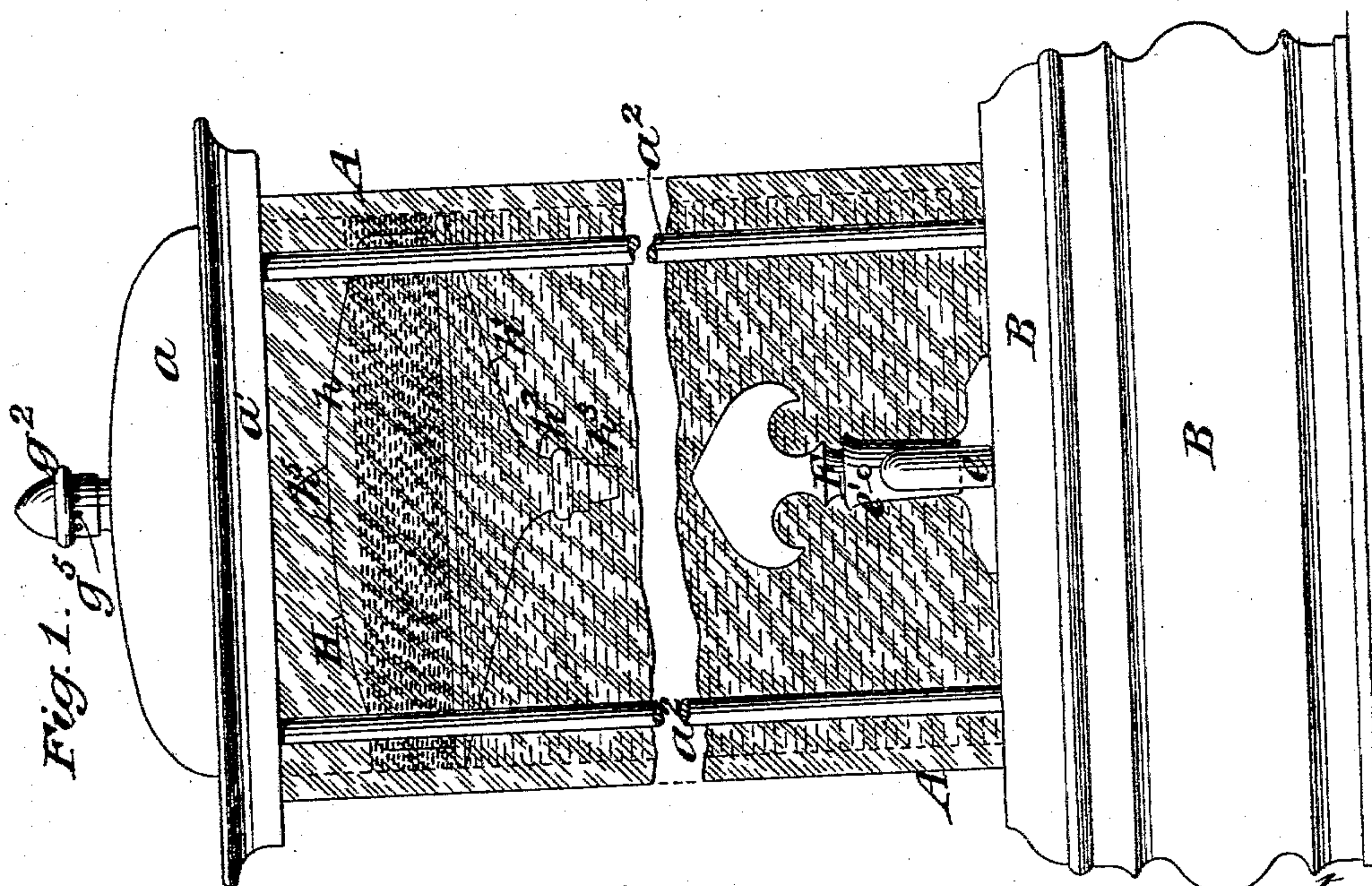
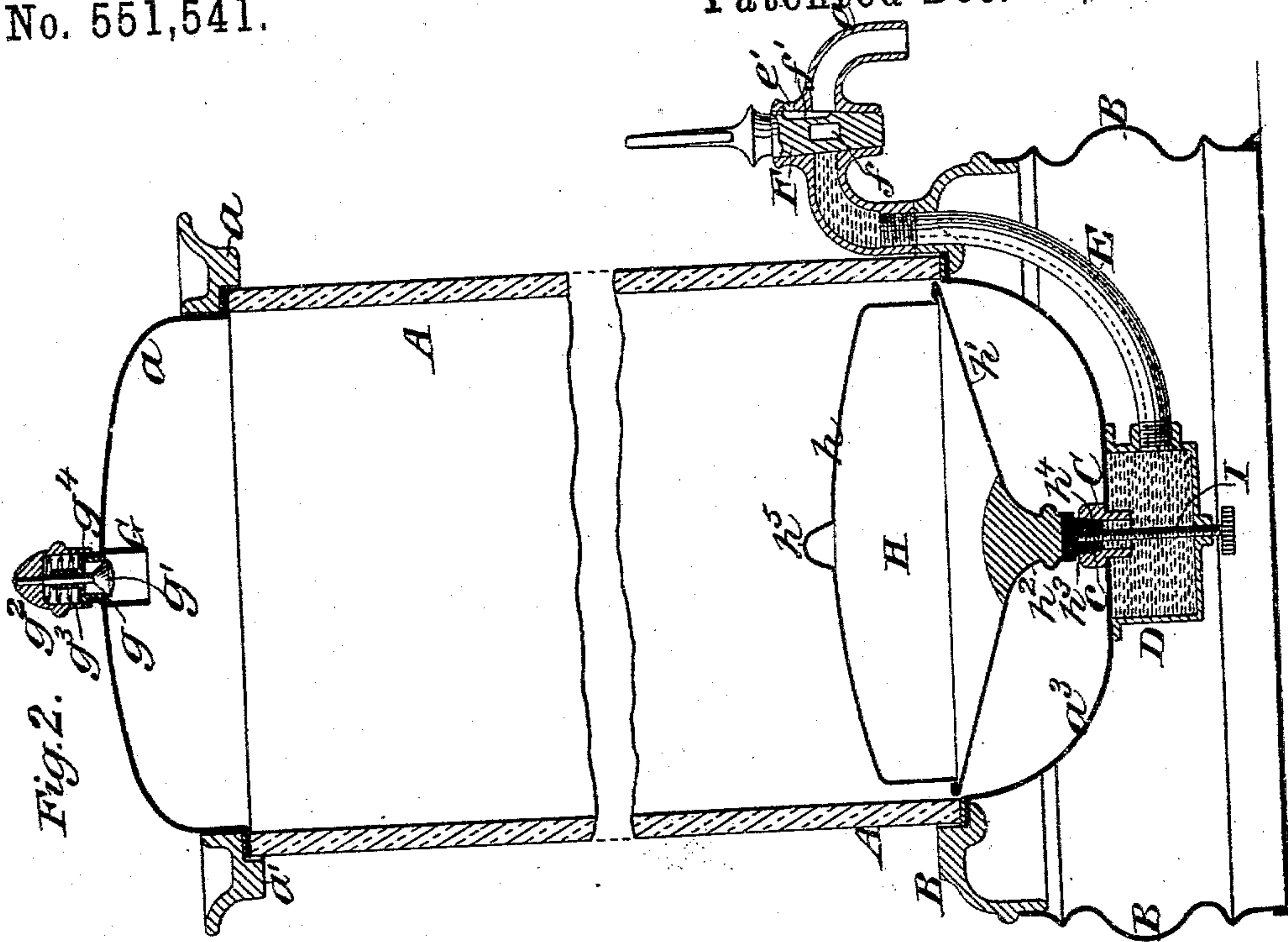


(No Model.)

W. M. FOWLER.
LIQUID DISPENSING APPARATUS.

Patented Dec. 17, 1895.

No. 551,541.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM MILES FOWLER, OF STAMFORD, CONNECTICUT.

LIQUID-DISPENSING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 551,541, dated December 17, 1895.

Application filed June 8, 1895. Serial No. 552,062. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MILES FOWLER, of Stamford, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Liquid-Dispensing Apparatus, of which the following is a specification.

My invention relates to an improvement in liquid-dispensing apparatus in which provision is made for completely sealing the liquid within a reservoir from which it is to be drawn during the gradual lowering of the liquid within the receptacle, and to further provide for the refilling of the receptacle or reservoir without introducing air therein.

In the accompanying drawings, Figure 1 is a view of the apparatus in front elevation, and Fig. 2 is a vertical longitudinal section from front to rear.

The reservoir itself, here shown of cylindrical form and constructed of glass, is denoted by A. It is provided with a dome-shaped cover a , which is tightly seated on the top of the reservoir A and held in position by a rim a' , which at the same time forms an ornamental finish around the top of the reservoir. The reservoir stands upon a hollow supporting-base B, which is preferably made somewhat larger than the reservoir itself and of any attractive conformation in outline, as may be desired. I have shown, in the present instance, the rim a' connected with the base by pillars a^2 .

The bottom of the reservoir is denoted by a^3 and is made dish-shaped. The bottom a^3 is provided with a short nipple C, which projects upwardly above the bottom a^3 into the interior of the reservoir a sufficient distance to guard against drawing the settlings of the liquid in the tank and is provided in its upper end with a tapered valve-seat c . Below the bottom a^3 there is located a receiver D, the interior of which is in communication through the nipple C with the interior of the reservoir A. From the receiver D a discharge-pipe E curves upwardly to the edge of the base B and connects there with a discharge-pipe e , in which is located a stop-cock F. The stop-cock F is provided with a port f through it, so that when turned in one direction the discharge will be free through the cock F to the open end of the discharge-pipe

e . The cock F is further provided, intermediate of the ends of the port f , with a shallow channel f' , which, when the cock F is turned in a direction to cut off the discharge through the pipe e , will come in communication with a small opening e' through the wall of the socket in which the cock F is seated. At this same time the channel f' will be in communication with the discharge end of the pipe e .

The top a of the reservoir is provided with a tubular vent G, in which there is a valve-seat g . A valve g' has its stem fixed to a vertically-sliding cap g^2 , which is made to fit over the upwardly-projecting portion of the tube G, and a spring g^3 , interposed between the under side of the cap g^2 and the top of the seat g , serves to hold the valve g' normally seated. Openings g^4 through the bottom of the seat g communicate with openings g^5 in the side of the cap g^2 to permit air to enter the reservoir A above the seal therein as the liquid is lowered, provided the cap g^2 be depressed to throw the valve g' off its seat.

The seal relied upon to completely shield the liquid within the reservoir A is a liquid of such a nature that it will not mingle with the liquid to be dispensed and may be, for example, what is known in the market as "Eclipse White oil." Instead, however, of covering the entire surface of the liquid within the reservoir A with the liquid seal I find it desirable to locate therein a float H, which is of such dimensions as to freely slide up and down within the reservoir A, the liquid seal being used to fill the intervening space between the periphery of the float H and the interior wall of the reservoir A. The float is preferably made with the convex top h and with a tapered bottom h' , terminating at its apex in a downwardly-extending nozzle h^2 , which may be filled with lead or some suitable weight to make the float H at all times retain the proper position within the reservoir. The lower end of the nozzle h^2 is fitted with a tapered nose h^3 , which is adapted to fit tightly within the upper portion of the nipple C, forming in effect a cut-off valve when the float has reached its lowermost limit.

To hold the float H at its lowermost limit and tightly seal the communication between the receiver D and the interior of the reservoir, I provide a screw I, which extends up

through the bottom of the receiver D and within the nipple C, where it engages a screw-threaded socket h^4 in the end of the nose h^3 . By this means I am enabled to screw the float
 5 H down tightly and force the nose h^3 snugly into contact with the walls of its seat. The float H is also provided with a tapered projection h^5 at its top, which serves to enter the mouth of the tube G in the cover when
 10 the float is at the upper limit of its movement and thereby form a tight closure at the top to prevent the further filling of the reservoir.

The liquid which is to form the seal may
 15 be, for purposes of shipment, confined tightly within the receiver D beneath the bottom of the reservoir by turning the screw I into the nose or valve h^3 , drawing it snugly down into the seat C, and turning the stop-cock F, so
 20 as to close the discharge from the pipe E.

When it is desired to fill the reservoir A with claret wine or other liquid to be preserved, the hose for transmitting the wine or other liquid from the cask to the reservoir
 25 A may be connected with the discharge-pipe e , and the force-pump being set in operation the liquid may be forced up to the stop-cock F, the air in the meantime escaping through the channel f' and perforation e' .

When liquid appears at the perforation e' , the stop-cock F may be turned a quarter-turn to bring the port f into communication with the pipe e and receiver D up into the reservoir beneath the float H, the latter having
 30 been released by the turning of the screw I, so as to permit it to rise from the inflowing liquid. The sealing liquid—oil, for example—being of lesser specific gravity than the liquid which is to be sealed will rise on the
 40 top of the inflowing liquid and gather around the periphery of the float H between it and the interior wall of the reservoir A, forming an air-tight closure, together with the float H, over the entire surface of the liquid. During this operation the valve g' will have been
 45 held depressed to permit the air to escape from above the inflowing liquid within the reservoir A.

As the float H reaches the top of the reservoir A, the projection h^5 on its top will enter the mouth of the tube G and engage with the valve g' , forcing it to its seat and thereby
 50 preventing any further escape of air at the top of the reservoir and consequently will shut off the escape of the sealing liquid through the vent at the top of the reservoir, as the valve g' will be forced to its seat before the sealing liquid reaches it. Furthermore, the projection h^5 is of such size and shape that its
 55 base will form an air-tight closure with the lower end of the tube G and shut off the further escape of air independently of the valve g' at the same moment that the valve g' is forced to its seat, so that if the valve g' were

dispensed with there would still be an automatic closure at the top of the tank before the sealing liquid would escape. Again, in drawing the liquid from the reservoir A, the nose or valve h^3 will seat and shut off the further discharge of the liquid before the liquid
 65 has reached a point where its dregs would be drawn, so that the sealing liquid is still held in position ready for the refilling of the reservoir A.

What I claim is—

1. The combination with a reservoir and an air vent at the top of the reservoir and a discharge device at the bottom of the reservoir, of a float free to move up and down within the reservoir, the said float being provided
 75 with an air vent closing device at its top and a discharge closing device at its bottom for automatically limiting the inflow and outflow of the liquid into and from the reservoir, substantially as set forth.

2. The combination with the reservoir, a receiver at the bottom of the reservoir and means for introducing liquid into and drawing it from the reservoir, of a float within the reservoir provided with a device for closing
 85 communication between the reservoir and the receiver, substantially as set forth.

3. The combination with a reservoir, a receiver at the bottom of the reservoir and means for introducing liquid into and drawing
 95 from the reservoir, of a float adapted to close communication between the reservoir and the receiver and a screw engaged with the float for holding it snugly to its seat to close said communication, substantially as set forth.

4. The combination with a reservoir, a receiver in communication with the bottom of the reservoir and a filling and discharge conduit in communication with the receiver, of
 105 a float located within the reservoir and provided with a device for closing communication between the reservoir and the receiver, substantially as set forth.

5. The combination with the reservoir and
 110 means for drawing liquid therefrom at pleasure, of a spring actuated valve at the top of the reservoir and a float within the reservoir provided with means for closing the spring actuated valve and the discharge, substantially as set forth.

6. The combination with a reservoir and a float within the reservoir, of a liquid seal wholly exterior to the float within the reservoir and free to distribute itself between the
 120 float and the wall of the reservoir when liquid is introduced within the reservoir, substantially as set forth.

WILLIAM MILES FOWLER.

Witnesses:

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