G. STRANDT.

BOTTLE FILLING MACHINE.

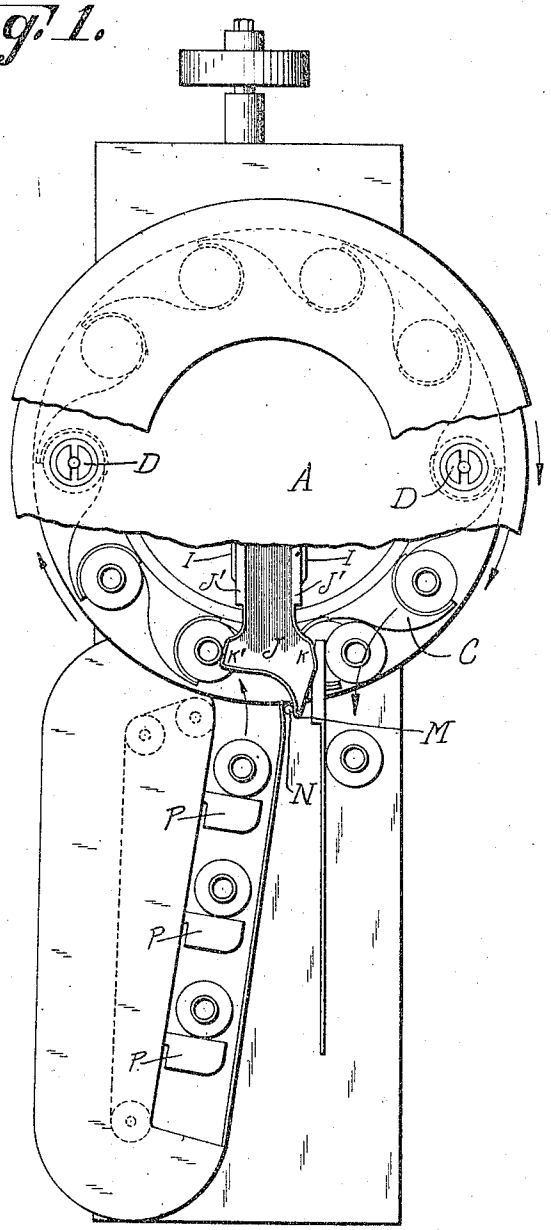
APPLICATION FILED NOV. 29, 1915.

1,204,607.

Patented Nov. 14, 1916.

2 SHEETS—SHEET 1.

Fig. 1.



Inventor

Witnesses

J. E. Breuer

Gustav Strandt

By Erwin & Wheeler

Attorneys

G. STRANDT.

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2 SHEETS—SHEET 2.

Fig. 2.

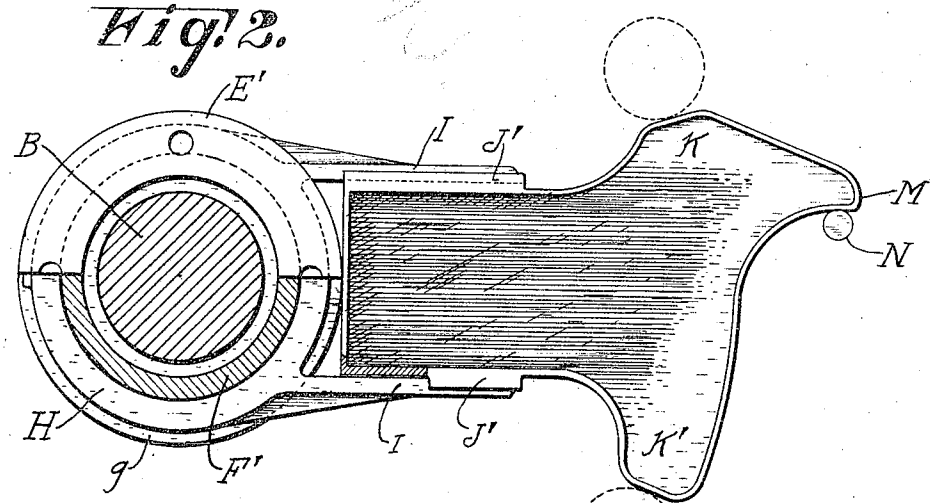
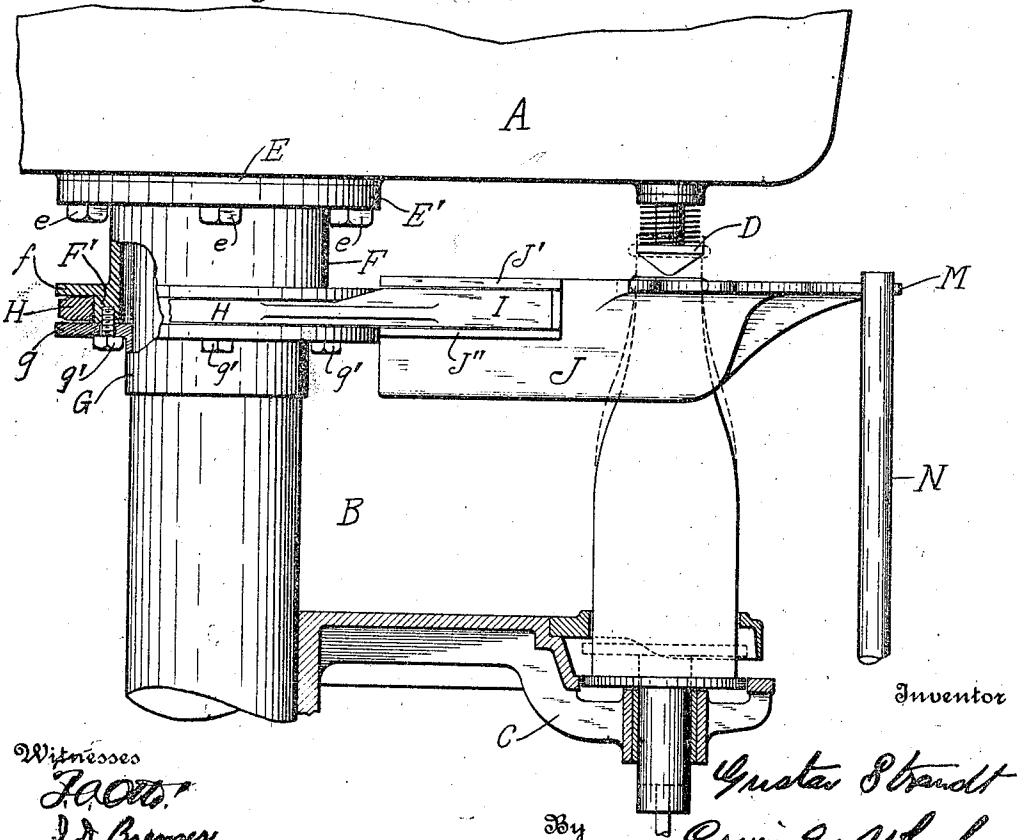


Fig. 3.



Witnesses

J. A. Orth.

D. D. Bremer.

Inventor

Gustav Strandt

By Erwin G. Wheeler

Attorney

UNITED STATES PATENT OFFICE.

GUSTAV STRANDT, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO MILWAUKEE DAIRY SUPPLY MANUFACTURING COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

BOTTLE-FILLING MACHINE.

1,204,607. Specification of Letters Patent. Patented Nov. 14, 1916.

Application filed November 29, 1915. Serial No. 63,935.

To all whom it may concern:

Be it known that I, GUSTAV STRANDT, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Bottle-Filling Machines, of which the following is a specification.

My invention relates to improvements in bottle filling machines, with special reference to that class of machines in which a rotary supply tank is located above a bottle carrier rotating at the same speed, the tank having a set of outlet nozzles in its bottom adapted for registry with the bottles, and provided with spring actuated valves, each of which is opened by a registering bottle when the latter is placed in position on the carrier. In these machines, the empty bottles are inserted in registry with the successive outlet nozzles at one point or station in the circle of rotation and are filled while traversing a circular path to a point of discharge, where each bottle is depressed to release it from its filling nozzle and forced outwardly upon a receiving platform or delivered to a bottle capping machine. The continued rotation of the supply tank and carrier then returns such nozzle to the bottle receiving station, where another bottle is inserted. The spring actuated nozzle valve closes when the filled bottle is delivered and it again opens when the empty bottle is brought into registry.

In machines of the above mentioned type, the residual liquid in the nozzle when the filled bottle is withdrawn has been permitted to waste, together with such liquid as may escape from the tank past a valve which has closed imperfectly or before the valve has become fully seated. This liquid has not only been wasted but it has tended to render the premises unsanitary, especially where milk or other liquids are being handled which deteriorate quickly after exposure to the atmosphere.

The object of my invention is to provide means whereby liquids dripping from the valves or nozzles of filling machines between the delivery and receiving stations may be saved and unsanitary conditions avoided.

In the drawings, Figure 1 is an outline plan view of a bottle filling machine of ordinary type to which my invention has been applied. Fig. 2 is a plan view of an attachment embodying my invention, with a portion thereof illustrated in horizontal section, the supporting shaft being also illustrated in section. Fig. 3 is a side elevation of the same showing a fragment of the supporting shaft and filling tank, and with a portion of the attachment partially broken away in vertical section.

Like parts are identified by the same reference characters throughout the several views.

The tank A is provided with a series or annular row of depending filling nozzles D. It is supported and rotated by means of a shaft B which also supports and rotates the bottle carrier C. These parts may be of any ordinary construction and therefore need not be described with further particularity.

The shaft B is provided with a tank supporting flange E, and a hanger sleeve formed in separable sections is secured thereto. The upper section F has a flange E′ at its upper end which is secured to shaft flange E by bolts or screws *e*. The lower end portion of the sleeve section F is provided with an annular flange *f* below which this sleeve section is thickened, as shown at F′, to facilitate connecting thereto a lower sleeve section G. Sleeve section G is provided with a flange *g* which abuts the lower end of the hub F′ and is secured thereto by screws or bolts *g*′. The two flanges *f* and *g* are therefore spaced apart, and provide an annular channel to receive a rotatable collar H which is provided with a pair of outwardly projecting fork arms I sufficiently separated to allow a drip pan J to be inserted between them. This pan J is provided with ribs J′, J″ adapted respectively to engage the upper and lower surfaces of the arms I whereby the pan J may be supported from the fork arm I in slip joint connection therewith.

The drip pan J is provided with lateral extensions K and K′ in an arc corresponding with an arc of the circle in which the filling nozzles revolve. This pan is also provided with a projection M which is adapted to engage a stop rod N to prevent the pan from swinging rotatively with the shaft B owing to the frictional contact of the collar H with the hanger sleeve sections and flanges.

The drip pan J is supported in a normal position with its projection M in registry

with the stop rod N in which position it projects between the filled and empty bottles and receives liquid dripping from the nozzles between the delivery point and the bottle receiving point. But the liquid collected in the drip pan may be returned to the supply tank A from time to time by swinging it rotatively on the hanger sleeve in a direction opposite that of shaft rotation to a point where it can be conveniently withdrawn radially from the supporting arms I whereupon it may be lifted manually and its contents emptied into the supply tank A. Preparatory to this operation, the machine may be stopped and one or more filled bottles removed manually to permit the pan to swing without striking them. The pan J may then be replaced on the arms I and swung back to its appropriate position in contact with the stop rod N. By thus providing for the removal of the pan, I avoid the necessity of employing drainage ducts and additional receivers to collect the liquid escaping from the drip tank. It is very difficult to keep drainage ducts in a sanitary condition, but with the removable pan above described, it is obvious that when the same has been removed from the supporting arms, it may be thoroughly and quickly cleansed before replacing it. The rotative adjustment is required for the reason that the pan is necessarily located underneath the feeding and discharging platform and therefore could not be readily removed by pulling outwardly from that point, owing to the difficulty of engaging and disengaging it from the fork arms when in this position and also owing to the fact that it is then in line with the bottle feeding conveyer P or any other devices located at the receiving station for the filled bottles. The newly inserted bottles would also be in the way of such a removal of the drip tank.

With the construction above described, it is obvious that any vertical adjustment of the tank A and shaft B, such as may be required from time to time to accommodate bottles of differing heights or sizes, will not affect the relative position of the drip pan, since by my improvement the drip pan is supported by the hanger sleeve directly from the under surface of said tank A.

I claim:—

1. The combination with a rotary bottle filling machine, of a pan supporting fork loosely supported therefrom and adapted to swing thereon, and a pan adapted for sliding engagement with the fork arms.

2. A bottle filling machine, including the combination with a vertically disposed rotary shaft, of an annular fork support encircling said shaft, a fork having a collar loosely engaging the fork support, and a pan detachably engaging said fork.

3. A bottle filling machine including the combinatiin with a rotary shaft, a tank carried thereby and provided with filling nozzles, and bottle receiving and discharging ways, of a drip tank removably supported in a position to receive drippings from nozzles passing from registry with the discharging way into registry with the receiving way.

4. A bottle filling machine including the combination with a rotary shaft, a tank carried thereby and provided with filling nozzles, and bottle receiving and discharging ways, of a drip tank removably supported in a position to receive drippings from nozzles passing from registry with the discharging way into registry with the receiving way, and means for swinging said drip pan laterally from such position preparatory to removing it from its support.

5. A bottle filling machine including the combination with a rotary shaft, a tank carried thereby and provided with filling nozzles, a collar loosely encircling said shaft and supported therefrom, a pan supporting member connected with said collar and a pan detachably connected with the supporting member in a position to receive drippings from the nozzles.

6. A bottle filling machine including the combination with a rotary shaft, a tank carried thereby and provided with filling nozzles, a collar loosely encircling said shaft and supported therefrom, a pan supporting member connected with said collar and a pan detachably connected with the supporting member in a position to receive dripping from the nozzles, together with a stop adapted to prevent the pan from rotating with the shaft out of position to receive such drippings.

7. A bottle filling machine including the combination with a rotary shaft, a tank carried thereby and provided with filling nozzles, a collar loosely encircling said shaft and supported therefrom, a pan supporting member connected with said collar and a pan detachably connected with the supporting member in a position to receive drippings from the nozzles, said shaft having a flanged hanger sleeve interposed between the shaft and collar and supporting the latter.

In testimony whereof I affix my signature in the presence of two witnesses.

GUSTAV STRANDT.

Witnesses:
JAS. B. ERWIN,
IRMA D. BREMER.