

No. 776,620.

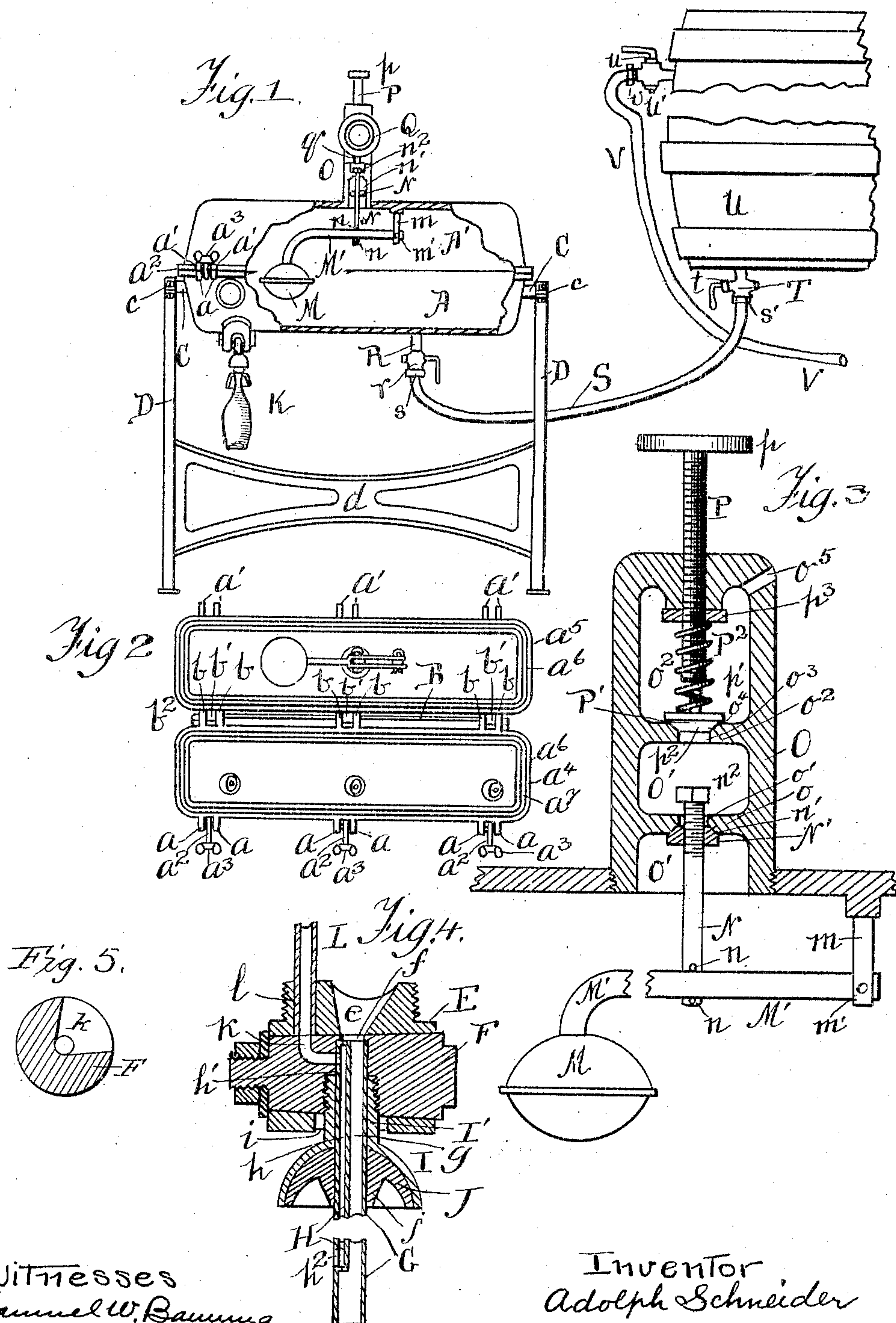
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A. SCHNEIDER.

## BOTTLING MACHINE.

APPLICATION FILED JUNE 7, 1901.

NO MODEL.



Witnesses  
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# UNITED STATES PATENT OFFICE.

ADOLPH SCHNEIDER, OF CHICAGO, ILLINOIS.

## BOTTLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 776,620, dated December 6, 1904.

Application filed June 7, 1901. Serial No. 63,655. (No model.)

*To all whom it may concern:*

Be it known that I, ADOLPH SCHNEIDER, a citizen of the United States, formerly residing at Trinidad, in the county of Las Animas and State of Colorado, and now residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bottling-Machines, of which the following is a specification.

10 This invention relates to bottle-filling machines in which a tank or receptacle for containing liquid to be bottled has connected therewith a filling valve or valves by means of which the bottle or bottles can be filled with liquid from the tank or receptacle, and  
15 pertains especially to the maintaining of the liquid under a constant pressure in the tank, to automatically admit and shut off the flow of the liquid into and from the tank or receptacle, and to the pressure regulating and controlling means for the pressure.

The objects of the invention are to construct a bottle-filling machine having a tank or receptacle with a chamber the lower portion  
25 of which receives the liquid and the upper portion of which contains the pressure and to apply to the under side of the tank or receptacle one or more filling-valves and to the upper side of the tank or receptacle a pressure-regulator actuated by the rise and fall of the  
30 liquid in the tank or receptacle, to locate in the interior of the tank or receptacle a float for actuating a relief or escape valve for the pressure-regulator and controlling automatically the admission of and the cutting off of the flow of the liquid into the tank or receptacle, to improve the construction and operation of the pressure relief or escape valve in connection with the rising and falling float  
40 within the interior of the tank or receptacle, and to improve generally the construction and operation as a whole of the pressure controlling and regulating means for supplying the liquid to the bottling-machine.

45 The invention consists in the features of construction and combinations of parts hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of the bottling-machine of the invention  
50 with the tank or receptacle partly broken away and in section to show the float and the

pressure relief or escape valve operated from the float; Fig. 2, a side elevation showing the tank or receptacle open and in position for access thereto for cleaning or other purposes; 55 Fig. 3, a sectional elevation showing a portion of the tank or receptacle and the pressure relief or escape valve and the float with the arm of the float broken out; Fig. 4, a longitudinal sectional elevation of a filling-valve 60 and the parts connected therewith, the filling-tube being shown broken out and in section and the pressure supply and vent tube being shown broken out and partly in section and partly in elevation; and Fig. 5, a detail in 65 cross-section of the valve-plug, showing the passage for injecting and ejecting pressure.

The tank or receptacle is constructed of a body or bottom section or half A and a cover or top section or half A', the two sections or 70 halves being of the requisite length and diameter for the size of tank or receptacle desired. The body of the tank or receptacle has on its front side ears *a*, arranged in pairs, and the cover A' has on its front side ears *a'*, 75 arranged in pairs to coincide with the ears *a*, and by means of these ears and the stems of clamping-bolts *a<sup>2</sup>*, pivoted between the ears *a* and each having a wing or other nut *a<sup>3</sup>*, the front of the tank or receptacle at the juncture 80 between the body and the cover can be closely drawn together. The body A at its upper side has a projecting flange *a<sup>4</sup>*, and the cover A' at its under side has a projecting flange *a<sup>5</sup>*, both flanges extending entirely around and 85 each having a groove or recess *a<sup>6</sup>* therein to receive a packing or gasket *a<sup>7</sup>*, so that when the two sections or halves are drawn together by the clamping-bolts the packing or gasket will be compressed between the flanges, forming a tight joint against leakage. 90 The rear side of the body of the tank or receptacle has ears *b*, arranged in pairs, and between each pair of ears *b* is entered an ear *b'* on the rear side of the cover of the tank or receptacle. 95 A pivoting-rod B, having at one end a nut *b<sup>2</sup>*, is passed through the ears *b* and *b'* and furnishes a hinge connection between the two sections or halves of the tank, by which the top or cover can be raised for access to the interior of the tank or receptacle. 100

At each end of the body of the tank or re-



ceptacle is a trunnion or journal C, mounted in journal boxes or bearings *c* on the top or end standards or uprights D, which form with a cross-piece *d* the frame of the machine.

5 The journal boxes or bearings *c* are made in two parts, united one to the other by clamping-bolts, so that by loosening the clamping-bolts slightly the tank or receptacle is free to turn on its trunnions or journals, and by

10 tightening the clamping-bolts the tank or receptacle can be locked or held in a fixed position. The clamping-bolts are tightened when the tank or receptacle is in position for use, as shown in Fig. 1, and are loosened to enable the tank or receptacle when opened to be

15 swung into the position shown in Fig. 2 for cleaning or other purposes.

The filling-valve shown has a casing or shell E for the reception of the plug F of the valve.

20 The casing or shell E is attached to the wall of the body A, and in the attached end of the casing is a passage *e* to coact with the passage *f* in the valve-plug F, so that when the valve-plug is properly turned the passage *f* comes

25 into alinement with the opening or passage *e* of the shell or casing and the liquid can flow from the tank or receptacle into the bottle.

A filling-tube G is entered at its upper end into the passage *f* of the valve-plug and is of

30 the requisite length to be entered into a bottle for its lower end to discharge liquid into the bottle. The interior of the filling-tube has therein a partition or second tube H dividing the filling-tube into a channel or pas-

35 sage *g* for the liquid and a channel or passage *h* for admitting pressure into and venting pressure from the bottle. The channel or passage-way *h* has communication through the wall of the filling-tube at one end by a port or

40 hole *h'* and has communication at its other end through the wall of the filling-tube by a port or passage *h''*, permitting the inflow and outflow of pressure through the channel or passage-way. The filling-tube adjacent to the shell or

45 casing of the valve has thereon a cup-shaped cap I, within which is a packing J, of rubber or other suitable material, and having at its center a stopper or tapered plug *j* for the packing and plug to tightly close the mouth

50 of the bottle when in position for filling with the filling-tube entered thereinto. The cap I has a hollow stem I' with an exterior screw-thread to enter a screw-threaded hole in the plug-valve around the filling-tube and in

55 alinement with the passage *f*, so that the raising and lowering of the filling-tube turns the plug-valve, and in order to permit of the necessary oscillation of the filling-tube to turn the valve-plug the wall of the shell or casing

60 E in line with the stem I' has therein a transverse slot *i* of the requisite length for the swinging of the filling-tube.

The bottle when in filling position with its mouth closed tight by the cap I and its pack-

65 ing J, with the filling-tube entered into the

interior of the bottle, is held in position by a holder or retainer K of any suitable construction and attached to the shell or casing E or in any other suitable manner and operating to force the end of the bottle into the space or

70 annular groove or recess between the stopper and the wall of the packing, with the stopper pressed into the mouth of the bottle, making a close tight joint around the end of the bottle against leakage and closing any hole or

75 nick in the end of the bottle.

Extending through the wall and the shell or casing of the valve-plug is a hole *l*, into which is entered the end of a pressure supply and vent tube L, the other end of which ex-

80 tends into the receptacle above the level of the liquid in the chamber of the tank or receptacle, so as to be in communication with the pressure in the top of the chamber when the machine is in operation. The valve-plug

85 has therein a passage *k* of an L shape, one end of which is of a V shape, as shown in Fig. 5, and is in communication with the hole or port *h'* of the channel or passage-way *h* and the other end of which can be brought

90 into register or communication with the channel or passage-way in the tube L when the valve-plug is turned for such registration or communication. The tube L, with the pas-

95 sage *k* and the channel or passage-way *h*, furnishes means by which communication is established between the upper portion of the chamber of the tank or receptacle and the bottle, so as to admit pressure from the cham-

100 ber of the tank or receptacle into the bottle and to educt pressure from the bottle back into the chamber, placing the tank or receptacle and the bottle under an equalized pressure for filling the bottle with liquid.

A float M is located in the chamber of the

105 tank or receptacle and is attached to the free end of an arm M', the other end of which is pivotally connected to a pendant *m* by a suitable pin or pivot *m'*, so that the float is free to rise and fall with the admission and with-

110 drawal of liquid from the chamber of the tank or receptacle. A stem N is connected with the body of the arm M' by pins *n*, projecting out from the stem to overlie the edges of the arm M', making a loose connection between

115 the stem and arm for maintaining a straight-line movement for the stem as the float rises and falls. The body of the stem at one end is screw-threaded and has thereon a valve-disk N', having a seating-face *n'*, and on the ex-

120 tremite end of the threaded end of the stem is a nut *n''*, the threaded stem permitting the adjustment of the valve-disk and the nut, with a sufficient space between them for the rise and fall of the float and have the rise of the float

125 force the seating-face of the disk to its seat. A casing O, having an exterior screw-thread at its end, is entered into a screw-threaded hole in the wall of the cover or top of the tank

130 or receptacle. This shell or casing O has in



its end entered into the wall of the tank or receptacle a chamber  $O'$ , divided by a partition  $o$ , in which is a port  $o'$ , having a seating-face with which the seating-face of the valve-disk  $N'$  coacts. The lower half or portion of the chamber  $O'$  opens direct into the chamber of the tank or receptacle, and the stem  $N$  passes through the port  $o'$ , with the nut  $n^2$  in the upper half or portion of the chamber  $O'$ , so that the partition  $o$  forms a stop for the downward movement of the stem by the engagement of the nut  $n^2$  therewith and also forms a stop for the upward movement of the stem by the engagement of the seating-face of the valve-disk  $N'$  therewith around the port or passage  $o'$  in the partition. The shell or casing  $O$  has a second partition  $o^2$ , in which is a port  $o^3$ , having a valve-seating face  $o^4$  in the partition, which port furnishes communication between the chamber  $O'$  and a chamber  $O^2$  in the shell or casing. The end of the shell or casing is closed, and outlet for venting pressure from the chamber  $O^2$  is furnished by a hole or holes  $o^5$  in the wall of the shell or casing at its closed end. A stem  $P$ , having a portion of its body screw-threaded, is entered through a screw-threaded hole in the closing end wall of the shell or casing for its inner end to project into the chamber  $O^2$  of the shell or casing. The outer end of the stem  $P$  is provided with a hand-wheel or handle  $p$ , by means of which the stem can be turned for adjusting purposes. A valve-disk  $P'$ , having a stud or pin  $p'$  projecting from one side at its center and having on its opposite side a seating-face  $p^2$  to coact with the seating-face  $o^4$  around the port or passage  $o^3$ , is located and operates in the chamber  $O^2$  of the shell or casing. A coiled spring  $P^2$  is located in the chamber  $O^2$ , and its lower end encircles the stud or pin  $p'$ , and its upper end encircles the inner end of the stem  $P$  and abuts against a washer  $p^3$ , carried by the threaded portion of the stem  $P$ , so that by advancing and receding the stem the spring  $P^2$  can be adjusted or regulated for the pressure to be exerted against the valve  $P'$  for the valve to open when the predetermined pressure at which the spring is adjusted is reached and overcome to escape any excess of pressure over the predetermined amount from the chamber of the tank or receptacle, the excess of pressure escaping through the hole or holes  $o^5$  in the wall of the shell or casing. A pressure gage or indicator  $Q$  is connected with the chamber of the tank or receptacle by a pipe or tube  $q$  for indicating the predetermined pressure in the tank or receptacle.

An inlet-tube  $R$  is entered into the wall of the body or bottom of the tank or receptacle and is provided with a controlling-valve  $r$  of any suitable construction, which, as shown, is hand-operated. A hose or pipe  $S$  is attached at one end by a coupling  $s$  to the valve of the inlet-pipe and is attached at its other end by a coupling  $s'$  to the casing of a cock  $T$ , having a

valve  $t$  of any suitable construction, which, as shown, is hand-operated. The valve-cock  $T$  is entered into the bottom of the cask  $U$ , containing the liquid to be filled into the bottle, which cask, as shown, has its bottom in a level plane with the upper side of the body or bottom of the tank or receptacle, so that under proper conditions liquid from the cask will flow by gravity into the body or bottom portion of the tank or receptacle. A pressure valve-cock  $U'$  is entered into the upper end of the cask  $U$  and has a valve  $u$  of any suitable construction, which, as shown, is hand-operated, and connected with the valve-cock  $U'$  by a coupling  $v$  is a supply hose or pipe  $V$ , leading to a source of pressure-supply, (not shown,) which may be an air-compressor or a compressed-air reservoir. The flow of liquid from the cask  $U$  into the tank or receptacle will take place when the float is down, and as the liquid enters the tank or receptacle with the float down the increased pressure produced by the flow of liquid in the tank or receptacle will escape through the port  $o'$ , the valve-disk  $N'$  being unseated, and this excess of pressure will flow from the chamber  $O'$  through the port  $o^3$ , raising the valve  $P'$  against the force of the spring  $P^2$  and escaping to the atmosphere through the hole or holes  $o^5$  in the wall of the shell or casing  $O$ , maintaining a uniform pressure in the chamber of the tank or receptacle as the liquid flows thereinto. The float will rise as the liquid fills the tank or receptacle, and when the float reaches a height where it has raised the stem  $N$  to close the port or passage  $o'$  by the valve  $N'$  the flow of liquid into the chamber of the tank or receptacle will cease as soon as the pressure in the upper portion of the chamber exceeds the pressure at which the liquid enters the chamber, thus automatically shutting off the flow of liquid with the closing of the escape of the pressure from the chamber of the tank or receptacle. The lowering of the liquid in the chamber of the tank or receptacle as the bottles are filled allows the float to descend, drawing down the stem  $N$  and opening the port or passage  $o'$  by withdrawal of the valve-disk  $N'$  from its seat around the port or passage, and with the descent of the float by the fall of the liquid the pressure in the chamber will decrease in force by reason of expansion, and when the decrease is sufficient to be uniform with the pressure of the liquid in the cask the liquid will again flow into the chamber of the tank or receptacle and continue to flow until the float again rises and shuts off the escape of the excess pressure. The outflow of liquid and the descent of the float opens the port or passage  $o'$ , and at the same time the valve-disk  $P'$  will close the port  $o^3$  against the inflow of air from the outside to the chamber  $O'$  and thence into the chamber of the tank or receptacle. The bottling-machine of my invention maintains an equal pressure on the liquid during the



bottling operation, which pressure is the same  
 in the supply-cask, the filling tank or recep-  
 tacle, and the bottle, being transferred to the  
 bottle when in position to be filled. This  
 5 equalized pressure prevents foaming and is  
 maintained under all conditions of the filling  
 operation and is dependent on the pressure  
 in the cask or barrel from which the liquid  
 is taken. The predetermined pressure—say  
 10 ten pounds, as an illustration—is maintained  
 in the cask or barrel from which the liquid is  
 taken, and this pressure is supplied to the  
 cask or barrel from the supply hose or pipe  
 V, the controlling valve-cock U' on the cask  
 15 or barrel being turned to admit the pressure  
 into the cask or barrel above the liquid there-  
 in. The controlling valve-cocks between the  
 cask or barrel and the filling tank or recep-  
 tacle are open for the beer to flow from the  
 20 cask or barrel into the tank or receptacle un-  
 der the pressure in the cask or barrel and the  
 added pressure from the elevated position of  
 the cask or barrel, and when the pressure in  
 the tank or receptacle registers ten pounds  
 25 on the indicator or gage Q the spring P<sup>2</sup> of  
 the relief-valve P' is adjusted for the valve  
 P' to open when an excess of ten pounds pres-  
 sure is reached for the excess of pressure to  
 unseat the valve-disk P' and allow the excess  
 30 of pressure to vent or blow off through the  
 holes o<sup>5</sup> until the pressure is reduced to ten  
 pounds, when the valve-disk P' is again seat-  
 ed by the spring P<sup>2</sup> closing the port or pas-  
 sage o<sup>3</sup> against the escape of pressure. The  
 35 pressure of ten pounds is maintained con-  
 stantly on the liquid in the cask or barrel,  
 and this predetermined pressure is maintained  
 in the chamber of the tank or receptacle by  
 the pressure-regulating valve, which is set  
 40 to open at a corresponding pressure of ten  
 pounds. The liquid when the pressure be-  
 tween the cask or barrel and the filling tank  
 or receptacle is equalized will flow by gravity  
 from the cask or barrel into the tank or re-  
 45 ceptacle, and such flow, if not prevented, would  
 continue until the level of the liquid in the  
 cask or barrel is reached by the level of the  
 liquid in the tank or receptacle, which might  
 result in the liquid passing through the regu-  
 50 lating-valve and out at the escape-holes o<sup>5</sup> if  
 the flow of the liquid into the tank or recep-  
 tacle were not stopped. The inflow of liquid  
 into the tank or receptacle as it rises therein  
 raises the float and with it, through the arm  
 55 M', the stem N, and when the float reaches a  
 point, as the liquid rises in the chamber of the  
 tank or receptacle, where the stem N is raised  
 to seat the valve N' the escape of pressure from  
 the chamber of the tank or receptacle is pre-  
 60 vented, with the result that the continued in-  
 flow of the liquid increases the pressure in the  
 upper part of the chamber of the tank or re-  
 ceptacle, and when the excess of pressure is  
 sufficient to overbalance the pressure in the  
 65 cask or barrel with the gravity flow added fur-

ther inflow of the liquid into the chamber of  
 the tank or receptacle is stopped, the float  
 thus acting to automatically shut off the inflow  
 of the liquid as the liquid rises in the cham-  
 ber of the tank or receptacle by closing the 70  
 outlet-port for the escape of the pressure.

The bottle to be filled is normally under at-  
 mospheric pressure when entered onto the  
 filling-tube with its end in the closing-cap.  
 The initial turning of the bottle into fill- 75  
 ing position brings into communication the  
 pressure-tube and the pressure channel or  
 passage in the filling-tube, allowing pressure  
 from the upper portion of the chamber of the  
 tank or receptacle to enter the bottle, equal- 80  
 izing the pressure between the tank or recep-  
 tacle and the bottle. The pressure being  
 equal in the filling tank or receptacle and in  
 the bottle, with the full turning of the bottle  
 to filling position the liquid from the tank or 85  
 receptacle will flow by gravity through the  
 channel or passage of the filling-tube into  
 the bottle. The liquid as it flows into the  
 bottle displaces pressure therein, and such  
 pressure will be forced back through the 90  
 pressure channel or passage h in the filling-  
 tube and the tube L into the upper portion of  
 the chamber of the tank or receptacle, and  
 any increase of pressure in the chamber or  
 receptacle over predetermined pressure there- 95  
 in will operate, the valve-disk N' being open,  
 to open the valve-disk P' and escape the ex-  
 cess of pressure through the regulating-valve  
 out by the holes o<sup>5</sup> to the atmosphere. The  
 escaping pressure from the bottle entering 100  
 the chamber of the tank or receptacle will be  
 subjected to an increased pressure and will  
 be compressed thereby and will occupy less  
 space in the receptacle than the liquid which  
 has been drawn off and which is replaced by 105  
 the escaping pressure from the bottle, and  
 under these conditions as the liquid falls in  
 the chamber of the tank or receptacle the  
 float will also fall, opening the valve-disk N'  
 and allowing excess of pressure to pass 110  
 through the port O' and raise the valve-disk  
 P' to escape the excess of pressure through the  
 hole o<sup>5</sup> to the atmosphere, and with the re-  
 duction of the pressure in the upper part of  
 the chamber of the tank or receptacle to an 115  
 equal pressure with that in the cask or bar-  
 rel the liquid will again flow from the bar-  
 rel into the chamber of the tank or recepta-  
 cle. It will thus be seen that no matter how  
 much liquid may be drawn from the chamber 120  
 of the tank or receptacle, nor under what  
 conditions the pressure will remain the same  
 at all times, as in case of an excess of pressure  
 such excess is released with the fall of the  
 float, returning the pressure to normal and 125  
 maintaining it there with the return of the  
 valve-disk P' to its seating position. It is  
 manifest that in first filling the tank or re-  
 ceptacle from the cask or barrel the liquid  
 first entering the tank or receptacle will be 130



subjected to a slight reduction of pressure in the tank or receptacle if there is no excess of pressure above that of the atmosphere in the tank or receptacle, and in such case a slight foam will be formed for the liquid in the tank or receptacle, which foam would be carried into the first-filled bottle. If, however, it is not desired to have the first-filled bottles contain foam, the supplied pressure for the cask or barrel may be communicated directly to the tank or receptacle at the time it enters the cask or barrel and before opening communication between the cask or barrel and the tank or receptacle, placing both the cask or barrel and the tank or receptacle under an equal pressure for the liquid as it flows into the tank or receptacle by gravity to enter without any foaming; thus absolutely preventing the reduction of pressure on the liquid at the time and positively preventing foam in the bottles.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a bottling-machine, the combination of a filling tank or receptacle having a lower portion for receiving liquid and an upper portion for containing pressure, a liquid-supply pipe leading into the lower portion of the tank or receptacle at the bottom thereof, a shell or casing entered into the wall of the upper portion of the tank or receptacle and having therein an upper chamber and a lower chamber with the lower chamber in communication with the upper portion of the tank or receptacle, a partition between the upper chamber and the lower chamber, a port in the partition, a valve-disk controlling the port, a stem carrying the valve-disk adjustable thereon, a float in the tank or receptacle in contact with the liquid, an arm carrying the float and connected with the stem of the valve-disk for the rise of the float to close the port in the partition and shut off the escape of pressure and stop the inflow of liquid at the supply-pipe, substantially as described.

2. In a bottling-machine, the combination of a filling tank or receptacle having a lower portion for receiving liquid and an upper portion for containing pressure, a shell or casing having a lower chamber in communication with the upper portion of the tank or receptacle, a partition across the lower chamber, a port in the partition, a valve-disk controlling the port, an upper chamber in the shell or casing, a partition between the lower chamber and the upper chamber, a port in the partition, a valve-disk controlling the port, a pressure-regulating spring for the valve-disk, and an escape hole or opening from the upper chamber through the wall of the shell or casing, substantially as described.

3. In a bottling-machine, the combination of a filling tank or receptacle having a lower portion for receiving liquid and an upper portion for containing pressure, a shell or casing

having a lower chamber in communication with the upper portion of the tank or receptacle, a partition across the lower chamber, a port in the partition, a valve-disk controlling the port, an upper chamber in the shell or casing, a partition between the lower chamber and the upper chamber, a port in the partition, a valve-disk controlling the port, a pressure-regulating spring for the valve-disk, an escape hole or opening from the upper chamber through the wall of the shell or casing, a float in the tank or receptacle in contact with the liquid, and an arm carrying the float and connected with the valve-disk for the port of the lower chamber, for closing the port with the rise of the float and opening the port with the fall of the float, substantially as described.

4. In a bottling-machine, a pressure-regulating valve comprising a shell or casing on the liquid tank or receptacle and having an upper and lower chamber, an air-outlet port from the upper chamber, a partition between the chambers, a port in said partition, a spring-pressed valve disk or stopper controlling the port, a spring adapted to hold said disk or stopper against the valve-seat and prevent the passage of air therethrough, a stem having a threaded bearing in the shell or casing and adapted to compress the spring and thereby regulate the amount of pressure on the valve stopper for the pressure to raise the stopper off the seat and open the valve-port, a partition in the lower chamber of the shell or casing, a valve-controlled port in the partition, a valve-stem passing through said port, a valve disk or stopper on the stem adapted when elevated to close the port in the lower partition and operatively connected with a float in the tank or receptacle and having the valve disk or stopper arranged on the stem to close the port in the lower partition when the float rises to a predetermined point, substantially as described.

5. A bottling-machine comprising a liquid tank or receptacle, the said tank or receptacle having an upper and lower member pivotally secured together, means for pivoting the receptacle on a supporting-frame whereby the tank or receptacle can be opened and turned into vertical position for cleaning, means connecting the tank or receptacle with a liquid-supply under pressure, a pressure-regulating valve on the upper member of the tank or receptacle, a float regulating the valve in the tank or receptacle adapted to close the air-discharge port in the pressure-regulating valve when the float rises to a predetermined point leaving an air-chamber in the upper port of the tank or receptacle, means connecting the bottle to be filled with the liquid and the air in the tank or receptacle comprising a valve or tap having an air-passage and a liquid-passage, with the air-passage adapted to be connected with the upper or air part of the tank or receptacle before connection is made be-



tween the lower or liquid part of the tank or receptacle, and the liquid-passage admitting liquor from the tank or receptacle to the bottle to be filled, substantially as described.

5 6. In a bottling-machine, the combination of a filling tank or receptacle having a lower portion for receiving liquid and an upper portion for containing pressure, a shell or casing having a lower chamber in communication  
10 with the upper portion of the tank or receptacle and having an upper chamber with an outlet therefrom through the wall of the shell or casing, a partition between the two chambers, a port in said partition, a valve-disk controlling the port, a pressure-regulating spring  
15 for the valve-disk, and a stem screw-threaded into the wall of the shell or casing and having its inner end entered into the spring, for setting the spring at a predetermined relief-pressure  
20 sure for the regulating-valve, substantially as described.

7. In a bottling-machine, the combination of a filling tank or receptacle having a lower portion for receiving liquid and an upper portion for containing pressure, a shell or casing  
25 having a lower chamber in communication with the upper portion of the tank or recep-

tacle and having an upper chamber with an outlet therefrom through the wall of the shell or casing, a partition between the two chambers, a port in said partition, a valve-disk controlling the port, a pressure-regulating spring for the valve-disk, a stem screw-threaded into the wall of the shell or casing and having its inner end entered into the spring for setting  
30 the spring at a predetermined relief-pressure for the regulating-valve, a partition across the lower chamber of the shell or casing, a port in the lower partition, a valve-disk controlling the port, a stem for the valve-disk, a float in  
35 the tank or receptacle in contact with the liquid, and an arm carrying the float and connected with the stem of the valve-disk, for opening and closing the port in the lower partition with the falling and rising of the float,  
40 substantially as described.

In witness that I claim the foregoing I have hereunto subscribed my name this 17th day of May, 1901.

ADOLPH SCHNEIDER.

Witnesses:

G. E. HARPHAM,  
MATTIE MCGINNIS.