

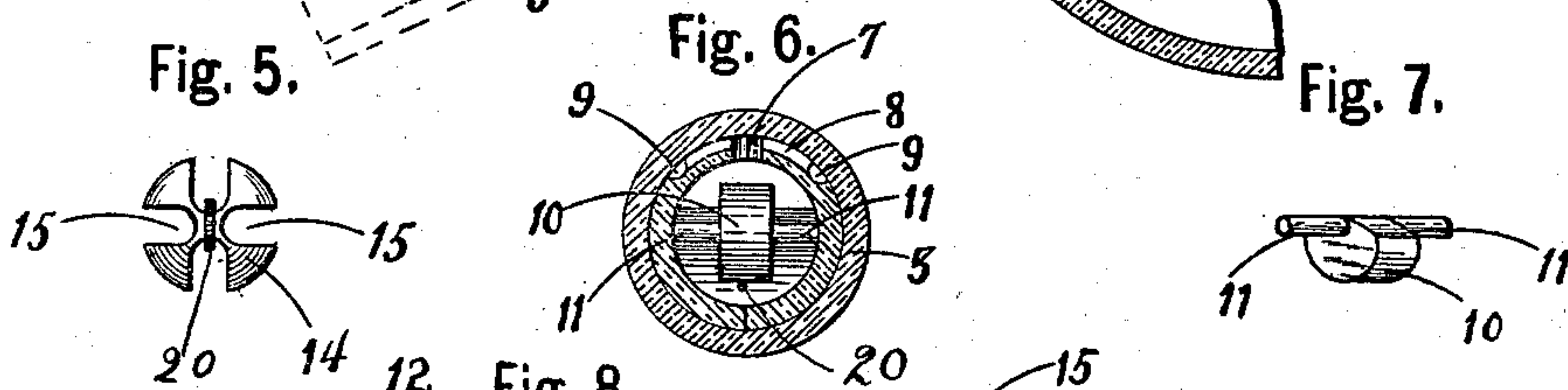
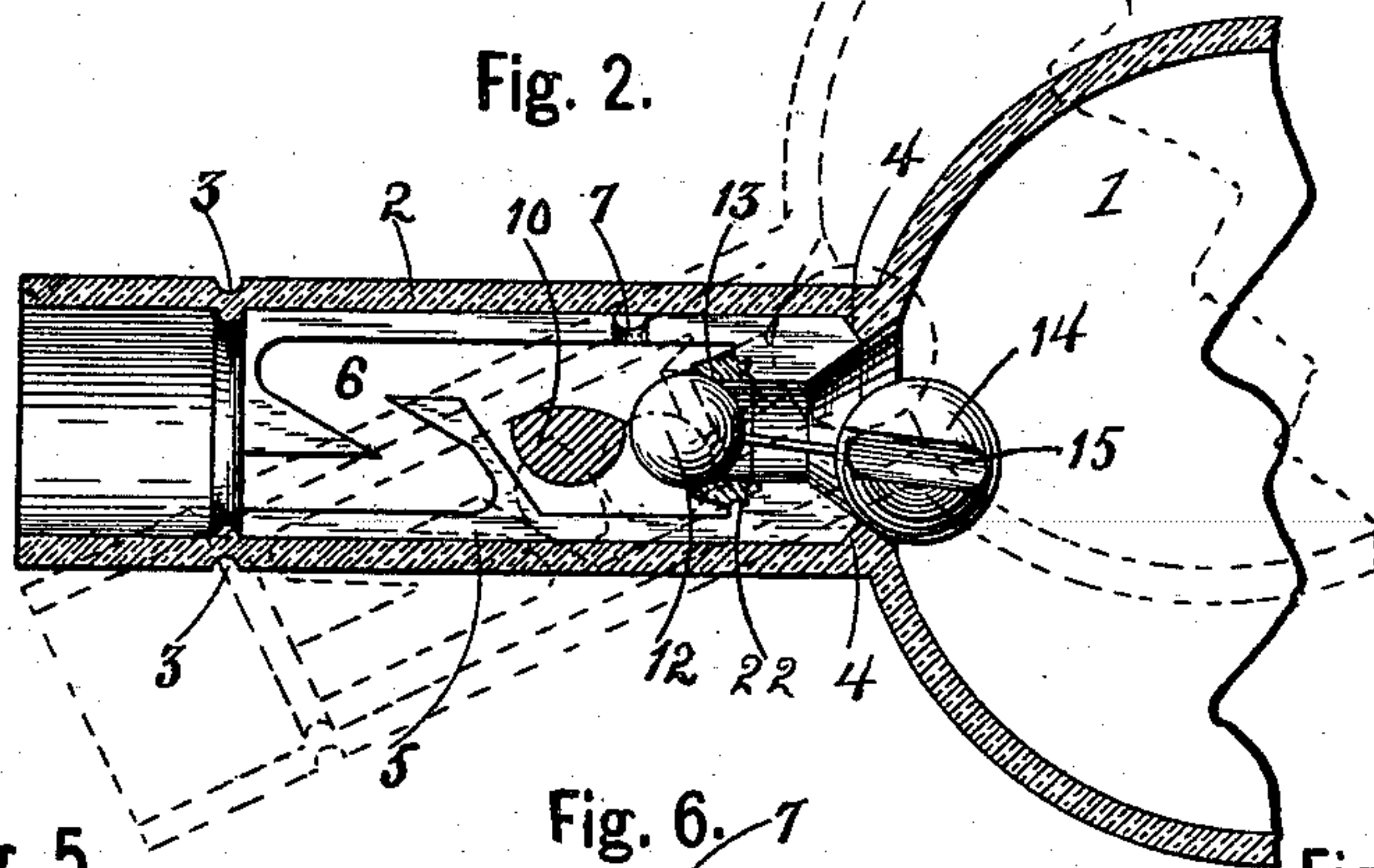
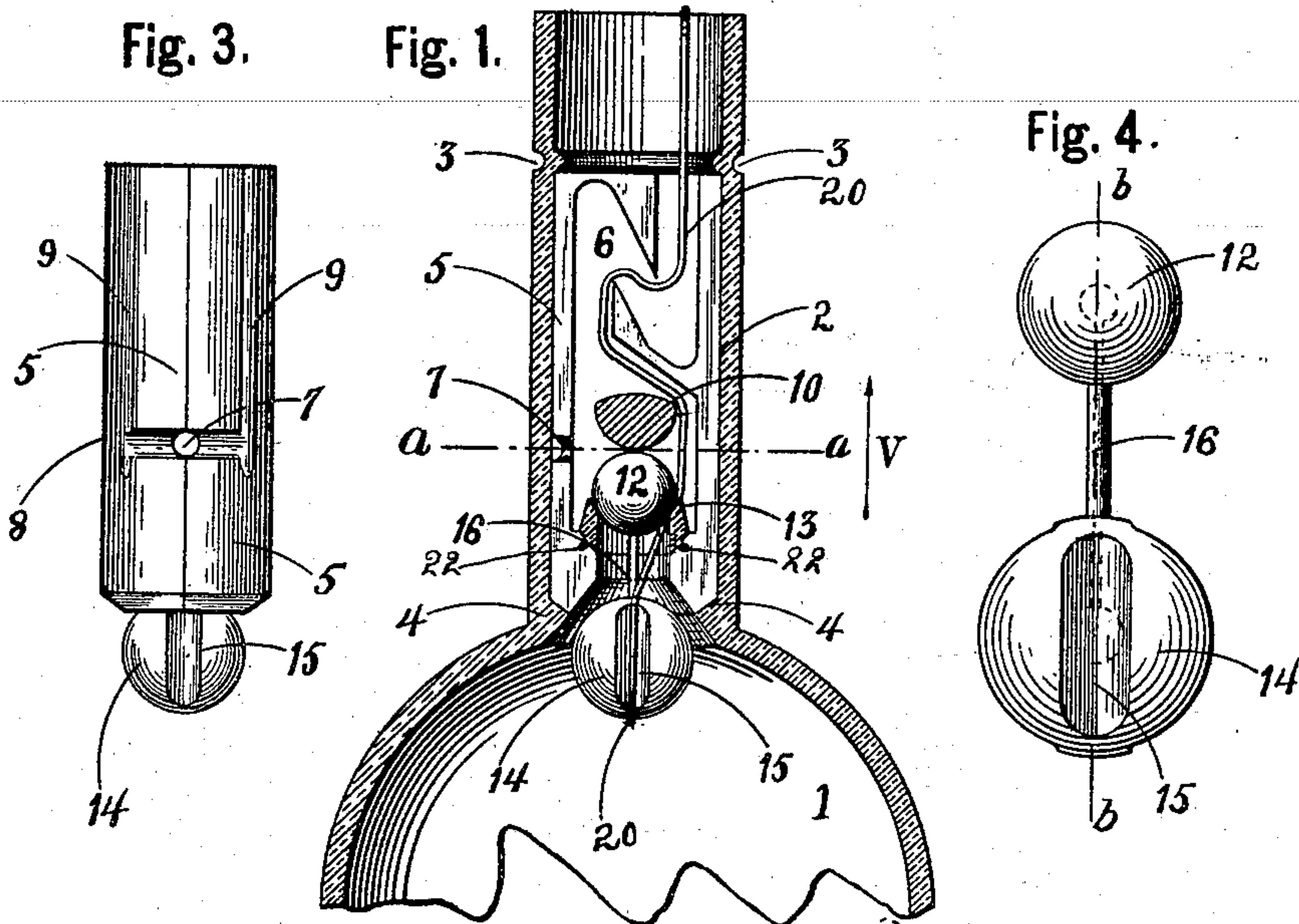
No. 637,743.

Patented Nov. 21, 1899.

G. W. ADAMS.
NON-REFILLABLE BOTTLE.

(Application filed Feb. 23, 1899.)

(No Model.)



WITNESSES:
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UNITED STATES PATENT OFFICE.

GEORGE W. ADAMS, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO
PHILIP GERST, OF SAME PLACE.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 637,743, dated November 21, 1899.

Application filed February 23, 1899. Serial No. 706,439. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. ADAMS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to a non-refillable bottle; and the object of the invention is to simplify the construction of the automatic mechanism employed to prevent the refilling of the bottle.

It also relates to an attachment devised to maintain the automatic non-refilling mechanism in inoperative position to permit the bottle to be originally filled.

It also relates to certain details of construction, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 represents a central longitudinal section through a bottle placed in an upright position and provided with my improved non-refilling device. Fig. 2 represents a central longitudinal section through a bottle having the improved non-refilling attachment and placed in a substantially horizontal position, also illustrating in dotted lines the position to which it has to be tilted to open the valve. Fig. 3 is a side elevation of the non-refilling device. Fig. 4 is an enlarged detached view of the two balls and their connection. Fig. 5 is a detached top plan view of the grooved ball. Fig. 6 is a section on or about line *a a*, Fig. 1, looking in the direction of the arrow V. Fig. 7 is a perspective view of the locking-cam. Fig. 8 is a section on or about line *b b*, Fig. 4.

In referring to the drawings for the details of construction like numerals designate like parts.

The bottle is preferably formed of glass and is composed of the body 1, having a neck 2, which is provided with an interior inwardly-extending rib or flange 4 at the juncture with the body portion. The neck is also provided with a surrounding depression or groove 3 near its top, which is formed therein after the non-refilling device has been placed in position, as will be more fully explained farther on.

The non-refilling device is preferably formed

in two half portions 5, each one of which being substantially a duplicate of the other. The two halves are preferably formed of glass and of such an exterior configuration as will allow the assembled device to fit snugly in the bottle-neck 2, the flange 4 serving to limit its entrance therein. The interior formation is such that when the two halves are assembled a winding or tortuous channel or passage 6 is provided for the liquid. A hole or opening 7 extends from said channel through the side of the device, and a transverse groove 8 extends across a portion of the exterior in the same horizontal plane as the said opening. To afford communication with the outer atmosphere, one or more grooves 9 extend horizontally from the transverse groove 8 to the upper end of the device, thus providing means for the admittance of air. A cam device 10 is rotatably mounted between the two halves by inserting the pivotal extensions 11 in openings in said sides. The lower portion of the interior is contracted, and a ring 13, constituting a valve-seat for the upper ball 12, is mounted in the contraction. To secure the valve-seat against longitudinal displacement when the two portions 5 are assembled, it is provided with one or more projections 22, which seat in suitable openings in the portions 5. The upper ball is connected to a lower ball 14, having a series of deep grooves 15, which provide passages for the liquid within the bottle by the rod or connection 16. The preferred construction of these balls and their connecting element is illustrated in Figs. 4 and 8, in which a metallic rod 17, having enlarged ends 18 and 19, is entirely covered with glass. In securing these balls together the ball 14 is preferably molded around the enlarged end 19 of the rod 16, the opposite end of the rod is passed through the valve-seat 13, and the enlarged end 18 is inserted in an opening in the upper ball 12 and fastened in place by a filling of cement or other suitable material 21. (See Fig. 8.) The advantage of this construction is that the glass exterior prevents the contamination of the liquid by the metallic portion or the rusting of the interior metallic portion by the liquid, and the metallic portion strengthens the ball device sufficiently to practically obviate any danger of the breaking of the connection through

rough usage or intentionally trying to break the connection without breaking the bottle.

In constructing a bottle of this character the bottle is first formed or blown in the usual manner, the non-refilling device is assembled and placed in position in the neck, and the groove 3 pressed into the neck before the bottle has cooled, thus permanently securing the non-refilling device within the neck of the bottle.

As it is practically impossible to fill a bottle provided with this non-refilling device, a means had to be devised to render the mechanism temporarily inoperative to permit the original filling of the bottle. I preferably employ for this purpose a wire 20, of flexible material, which is placed in position, with its lower end bent around one of the balls, when the bottle is assembled at the factory. In filling a bottle having this wire the bottle is inverted or turned upside down, thereby automatically opening the valve, and the outer end of the wire is drawn out and bent over the edge of the mouth of the bottle. It is then returned to an upright position and the desired liquid is poured in, and the wire, owing to its flexible character, is easily withdrawn from the bottle by pulling upon its outer end. The office of the cam 10 is to prevent the opening of the valve by a suction-pump or in any position other than when tilted in the same or a lower position, as shown in dotted lines in Fig. 2.

I am aware that changes in the form and proportion of parts in the details of construction of the device herein shown and described as the preferred embodiment of my invention may be made by a skilled mechanic without departing from the principal or sacrificing

any advantages of my invention, and I therefore reserve the right to make such alterations and modifications as fairly fall within the scope of my invention.

I claim as my invention—

1. A non-refillable bottle comprising a bottle having a neck, a separable two-part shell within said neck, an annular valve-seat supported in said shell, a valve device composed of two balls connected together, and placed one above and one below the seat, the lower of said balls being provided with grooves, and a cam adapted to contact against the upper ball to lock the valve against opening and having projections forming shafts journaled in depressions in the shell, said cam being adapted to turn on said projections by gravity to free the valve upon the tilting of the bottle, as set forth.

2. A non-refillable bottle comprising a bottle having a neck provided with a flange or shoulder, a non-refilling device composed of a shell formed in separable halves, the interior of which when assembled forms a tortuous channel for the passage of the liquid, said halves each having a bearing-opening, an annular valve-seat secured in the lower portion of the channel, a ball adapted to fit upon said seat, a lower grooved ball, a rigid connection between the balls, and a locking-cam having side extensions forming shafts adapted to seat in the bearing-openings in the shell arranged above the upper ball and adapted to contact with said ball, as set forth.

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Witnesses:

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