Oct. 18, 1932. J. B. GUNN 1,882,812

DISPENSING APPARATUS

Original Filed Dec. 16, 1929 2 Sheets-Sheet 1

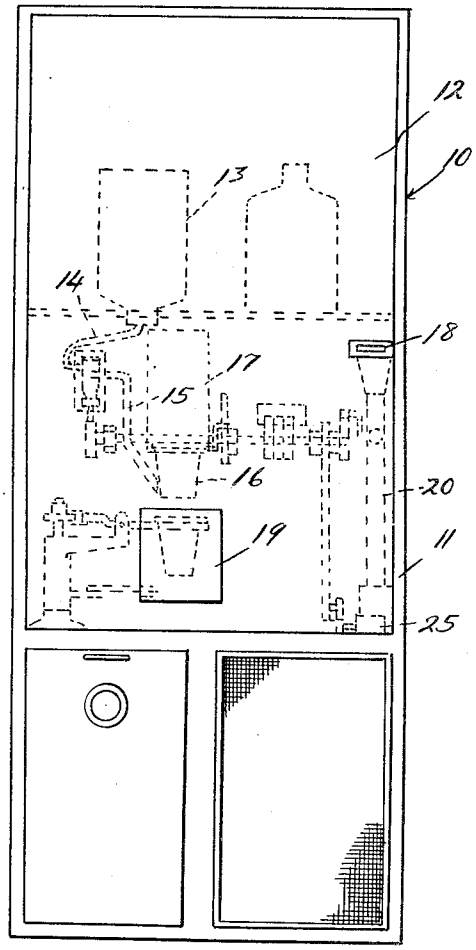


Fig. 1.

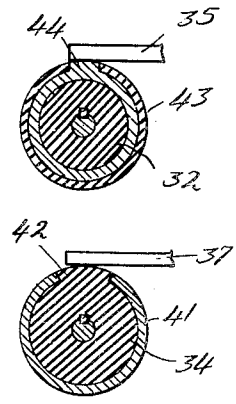


Fig. 4.

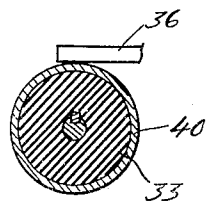


Fig. 5.

Fig. 6.

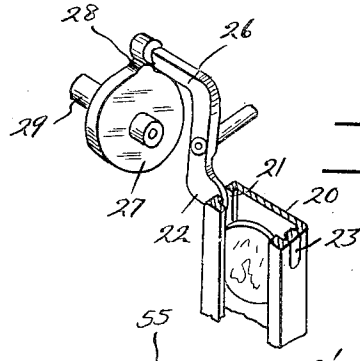


Fig. 7.

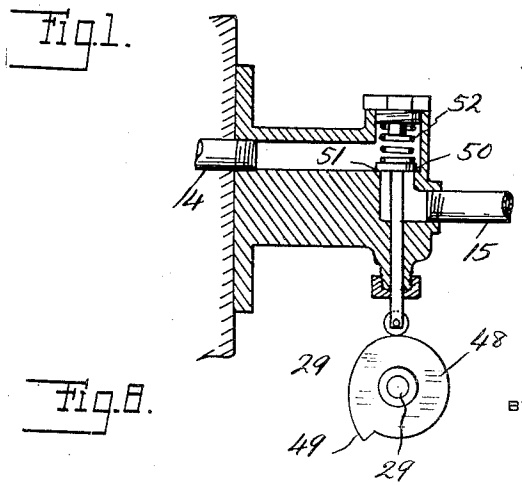


Fig. 8.

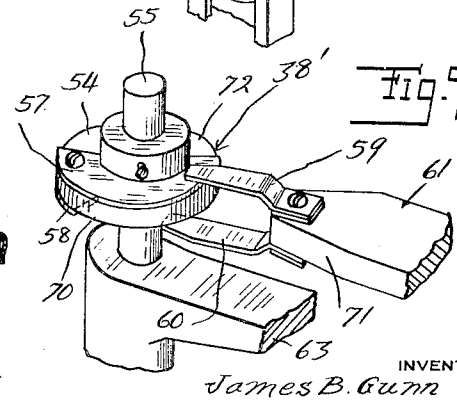


Fig. 9.

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DISPENSING APPARATUS

Original Filed Dec. 16, 1929 2 Sheets-Sheet 2

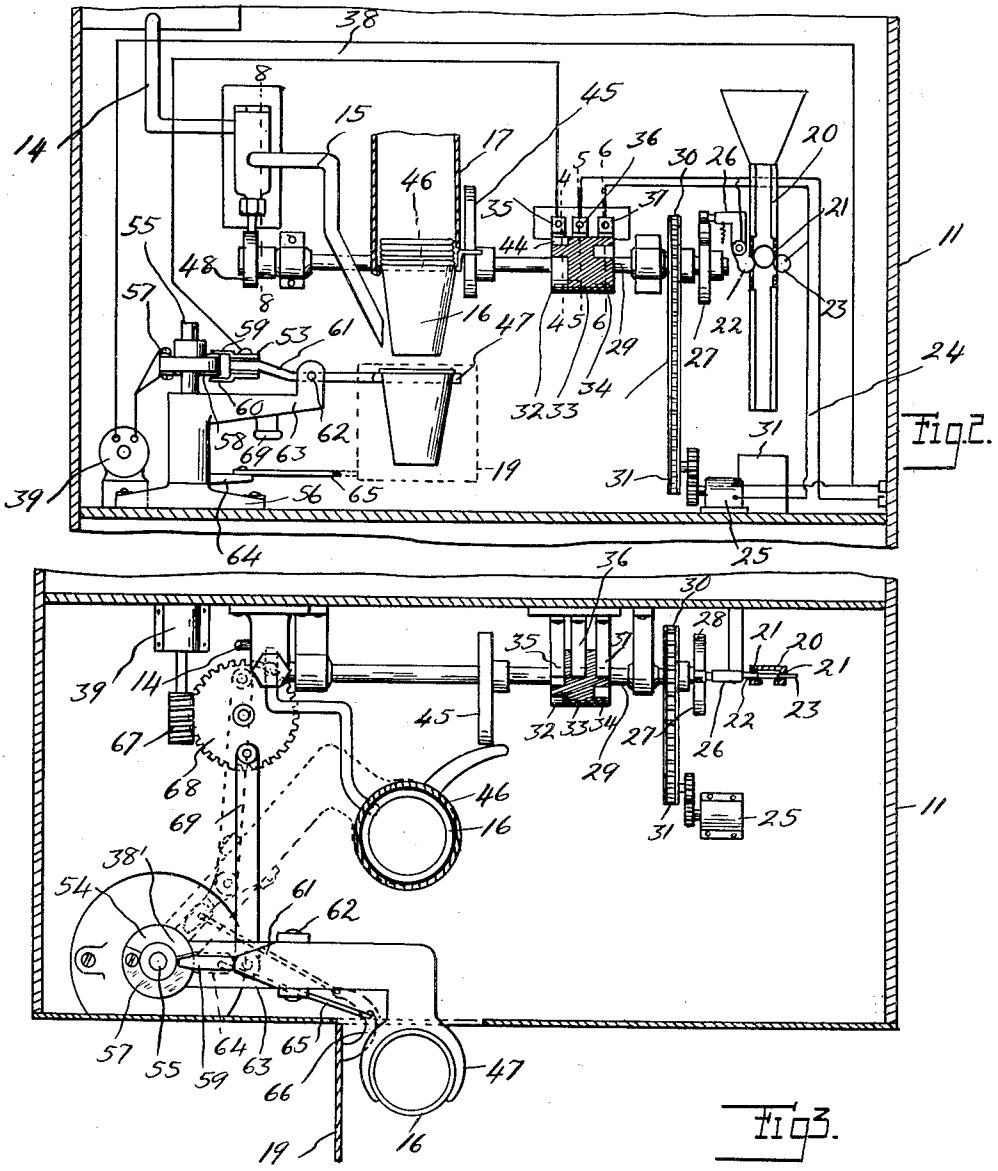


Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE

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DISPENSING APPARATUS

Application filed December 16, 1929, Serial No. 414,539. Renewed February 11, 1932.

This invention relates to dispensing apparatus and has particular reference to coin controlled dispensing devices.

While the apparatus illustrated herein is capable of dispensing various products it finds particular utility when used for dispensing liquids such as soft drinks and the like and to this end the invention consists in providing liquid dispensing apparatus wherein the liquid discharge spout and containers for receiving the liquid are enclosed within a suitable casing. This arrangement is especially advantageous from a sanitary point of view since it prevents dust or other impurities from coming into contact with the spout and also prohibits handling the latter.

A further advantageous feature of the present invention resides in the provision of liquid dispensing apparatus which is thoroughly automatic in operation and which, in addition to successively releasing the containers and filling the same with liquid, also operates to transfer the filled containers from a point within the casing through a suitable door opening in the latter to a position where they may be conveniently grasped by the user.

With the foregoing as well as other objects in view, the invention resides in the peculiar construction of the dispensing apparatus which will be made more apparent as this description proceeds especially when considered in connection with the accompanying drawings wherein:

Figure 1 is a diagrammatic side elevational view illustrating my improved dispensing apparatus.

Figure 2 is a view similar to Figure 1 showing various parts broken away for the sake of clearness.

Figure 3 is a top plan view partly in section of the construction shown in Figure 2.

Figures 4, 5 and 6 are sectional views taken respectively on the lines 4—4, 5—5 and 6—6 of Figure 2.

Figure 7 is a fragmentary perspective view illustrating the coin releasing mechanism.

Figure 8 is a sectional view taken on the line 8—8 of Figure 2 and

Figure 9 is a fragmentary perspective view of a portion of the door operating mechanism.

Generally described there is illustrated in Figure 1 a liquid dispensing device 10 comprising a cabinet or casing 11 having a storage compartment 12 for receiving the liquid containers 13. One of the containers 13 is adapted to be inverted in the storage compartment and connected by means of the tubing 14 to a suitable faucet 15 having the discharge end thereof arranged adjacent a series of containers 16. The containers 16 are supported in nested relation within a tube 17 in accordance with the usual practice. The general arrangement is such that upon insertion of a coin within the slot 18 formed in the front wall of the casing, the lowermost container 16 is automatically released from the tube 17 and dropped to a position opposite the door 19 formed in the front wall of the casing. When this operation is completed, the faucet 15 is automatically actuated to discharge a predetermined quantity of liquid into the released container, after which the door 19 is automatically opened and the container moved to the full line position illustrated in Figure 3 wherein it may be conveniently grasped by the user.

Referring now more in detail to the mechanism for accomplishing the foregoing results and with special reference to Figure 2, it will be noted that upon insertion of a coin within the slot 18 the same is deposited in a guide way 20 having diametrically opposed slots 21 in the side walls thereof and intermediate the ends of the same. Arranged upon opposite sides of the guide way 20 and having portions extending through the slots 21 into the path of travel of the coin through the guide way, are contact members 22 and 23. The contact members are connected to opposite sides of an electric circuit 24 adapted to supply current to an electric motor 25. As shown particularly in Figure 2 the contact member 22 is in the form of a bell crank lever 26 having one arm extending through the slot 21, as specified above, and having the opposite arm engaging a rotatable cam 27 provided with a radial projecting cam surface 28. The cam 27 is secured to a shaft 29 having a sprocket

wheel 30 secured thereto and connected, by means of a chain, to a corresponding sprocket wheel 31 driven by the electric motor 25. The arrangement is such that when a coin is inserted within the guide way 20 it bridges the space between the contacts 22 and 23 and as a consequence closes the circuit 24 to the motor which in turn actuates the shaft 29 to rotate the cam 27. One complete revolution of the cam 27 causes the cam surface 28 to rock the bell crank lever 26 about its pivot in a direction to withdraw the contact 22 from the path of travel of the coin. Actuation of the bell crank lever 26, as just described, releases the coin from its position illustrated in Figure 2 and thereby breakes the circuit to the motor 25.

Keyed to the shaft 29 for rotation therewith are three contact disks 32, 33 and 34 arranged in juxtaposition and adapted to be engaged by the brushes 35, 36 and 37, respectively. The brushes 36 and 37 are connected to opposite sides of the electric circuit 24 while the brush 35 is connected in a second electric circuit 38 adapted to supply current to a switch 38′ adapted to control a suitable electric motor 39 in a manner to be more fully hereinafter described. As shown particularly in Figures 4 to 6, inclusive, of the drawings, it will be noted that the central contact rotor 33 is provided with a metallic rim 40 extending circumferentially around the rotor and adapted to engage the brush 36. The rotor 34 differs from the rotor 33 in that the ends of the metallic rim 41 thereon are spaced from each other by means of suitable insulating material 42. The rotor 32 on the other hand is provided with a non-metallic rim 43 of insulating material having a comparatively small portion of the periphery thereof interrupted by means of a contact or metallic surface 44. The relative positions of the rotors and brushes when the apparatus is in inoperative position are as shown in Figures 4, 5 and 6 wherein the brush 35 is in engagement with the metallic surface 44 on the periphery of rotor 32 and the brush 37 is in engagement with the insulating material 42 positioned between the ends of the rim 41 on the rotor 34. Thus it will be observed that in the inoperative position of the apparatus the circuit through the rotor 33 and rotor 34 to the electric motor 25 is broken while the circuit to the motor 39 is controlled by the switch 38′ to be presently described. Assuming that the parts are in the above position and a coin is inserted within the guide way 20, the motor 25 will be actuated to rotate the shaft 29 in a manner hereinbefore set forth. Rotation of the shaft 29 produces a corresponding rotation of the rotors 32, 33 and 34 with the result that the insulating material 42 on the rotor 34 is moved beyond the brush 37 permitting the latter to contact with the metallic rim 41 thus completing the circuit 24 through the brush 36, rim 40 on the rotor 33, rim 41 on the rotor 34 to the motor 25. The construction is such as to permit actuation of the motor 25 after the coin is released from the guide way 20 by the bell crank 26 and cam 27. Continued rotation of the shaft 29 by the motor 25 causes the cam 45 on the shaft 29 to actuate the releasing band 46 to permit the lowermost container 16 in the casing 17 to drop into a receiver 47 arranged opposite the door 19 in the casing.

After one of the containers 16 has been released from the casing 17 and properly positioned within the receiver 47, the faucet 15 is actuated to permit a predetermined quantity of liquid to flow into the released container. This is accomplished by the provision of another cam 48 actuated by the shaft 29 and having a cam surface 49 engageable with the faucet valve 50 to move the same away from its seat 51 against the action of the spring 52. Movement of the valve 50, as specified above, permits the liquid in the tube 14 to flow past the valve 50 and through the faucet spout into the container. When the faucet 15 has been operated to deposit a quantity of liquid in the released container, the contact rotors 32, 33 and 34 have been rotated one complete revolution and assume their original position wherein the insulating portion 42 on the rotor 34 engages the brush 37 thereby breaking the circuit 24 to the motor 25 and the contact portion 44 of the rotor 32 is in engagement with the brush 35 thereby completing the circuit 38 to the switch 38′.

As shown in Figure 9, the switch mechanism 38′ comprises a disk 54 keyed to a vertical shaft 55 non-rotatably mounted upon a bracket 56 which in turn is secured to the casing. Secured to the upper and lower surfaces of the disk 54 are semi-circular contact plates 57 and 58 arranged upon diametrically opposite sides of the disk. Positioned to alternatively engage the contact plates are the brushes 59 and 60 secured to one end of an arm 61. The arm 61 is pivoted intermediate the ends as at 62 upon a swinging bracket 63 and terminates at the opposite end in an annular portion forming the receiver 47 for the containers. The bracket 63 is rotatably mounted upon the vertical shaft 55 so as to rotate about the axis of the disk and is provided with a laterally projecting arm 64 adjacent the lower end thereof adapted to be connected to the door 19 by means of a link 65 having one end pivotally mounted upon the bracket and the opposite end pivotally connected to the door as indicated at 66. For actuating the bracket 63, the drive shaft of the motor 39 is provided with a worm 67 adapted to mesh with a worm wheel 68 having a link 69 pivoted thereto adjacent the periphery thereof. The link 69 is connected to

the bracket 63 adjacent the free end thereof.

Referring now to the operation of the mechanism just described, it will be observed from Figure 2 that after the container is filled with a predetermined amount of liquid, the weight of the latter will cause the end of the arm 61 supporting the container to swing downwardly about the pivot 62 until the brush 60 engages the contact plate 58 on the underside of the rotor 54. When the brush 60 engages the contact plate 58, the circuit to the motor 39 is closed thereby causing the gear 68 to rotate. Rotation of the gear 68 causes the bracket 63 to swing outwardly to first open the door 19 and subsequently project the filled container through the opening in the casing as shown in Figure 3 of the drawings. When the door and container are in the position illustrated by the full lines in Figure 3 it will be observed that the lower brush 60 of the switch is in engagement with the insulated portion 70 of the rotor 54 between the ends of the contact plate 58 with the result that the circuit to the motor 39 is broken.

Upon removing the container from the end aforesaid of the arm 61, the opposite end 71 of the latter is of sufficient weight to overbalance the container receiving portion 47 and thereby moves downwardly causing the brush 59 to contact with the plate 57 which again closes the circuit to the motor 39 and permits the latter to close the door 19 and restore the portion 47 to its normal position. When this latter operation is completed, the brush 59 engages the insulated portion 72 of the disk between the ends of the plate 57 with the result that the circuit to the motor 39 is again broken. In this connection it is to be noted that the contact plates 57 and 58 are so arranged upon the disk 54 that when either of the brushes 59 or 60 are in engagement with the insulated portions 70 or 72, the other brush will be in a position to engage the corresponding contact plate.

What I claim as my invention is:

1. Liquid dispensing apparatus having in combination, a casing having an opening in one wall thereof, coin controlled means arranged within the casing for discharging a quantity of liquid into a container also located within the casing, and means actuated by the liquid dispensed to move the container out of the casing through the opening therein.

2. Liquid dispensing apparatus having in combination, a casing provided with an opening in one wall thereof, liquid discharging means arranged within the casing, means for positioning a container in operative relation to the liquid discharging means, coin controlled mechanism for automatically actuating both of said means in timed relation to each other, and means actuated by the liquid discharged into the container for automatically moving the container out of the casing through the opening therein.

3. Liquid dispensing apparatus having in combination, a casing provided with an opening in one wall thereof, a door for the opening, coin controlled means arranged within the casing for discharging a predetermined quantity of liquid into a container also positioned within the casing, and means automatically operable by the liquid within the container to open said door and move the container through said opening.

4. Liquid dispensing apparatus having in combination, a casing provided with an opening in one wall thereof, a door for the opening, liquid discharging means arranged within the casing, a member for supporting a container within the casing in a position to receive liquid discharged by said means, coin controlled mechanism for actuating said means to discharge a predetermined quantity of liquid in the container, and means automatically operable by the liquid in the container to open said door and move the container through the opening aforesaid, said means also operable upon removing the container from said member to automatically close said door and return the supporting member for the container to its original position.

5. Liquid dispensing apparatus having in combination, a casing provided with an opening in one wall thereof, coin controlled means arranged within the casing for discharging a quantity of liquid into a container also arranged within the casing, and fluid actuated means for automatically moving the container through the opening aforesaid.

6. Liquid dispensing apparatus having in combination, a casing having an opening in one wall thereof, means arranged within the casing for discharging a quantity of liquid into a container also located within the casing, and means controlled by the weight of the liquid in the container to move the container out of the casing through the opening therein.

7. Liquid dispensing apparatus having in combination, a casing provided with an opening in one wall thereof, means within the casing for discharging a predetermined quantity of liquid into a container also located within the casing, and means controlled by the weight of the predetermined quantity of liquid to move the container out of the casing through the opening therein.

8. Liquid dispensing apparatus having in combination, a casing provided with an opening, means arranged within the casing for discharging a predetermined quantity of liquid into a container located within the casing, and means controlled by the weight of the material in the container to move the container out of the casing through the opening therein.

9. Liquid dispensing apparatus having in combination, a casing provided with an opening, material discharging means arranged within the casing, means for positioning a container in operative relation to said material discharging means, and means controlled by the material discharged into the container for automatically moving the container out of the casing through the opening therein.

10. Liquid dispensing apparatus having in combination, a casing provided with an opening in one wall thereof, a door for the opening, means within the casing for discharging a predetermined quantity of material into a container also arranged within the casing, and means automatically operable by the material within the container to open said door and move the container through said opening.

11. Liquid dispensing apparatus having in combination, a casing provided with an opening in one wall thereof, a door for the opening, material discharging means arranged within the casing, a member for supporting a container within the casing, and means automatically operable by the material discharged into the container to open said door and move the container through the opening aforesaid, said means also operable upon removing the container from said member to automatically close said door and return the supporting member for the container to its original position.

In testimony whereof I affix my signature.

JAMES B. GUNN.