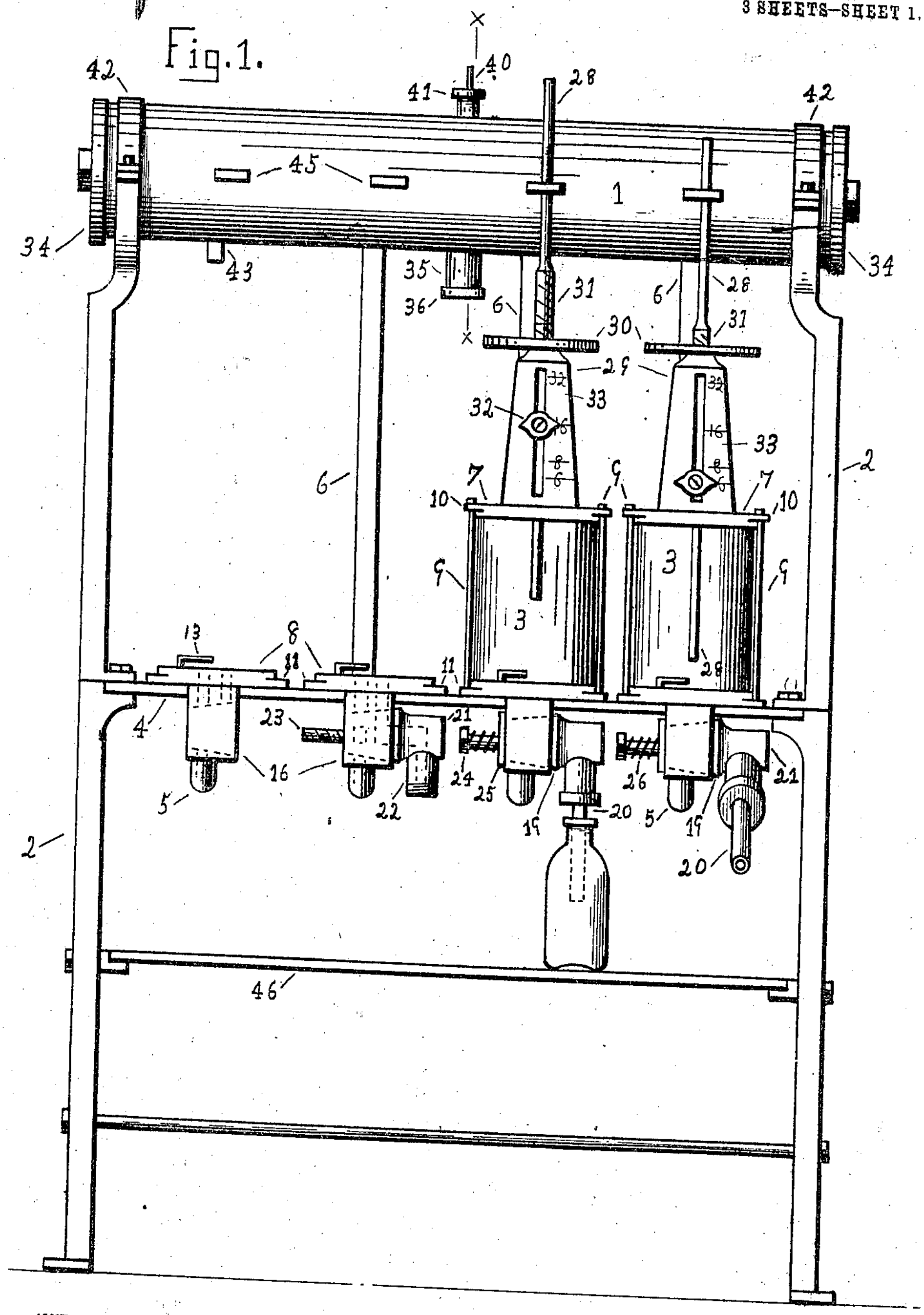
J. M. FREDERICK.
BOTTLING MACHINE.
APPLICATION FILED OCT. 23, 1909.

1,014,963.

Patented Jan. 16, 1912.
3 SHEETS—SHEET 1.

Fig. 1.



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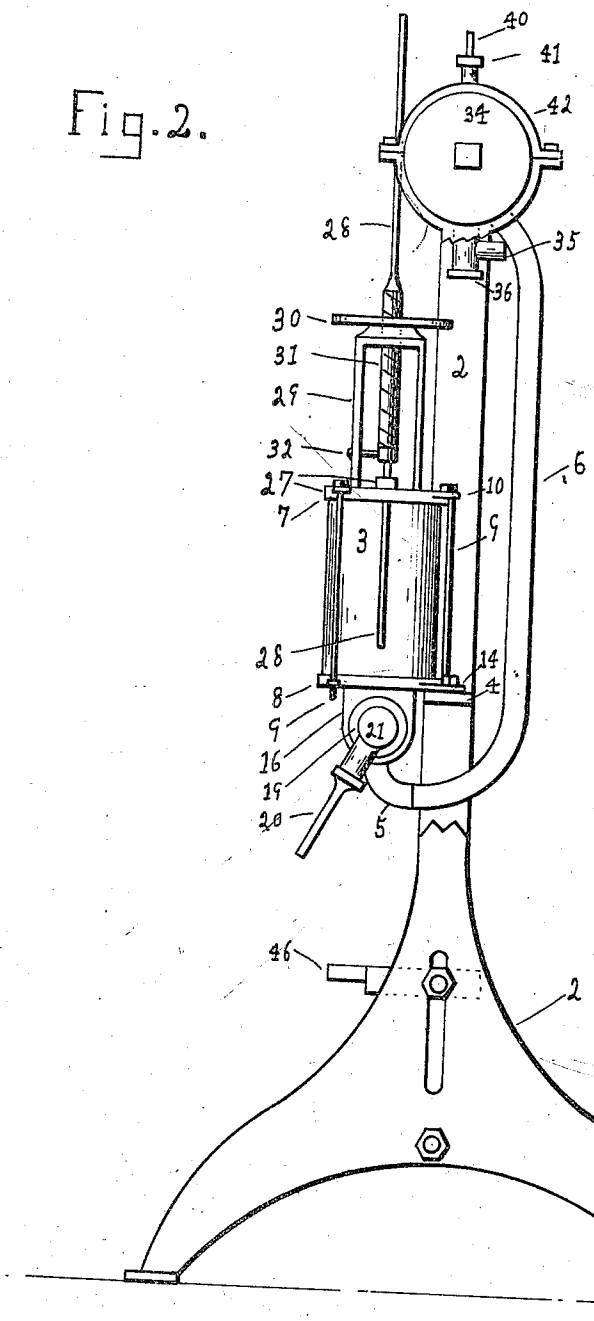
3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

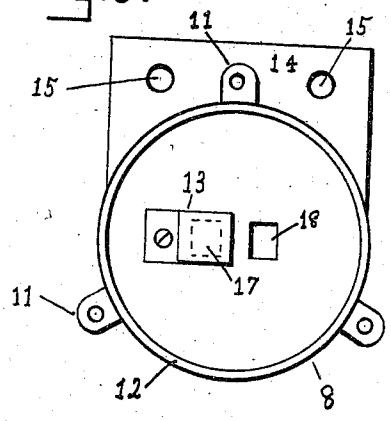


Fig. 4.

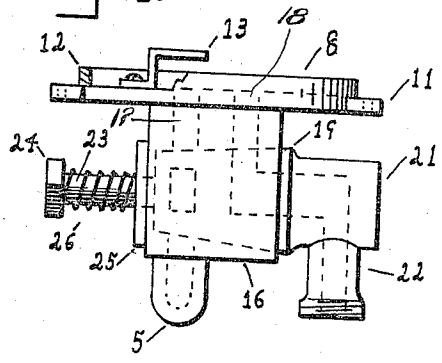


Fig. 5.

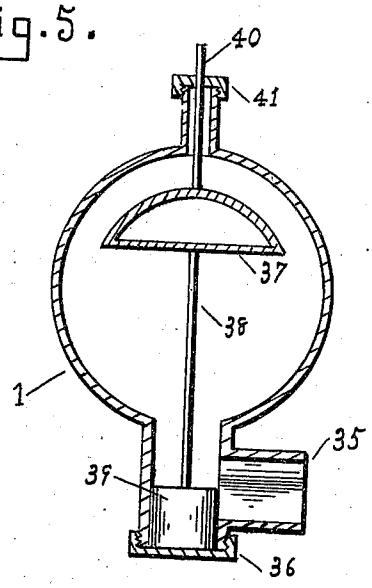
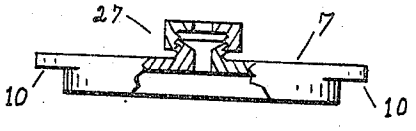


Fig. 6.



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UNITED STATES PATENT OFFICE.

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BOTTLING-MACHINE.

1,014,963. Specification of Letters Patent. Patented Jan. 16, 1912.

Application filed October 23, 1909. Serial No. 524,135.

To all whom it may concern:

Be it known that I, JOSEPH M. FREDERICK, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Bottling-Machines, of which the following is a specification.

This invetion relates to bottling-machines and particularly to a structure adapted to measure the exact amount to be placed in a bottle, or other package, in order to comply with the requirements of the Government as to bottling in bond, wherein a uniform quantity is required in each bottle.

This invention has for its object to provide an improved construction and arrangement of parts whereby the quantity of fluid delivered to a measuring-chamber may be accurately governed without the use of complicated floats and valves, or a multiplicity of parts.

A further object is to provide an improved construction and arrangement whereby the influx and efflux of fluid to, and from the measuring-chamber may be controlled by one valve.

A further object is to provide an improved construction and arrangement of parts that will permit the machine to be readily taken apart, to be cleaned, and as readily reassembled.

These objects I attain by the means illustrated in the accompanying drawings and more fully set forth in the claims.

Referring to the drawings: Figure 1, is a front elevation of my machine, arranged for four sets of filling devices, two of which are shown as assembled complete, and two as partially assembled. Fig. 2, is an end elevation, a portion of the supporting stand being broken away. Fig. 3, is a plan of the base-plate, on an enlarged scale. Fig. 4, is a front elevation of the base-plate, a portion being broken away. Fig. 5, is a vertical transverse section on the line X—X, Fig. 1. Fig. 6, is a front elevation of the top-plate, with a portion in section.

Similar reference numerals refer to similar parts throughout the several views.

A reservoir, 1, from which the fluid to be measured is drawn, is supported on suitable standards, 2. Below this reservoir are located measuring-chambers, 3, firmly secured to a cross-bar, 4, that is connected to the standards 2. Below each measuring-chamber is a two-way valve provided with an inlet, 5. A conduit, 6, leads from the reservoir 1 to the inlet 5. The measuring-chamber may be of any desired shape, but is preferably formed of a glass cylinder clamped between a top-plate, 7, and a bottom, or base plate, 8, by means of rods, 9, that extend through perforated lugs, 10, on the top-plate and screw into lugs 11, on the base 8. An extension, 14, from the rear of the base 8 is provided with perforations, 15, for the passage of screws by which the base is secured to the cross-bar 4. The base 8 is provided with an upwardly extending flange, 12, adapted to encircle the glass cylinder. On the lower side of the base 8, and integral therewith, is a valve-casing, 16, adapted to receive a tapering valve, 19. The valve 19 is provided with two ways as shown, one of which passing diametrically therethrough serves to establish communication between the inlet 5 and a port, 17, that opens into the measuring-chamber 3; the other serves to establish communication between a port, 18, and a filling-tube, 20. On the shank 21, of the valve 19 is a radial projection, 22, on the outer end of which is provided means, as screw threads, to permit of the attachment of filling-tubes of different sizes. The stem, 23, of the valve is provided with a nut, 24, and a washer, 25, a spring, 26, encircles the stem 23 bearing at one end against the washer 25 and at the other end against the nut 24, and serves to keep the valve firmly seated and to take up any wear. The top-plate 7 is provided with a downwardly projecting flange that encircles the glass cylinder. In the center of the top-plate 7 is a stuffing-box, 27, that may be of any desired construction, through which passes an air-tube, 28. On the top-plate is mounted a yoke, 29, equal in height to the measuring-chamber 3, on the yoke is mounted a hand wheel, 30, the hub of which is internally threaded to engage a threaded portion, 31, of the air-tube 28, and serves to raise and lower the tube 28. On the air-tube is a pointer, 32, that points to a scale, 33, on the face of the yoke 29 and serves to indicate the quantity of fluid the machine is set to measure. The scale may be made to indicate ounces, or any other desired measure.

The reservoir 1 is preferably cylindrical

in shape with caps, 34, screwed on the ends thereof, providing ready access to the interior. On the lower side of the reservoir is a depending pipe having a side inlet, 35, and a cap, 36, on the lower end thereof to provide access thereto. Within the reservoir is a float, 37, depending from the float by a stem 38, is a valve, 39, that serves to regulate the entrance of fluid to the reservoir. A stem, 40, extending from the upper side of the float through the cap, 41, serves as a guide for the float. The reservoir is secured in bifurcations on the upper ends of the standards 2 by means of straps 42. Nipples, 43, on the lower side of the reservoir provide means for attaching the conduits 6, that may be of any desired material.

On the front of the reservoir are perforated lugs, 45, that serve as guides for the air-tubes 28. An adjustable shelf, 46, that may be of any desired construction, is provided to support the bottles.

The operation of the machine may now be understood; the filling-tube 20 is first placed in a vertical position, as shown in Figs. 1 and 4, in this position the valve 19 cuts off communication between the reservoir 1 and the measuring chamber 3. Fluid from a tank, or other source of supply, is then admitted to the reservoir through the inlet 35, as the fluid enters the reservoir it will first flow into, and fill, the conduit 6 then rise in the reservoir until it reaches the float 37 which will rise with it. The float carries with it the valve 39, thus cutting off the flow of fluid until the level of the fluid is lowered by the withdrawal of a portion thereof, when the lowering of the valve by the falling of the float will permit more fluid to enter, thus the level of the fluid will be kept practically constant in the reservoir. The hand-wheel is then manipulated to raise or lower the air-tube until the pointer 33 thereon indicates on the scale 32 the quantity of fluid it is desired to place in the bottle, or other receptacle to be filled, as for instance 16 oz., as shown in Fig. 1. The filling-tube 20 is then raised to the position shown in Fig. 2, in which position communication is established between the reservoir and the measuring-chamber, the fluid from the reservoir then flows through the conduit 6, inlet 5, valve 19 and port 17 into the measuring-chamber; over the port 17 is arranged a shield 13 against which the inflowing fluid impinges and spreads out thus preventing foaming, when the amount of fluid indicated on the scale 32 has entered the measuring-chamber it will reach the orifice of the air-tube 28, and as soon as the orifice of the air-tube is closed by the fluid the escape of air from the chamber is stopped and the flow of fluid into the chamber ceases. A bottle is then placed on the filling-tube and the same is turned down to a vertical position, as shown in Fig. 1, and the bottle placed on the shelf 46. The turning down of the tube moves the valve into position to cut off communication between the reservoir and the measuring-chamber and establish communication between the measuring-chamber and the bottle, and the measured fluid in the chamber flows into the bottle.

The raising of the filling-tube to the angular position, shown in Fig 2, to permit of the removal of the bottle, cuts off communication between the chamber 3 and the bottle and opens communication with the reservoir and allows fluid to flow into the chamber until it reaches the air-tube when the further entrance of fluid is prevented. The parts remain normally in this position until another bottle is to be filled, when the foregoing movements are repeated.

The accuracy with which the quantity of fluid may be measured by adjusting the height of the air-tube in the measuring-chamber permits the filling of bottles of different capacities with the exact quantity desired, thus fully complying with the requirements necessary in bottling fluids in bond. While the arrangement of the ways in the valve 19 prevents any flow from the reservoir into the measuring-chamber until the filling-tube is turned into position to remove the bottle therefrom.

Having described my invention so that any one skilled in the art pertaining thereto may make and use it, I claim as my invention—

1. In a bottling machine, a measuring-chamber, a base-plate on which said chamber rests, a valve-chamber formed integral with said base-plate, a tapered, two-way, plug valve adapted to be yieldingly seated in said valve-chamber, and a filling-tube removably attached to the shank of the valve.

2. In a bottling machine, a measuring-chamber provided with a base plat., a valve casing pendent from said base plate and having inlet and outlet passages, a plug valve mounted in the valve casing and having two passages to alternately register with the inlet and the outlet passages of the valve casing, and a filling tube carried by the valve and in communication with the passage thereof adapted to register with the outlet passage of the valve casing.

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