

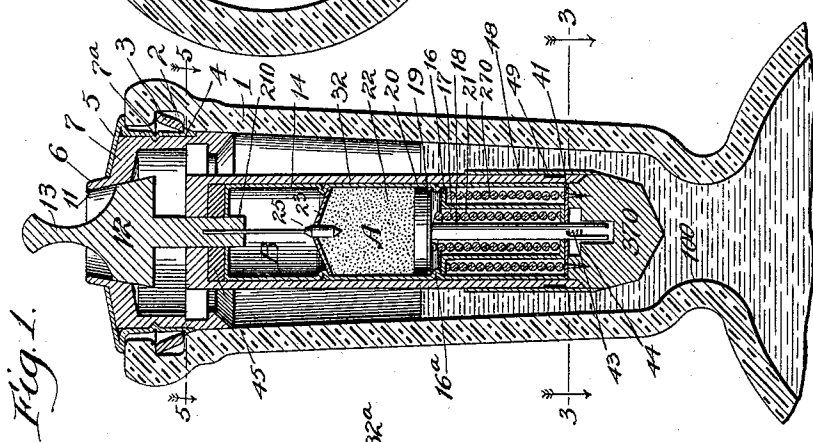
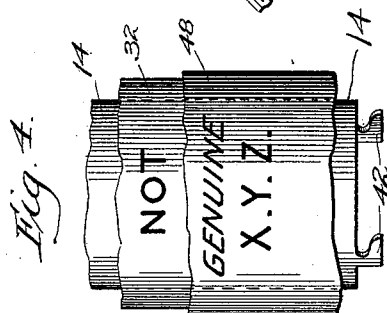
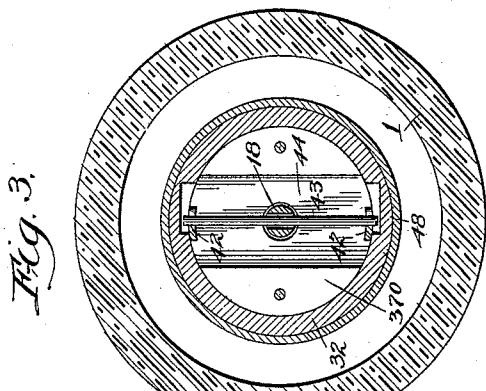
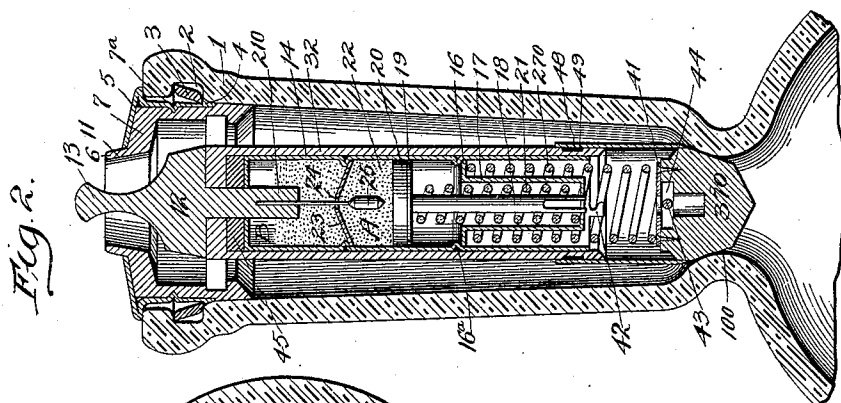
(No Model.)

J. SCHUMACHER.

DEVICE FOR PREVENTING FRAUDULENT REUSE OF BOTTLES.

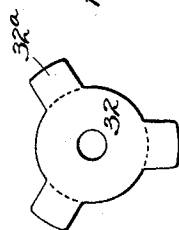
No. 581,433.

Patented Apr. 27, 1897.



Witnesses
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Fig. 5.



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DEVICE FOR PREVENTING FRAUDULENT REUSE OF BOTTLES.

SPECIFICATION forming part of Letters Patent No. 581,433, dated April 27, 1897.

Application filed June 11, 1893. Serial No. 595,141. (No model.)

To all whom it may concern:

Be it known that I, JOHN SCHUMACHER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Devices for Preventing the Fraudulent Reuse of Bottles or Similar Receptacles, of which the following is a specification.

The object of the present invention is to provide a device of such construction that it will either positively prevent or effectually discourage the reuse of a bottle or similar receptacle after a quantity of liquid equal to the full capacity of the receptacle has been discharged from it. In order to accomplish this object, I have invented and produced a device of such construction that upon the happening of a definitive fact it will establish a condition which will either positively prevent liquid from being discharged from the receptacle or will in some other way effectually discourage its reuse. The device includes a time mechanism which is arranged to operate a definite length of time (this being the definitive fact above referred to) and a device upon which the time mechanism is adapted to operate. In an application of even date herewith, Serial No. 595,140, I have shown, described, and generically claimed several species falling under this genus, and the purpose of this application is to cover and protect the details in the construction of one of said species and of other devices to which it in turn is the genus.

This being a subordinate application it is not necessary to herein set forth at length the broad principles upon which the generic invention is founded, these being fully set forth in the other application aforesaid. Suffice it to say that the terminology of both applications, as well as all others bearing upon the same subject, agrees.

The invention consists in the features of novelty that are particularly pointed out in the claims hereinafter, and in order that it may be fully understood I will describe it with reference to the accompanying drawings, which are made a part of this specification, and in which—

Figures 1 and 2 are vertical sections of the upper portion of a bottle and of a device em-

bodimenting the invention in place therein, Fig. 1 showing the parts in their initial positions and the discharge-opening closed and Fig. 2 showing the parts in the positions that they occupy after the device is fired. Fig. 3 is an enlarged horizontal section thereof on the line 3-3, Fig. 1, looking in the direction of the arrows. Figs. 4 and 5 are detail views of some of the parts.

The neck 1 of the bottle is provided on its interior near its mouth with an annular groove 2, in which fits a spring-ring 3, by which all of the devices hereinafter described are permanently secured within the neck. At its lower edge it engages a shoulder 4, formed on a metallic cap 5, having a central opening in which fits the neck 6 of a ring 7, the exterior of which conforms to the interior of the cap and is permanently secured thereto by any suitable means, as, for example, spurs 7^a, formed on the interior of the cap by the action of a punch.

32 is a tube which is open at bottom and closed at top, save for an opening through which passes a stem 210. This tube is supported by the ring 7 through the medium of radial arms 32^a. Within it is permanently secured a metallic tube 14, which is open at bottom and closed at top, save for an opening through which passes the stem 210, the joint around the stem being made liquid-tight by means of a packing 45.

The interior of the tube 14 is divided by a diaphragm 23 into two chambers A and B, the diaphragm being provided with an opening 24, through which the chambers communicate. This opening is controlled by a valve 25, secured to one end of the stem 210, the other end of said stem being secured to a stopper 12, provided with a stem 13, by which it may be moved from the position shown in Fig. 1 to the position shown in Fig. 2, and vice versa.

The stopper 12 is for the purpose of closing the discharge-opening of the receptacle, and to this end the ring 7 is provided with a seat 11, and the length of the stem 210 is such that when the discharge-opening is closed by the stopper the opening 24 will be closed by the valve 25, and vice versa. The tube 14 is provided on its interior, some distance from its bottom, with a bead or shoulder 16^a, against which bears a flange 16, formed on the upper

end of a barrel 17, the lower end of which is closed, save for an opening through which passes the stem 18 of a follower 19, which is arranged within the tube 14, the joint between
 5 the follower and the tube being closed by a packing 20, of soft rubber, felt, or some other suitable material. Within the barrel 17 is a coiled spring 21, which surrounds the stem 18 and bears at one end against the bottom of
 10 the barrel and at the other end against the follower, said spring being normally compressed, so that it gives the follower a constant tendency to follow up a body 22 of sand or other finely-divided solid substance with
 15 which the chamber A is filled when the device is in its initial condition.

In the initial condition of the device the chamber B is empty, so that when the opening 24 is uncovered and the receptacle is
 20 tipped to pouring position the sand will run from the chamber A into the chamber B, and the follower 19, under the influence of the spring 21, will follow it up.

270 is a coiled spring arranged within the
 25 tube 14 and around the barrel 17 and compressed between the flange 16 of the barrel and a plate 41, which is secured to the top of a valve 370 and is held normally in the position shown in Fig. 1 by the following means: The tube 14 is
 30 provided at its lower end with shoulders 42, located diametrically opposite each other, upon which rests the ends of a bar 43, which passes through a slot formed through the stem 18. This bar 43 is located beneath the plate
 35 41, and the top of the valve is provided with a recess 44 for containing it and permitting its necessary lateral movement. So long as the stem 18 of the follower is thus in engagement with the bar 43 the latter will be held against
 40 lateral movement and consequently will be prevented from leaving its seats on the shoulders 42, so that so long as this condition exists the plate 41 will be held up and the spring 270 will be held compressed between it and the
 45 flange 16. As soon, however, as the stem has moved upward far enough to disengage the bar there will be nothing to restrain its lateral movement, and under the influence of the spring 270 (or the spring 21, if the spring 270
 50 be dispensed with) it will be forced off of the shoulders 42 and the valve 370 will be forced to a seat 100, thereby permanently closing the receptacle against either the admission or discharge of liquid. The sand performs the
 55 function of an escapement for controlling the operation of the time mechanism. Its quantity, its degree of fineness, its avenue of escape, and the length of the stem 18 are all such that the withdrawal of the stem from en-
 60 gagement with the bar 43, or other detent for confining the spring under tension, will be accomplished in about the same length of time that is required to completely empty the receptacle of its contents. Theoretically
 65 both of these operations should be accomplished in exactly the same length of time, but in order to insure the complete emptying of

the receptacle I prefer in practice to so construct and proportion the parts that the firing of the device will require a slightly greater
 70 length of time than does the emptying of the receptacle.

With some classes of goods it is necessary that the operation of the time mechanism be arrested before it has operated this definite
 75 length of time. This result will follow automatically by reason of the fact that while the sand is sufficiently mobile to flow from one of the chambers to the other when the receptacle is tipped to pouring position it is
 80 not sufficiently mobile to do so while the receptacle is in upright position, even under the influence of the spring 21. Actual practice has demonstrated the fact that whenever
 85 the bottle is tipped to pouring position and the opening 24 is uncovered the sand will flow from one chamber to the other and as soon as the bottle is returned to upright position the flow of the sand will cease. I desire to have it understood, however, that it is not
 90 necessary with all classes of goods that the time mechanism be provided with means for arresting its own operation.

With some classes of goods, as, for example, beer, champagne, and other effervescent
 95 liquids, the complete emptying of the receptacle never extends over any very considerable period of time. Frequently it is accomplished within a very few minutes, for the reason that when the receptacle is once
 100 opened the contents will soon spoil if allowed to stand. With goods of this class the object of the invention will be accomplished if, instead of being arranged to operate for a length of time equal to that required for emptying
 105 the receptacle, the device be arranged to operate continuously a length of time which under ordinary conditions will cover the length of time consumed in completely emptying the receptacle, including the intervals during
 110 which the pouring is interrupted. If the device is used in a champagne-bottle, for example, and is arranged to operate continuously for a period of, say, a few hours, ample time will be allowed for completely emptying the
 115 bottle and at the same time the object of the invention will be accomplished, since the device will fire at the expiration of that time.

It is true that until the device does fire the bottle may be repeatedly refilled and emptied,
 120 but in only the limited time allowed it cannot be repeatedly refilled and emptied so as to defraud the purchaser or the bottler whose goods the bottle originally contained. I desire to have it understood, therefore, that
 125 such a period of time is comprehended by the statement "a definite length of time," used in this specification.

It is necessary, of course, to provide means for preventing the operation of the time
 130 mechanism while the goods are stored or in transit or are being handled for any purpose that does not have for its object an alteration in the quantity of liquid contained in the re-

ceptacle. To this end the valve 25 is connected with the stopper 12 and thereby put under the control of the operator to the extent that the opening 24 may be uncovered; whenever the discharge-opening of the receptacle is uncovered, and vice versa, but it is equally necessary that the construction be such that the operator cannot cover the opening 24 while the discharge-opening of the receptacle is uncovered.

Secured to the valve 370 is a sleeve 48, which surrounds the lower portion of the tube 32, the joint between them being made liquid-tight by means of a packing 49. The tube 32, the sleeve 48, the packing 49, and the valve 370 constitute a liquid-tight inclosure in which all of the working parts are contained, the parts forming this inclosure being preferably of some non-metallic material that will not be affected by or affect the contents of the receptacle. Upon the exterior of the sleeve 48 is placed an inscription attesting the genuineness of the contents of the receptacle, and upon the tube 32 is the word "Not," which until the device fires is covered by the sleeve 48 and is uncovered by the firing of the device, so as to be read in connection with the inscription on the sleeve and thus proclaim the contents of the receptacle to be not genuine.

By "fluid-like substance" as used in this specification is meant a substance whose particles are mobile to the extent that the substance will flow or run from a higher to a lower level.

I do not in this application claim, broadly, time mechanism arranged to operate a definite length of time in combination with a device upon which it is adapted to operate; nor the combination therewith of means for preventing the operator from interfering with the operation of the time mechanism; nor time mechanism having means for arresting its own operation; nor means for preventing the resetting of the time mechanism; nor a spring held normally under tension by a time mechanism which is adapted to operate a definite length of time and a device upon which the spring is adapted to act when released; nor means under the control of the operator for preventing the operation of the time mechanism while the discharge-opening of the receptacle is closed; nor time mechanism including a quantity of some finely-divided solid substance contained in a chamber having an opening through which it may escape into a second chamber; nor time mechanism having a spring-actuated follower controlled by a finely-divided solid substance; nor the combination, with such a spring-actuated follower, of a device engaged by the stem of the follower for holding the spring under tension; nor a displaceable part which is adapted to be displaced by the time mechanism and when so displaced will uncover an inscription; nor means including a valve upon which the time mechanism is adapted

to operate; nor a liquid-tight inclosure located within the receptacle and inclosing the automatically-operating parts; nor a valve in combination with means for holding it temporarily unseated, a spring for seating it, and means for preventing access to it for thereafter unseating it; nor the combination of a follower, means for controlling its position, a spring engaging the follower, a second spring, and means for holding the second spring normally under tension, said means including a displaceable part engaged by the stem of the follower and movable laterally with relation thereto; nor the combination of a spring, a device upon which it is adapted to operate, an escapement controlling the spring and arranged to operate a definite length of time, and means for preventing the operator from interfering with the operation of the escapement, all of these things, when combined with the elements that are essential in a device for preventing the fraudulent reuse of bottles or similar receptacles, being claimed, broadly, in my application, Serial No. 595,140, already referred to.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination with the receptacle, of a liquid-tight inclosure including a tube open at one end, a displaceable device by which the open end of the tube is closed, a detent mechanism for holding said device normally in place, and time mechanism for controlling said detent mechanism, said time mechanism being disposed within the inclosure and arranged to operate a definite length of time, substantially as and for the purpose described.

2. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination with the receptacle, of a valve-seat, a valve, a coiled spring adapted when released to seat the valve and hold it permanently seated, means for holding said spring compressed endwise, time mechanism adapted to operate a definite length of time for releasing the spring, and means for preventing the unseating of the valve, substantially as and for the purpose described.

3. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination with the receptacle, of time mechanism arranged to operate a definite length of time, said time mechanism having a chamber provided with a discharge-opening and a fluid-like substance in the chamber, a valve for controlling the discharge-opening of the chamber, a closure under the control of the operator for controlling the discharge-opening of the receptacle, a stem connecting said closure and the valve aforesaid, and a device upon which the time mechanism is adapted to operate, substantially as and for the purpose described.

4. In a device for preventing the fraudulent

reuse of bottles or similar receptacles, the combination with the receptacle, of time mechanism arranged to operate a definite length of time, said time mechanism having two communicating chambers and a fluid-like substance in one of them, a valve for controlling the opening through which the chambers communicate, a valve-stem passing through an opening in the end of one of the chambers and carrying the valve, a closure under the control of the operator to which the valve-stem is connected, and a device upon which the time mechanism is adapted to operate, substantially as and for the purpose described.

5. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination with the receptacle, of a tube, a coiled spring arranged therein, a device upon which the spring is adapted to operate, means for holding the spring normally compressed, said means including a displaceable bar and shoulders formed on the tube, upon which the bar normally rests, and time mechanism adapted to operate a definite length of time for holding the bar normally in place upon said shoulders, substantially as and for the purpose described.

6. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination with the receptacle, of a tube, a spring, a follower upon which the spring bears, means for controlling the position of the follower, a stem carried by the follower, a second spring, means including a device which is engaged by the follower for holding the second spring normally compressed endwise, and a device upon which the spring is adapted to operate when released, substantially as and for the purpose described.

7. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination with the receptacle, of a tube open at one end, a displaceable device by which it is closed liquid-tight, a spring arranged within the tube and adapted to operate upon said device when released, means for holding said spring normally compressed, and time mechanism adapted to operate a definite length of time for releasing the spring, substantially as and for the purpose described.

8. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination with the receptacle, of a follower, means for controlling it, a stem carried by the follower, a coiled spring, means for holding the spring normally compressed, said means including a displaceable part engaged by the follower and movable laterally with relation thereto, and a device upon which the spring is adapted to operate when released, substantially as and for the purpose described.

9. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination with the receptacle, of a tube, a fol-

lower arranged therein, means for controlling the position of the follower, a spring engaging the follower, a second spring, means for holding the second spring normally compressed endwise, said means including a displaceable part engaged by the stem of the follower and movable laterally with relation thereto, a valve for closing the receptacle, and means for preventing the unseating of the valve when once it is seated, substantially as and for the purpose described.

10. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination with the receptacle, of a tube, a follower arranged therein, means for controlling the follower, a stem carried by the follower, a coiled spring surrounding the stem and bearing at one end against the follower, a barrel surrounding the spring, a second spring surrounding the barrel, a device upon which the second spring is adapted to operate when released, and means for holding the second spring normally compressed endwise, said means including a displaceable part engaged by the follower and movable laterally with relation thereto, substantially as and for the purpose described.

11. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination with the receptacle, of a tube open at one end and provided with shoulders, a bar resting upon said shoulders, a plate resting upon the bar, a device carried by the plate, a compressed spring, a follower, a stem carried by the follower and engaging the bar, and means for controlling the movement of the follower, substantially as and for the purpose described.

12. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination of a valve, a coiled spring adapted to seat the valve and hold it permanently seated when released, means for holding said spring normally compressed endwise, and time mechanism adapted to operate a definite length of time for releasing the spring, substantially as and for the purpose described.

13. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination with the receptacle, of a valve, a coiled spring adapted to seat the valve, means for holding the spring normally compressed endwise, and time mechanism adapted to operate a definite length of time for releasing the spring, said time mechanism having a follower, a coiled spring bearing against the follower, a fluid-like body for controlling the follower, and a chamber containing said fluid-like body and having a discharge-opening, substantially as and for the purpose described.

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Witnesses:

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