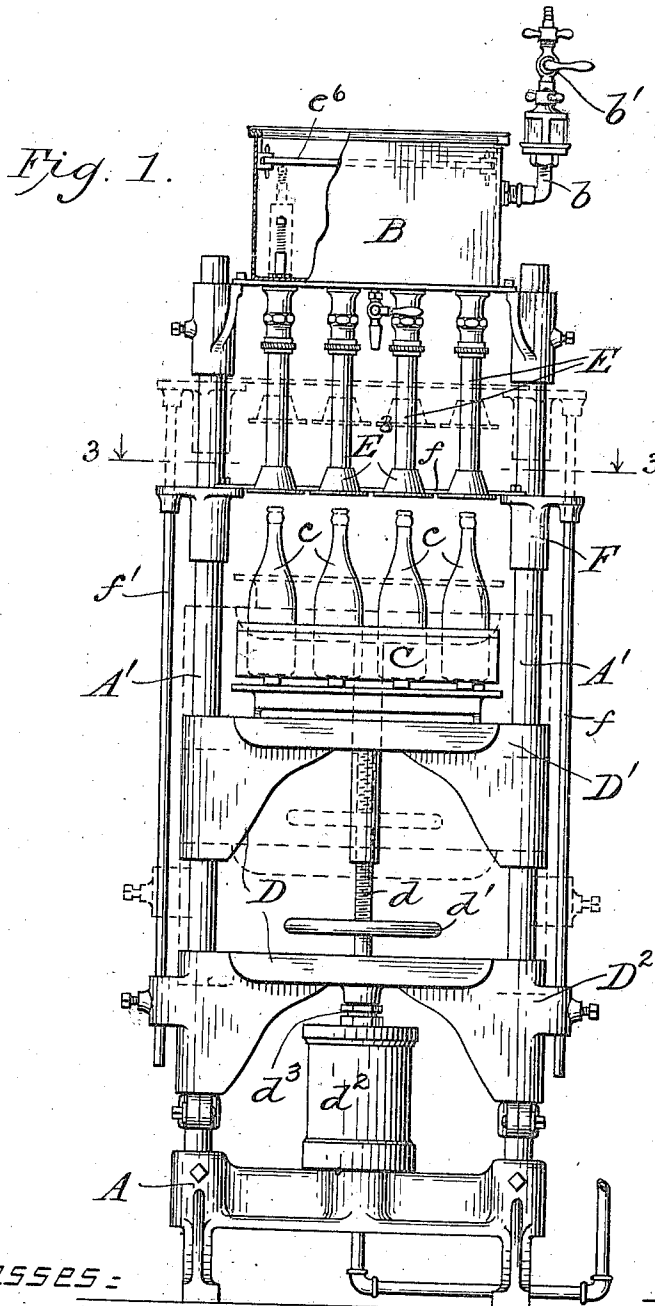


J. H. CHAMP.
BOTTLING MACHINE.
APPLICATION FILED FEB. 8, 1909.

963,119.

Patented July 5, 1910.
3 SHEETS—SHEET 1.



Witnesses:

A. L. Lord.
Jno. T. Wheeler

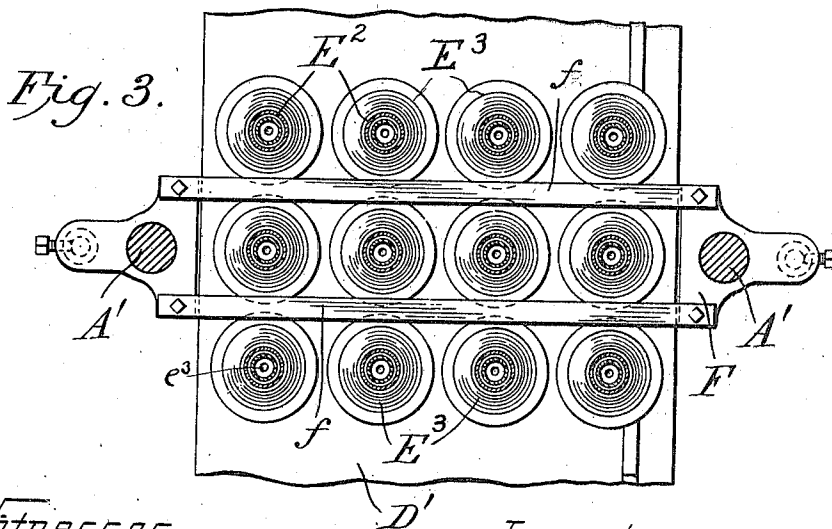
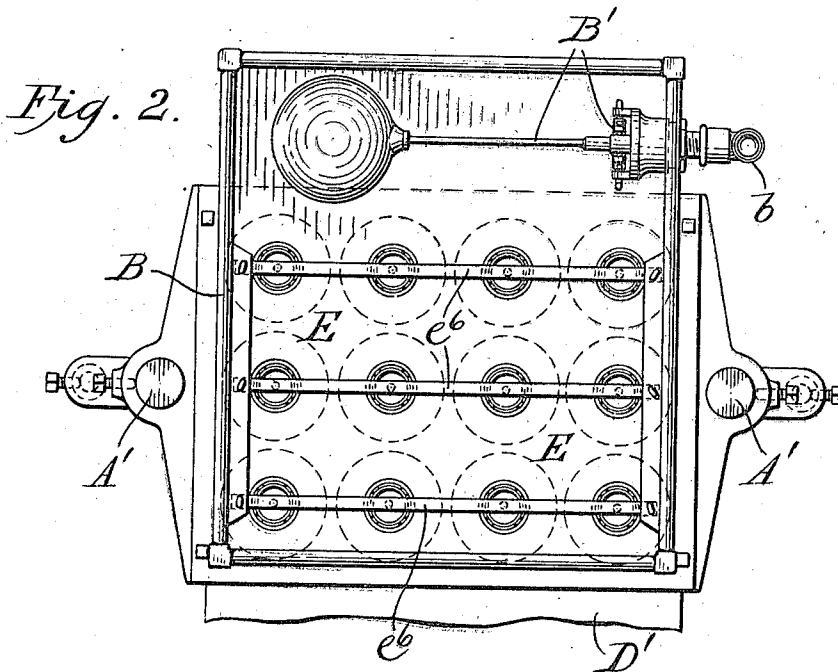
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Patented July 5, 1910.
3 SHEETS—SHEET 2.



Witnesses:

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Patented July 5, 1910.
3 SHEETS—SHEET 3.

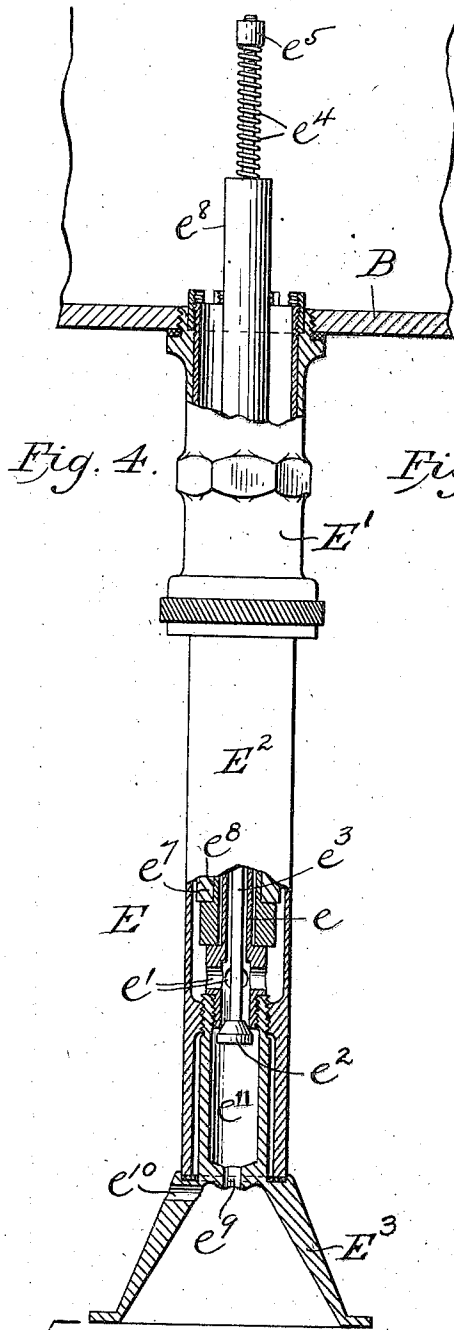
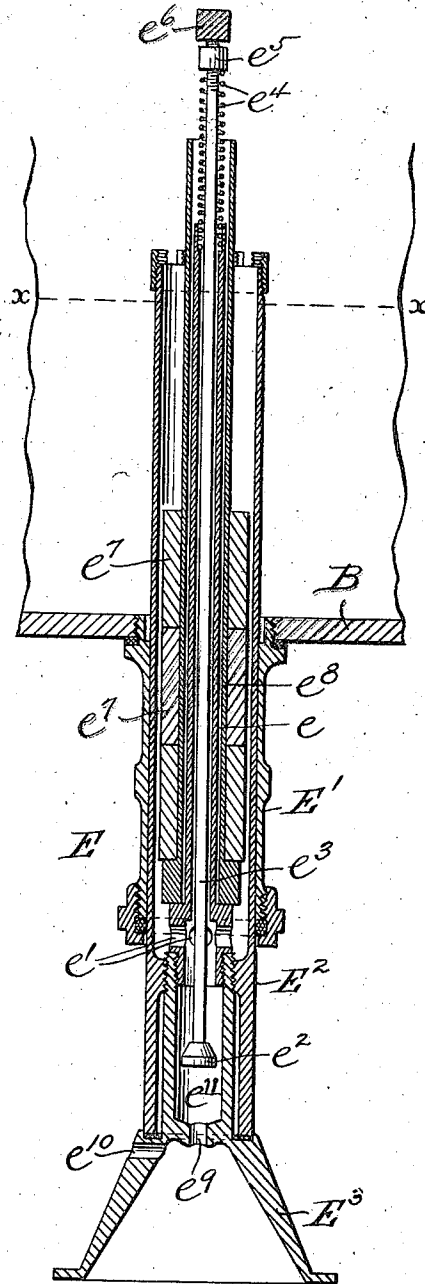


Fig. 4.

Fig. 5.



Witnesses-

A. L. Lord,
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UNITED STATES PATENT OFFICE.

JOSEPH H. CHAMP, OF CLEVELAND, OHIO.

BOTTLING-MACHINE.

963,119.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed February 8, 1909. Serial No. 476,669.

To all whom it may concern:

Be it known that I, JOSEPH H. CHAMP, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Bottling-Machines, of which the following is a specification, the principle of the invention being herein explained, and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present invention relates to machines for packaging liquids, particularly still liquids, the specific form of invention chosen for illustrative purposes being a syringing machine such as is used in apportioning among bottles later to be filled with carbonated beverages, the proper amount of syrup. Obviously the invention is not limited to this single field of usefulness, but is equally applicable to the handling of any still liquids, whether to fill the same into bottles, cans, or other receptacles. It will be furthermore understood that the term, liquid, is not used in its limited sense, but to designate in general materials such as would be handled in machines of the character in hand.

The object of the invention is the provision of a simple mechanism for transferring from a general storage reservoir, a predetermined amount of the material.

To the accomplishment of the above and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:—Figure 1 is a front elevational view of a machine embodying my several improvements; Fig. 2 is a plan view of the same; Fig. 3 is a transverse sectional view thereof on the line 3—3, Fig. 1; Fig. 4 is a side elevational view with parts broken away, of one of the filling devices together with a portion of the tank, or reservoir, to which it is attached, such device being shown in its normal, inoperative position; and Fig. 5 is a central, longitudinal section of the same device, but in its raised, or operative, position.

The general machine structure illustrated in elevation in Fig. 1 is designed so as to be adjustable for use with bottles or like receptacles of various sizes, and various details of the machine's structure are provided with this object in view. These, it will be understood, are only in a general way coöperative with the filling mechanism proper, and may take on various forms, or indeed the adjustable features referred to may be omitted entirely, depending upon the requirements of the particular installation. Such illustrative machine frame comprises, Fig. 1, a suitable base A from which rise two vertical standards or posts A'. Adjustably mounted on the upper portions of these posts is the reservoir or tank B wherein the material being handled (as for example syrup) is contained. This reservoir is not a primary reservoir wherein the entire stock of such material is stored, but rather a secondary reservoir to which the material is transferred at a proper rate to maintain therein approximately a fixed level at all times. Such level is conveniently thus maintained by means of suitable float mechanism B', Fig. 2, that controls the inlet pipe b leading from the general storage reservoir (not shown). Preferably a gravity feed is utilized in transferring the material from the latter to the former, a cock b' being interposed in pipe b to cut off the supply when desired.

Reciprocally mounted upon the intermediate portions of the standards is the platform or table D constituting the support upon which the bottles c to be filled are placed. As usual in apparatus of this kind the bottles will be held in trays or crates C and the upper member D' of the reciprocable platform is hence adapted for the reception of the trays in question, although if desired, provision may be made for the placing of the bottles directly thereon instead. Such upper member D' is adjustable relatively to the lower member D², being held in desired position with respect thereto by means of a screw d that bears a hand wheel d' for convenience in operation. Reciprocation of the platform is secured in the case in hand, by means of a hydraulic, or other fluid-pressure, cylinder d² vertically disposed below lower platform member D² the plunger d³ within such cylinder being directly mounted on the under side of

such member. It is contemplated however, that any suitable actuating means may be employed in place of such pressure cylinder. Despite the predetermined or limited throw of such actuating means, it will be obvious that by means of the relative adjustability of the two members of the platform, the bottles resting on the upper member may be raised to a predetermined elevation, irrespective of their size, or, in other words, of whether they are quarts, pints, or splits.

The filling mechanism proper includes a series of similar devices E, Fig. 1, mounted in the bottom of the reservoir and positioned so as to be located one above each bottle in the tray, as the platform is raised. Each such filling device comprises, Figs. 4 and 5, an outer bushing or sleeve E' fixedly mounted in the reservoir bottom, within which sleeve is reciprocably held a measuring receptacle in the form of a cylindrical tube E² that is adapted in its normal inoperative position (Fig. 4) to lie with its upper end practically on a line with the bottom of the tank, while in its elevated position (Fig. 5) such upper end of the tube will project above the level $x-x$ of the liquid within said tank. When thus raised from its normal position, above the liquid, the tube will obviously contain a definite quantity of the liquid, the amount of which is determined by the capacity of the tube.

Centrally secured within measuring receptacle E², is another smaller tube e mounted in the bottom of such first tube and providing an opening therethrough with which communication may be had from the interior of the receptacle by lateral orifices or openings e' in such central tube. Normally the lower open end of tube e , which is thus seen to afford a discharge opening for the receptacle, is closed by a valve e^2 , the stem e^3 of which extends above such central tube, and is held in raised position by a spring e^4 interposed between such tube end and a nut e^5 mounted on the end of the stem. A series of parallel bars e^6 , Figs. 1 and 2, are mounted transversely of the reservoir B and in alinement with the filling devices, so that as the latter are raised, the upper ends of the valve stems will contact therewith as shown in Fig. 5, thus opening the discharge orifices of the devices in the manner illustrated in said figure. Such opening, however, is timed so as not to take place until after the upper ends of the measuring receptacles are raised above the level of the body of liquid within the reservoir.

To vary the capacity of the measuring receptacle, a series of annular blocks e^7 are provided, one or more of which may be slipped onto a tubular carrier e^8 that fits around the central tube e within the receptacle. These blocks are gaged to occupy a predetermined amount of space within

the measuring tube, so that the capacity of the latter may be thus varied as occasion demands. Their removal is easily effected by simply raising the carrier e^8 and slipping them off therefrom.

As has already been indicated, the raising of the measuring receptacles, and the attendant operation of the valve controlling the discharge orifices of said receptacles, are effected by the upward movement of the bottles as platform D is elevated. To insure proper engagement of the mouths of the bottles with the lower ends of the receptacles, as also to direct the contents of the latter into said bottles, each is provided with a flaring mouth-piece E³, formed in its upper portion with a chamber e^{11} within which is contained the valve e^2 that controls the outlet opening of tube e' . Such chamber is provided with an outlet opening e^9 of slightly more constricted area, that is properly centered and formed to direct the escaping contents of the measuring receptacle into the bottle mouth below. An aperture e^{10} is furthermore formed laterally in the flaring portion of such mouth-piece to permit the escape of the air displaced from the bottle by the inflowing liquid.

While the bottles, it has been seen, are effective to raise the measuring receptacles, the latter will not ordinarily of themselves, resume their normal depressed positions owing to the friction in their bushings E'. It accordingly becomes necessary to provide means for insuring their return to their lower positions. Such means, in preferred form, comprises a frame F, Figs. 1 and 3, made up of transverse bars f , that are adapted to engage the flaring mouth-pieces E³ from above. Frame F is slidably mounted upon the same standards A as are the other movable parts of the machine, and is connected with the platform by side bars f' so as to be reciprocable with the same. It accordingly will not interfere with the upward movement of the bottles into engagement with the mouth pieces, but will in fact have a greater range of movement than the latter as is indicated in dotted outline in Fig. 1. Upon the platform, however, being lowered, the bars of the frame engage with the mouth-pieces, and return them to the position shown in full lines in figure just referred to.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In mechanism of the class described, the combination of a liquid-containing reser-

voir, and a tubular receptacle extending through the bottom of said reservoir and normally resting with its upper end substantially on a level with such bottom, said receptacle being vertically reciprocable to raise its upper end above the level of liquid in said reservoir and having a valve controlled discharge opening in its lower end.

2. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and normally resting with its upper end substantially on a level with such bottom, said receptacle being vertically reciprocable to raise its upper end above the level of liquid in said reservoir and having a discharge opening in its lower end, and valve means carried by said receptacle and adapted to control such opening, said means being operable incidentally to the reciprocation of said receptacle.

3. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and normally resting with its upper end substantially on a level with such bottom, said receptacle being vertically reciprocable to raise its upper end above the level of liquid in said reservoir and having a discharge opening in its lower end, a valve carried by said receptacle, said valve being adapted to control such opening and provided with an upwardly extending stem, means normally closing said valve, and means adapted to open said valve upon upward movement of said receptacle.

4. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and normally resting with its upper end substantially on a level with such bottom, said receptacle being vertically reciprocable to raise its upper end above the level of liquid in said reservoir and having a discharge opening in its lower end, a valve carried by said receptacle, said valve being adapted to control such opening and provided with a stem projecting above said receptacle, a spring normally closing said valve, and a member disposed to directly engage said stem and thereby open said valve upon upward movement of said receptacle.

5. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its upper end from below to above the level of liquid therein, said receptacle having a discharge opening in its lower end, a downwardly opening valve carried by said receptacle, and adapted to close such discharge opening, the stem of said valve projecting upwardly through

the latter, and a spring connected with said stem to normally seat said valve.

6. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its upper end from below to above the level of liquid therein, said receptacle having a discharge opening in its lower end, a downwardly opening valve carried by said receptacle, and adapted to close such discharge opening, the stem of said valve projecting upwardly through the latter, and an expansion spring interposed between the end of said stem and a relatively fixed portion of said receptacle, whereby said valve is normally seated.

7. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its upper end from below to above the level of liquid therein, an inner tube passing through the bottom of said receptacle and provided with lateral openings through which the contents of said receptacle may be withdrawn, and a valve adapted to seat against the lower end of said tube to close the same.

8. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its upper end from below to above the level of liquid therein, an inner tube passing through the bottom of said receptacle and provided with lateral openings through which the contents of said receptacle may be withdrawn, a valve adapted to seat against the lower end of said tube to close the same, the stem of said valve extending above said tube and receptacle, a spring interposed between the upper ends of said stem and tube to normally close said valve, and a member disposed to engage said stem and thereby open said valve upon upward movement of said receptacle.

9. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its upper end from below to above the level of liquid therein, said receptacle having a discharge opening in its lower end, a downwardly opening valve carried by said receptacle, and adapted to close such discharge opening, and a bottle mouth-piece secured to the lower end of said receptacle and provided with a chamber inclosing said valve.

10. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its upper end

from below to above the level of liquid therein, said receptacle having a discharge opening in its lower end, a downwardly opening valve carried by said receptacle, and adapted to close such discharge opening, and a bottle mouth-piece secured to the lower end of said receptacle and provided with a chamber inclosing said valve, said chamber being formed to properly direct the liquid into a bottle and said mouth-piece having a lateral aperture for the escape of air from such bottle.

11. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its upper end from below to above the level of liquid therein, an inner tube passing through the bottom of said receptacle and provided with lateral openings through which the contents of said receptacle may be withdrawn, a valve adapted to seat against the lower end of said tube to close the same, and a bottle mouth-piece secured to the lower end of said receptacle.

12. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its upper end from below to above the level of liquid therein, an inner tube passing through the bottom of said receptacle and provided with lateral openings through which the contents of said receptacle may be withdrawn, a valve adapted to seat against the lower end of said tube to close the same, and a bottle mouth-piece secured to the lower end of said receptacle, and provided with a chamber inclosing said valve.

13. In mechanism of the class described, the combination of a reservoir, a reciprocable bottle filling device connected with said reservoir, a reciprocable bottle support whereby a bottle may be brought into engagement with said device and the latter moved in one direction, and means connected with said support and adapted to engage said device to move the same in the other direction, said means having limited movement relatively to said device.

14. In mechanism of the class described, the combination of a reservoir, a vertically reciprocable bottle filling device connected with said reservoir, said device including a bottle mouth-piece, a vertically reciprocable bottle support, whereby a bottle may be brought into engagement with said mouth-piece and said device thus raised, and means connected with said support and adapted to engage said device to move the same in the other direction, said means having limited movement relatively to said device.

15. In mechanism of the class described,

the combination of a reservoir, a vertically reciprocable bottle filling device in the bottom of said reservoir, said device including a bottle mouth-piece, a vertically reciprocable bottle support below said reservoir whereby a bottle may be brought into engagement with said mouth-piece and said device thus raised, and means operatively connected with said support adapted to restore said device to its lower position.

16. In mechanism of the class described, the combination of a reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its upper end from below to above the level of liquid therein, said receptacle having a discharge opening in its lower end, a vertically reciprocable bottle support below said reservoir whereby a bottle may be brought into engagement with said receptacle and the latter thus raised, and means operatively connected with said support adapted to restore said receptacle to its lower position.

17. In mechanism of the class described, the combination of a reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its upper end from below to above the level of liquid therein, said receptacle having a discharge opening in its lower end, a vertically reciprocable bottle support below said reservoir whereby a bottle may be brought into engagement with said receptacle and the latter thus raised, and means connected with said support, adapted to restore said receptacle to its lower position upon downward movement of said support.

18. In mechanism of the class described, the combination of a reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its upper end from below to above the level of liquid therein, said receptacle having a discharge opening in its lower end and a bottle mouth-piece surrounding such opening, and a member freely movable relatively to said receptacle but adapted to engage such mouth-piece to restore said receptacle to its lower position.

19. In mechanism of the class described, the combination of a reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its upper end from below to above the level of liquid therein, said receptacle having a discharge opening in its lower end and a bottle mouth-piece surrounding such opening, a vertically reciprocable bottle support below said reservoir, whereby a bottle may be brought into engagement with said mouth-piece and said receptacle thus raised, a member freely movable relatively to said receptacle but adapted to engage such mouth-piece to restore said receptacle to its

lower position, and connections between said support and member, whereby the latter may be thus actuated.

20. In mechanism of the class described, the combination of a reservoir, a series of tubular receptacles extending through the bottom of said reservoir and vertically reciprocable to raise their upper ends from below to above the level of liquid therein, said receptacles having discharge openings in their lower ends and bottle mouth-pieces surrounding such openings, a vertically reciprocable bottle support below said reservoir, whereby bottles may be brought into engagement with said mouth-pieces and the corresponding receptacles thus raised, a frame freely movable relatively to said receptacle but adapted to engage such mouth-pieces to restore said receptacles to their lower positions, and connections between said support and frame, whereby the latter may be thus actuated.

21. In mechanism of the class described, the combination of a liquid-containing reservoir, and a tubular receptacle of adjustable capacity extending through the bottom of said reservoir, and normally resting with its upper end substantially on a level with such bottom, said receptacle being vertically reciprocable to raise its upper end above the level of liquid in said reservoir and having a discharge opening in its lower end.

22. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and normally resting with its upper end substantially on a level with such bottom, said receptacle being vertically reciprocable to raise its upper end above the level of liquid in said reservoir and having a discharge opening in its lower end, and means for adjusting the capacity of said receptacle.

23. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and normally resting with its upper end substantially on a level with such bottom, said receptacle being vertically reciprocable to raise its upper end above the level of liquid in said reservoir and having a discharge opening in its lower end, and means for adjusting the capacity of said receptacle, said means comprising a series of blocks adapted to be held within said receptacle and gaged to occupy a predetermined amount of space therein.

24. In mechanism of the class described, the combination with a tubular receptacle for measuring liquids, of means for adjusting the capacity of said receptacle, said

means comprising a series of blocks adapted to fit within said receptacle and gaged to occupy a predetermined amount of space therein, and a removable carrier for said blocks.

25. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir, said receptacle being vertically reciprocable to raise its upper end from below to above the level of liquid in said reservoir and having a discharge opening in its lower end, and means for adjusting the capacity of said receptacle, said means comprising a series of blocks adapted to fit within said receptacle and gaged to occupy a predetermined amount of space therein, and a removable carrier for said blocks.

26. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its bottom end from below to above the level of liquid therein, an inner tube passing through the bottom of said receptacle and provided with lateral openings through which the contents of said receptacle may be withdrawn, a valve adapted to seat against the lower end of said tube to close the same, and means for adjusting the capacity of said receptacle, said means comprising a series of annular blocks adapted to be slipped over said tube and gaged to occupy a predetermined amount of space in said receptacle.

27. In mechanism of the class described, the combination of a liquid-containing reservoir, a tubular receptacle extending through the bottom of said reservoir and vertically reciprocable to raise its bottom end from below to above the level of liquid therein, an inner tube passing through the bottom of said receptacle and provided with lateral openings through which the contents of said receptacle may be withdrawn, a valve adapted to seat against the lower end of said tube to close the same, and means for adjusting the capacity of said receptacle, said means comprising a tubular carrier fitting around said inner tube, and a series of annular blocks adapted to be slipped onto said carrier and adapted to occupy a predetermined amount of space in said receptacle.

Signed by me this 28th day of January, 1909.

JOSEPH H. CHAMP.

Attested by:

ANNA L. GILL,
JNO. F. OBERLIN.