

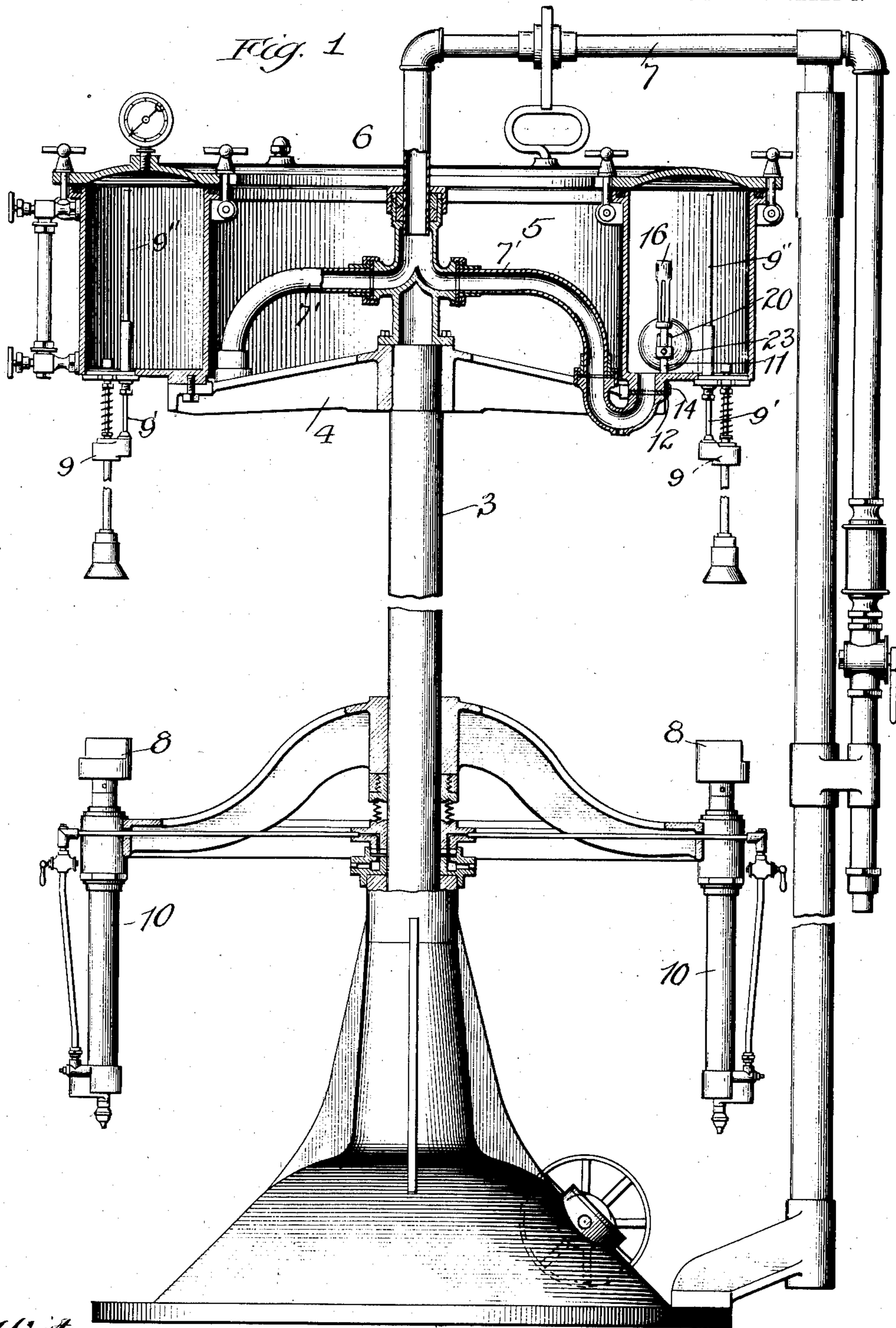
No. 883,254.

PATENTED MAR. 31, 1908.

F. C. H. STRASBURGER.
FLOAT VALVE FOR FILLING MACHINES.

APPLICATION FILED OCT. 1, 1906.

2 SHEETS—SHEET 1.



Witnesses
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M. A. Kiddil

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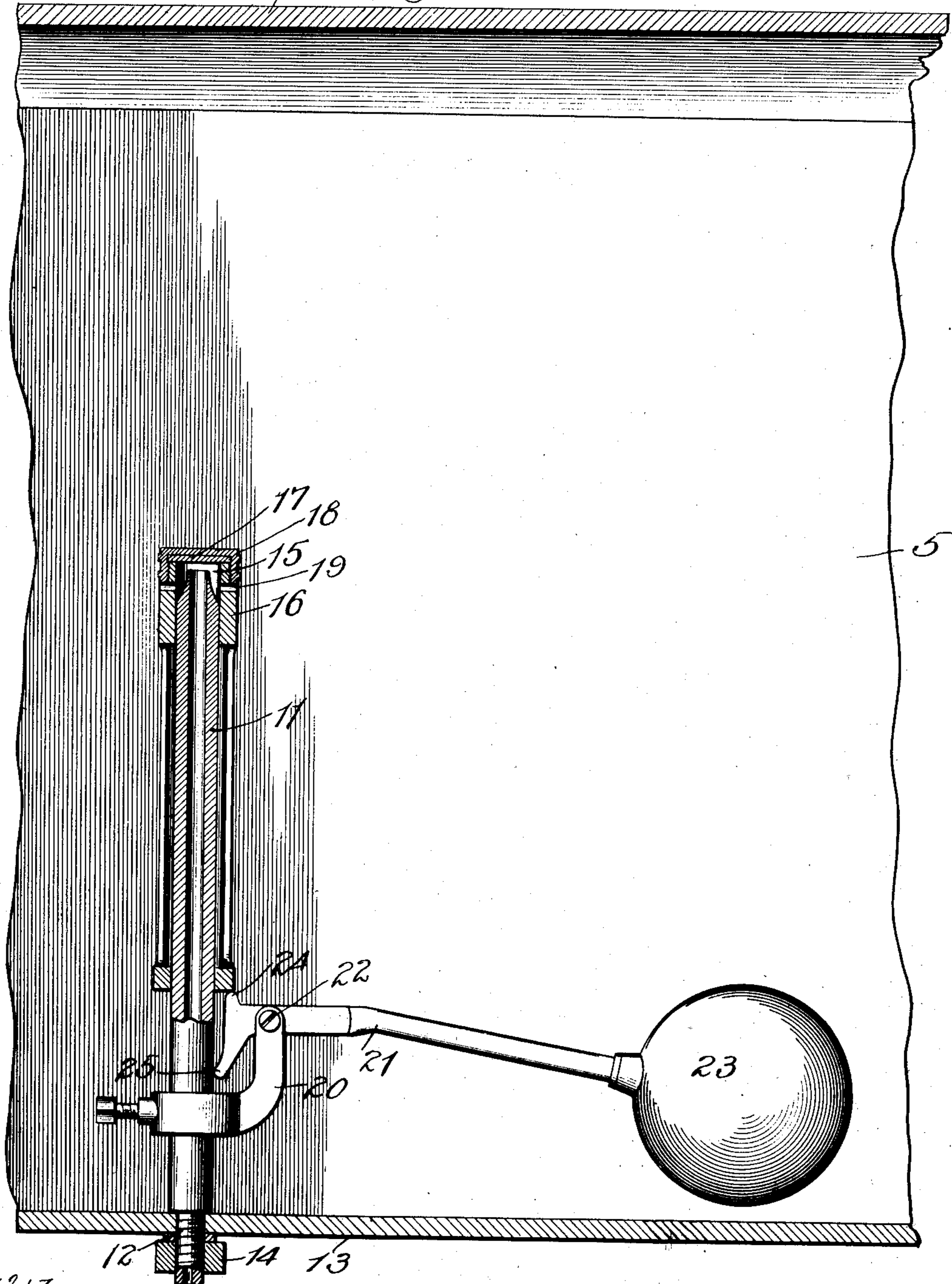
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6 FIG 2



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UNITED STATES PATENT OFFICE.

FRANK C. H. STRASBURGER, OF CHICAGO, ILLINOIS, ASSIGNOR TO BOTTLERS MACHINERY MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

FLOAT-VALVE FOR FILLING-MACHINES.

No. 883,254.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed October 1, 1906. Serial No. 336,930.

To all whom it may concern:

Be it known that I, FRANK C. H. STRASBURGER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Float-Valves for Filling-Machines, of which the following is a specification.

The object of this invention is to provide a float valve of simple construction and sensitive operation for automatically regulating the supply of liquid in the liquid tank of a bottle filling machine.

The invention is particularly adapted for use in connection with those machines in which the filling operation is conducted under pressure and having an air tight liquid tank, and for that reason I have chosen one of these machines to illustrate the invention.

In the accompanying drawings Figure 1 is a sectional elevation of a counter-pressure bottle filling machine embodying my invention; Fig. 2 is an enlarged sectional view of the tank showing the float valve partly in section.

The filling machine which I have chosen for illustrating the invention comprises a revoluble shaft 3 which carries a spider 4 and a liquid tank 5, the latter having a removable top 6 which may be secured on the tank in an air tight manner. The liquid is conducted to the tank by a supply pipe 7 and the branches 7'. The spider carries a plurality of bottle rests 8 which are located beneath the filling mechanisms 9 depending from the tank and are raised by pneumatic lifts 10 to carry the bottles into engagement with and to operate the filling mechanisms. I make no claim in this application to any other features except the float valve and for this reason it is not considered necessary to enter into a more detailed description of the filling machine itself.

Referring particularly to Fig. 2 the valve comprises a tube 11 which has a threaded end 12 projecting through the bottom 13 of the tank and secured by a nut 14. The upper end 15 of the tube 11 is tapered. A sleeve 16 is slidably arranged on the tube and it is made partly in skeleton form, preferably, to reduce the weight. A rubber or other disk 17 is held in place on the upper end of the sleeve by a screw cap 18 and beneath the cap the sleeve is provided with one or more lateral ports 19. An arm 20 is ad-

justably mounted on the tube below the sleeve and a lever 21 is pivoted at 22 on said arm and carries at its outer end a ball 23. The inner end of said lever is provided with a toe 24 arranged beneath the lower end of the sleeve and with a heel 25 to engage the tube.

In practice, the liquid is forced under a suitable pressure into the tank, compressing the air therein, until there is a sufficient supply of liquid in the tank to commence the filling operation. Then the shaft 3 is rotated carrying with it the spider and the tank and the bottle lifts are automatically operated in succession to move the bottle rests, with the bottles thereon, up into engagement with and to open the filling mechanisms 9. Provision is made, in any of the well known ways, for permitting the pressure in the tank and the bottle to equalize before the liquid begins to flow, as through an air passage in the pipes 9' and 9'', and when the liquid begins to flow into the bottle the air in the bottle escapes through this air passage into the tank. The float valve is employed to automatically regulate the supply of liquid in the tank and it will be readily understood that as the liquid rises in the tank the float will rise and swing the lever 21, carrying the toe 24 down and permitting the sleeve 16 to fall by gravity and seat the disk 10, which forms the valve, on the upper end of the tube 11. Thus the valve is closed when the liquid has reached a predetermined level in the tank and then the air in the tank prevents the entrance of more liquid through the branch supply pipes 7'. As the level of the liquid in the tank falls during the filling operation the sleeve 16 is raised to unseat the valve 17 and permit air to escape from the tank so that the flow of liquid into the tank may be resumed. The operation of the float valve is very sensitive because very little movement of the float is required to unseat the valve 17 and therefore the predetermined quantity of liquid can be maintained in the tank without much variation. This is especially important in connection with beer filling machines for if there is considerable variation in the level of the liquid in the tank from time to time foaming may be produced in the tank by the sudden entrance of beer from the supply and this foaming is very objectionable and seriously interferes with the filling operation. By adjusting the arm 20 the float can be set to

maintain the desired level of liquid in the tank. The heel 25 is arranged to engage the tube 11 to limit the downward movement of the float.

5 What I claim and desire to secure by Letters Patent is:

10 1. The combination with an air tight liquid tank of a filling machine, of an air escape tube mounted in the bottom of said tank and extending therethrough, a valve at the upper end of said tube, a lever pivotally supported on said tube, a float on one end of said lever, a toe on the other end of said lever to operate said valve, and a heel on the lever below the toe to bear against the tube and limit the downward movement of the float.

15 2. The combination with an air tight liquid tank of a filling machine, of an air escape tube mounted within the tank and communicating with the atmosphere, a sleeve slidably mounted on the tube, a valve at the upper end of said sleeve, there being lateral ports in the sleeve below said valve, a lever pivotally supported on said tube beneath the sleeve, a float on one end of said lever, and a toe and heel on the other end of said lever,

the toe being arranged to raise the sleeve and open said valve and the heel being arranged beneath the toe to bear against the tube and limit the downward movement of the float. 30

3. The combination with an air tight liquid tank of a filling machine, of an air escape tube mounted in the bottom of the tank and extending therethrough, the upper end of said tube being tapered, a sleeve slidably mounted on said tube and provided with lateral ports opposite said tapered end of the tube, a cap on the upper end of said sleeve, a disk held by the cap and forming a valve to seat on the upper end of the tube, an arm adjustably mounted on the tube below the sleeve, a lever pivoted on the arm, a float on one end of said lever, a toe on the other end of said lever beneath the sleeve to raise the same and unseat the valve, and a heel on the lever beneath the toe to bear against the tube and limit the downward movement of the float. 40 45

FRANK C. H. STRASBURGER.

Witnesses:

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