Aug. 7, 1956 A. J. VARRIN 2,757,846

LIQUID DISPENSERS

Filed Oct. 16, 1953 3 Sheets-Sheet 1

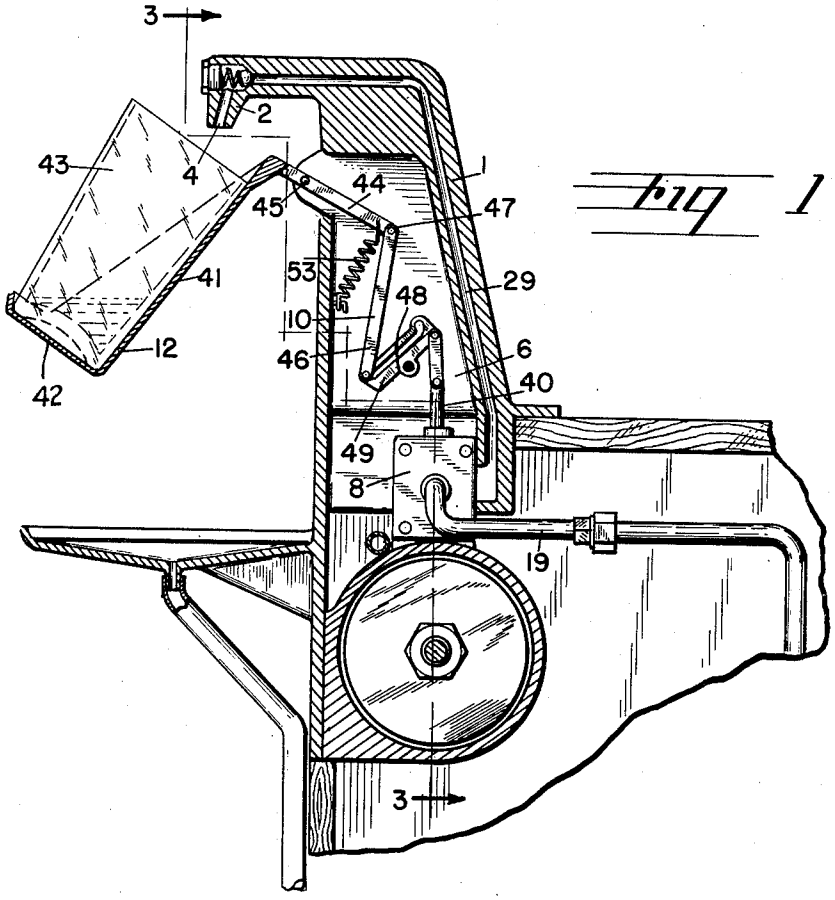


fig 1

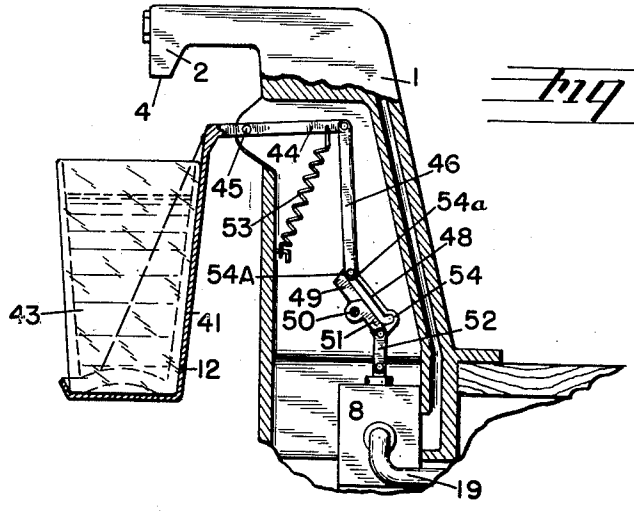


fig 2

INVENTOR.

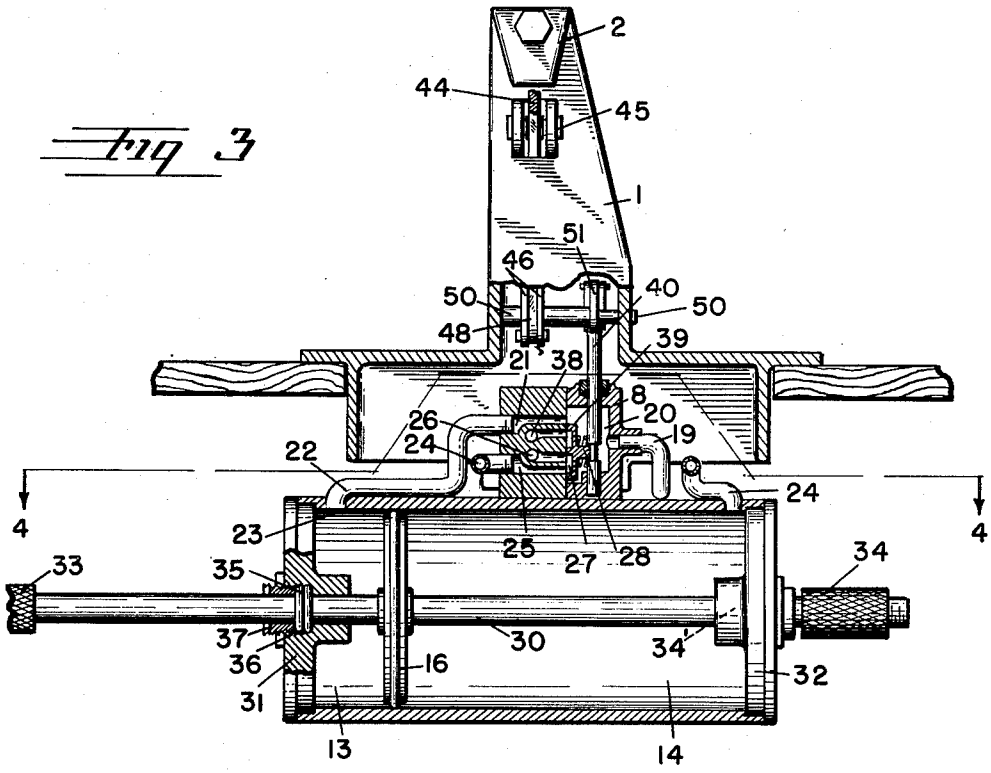
André J. Varrin

Aug. 7, 1956 A. J. VARRIN 2,757,846

LIQUID DISPENSERS

Filed Oct. 16, 1953 3 Sheets-Sheet 2

Fig 3



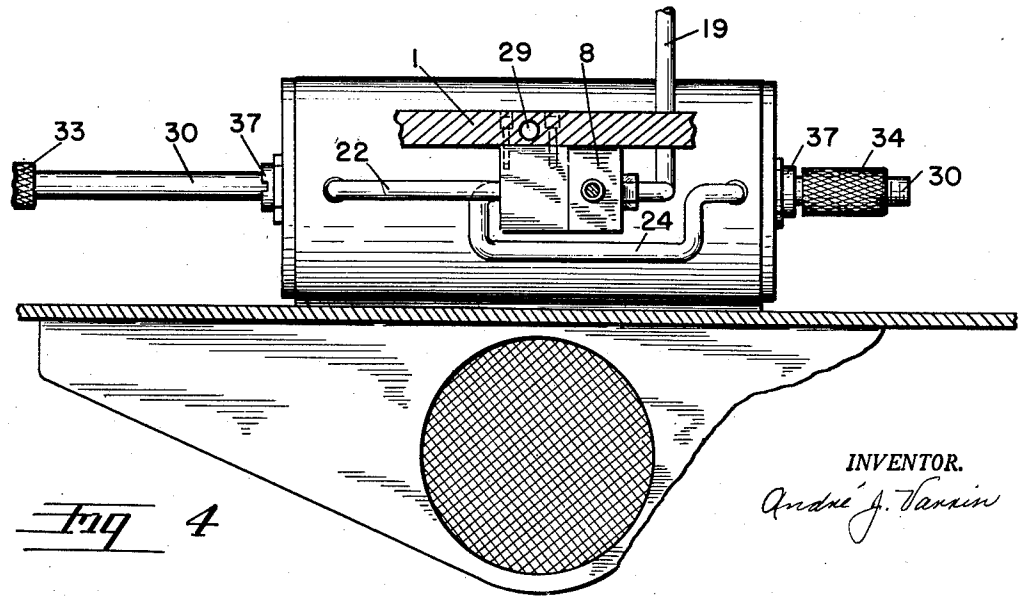


Fig 4

INVENTOR.

André J. Varrin

Aug. 7, 1956 A. J. VARRIN 2,757,846

LIQUID DISPENSERS

Filed Oct. 16, 1953 3 Sheets-Sheet 3

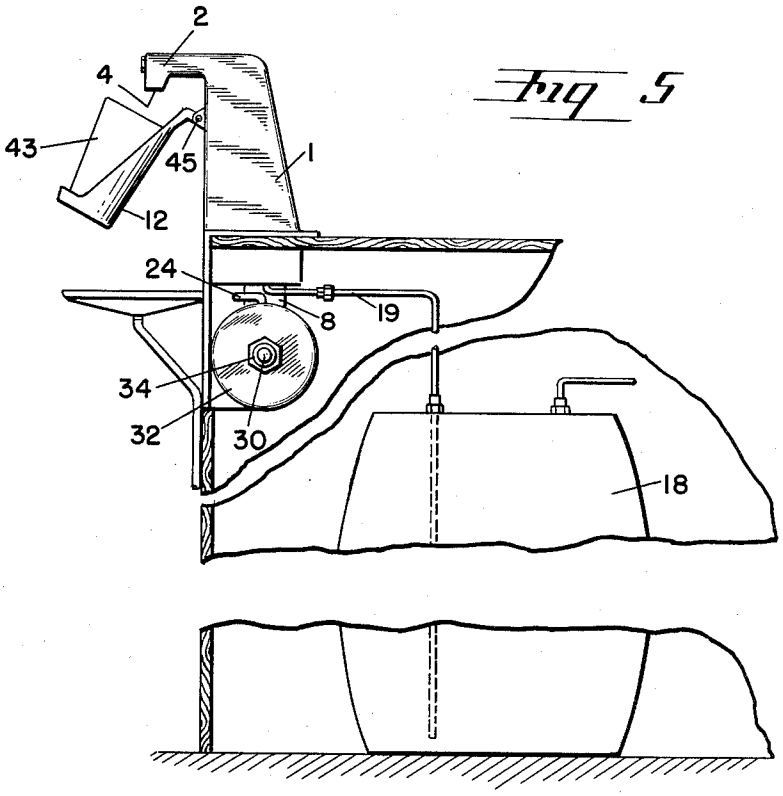


Fig 5

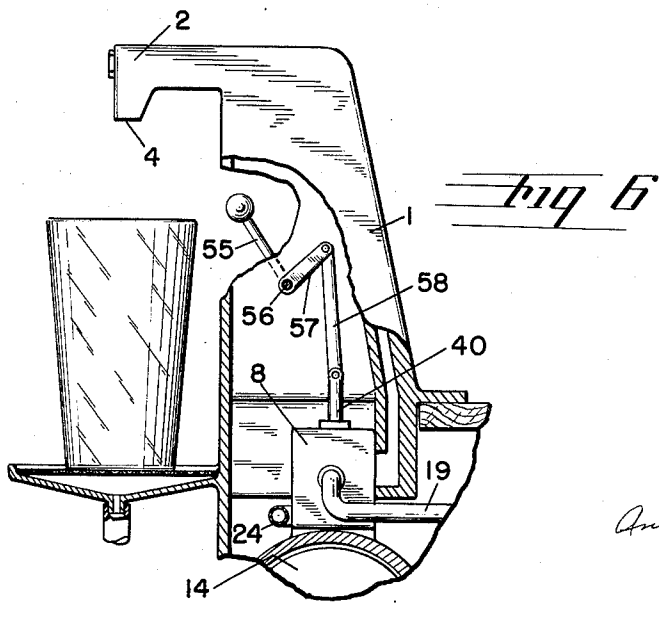


Fig 6

INVENTOR.

André J. Varrin

United States Patent Office 2,757,846 Patented Aug. 7, 1956

2,757,846

LIQUID DISPENSERS

André J. Varrin, Portland, Oreg., assignor to Screw Machine Products Company, Portland, Oreg.

Application October 16, 1953, Serial No. 386,444

2 Claims. (Cl. 226—107)

This invention relates to liquid dispensers and more particularly to dispensers of carbonated, gaseous or charged liquids.

It is an object of this invention to provide a liquid dispenser having intermediate metering chambers positioned between a liquid container and dispensing valves, separating and dispensing a measured amount of liquid from the liquid container.

It is a further object of this invention to provide a valve operating mechanism, controlled in volume primarily by the increasing weight of the liquid being dispensed into a vessel wherein the vessel is in communication with the valve operating mechanism.

It is a still further object of this invention to retain a liquid receiving vessel with a valve operating mechanism angular to the flow of the dispensed liquid at its initial start reducing excessive foaming of gaseous liquids entering the vessel.

Further objects of this invention reside in the metering chamberes wherein a piston separates the chambers, and suitable brakes are associated with the piston to reduce the liquid container pressure to the dispensing faucet.

In the drawings:

Fig. 1 is a sectional side view of a liquid dispenser illustrating the dispenser in mounted position in a cabinet with the valve operating mechanism and vessel in its initial starting position.

Fig. 2 is a similar sectional side view to Fig. 1 illustrating the valve operating mechanism and vessel at the completion of its dispensing cycle.

Fig. 3 is a front elevation with portions broken away taken on the lines 3—3 of Fig. 1 showing the metering chambers and valve mechanism with the inter-communicating ports associated with the metering chambers.

Fig. 4 is a sectional plan view taken on the lines 4—4 of Fig. 3 showing the valve in mounted position on the the cylinder.

Fig. 5 is a side elevation taken through a cabinet illustrating the liquid dispenser and liquid container in working relationship to one another.

Fig. 6 is a side elevation partially broken away illustrating a modified and simple valve operating mechanism.

A liquid dispenser embodying our invention comprises a body member 1, in the form of an upstanding spout portion 2, a discharge outlet 4, a cavity 6, formed within the body 1, having a valve 8, and valve linkage 10, mounted within the cavity 6, the linkage 10, being connected to a hinged, movable glass holder 12, extending outward and below the discharge outlet 4. Mounted below the cavity 6, and forming part of the valve 8, is a pair of metering chambers 13 and 14, being in the form of a cylinder with a movable piston 16, separating the same with one of the metering chambers being in communication with a pressurized liquid container 18, through the valve 8, and the other chamber being in communication with the discharge outlet 4, through the valve 8, and by reversing the valve, the metering chamber communications are reversed.

From the above brief description, it will be noted that a gaseous liquid as beer or carbonated liquids is admitted into one of the metering chambers under pressure from the container 18, while the retained liquid in the other metering chamber is discharged by the action of liquid pressure against the piston 16, completing one cycle of operation and by reversing the valve 8, the liquid in the first metering chamber is isolated from the container 18, and discharged in the manner above described.

Describing our invention in detail we provide the liquid container 18, being of a standard type and provided with an inlet pipe being connected on one end to a suitable air compressor machine not shown in the drawings to facilitate maintaining the liquid container at a constant pressure preferably above the gas pressure of the liquid in the container, a pipe 19, starting at the lower extremity of the container, connects the container 18, to the valve 8, and into the chamber 20, as illustrated in Fig. 3 of the drawings. The liquid then flows into the port 21, through the pipe 22, into the metering chamber 13 at 23, forcing the piston 16, to move within the cylinder, causing the liquid in the metering chamber 14, to flow through the pipe 24, into the port 25, of the valve 8, and then directed into the port 26, by a recessed portion 27, forming a part of the movable valve portion 28, mounted within the chamber 20, of the valve 8.

Shown in Fig. 1 of the drawings, the port 26, of the valve 8, is in communincation with port 29, forming part of the body member 1, and directs the liquid flow to the discharge outlet 4.

As described above, the liquid flows into the chamber 13, of the cylinder causing the piston 16, to move within the cylinder. The piston 16, is mounted centrally on the shaft 30, which in turn is journaled within the cylinder end pieces 31 and 32, and extends outward therefrom, suitable adjustable stop pieces 33 and 34, are secured to the outer ends of the shaft 30, to stop the movement of the piston 16, within the cylinder as illustrated in Fig. 3, the adjustable stop 33, contacting the end piece 31, allows the piston 16, to move only a predetermined distance in the cylinder also allowing only a metered amount of liquid to enter the chamber 13, and as readily seen, an equal amount of liquid will be discharged from the chamber 14, through the discharge outlet 4.

To decrease and/or slow down the speed of travel of the piston within the cylinder and thereby soften the flow of liquid from the discharge outlet 4, from the chamber 14, due to the liquid under pressure being admitted into the chamber 13, we provide shock absorbing brake mechanisms 34, positioned in the cylinder ends 31 and 32, and being comprised of one or more round rubber rings 35, commonly trade-named as O rings, the rings 35, snugly fit onto the shaft 30, and are nested into a retainer pocket 36, in the cylinder ends 31 and 32, a pressure plug 37, is threaded into the cylinder ends 31 and 32, abutting against the rings compressing the same tightly into the pocket 36, and around the shaft 30, causing a braking action against movement of the shaft 30, the amount of braking action to the shaft 30, being predetermined by the amount of compress applied to the rings proper. A further advantage of the above construction being the rings 35, form a leak-proof packing gland preventing leakage of liquid from the chambers 13 and 14.

It has been found, when dispensing gaseous liquids, excessive pressures within the liquid create foaming when the pressurized liquid is released into the atmosphere, i. e. sparkling waters, refreshment drinks, bromides, and various chemical solutions. To soften the gaseous expansion of the liquid when dispensing the same, I provide the chambers 13 and 14, one of the said chambers receiving liquids from the source 18 and the other to release liquids under controlled conditions to the dis-

charge outlet 4 by using the inlet pressures into chamber 13 to move the piston 16 forcing liquids in the chamber 14 through the outlet 4.

To reverse the direction of liquid flow to the chambers 13 and 14, the movable portion 28, is moved within the chamber 20, of the valve 8, opening port 25, to the chamber 20, allowing the liquid to enter the chamber 14, and from chamber 13, the liquid is directed into port 38, by a recessed portion 39, and then through the outlet 4 via the outlet port 29.

The movable valve portion 28, is operated by the valve stem 40, extending through the chamber 20, and fastened on its one end to the valve operating linkage 10.

In Figs. 1 and 2 of the drawings we have illustrated the valve operating linkage as being comprised of a holder 12, having a back portion 41, and a bottom 42, typical in construction to receive a common beverage glass 43, the upper portion of said holder extends rearward in the form of an arm 44, being hinged within the spout portion 2, at 45, a link 46, being hinged to the outer end of the arm at 47, on its one end and its other end is bearinged for reciprocal travel in the slotway 48, of the walking beam like lever 49, the action of which will be described later.

The walking beam 49, is fastened through its central portion to a countershaft 50, which in turn is bearinged within the cavity 6, a lever 51, is also fastened to the countershaft 50, and is hinged on its outer end to a link 52, and the link 52, in turn being hinged to the valve operating stem 40, of the valve 8, now therefore when the walking beam 49, is moved radially in a prescribed reciproal arc around the shaft 50, the valve stem 40, is moved up or down positioning the valve portion 28, to direct the flow of liquids into either the chamber 13 or 14, as the case may be from the container 18.

To operate our dispensing device, the glass 43, is placed in the holder 12, as shown in Fig. 1 of the drawings, the glass weight overcoming the action of the spring 53, provided to maintain the holder 12, in the position shown will impart a slight movement through the walking beam and linkage to slightly move the portion 28, of the valve 8, allowing a reduced flow of liquid to enter the glass 43, as the quantity of liquid flowing into the glass 43, increases, its weight increases and proportionately the flow of liquid increases and so on until the valve portion 28, reaches a full open position and the holder 12, is in a vertical position as shown in Fig. 2 of the drawings.

It will be noted when the holder 12, is in a vertical position the walking beam 49, has been raised on its one end to a position nearly vertical above the countershaft positioning the slotway 48, of the walking beam lever at a sharp inclined degree to the vertical link 46, as illustrated in Fig. 2.

When the filled glass 43, is removed from the holder 12, the spring 53, will return the holder to a rest position as illustrated in Figs. 1 and 5 and also the bearinged end

of the link 46, will travel downward in the inclined slotway 48, and become engaged in the angular slot end 54, completing one filling cycle. When a glass is again placed in the holder, the link 46, will pull the valve stem 40, upward through the linkage arrangement and the cycle as above mentioned will be completed with the exception of the walking beam 49, which will be angular opposite to the above and when the glass is removed, the bearing end of the link 46, will travel to the opposite end of the walking beam and become engaged in the angular slot 54A, as shown in Fig. 1 of the drawings.

In Fig. 6 of the drawings we have illustrated a modified form of operating the valve 8, comprising a handle 55, being fastened to a countershaft 56, a crank 57, being fastened centrally within the cavity 6, to the countershaft on its one end and being hinged to the link 58, on its other, the link being hinged on its one end to the valve stem 40, associated with the valve 8. It is readily seen that by moving the handle from one position to another a pouring cycle will be completed.

What I claim is:

1. A liquid dispenser comprising a cylinder, a shaft extending longitudinally through the cylinder, a piston mounted on said shaft within the cylinder, adjustable stop members mounted on each shaft end, flexible ring glands with threaded compression adjustment rings mounted in said cylinder ends and abutting said glands, a valve mounted on said cylinder with valve ports in communication with both cylinder ends, said valve and cylinder being fastened to and forming part of an upstanding spout portion with valve ports intercommunicating with a port in the spout portion, said spout port terminating in a single discharge outlet, and a vessel holder having a lateral extending lever arm hinged to the upstanding spout portion, a spring counterbalance to maintain said vessel angular outward at rest position, linkage control means between said lever arm and a valve control stem to initiate valve stem movement.

2. A liquid dispenser, according to claim 1, wherein the linkage control means is, a walking beam with a transverse slotway having angular slotway ends, a link responsive to lever arm movement and slidable in said slotway, and a link connecting said walking beam with the valve control stem.

References Cited in the file of this patent

UNITED STATES PATENTS

1,003,256	Hardy	Sept. 12, 1911
1,181,259	Sailer	May 2, 1916
1,547,414	Daughton	July 28, 1925
1,584,336	Walker	May 11, 1926
1,782,704	Woodruff	Nov. 25, 1930
1,932,976	Lamb et al.	Oct. 31, 1933
1,993,367	Geyer	Mar. 5, 1935
2,062,181	Klaus	Nov. 24, 1936