

No. 754,017.

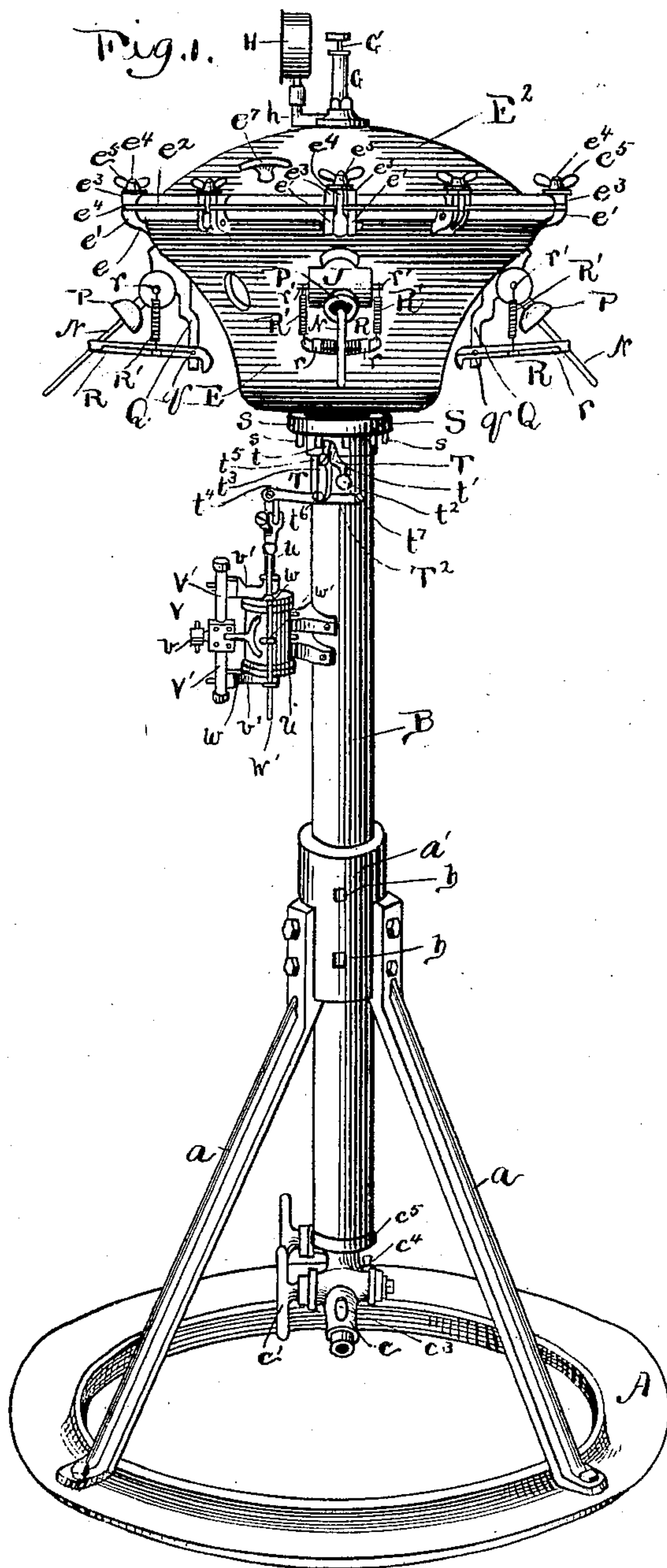
PATENTED MAR. 8, 1904.

A. SCHNEIDER.
MACHINE FOR BOTTLING LIQUIDS.

APPLICATION FILED NOV. 14, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

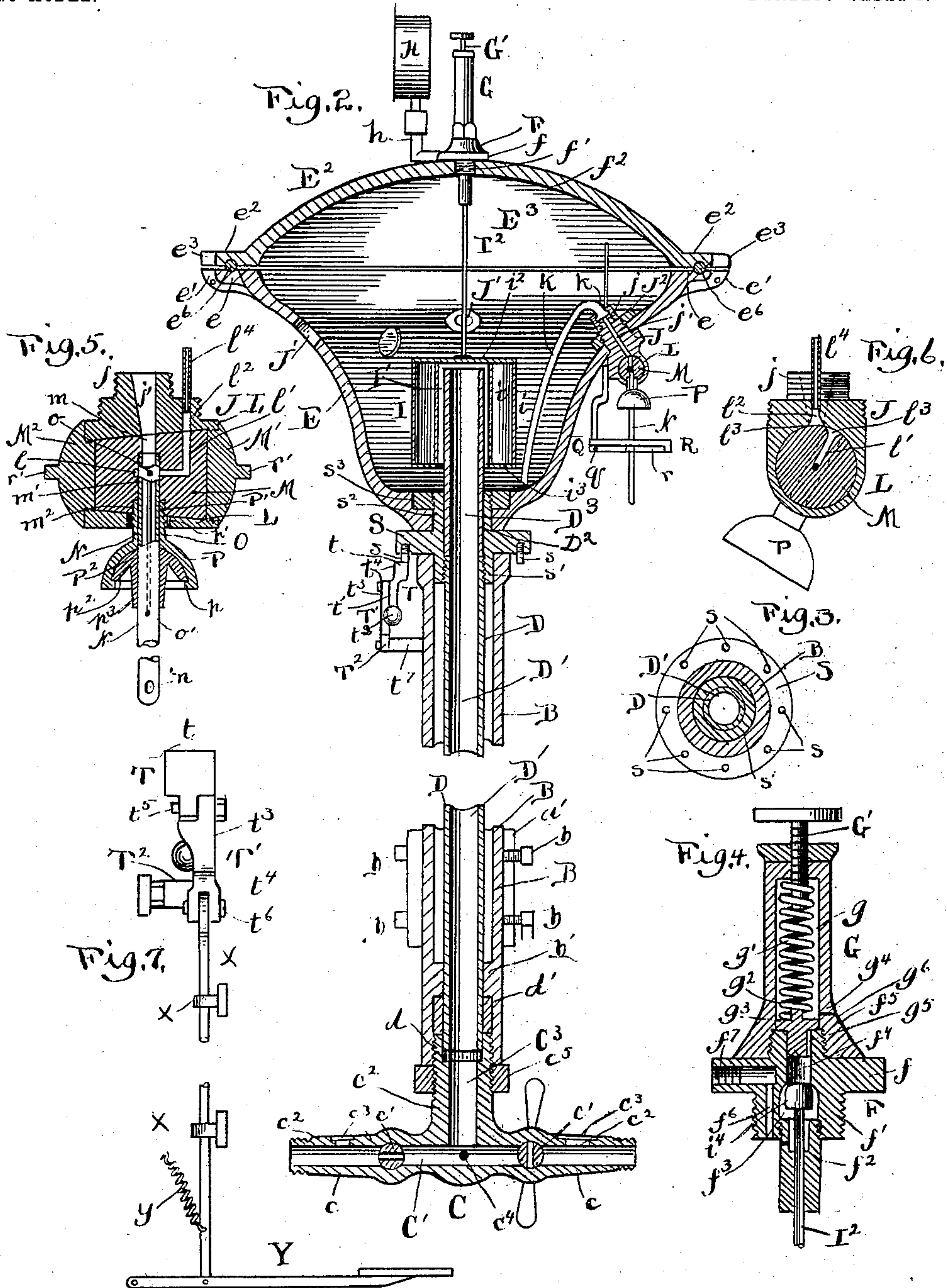


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Witnesses
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UNITED STATES PATENT OFFICE.

ADOLPH SCHNEIDER, OF CHICAGO, ILLINOIS.

MACHINE FOR BOTTLING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 754,017, dated March 8, 1904.

Application filed November 14, 1902. Serial No. 131,305. (No model.)

To all whom it may concern:

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

The objects of this invention are to construct a machine in which the receptacle or tank for containing the liquid to be bottled has an intermittent rotatable movement given thereto and carries a series of filling valves and tubes constructed for the attachment and detachment of a bottle for each filling-tube, to furnish a mounting for the containing receptacle or tank which will give the tank a side support and allow of the ready rotation of the receptacle or tank, to improve the means for intermittently rotating the receptacle or tank, and to improve generally the construction and operation of the machine as a whole.

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

In the drawings, Figure 1 is an elevation somewhat in perspective of the complete machine; Fig. 2, a sectional elevation with the support for the receptacle or tank and the filling-tube broken out; Fig. 3, a cross-section on the line of the mounting or bearing plate for the receptacle or tank; Fig. 4, a sectional elevation of a pressure-regulating valve; Fig. 5, a longitudinal sectional elevation of the filling-valve and the filling-tube with the filling-tube partly in full elevation and broken out; Fig. 6, a cross-section through the filling-valve, showing the passages for inducting and educting pressure to and from the bottle; and Fig. 7, a detail showing a foot-power for operating the mechanism to intermittently rotate the receptacle or tank.

The machine is constructed with a supporting-base, consisting of a bottom ring A, extending diagonally up from which are legs *a*, separated at their upper ends and having secured to the upper ends a sleeve *a'*, in which is entered a tubular post or standard B, which is slidable in the sleeve to permit the tubular post or standard to be raised and lowered for adjusting the height of the receptacle or tank

carried thereon, and when adjusted the tubular standard or post is located and held in its adjusted position by set bolts or screws *b*, passing through the sleeve *a'* and engaging the face of the post or standard. A controlling-cock C for the admission of the liquid is located at the lower end of the tubular standard or post, and this cock has therethrough a longitudinal passage C' and has at each end a nozzle *c* for the attachment of a hose or pipe leading to the source of supply for the liquid, and the passage C' for each nozzle is controlled by a plug-valve *c'*, having therethrough a passage for the liquid when the valve is turned for the passage therein to be in open communication with the passage C', as shown, for the valve *c'* at the left hand of Fig. 2. Each nozzle, as shown, has a sight-opening *c''*, closed by a transparent cover *c'''*, such as glass, for enabling observations to be taken as to the flow of the liquid, and opening into the passage C' is a port or passage *c''''* in a valve (not shown) for the admission of pressure to the cock to pass into the receptacle or tank. The cock is attached to the lower end of the tubular post or standard B by a screw-threaded stem C², entered into the end of the post or standard and when entered locked in its entered position by a nut *c⁵* or otherwise.

A supply-tube D extends up through the hollow post or standard B, and its lower end is entered into an annular hole *d* in the end of the stem C² for the channel or passage D' of the tube to be in line with the channel or passage C³ in the stem for the beer when the cock C is open on one side or the other to flow through the supply-tube. A packing *d''* surrounds the supply-tube between the end of the stem and the end wall of the hole into which the stem is entered in the post or standard, and, as shown, the lower end of the supply-tube is guided and held in position by an inwardly-projecting shoulder *b'* on the post or standard, forming, in connection with the entered end of the supply-tube into the stem, a support for the supply-tube against lateral play or movement. The liquid-containing receptacle or tank consists of a vessel E, having a chamber E', and a cap or cover E², having a chamber E³, and, as shown, communication is

had for the supply-tube D with the chamber E' by a removable tube D², having a passage D³, and when in position having its end bearing against the end of the supply-tube. The
 5 top of the vessel E has a flange e, and the bottom of the cap or cover E² has a flange e², and extending out from the flange e is a series of ears e', arranged in pairs, and extending out from the flange e² is a series of ears e³, arranged in pairs, and coinciding with the ears e', and between each pair of ears e' is pivotally
 10 secured a clamping-bolt e⁴, the stem of which extends up between the ears e³ and receives a thumb-nut e⁵, by means of which the cover
 15 can be drawn toward the vessel for the flanges e' and e² to clamp between them a packing-ring e⁶, making a tight joint between the cover and the vessel against leakage of pressure or liquid.

A plug F, having a flange or rim f, is threaded
 20 ed into the cap or cover at the center by means of the boss or wall f', having an exterior screw-thread, and threaded into the end of the boss or wall is a stem f², the continuation of the hole for the stem forming a chamber f³ in the boss or wall, leading from which
 25 is a port or passage f⁴ in the plug and in a boss or wall f⁵ on the plug. A shell or casing G is screw-threaded at its lower end onto the boss f⁵, and in the chamber g of this shell
 30 or casing is located a coiled spring g', the upper end of which is engaged by a threaded stem G', passing through the top of the shell or casing, by means of which threaded stem the tension or pressure of the spring can be
 35 regulated. The lower end of the spring g' encircles a pin or stud g² on a disk g³, having a hub or center g⁴, which enters into the chamber f⁴, and has a slot or groove g⁵ in its face for escaping pressure through a port or hole g⁶ in
 40 the wall of the shell or casing when the valve-disk g³ is raised from its seat on the end of the boss or wall f⁴, and with the valve-disk g³ on its seat the escape of pressure is stopped. A pressure-gage H of any usual or well-known form
 45 of construction is connected by a pipe h with a nipple f', extending out from the plug F, with the passage of the nipple in communication with the chamber by a passage f⁶ for indicating by the gage the amount of pressure in the
 50 chamber. A float I, formed, as shown, of an outer wall i, an inner wall i', a solid top i², and an open bottom i³, is located within the chamber E', and the end of the tube D² enters the open center I' of the float. A stem I², having
 55 at its end an acting or seating face i⁴, is attached to the top of the float for the body of the stem to pass through the stem f² and have its acting or seating end coact with a seating-face around the port or passage f⁴ for the rise and
 60 fall of the float to close or open the port or passage f⁴ for the pressure when the port or passage is open to raise the valve-disk g³ from its seat and allow the pressure to vent through the passage g⁵ and port or passage g⁶ to the
 65 atmosphere, reducing the pressure in the

chamber E³ to the limit of the predetermined pressure. The liquid discharges from the tube D² into the space of the float around the tube and flows therefrom into the chamber E' below the float. The float I descends with the
 70 withdrawal of liquid from the chamber E', and the full descent of the float to the limit of its downward movement causes the stem I², carrying with it the valve i⁴, opening, the port or passage f⁴ and furnishing communication
 75 between the port or passage f⁴ and the chamber E³ for venting pressure, and with the rise of the float the valve i⁴ is raised, shutting off communication of the passage f⁴ with the
 80 chamber E³, so that the pressure cannot vent from the chamber, and allowing the beer to enter the chamber E' of the vessel E until the pressure in the chamber E³ is sufficient to overcome the pressure, forcing the liquid into the
 85 vessel and automatically shutting off the inflow of the liquid.

The controlling-valves for educting liquid from the chamber E' into the bottle are each constructed with a plug J, having a screw-thread and entered through a hole J' in the
 90 wall of the vessel E and held in place by a ring nut J², threaded into the plug inside of the wall of the vessel. The plug has a boss or wall j screw-threaded on its exterior, to which is attached by a coupling k a siphon-tube K, the receiving end of which extends
 95 nearly to the bottom of the chamber E', as shown in Fig. 2, and the siphon-tube is in communication with a passage j', extending through the plug. The plug has formed there-
 100 with a shell or casing L, having a tapered chamber in which is entered a plug-valve M, and, as shown, the plug M is held in its chamber by caps M' and M², threaded into the ends of the shell or casing. The plug-valve has a
 105 passage or port m, which is in alinement with the passage j' of the plug, and the port or passage m is a continuation of a passage m', into which is threaded the upper end of a filling-tube N, and around the filling-tube in the
 110 body of the valve M is an annular passage l, which communicates with a passage l', leading to the exterior of the valve and in line with a passage l² in the plug, and, as shown, each
 115 passage l' and l² has an elongated mouth l³, which open communication for the passages l' and l² in the turning of the valve before communication is opened between the passage
 120 j' and the port m for liquid to flow from the chamber E' into the filling-tube.

The filling-tube at its lower end has a discharge hole or opening n, and in the filling-tube is secured a tube O, the upper end of which is in communication with a port o, leading
 125 through the wall of the filling-tube in line with the annular passage l, and the other end of which is in communication with a port l', leading through the wall of the filling-tube. The liquid entering the filling-tube discharges
 130 into the bottle at the opening or hole n, and

the pressure from the chamber E^3 flows into the bottle through the passages l' and l^3 , the annular passage l , the tube O , and the ports o and o' , for which purpose a tube l^4 is entered into the passage l^2 , with the upper end of the tube projecting into the chamber E^3 above the liquid in the chamber E' , and pressure is educted from the bottle through the tube O , the ports o and o' , annular passage l , passages l' and l^2 , and tube l^4 to discharge into the chamber above the liquid. A cap P of a semispherical formation encircles the filling-tube N , and this cap has a stem P' , which is screw-threaded into a hole m^2 in the plug-valve around the filling-tube, and in order to permit the filling-tube to be moved forward and back to close and open the liquid and pressure passages the shell or casing has therein a slot p' , through which the stem P' of the cap extends. The cap has an inwardly-turned rim or flange p at its lower end, and within the chamber of the cap above the rim or flange is located a closure P^2 , consisting of a semispherical rim p^2 and a stopper or cork p^3 made integral one with the other, and preferably made of rubber or other elastic material, so that when a bottle is entered onto the filling-tube the mouth of the bottle will be tightly closed by the stopper p^3 and the end of the bottle will be surrounded by the spherical rim p^2 , tightly closing the mouth of the bottle against the escape of pressure and liquid. An arm Q depends from each plug J , and this arm has pivoted thereto by a suitable pin or pivot q a bottle-holder R , having side arms r , forming a fork, into which is entered the neck of the bottle, holding the bottle when inserted on the filling-tube with its end pressed tightly against the packing of the closing-cap, and, as shown, a coiled spring R' is located on each side of the fork of the bottle-holder, connected at one end with the arm of the fork and at the other end with a pin or stud r' , extending out from the ends of the caps M' and M^2 of the valve.

A plate S , having a series of depending studs or pins s , is mounted on the end of the tubular post or standard B and is held in place by a boss or wall s' , entering into the hole of the post or standard, which boss or wall has an interior screw-thread to receive the end of the supply-tube, and the tube D^2 , forming a continuation of the supply-tube, is entered into a hole in the plate and in a boss s^2 , extending up from the face of the plate, which boss has its exterior screw-threaded to receive a ring nut s^3 , entered into a recess in the bottom of the vessel E and connecting the vessel with the plate or platform S , so that the vessel will be revolved or turned by revolving or turning the plate or platform. A pawl or dog T is arranged for its acting end t to successively engage the studs or pins s , and this pawl has at the end of its tail t' a weight t^2 , which operates to return the pawl to normal

position for engagement with a stud or pin as the acting end passes the next succeeding stud or pin to engage therewith. The pawl is attached to an L-lever T' by a pin or pivot t^5 on the end of the arm t^3 of the L-lever, and a bracket-arm T^2 , attached to the post or standard B by a bolt t^7 or otherwise, has pivotally attached thereto by a pin or pivot t^6 the L-lever, so that the L-lever is free to swing on its pivot and advance and recede the pawl, and the pawl is free to turn on its pivot to pass a stud or pin s with the return movement of the pawl; but with the advance movement of the pawl the acting end thereof is held in firm engagement with the caught pin or stud. The arm t^4 of the L-lever has connected thereto in the arrangement shown in Fig. 1 the outer end of a piston-rod u , attached to a piston operating in a fluid-pressure cylinder U , and pressure is admitted to the cylinder and educted therefrom at opposite ends alternately from a chest V , to which fluid-pressure is supplied by a hose or pipe (not shown) attached to a coupling v , and the pressure for operating in the cylinder U passes from the chest through pipes or tubes V' and connections v to the ends of the cylinder. The direction of flow of the pressure from the cylinder is controlled by a valve in the chest operated by a lever or arm W , having a fork w , the arms of which are engaged by a tappet w' on a rod W' , connected with the piston-rod n of the cylinder. As shown in Fig. 7, the arm t^4 of the L-lever has pivotally attached thereto the end of a link or rod X , which passes through guides x , extending out from the standard or post B or otherwise, which link or rod at its lower end is connected with a foot-treadle Y , and, as shown, a coiled spring y , attached at one end to the link or rod and having a fixed attachment for its other end, serves to return the foot-treadle and the link or rod after each downward movement thereof. The downward movement of the piston-rod U or the link or rod X carries down with it the arm t^4 of the L-lever, throwing forward the end of the arm t^3 of said lever for the forward movement of the arm t^3 to cause the acting end t of the pawl, which has caught one of the pins s , to move the pin forward, giving a partial turn or rotation to the table or platform S and a corresponding turning or rotation for the receptacle or tank. The upward movement of the piston-rod or the link or rod X raises the arm t^4 of the L-lever and carries backward the end of the arm t^3 , carrying with it the pawl T , and with the return movement of the pawl the acting end thereof striking against the next succeeding pin which is to be caught turns the pawl sufficiently for the acting end to pass the pin, and with the passing of the pin the weight t^2 acts and throws the acting end of the pawl up back of the pin and in position to engage therewith for the next downward movement of the arm t^4 of the L-

lever to again partially turn or revolve the liquid-containing receptacle or tank.

The operation briefly is as follows: Pressure is admitted to the liquid receptacle or tank by closing the valves c' and opening the valve for the pressure to enter the port or passage c^4 , and when the predetermined pressure is indicated on the gage H the pressure-valve is closed. The valve c' for one of the nipples of the controlling-valve is opened for liquid to flow through the cock and the supply-pipe D and its extension D^2 into the vessel, and the liquid entering the vessel as it reaches the float will raise the float and close off the escape of pressure, as already described, for the pressure in the chamber E^3 to control the height of liquid in the vessel E, and the valve of the filling-cock is left open after communication is once established until the supply of liquid is exhausted at the source of supply. The receptacle or tank as a whole is given a step-by-step advance either from the fluid-pressure motor or the treadle or by other suitable means. A bottle to be filled is entered onto a filling-tube and is turned into a vertical position, opening first the passages for admitting pressure to the bottle, so as to have an equal pressure in the receptacle or tank and in the bottle and when in full vertical position opening also the liquid-passages for liquid to flow through the siphon-tube K and the filling-tube into the bottle in a steady and uninterrupted stream and without any projective force, as the liquid enters the bottle against an equal pressure and forces the pressure from the bottle back into the chamber of the receptacle or tank. The next advance of the receptacle or tank brings another filling-tube into position for the insertion thereon of a bottle and the turning of the bottle into a filling position, and with each advance of the receptacle or tank a bottle is entered onto a filling-tube and turned into filling position. A filled bottle is withdrawn by elevating the bottle from the filling position into an inclined position, so as to be withdrawn from the filling-tube, and with the withdrawal of a filled bottle an empty bottle can be placed on the filling-tube and turned down in a vertical position for filling, making the filling operation a continuous one from the commencement to the finish until the number of bottles required have been filled, and with the completion of the filling the turning or revolving of the receptacle or tank can be stopped until the operation of filling more bottles is begun.

The float positively controls the rise of the liquid in the chamber E, and the limit of rise of the liquid in the chamber is one that maintains the top of the liquid at a point in line with or approximately to the position of the closing-cap, when the filling-tube is in its depressed position for discharging the liquid into the bottle, so that the siphon-tube will

have a true siphoning action, and this action will not be interfered with by the height of the liquid in the filling-chamber, as might be the case if the liquid rose to a point above the level of the position of the controlling-valve for the filling-tube. It will be further seen that until the filling-tube is turned into a filling position the siphoning of the liquid through the tube or pipe K is prevented, thus enabling the vessel to be revolved without any liability of siphoning the liquid through the tube K until the filling-tube is turned into a discharging position, by which arrangement in the event of a bottle not being placed in position and turned down no disastrous results will occur, and no liquid will be discharged from the filling-tube, as the siphoning action is shut off until the filling-tube is turned down. The rotatable filling vessel can be momentarily stopped at any time without disarranging the action of the devices by which it is rotated, and a slight advance of the filling vessel by hand will again bring the devices which advance the vessel into operation. The force required for entering a bottle onto a filling-tube and turning the entered bottle into filling position is so slight as not to exert a pressure which would affect the operation of the devices for advancing the vessel and which will not disarrange the mounting of the vessel on the supporting-standard, making the insertion of a bottle into filling position one which will not interfere with the mounting of the filling vessel nor the operation of the means for rotating the vessel.

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

1. In a bottle-filling machine, the combination of a supporting-stand, a sleeve at the upper end of the stand, a tubular post passing through and vertically slidable in the sleeve, a liquid-supply-controlling cock entered into the lower end of the post, a liquid-supply tube within the tubular post or standard and in communication with the liquid-supply cock and having a circumferential bearing at its lower end in the cock and the end of the tubular post, and an intermittently-revoluble liquid-containing receptacle having on its bottom in the line of its axial center a bearing-plate by which it is supported and mounted on the tubular post or standard and from which in the axial line of the receptacle the liquid-supply tube is suspended to revolve with the receptacle, the liquid-supply tube having communication with the receptacle through the bearing-plate, substantially as described.

2. In a bottle-filling machine, the combination of a supporting-stand, a sleeve at the upper end of the stand, a tubular post passing through and vertically slidable in the sleeve, a liquid-supply-controlling cock entered into the lower end of the post and having a passage for the admission of liquid and a passage for the admission of pressure, a liquid-supply

tube within the tubular post or standard, and in communication with the liquid and pressure supply controlling cock and having a circumferential bearing at its lower end in the cock and the end of the tubular post and through which both liquid and pressure can flow, and an intermittently-revoluble liquid-containing receptacle having on its bottom in the line of its axial center a bearing-plate by which it is supported and mounted on the tubular post or standard and from which in the axial line of the receptacle the liquid and pressure supply tube is suspended to revolve with the receptacle, the liquid and pressure supply tube having communication with the receptacle through the bearing-plate, substantially as described.

3. In a bottle-filling machine, the combination of a supporting-stand, a sleeve at the upper end of the stand, a tubular post passing through and vertically slidable in the sleeve, a liquid-supply-controlling cock entered into the lower end of the post and having a passage for the admission of liquid and a passage for the admission of pressure, a liquid-supply tube within the tubular post or standard, and in communication with the liquid and pressure supply controlling cock and having a circumferential bearing at its lower end in the cock and the end of the tubular post and through which both liquid and pressure can flow, an intermittently-revoluble liquid-containing receptacle having on its bottom in the line of its axial center a bearing-plate by which it is supported and mounted on the tubular post or standard and from which in the axial line of the receptacle the liquid and pressure supply tube is suspended to revolve with the receptacle, and a tube at the axial center of the bearing-plate in communication with the liquid and pressure supply tube and extending into the chamber of the receptacle for supplying liquid and pressure to the receptacle, substantially as described.

4. In a bottle-filling machine, the combination of a supporting-stand, a sleeve at the upper end of the stand, a tubular post passing through and vertically slidable in the sleeve, a liquid-supply-controlling cock entered into the lower end of the post, a liquid-supply tube within the tubular post or standard and having its lower end entered into the liquid-supply-controlling cock and in communication with the passage of said cock, a circumferential shoulder on the interior of the tubular post in contact with the lower end of the liquid-supply tube, a packing around the liquid-supply tube between the circumferential shoulder and the face of the controlling-cock around the supply-tube, and an intermittently-revoluble liquid-containing receptacle having on its bottom in the line of its axial center a bearing-plate by which it is supported and mounted on the tubular post and from which in the axial line of the receptacle the liquid-supply

tube is suspended to revolve with the receptacle, the liquid-supply tube having communication with the receptacle through the bearing-plate, substantially as described.

5. In a bottle-filling machine, the combination of a vertical tubular post, a liquid-supply-controlling cock entered into the lower end of the post, a liquid-supply tube within the tubular post and in communication with the liquid-supply-controlling cock and having a circumferential bearing at its lower end in the cock and in the end of the tubular post, an intermittently-revoluble liquid-containing receptacle having on its bottom in the line of its axial center a bearing-plate by which it is supported and mounted on the tubular post and from which in the axial line of the receptacle the liquid-supply tube is suspended to revolve with the receptacle, the liquid-supply tube having communication with the receptacle through the bearing-plate and the receptacle consisting of a body and a convex cap or cover the lower portion of the body furnishing a liquid-receiving chamber and the upper portion of the body with the cover furnishing a pressure-chamber, substantially as described.

6. In a bottle-filling machine, the combination of a vertical tubular post, a liquid-supply-controlling cock entered into the lower end of the post, a liquid-supply tube within the tubular post and in communication with the liquid-supply-controlling cock and having a circumferential bearing at its lower end in the cock and in the end of the tubular post, an intermittently-revoluble liquid-containing receptacle having on its bottom in the line of its axial center a bearing-plate by which it is supported and mounted on the tubular post and from which in the axial line of the receptacle the liquid-supply tube is suspended to revolve with the receptacle, the liquid-supply tube having communication with the receptacle through the bearing-plate and the receptacle consisting of a body and a convex cap or cover the lower portion of the body furnishing a liquid-receiving chamber and the upper portion of the body with the cover furnishing a pressure-chamber, a pressure-regulator mounted on the cap or cover and having communication with the pressure-chamber, and means automatically operated by the rise and fall of the liquid in the receptacle to close and open the escape of the pressure-regulator, substantially as described.

7. In a bottle-filling machine, the combination of a vertical tubular post, a liquid-supply-controlling cock entered into the lower end of the post, a liquid-supply tube within the tubular post and in communication with the liquid-supply-controlling cock and having a circumferential bearing at its lower end in the cock and in the end of the tubular post, an intermittently-revoluble liquid-containing receptacle having on its bottom in the line of

its axial center a bearing-plate by which it is supported and mounted on the tubular post and from which in the axial line of the receptacle the liquid-supply tube is suspended to
 5 revolve with the receptacle the liquid-supply tube having communication with the receptacle through the bearing-plate and the receptacle consisting of a body and a convex cap or cover the lower portion of the body furnishing a liquid-receiving chamber and the
 10 upper portion of the body with the cover furnishing a pressure-chamber, a pressure-regulator mounted on the cap or cover and having communication with the pressure-chamber, a
 15 tube at the axial center of the bearing-plate in communication with the liquid-supply tube and extending into the liquid-chamber of the receptacle, a float around the extended end of the bearing-plate tube, a stem carried by
 20 the float, and a valve on the end of the stem controlling the venting of pressure by the pressure-regulator, substantially as described.

8. In a bottle-filling machine, the combination of a fixed vertical tubular post or standard, an intermittently-revoluble liquid-containing receptacle, a bearing-plate located in axial line with the center of the receptacle and having thereon a series of projections spaced
 25 equidistant apart and mounted on the upper end of the post and carrying the receptacle, and means operating successively on the projections and giving the plate a step-by-step advance and thereby intermittently revolving the receptacle, substantially as described.

35 9. In a bottle-filling machine, the combination of a vertical tubular post, an intermittently-revoluble liquid-containing receptacle, a bearing-plate located in axial line with and mounted on the upper end of the post and
 40 carrying the receptacle, a series of pins downwardly projecting from the under side of the plate, a pawl having a forward and backward movement given thereto for successively engaging the pins, and means for advancing and
 45 receding the pawl for the advance movement of the pawl by its engagement with a pin to advance the receptacle the distance of the throw of the pawl in its forward movement, substantially as described.

50 10. In a bottle-filling machine, the combination of a vertical tubular post, an intermittently-revoluble liquid-containing receptacle, a bearing-plate located in axial line with and

mounted on the upper end of the post and carrying the receptacle, a series of pins downwardly projecting from the under side of the
 55 plate, a pawl having a forward and backward movement given thereto for successively engaging the pins, means for advancing and receding the pawl for the advanced movement
 60 of the pawl by its engagement with a pin to advance the receptacle the distance of the throw of the pawl in its forward movement, a lever carrying the pawl, and a reciprocating rod for actuating the lever to give the
 65 pawl its forward and backward throw, substantially as described.

11. In a bottle-filling machine, the combination of a vertical tubular post, a liquid-supply tube within the post an intermittently-revoluble liquid-containing receptacle, a plate
 70 in axial line with and mounted on the upper end of the post and carrying the liquid-containing receptacle and having suspended therefrom the liquid-supply tube, a series of pins
 75 downwardly projecting from the under side of the plate, a pawl having a forward and backward throw given thereto for successively engaging the pins and have the engagement
 80 of a pin with the forward throw of the pawl give the receptacle a partial rotation, and means for giving the pawl its forward and backward throw, substantially as described.

12. In a bottle-filling machine, the combination of a vertical tubular post, a liquid-supply-controlling cock entered into the lower
 85 end of the post, a liquid-supply tube within the post and in communication with the liquid-supply-controlling cock, an intermittently-revoluble liquid-containing receptacle, a plate
 90 in axial line with and mounted on the upper end of the post and carrying the liquid-containing receptacle and having suspended therefrom the liquid-supply tube, a series of pins
 95 downwardly projecting from the under side of the plate, a pawl having a forward and backward throw given thereto for successively engaging the pins and have the engagement
 100 of a pin with the forward throw of the pawl give the receptacle a partial rotation, and means for giving the pawl its forward and backward throw, substantially as described.

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Witnesses:

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