

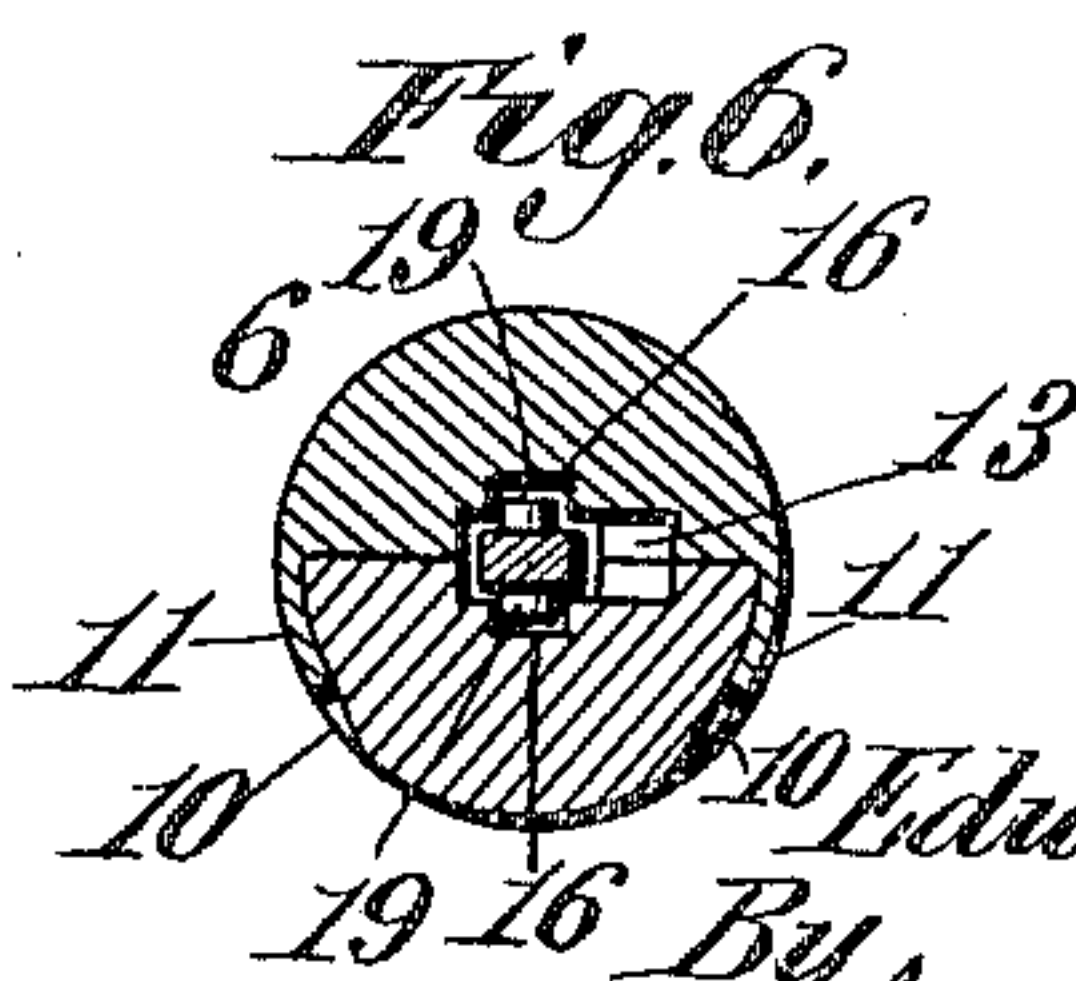
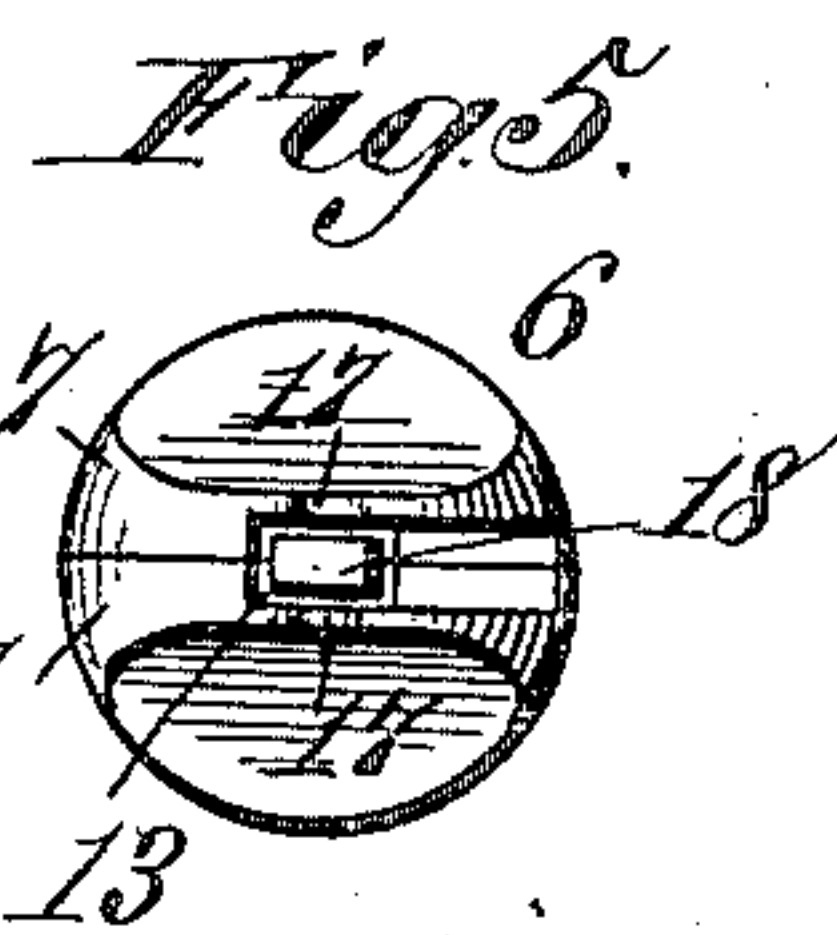
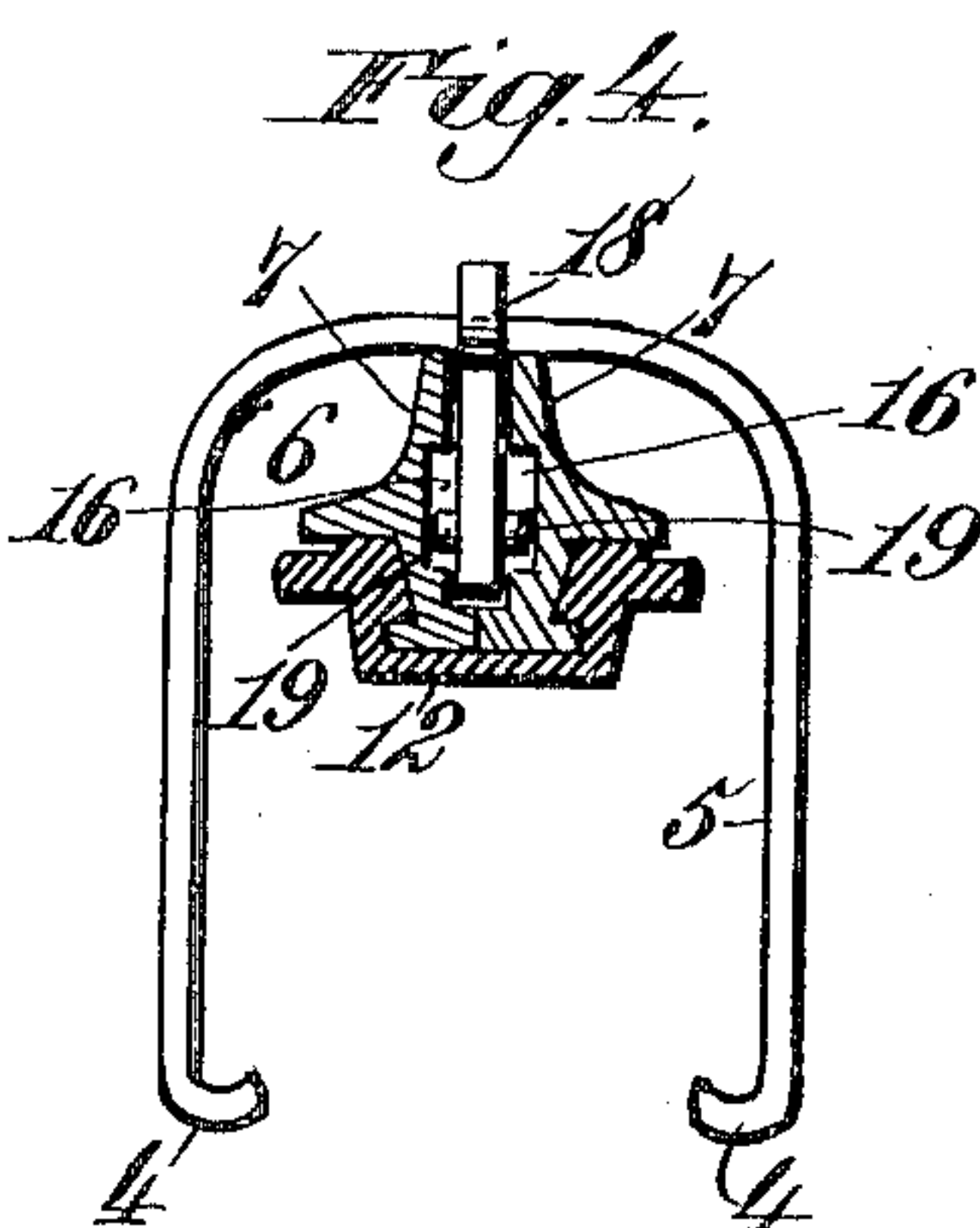
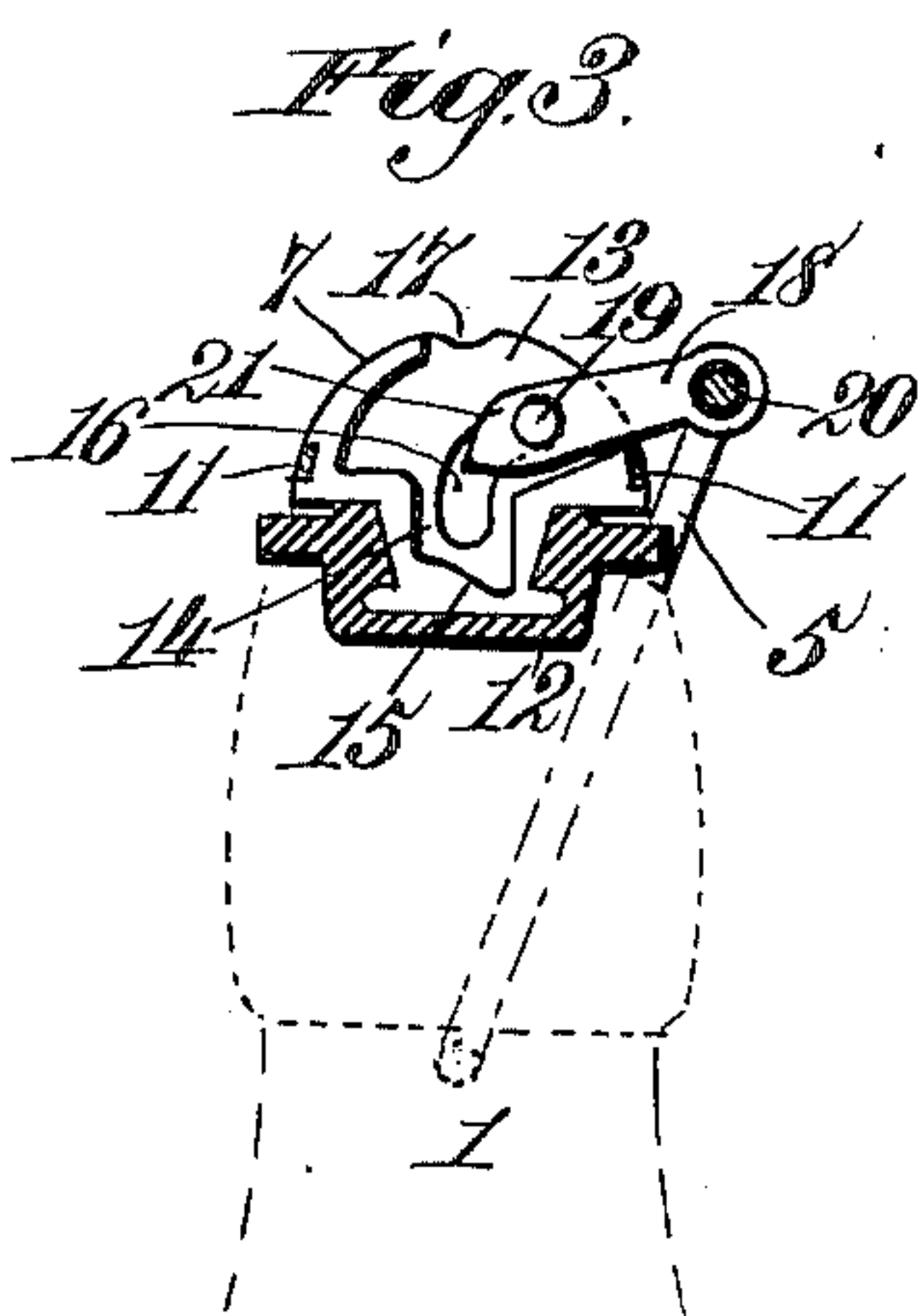
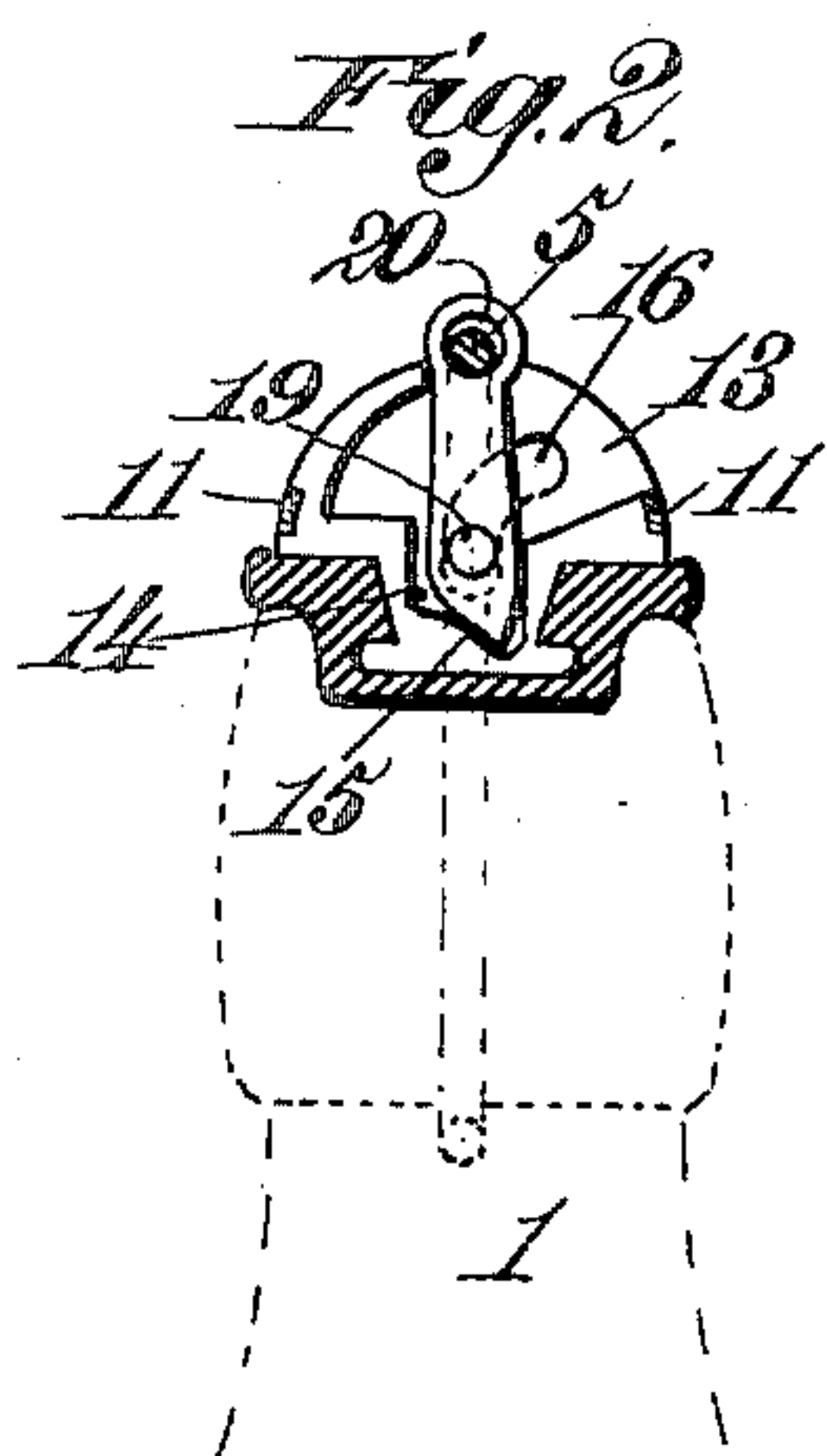
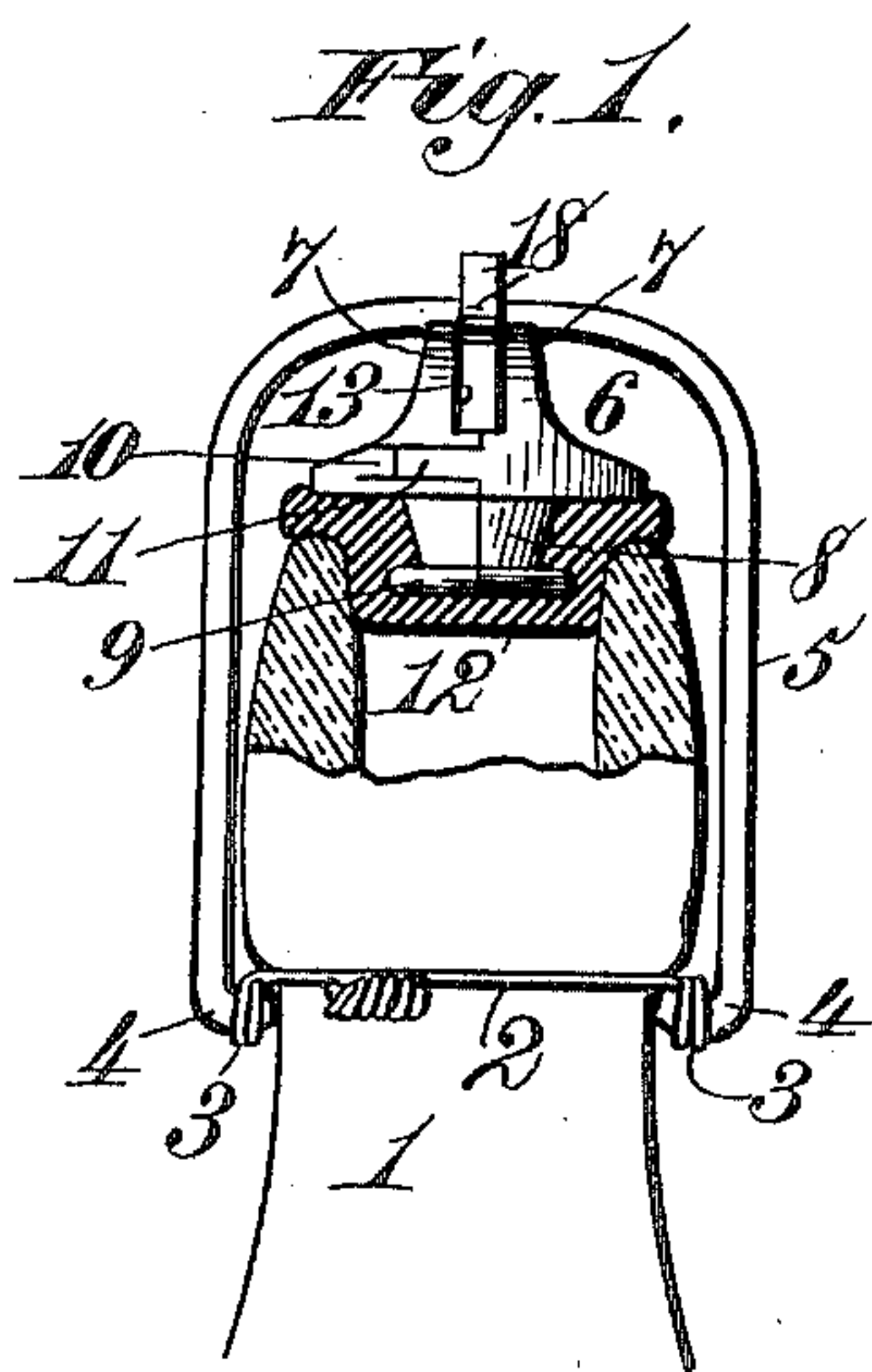
No. 668,061.

Patented Feb. 12, 1901.

**E. C. SHILLING.**  
**BOTTLE STOPPER.**

(Application filed June 7, 1900.)

(No Model.)



Witnesses,  
Robert Everett,  
J. B. Keeler

*Inventor:*

*Edward C. Shilling*

By James E. Norris

Attv



# UNITED STATES PATENT OFFICE.

EDWARD C. SHILLING, OF COLUMBUS, OHIO.

## BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 668,061, dated February 12, 1901.

Application filed June 7, 1900. Serial No. 19,456. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD C. SHILLING, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented new and useful Improvements in Bottle-Stoppers, of which the following is a specification.

This invention relates to bottle-stoppers, and especially to that class of stoppers where-  
in the stopper is suspended on a swinging bail, the ends of which are pivotally mounted on the neck of the bottle, the arrangement being such that when the bail is swung up into vertical position the stopper will be tightly pressed into the mouth of the bottle and be firmly held therein, and when the bail is swung away from the bottle-neck the stopper will be withdrawn and swung away from the mouth of the bottle.

The present invention has for its object to improve and simplify the construction and to render more easy, efficient, and certain the operation of this class of bottle-stoppers; and to these ends it consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a view in sectional elevation of my improved stopper applied to a bottle. Fig. 2 is a similar view taken at a right angle to Fig. 1 and showing the stopper-closing mechanism in its locked position. Fig. 3 is a similar view showing the stopper-fastening mechanism in its unlocked position. Fig. 4 is a sectional view of the stopper and its bail removed from the bottle. Fig. 5 is a top plan view of the stopper; and Fig. 6 is a horizontal sectional view of the stopper, illustrating the means for fastening together the two sections of the stopper.

Referring to the drawings, the numeral 1 indicates the neck of a bottle, and 2 the usual and well-known wire collar secured thereon and provided with eyes or loops 3, in which are journaled the inwardly-bent extremities 4 of the wire bail 5, all in the usual manner. As shown, the wire bail is U-shaped and is adapted to freely swing in the eyes or loops 3. The body of the stopper comprises two

half-sections 6, each consisting of an approximately semicircular upper portion 7, provided on its under side with a substantially semicylindrical vertical extension or stem 8, terminating at its lower end in a semicircular disk 9. The inner or adjacent ends of the two half-sections are flat, as shown, and when placed face to face to register one with the other the two sections coöperate to form an approximately semicylindrical portion 7 7, provided on its under side with a round tapered stem or neck 8 8, terminating at its lower end in a circular disk or button 9 9. One of the heads 7 of the two sections is provided at its lower outer edges or corners with slots or grooves 10, and the other head is provided with laterally-projecting tongues 11, the arrangement being such that when the two sections are placed face to face the tongues 11 enter the grooves 10. The grooves 10 are inclined, as shown, and after the tongues have been inserted therein they may be caused to bind in the inclined slots by giving the tongue a light tap with a hammer, thus firmly locking the two sections together. After the two sections have been secured together in the manner described a rubber cap or button 12, of usual construction, is slipped or sprung over the neck 8 8 and disk 9 9 of the stopper in the usual manner. The cap or button is tapered, as shown, whereby when it is forced into the bottle-mouth it will be compressed and caused to form a perfectly-tight seal.

The inner adjacent flat faces of the two heads 7 are each mortised, as at 13, the mortise being formed with a vertical extension 14, that extends down the flat face of the section 8 of the stem or neck, and the bottom of the said extension is formed at an incline or is beveled, as at 15, for the purpose hereinafter explained. Formed in the mortised faces of the two sections are corresponding curved recesses or grooves 16, that are formed partially in the mortised portions 13 of the head and partially in the mortised portions 14 of the neck or stem, the two recesses or grooves registering with one another when the two sections are secured together. Each of the heads 7 is provided at its apex with a notch 17, the two notches registering with one another to form a single notch or groove when the two sections are united. Loosely arranged



in the mortised portion of the stopper is a vertically-movable lever 18, which is provided on the opposite sides of its lower portion with laterally-projecting trunnions 19, which project into and loosely play in the curved slots or recesses 16, which operate as guides to control and determine the movement of the lever. The upper end of the lever is provided with an eye 20, in which the upper end of the bail 5 is loosely journaled, and its lower end is formed with a curved cam-face 21, adapted to engage the inclined or beveled face 15 in the neck or stem of the stopper. It will of course be understood that the lever is slipped in place on the bail and the trunnions 19 are disposed in the grooves or slots 16 before the two sections are finally locked together.

The operation of my improved stopper is as follows, it being assumed that the parts have been assembled together and attached to the bottle in the manner above described: Upon swinging the bail up into a vertical position the stopper is swung up over and into the mouth of the bottle, and the lower curved cam end 21 of the lever 18 abuts the inclined face 15 of the stopper neck or stem and forces the stopper firmly into the mouth of the bottle, the slots or recesses 16 operating to guide the lever into place. In forcing the stopper into place the bail is slightly sprung or elongated, and as it comes opposite the notch 17 it immediately springs into place therein and securely locks the stopper against accidental displacement or withdrawal. To withdraw the stopper, it is only necessary to force the opposite upper corners of the bail outward in the proper direction, whereupon the curved cam-face 21 of the lever will ride up the inclined face 15 and as it rises will lift the bail out of the notch 17. At the same time the curved slots or recesses 16, in which the trunnions 19 of the lever travel, will operate to guide the lever out of the mortise 14, and as the bail swings to one side the stopper will finally be withdrawn and will be swung from over and to one side of the mouth of the bottle. It will be noted that the lever has both a vertical and swinging movement in the stopper, whereby the bail may be swung entirely to one side of the mouth of the bottle without starting the stopper, and the stopper will not be lifted out of the mouth of the bottle until the trunnions 19 reach the end of the slots or grooves 16.

Having described my invention, what I claim is—

1. In a bottle-closure, the combination with a mortised stopper, of a lever vertically movable therein and loosely connected thereto at its lower end, and a swinging bail journaled in the upper end of said lever, substantially as described.

2. In a bottle-closure, the combination with a mortised stopper, of a lever vertically movable therein and loosely connected thereto at its lower end, said lever being arranged to swing laterally in the mortised stopper, means

for guiding said lever in its vertical and swinging movement, and a swinging bail journaled in the upper end of the lever, substantially as described.

3. In a bottle-closure, the combination with a mortised stopper, provided on the inner adjacent walls of its mortise with two correspondingly-curved guide grooves or recesses, of a lever disposed in the mortise and provided near its lower end and on its opposite sides with trunnions loosely engaging said grooves or recesses, and a swinging bail journaled in the upper end of the lever, substantially as described.

4. In a bottle-closure, the combination with a mortised stopper, of a lever vertically movable therein and loosely connected thereto, said lever being arranged to swing laterally in the mortised stopper and provided at its lower end with a rounded cam-face arranged to engage an inclined face at the bottom of the mortise in the stopper, and a swinging bail journaled in the upper end of the lever and adapted to engage a notch in the upper end of the stopper, substantially as described.

5. In a bottle-closure, a stopper comprising two symmetrical half-sections mortised on their inner adjacent faces, and means for fastening said sections together, in combination with a lever vertically movable in said mortised stopper and loosely connected thereto, and a swinging bail journaled in the upper end of the lever, substantially as described.

6. In a bottle-closure, a stopper comprising two symmetrical half-sections mortised on their inner adjacent faces, one of said sections being provided with inclined grooves formed at its opposite lower corners, and the other provided with corresponding laterally-projecting tongues fitted in said grooves, in combination with a lever vertically movable in said mortised stopper and loosely connected thereto, and a swinging bail loosely journaled in the upper end of the lever, substantially as described.

7. In a bottle-closure, a stopper comprising two symmetrical half-sections secured together, of a swinging lever loosely secured at its lower end between said sections, and a swinging bail journaled in the upper end of lever, substantially as described.

8. In a bottle-closure, a stopper comprising two symmetrical half-sections mortised on their adjacent faces and secured together, said mortised faces being provided with coincident curved guide grooves or recesses, in combination with a lever provided on its opposite sides near its lower end with trunnions loosely arranged in said grooves or recesses, the said stopper being provided with a notch on its upper end, and a swinging bail pivoted in the upper end of the lever and adapted to engage said notch, substantially as described.

9. In a bottle-closure, a stopper comprising two symmetrical sections mortised on their adjacent faces and secured together, said mortised faces being provided with coincident



curved guide grooves or recesses and an inclined face formed beneath and adjacent to the bottom of said grooves or recesses, in combination with a lever provided on the opposite sides of its lower portion with trunnions loosely arranged in said grooves or recesses, and having a curved cam-face on its lower end adapted to engage the said inclined face of the stopper, and a swinging bail journaled in the upper end of the lever, substantially as described.

10. In a bottle-closure, a stopper comprising an approximately semispherical head provided on its upper end with a notch and on its under side with a round shank or stem terminating in a flat disk, said stopper being formed in two symmetrical half-sections secured to-

gether and mortised on their adjacent faces, a lever vertically movable in the mortised portion of the stopper and loosely attached thereto so as to oscillate on the stopper, a swinging bail journaled in the upper end of the lever and adapted to engage the said notch, and a tapered rubber cap or button fitted on said stem and disk, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EDWARD C. SHILLING.

Witnesses:

C. W. DRAKE,  
E. B. JEWETT.