

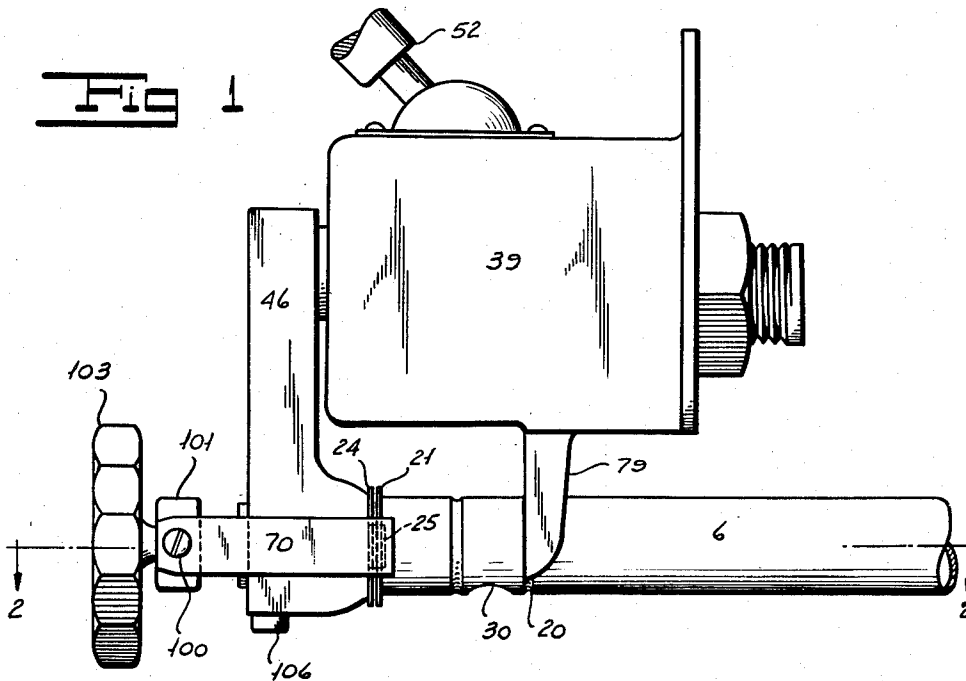
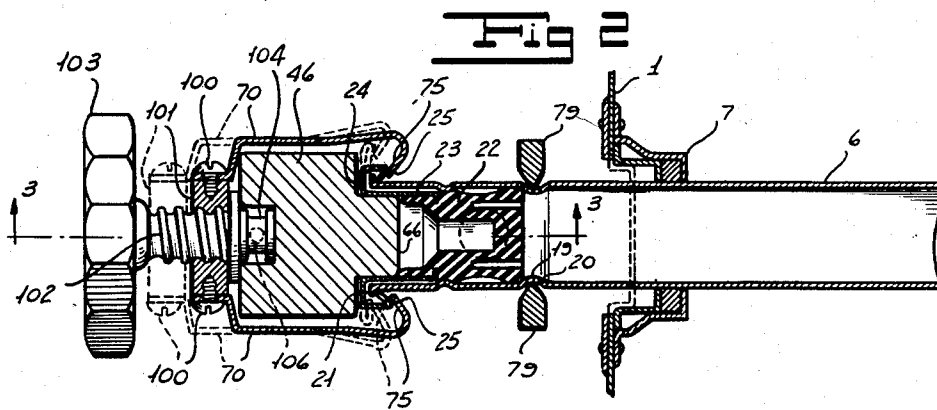
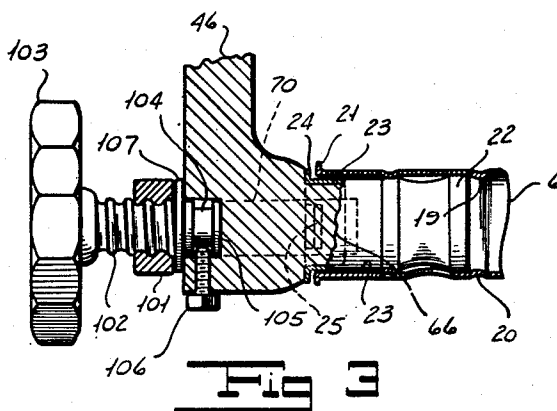
Aug. 4, 1953

J. A. HOPWOOD

2,647,532

VALVE OPERATING MECHANISM

Filed May 24, 1949



INVENTOR.
JOHN A. HOPWOOD
BY *Cornelius Zaluski*
ATTORNEY

UNITED STATES PATENT OFFICE

2,647,532

VALVE OPERATING MECHANISM

John A. Hopwood, Westfield, N. J., assignor to
Monitor Process Corporation, Jersey City, N. J.,
a corporation of New Jersey

Application May 24, 1949, Serial No. 94,950

3 Claims. (Cl. 137—315)

1

This invention relates to liquid dispensers and is directed more particularly to an improvement on the apparatus of United States Patent No. 2,186,083, issued January 9, 1940 to Monitor Process Corporation, as assignee of William Tamminga. That patent disclosed a liquid dispenser especially intended for dispensing milk from milk delivery cans, such as are commonly used by farmers, creameries, and wholesale dealers. The primary purpose of that invention was to provide apparatus whereby milk could be dispensed by the glassful in restaurants, hospitals and other public places in a thoroughly sterile and efficient manner.

Generally speaking the apparatus of the prior patent embodies a cabinet adapted to receive a can and equipped with a discharge tube mounted for sliding movement through a liquid tight fitting in the side of the can. The tube may be withdrawn from the can to extend through an opening in the door of the cabinet and is attached to a manually operable dispensing unit. The discharge tube is provided in its outer end with a slide valve which may be moved longitudinally of the tube by the dispensing unit to cover or uncover a discharge opening in the bottom of the tube and near its outer end, so that the dispensing of the milk is controlled by the dispensing unit.

During shipment of the can it is necessary to lock the slide valve in position and said valve is therefore provided with a metal clip having at its outer end an annular flange provided with oppositely projecting bendable tongues. These tongues, during shipment of the can, are engaged with a radial flange on the outer end of the discharge tube. The dispensing unit is so constituted that, when attached to the tube, it may be utilized to bend the tongues free from the flange of the tube and at the same time lock the slide valve to the dispensing unit so that the subsequent operations of the dispensing unit are transmitted to the slide valve to effect the delivery of milk when desired.

In said prior patent, the means for disengaging the tongues from the flange of the tube and for locking the slide valve to the dispensing unit are specifically in the form of grippers, adapted to be cam actuated to unbend the tongues and lock the slide valve to the dispensing unit. This means is thoroughly satisfactory from an operative standpoint but provides recesses in which dirt or foreign matter may possibly lodge and it is the object of the present invention to substitute, for these cam operated grippers, a more

2

sanitary and hygienic construction and at the same time simplify the structure and render it more economical to manufacture.

The present invention utilizes the grippers of the prior patent, but the operation of these grippers is controlled by a manually operable hand wheel having a threaded connection with the valve carrying arm on which the grippers are mounted and to which the valve is secured by such grippers. Said grippers are now mounted on a traveller, through which is threaded the stem of the hand wheel and said hand wheel is normally locked against axial movement by a set screw or other convenient means, so that when the hand wheel is turned, the traveller moves axially of the wheel to operate the grippers to the end that they will perform the functions described in the prior patent.

Features of the invention, other than those adverted to, will be apparent from the herein-after detailed description and appended claims, when read in conjunction with the accompanying drawing.

The accompanying drawing illustrates one practical embodiment of the invention, but the construction therein shown is to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a side elevation of so much of the apparatus as is necessary for a full understanding of this invention.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a section on the line 3—3 of Figure 2.

In the following detailed description, I have used, insofar as possible, reference characters corresponding to those used in the aforesaid prior patent, so that the relationship of the parts will be more clearly apparent.

As shown in the drawings, 6 designates a discharge tube mounted for sliding movement in the can to be contained in the cabinet. This discharge tube is mounted for sliding movement through a liquid tight fitting mounted in a sheet metal cup 7 in the side wall of the can 1. The outer end of the tube 6 has a radial flange 21 and spaced from this flange is an external channel 20 forming an internal boss which provides an internal valve seat 19.

Into the outer end of the discharge tube is a slide valve, comprising a rubber sealing member 22 permanently associated with a metal clip 23 and at the outer end of the metal clip is an annular flange 24 provided with oppositely pro-

3

jecting bendable tongues 25. When the can is filled for shipment, these tongues are bent over the flange 21 of the tube, as shown in full lines in Figure 2 and serve to lock the slide valve firmly within the outer end of the tube 6. When milk is to be dispensed, the can is placed in a cabinet provided with a door having an opening, so that the dispensing tube may be withdrawn from the can through said opening and project beyond the outer face of said door. Mounted on the door above the tube is a housing 39 having a depending bifurcated bracket 79 which, when engaged with the external channel 20 of the tube 6 locks said tube against axial movement.

Carried on said housing 39 is a valve carrying arm 46 which may be moved toward and away from the door of the cabinet by manually manipulating a hand lever 52, as fully disclosed in said prior patent. On the rear face of this valve carrying arm is a cylindrical boss 66 axially aligned with and projecting into the outer end of the tube 6 and into the valve clip 23 to seat against the rubber valve part 22 of said valve and form therewith an airtight joint.

At the opposite sides of the arm 46 are the grippers 70, the forward end of each gripper being hooked as shown at 75 to engage with the tongues 25. The rear end of each gripper is detachably secured by a screw 100 to a traveller 101, which is in effect a nut adapted to travel on the threaded shank 102 of a hand wheel 103. The end of the shank 102 is unthreaded and is provided with an annular channel 104. This channelled end of the shank extends into a cylindrical socket 105 coaxial with the tube 6 and formed in the arm 46. A set screw 106 normally locks the shank and hand wheel to the arm 46, so that, when said hand wheel is rotated, it remains axially stationary but causes the traveller 101 to move axially thereof and carry with it the grippers 70. When thus locked to the arm, the movements of said arm, occasioned by manual operation of the hand lever 52 cause the slide valve to be moved longitudinally of the tube 6 to uncover or cover the discharge opening 30 of the discharge tube. The movement of the grippers is accomplished by operation of the hand wheel, as shown best in Figure 2. In order to close and seal the opened end of the socket 104, the shank 102 preferably carries an enlarged flange 107 which seats against the contiguous face of the arm.

The grippers operate in the same manner and for the same purpose as described in said prior patent. In other words, they serve to bend the tongues 25 outwardly to unlock the slide valve from the grippers when moved from the full line position of Figure 2 to the dotted line position thereof and, when in the latter position, they serve to lock the slide valve to the arm 46.

The advantage of the foregoing construction over the structure of the prior patent is that

4

the gripper operating means is extremely simple in construction and it embodies no spaces where dirt and other extraneous matter may accumulate. All parts of the structure are open and accessible for cleaning without dismantling. Moreover, the removal of the screw 106 will permit the shank, traveller and grippers to be readily removed from the arm 46 for more thorough cleansing should this be desired. The threads on the shank are preferably of rounded contour and the same is true of the cooperating threads in the traveller so that there are no sharp corners or crevices in which foreign matter may accumulate.

The foregoing detailed description sets forth the invention in its preferred practical form, but the invention is to be understood as fully commensurate with the appended claims.

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

1. In an apparatus for dispensing milk from a delivery can through a discharge tube having therein a slide valve with bendable tongues normally locking the slide valve to the tube; a valve operating arm, grippers adapted to engage and bend the tongues of the slide valve to unlock said slide valve from the tube and lock said slide valve to the arm for conjoint operation therewith, a traveller secured to the grippers and having a threaded opening, a manually operable threaded member passing through the threaded opening of the traveller, and means to lock the threaded member to the arm against axial movement while permitting rotary movement of the threaded member.

2. Apparatus as claimed in claim 1, wherein the threaded member extends into a socket in the arm and is provided therein with a circumferential channel, and a set screw threaded into the arm and extending into the channel to secure the threaded member against axial movement while permitting rotation of said threaded member.

3. Apparatus as claimed in claim 1, wherein the threaded member is a threaded shank which extends into a socket in the arm with means to lock said shank in said socket to the arm against axial movement relation thereto while permitting rotation of the shank, and wherein the threaded shank is provided with a flange overlying the open end of the socket and serving to seal said socket.

JOHN A. HOPWOOD.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,451,852	Verdoorn	Apr. 17, 1923
1,469,076	Faber	Sept. 26, 1923
2,186,083	Tammingsa	Jan. 9, 1940
2,230,534	Elmer	Feb. 4, 1941