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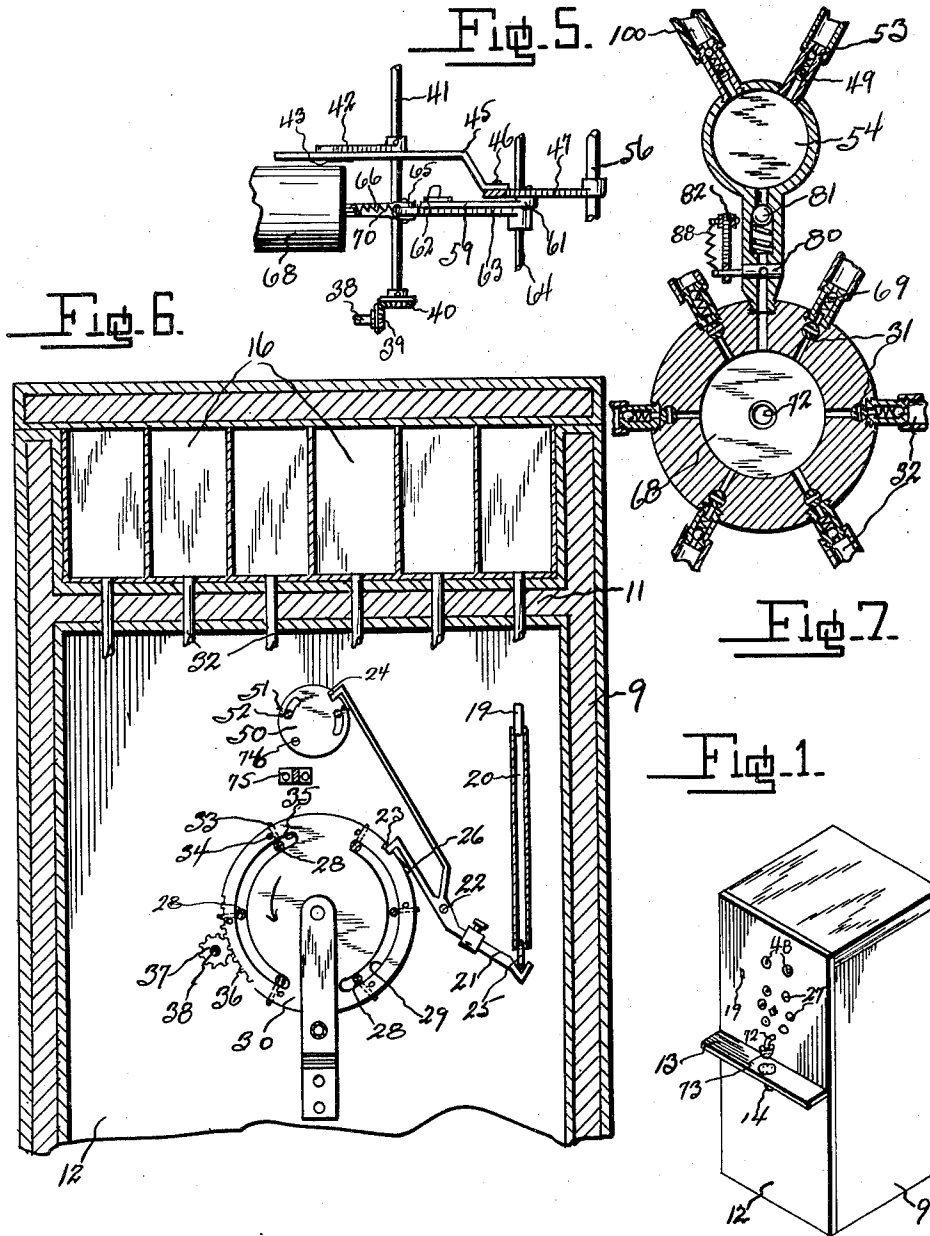
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C. E. ESTES

SELECTIVE DRINK VENDING MACHINE

Filed March 11, 1925

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

Fig. 2.

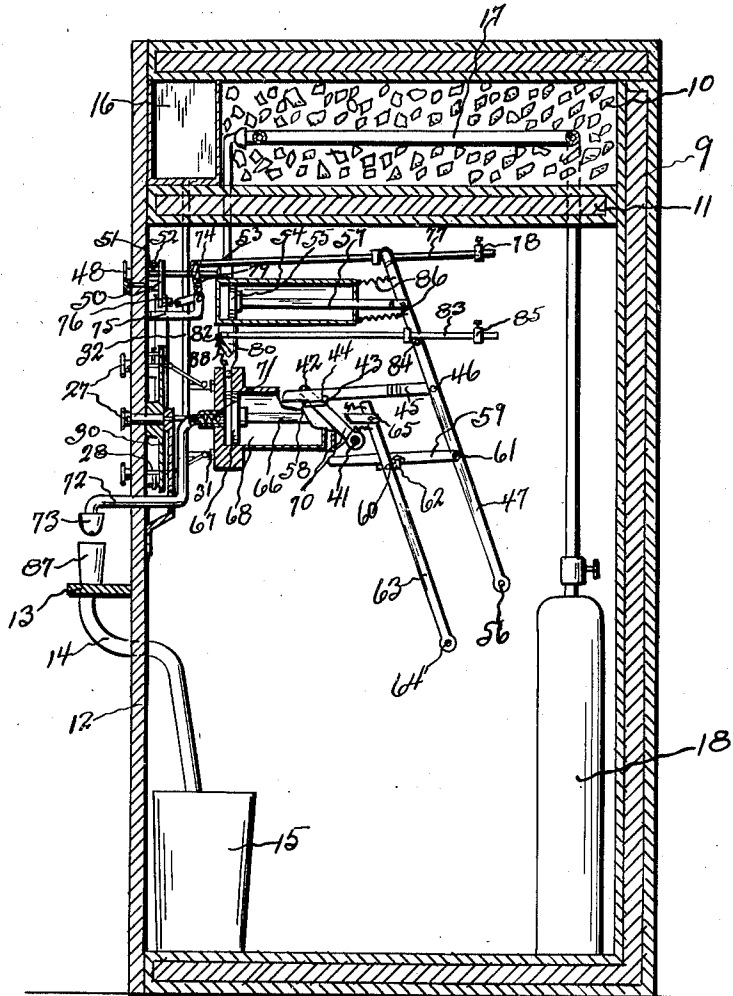
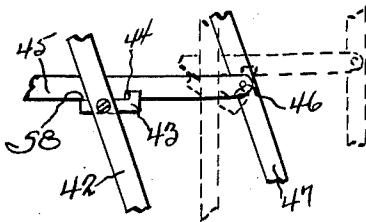


Fig. 3.



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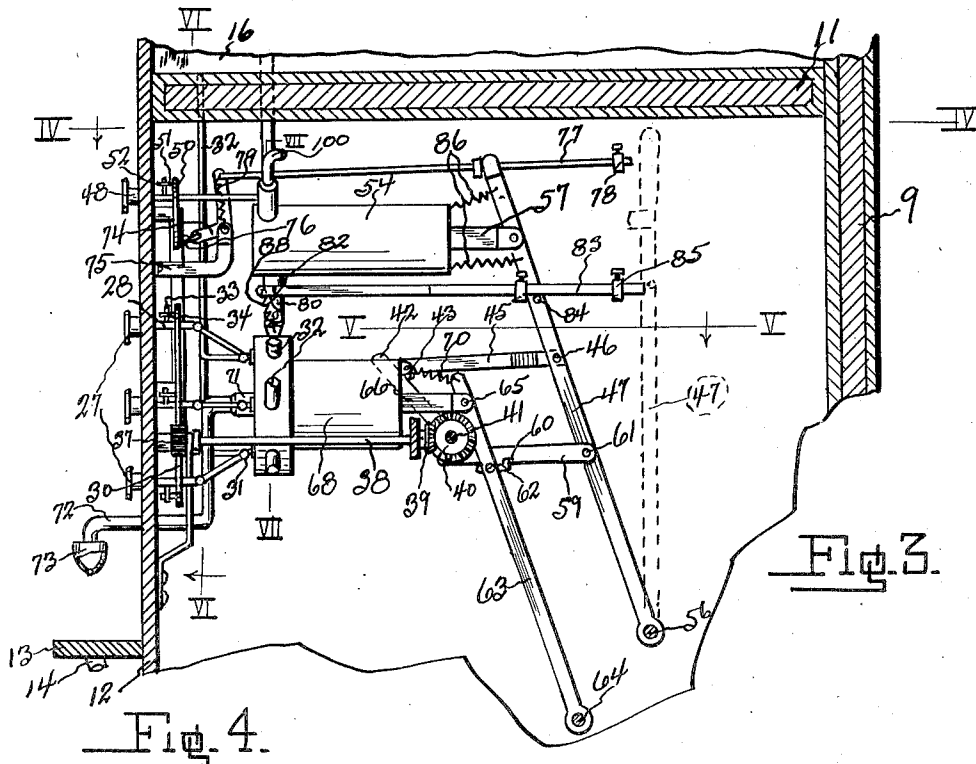
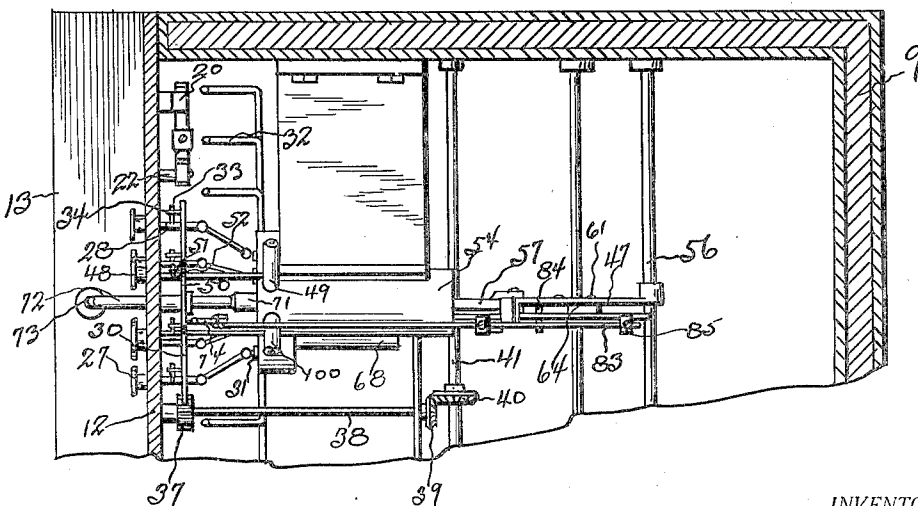
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

CLEVELAND E. ESTES, OF KANSAS CITY, KANSAS.

SELECTIVE-DRINK-VENDING MACHINE.

Application filed March 11, 1925. Serial No. 14,623.

To all whom it may concern:

Be it known that I, CLEVELAND E. ESTES, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Selective-Drink-Vending Machines, of which the following is a complete specification.

This invention relates to vending machines and particularly to machines used for dispensing drinks of various flavors, either hot or cold.

The primary object of this invention is the provision of a vending machine which may be placed in a public location and used by any one desiring to operate the same and procure a drink therefrom.

In machines of this character which have heretofore been used, it is well known that the drink procurable from the same is one of but a single flavor and a different machine must be used to dispense a drink of a different flavor. It is the primary object of this invention to provide a vending machine which will permit the user to select any one of a large number of flavors by simply actuating the flavor indicating handle positioned exteriorly of the machine.

A further object of this invention is to provide a vending machine which has a simple means of mixing the desired drink without the use of the customary throw-lever for drawing the mixed drink from the machine.

An even further object of this invention is the provision of means for utilizing the stored pressure in a carbonated water tank for imparting the necessary force to the working parts of the machine.

A still further object of this invention is the provision of novel means for returning the vending mechanism to its normal position after the same has been actuated to procure a drink of any desired flavor.

One of the preferred ways of constructing a vending machine in accordance with this invention is shown in the accompanying drawings in which

Figure 1 is a perspective view of the vending machine showing the front construction.

Fig. 2 is a vertical central section of the vending machine.

Fig. 3 is a fragmentary view of the machine with one of its sides removed to show the working parts thereof.

Fig. 4 is a fragmentary cross section of the same taken on line IV—IV of Fig. 3.

Fig. 5 is a broken out section of a portion of the operating members taken on line V—V of Fig. 3.

Fig. 6 is a section of the upper portion of the vending machine taken on line VI—VI of Fig. 3 and showing the over-lying syrup containers.

Fig. 7 is an enlarged detailed section of the cylinder heads taken on line VII—VII of Fig. 3, and,

Fig. 8 is a detailed section of a portion of the operating arms showing the method of releasing their hold on the link.

In the drawings wherein similar reference characters refer to like parts throughout the several views, the cabinet 9 in which the mechanism, syrups, and carbonated water is stored, should be constructed of heavy insulated walls to maintain the interior thereof as cold as possible after it has been cooled by placing ice 10 in the upper compartment which is separated from the lower portion of the cabinet by a partition 11. The front of the cabinet may, though not necessarily, be constructed of a marble panel 12 which supports a shelf 13 beneath the delivery nozzle of the machine. This shelf 13 is used to hold the glass for receiving the mixed drink, and may also include a waste pipe 14 which empties into any suitable receptacle 15 placed inside the cabinet 9. The upper compartment of the cabinet which is normally filled with ice 10 as shown in Fig. 2, holds the syrup containers 16 as well as the coils of pipe 17 through which the carbonated water used in mixing the drink is caused to pass from the well known carbonated water storage tank 18 also confined within the lower part of cabinet 9.

As is customary, it is desirable to release the operating mechanism of this machine through the use of a coin and, since the specific coin operating means is not particularly claimed in this application, the same may be shown to be a coin slot 19 cut into the front panel 12 and communicating with a coin passage 20 which guides the coin to the lower part of lever 21 as shown in Fig. 6. Lever 21 is pivotally mounted as at 22 and continues upwardly to engage notches 23 and 24 formed in two of the later described disks. When the coin 25 is dropped in the position as shown in Fig. 6, its weight will cause le-

ver 21 to pivot upon point 22 thereby lifting its upper ends out of engagement from notches 23 and 24. This will permit the mechanism to be actuated and the drink procured before the inclined member 26 tips lever 21 far enough to cause coin 25 to fall from its seated position. Any desirable coin operated mechanism may be used in connection with the present invention.

Referring at this time to the actual flavor selecting mechanism and mixing chambers, as well as the several parts necessary in carrying out the proper functioning of the machine, 27 designates the operating handles supported on the front of the machine by panel 12. In this instance the machine has been designed to supply any one or any combination of six flavors. Each of operating handles 27 is mounted upon a shaft 28 which extends inwardly through slot 29 of disk 30 to be connected to valve 31 positioned to open or close the pipe 32 leading from one of the flavor containers 16. In turning handle 27, pin 33 rigidly secured to shaft 28, engages pin 34 which is supported by disk 30. It will thus be seen that when turning one or more of handles 27, disk 30 will be rotated in the direction of the arrow shown in Fig. 6 to a point where the end 35 of slot 29 will engage shaft 28. A portion of the periphery of disk 30 is provided with teeth 36 which mesh with gear 37 rigidly supported by one end of shaft 38, the other end of which carries bevel gear 39 in mesh with a similar gear 40 carried by shaft 41 extending at right angles to shaft 38. This shaft 41 supports arm 42 which carries releasing trigger 43 adapted to engage notch 44 in link 45. Link 45 is pivotally connected as at 46 to main arm 47 and travels therewith when the machine is actuated.

After the flavor has been selected and the appropriate valve opened by turning one of handles 27, the handle 48 which controls valve 49 is then turned to admit the necessary supply of carbonated water from tank 18 through coils 17. In turning handle 48 a similar disk 50 is turned through the means of pins 51 and 52. Immediately upon the opening of valve 49, the pressure in tank 18 will force carbonated water through ball valve 53 and valve 49 to cylinder 54 where it exerts a force upon piston 55 and forces it back causing main arm 47 to travel over an arcuate path having the center thereof at its lower end as at 56. Main arm 47 is attached to piston 55 by a rod 57. As main arm 47 is forced back by the carbonated water pressure, it rotates the train of gears 40, 39 and 37 through the connection of members 45 and 42 and gradually turns disk 30 in a clock-wise direction. This action gradually closes any of valves 31 which might have been opened in selecting a flavor by causing pin 34 to engage pins 33. As soon as the

valves 31 have been closed, releasing trigger 43 draws itself out of engagement with notch 44 by raising member 45 with heel 58 as clearly shown in Fig. 8. Another link 59 having a similar notch 60 is pivotally mounted upon main arm 47 as at 61. The notch 60 in link 59 engages releasing trigger 62 which is rigidly mounted upon arm 63 which is also pivoted at 64 in a manner similar to that of main arm 47. This arm 63 is pivotally attached as at 65 to rod 66 carried by piston 67 of cylinder 68. As main arm 47 is being forced back as previously described, the connection between said arm 47 and arm 63, made through member 59 and releasing trigger 60, causes piston 67 to be drawn back in cylinder 68 to suck in through ball valves 69 syrup enough to mix one drink. This amount may be varied by adjusting releasing trigger 60. Its angle determines how long link 59 remains in engagement therewith, and as soon as link 59 is lifted out of engagement with said releasing trigger 60, springs 70 snap piston 67 back to its normal position as shown in Fig. 2. Ball valves 69 preclude the syrup from passing back along pipes 32 and the same is forced out through ball valve 71 to pipe 72 and thence to mixing chamber 73. This action takes place immediately following the release of trigger 43 and immediately prior to the cutting off of valve 49 which controls the supply of carbonated water. This valve 49 is cut off by having disk 50 rotated in a clock-wise direction by member 74 which is supported by bracket 75 and attached thereto by universal joint 76. Rod 77 having adjustable collars 78 for engaging the upper end of main arm 47, is attached to member 74 and actuates the same to close valve 49 as soon as collar 78 is carried a short distance by the main arm 47. A spring 79 positively actuates this mechanism and maintains the same in either an absolute open or closed position. A similar valve 80 having a ball valve 81 in connection therewith controls the passage of carbonated water from cylinder 54 to cylinder 68 and the same is opened by having its arm 82 actuated by member 83 which is also controlled by main arm 47 through the intermediary of a pin 84 and an adjustable collar 85. Collar 78 on member 77 and collar 85 on member 83 are engaged by main arm 47 at practically the same instant which must cause valve 49 to close and valve 80 to open simultaneously. As soon as these valves are opened and closed as mentioned, the travel of piston 55 is stopped and the springs 86 return plunger 55 to the front of cylinder 54 and force the drawn-in carbonated water down to the very forward portion of cylinder 68 and out through ball valve 71, pipe 72 and into mixing chamber 73 where it is agitated and mixed with the syrup. The drink flows out into glass 87.

A spring 88 should also be provided to maintain valve 80 in either the opened or closed position. It is obvious that the adjustment of collars 78 and 85 will allow a greater or smaller quantity of carbonated water to pass into cylinder 54 before being cut off and allowed to escape, and the size of the drink may be thus controlled. Also as previously mentioned, the angle of releasing trigger 60 determines the length of time it shall remain in engagement with member 59. By varying this angle as well as the angle of releasing trigger 43, more or less syrup is permitted to be drawn into cylinder 68.

The slots 29 in disk 30 permit the opening of any number of valves to mix the flavors. Through the arrangement of pins 33 and 34 all of such valves that are opened will be closed as hereinbefore mentioned as member 42 is being drawn back. Through this construction any number of flavors may be made available and while the number here shown is six, it is desired not to be limited to any particular number.

An additional valve similar to that of valve 49 and actuated in the identical fashion is shown on cylinder 54. This may be used to control the supply of hot water when it is desired to dispense a hot drink such as coffee, tea, chocolate or the like. In this event it is only necessary to use a strong solution of chocolate, tea or coffee in the flavor container 16. Pipe 100 need only be connected with a tank of hot water. Since the pressure in carbonated water tank 18 would not be available in mixing a "hot drink", means for manually operating main arm 47 must be supplied. This manually operating means may also be used when the pressure in tank 18 becomes too weak to actuate the mechanism here shown.

While the invention has here been shown embodied in a preferred structure, it is to be understood that such modifications and changes in construction may be made without departing from the spirit of the invention. The use of particular materials in the construction of the invention is also unnecessary. For instance, the cylinders may be made of glass if desired, and the parts through which the drink passes will be made of non-rusting metal.

What is claimed is:

1. In a vending machine of the class described, means for drawing syrup including a cylinder having a piston, a cylinder for receiving a supply of liquid under pressure from a storing means having a piston actuated thereby, said piston being releasably connected to the piston of said syrup cylinder to actuate the same when syrup is being drawn, and means for releasing the connection between said pistons.

2. In a vending machine of the class described, means for storing a liquid under

pressure, a plurality of flavor syrup containers, means for drawing syrup from any one of said containers including a cylinder having a plurality of valves operable from the exterior of said cabinet each adapted to control the flow of syrup from one of said containers to said cylinder, a piston in said cylinder, a cylinder for receiving a supply of said liquid under pressure from said storing means and having a piston actuated thereby, said syrup cylinder piston and said pressure liquid cylinder piston being releasably connected and actuated by said pressure, said pressure liquid cylinder being adapted to actuate means for closing any previously opened syrup supply valves when a predetermined amount of syrup has been drawn.

3. In a vending machine of the class described having a cabinet, means for storing a liquid under pressure, a plurality of flavor syrup containers carried within said cabinet, means for drawing syrup from any one of said containers including a cylinder having a plurality of valves operable from the exterior of said cabinet each adapted to control the flow of syrup from one of said containers to said cylinder, a piston in said cylinder, a cylinder for receiving a supply of said liquid under pressure from said storing means and having a piston actuated thereby, said syrup cylinder piston and said pressure liquid cylinder piston being releasably connected and actuated by said pressure, said pressure liquid cylinder being adapted to actuate means for closing any previously opened syrup supply valves when a predetermined amount of syrup has been drawn, said valve closing means comprising a pivotally mounted disk provided with arcuate slots through which the valve stems pass to points exteriorly of said cabinet, pins carried by each of said valve stems and a co-acting pin for each valve carried by said disk and adapted to close said valve when said disk is rotated by said pressure liquid cylinder piston.

4. In a vending machine of the class described having a cabinet, means for storing a liquid under pressure, a plurality of flavor syrup containers carried within said cabinet, a syrup cylinder adapted to draw syrup from any one or more of said containers, a cylinder for receiving a charge of liquid under pressure and means interconnecting said syrup cylinder and said pressure liquid cylinder actuated by said pressure for cutting off the supply of syrup, ejecting said syrup, cutting off the supply of pressure liquid and ejecting the charge of pressure liquid substantially as set forth.

5. In a vending machine of the class described having a cabinet, means for storing a liquid under pressure, a plurality of flavor syrup containers carried within said cabinet,

a syrup cylinder adapted to draw syrup from any one or more of said containers, a piston in said cylinder, a cylinder for receiving a charge of liquid under pressure, a
5 piston in said cylinder and means including a pivotally mounted arm actuated by each of said cylinder pistons and means for releasably interconnecting said arms whereby the syrup drawn into said syrup cylinder is
10 ejected prior to the cutting off and ejecting of said charge of liquid under pressure.

6. In a vending machine of the class described having a cabinet, means for storing a liquid under pressure, a plurality of flavor
15 syrup containers carried within said cabinet, a syrup cylinder adapted to draw syrup from any one or more of said containers, a piston in said cylinder, a cylinder for receiving a charge of liquid under pressure, a piston in said cylinder and means interconnect-
20 ing said syrup cylinder piston and said pressure liquid cylinder piston and actuated by said pressure for cutting off said syrup sup-

ply, means for opening a valve connecting said pressure liquid cylinder and said syrup
25 cylinder whereby said pressure liquid flushes said syrup cylinder as it is ejected and means for ejecting the pressure liquid.

7. In a vending machine of the class described having a cabinet, means for storing a
30 liquid under pressure, a plurality of flavor syrup containers carried within said cabinet, a syrup cylinder adapted to receive syrup from any one of said containers, a piston in said cylinder, a cylinder for receiving a
35 charge of liquid under pressure, a piston in said cylinder and means interconnecting said syrup cylinder piston and said pressure liquid cylinder piston for cutting off the supply of syrup and means for ejecting said syrup,
40 cutting off the supply of pressure liquid and ejecting the charge of liquid substantially as set forth.

In testimony whereof I hereunto affix my signature this 5th day of March, 1925.

CLEVELAND E. ESTES.