

R. LITTLER.
BOTTLING MACHINE.
APPLICATION FILED SEPT. 8, 1908.

942,271.

Patented Dec. 7, 1909.
2 SHEETS—SHEET 1.

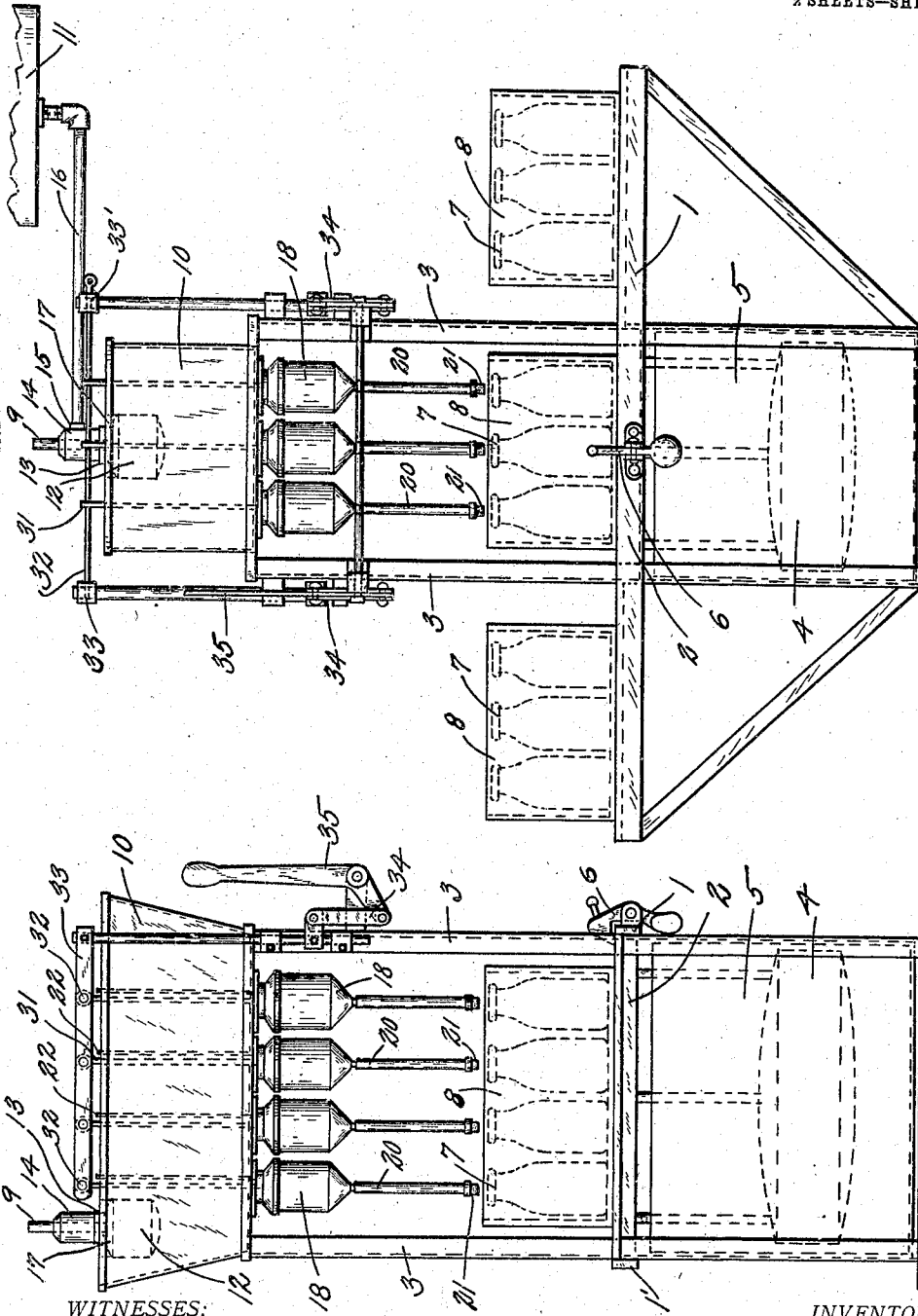


Fig. 2

Fig. 1

WITNESSES:

INVENTOR.

Chas. F. Westbrook
David Singer

Robert Littler

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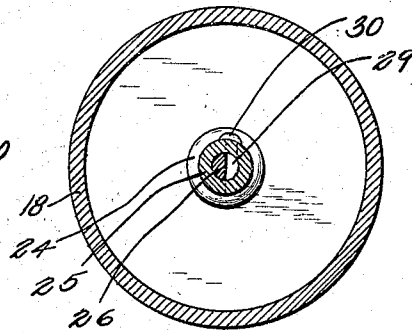
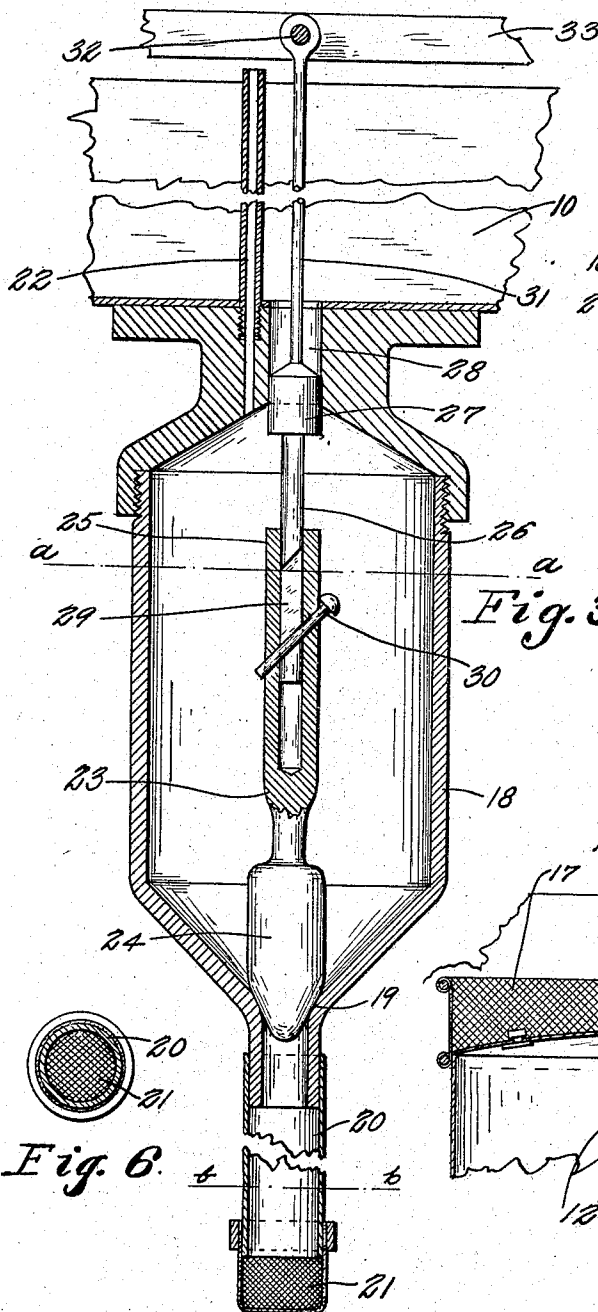


Fig. 5

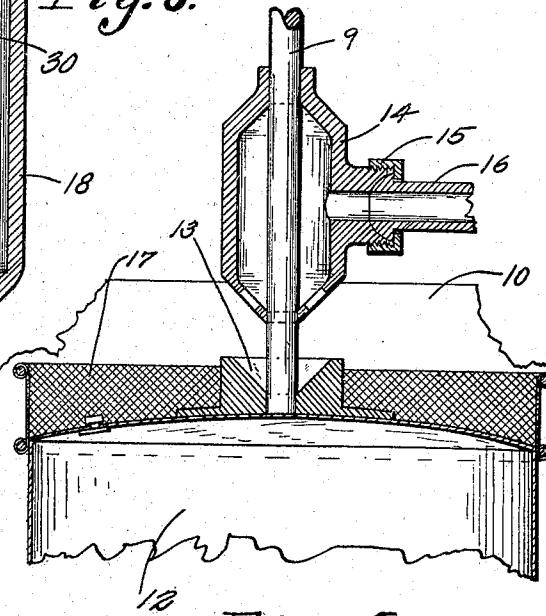


Fig. 4

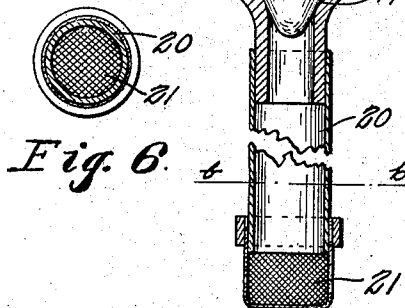


Fig. 6

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UNITED STATES PATENT OFFICE.

ROBERT LITTLER, OF HADDONFIELD, NEW JERSEY.

BOTTLING-MACHINE.

942,271.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed September 8, 1908. Serial No. 452,081.

To all whom it may concern:

Be it known that I, ROBERT LITTLER, a citizen of the United States, residing at Haddonfield, in the county of Camden and State of New Jersey, have invented a new and useful Bottling-Machine, of which the following is a specification.

This invention relates to improvements in bottling machines, and more particularly to that class in which a plurality of bottles are operated upon at one and the same time, as in high class, certified dairy bottling. Its objects are, to provide a machine that will unfailingly apportion and expeditiously fill an equal, predetermined quantity of fluid, from a common source, into a plurality of open topped bottles, or similar receptacles, disposed in series below the filler openings.

A further object is to so arrange the filling means that bubbles, froth or foam may not be caused, no air entering or becoming entrained in the entering fluid. And finally my object is to provide a mechanism so arranged that it may be operated successfully, at a high rate of speed without extraneous means, such as the use of a vacuum, steam, pneumatic or hydraulic power, but with a minimum of physical exertion on the part of the operator; all of its parts are so designed as to be readily and rapidly dismantled, hygienically cleansed and antiseptically treated or sterilized, at such times as may be deemed desirable, as after each period of use; all openings or thoroughfares are straight and readily rendered sanitary without the use of special contrivances and in the briefest possible time, and the productive capacity depends only on the size of the machine.

These and allied objects are attained by the mechanism hereinafter fully described and shown in the accompanying drawings, forming part of these specifications, and in which:

Figure 1, is a front elevation of the complete machine. Fig. 2, is an end elevation of the same. Fig. 3, is an enlarged vertical section of the filling means, including the measuring chambers, fillers and valve devices. Fig. 4, is a similar section, taken through the tank filling means. Fig. 5, is a transverse section taken on a line indicated by *a-a* of Fig. 3, and, Fig. 6, is a similar section taken on a line indicated by *b-b* of Fig. 3, looking downward.

Similar characters represent similar parts throughout the several views.

The mechanism consists of a track-way 1,

and 1', of convenient height and of a length sufficient to permit of several cases of bottles being operated thereon at the same time, as they pass successively the filling point and beyond to their destination.

At about the center of the track-way and between the tracks, is positioned a table 2, adapted to move vertically in suitable guide-ways 3, provision for such movement being made by means of a hollow float 4, located in the tank 5, immediately below the table, or by other suitable mechanism, such as counterweights, so arranged as to nearly balance the combined weight of the table, case and filled bottles contained therein; a catch 6, is provided to maintain the table in a depressed position when the bottles shall have been filled, the table remaining at its low point until the filled case is displaced by an oncoming empty case, or otherwise removed, whereupon it is caused to gradually rise to its highest point and then descend, by gravity, as the bottles become filled; the bottles 7, while undergoing the filling operation, are contained in cases 8 resting upon the table 2, moving between the upright guides 3, which also act as supports for the tank 10, fed from a main reservoir or supply source 11.

A float 12, having a valve seat 13, at its upper side, acts in conjunction with the inlet 14, connected by a union 15, to the feed pipe 16, which leads from the main supply source 11; this float is provided with a stem 9, passing upward through the inlet 14; this arrangement provides for a practically uniform amount of fluid within the tank 10.

Surrounding the float 12, on its upper side is a finely meshed metallic gauze netting 17, to prevent the entrance of any foreign matter to the filling mechanism or bottle below; at the lower side of the tank 10, is attached a series of cylindrical apportioning or measuring chambers 18, containing at their lower extremities valve seats 19, having prolonged tubular continuations or fillers 20, adapted to enter well into the bottles as the same are brought vertically upward; at the extreme lower ends of the fillers 20, are attached metallic gauze strainers 21, so arranged, as are all other parts, to be readily removable for cleansing or treating antiseptically; at the upper ends of the measuring chamber 18, are small tubes 22, open to the atmosphere at their upper ends which project slightly above the top of the tank 10, thus providing a vent to facilitate the removal or renewal of con-

tents within the measuring chambers; positionally located centrally within the chambers are valve stems 23, having conical valves 24, at their lower ends and bored at their upper ends 25, to receive therein stems 26, extending downward from the piston valves 27, movable within the cylindrical passage 28, between the tank 10, and measuring chamber 18, and adapted to act as cut off valves; each of the stems 26, is recessed at an angle transversely, as at 29, for the pin 30, loosely fitting appropriate holes in the valve ends 25, forming in effect a sliding joint which allows a certain amount of individual longitudinal movement to either of the valves 24, or 27, but providing that an excess movement of one shall cause a corresponding movement of the other; each of the piston valves have an operating stem 31, connected at their upper ends, in such manner as to be readily dismounted, to rods 32, disposed transversely of and above the tank, the same being supported in vertically movable members 33, and 33', at either side of the tank and having a common operating means by reason of the links 34, and hand lever 35, arranged convenient of access by the operator.

From the foregoing it will be seen that in operation a case containing empty bottles is placed on the track-way at the right of the machine and moved over the table 2; this action liberates the catch 6, whereupon the table rises, each of the fillers 20, entering its appropriate bottle. As the bottles rise the hand lever 35, is operated, transmitting motion through its connections to the valve stems, raising the piston valves 27, higher and eventually opening the valves 24, whereupon the fluid contained within the measuring chambers 18, flows freely down through the fillers 20, at this time well within the bottles. As the bottles become filled they gradually sink until the fluid in the chambers has transferred itself to them, and, as the table reaches its normal low position, it becomes locked again automatically by the catch 6; now if the lever 35, be given a reverse movement the valves 24, become again seated and a continued movement of the hand lever 35, lowers the piston valves 27, so that the passageway between the tank and measuring chambers becomes open and the latter filled, any air in the chambers escaping through the vent tube 22. Meanwhile the displacement of fluid in the tank 10 causes the float 12, to descend, opening the supply valve 13, until the normal level of fluid is again reached from the main supply source, at which time the float will have risen and automatically closed the inlet thus providing against a possible overflow, as well as assuring a practically uniform head or quantity of fluid in the tank. Similarly a second case of empty bottles is placed on

the track-way and, moving forward, displaces the filled case, which is pushed away for further disposition and the same course of procedure again follows.

Obviously, if the tank 10, be filled it will so remain as long as the valves 27, are kept closed, or in the position indicated; if however the valves 27, be depressed, a portion of the fluid in the tank 10, will flow, by gravity into the measuring chambers 18, the air therein escaping through the tubes 22; then if the valves 27, be raised or brought again to their seats, communication between the tank and measuring chambers is closed and if the stems 31, be further raised the valves 24, will be caused to open and the contents of the measuring chambers permitted to flow simultaneously through the fillers 20, and, as they reach well into the bottles, no froth or foam is caused, but the bottles filled to the extent of the fluid contained within the measuring chambers. It will also be evident that no springs, rubber or other joint packings of any kind are required but all parts are of a nature to withstand hard usage and heat treatment to an extent sufficient to sterilize the entire construction; as no steam, water or air pipe is attached it is possible to provide the machine with casters or wheels, thus making it readily portable if desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a bottle filling machine, the combination with a fluid supply tank, of a plurality of chambers connected with said tank, piston valves controlling the passage between said tank and chambers, valves controlling the egress of fluids from each chamber, an operating means comprising a system of levers and handle therefor, rigid connections limitedly slidable between the piston and lower valves, adapted to allow an excess motion to the first named valves and single connections between each of the said first named valves and their operating means.

2. In a bottle filling machine, comprising means for elevating and supporting a plurality of bottles, a series of fillers positionally located to enter the mouth of the bottle and a supply tank common to all of said fillers, the combination with a series of measuring chambers intermediate of the tank and fillers, strainers removably secured at the extremities of the fillers, independent means for the egress of air from the chambers, piston valves controlling the entrance of fluids to the measuring chambers, conical valves controlling the egress of fluids from the measuring chambers, single connections between each set of valves comprising means whereby the conical valves may be opened or closed without a corresponding opening

or closing of the piston valves, and connections between each of the said first named valves and their operating means.

5 3. In a bottle filling machine, the combination with a fluid supply tank, of a plurality of measuring chambers detachably secured to the bottom of said tank and having single cylindrical passage-ways communicating therewith, piston valves movable longitudinally within said passage-ways, conical valve seats formed at the inner ends of the measuring chambers, valves fitted thereto adapted to close by gravity and having hollow stems extending vertically upward within the measuring chambers, stems
10
15 attached to the piston valves extending

downward and slidable within the hollow valve stems, connections between the said valve stems whereby the piston valves have a definitely greater range of movement imparted to them than may be given to the conical valves, rods attached to the opposite ends of said piston valves and means for operation thereof, all substantially as shown and described. 20

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 2

ROBERT LITTLER.

Witnesses:

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DAVID SINGER.