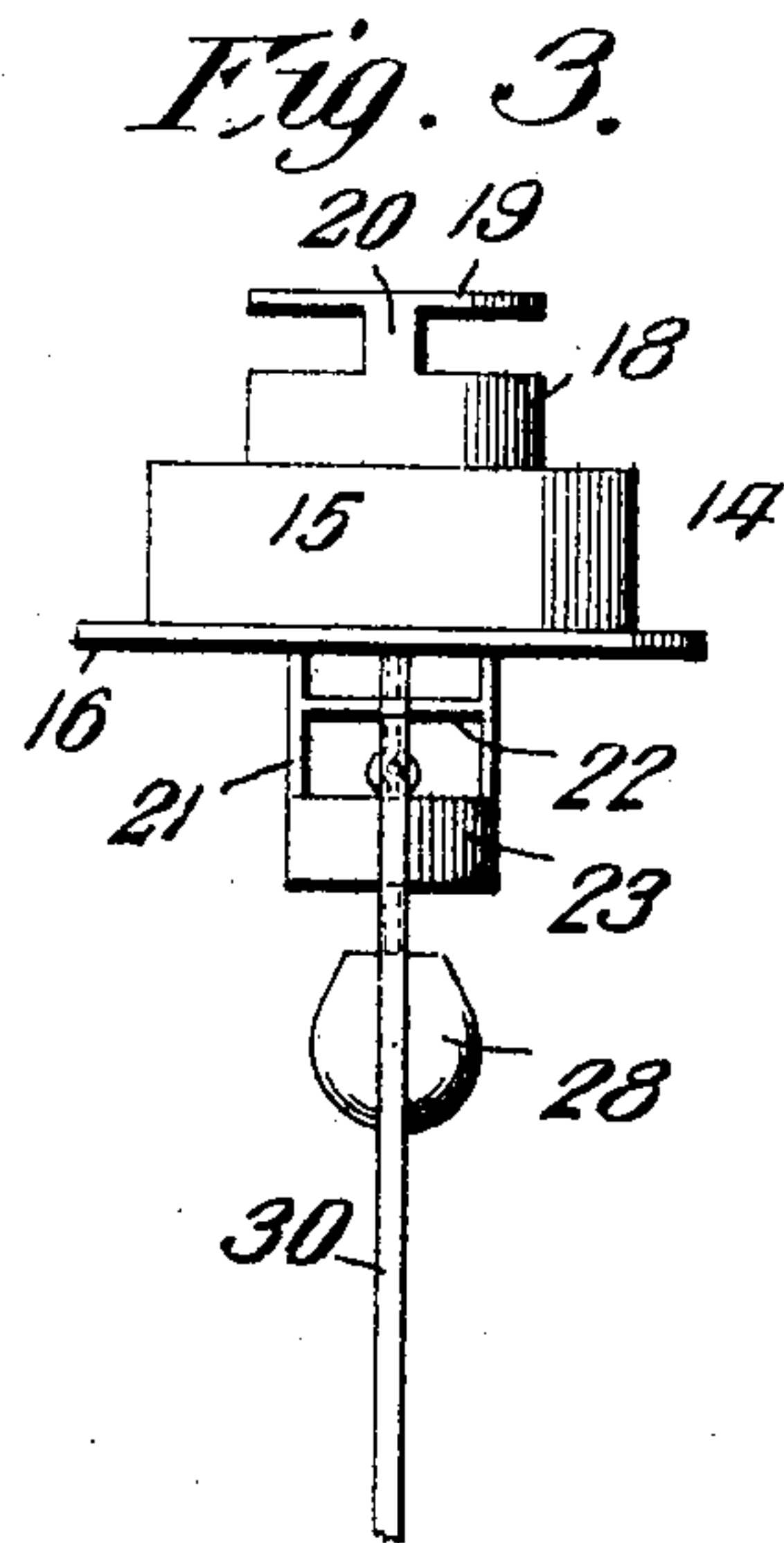
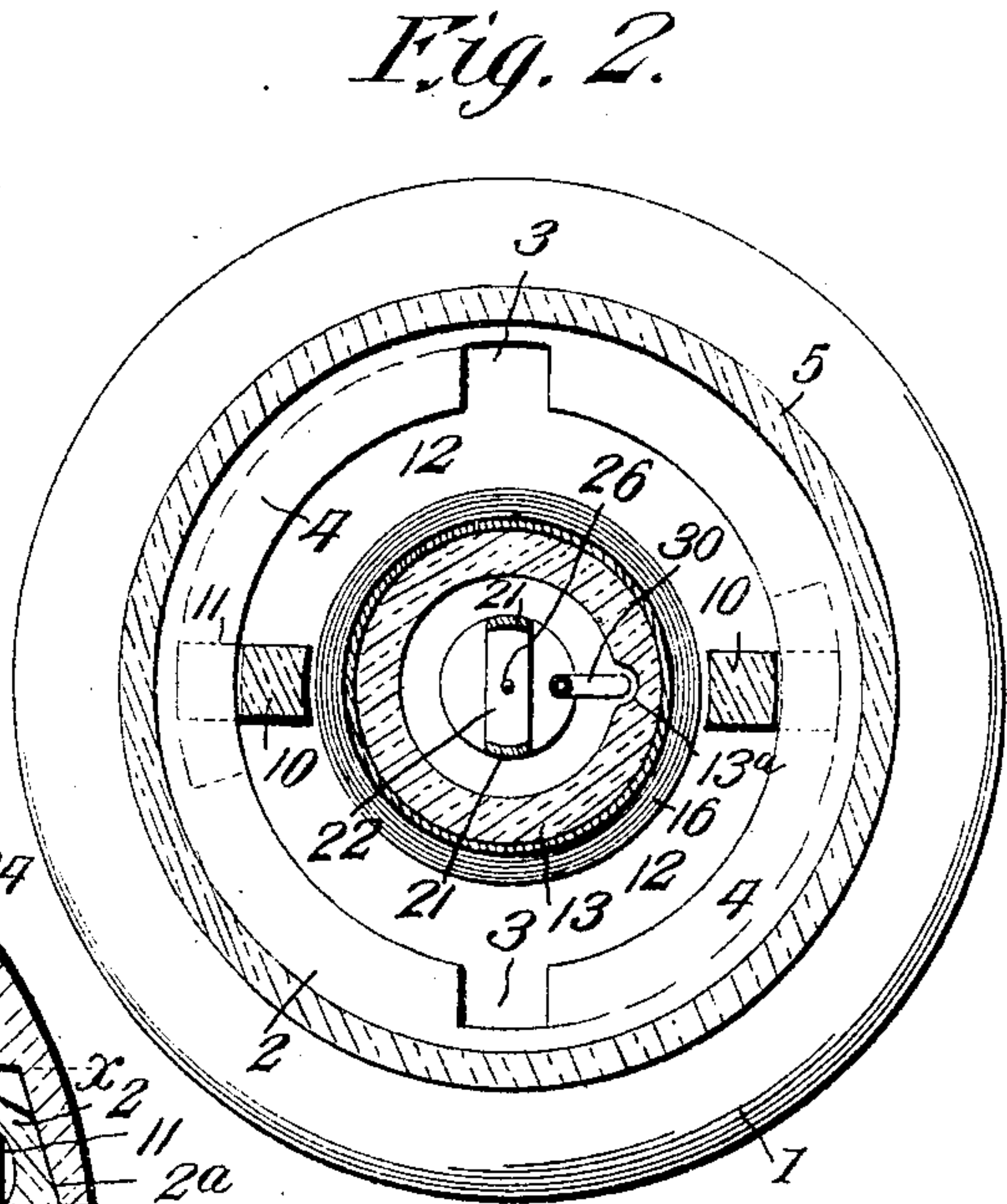
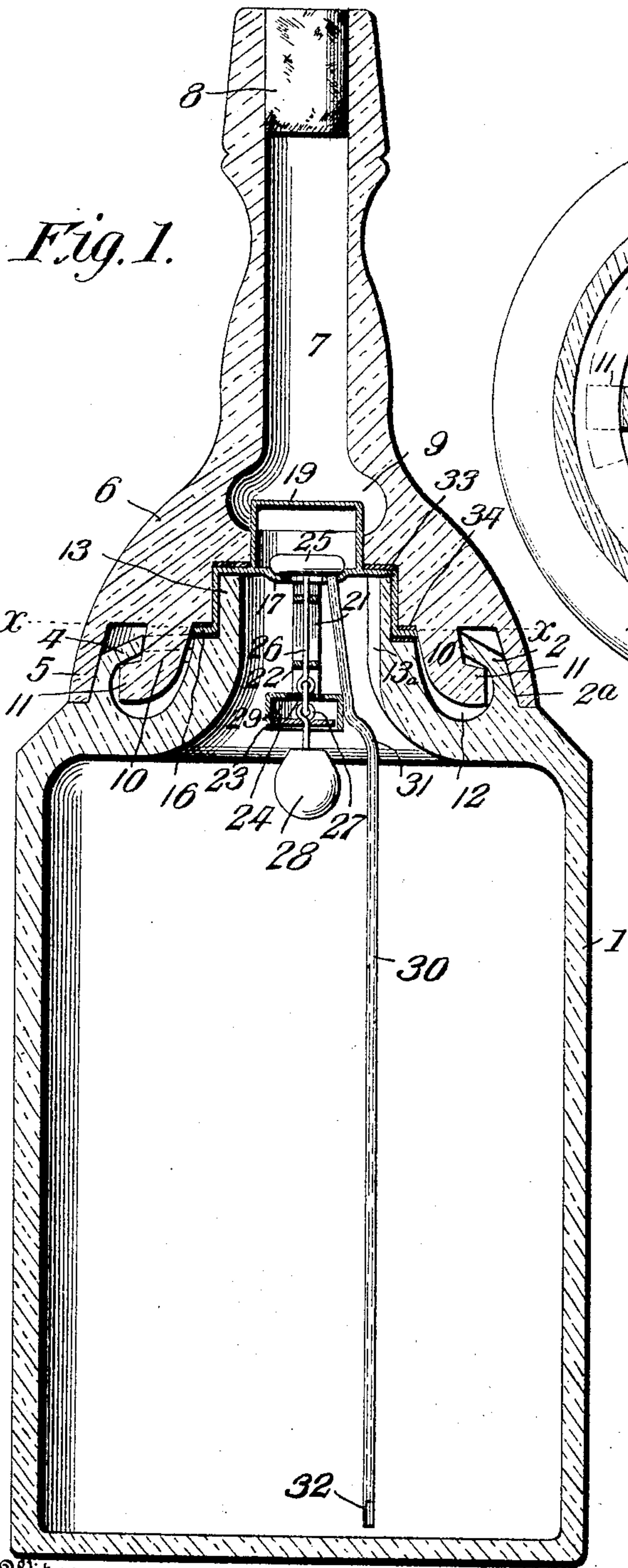


No. 805,769.

PATENTED NOV. 28, 1905.

Q. YATES.
NON-REFILLABLE BOTTLE.
APPLICATION FILED APR. 27, 1905.



Witnesses
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UNITED STATES PATENT OFFICE.

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NON-REFILLABLE BOTTLE.

No. 805,769.

Specification of Letters Patent.

Patented Nov. 28, 1905.

Application filed April 27, 1905. Serial No. 257,714.

To all whom it may concern:

Be it known that I, ODAVILLE YATES, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention relates to non-refillable bottles.

10 The object is to provide a bottle of this character with an improved valve-controlling mechanism and with a detachable neck which is adapted to hold the valve mechanism in place in the bottle.

15 A further object of the invention is to provide a bottle with a vent-tube, the lower end of which terminates near the bottom of the bottle and the upper end of which is normally closed by the valve that controls the dispensing of the contents.

20 The invention further consists in the detailed construction, combination, and operative arrangement of the parts, all as will be more fully described hereinafter, illustrated in the accompanying drawings, and finally pointed out in the appended claims.

25 In the drawings, Figure 1 is a vertical section through the neck and body of the bottle with my improved valve mechanism mounted therein. Fig. 2 is a transverse section on the line *x x* of Fig. 1. Fig. 3 is a side elevation of the valve mechanism.

30 Making renewed reference to the drawings, 1 designates the body of the bottle, having its upper end formed with an integral upstanding and inwardly-directed flange 2, the edge of which is provided with diametrically-disposed recesses 3 3. Beneath the flange and extending about one-fourth way there-
40 around are inclined circumferential segments 4, which are indicated in dotted lines in Fig. 2. The flange 2 is surrounded by a marginal annular recess 2^a, into which the overlapping edges 5 of a detachable neck 6 fit. The detachable neck is provided with the usual bore
45 7, which may be closed by a stopper 8 at the upper end, and in its lower end is formed an annular chamber 9. Depending from the bottom of the detachable neck and separated from the overlapping edge 5 are lugs 10, that
50 have outwardly-disposed noses 11 adapted to be inserted into the recesses 3 in the flange 2 and engaged beneath the inclined segments

4. When the neck is attached and given a partial rotation, the upper edges of the noses 55 of the lugs engage with the inclined surface of the segments 4 and bind the neck down with the overlapping edge 5 into intimate contact with the shoulder of the annular recess 2^a, and, if desired, any suitable cement 60 or plastic material may be previously inserted in the annular space 12, which is surrounded by the flange 2, and of course when this cement hardens it offers an obstruction to the lugs 10 and prevents removal of the neck. 65 The upper end of the body portion of the bottle is further provided with an upstanding annular flange 13, arranged concentric to the flange 2, forming the inner wall of the annular space or chamber 12 and having on its
70 inner face a longitudinal groove 13^a. This vertical flange extends partially up into a recess in the detachable neck and supports the valve mechanism and the vent-tube.

The valve mechanism 14 consists of a cap 15, 75 provided with a flange 16 and a valve-seat 17. This cap is fitted over the flange 13, with its flange disposed upon a shoulder at the base of the latter. From the top of the cap extends a sheath 18, that surrounds the valve and sup- 80 ports the guard 19 by means of upstanding arms 20. The end of the sheath terminates in a recess 9 of the bottle-neck, so as to provide a large space for the discharge of the liquid through the openings between the upper edge 85 of the sheath and the guard. Depending from the cap 15 upon each side of the valve-opening is a frame 21, which is braced at several points by transverse bars 22 and which at its lower end is secured to a controller-casing 23, hav- 90 ing a central opening 24.

25 designates the valve, the stem 26 of which is jointed, as at 27, the joint being disposed above and below the opening in the casing 23 when the valve is closed and the opening be- 95 ing of such size as to permit the joints of valve-stem to freely play therethrough. The lower end of the jointed valve-stem terminates in a weighted pendant 28, on the stem of which is secured a controller-disk 29, adapted to 100 freely oscillate and reciprocate in the casing 23 when the bottle is tilted or inverted to dispense the contents.

30 designates a vent-tube which is secured to the controller-casing 23 by solder or other 105 suitable means and extends upwardly into the

valve-seat 17 at such a point as to be closed by the valve 25. In order that this vent-tube will not interfere with the free oscillations of the weighted pendant 28, the former is formed with an offset or bend 31, from whence it may extend in any suitable direction, straight or inclined, to the bottom of the bottle, its lower end preferably being slotted, as at 32, so as not to hinder the entrance of air in case the end of the tube should contact with the bottom of the bottle. In order to permit the tube with the valve mechanism to be introduced into the bottle, the upstanding flange 13 is provided with a groove 13^a, which receives the lower portion of the tube as it enters the bottle.

It will be noted that the construction of the cap with its sheath 18 and flange 16 is such as to provide a plurality of shoulders or steps which engage corresponding shoulders formed on the upstanding flange 13 of the body of the bottle. In order to hold the valve mechanism on the flange 13, the detachable neck 6 is provided with a plurality of corresponding steps, recesses, or shoulders which snugly engage the sides of the sheath and cap and the top of the cap and its flange, as shown in Fig. 1, the horizontal surface and its flange preferably being covered with elastic gaskets 33 and 34, a gasket being employed upon both sides of the flange. In this way the detachable neck when applied and given a quarter-turn draws, by virtue of the inclined segments, the neck down tight into engagement with the gaskets, expanding the latter and insuring a tight joint, which seals the bottle against any possible admission of air or moisture should it be possible for any to enter through the space 12, filled with the cement or plastic material, and also preventing any of the liquid which may remain in the bore of the neck from dripping down into the recess 12. In some instances, however, it may be desirable to dispense with the cement in the space 12 and employ a suitable locking mechanism for the lugs, and in such instances the gaskets will be particularly efficacious in effecting a tight seal.

To dispense the contents of the bottle, the bottle is completely inverted, and the weight 28 pushes the valve-stem and the valve down from its seat, opening the ports for the discharge of the liquid and for the entrance of air, liquid flowing around the frame 21 through the large opening in the valve-seat into the sheath and out between the upper edge of the latter and the guard and into the annular chamber 9, from whence it may flow down the bottle-neck. The air that enters the bottle-neck will find its vent through the tube 30, where it is conducted to the bottom of the bottle, and thereby prevent a vacuum being formed in the latter. As soon, however, as the bottle is again turned or tilted the weight

will cause the valve to seat and cover both the discharge and air-inlet ports. It is to be noted that should the bottle simply be tilted at an angle to the horizontal the weight 28 will fall to one side by virtue of the joint in the valve-stem, and the edge of the controller-disk 24 will engage the corner of the casing 23 and act as a fulcrum to pull upon the valve-stem and hold the valve seated, it being impossible to unseat the valve unless the bottle is entirely inverted.

Having thus described the invention, what is claimed is—

1. In a non-refillable bottle, a body having an upstanding flange formed with a shoulder, and a valve-controlling mechanism embodying a cap having a flange to engage the shoulder of the first-mentioned flange, in combination with a detachable neck having a recess provided with shoulders engaged with the cap and the flange thereof to hold the parts in intimate contact.

2. In a non-refillable bottle, a body portion having an upstanding flange 13 provided with a shoulder, and a cap 15 provided with a flange to engage the shoulder of the first-mentioned flange, suitable packing for the flange and the top of the cap, a detachable neck having a recess provided with shoulders adapted to engage with the packing of the cap and its flange to form a seal for the detachable neck and the cap, and a valve mechanism carried by said cap.

3. A non-refillable bottle comprising a body portion and a detachable neck therefor, a valve mechanism held upon the body portion by the detachable neck, said valve mechanism having a valve-seat and a valve to close said seat, and a vent-tube terminating in the seat of the valve and adapted to be normally closed by the latter and extending downward toward the bottom of the bottle.

4. A non-refillable bottle comprising a body portion and a detachable neck therefor, a valve mechanism held upon the body portion by the detachable neck, said valve mechanism embodying a cap having a valve-seat and a valve, a frame depending from the cap, a controller-casing secured to said frame, a jointed valve-stem extending through the frame and casing and having a weight upon its lower end, and a vent-tube secured to the controller-casing and terminating at its upper end in the seat of the valve and having an offset to permit free oscillation of the weight of the valve-stem.

5. In a non-refillable bottle, a body portion having an upstanding flange provided with a groove 13^a, a neck fitted to said body portion, a cap fitted on the flange, a frame depending from the cap, a controller-casing secured to the end of the frame, said cap having a valve-seat at its upper end, a valve to engage the

seat, a joined valve-stem having a weight
upon its lower end, and a vent-tube secured
to the controller-casing and having an offset
adjacent to the casing and in line with the
5 groove of the upstanding flange, said vent-
tube terminating at its upper end in the valve-
seat and adapted to be closed by the valve.

In testimony whereof I affix my signature in
presence of two subscribing witnesses.

ODAVILLE YATES.

Witnesses:

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E. C. SCHWIGERT.