Dec. 27, 1938. J. A. WINGER 2,141,583

LIQUID DISPENSING APPARATUS

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Fig. 1.

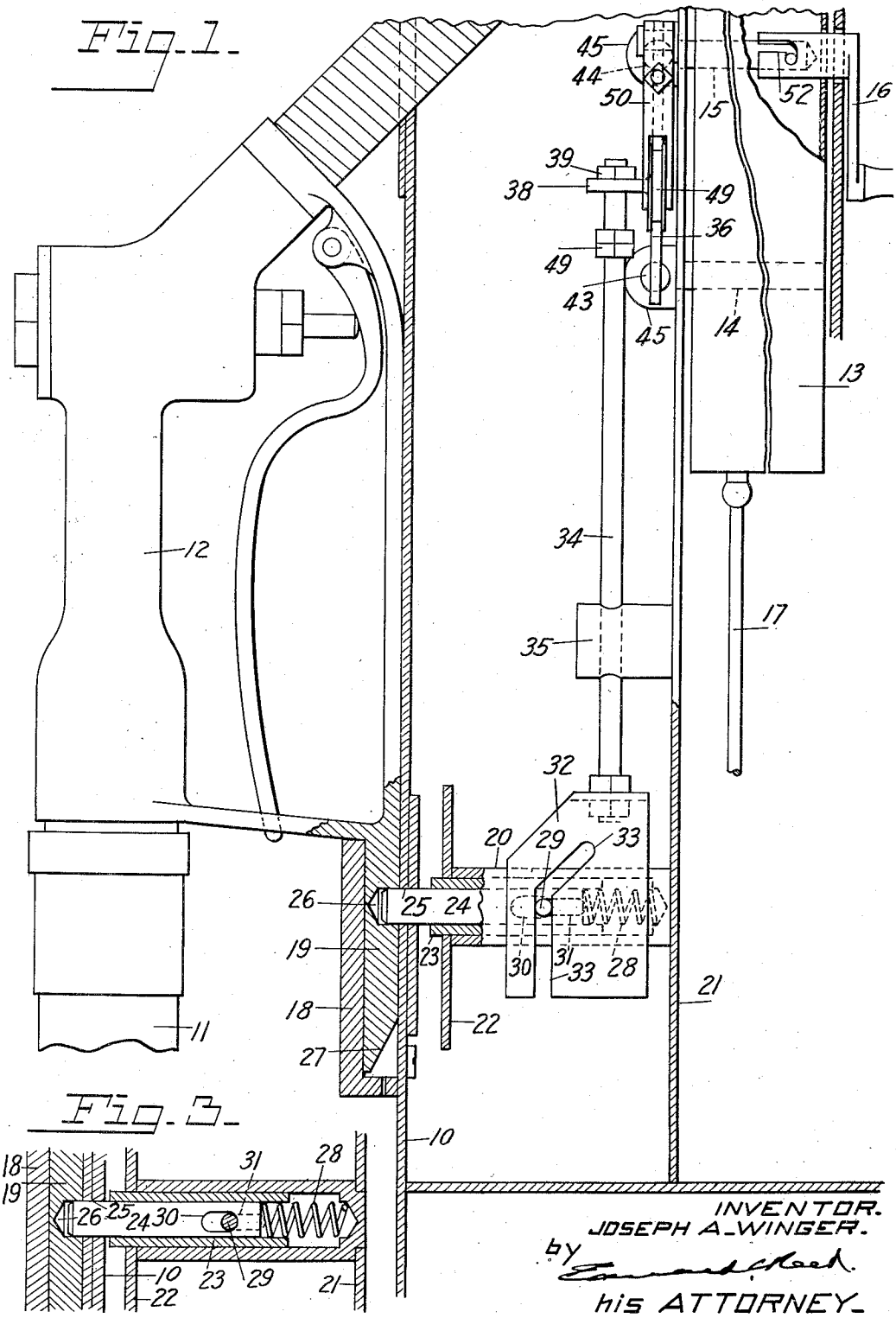


Fig. 3.

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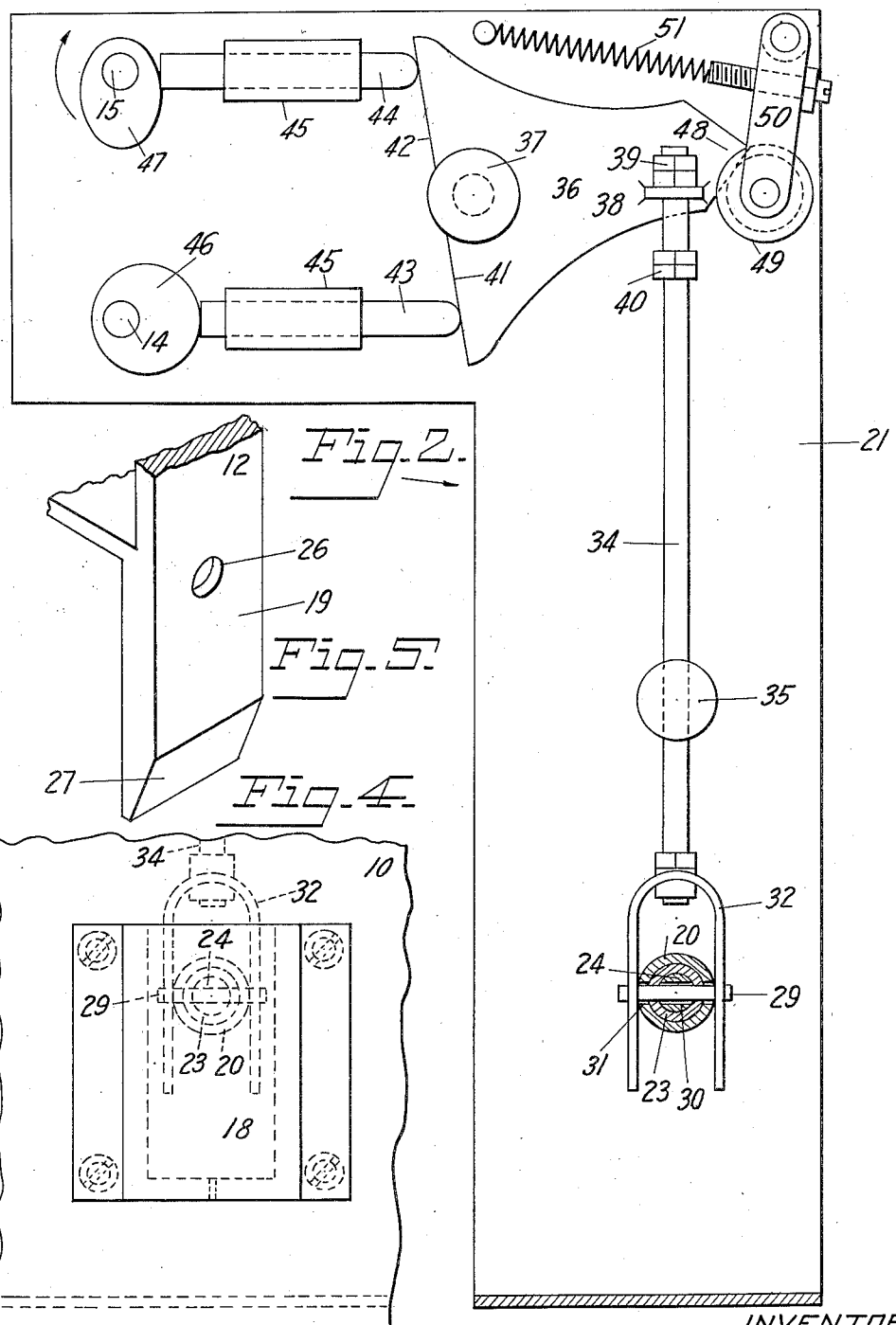


Fig. 2.

Fig. 5.

Fig. 4.

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Patented Dec. 27, 1938 2,141,583

UNITED STATES PATENT OFFICE

2,141,583

LIQUID DISPENSING APPARATUS

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Application April 7, 1937, Serial No. 135,528

13 Claims. (Cl. 221—95)

This invention relates to liquid dispensing apparatus and more particularly to a gasoline pump of the type which is provided with a register to register items relating to the gasoline dispensed, such as the number of gallons dispensed and the computed price thereof. In such a pump it is of course essential that the registering mechanism should be reset to zero prior to each delivery operation as otherwise the succeeding purchaser would be charged with more gasoline than he received.

One object of the present invention is to provide a simple efficient device which will positively prevent the delivery of gasoline until the registering mechanism has been restored to its zero position.

A further object of the invention is to provide means for accomplishing this result by locking the delivery nozzle on its support until the registering mechanism has been restored to zero.

Other objects of the invention will appear as the apparatus is described in detail.

In the accompanying drawings Fig. 1 is a sectional view taken through a portion of a gasoline pump showing my invention applied thereto; Fig. 2 is a front elevation of the lock controlling mechanism; Fig. 3 is a sectional detail view of the lock itself; Fig. 4 is a detail view of the nozzle support; and Fig. 5 is a detail perspective view of the locking lug carried by the nozzle.

In these drawings I have illustrated one embodiment of my invention and have shown the same as applied to a well known type of gasoline pump but it will be understood that the invention may be applied to liquid dispensing apparatus of various kinds and that it may take various forms.

In Fig. 1 I have shown at 10 a portion of the cabinet which encloses the pumping and measuring mechanism, which are not shown. The liquid is discharged from the pump or meter through a flexible delivery hose 11 which is provided at its discharge end with a nozzle 12. Associated with the pump and usually mounted within the cabinet is a register for recording certain items relating to the gasoline or other liquid which is dispensed. In the present instance, this register is shown at 13 and the registering mechanism comprises a shaft 14 and the mechanism for resetting a register to zero comprises a shaft 15 with suitable means for manually operating the same, such as a handle 16. The registering and resetting mechanisms are not illustrated as they form no part of the present invention. The registering mechanism may be driven from any suitable source and is here shown as provided with a driving shaft 17, which is driven from a meter. It is customary to provide a gasoline pump with a support on which the nozzle may be hung when it is not in use and, in the construction here shown, this support comprises a receptor in the form of a socket 18 secured to the outer side of the cabinet 10. The nozzle is provided with a lug 19 adapted to enter the socket 18 and thus support the nozzle on the receptor. After a delivery of gasoline has been completed the nozzle is hung on this support and remains there until another delivery is to be made, and in order to make it necessary to reset the registering mechanism to zero after each operation of the pump and before another delivery of gasoline can be made I have provided means for locking the nozzle on the support in such a manner that it can only be released by the operation of the resetting mechanism.

The locking mechanism and the means for controlling the same may take various forms but, as here shown, the locking device comprises a tubular guide 20 which is mounted within the cabinet between a partition 21 and a bracket 22. Slidably mounted within the guide 20 is a tubular supporting member 23 and slidably mounted within this tubular supporting member is a locking member or bolt 24. This bolt is movable into and out of locking relation to the nozzle and, in the present instance, is adapted to be projected into the receptor 18 and to have locking engagement with the lug 19 of the nozzle. For this purpose the wall of the cabinet has been provided, in line with the bolt 24, with an opening 25 and the lug 19 is provided with a recess 26 so arranged that when the lug is fully seated in the receptor the recess 26 will be in line with the opening 25 in the cabinet wall, thus permitting the bolt to extend through the cabinet wall and into the receptor and if the nozzle lug is seated in the receptor the bolt will also extend into the recess 26, thereby positively locking the lug in the receptor. By means of controlling mechanism which will be hereinafter described, the locking device is actuated to move the bolt 24 to its locking position, that is, to project the same into the receptor, when the registering mechanism of the register is operated and the locking device is actuated to retract the bolt by the operation of the resetting mechanism. Consequently the bolt is moved to its locking position, that is, projected into the receptor, while the nozzle is off of its support and to enable the nozzle to be placed upon its support and locked thereto the bolt 24 is mounted for yielding movement with relation to the supporting member 23 and the nozzle lug has its lower edge beveled, as shown at 27, so that when the lug is inserted in the receptor the beveled end thereof will retract the bolt to permit the lower portion of the lug to pass the same and when the recess 26 has moved into line with the bolt 24 the latter will be pressed into the recess by a spring 28 acting on the inner or rear end of the bolt. Although the bolt is yieldingly supported with relation to the tubular mem-

ber 23 it is so connected with that member as to be positively moved therewith when the tubular member is retracted. In the arrangement here shown a pin 29 is rigidly mounted in the wall of the tubular supporting member, extends through a slot 30 and projects through slots 31 in the respective sides of the guide 20, the ends of the pins projecting beyond the outer surface of the guide. When the bolt 24 and its supporting member 23 have been moved to their locking positions, as shown in Figs. 1 and 3, the rear end of the slot 30 in the bolt will be in contact with the pin 29 and consequently when the tubular member is retracted the bolt will be moved therewith but while the tubular member remains in its locking position the bolt may be retracted with relation thereto when the nozzle lug is inserted in its receptor.

Various means may be provided for actuating the tubular supporting member 23 and the bolt 24 and in the present instance this actuating device is shown as a yoke-shaped member 32, the arms of which are arranged on opposite sides of the guide 20 of the locking device and are provided with cam slots through which the respective ends of the pin 29 extend. When the locking device is in its locking position, as shown in Fig. 2, the pin will lie in the vertical portions 33 of the cam slots and the supportng member 23 will be positively locked against movement. When the actuating device is depressed the ends of the pin 29 will enter the inclined portions 33 of the cam slots and the pin, tubular supporting member and bolt will be moved rearwardly, thus moving the bolt to an inoperative position and permitting the nozzle to be removed from its support. When the actuating device is again elevated the inclined portions of the slots will move the pin 29 and tubular supporting member 23 outwardly toward locking position and the spring 28 will move the bolt 24 to its locking position.

The operative movements of the actuating device 32 are controlled by the registering and resetting mechanisms of the register and this may be accomplished in various ways. In the arrangements shown a connecting rod 34 is slidably mounted in an apertured stud 35 and is rigidly connected at its lower end with the actuating device 32 and is connected at its upper end with an operating member 36 which is here shown as a lever pivotally mounted on the partition 21, as shown at 37. Preferably some lost motion is provided between the connecting rod 34 and the operating lever 36 and to this end the rod extends loosely through an apertured lug 38 carried by the lever and is provided with spaced stops 39 and 40 which permit the lever to have a limited movement with relation to the rod. The lever is shown in the form of a flat plate which projects some distance on each side of its axis and the edges of these projecting portions form contact surfaces 41 and 42 which are engaged respectively by plungers 43 and 44, slidable in guides 45 carried by the partition 21. The shaft 14 of the registering mechanism and the shaft 15 of the resetting mechanism extend through the partition 21 adjacent the ends of the plungers 43 and 44 respectively. The register shaft 14 has rigidly secured thereto a cam 46 arranged to engage the end of the plunger 43 and press the latter against the contact surface 41 of the operating lever 36 to move the latter about its axis, thereby elevating the connecting rod and actuating device 32 and causing the locking bolt 24 to be moved to its locking position, in which position, in the present instance, it projects into the receptor. This, of course, takes place during the delivery operation and when the nozzle is placed upon its support at the end of that operation it is automatically locked to its support. The resetting shaft 15 has secured thereto a cam 47 which acts on the plunger 44 to press the same against the contact surface 42 of the operating lever and thus move the connecting rod and actuating device downwardly and retract the bolt 24 and its supporting member 23, thereby releasing the nozzle for removal from the support. It will be understood that the cams 46 and 47 are so arranged and controlled that the one cam will be in an inoperative position with relation to its plunger when the other cam is operated. In the present arrangement the register shaft and cam 46 are rotated during the resetting operation so that when the cam 47 engages its plunger the cam 46 will have been moved away from its plunger leaving the latter free for reverse movement.

It is desirable that the locking device should be moved quickly into and out of its locking position and I have therefore provided means for causing this movement to take place with a snap action. To this end the operating lever is provided at its outer end with a V-shaped nose 48 with which cooperates a roller 49 carried by a pivoted arm 50 which is acted upon by a spring 51 to press the roller against the end of the lever. When the parts are in the position shown in Fig. 2, with the roller pressing against the lower inclined surface of the nose of the lever the movement of the lever by the cam 47 on the resetting shaft will force the roller outwardly against the action of its spring until the point of the nose passes the center of the roller and during this time the lever will have been moving with relation to the connecting rod so that no movement, or at least no substantial movement, is imparted to the actuating device. As soon as the point of the lever nose passes the center of the roller the roller will engage the upper inclined surface of the nose and the action of the spring 51 will cause the roller to force the lever downwardly, thus imparting a quick action to the actuating device. When the operating lever is again moved upwardly the operation of these parts is reversed, the roller moving idly over the upper inclined surface of the lever and acting on the lower inclined surface thereof to impart a quick movement thereto.

The operation of the apparatus will be readily understood from the foregoing description and it will be apparent that before the nozzle can be removed from its support to effect the delivery of liquid the locking bolt 24 must have been retracted and this can only be accomplished by resetting the register. When the bolt has been retracted the nozzle is removed and the liquid delivered, thus causing the operation of the registering mechanism and the initial movement of the registering mechanism will cause the bolt to be moved into the receptor 18 where it will remain. Upon the completion of the delivery operation the nozzle is hung upon its support, the lug 19, on entering the receptor, pressing the bolt outwardly and passing the same until the locking recess 26 is in line with the bolt which then springs into the recess again locking the nozzle on its support. The resetting operation may, of course, be effected immediately upon the conclusion of a delivery transaction or just be-

fore the commencement of another delivery transaction but in any event the resetting must have been effected before the next suceeding delivery can be made.

By making the resetting handle removable the nozzle lock may be utilized to lock the apparatus against operation overnight or at other times when the operator has left the station. As shown in Fig. 1, the resetting shaft 15 terminates within the cabinet wall and the handle is removably connected therewith by inserting the same through an opening in the cabinet wall. In the arrangement there shown the handle has a tubular hub to receive the end of the shaft with which it has a pin and slot connection, as shown at 52. If the handle is removed from the resetting shaft before the register is reset that shaft cannot be operated to release the nozzle and the apparatus will be locked against operation until the handle is replaced and operated.

While I have shown and described one embodiment of my invention I wish it to be understood that I do not desire to be limited to the details thereof as various modifications may occur to a person skilled in the art.

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

1. In a liquid dispensing apparatus comprising a delivery hose, a nozzle carried by said hose, a support for said nozzle when it is not in use, a register to register items relating to the liquid dispensed, and means for resetting said register to zero, a yieldable locking member arranged normally to be engaged and retracted by said nozzle when the latter is placed on its support and to then move into locking engagement with said nozzle, and means controlled by said resetting means for retracting said locking member and releasing said nozzle.

2. In a liquid dispensing apparatus, comprising a delivery hose, a nozzle carried by said hose, a support for said nozzle when it is not in use, a register to register items relating to the liquid dispensed, and means for resetting said register to zero, a device for locking said nozzle on said support including a movable supporting member, a locking member connected with said supporting member for movement therewith into and out of locking position, said locking member being movable with relation to said supporting member while the latter is in locking position, and means controlled by said register to actuate said supporting member.

3. In a liquid dispensing apparatus comprising a delivery hose, a nozzle carried by said hose, a support for said nozzle when it is not in use, a register to register items relating to the liquid dispensed, and means for resetting said register to zero, a device for locking said nozzle on said support including a movable supporting member, a locking member slidably mounted on said supporting member and connected thereto for movement therewith into and out of locking position, means for yieldably retaining said locking member at one limit of its movement with relation to said supporting member, said nozzle having a part arranged to retract said locking member with relation to said supporting member as said nozzle is placed on its support and to then release said locking member for movement into locking relation to said nozzle, and means controlled by said register for actuating said supporting member.

4. In a liquid dispensing apparatus, a delivery hose, a nozzle carried by said hose, and a support for said nozzle when it is not in use, a device for locking said nozzle on said support including a movable member, a locking member connected with said movable member for movement therewith and for movement with relation thereto, means for actuating said movable member to move said locking member into and out of its locking position, and means for yieldably retaining said locking member at one limit of its movement with relation to said movable member, said nozzle having a part arranged to act on said locking member to move the latter from its locking position as said nozzle is placed on said support and to then release said locking member for movement to its locking position.

5. In a liquid dispensing apparatus, a delivery hose, a nozzle carried by said hose, a support for said nozzle when it is not in use including a receptor, said nozzle having a part adapted to enter said receptor, means for locking said nozzle on said support comprising a guide, a supporting member slidably mounted on said guide, a locking member slidably mounted on said supporting member, resilient means acting on said locking member to move one end thereof beyond said supporting member, means for causing said locking member to move with said supporting member, and means for actuating said supporting member to move the projecting end of said locking member into and out of said receptor, said locking member and said part of said nozzle having cooperating surfaces arranged to move said locking member with relation to said supporting member to an inoperative position as said nozzle is placed on said support and to then release said locking member for movement into locking relation with said part of said nozzle.

6. In a liquid dispensing apparatus, a delivery hose, a nozzle carried by said hose, a support for said nozzle when it is not in use including a receptor, said nozzle having a part adapted to enter said receptor, a register, and means for resetting said register to zero, means for locking said nozzle on said support comprising a guide, a supporting member slidably mounted on said guide, a locking member slidably mounted on said supporting member, resilient means acting on said locking member to move one end thereof beyond said supporting member, means for causing said locking member to move with said supporting member, means controlled by the registering operation of said register, to actuate said supporting member and move the projecting end of said locking member into said receptor, said locking member and said part of said nozzle having cooperating surfaces arranged to move said locking member with relation to said supporting member to an inoperative position as said nozzle is placed on said support and to then release said locking member for movement into locking engagement with said part of said nozzle, and means controlled by said resetting mechanism for actuating said supporting member to retract said locking member and release said nozzle.

7. In a liquid dispensing apparatus comprising a delivery hose, a nozzle carried by said hose, a support for said nozzle when it is not in use, a register to register items relating to the liquid dispensed, and means for resetting said register to zero, a device for locking said nozzle on said support including a locking member movable into and out of a position to engage said nozzle, and

actuating means controlled by the registering operation of said register to move said locking member to its locking position and controlled by said resetting mechanism to move said locking member to an inoperative position, said locking member being movable with relation to said actuating means to enable said nozzle to be placed on and locked to said support after said locking member has been moved to its locking position.

8. In a liquid dispensing apparatus comprising a delivery hose, a nozzle carried by said hose, a support for said nozzle when it is not in use, a register to register items relating to the liquid dispensed, and means for resetting said register to zero, a device for locking said nozzle on said support including a locking member, a cam connected with the registering mechanism of said register, a second cam connected with said resetting mechanism, means controlled by the first mentioned cam to move said locking member to its locking position when said registering mechanism is operated and controlled by said second cam to move said locking member to an inoperative position when said resetting mechanism is operated.

9. In a liquid dispensing apparatus comprising a delivery hose, a nozzle carried by said hose, a support for said nozzle when it is not in use, a register to register items relating to the liquid dispensed, and means for resetting said register to zero, a device for locking said nozzle on said support including a locking member, means comprising an actuating device for moving said locking member into and out of its locking position, a cam connected with the registering mechanism of said register, a second cam connected with said resetting mechanism, and means including an operating member actuated by said cams for moving said actuating device in a direction to cause said locking member to be moved to its locking position when said registering mechanism is operated and for moving said actuating member in a direction to cause said locking member to be retracted when said resetting mechanism is operated.

10. In a liquid dispensing apparatus comprising a delivery hose, a nozzle carried by said hose, a support for said nozzle when it is not in use, a register to register items relating to the liquid dispensed, and means for resetting said register to zero, a device for locking said nozzle on said support including a locking member, means comprising an actuating device for moving said locking member into and out of its locking position, a cam connected with the registering mechanism of said register, a second cam connected with said resetting mechanism, means including an operating member actuated by said cams for moving said actuating device in a direction to cause said locking member to be moved to its locking position when said registering mechanism is operated and for moving said actuating member in a direction to cause said locking member to be retracted when said resetting mechanism is operated, and means controlled by said operating member to cause said actuating device to be moved in each direction with a snap action.

11. In a liquid dispensing apparatus, comprising a delivery hose, a nozzle carried by said hose, a support for said nozzle when it is not in use, a register to register items relating to the liquid dispensed, and means for resetting said register to zero, a device for locking said nozzle on said support including a movable member, a locking member connected with said movable member for movement therewith and for movement with relation thereto, a spring to control the movement of said locking member with relation to said movable member, an actuating device operatively connected with said movable member to cause said locking member to be moved into and out of its locking position, an operating member to move said actuating device alternately in opposite directions, and means actuated respectively by the registering mechanism of said register and said resetting mechanism to control the movements of said operating member.

12. In a liquid dispensing apparatus comprising a delivery hose, a nozzle carried by said hose, a support for said nozzle when it is not in use, a register to register items relating to the liquid dispensed, and means for resetting said register to zero, a device for locking said nozzle on said support including a movable member, a locking member connected with said movable member for movement therewith and for movement with relation thereto, a spring to control the movement of said locking member with relation to said movable member, an actuating device operatively connected with said movable member to cause said locking member to be moved into and out of its locking position, a pivotal operating member connected with said actuating device and having contact surfaces on the respective sides of its pivotal axis, plungers contacting the respective contact surfaces, and cams connected respectively with the registering mechanism of said register and with said resetting mechanism and arranged to act on the respective plungers.

13. In a liquid dispensing apparatus, a delivery hose, a nozzle connected with said hose and having a lug depending therefrom and provided with a beveled lower edge, a support for said nozzle comprising a socket adapted to receive said lug and provided in one wall with an opening, said lug having a recess arranged to be alined with said opening when said lug is inserted in said socket, a register to register items relating to the liquid dispensed and including mechanism to reset said register to zero, a device for locking said lug in said socket including a stationary guide, a tubular member slidably mounted on said guide, a bolt slidably mounted in said tubular member and having one end projecting beyond said tubular member and arranged to be moved through the opening in the wall of said socket into the recess in said lug, said bolt having a slot, a pin rigidly mounted in said tubular member, extending through the slot in said bolt and projecting beyond the respective sides of said tubular member, a spring acting on said bolt to yieldingly hold said bolt in its fully projected position, an actuating device having cam slots embracing the respective ends of said pin, an operating member pivotally supported near one end thereof, a rod connecting said operating member with said actuating device, said operating member having contact surfaces on opposite sides of its axis, plungers contacting with the respective contact surfaces, cams connected respectively with the registering mechanism of said register and with said resetting mechanism and arranged to act on the respective plungers, and thereby cause movement to be imparted to said actuating device.

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