Dec. 8, 1931. E. SCHOLZ ET AL 1,835,676

LIGHT LIQUID FILLING MACHINE

Filed April 18, 1929 4 Sheets-Sheet 1

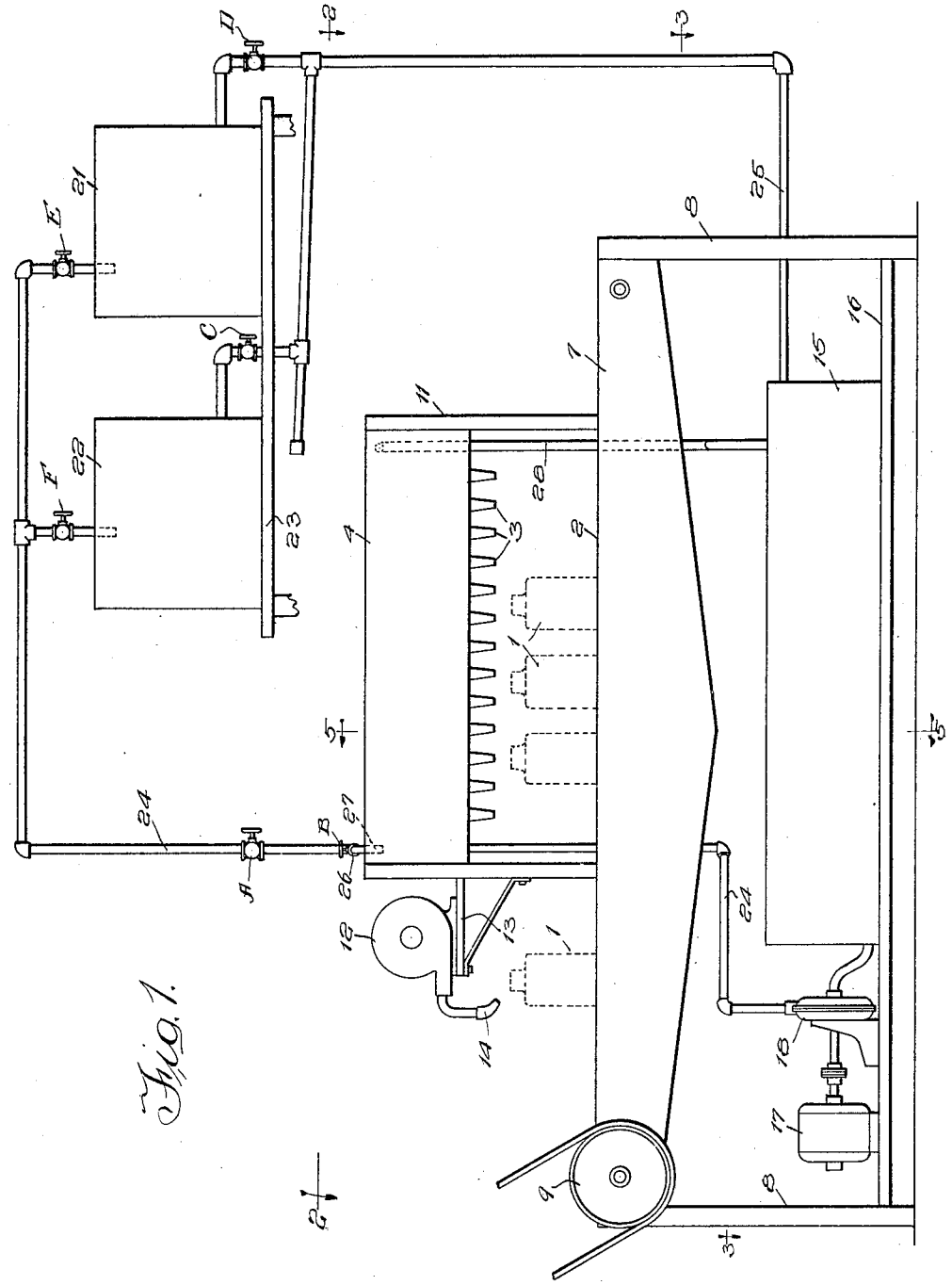


Fig. 1.

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Fig. 2.

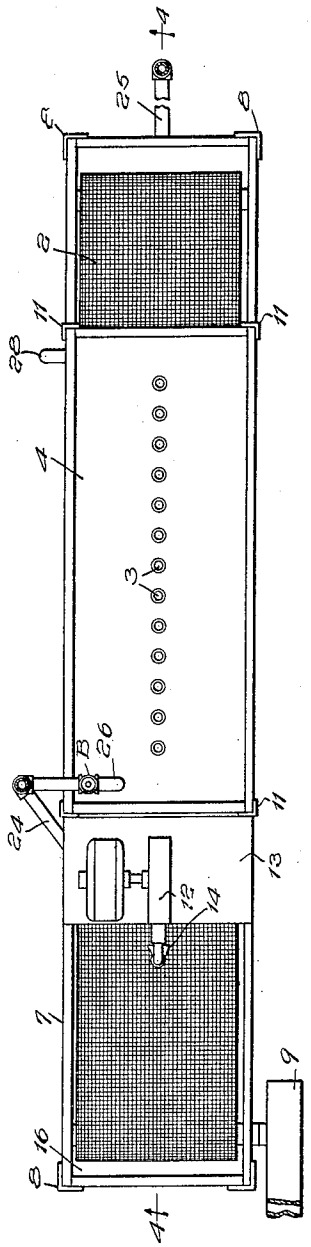
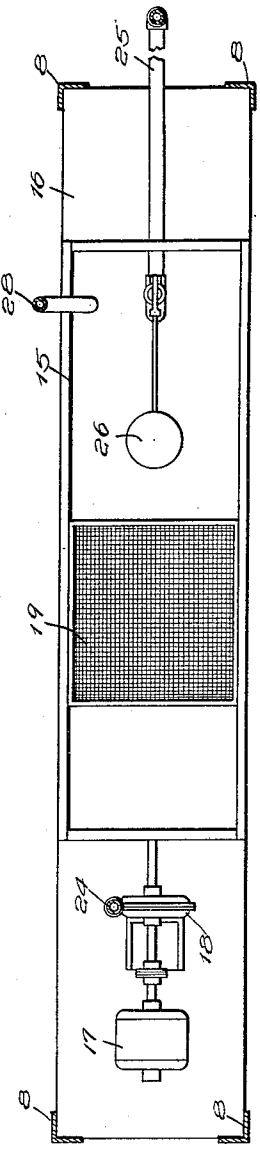


Fig. 3.



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Filed April 18, 1929 4 Sheets-Sheet 3

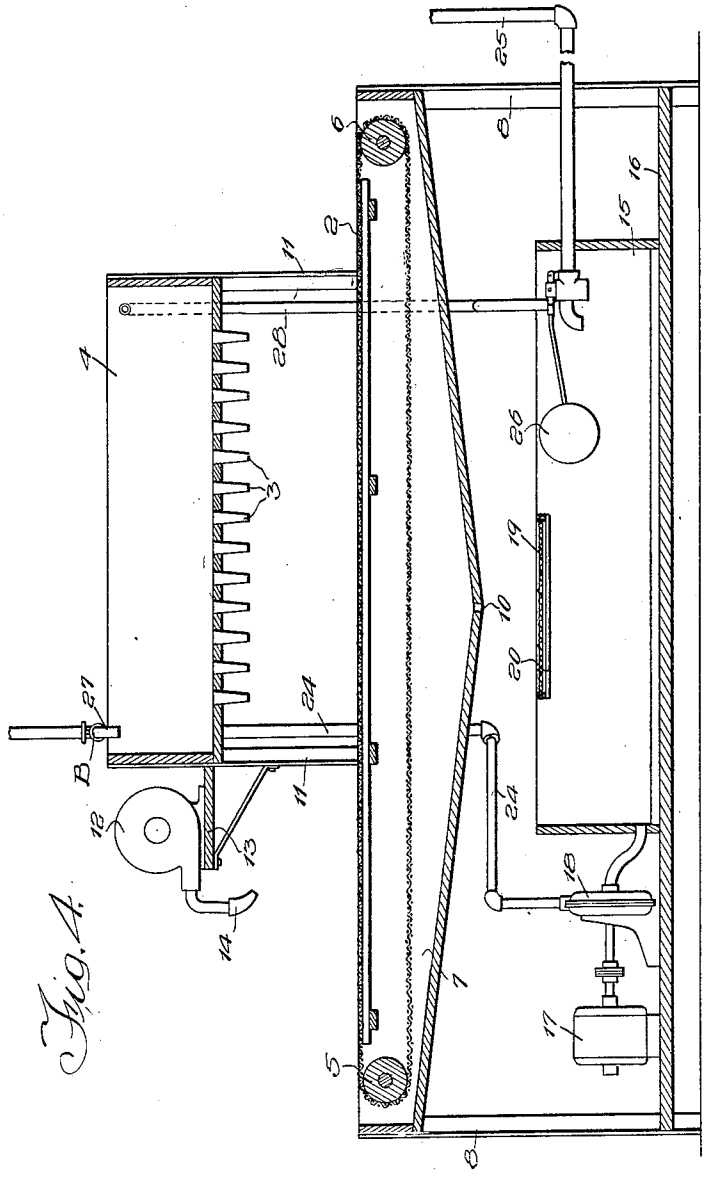


Fig. 4.

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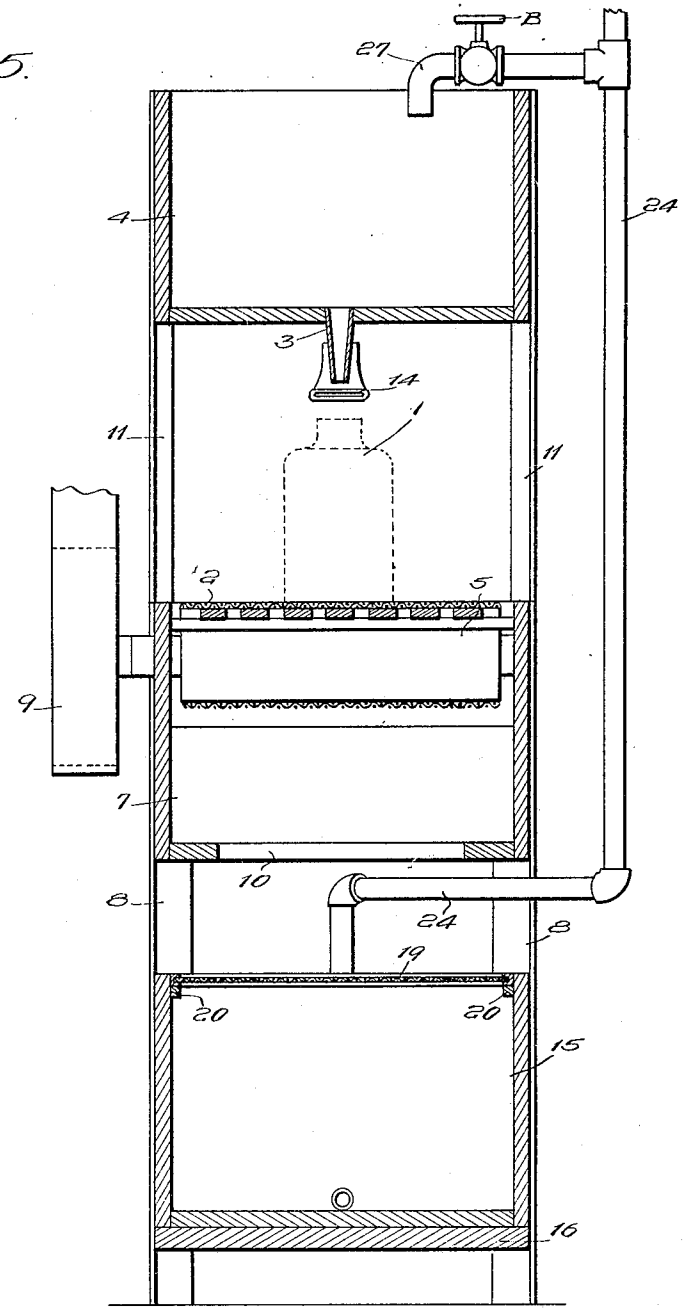
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Fig. 5.



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UNITED STATES PATENT OFFICE

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LIGHT LIQUID FILLING MACHINE

Application filed April 18, 1929. Serial No. 356,064.

This invention relates to bottling machines of the conveyor type. The object of this invention is to provide an automatic liquid filling machine of the conveyor type whereby a plurality of bottles or receptacles may be gradually filled to a desired point by a plurality of continuous flowing spigots or ports, being provided preferably in correlation with blower means arranged to blow off a small portion of liquid from each filled receptacle.

Another object of this invention is to provide an automatic system of circulation whereby when desired, a plurality of reservoirs containing different liquids may be arranged so that the constituents of either may be mixed or united while the machine is in operation.

Another important object of this invention is to provide a system wherein after the liquid is delivered from the several ports, it is collected and returned to the main distributing or supply tank.

Another object of the invention is to provide improved means for controlling the flow of fluid passing from the reservoir or reservoirs to the trough and from the trough to the means which distributes the fluid to fill receptacles adapted to be conveyed thereunder.

Many other objects will be obvious to those skilled in this particular art, from the disclosure hereinafter set forth.

In the drawings wherein like reference characters show like or corresponding parts:

Fig. 1 indicates a front view of the bottling machine;

Fig. 2 is a section taken substantially on the line 2—2 of Fig. 1;

Fig. 3 is a section taken substantially on the line 3—3 of Fig. 1;

Fig. 4 is a central vertical longitudinal section taken substantially on the line 4—4 of Fig. 2; and

Fig. 5 is an enlarged sectional view taken substantially on line 5—5 of Fig. 1.

As shown in the drawings, Figs. 1, 4, and 5, numeral 1 represents a plurality of bottles or any suitable receptacles disposed on a conveyor 2, whereby the receptacles are operatively passed under a plurality of spaced spigots or ports 3. As the bottles or receptacles are passed under the spigots 3, a portion of the liquid from each spigot is adapted to enter each of the receptacles, overflowing the same. Obviously, a conveyor may be disposed at the feed and take off ends of the machine to increase the efficiency of the same. As shown, the spigots are suitably disposed in the bottom of the distributing tank 4. The distributing tank is made of a non-corrosive material, wood preferably being used. Referring particularly to Figs. 4, and 5, the endless wire screen belt conveyor 2 is adapted to rotate around the rollers 5, and 6, respectively. Obviously means may be provided to tighten the belt when it becomes slack. The ends of the rollers are pivotally secured in the sides at the opposite ends of the dripping trough 7 which is in turn suitably secured to the upper portions of the uprights or legs 8, as shown clearly in Figs. 1, 2, and 3. The legs are preferably made of angle iron. Suitably secured to the dripping trough under the upper portion of the belt 2, there is a supporting rack, the purpose of which is to provide means to prevent sagging of the belt, when weighted with receptacles. As shown, the belt driven drum or pulley 9 provides means for transmitting motion for the conveyor. It is to be understood, of course, that the conveyor may be set in motion, in any preferred manner as by direct motor driven means. The dripping trough as shown, partially encloses the wire conveyor; and is preferably made of wood or of a non-corrosive material. In the bottom of the dripping tank, as shown in Figs. 4, and 5, there is disposed an elongated outlet or discharge port 10. As shown, the distributing tank 4 is suitably supported by the legs 11, which are disposed on the dripping trough 7, and it is obvious that the tank may be secured to any part of the frame. Suitably disposed and clearly shown in Figs. 1, 2, and 4, at one end of the distributing tank, there is a blower 12, supported by a shelf 13 secured to the tank. The blower is provided with a preferred type of nozzle 14 as shown princi-

pally in Fig. 5, which is adapted to blow off a portion of liquid from each receptacle after the same has been filled by the spigots.

Disposed below the dripping tank there is a rectangular trough 15, preferably of wood and suitably positioned on a platform 16 which is, in turn, secured to the uprights 8 of the frame. Disposed at one end of the platform near the trough, there is a motor 17 which provides power for the centrifugal pump 18 which is adapted to pump the liquid from the trough 15 into the distributing tank 4. Disposed in the trough 15, substantially under the discharge port 10, there is provided a screen 19, supported by the cleats 20, which are, in turn, secured to sides of the trough. The object of this screen or filter is to strain the overflow liquid as it passes through the conveyor belt and drips from the discharge port 10, into the trough 15.

Referring particularly to Fig. 1 numerals 21 and 22, represent a plurality of storage tanks or reservoirs which are provided to hold like or different liquids; the reservoirs being substantially supported by a shelf or scaffold 23. The object of these tanks is to provide means whereby different constituents or liquids may be stored and which will be mixed before they reach the distributing tank.

In operation of this machine and when it is desired to disburse different liquids from the reservoirs 21 and 22, the valve A in the conduit 24 is closed, and the valves B, C, and D are opened, and the liquid passes through the conduit 25 into the trough 15; the liquid in the trough 15 being regulated to a certain depth or level, by the lever float valve 26. The centrifugal pump 18 forces the liquid from the trough through the conduit or pipe 24, and faucet 27, and empties the same into the distributing tank 4. The liquid continuously runs out of the spigots, overflowing the receptacles 1 as they pass thereunder, by means of the traveling belt conveyor. The blower 12 blows off a portion of the liquid from the receptacles and the overflow liquid passes through the belt 2 into the dripping trough, and is dispersed out port 10, into trough 15, being strained or filtered by screen 19. When it is desired to cause the liquid from only tank 21 to be circulated through the system, the valves A and C are closed and the valves B, and D are opened. When the liquid from tank 22 is desired to be circulated throughout the system, the valves A and D are closed, and the valves B and C are opened. If it is desired to return the liquid from the system, and return to the two reservoirs, valves B, C and D are closed and valves A, F, and E are opened. If the liquid from the reservoir 21 was used to fill the receptacles, the liquid may be returned to the reservoir from the system by closing the valves B, D, and F, and opening the valves A and E, and similarly if the liquid from the reservoir 22 was used and it is desired to return the liquid from the system to reservoir 22, the valves B, C, and E are closed and the valves A, and F are opened. It is to be understood, of course, that as the liquids from the reservoir circulate through the various pipes and troughs, the same will be thoroughly mixed before entering any of the bottles or receptacles. Shown clearly in Figs. 1 and 4, numeral 28 represents an over-flow pipe connecting the distributing tank with the trough 7, the object of which is to prevent the distributing tank from overflowing. A screen or filter (not shown) is provided to strain the liquid passing through the pipe 28. Obviously, suitable covers may be provided for the various fluid reservoirs, tanks and etc., to better the sanitary condition.

Having thus described our invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of our invention; hence, we do not wish to be understood as limiting ourselves to the exact form, construction, arrangement and combination of parts herein shown and described, or uses mentioned.

What we claim as new and desire to secure by Letters Patent is:

1. In a machine of the kind described, and in combination, a distributing tank provided with a plurality of open ports, a fluid reservoir, a trough, automatic means provided to regulate the supply of fluid passing from said reservoir into said trough, means provided to conduct said fluid from said trough to said distributing tank, movable screen belt means disposed between said distributing tank and said trough to convey a plurality of receptacles placed thereon under said ports to fill said receptacles, means provided to blow off a portion of the fluid from said filled receptacles an overflow conduit connecting said distributing tank and said trough, means partially enclosing said belt means to direct the surplus fluid passing through said belt through filtering means disposed in said trough, and means provided to return the remaining fluid in the system to said reservoir.

2. In a machine of the kind described and in combination a distributing tank provided with a plurality of open aligned ports, a fluid reservoir, a trough, means including a float controlled valve provided to regulate the supply of fluid passing from said reservoir to said trough, means provided to conduct said fluid from said trough to said distributing tank, movable screen belt means disposed between said distributing tank and said trough to convey a plurality of receptacles placed thereon under said ports to cause a portion of fluid from each of said ports to enter each of said receptacles to fill

the same, an overflow conduit connecting said distributing tank and said trough, means partially enclosing said belt means to direct the surplus fluid through filtering means disposed in said trough, and means provided to return the remaining fluid in the system to said reservoir.

3. In a machine of the kind described and in combination, a distributing tank provided with a plurality of open aligned ports, a plurality of fluid reservoirs, a trough, means provided to regulate the supply of fluid from either of said reservoirs to said trough, means provided to conduct said fluid from said trough to said distributing tank, movable screen belt means disposed between said distributing tank and said trough adapted to convey a plurality of receptacles placed thereon under said ports to cause a number of them to be filling at one time, adjustable means provided to blow off a portion of the fluid from each receptacle after it is filled, an over-flow conduit connecting said distributing tank and said trough, means partially enclosing said belt means to direct the surplus fluid passing through said belt through filtering means disposed in said trough, and means provided to return the fluid remaining in circulating system to either of said reservoirs.

4. In a machine of the kind described and in combination, a distributing tank provided with a plurality of open ports continuously discharging fluid therefrom, a fluid reservoir, a trough, means provided to regulate the supply of fluid passing from said reservoir into said trough, means provided to conduct said fluid from said trough to said distributing tank, movable screen belt means disposed between said distributing tank and said trough to convey a plurality of receptacles placed thereon under said continuously flowing ports to cause a number of said receptacles to be filling at one time, an overflow conduit connecting said distributing tank and said trough, means partially enclosing said belt means to direct the surplus fluid passing through said belt through filtering means disposed in said trough, and means provided to return the remaining fluid in the system to said reservoir.

5. In a machine of the kind described and in combination, distributing means comprising a plurality of open ports, a fluid reservoir, a trough, means for regulating the supply of fluid passing from said reservoir into said trough, means for conducting said fluid from said trough to said distributing means, means for conveying a plurality of receptacles under said ports to fill said receptacles, and means for directing the surplus fluid passing below said conveying means into said trough.

6. In a machine of the kind described and in combination, a distributing tank provided with a plurality of open aligned ports, a fluid reservoir, a trough, means including a float controlled valve provided to regulate the supply of fluid passing from said reservoir to said trough, means provided to conduct said fluid from said trough to said distributing tank, movable means disposed between said distributing tank and said trough to convey a plurality of receptacles placed thereon under said ports to cause a portion of fluid from each of said ports to enter each of said receptacles to fill the same, means disposed below said movable means for directing the overflow fluid into said trough, and means provided to return the remaining fluid in the system to said reservoir.

7. In a machine of the kind described and in combination, a distributing tank provided with a plurality of open aligned ports, a plurality of fluid reservoirs, a trough, means provided to regulate the supply of fluid from each or all of said reservoirs to said trough, means provided to conduct said fluid from said trough to said distributing tank, movable means disposed between said distributing tank and said trough adapted to convey a plurality of receptacles placed thereon under said ports to cause a number of said receptacles to be filling at one time, means for directing the overflow fluid passing below said movable means into said trough, and means provided to return the fluid remaining in the circulating system to each or all of said reservoirs.

In witness whereof, we hereunto subscribe our names this 30th day of March, A. D., 1929.

EDWARD J. STALDER.
EDWARD SCHOLZ.