May 30, 1950 Z. WIESELTIER 2,510,003

COIN FREED DEVICE FOR DISPENSING LIQUIDS

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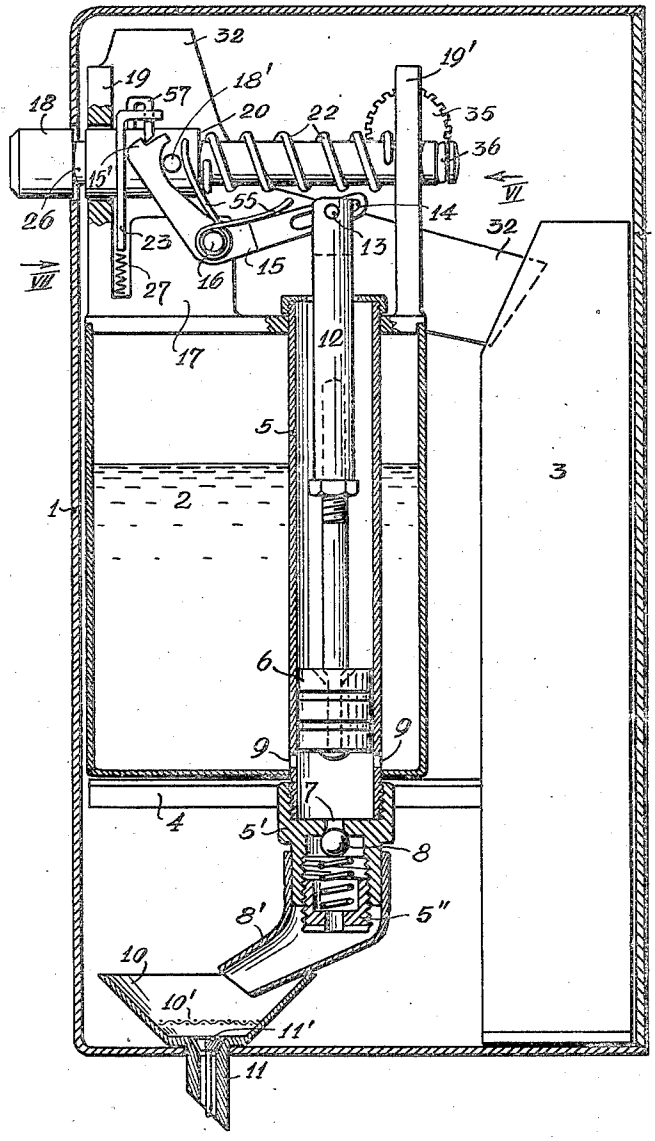


Fig. 1

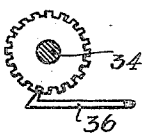


Fig. 9

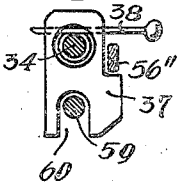


Fig. 10

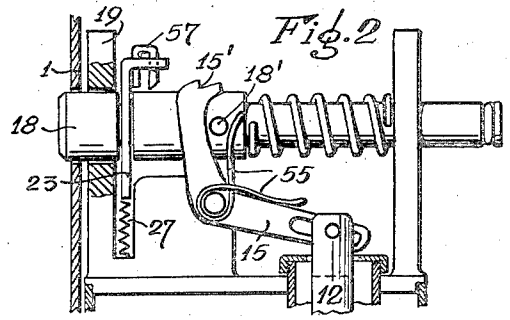


Fig. 2

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COIN FREED DEVICE FOR DISPENSING LIQUIDS

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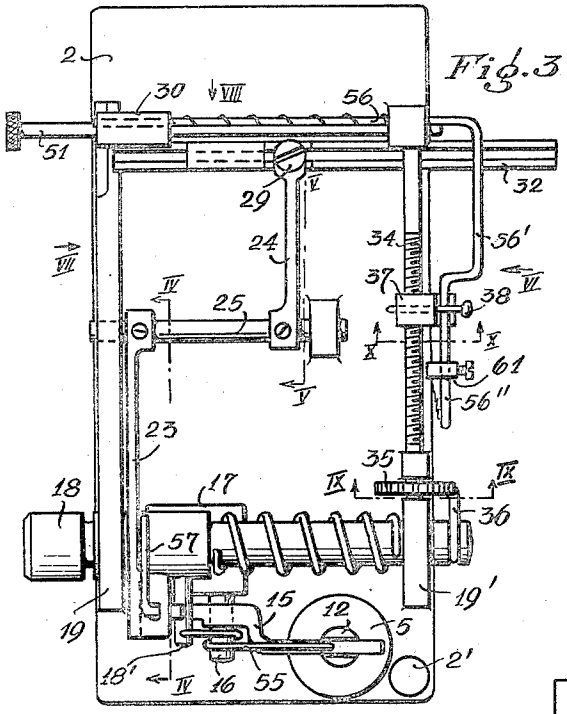


Fig. 3

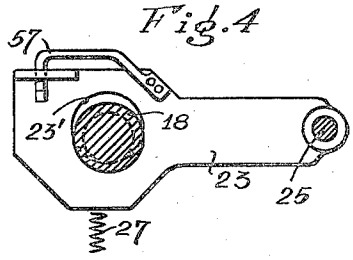


Fig. 4

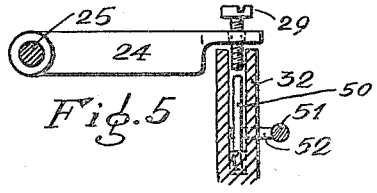


Fig. 5

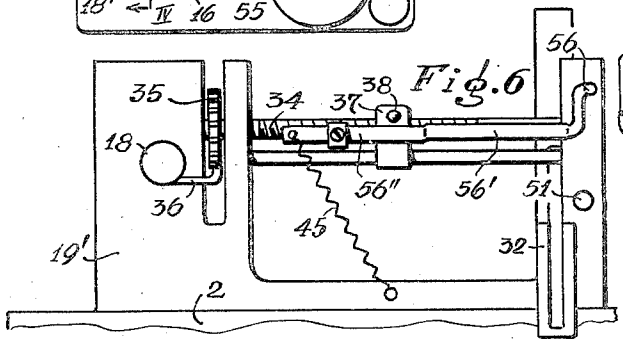


Fig. 6

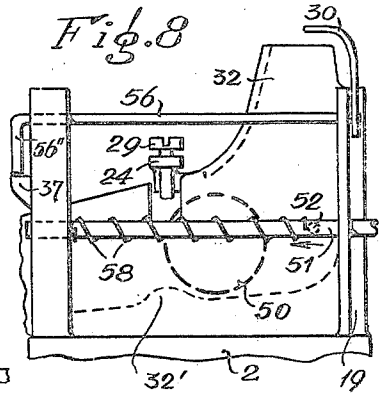


Fig. 8

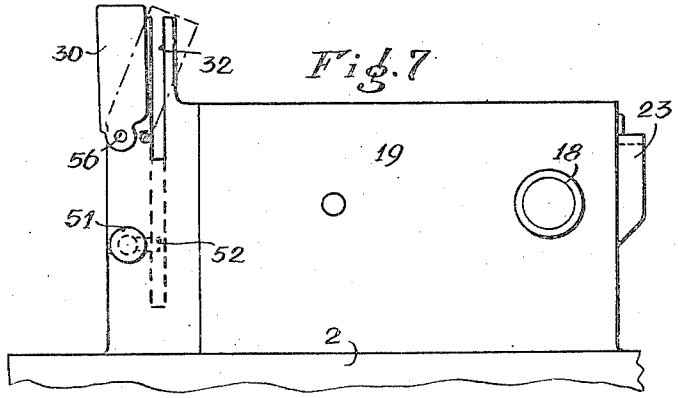


Fig. 7

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Patented May 30, 1950

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UNITED STATES PATENT OFFICE

2,510,003

COIN FREED DEVICE FOR DISPENSING LIQUIDS

Zeev Wieseltier, Tel Aviv, Palestine

Application July 2, 1946, Serial No. 680,871

4 Claims. (Cl. 194—60)

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The invention relates to a coin freed liquid dispensing device as may be advantageously used for easy provision of the public with petrol for cigarette lighters, with perfume, eau de Cologne, milk, juice or the like. The device comprises a liquid tank arranged within a casing and a vertical reciprocating pump located within the tank. The cylinder of the pump projects down through the bottom of the tank and is provided just above this bottom with openings for communication with the tank and below that bottom with a screwed on cap provided with an outflow duct normally closed by a spring pressed ball valve. The piston of the pump is connected by a pivoted knee-lever to a horizontally slidable bolt. A spring slid on the bolt tends to urge the latter outwardly until it projects with one end out of the casing through a hole provided therein and thereby to raise the piston, but normally the bolt is held by locking means in retracted position within the casing thus keeping the piston in its lowermost position. These locking means are adapted to be released by the introduction of a coin into the coin-slot of the device, thus allowing the bolt to move out of the casing and the piston to rise and to suck liquid through said openings from the tank into the cylinder, while on pushing back the bolt by hand into the casing until it is again automatically locked, the liquid is forced out from the cylinder through the said ball valve.

A characteristic feature of the invention lies in the fact that the unlocking of the push bolt is not performed directly by the inserted coin, which offers the possibility of tampering with the device by means of an inserted wire or the like. According to the invention the coin chute is provided near its entrance with means for retaining the inserted coin. A second push rod is provided for pressing the inserted coin beyond the retaining means, which coin then unlocks the bolt.

Other novel features will be apparent from the following detailed description and the appended drawings.

The invention is illustrated by way of example in the annexed drawings:

Fig. 1 shows a vertical section from the front to the rear of the device; Fig. 2 is a like partial view of the device in a different position; Fig. 3 is a plan view of the uncovered device; Fig. 4 shows a detail as seen in section on line IV—IV of Fig. 3; Fig. 5 represents a section on the line V—V of Fig. 3; Fig. 6 is a partial rear view of the device; Figs. 7 and 8 are partial front and side

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views of the device respectively the outer casing being removed; Figs. 9 and 10 are sections on the lines IX—IX and X—X of Fig. 3.

In a rectangular sheet metal casing composed of a hollow cover part 1 and a plane rear wall 1' is enclosed a liquid tank 2 having a filling spout 2' and a coin receptacle 3. The cover part 1 is hinged to the rear wall 1', adapted to be screwed at a convenient point to a wall of a shop or public place and can be opened to allow the removal of the tank 2 and receptacle 3. The latter stands on the bottom of the casing behind the tank 2 which is itself supported above that bottom on ledges 4 soldered to the inside of the lateral walls of the casing. The casing has openings for the coin to be introduced, a push button by means of which a quantity of the liquid is released, and an opening through which this liquid is drained off, as described below in greater detail.

The coin operated and liquid dispensing mechanism forms a unit with the tank 2. Within the tank 2 is arranged a pump comprising a cylinder 5 and a piston 6. The cylinder 5 projects down through the bottom of the tank and is there closed by a screwed cap 5'. Cap 5' has a central bore 7, the lower end of which is closed by a pierced screw 5''. Within the cap 5' is seated a spring controlled ball valve 8. From cap 5' is branched off a laterally extending outlet pipe 8'. Normally valve 8 interrupts the communication between bore 7 and outlet pipe 8'. In the cylinder 5 there are provided openings 9 just above the bottom of the tank 2. Within the cylinder moves the piston 6. During its upward movement liquid can enter from the tank into the cylinder underneath the piston through the openings 9. During its downstroke the liquid is pressed out through the valve 8 into pipe 8' wherefrom it flows into a funnel 10 provided in the bottom of the casing 1 and leaves the casing through a small tube 11. The distance between holes 9 and the lowermost position of piston 6 determines the quantity of liquid dispensed during each downstroke of the piston. 10' designates a sieve and 11' is a small valve having a slotted head, so as to allow a drop-wise discharge only of the liquid.

Piston 6 is provided with an upwardly extending adjustable rod 12, which engages at its upper end by means of a pin 13 into a slot 14 of a knee-lever 15 pivoted at 16 on a post 17 fixed on the top of the tank 2. Slot 14 is provided at one end of the knee-lever. The other end of lever 15 engages a cross-pin 18' projecting laterally from a bolt 18 which can slide from the front to the

rear in superstructure 19, 19' arranged on the top of the tank 2. A spring 22 slid on the bolt 18 and abutting at the rear against the wall 19' of the structure and at the front against a shoulder 20 of the bolt tends to keep the bolt in its foremost position i. e. with its visible front end projecting out of the front wall of the casing, this projecting end of the bolt 18 representing the push button of the device. In the outermost position of the push-button the piston 6 is in its highest position in the cylinder 5, see Fig. 1, and in the innermost position of the button the piston 6 is in its lowermost position in the cylinder 5. Spring 22 tends to move the bolt 18 into the outermost and piston 6 into the uppermost position. But bolt 18 is normally held in the rear and the piston in the lowermost position by locking means to be each time released by the coin pressed into the apparatus. These locking means comprise a tumbler 23 fixed at the rear end on an axle 25 and having near its front end a circular hole 23'. The push bolt 18 passes through this hole, so that the tumbler 23 can engage into the circumferential groove 26 of the bolt, when the latter is in its inner position, as seen in Fig. 2. A small spring 27 tends to keep the locking tumbler in engagement with the bolt. Tumbler 23 is provided with a hooked spring 57 engaging behind a shoulder 15' of the knee lever 15, thus keeping the piston 6 in its uppermost position. When push bolt 18 is pressed inward and tumbler 23 engages the groove 26 from below, hooked spring 57 releases the knee lever 15. This can occur only after a coin has been properly introduced, as seen from the following description.

Parallel to the bolt 18 is slidingly journalled on the top of the tank a push rod 51 beside the coin chute 32. Rod 51 has a lateral pin 52 projecting into the chute 32. Within the chute 32 there is provided an elevation 32' adapted to retain any coin 50 introduced into the chute. The coin can be urged over and beyond this elevation by the pin 52 of the push rod 51 when the latter is pushed inward. Rod 51 is normally held out of the path of the coin by a spring 53. Into this path projects also normally an adjustable screw 29 provided on the end of a lever 24 fixed on the same axle 25 on which is fastened the above mentioned lever or tumbler 23. It is thus the spring 27 which tends to keep screw 29 in the coin chute. Elevation 32' and screw 29 restrict the passage of the coin and form thus means for transitionally retaining the coin from rolling down. By means of rod 51 the coin can be forced through the restriction, whereby lever 24 is raised and tumbler 23 lowered and brought out of engagement with groove 26 of the bolt 18.

Means are provided for preventing the introduction of coins, whenever the device becomes empty. To this end a shutter 30 for the insert opening of the coin chute is so disposed as not to obstruct the insert when in the position indicated in full lines in Fig. 7 and to close the insert when in the position indicated there in dotted lines. The shutter is fastened to a rod 56 pivotally journalled on the top of the tank in parallelism with rod 51. It is behind the tank bent rectangularly into the prolongation 56', a part 56'' is set off and can rest on a step of a saddle 37 slidingly arranged on a screw-threaded horizontal spindle 34, rotatably journalled on the tank 2. On the spindle 34 is screwed a toothed wheel 35 into which engages a ratch 36 fastened to push bolt 18. Each time the push bolt is moved to and fro, spindle 34 is turned through a certain

angle. Saddle 37 carries a removable pin 38 engaging into the screw thread of spindle 34, so that the saddle 37 moves along the turning spindle 34. Saddle 37 is prevented from turning by a stationary rod 59 which is parallel to the spindle and is passed through a cut out 59 of the saddle. When the saddle reaches the set off between the rod parts 56' and 56'' the latter ceases to be supported by the saddle and turns down bringing thereby the shutter into the position indicated by the dotted lines. An abutment 61 adjustably arranged on the part 56'' limits the adjustment of saddle 37. The just described parts are so disposed that the closing of the coin insert occurs when the tank becomes empty. After the refilling, pin 38 is removed, the saddle slid back until it abuts against part 61 and the pin 38 is reinserted and again brought into engagement with the screw-thread of spindle 34.

A spring 45 tends to pull rod 56'' down and to close the shutter.

The apparatus operates as follows:

In position of rest, see Fig. 2, bolt 18 is almost wholly located within the apparatus and is held therein by the tumbler 23 engaging into the groove 26 of the bolt from below. A coin 50 is inserted in chute 32 where it is at first retained by an elevated part 32' of the chute behind the pin 52 of the push-rod 51. By pushing in of the latter rod, the coin 50 is urged over that elevation 32', at the same time lifting lever arm 24 and pressing arm or tumbler 23 down out of engagement with groove 26 of bolt 18. The bolt 18 is thus unlocked and pushed by spring 22 out of the housing of the apparatus, see Fig. 1. The outwardly moving bolt 18 turns by means of its lateral pin 18' the elbow lever 15 anticlockwise, which lifts the piston 6, whereby the liquid is sucked into the cylinder 5. When bolt 18 is now pushed back into the interior of the apparatus pin 18' encounters spring 55, tensioning the same, while lever 15 with the piston still remain stationary. At the end of the bolt's forward movement, tumbler 23 is raised entering slot 26 from below, and at the same time hooked spring 57 is raised setting free end 15'' of the elbow lever turning under impact of spring 55 and pressing the piston 6 downwards for discharging the previously sucked in liquid into the outlet. At the end of its inward movement the bolt 18 is arrested by the tumbler 23 urged by spring 27 to engage into groove 26 of the bolt.

Each time bolt 18 moves outwardly, it turns by means of ratchet 36 the toothed wheel 35 fixed on the screw spindle 34, through a more or less small angle. Thereby pin 38 engaging into the screw-thread of spindle 34 is moved together with the saddle 37 away from wheel 35 until the saddle, which supports part 56'' of lever 56, comes out of contact with that part whereby owing to spring 45 lever 56 turns and brings shutter 30 from the position shown in Fig. 7, in full lines into position there indicated by dotted lines, so that no coin can any more be inserted into the chute 32. This happens when the tank 2 is empty. After removing the pin 38, the saddle can be brought back, whereupon pin 38 is again brought into the shown position.

What I claim is:

1. In a coin freed liquid dispensing device, a liquid tank, a piston pump communicating with this tank, a push bolt operatively connected with the piston of the pump, a spring pressing the push bolt outwardly from the device and causing the piston to make the sucking stroke, a spring

inserted between the push bolt and the piston and acting as an intermediate means for causing the piston to make the discharge stroke when the bolt is pushed into the device, means for locking the push-bolt in the position of discharge, and coin operated means for releasing the means locking the push bolt.

2. In a coin freed liquid dispensing device, a liquid tank, a piston-pump communicating with this tank, a push bolt, a pin on the push bolt, a spring pressing the push bolt outwardly from the device, an elbow lever one end of which is acted upon by the pin when the bolt is urged outward and the other end of which is attached to the piston of the pump for simultaneously moving the piston through the suction stroke, a spring acted upon by the pin when the bolt is pushed inwards for resiliently moving the elbow lever and piston through the discharge stroke, means for locking the push-bolt in the position of discharge and coin operated means for releasing the means locking the push bolt.

3. In a coin freed liquid dispensing device, a liquid tank, a piston pump arranged inside and communicating with this tank, a push bolt operatively connected with the piston of the pump, a spring pressing the push bolt outwardly from the device and causing the piston to make the sucking stroke, a spring inserted between the push bolt and the piston and acting as an intermediate means for causing the piston to make the discharge when the bolt is pushed into the device, means for locking the push-bolt in the position

of discharge, and coin operated means for releasing the means locking the push bolt.

4. In a coin freed liquid dispensing device, a liquid tank, a vertical piston-pump communicating with this tank, a push bolt, a pin on the push bolt, a spring pressing the push bolt outwardly from the device, an elbow lever one end of which is acted upon by the pin when the bolt is urged outwards and the other end of which is attached to the piston of the pump for simultaneously moving the piston through the suction stroke, a spring acted upon by the pin when the bolt is pushed inwards for resiliently moving the elbow lever and piston through the discharge stroke, means for locking the push-bolt in the position of discharge; means for locking the elbow and piston in position at the end of the suction stroke, and coin operated means which alternately lock the bolt and release the elbow and piston and thereafter release the bolt and lock the elbow and piston.

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