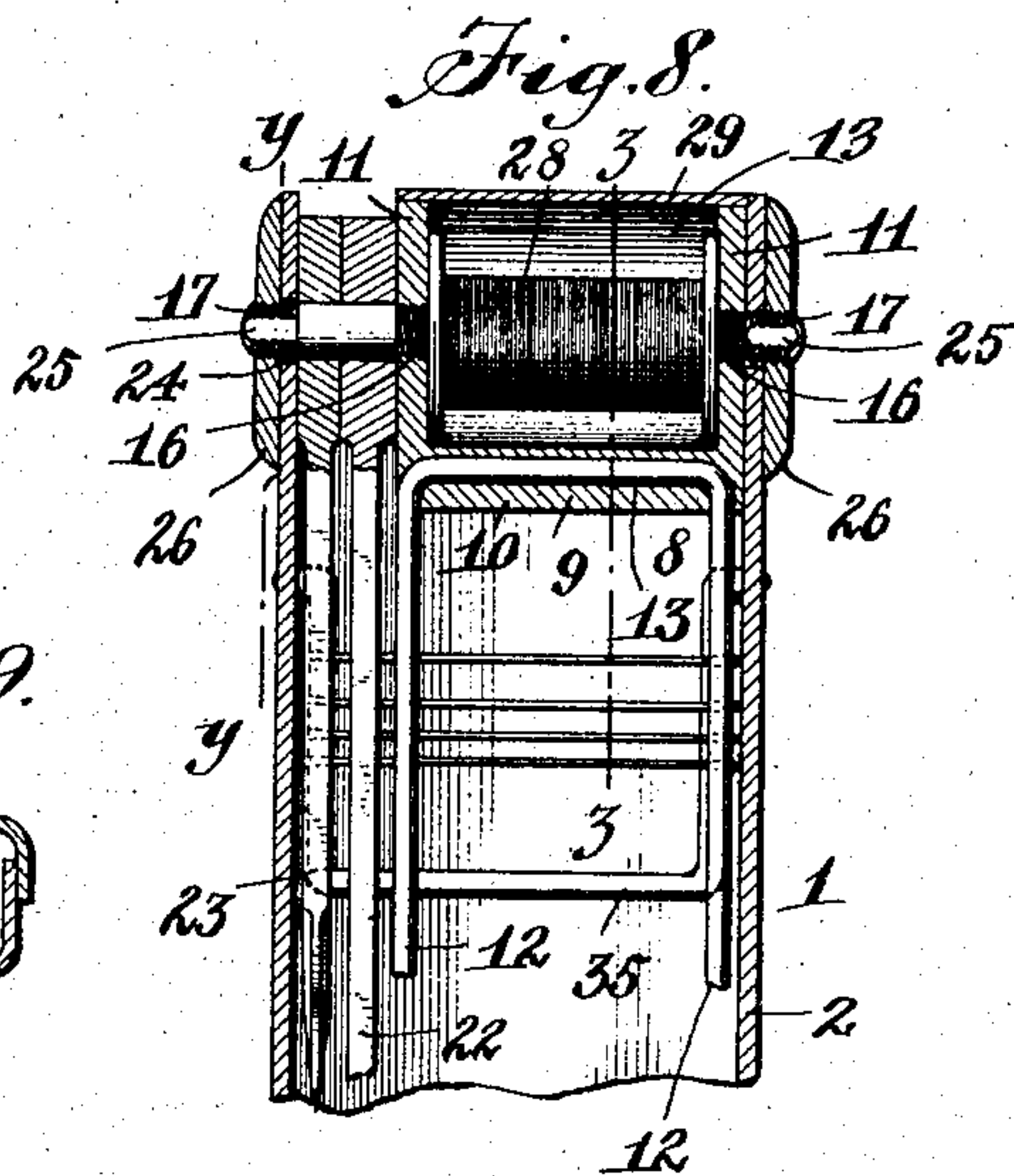
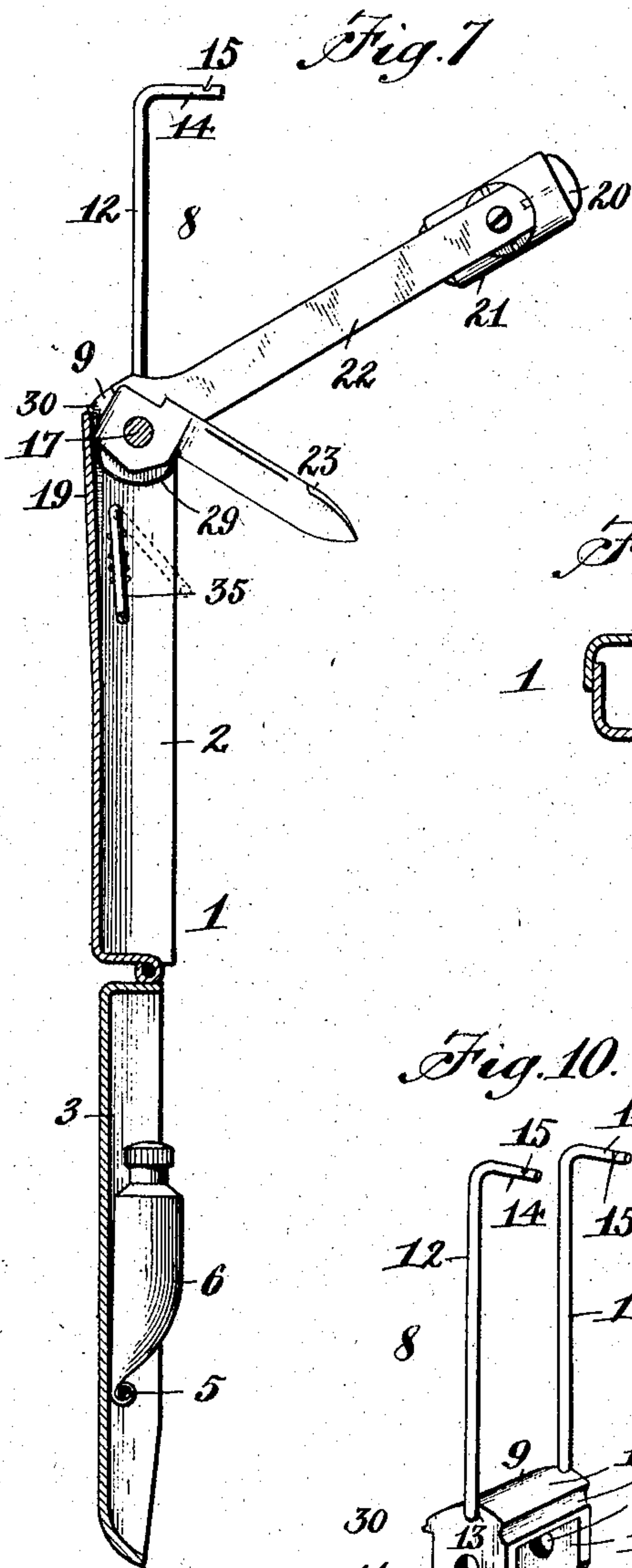
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PROPHYLACTIC DENTAL APPLIANCE.

APPLICATION FILED FEB. 18, 1904.

2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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OF BUFFALO, NEW YORK.

## PROPHYLACTIC DENTAL APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 791,668, dated June 6, 1905.

Application filed February 18, 1904. Serial No. 194,287.

*To all whom it may concern:*

Be it known that we, FREDERICK H. APEL, residing at Athol Springs, and STANLEY A. MERKLEY, residing at Buffalo, in the county of Erie and State of New York, citizens of the United States, have jointly invented certain new and useful Improvements in Prophylactic Dental Appliances, of which the following is a specification.

This invention relates to a dental appliance particularly adapted for traveling purposes or to be carried in one's pocket; and it has for its primary object the production of a dental prophylactor or pocket toilet article in which floss-silk is conveniently carried, as well as a paste-dentifrice tube, a floss-silk holder adapted for coöperation with said tube, a tooth-brush also adapted for coöperation with said tube, a knife conveniently arranged to cut away the used portion of the floss-silk, and a rubber-band carrier adapted for coöperation with the floss-silk holder.

Other objects are to provide a pocket article of this type which is so constructed as to inclose all parts within a case; to pivotally connect the two parts of the case to permit the paste-dentifrice tube secured to one part thereof to be brought in opposition to the tooth-brush or the floss-silk holder, both of which are pivotally secured to the other part of the case; to provide a floss-silk holder which is pivotally attached to the case, and to provide means for clamping the floss-silk when the said floss-silk holder is swung open.

With these and other objects in view the invention consists in the new and useful construction, arrangement, and combination of parts to be hereinafter described, and particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of our improved dental prophylactor. Fig. 2 is a face view of the case opened, showing the several articles in their respective places within the case. Fig. 3 is a perspective view of the device, showing the tooth-brush swung on its pivot and the paste-dentifrice tube brought against the brush to permit a quantity of the dentifrice to be deposited thereon. Fig. 4 is a perspective view of

the device, showing the floss-silk holder partly opened and threaded with floss-silk and the paste-dentifrice tube brought in opposition to the floss-silk to permit a quantity of the dentifrice to be deposited thereon. Fig. 5 is a rear view of the case with the floss-silk holder extended and threaded. Fig. 6 is a side view of the upper portion of the case with the tooth-brush extended. Fig. 7 is a central longitudinal section of the device, the floss-silk holder being fully extended and the tooth-brush and knife partly extended. Fig. 8 is an enlarged longitudinal transverse section of the upper portion of the device. Fig. 9 is a cross-section through the casing, the parts within being omitted. Fig. 10 is a detached perspective view of the floss-silk holder. Fig. 11 is a detached perspective view of the metal cover which fits over the head of the floss-silk holder and serves to inclose and confine a spool of silk floss within the said head. Fig. 12 is a vertical section taken on line *yy*, Fig. 8, on a reduced scale. Fig. 13 is a vertical section taken on line *zz*, Fig. 8. Fig. 14 is a detached perspective view of the rubber-band carrier with a number of bands held thereon.

Referring now in detail to the drawings, corresponding numerals of reference refer to corresponding parts in the several figures.

The numeral 1 designates the case wherein the several parts of the device are confined. Said case consists of two channeled parts 2 3, hinged together, as at 4, to permit of conveniently opening and closing the same. For convenience of description the part 2 will be termed the "body" of the case and the part 3 the "cover" for the same.

Secured in the sides of the cover is a wire support 5, around which the thin flat end of a compressible paste-tube 6 is bent, which permits the tube filled with a paste dentifrice to be ejected through a side opening 7 in the head thereof. The connection of the tube to the wire support permits the said tube to be swung outward away from the cover, thus serving substantially as a pivotal connection. The paste dentifrice is ejected from the tube as it is needed, and when en-



tirely consumed the attached end thereof can be readily removed and a new tube substituted.

Pivotally attached to the free end of the case-body is a floss-silk holder 8, which consists of a suitable hollow head 9, comprising a concavo-convex cross-plate 10, having angular ends 11, and the floss-holder arms 12, preferably formed of spring-wire passed through a longitudinal aperture 13 in said head and thence bent at right angles to form the arms 12, which have their free ends terminating in right-angled extensions 14, having each a notch 15 cut therein near its outer end. Formed in the angular ends 11 of the hollow head are oppositely-threaded apertures 16, into which are screwed right-hand and left-hand threaded screws 17, which serve as pivots on which the hollow head revolves. The rear wall of the case-body is slitted longitudinally, as at 18, to form a suitable spring 19, which extends from the free end of the case-body to a point about midway between its ends. 20 designates a tooth-brush removably attached to a channeled head 21, which is pivotally connected to a suitable handle 22, so as to be adjusted to any desired angle to render the same easily accessible to any part of the mouth. The said handle is pivotally held on the cylindrical enlarged portion of one of the pivot-screws 17, as is a knife-blade 23. Both the brush-handle and the said knife-blade on being opened or closed act against the spring 19 and are therefore held against movement when in either position unless considerable force is applied to overcome the action of the said spring. In securing the several parts of the device in the case-body the side walls are sprung outward to permit the pivot-screws 17 in the head 9 to be inserted from the inside through substantially oval holes 24, formed in the sides of the case-body. As shown, the screws are flattened on opposite sides, as at 25, from a point substantially coincident with the inner face of the side walls of the case to their outer ends. Said screws have their outer ends projecting through said walls and are therefore held against turning. Secured to the outer end of each pivot-screw is a nut 26, having recesses 27, into which a suitable key is fitted to turn the same. The said nuts are preferably tightened against the side walls of the case when the arms of the floss-silk holder are extended, and when said arms are swung into the case said nuts are moved away from the said walls by reason of the right-hand and left-hand pivot-screws 17 unscrewing within the head of said holder when the latter is turned to cause the arms thereof to close into the case.

A spool, bobbin, or ball of floss-silk 28 is placed in the hollow head 9 of the floss-silk holder and a metallic cover 29 is held on said head in any suitable manner to completely in-

close said spool and prevent unintentional dislodgment thereof. The head is by preference provided with a longitudinal rib 30 at one side edge of the concavo-convex cross-plate 10 and with a longitudinal groove 31 at the other side edge of said plate. The cover 29 is U-shaped in cross-section to correspond with the outline of the angular ends of said hollow head and has its ends open. One of the extremities of said U-shaped cover is provided with an internal longitudinal groove 32, into which the rib 30 on the head of the floss-holder fits, and the other extremity of said cover is provided with an internal longitudinal bead 33, which is adapted to be sprung into the groove 31 on said head, thereby securely holding the cover to the latter and completely inclosing the spool of floss-silk. Before attaching the cover and completely inclosing the spool of floss-silk the end of the silk is passed through an aperture 34, formed in the cover, thus holding the silk convenient to be threaded on the holder 8.

35 designates a U-shaped wire carrier for rubber bands, and it has its extremities bent laterally, as at 36, to form suitable pivots, which are held in suitable apertures 37, formed in the sides of the case-body. The said carrier is normally swung against the rear wall of the case-body and held in such position by the brush-handle, the arms of the floss-holder, and the knife-blade, but by reason of its being pivotally attached to the case can be swung out, as shown in dotted lines, Fig. 7, to permit of its being supplied with rubber bands, which it is purposed to use when the floss-silk is consumed and a new supply is unobtainable at the time.

When the case is closed, the arms of the floss-silk holder are unthreaded and the paste-tube in the cover is held between said arms. When it is desired to use the tooth-brush, the case is opened to bring the cover at substantially right angles to the case-body. The brush is then swung on its pivot into a partly-extended position and the paste-tube brought in contact with the brush. Pressure on the tube will cause a quantity of the paste to be ejected and deposited on the brush. The tube is then swung into the channeled cover, the brush-handle extended fully, and the case closed. The brush is now ready for use and the case serves as a continuation of the brush-handle.

When the floss-silk is to be used, the arms of the holder 8 are swung out at an angle to the case-body. The floss-silk is taken hold of and passed around one of the pivot-screws 17 between the case and the adjacent nut, then out and across to the opposite extension of the holding-arm and into the notch thereof, thence over to the notch in the extension of the opposite arm, thence back to the opposite side of the case, and around the other pivot-screw. While passing around the last-men-



tioned pivot-screw the floss-silk is to be drawn tight, the two arms of the holder pressed together, and the said arms fully extended. In opening the holding-arms the head of the floss-silk holder is turned and the pivot-screws 17 are caused to screw farther into said head, causing the nuts to tighten against the case and clamp the floss-silk securely. The extra tension given by pressing the arms of the holder together will take up all slackness caused by the stretching of the silk when wet.

That portion of the floss-silk threaded between the angular extensions 14 is arranged out of the plane of and at right angles to the arms 12 and it can therefore be conveniently used in every part of the mouth without stretching the face or opening the mouth wide. By reason of such arrangement the floss-silk holder can be conveniently placed in the mouth and the floss-silk passed between the rear teeth to remove all particles of food, &c., by a slight oscillatory movement of the holder which causes the silk to be passed back and forth between the teeth. When it is desired to make the interstitial spaces between the teeth thoroughly antiseptic, the threaded floss-holder is swung into a position assuming an acute angle to the case, as shown in Fig. 4, and the paste-tube is swung into opposition therewith. A quantity of the paste is applied to the floss-silk by a slight pressure on the tube, after which the holder is extended and the case closed. Treatment with the floss between the teeth, as before described, will make the interstitial spaces between the teeth thoroughly antiseptic. After the teeth are cleaned with the floss-silk the case is opened, the holder swung at an angle to the case-body to cause the pivot-screws to unscrew within the head 8 and loosen the nuts to permit of releasing the floss-silk. The free dry end of the floss-silk is now taken hold of and unthreaded and the used portion of the silk is cut away by passing over the knife-blade previously opened.

When the floss-silk is consumed and a further supply cannot be conveniently had at the time, one of the rubber bands held on the wire carrier 35 is drawn up against the pivots 36 thereof and the band stretched to pass over the angular extensions of the arms 12 previously extended for such purpose.

Having thus described our invention, what we claim is—

1. A dental appliance comprising a two-part case hinged together at one end, a tooth-brush having its handle pivotally attached to the free end of one part of said case, a cross-bar secured to the other part of the case near the free end thereof, and a dentifrice paste-tube having its closed flat end bent around said cross-bar, said two parts of the case being disposed at an angle to each other when the brush is being supplied with said paste to

allow the said tube to be swung into contact with the brush.

2. A dental appliance comprising a two-part case hinged together at one end, a floss-silk holder pivotally attached to the free end of one part of said case and having means for holding a quantity of floss-silk under tension, and a dentifrice paste-tube having its closed flat end secured to the other part of the case, thereby permitting said tube and the floss-silk under tension to be brought in contact.

3. A dental appliance comprising a two-part case hinged together at one end, a floss-silk holder comprising a head pivotally attached to the free end of one part of said case and wire arms extending from said head, each arm having an angular extension at its outer end, said floss-silk holder holding a spool of floss-silk with a quantity of said silk threaded on said wire arms, and a dentifrice paste-tube secured to the other part of the case, whereby a quantity of the dentifrice paste can be deposited on the threaded portion of the floss-silk.

4. A dental appliance comprising a hinged case, a floss-silk holder having a hollow head pivotally attached to said case at one end thereof and two spring wire arms extending from said head, each arm having an angular extension at its outer end, a spool of floss-silk held in said hollow head and having a quantity of silk threaded on said wire arms, and means for holding said silk to keep the threaded portion thereof under tension.

5. A dental appliance comprising a case, a floss-silk holder having a hollow head and two wire arms extending from said head, each arm having a notched angular extension at its outer end, a right-hand screw and a left-hand screw entering opposite ends of said hollow head and passing through said case so as to project therefrom, said screws being held in said case against turning, nuts screwed onto the projecting ends of said screws, and a quantity of floss-silk held in said hollow head and being threaded on said arms and clamped between said nuts and the casing, the turning of the said hollow head serving to move said nuts toward and from the casing by reason of the intervention of said right-hand and left-hand screw.

6. A dentifrice appliance comprising a hinged case, a floss-silk holder having a hollow head pivotally attached to said case at one end thereof and arms extending from said head, a quantity of floss-silk held within said hollow head, and a detachable cover for said head having an aperture through which said floss-silk passes, the floss-silk drawn through said aperture being threaded on said arms, substantially as set forth.

7. A dental appliance comprising a hinged case, a floss-silk holder having a hollow head pivotally attached to the case at one end there-



of and arms extending from said head, said hollow head consisting of a cross-plate having angular extensions, a quantity of floss-silk held within said hollow head, and a detachable  
5 cover fitting over said angular extensions and having an aperture therein through which said floss-silk is drawn and threaded on the arms extending from said hollow head.

8. A dental appliance comprising a case, a  
10 floss-silk holder having a hollow head pivotally attached to the case and suitable arms extending from said head, said hollow head consisting of a cross-plate having a groove at one side edge and a rib at its other side edge, and  
15 suitable ends arranged at right angles to said cross-plate, a quantity of floss-silk held within said hollow head, and a cover fitting over the ends of said hollow head and having an internal groove fitting the rib on said hollow  
20 head, and a bead fitting said groove also formed on said head, said cover having also an aperture therein through which the floss-silk is drawn and threaded on the arms extending from said hollow head.

25 9. A dental appliance comprising a two-part case hinged together at one end, a floss-silk holder and a tooth-brush pivotally attached to the free end of one part of said case, and a dentifrice-receptacle movably attached to the  
30 other part of said case to permit of its cooperating with the floss-silk holder and the tooth-brush, respectively.

10. A dentifrice appliance comprising a

two-part case hinged together at its ends, one of said parts having longitudinal slits therein  
35 to form a spring, a floss-silk holder, a tooth-brush, and a knife-blade, all pivotally attached to said last-mentioned part of the case and acting against said spring, and a dentifrice-receptacle movably attached to the other  
40 part of the case to permit of its cooperating with the floss-silk holder and the tooth-brush, respectively.

11. A dental appliance comprising a case, a floss-silk holder pivotally attached to one end  
45 of the case, and a rubber-band carrier held in the case beneath said floss-silk holder, whereby a rubber band may be drawn over the floss-silk holder for use.

12. A dental appliance comprising a case, a  
50 floss-silk holder having silk-holding arms and being pivotally attached to one end of the case, and a U-shaped wire carrier having lateral extensions serving as pivots that enter the case, said carrier having a number of rub-  
55 ber bands held thereon, any one of which may be drawn over the holding-arms of the floss-silk holder.

In testimony whereof we have affixed our signatures in the presence of two subscribing  
60 witnesses.

FRED. H. APEL.

STANLEY A. MERKLEY.

Witnesses:

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