

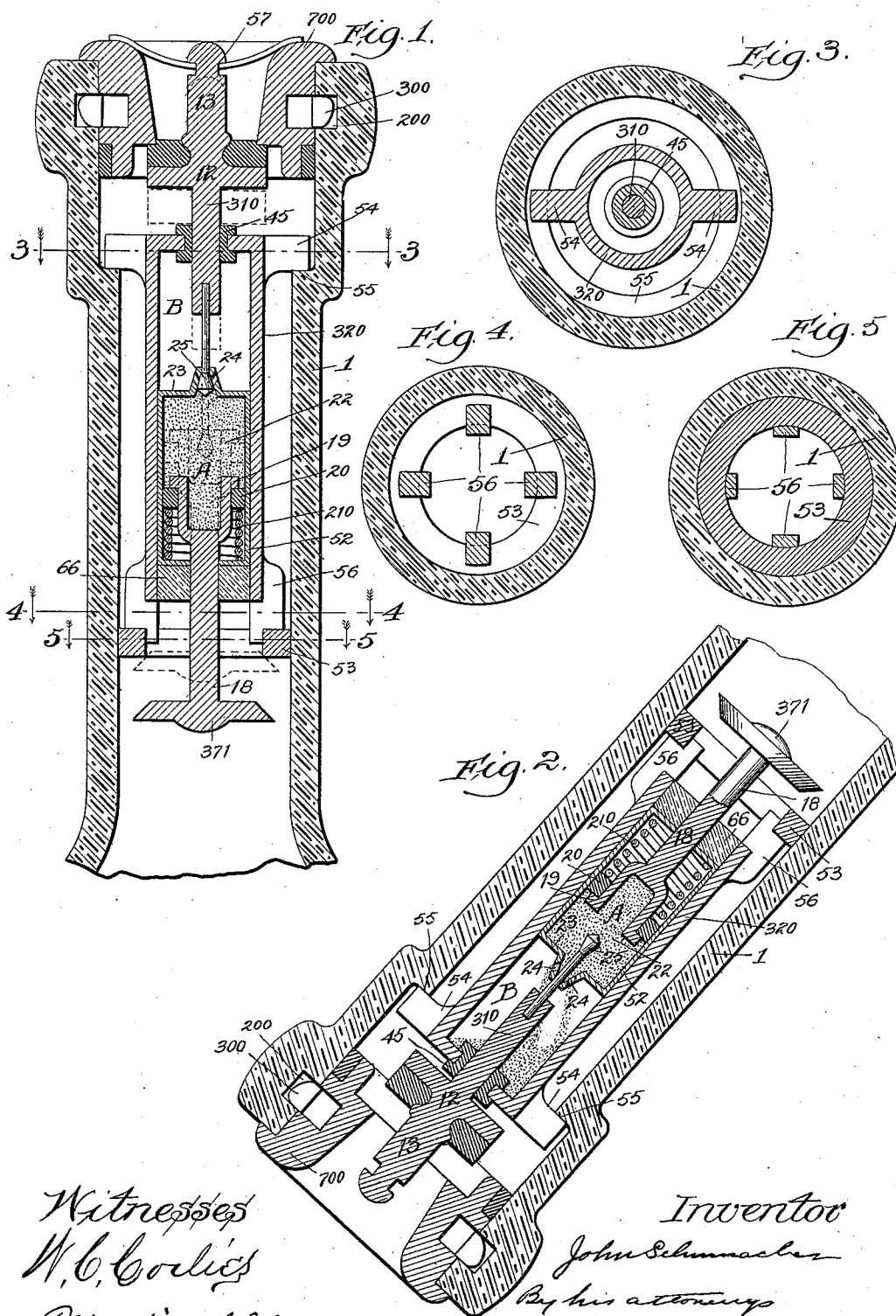
(No Model.)

J. SCHUMACHER.

DEVICE FOR PREVENTING FRAUDULENT REUSE OF BOTTLES.

No. 581,434.

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DEVICE FOR PREVENTING FRAUDULENT REUSE OF BOTTLES.

SPECIFICATION forming part of Letters Patent No. 581,434, dated April 27, 1897.

Application filed June 11, 1896. Serial No. 595,142. (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 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 belonging to 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, nor is it necessary to show and describe the various forms of the device upon which the time mechanism is adapted to operate in accomplishing the object of the invention; these devices being fully set forth in the application already referred to.

In this application I have shown the time mechanism as being adapted to operate upon a valve, but I desire to have it understood that this is merely illustrative and that in this respect the invention is of the full scope defined in the application aforesaid.

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, 55 and in which—

Figure 1 is a vertical section of the neck of a bottle and a device embodying the invention in place therein, the parts being shown by full lines in their initial positions with the discharge-opening of the bottle closed and by dotted lines in the positions that they occupy after the device has fired. Fig. 2 is a similar view showing the bottle tipped and the parts in the positions that they occupy 65 when a portion of the contents of the bottle has been discharged. Figs. 3, 4, and 5 are horizontal sections thereof on the lines 3 3, 4 4, and 5 5, respectively, looking in the direction of the arrows. 70

700 is a ring fitting within the neck 1 of the bottle and provided on its exterior with a groove in which fits a spring-ring 300, which is preferably of semicircular shape, and has at its ends lateral projections which occupy a 75 groove or depressions 200, formed in the interior of the neck of the bottle near its mouth.

Within the neck is permanently secured, through the medium of arms 54 at top and legs 56 at bottom, a tube 32, which is open at 80 one end and is closed at the other save for an opening through which passes a stem 310, the joint around the stem being made liquid-tight by a packing 45, of cork or other suitable material. Within this tube is permanently secured 85 a shell 52, which is of less length than the tube, so as to provide two chambers A and B, which communicate through openings 24, formed through the top 23 of the shell. These openings are controlled by a valve 25, secured 90 to the stem 310, which latter is also secured to a stopper or closure 12, having a stem 13, by which it may be moved from the position shown in full lines in Fig. 1 to the position shown in Fig. 2, and vice versa. The rela- 95 tions of the parts are such that when the stopper 12 is in such position that the discharge-opening of the receptacle is uncovered the openings 24 will be uncovered, and vice versa. In the initial condition of the device the cham- 100 ber B is empty and the chamber A is filled with a body 22 of some finely-divided solid substance, such, for example, as fine sand. 19 is a spring-actuated follower which is ar-

ranged in the shell 52 and bears against the body 22, of sand or other material, the joint between the follower and shell being made liquid-tight by means of a packing 20, of rubber, felt, or other soft material.

210 is a coiled spring which exerts its force in one direction against the follower and in the other direction against the end of the shell, so as to give the follower a constant tendency to follow up the body of sand.

18 is a stem carried by the follower and projecting through an opening in the end of the shell 52, the joint around the stem being made liquid-tight by a packing 66, of cork or some other suitable material, and 371 is a device which is controlled by the stem. In the specific form of the invention here shown this device consists of a valve which is adapted to be closed upon a seat 53 by the spring 210 when permitted to do so by the escape of the sand from the chamber A into the chamber B.

When the opening 24, through which the chambers A and B communicate, is uncovered and the receptacle is tipped to pouring position, the sand will run from chamber A into the chamber B, and the follower under the influence of the spring will follow up the body of sand. Thus the body of sand and the devices for controlling and regulating its escape constitute an escapement which controls the movement of the follower. A continuation of the movement of the follower will cause its stem 18 to seat the valve 371 and thereby permanently close the receptacle against either the admission or discharge of liquid.

The quantity and the degree of fineness of the sand used, the capacity of its avenue of escape, and the length of the stem 18 are all such that the seating of the valve 371 will be accomplished in about the same length of time as is required to completely empty the receptacle of its contents. Theoretically both 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 seating of the valve will require a slightly greater length of time than does the emptying of the receptacle.

So far as the operation of the time mechanism, the conditions of its use, and the extent to which it is under the control of the operator are concerned, for full explanations thereof reference may be had to the application in which the generic invention is described and claimed, the object of the present application being simply to cover that form of the device in which a single spring is used for actuating the time mechanism and the device upon which it is adapted to operate.

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 defi-

nite 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 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 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; nor do I claim, broadly, in this application a spring, means for holding it compressed endwise, and time mechanism adapted to operate a definite length of time for releasing the spring, nor time mechanism having a chamber provided with a discharge-opening and a fluid-like substance in said chamber in combination with a valve for controlling said discharge-opening, a closure under the control of the operator for controlling the discharge-opening of the receptacle, and a stem connecting said closure and valve, nor the two communicating chambers, one of which is, in the initial condition of the device, filled with a fluid-like substance which is adapted to flow into the other in combination with the mechanism last above described, nor the combination of a valve, a coiled spring adapted when released to seat the valve and hold it permanently seated, means for holding said spring normally compressed endwise, and time mechanism adapted to operate a definite length of time for releasing the spring, nor the combination last stated when the time mechanism has a follower, a coiled spring bearing against the follower, a fluid-like body for

controlling the follower, and a chamber containing the fluid-like body and having a discharge-opening, 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 in my application of even date herewith, bearing Serial No. 595,141.

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 an escapement arranged to operate a definite length of time, a spring held normally under tension by the escapement, the arrangement of the escapement and spring being such that as the escapement operates it allows the spring to gradually and constantly unfold, a valve, means connecting it with the spring whereby it is made to partake of the movement of the spring in unfolding, and means for preventing the operator from interfering with the operation of the escapement; substantially as set forth.

2. In a device for preventing the fraudulent reuse of bottles or similar receptacles, the combination with the receptacle of a spring, a device upon which it is adapted to operate, time mechanism, of which the spring forms a part, arranged to operate a definite length of time,

said time mechanism having an escapement for controlling the spring, and means for preventing the operator from interfering with the operation of the time mechanism, 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 a spring, a valve upon which the spring is adapted to operate, a follower engaging the spring, a fluid-like body for controlling the follower, a chamber containing said body and having a discharge-opening, and means for preventing the operator from interfering with the operation of the device, 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 a valve, a stem by which it is carried, a follower carrying the stem, a spring engaging the follower, an escapement controlling the follower and arranged to operate a definite length of time, and means for preventing the operator from interfering with the operation of the escapement, substantially as and for the purpose described.

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Witnesses:

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