E. V. BEAN.

VENDING MACHINE.

APPLICATION FILED OCT. 20, 1917.

1,272,894.

Patented July 16, 1918.

4 SHEETS—SHEET 1.

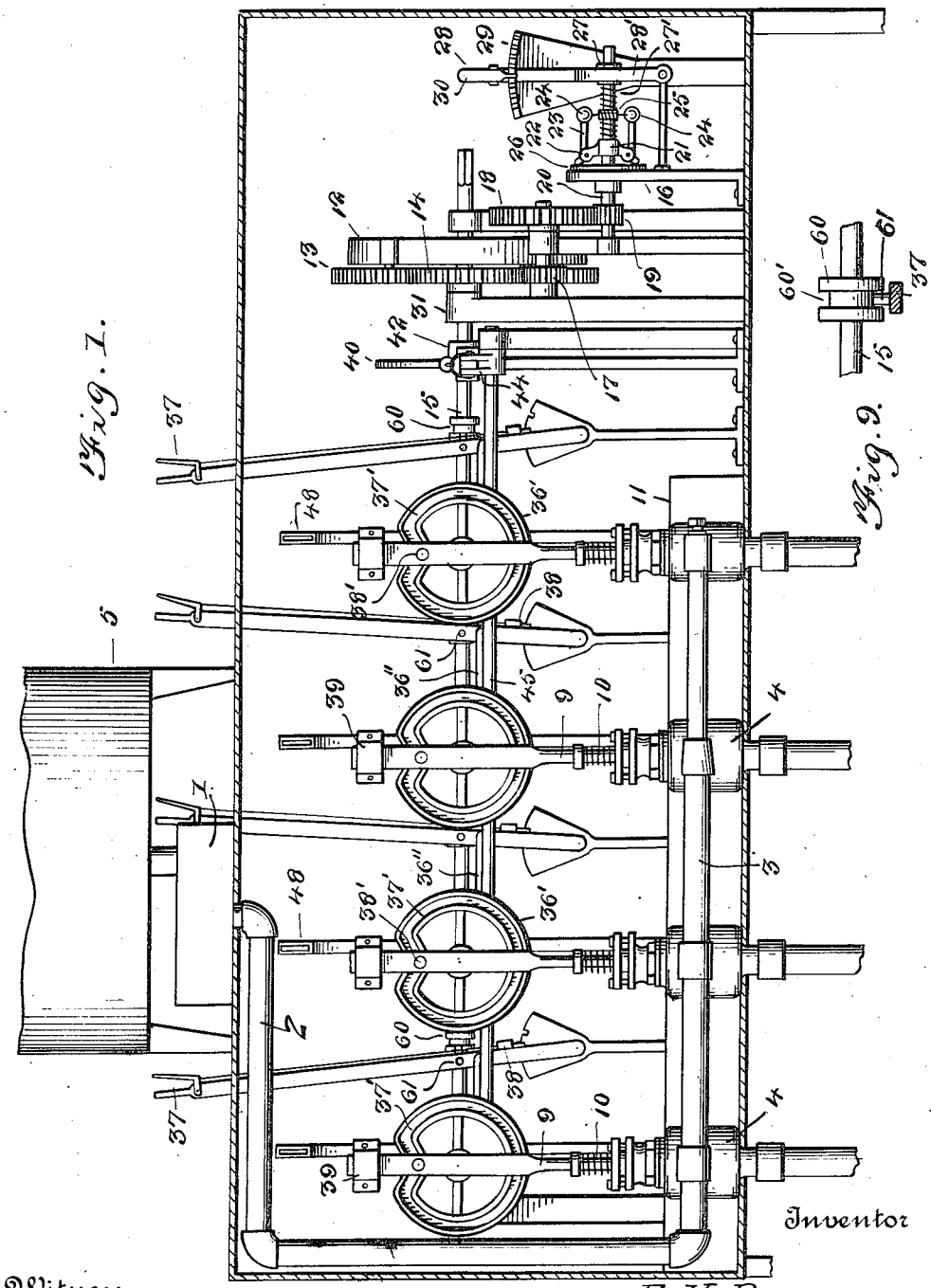


Fig. 1.

Fig. 2.

Witness

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4 SHEETS—SHEET 2.

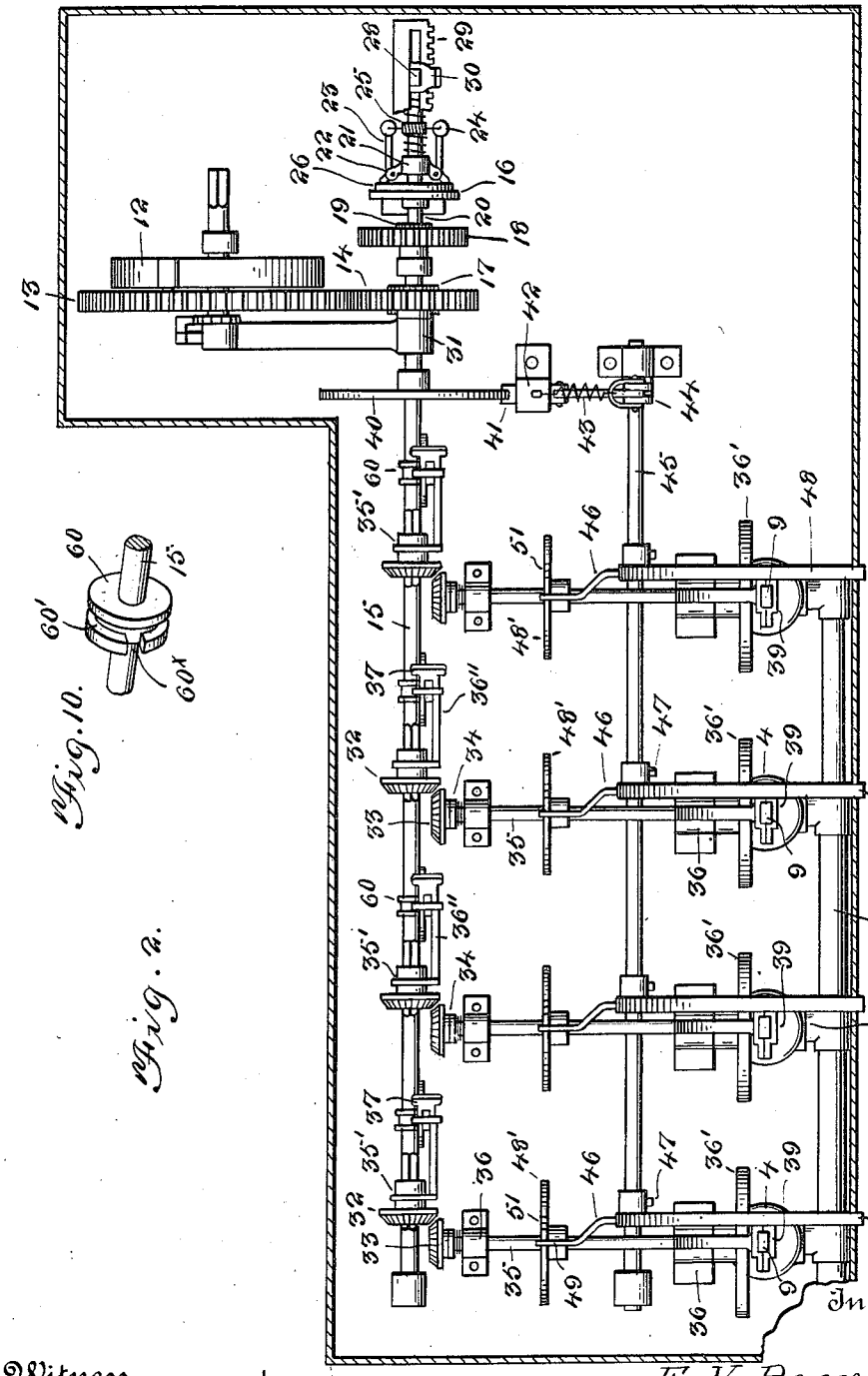


Fig. 2.

Fig. 10.

Witness

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4 SHEETS—SHEET 3.

Fig. 4.

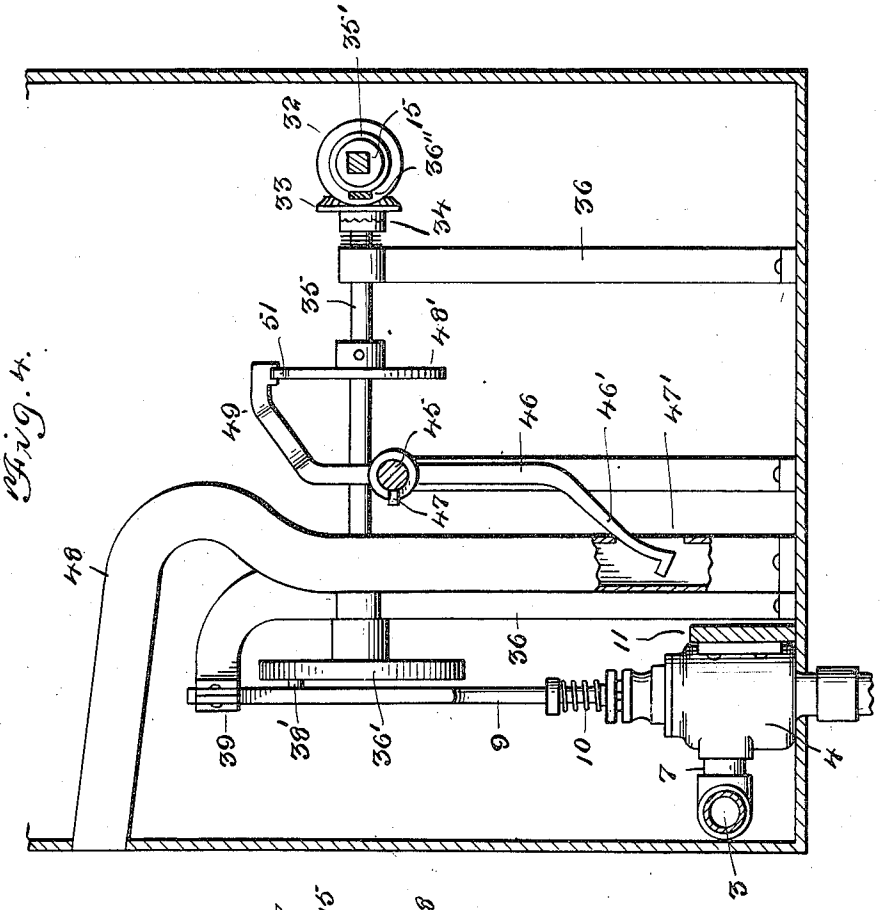
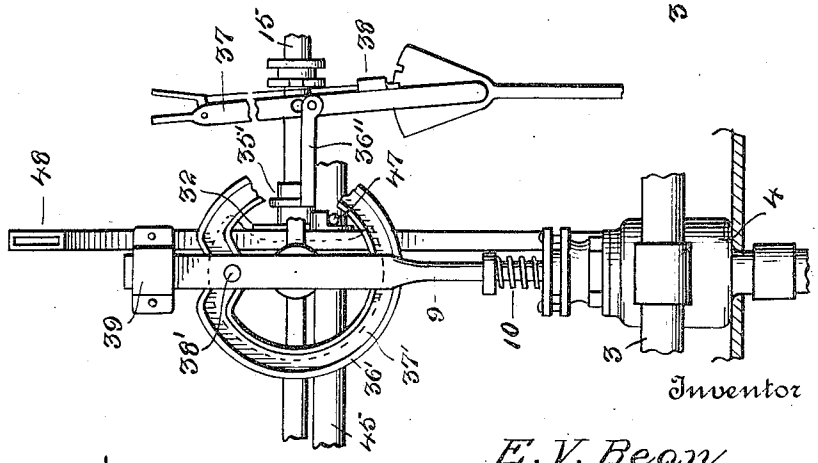


Fig. 5.



Witness

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4 SHEETS—SHEET 4.

Fig. 6.

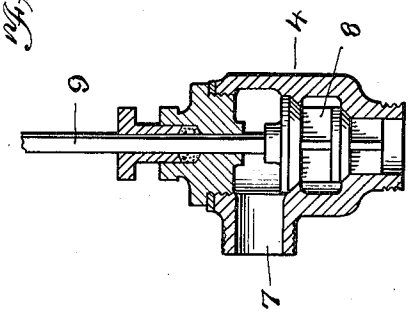
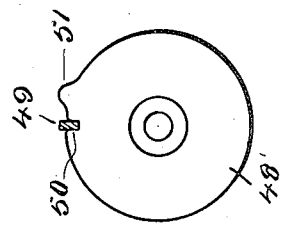


Fig. 8.



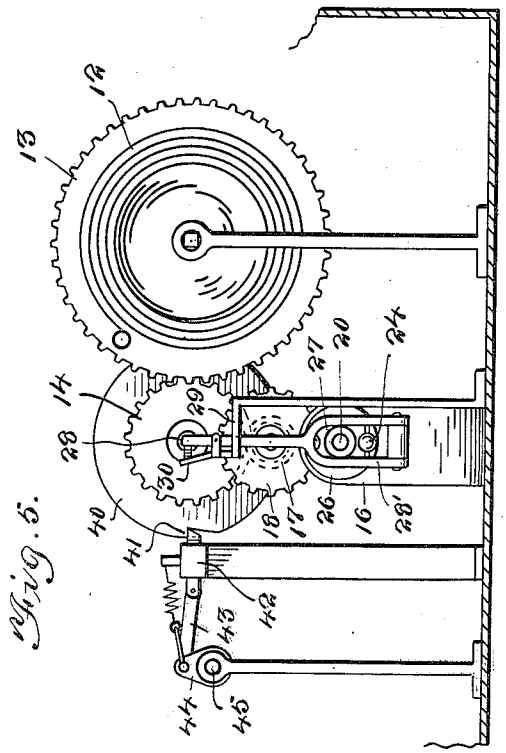


Fig. 5.

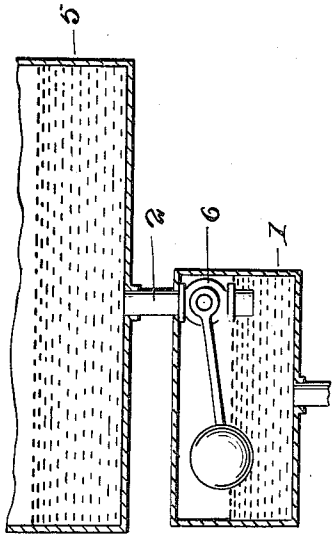


Fig. 7.

Witness

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UNITED STATES PATENT OFFICE.

EDGAR V. BEAN, OF DANVILLE, ILLINOIS, ASSIGNOR OF ONE-HALF TO JAMES PEERY, OF GUYMON, OKLAHOMA.

VENDING-MACHINE.

1,272,894. Specification of Letters Patent. Patented July 16, 1918.

Application filed October 20, 1917. Serial No. 197,732.

To all whom it may concern:

Be it known that I, EDGAR V. BEAN, a citizen of the United States, residing at Danville, in the county of Vermilion and State of Illinois, have invented new and useful Improvements in Vending-Machines, of which the following is a specification.

This invention relates to improvements in vending machines and has particular reference to a device of this character for dispensing gasolene and other liquids. In carrying out the invention it is my purpose to provide in a liquid vending machine a valve having a definite rate of flow which may be actuated by a coin control power mechanism to remain open during a predetermined period of time to permit a definite quantity of gasolene to escape.

It is further proposed to provide a governor for the power mechanism which will be adjustable to vary the speed of operation of the valves and consequently the quantity of gasolene dispensed in return for a single coin.

Another object is to adapt a number of valves of different capacity and the operating mechanisms therefor to be actuated by a single power device which will be set into operation by the actuation of any of the control mechanisms for the valves.

Other objects include the provision of auxiliary devices calculated to improve the efficiency of the machine as a whole among which may be mentioned means for supplying the gasolene to the valves under a constant head or pressure.

One form of the invention is described in the specification below and illustrated in the drawings and the novel features of the invention are set forth in appended claims.

In the drawings:—

Figure 1 represents a front elevation of the vending machine,

Fig. 2 is a fragmentary top plan view,

Fig. 3 is an enlarged front elevation of one of the dispensing units,

Fig. 4 represents one of the units as seen in side elevation,

Fig. 5 is a side elevation showing the power device and the associated parts in greater detail,

Fig. 6 represents a vertical longitudinal section through one of the valves,

Fig. 7 shows diagrammatically the arrangement for supplying the liquid to the valves,

Fig. 8 shows details of the invention.

Figs. 9 and 10 are further details.

Referring to the drawings more specifically an elevated tank 1 is provided for holding the gasolene and has the outlet pipe 2 terminally connected to a manifold 3 in turn establishing connection through suitable branch pipes with the dispensing valves 4. For maintaining the gasolene in the tank 1 at a constant level to insure uniform rate of flow from the valves 4 the tank 1 is connected to the main supply tank 5, a float operated valve 6 being inserted in the connecting pipe so that the inflow of gasolene will be cut off upon the level in the tank 1 rising to a predetermined degree. Each valve 4 comprises a hollow body forming a passage 7 normally closed by a puppet valve 8 mounted on a stem 9 (preferably made adjustable) slidably inserted in an opening in the valve body for movement of the valve 8 toward and away from its seat. A spring 10 normally holds the valve in a closed position. The outlets of the valves 4 are desirably connected to individual discharge pipes each adapted for conveniently filling a receptacle. The valves 4 are properly secured to a supporting structure here shown as a base-board 11 to the upper side of which is similarly secured the mechanism for operating the valves. This mechanism comprises a suitable motor here shown as a spring motor 12 having its drive gear 13 meshed with a gear 14 pinned or otherwise suitably secured on the end of the main drive shaft 15 of the mechanism. For regulating the speed of the motor it is suitably connected to a governor 16 this being accomplished in the present instance through a counter-shaft carrying a gear 17 driven by the gear 14 and a gear 18 driving the gear 19 on the governor shaft 20. Suitable standards and supports being provided in which the various shafts are properly journaled and the governor 16 comprises a sleeve 21 slidably mounted on the shaft 20 but adapted to be rotated thereby as for instance by a key on the shaft engaged in a slot formed longitudinally in the inner periphery of the sleeve. Pivoted in the usual manner intermediate of their ends to a pair of radial extensions 22 of the sleeve 21 are the governor levers

23 terminating at one end in weights 24 connected by the usual springs 25 tending to retain the weights 24 in an inward position. The other ends of the levers are adapted to bear against a clutch plate 26 when the balls are thrown outward by centrifugal force. To vary the speed to which the governor limits the device a sleeve 27 is provided engaging with the spring 27′ on shaft 20 and said sleeve is engaged by a portion of the lever 28′ suitably pivoted at one end and terminating at the other end in a convenient handle 28 adapted to be trained in a desired position relatively to a graduated plate 29 by a spring operated detent 30. The drive shaft 15 is suitably journaled in supporting standards 31 extending parallel to the row of valves 4 and is provided opposite each valve 4 with a gear 32 slidably mounted on the shaft 15 but adapted to be rotated thereby as for instance by engagement with a square portion of the shaft, whereby each gear 32 may be engaged with and disengaged from the respective gear 33, which drives through a friction clutch 34, a shaft 35 suitably journaled in standards 36 on the base 11 and extending toward the respective valve. For engaging and disengaging the gears 32 each gear is formed with an annular groove 35′ in which is engaged one end of the link 36″ pivotally connected toward the other end to a manually operable lever 37 provided with a suitable detent 38, whereby it may be retained in the engaged and in the disengaged positions. The end of the shaft 35 remote from the gear 33 has suitably secured thereto a cam 36′ formed in the laterally outer surface with a groove 37′. Engaged in the cam groove 37′ is a pin 38′ extending laterally from the upper end of the valve stem 9 which may be suitably formed with a rectangular portion engaged in a rectangularly slotted guide 39 in the standard 36 to prevent rotation of the valve stem. The cam groove 37′ is of such shape that at one point the valve 8 will be permitted movement to the closed position while during the greater part of a revolution of the cam 36 the valve 8 will be held fully open. For normally preventing the operation of the motor 12 a clutch disk 40 is secured at a convenient point on the shaft 15 for engagement by a spring pressed friction member 41 slidably mounted in a standard 42 and connected by a link 43 to an arm 44 on the suitably journaled rock shaft 45 extending parallel to the shaft 15. Loosely mounted on the shaft 45 in proximity to each valve is an arm 46 provided with a shoulder bearing against the pin 47 inserted in the shaft 45, whereby actuation of the arm 46 in one direction will partially rotate the shaft 45 to release the clutch disk 40 and permit operation of the motor whereas movement of the arm 46 in the other direction is freely permitted. One end 46′ of the arm 46 is disposed within a suitable recess 47′ in a coin chute 48 which may communicate with a suitable coin receptacle located beneath the base-board 11. The end 46′ of the arm 46 is of such shape as when actuated by the impact of a coin to release the clutch disk 40 and has a portion adapted to retain the coin to hold the arm in the releasing position. The other end 49 of arm 46 terminates in juxtaposition to the periphery of a cam disk 48′ pinned or otherwise secured on the respective shaft 35. The detent disk 48′ is of such diameter as to hold the detent arm 46 in the releasing position during the greater part of its rotation but has a depression into which the end 49 of the arm 46 is adapted to drop to stop the power device in the closed position of the respective valve 8. The cam disk 48′ has square shoulders on each side of the depression 50 and is provided on the periphery on one side of the depression with an outward projection 51 adapted to ride up under the end 49 of the arm 46 after a complete revolution of the disk to actuate the arm to release a coin retained by the other end 46′.

Each coin chute 48 is adapted for receiving a coin of particular value and the respective valve 4 is of suitable size to deliver a proportionate quantity of liquid in return, the governor adjustment and graduated scale 29 which may be suitably marked with various prices furnishing a convenient means whereby the duration of the valve opening following the insertion of the coin and consequently the amount of liquid delivered in return for the coin may be adjusted in accordance with changes in the value of the liquid. It is to be understood that all portions of the device except the openings of the coin chute and the gasolene discharge pipes will preferably be inclosed by a suitable cover to prevent interference by unauthorized persons.

It will be seen that in operation when a coin is dropped into a chute the arm 46 will simultaneously release the clutch disk 40 and the cam disk 48′ permitting rotation of the cam 36′ to open the respective valve 4 and hold it open until the projection 51 on the cam disk 48′ rides up under the end 49 of the arm 46 and releases the coin, the end 49 of the arm immediately thereafter dropping into the depression 50 to engage against the shoulder adjacent the depression and stop the shaft 35. It should be noted that if another valve is simultaneously in operation the friction clutch 34 will permit the drive shaft 15 to revolve until the arm 49 of the other valve also moves to the stopping position.

To prevent movement of an additional lever when one of the valves is delivering I

provide a sleeve 60 on shaft 15 adjacent each lever 37 and said sleeve is provided with an annular groove 60′ and a slot 60× communicating with this groove, and a pin 61 on said lever 37 is adapted to engage with said slot and groove to prevent movement of the lever.

What is claimed is:—

1. A vending machine, comprising a source of fluid supply, a plurality of valves connected with said source, a power shaft, a shaft connected with each valve for operating same, means for connecting any one of the said shafts to the power shaft, coin controlled means for controlling the rotation of said valve shafts, and means connected with the aforementioned means for controlling the rotation of the power shaft.

2. A vending machine, comprising a source of fluid supply, a plurality of valves connected with said supply, cams connected with said valves, a shaft carrying each cam, a power shaft, gears for connecting said power shaft with the cam-shafts, hand levers for moving said gears into operative position, coin controlled means for controlling the rotation of the cam-shafts, and means connected with the aforementioned means for controlling the power shaft.

3. A vending device, comprising a source of fluid supply, a plurality of valves connected with said supply, a power shaft, gears carried by said shaft, a shaft connected with each valve, a gear thereon, levers for moving the gears on the power shaft into and out of engagement with the gears on the valve shafts, means for locking said power shaft after each revolution thereof, means for locking each valve shaft after each revolution, said means including a rock shaft and a lever for each valve shaft carried by said rock shaft, and having free movement thereon in one direction, but moving the shaft in the other direction, and a coin chute for directing a coin to a part of said lever, and a connection between said shaft and the power shaft locking means.

4. A vending device comprising a source of fluid supply, a plurality of valves connected with said supply, a shaft connected with each valve for operating the same, a power shaft, means for connecting said power shaft with any one of the valve shafts, locking means for said power shaft, a rock shaft connected with said locking means, a disk on each valve shaft having a recess therein, a coin controlled lever, adjacent each valve shaft, and carried by the rock shaft, each lever being free to move in one direction on said shaft, but moving the shaft therewith in the other direction, and said lever having a part engaging with the disk and the recess therein to lock the valve shafts against movement.

In testimony whereof I affix my signature.

EDGAR V. BEAN.