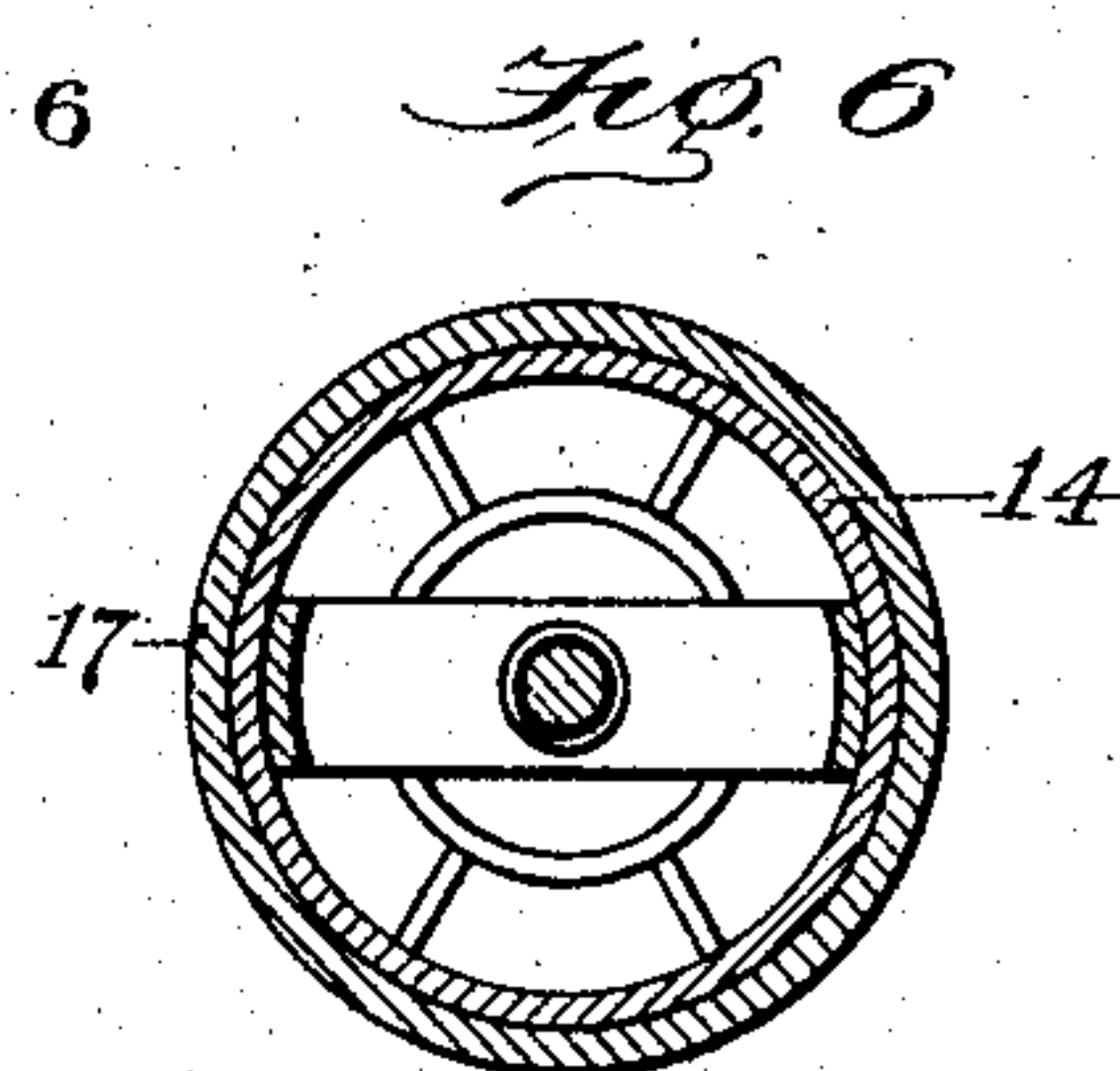
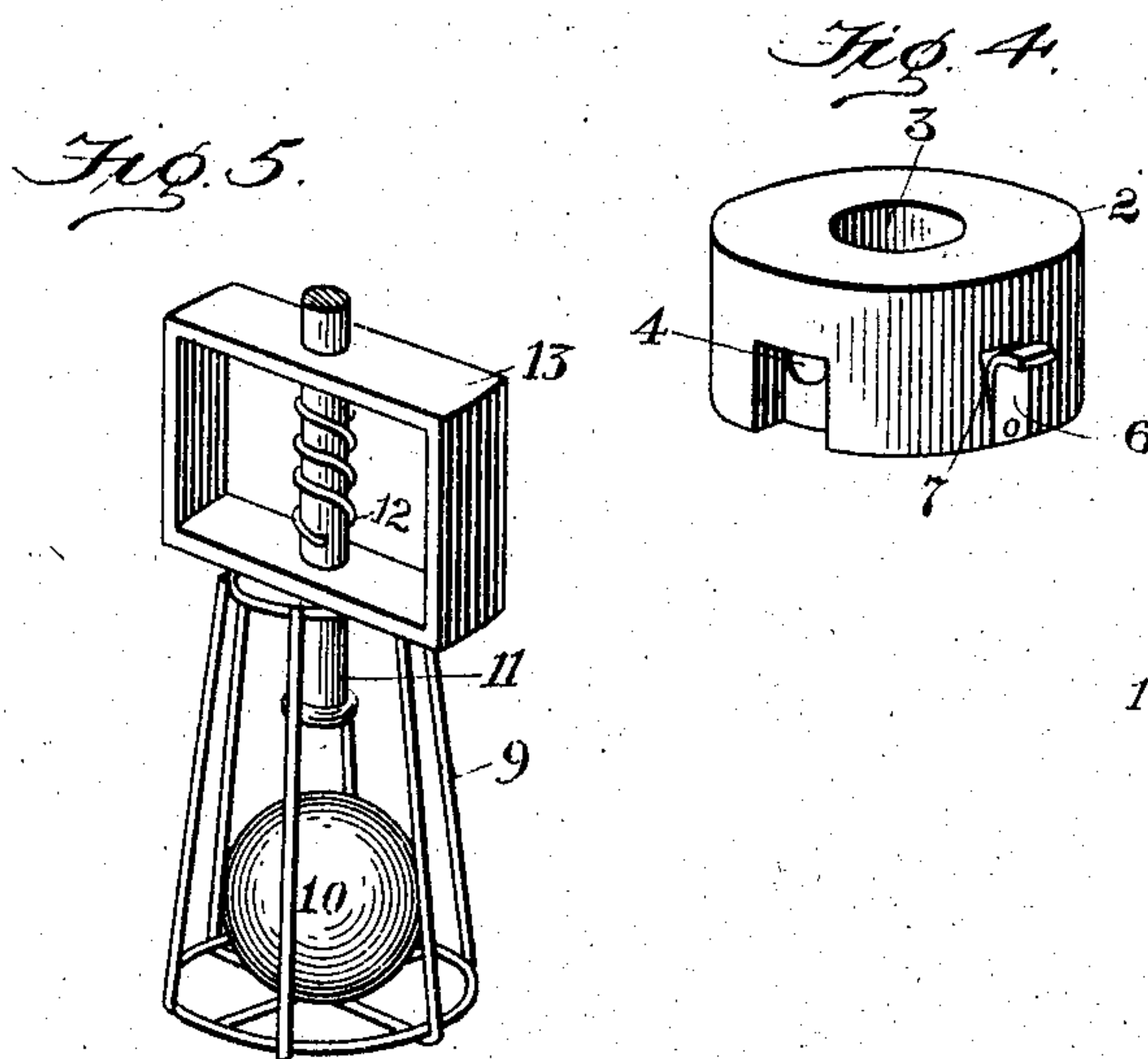
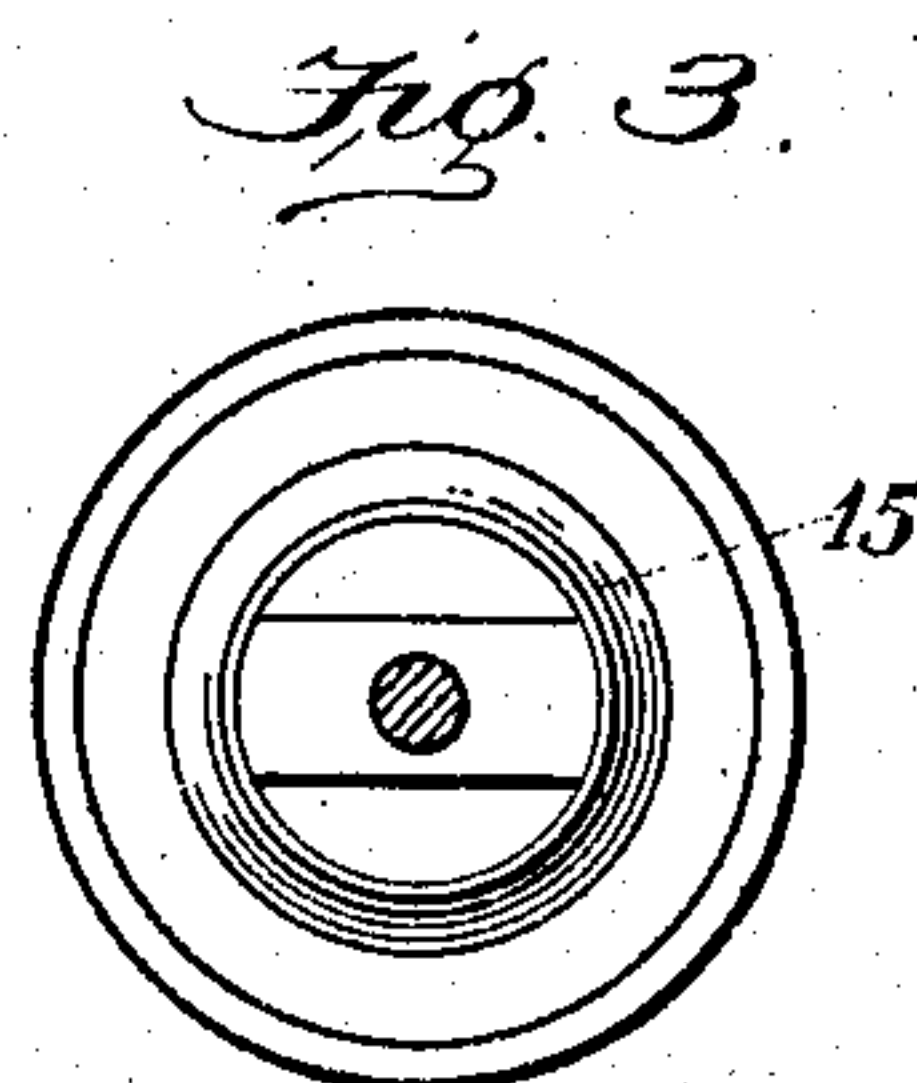
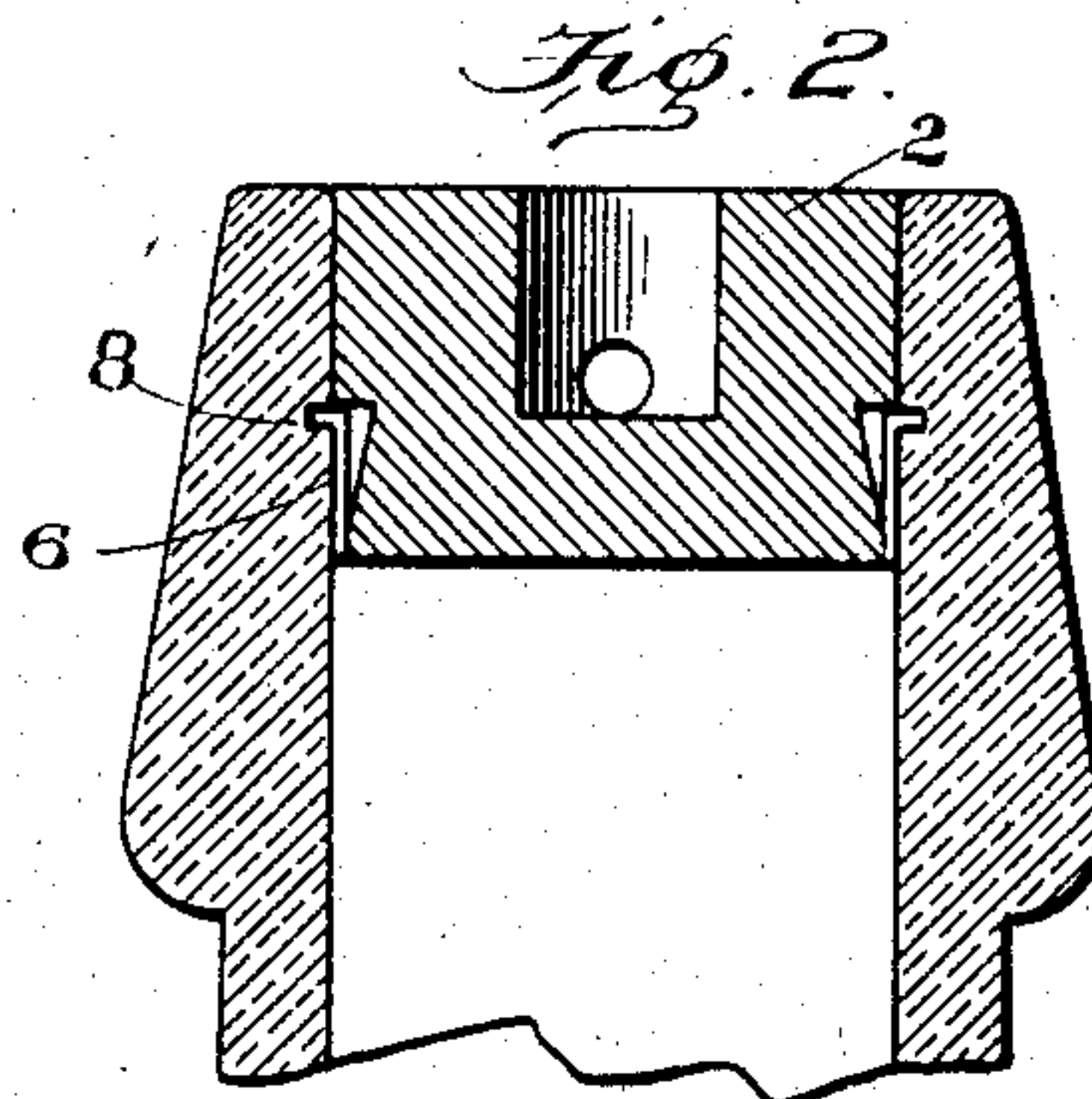
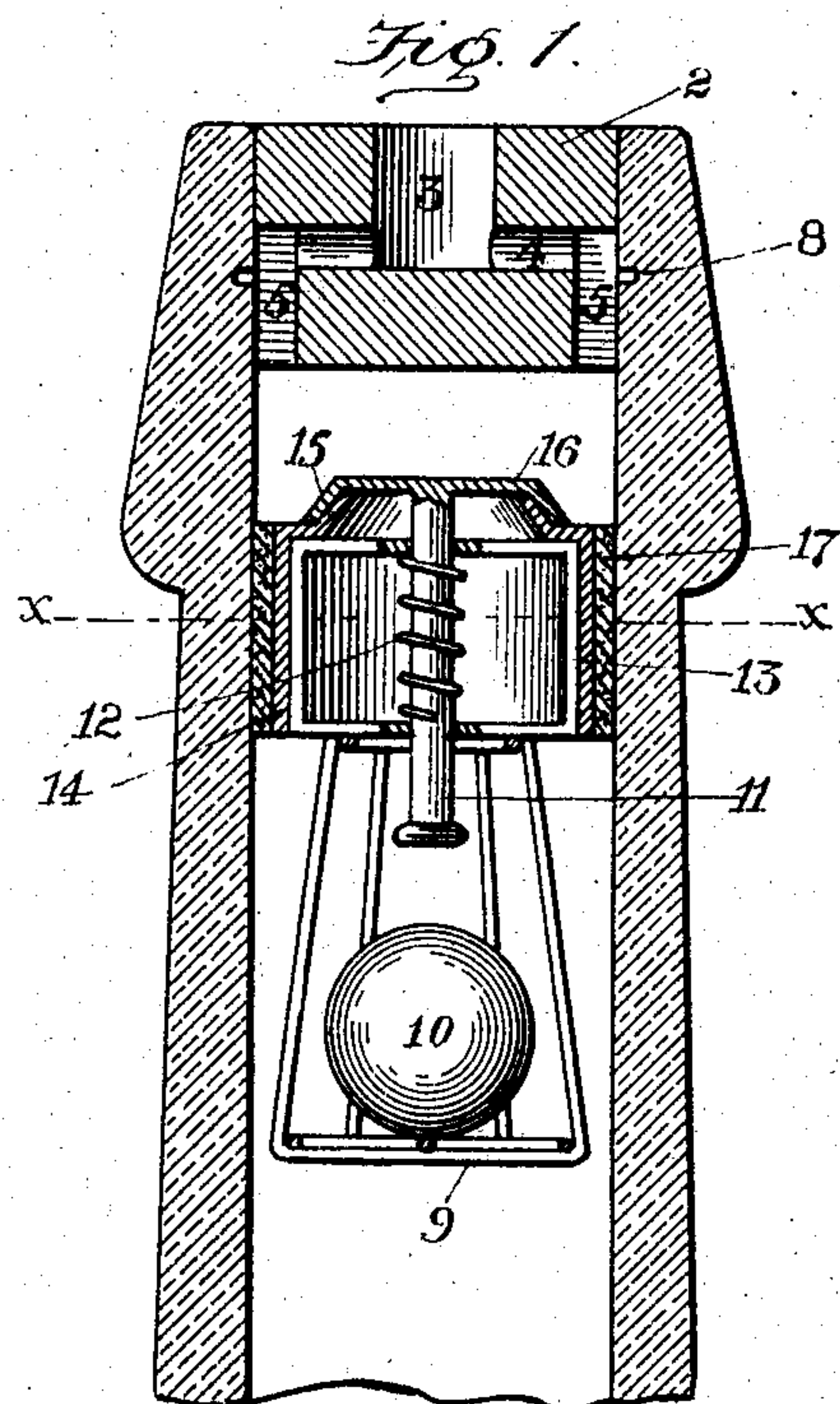


No. 780,739.

PATENTED JAN. 24, 1905.

H. TATUM.
NON-REFILLABLE BOTTLE.
APPLICATION FILED MAY 19, 1904.



Witnesses
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UNITED STATES PATENT OFFICE.

HAMLING TATUM, OF ELBA, ALABAMA.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 780,739, dated January 24, 1905.

Application filed May 19, 1904. Serial No. 208,709.

To all whom it may concern:

Be it known that I, HAMLING TATUM, a citizen of the United States, residing at Elba, county of Coffee, State of Alabama, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification, reference being had to the accompanying drawings.

This invention has relation to non-refillable bottles; and it consists in the novel arrangement and construction of its parts, as hereinafter shown and described.

The object of my invention is to provide a means for corking bottles so that their original contents, once emptied, cannot be refilled except by breaking the bottle or the mechanism, which latter course would serve as an indication that the contents of the bottle was a substitute for the original. I attain these ends by the means herewith illustrated and described.

In the accompanying drawings, Figure 1 is a longitudinal cross-section of the entire device. Fig. 2 is a longitudinal cross-section made at right angles with Fig. 1 and showing the details of the construction of the guard or upper stopper. Fig. 3 is a plan view of the top of the lower stopper, showing the valve-seat, friction-ring, top of the cross-bar through which the valve-stem works, and openings for the passage of liquid. Fig. 4 is a perspective view of the guard or upper stopper, showing one of the spring-catches. Fig. 5 is a perspective view of the valve mechanism, cage, spring, and weight without the valve proper; and Fig. 6 is a horizontal section view of the valve mechanism cut on the line $x x$ of Fig. 1.

In the drawings, 2 is the guard or upper stopper, which consists of any suitable material, which is provided with a perpendicular channel 3 a portion of the way through from the top to the bottom, connected with a horizontal channel 4, passing through the stopper from side to side, so that it connects with the perpendicular channels 5 5. This stopper is provided with two or more spring-catches 6, working in the rests 7, provided therefor, and designed to engage the annular channel 8 in the neck of the bottle. In the lower stopper

or valve mechanism proper, 9, is a wire cage designed to contain the weight 10, which acts upon the valve-stem 11. This valve-stem is actuated by the spring 12 and is held in position by passing through openings in the rectangular frame 13. This rectangular frame is contained within a hollow bottomless cylinder 14, the top of which is flanged to form the valve-seat 15, which is the frustum of a cone. On this the valve proper, 16, which is also flanged at its edge in the form of the frustum of a hollow cone, is accurately seated. Surrounding the hollow cylinder 14 is a packing-ring 17, of some elastic material, which adheres to the said cylinder 14 for the purpose hereinafter described.

The operation of my invention is as follows: The bottle, jug, or other container specially prepared for the reception of this device by the provision of the annular channel 8 near its mouth is first filled with liquid. The lower stopper, containing the valve mechanism, is next introduced a short distance below the annular channel. It is here held in position by friction caused by the compression of the ring of elastic material 17, which by reason of its elasticity tightly grips both the hollow cylinder 14 and the walls of the neck of the bottle. The upper stopper or guard is next introduced and pressed down until the catches 6 spring out and engage the annular groove 8, after which it is impossible to remove the stopper without either destroying it or breaking the bottle. The purpose of this guard or upper stopper is to prevent the introduction of any tool or instrument for the purpose of raising the valve mechanism below or in any way interfering with its operation. It is obvious that any liquid introduced from above could not pass the valve and valve-seat 16 and 15, inasmuch as the former is held tightly against the latter by the action of the spring 12. When the bottle is tipped so that the neck is very slightly lower than the base, the weight 10 impinges upon the lower end of the valve-rod 11, compressing the spring, thus raising the valve 16 from the seat 15 and allowing the liquid to flow out freely. Reference to Fig. 3 will show that as the valve-stem 11 passes through openings in the upper part of

the rectangular frame 13 and as the smallest dimension of the bar forming the top of the frame is considerably less than the diameter of the opening through the valve-seat 15 there is plenty of room for the liquid to run out through the openings 18. The liquid having passed through the valve has easy access through the guard or upper stopper by means of the channels 5, 4, and 3, and as the channel 3 is relatively large to the channels 4 and 5 and as there are two or more sets of the channels 4 and 5 it will be readily seen that sufficient provision has been made to allow ingress of air. The construction of the valve and valve-seat 16 and 15 is particularly important, and the substitution of any other form of valve should not be considered as an equivalent, inasmuch as this form has certain advantages inherent in its construction not found in any other. An attempt to introduce liquid through the guard or upper stopper is prevented not only by the tension of the spring 12, but by the fact that the valve 16 is in the form of a cap and the more pressure is exerted upon it from the outside the more tightly it rests upon its seat 15. Furthermore, this form of construction is much less likely to clog should the liquid contained in the bottle be of a thick or viscous character. Furthermore, the valve of the character as described will be tight in spite of inaccuracies in grinding, inasmuch as it has three distinct bearing-surfaces, whereas many other forms of valves have but one. Another point of superiority of this form of non-refillable bottle over similar forms is found in the construction of the wire cage 9. It will be observed that as this cage is larger

at the bottom than it is at the top the weight is forced to rest entirely on the valve-stem 16 should the bottle be turned completely upside down. However, one of the particular points of superiority in my invention is found in the fact that it is operative if the neck of the bottle is tipped slightly below the horizontal, as there is nothing to prevent the weight 10 from impinging upon the valve-stem 11 as long as the side bars of the cage 9 are put in a position slightly tipped from the horizontal. As such a position for the bottle is the most natural for pouring liquids and as the tipping of the bottle completely upside down is most inconvenient, this point is of particular importance.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In combination with a bottle, a cylinder adapted to be located in the neck thereof, said cylinder having upon its top a flange in the form of a frustum of a cone which forms a valve-seat, a valve having at its edge a flange also formed on the frustum of a hollow cone and adapted to engage the flange of the cylinder, a stem attached to said valve and passing through the cylinder, a means for retaining the valve normally closed and a means for engaging the valve-stem to unseat the valve.

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

HAMLING TATUM.

Witnesses:

B. DIXON ARMSTRONG,
J. D. LEE.