

No. 672,006.

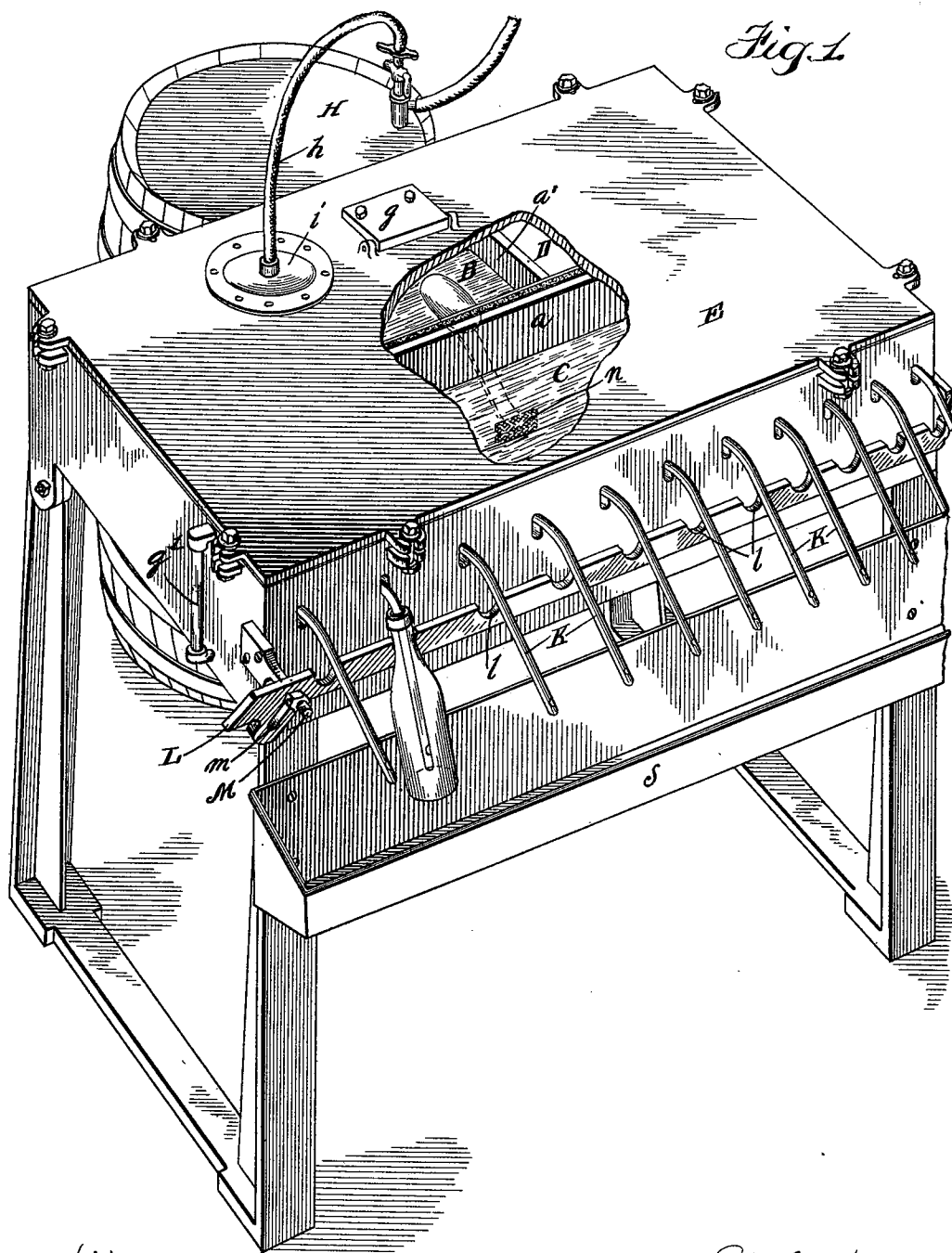
Patented Apr. 16, 1901.

M. W. NORKEWITZ.  
BOTTLE FILLING MACHINE.

(Application filed Dec. 20, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:  
J. B. Wein  
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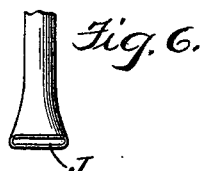
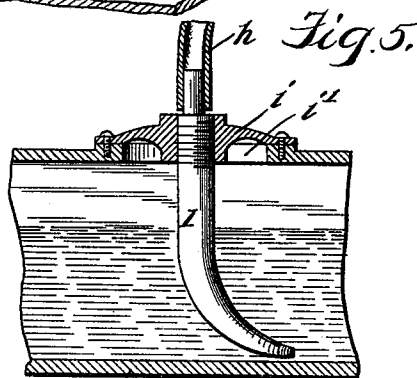
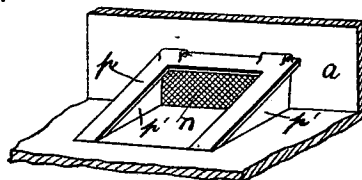
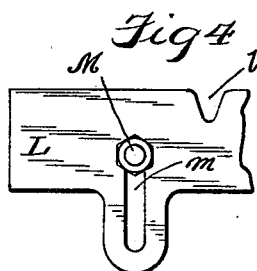
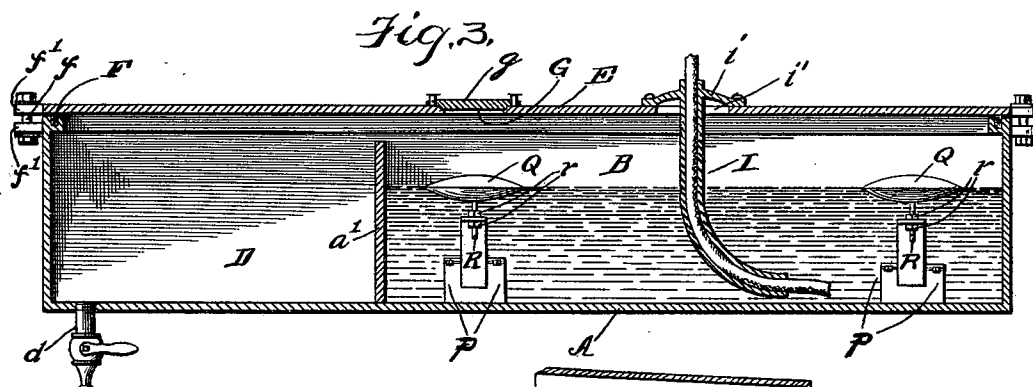
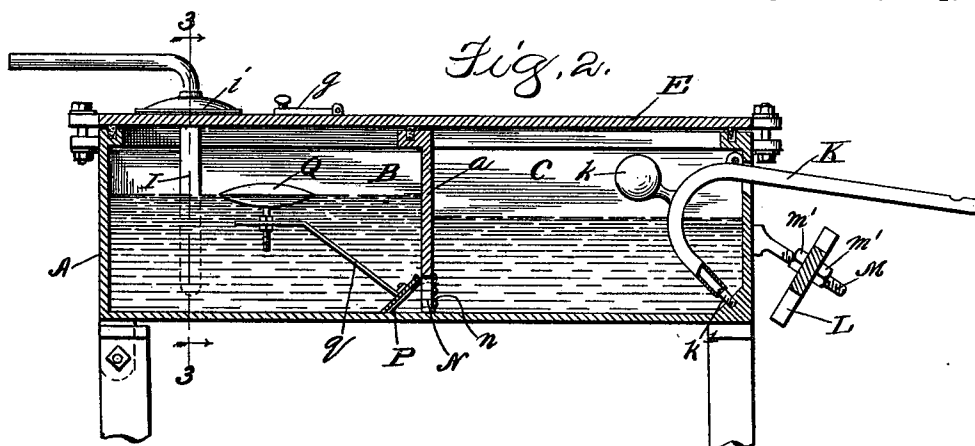
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M. W. NORKEWITZ.  
BOTTLE FILLING MACHINE.

(Application filed Dec. 20, 1900.)

(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

MAX W. NORKEWITZ, OF CHICAGO, ILLINOIS.

## BOTTLE-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 672,006, dated April 16, 1901.

Application filed December 20, 1900. Serial No. 40,490. (No model.)

*To all whom it may concern:*

Be it known that I, MAX W. NORKEWITZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bottle-Filling Machines, of which the following is a specification.

My invention relates to certain new and useful improvements in machines for filling bottles with liquids of any kind; but it is particularly adapted for use with malt liquors.

In the ordinary operation of filling bottles with malt liquors as at present conducted the liquid is drawn from a supply and discharged into a tank in the filling-machine, from which it is siphoned into the bottles. In this way a considerable quantity of foam is produced in the receptacle, which finds its way into the bottles and prevents their being filled with the liquid by the machine without special handling. Considerable time and labor are required to dispose of the foam in order that the bottles may be properly filled, and the operation of the machine is thereby greatly retarded.

The primary object of this invention is to provide a bottle-filling machine in which the foam produced in the receiving-tank will be prevented from passing into the siphon-tank, and the bottles thereby kept practically free from foam.

Another object is to provide for separating the foam from the liquid in the receiving-tank and automatically regulate and control the flow of liquid from the bottom of the receiving-tank into the siphon-tank.

My invention also has for its objects to improve the details of construction of a machine of this character in the manner hereinafter pointed out and claimed, and to provide a simple, strong, and inexpensive apparatus which can be easily operated to fill bottles with great rapidity.

In the accompanying drawings, forming part of my application, Figure 1 is a perspective view of the machine, showing the cover partly broken away to disclose the interior arrangement. Fig. 2 is a transverse sectional view. Fig. 3 is a longitudinal sectional view on the line 3-3 of Fig. 2. Fig. 4 is a detail view of the end of the bottle-support. Fig. 5

is a detail view showing the inlet-spout. Fig. 6 is a detail view of an inlet-spout having a flattened outlet. Fig. 7 is a detail view showing the valve arrangement in the receiving-tank.

Referring to the drawings, in which like letters of reference denote corresponding parts in all of the figures, A designates the body of the machine, supported in any suitable manner and divided by the longitudinal partition *a* and transverse partition *a'* into the receiving-tank B, the siphon-tank C, and the foam-tank D. The partition *a'* is not as high as the sides of the body, Fig. 3, so that a space will be provided between the top thereof and the cover E when the latter is secured in place to permit the foam on the liquid in the receiving-tank to flow over the partition *a'* into the foam-tank, from which it can be drawn off through the pipe *d*. The partition may be provided with a slot or openings for this purpose instead of terminating the partition below the cover, as shown, and the same result obtained. The body is provided around the upper edges of its sides and the partition *a* with a groove, which is filled with a rubber or other suitable packing F, so that the cover will form a tight joint therewith, and this cover is securely fastened in place by means of bolts *f*, arranged in slotted lugs *f'* on the cover and sides of the body. Other suitable fastening devices may be used whereby the cover can be tightly clamped on the body and easily removed therefrom. The cover is provided with an opening G above the receiving-tank, having a hinged lid *g*, adapted to be securely fastened in place, so that access can be had to the tank at any time to pour liquid therein or for other purposes, and *g'* is a gage to show the height of liquid in the siphon-tank.

The liquid from a suitable supply H passes into the receiving-tank through a pipe *h*, which may extend down through the spout I, Fig. 3, or be coupled to the upper end thereof, Fig. 5. This spout has its lower end curved, so that the liquid will be discharged laterally in the tank, and is provided with a socket-plate *i*, integral therewith or having a screw connection with the spout, the plate holding the spout in place and covering the opening *i'* in the cover. The discharge end

J of this spout may be flattened, Fig. 6, to spread the liquid and reduce the agitation thereof.

The machine is provided with any number 5 of siphons K, pivotally supported on the front of the siphon-tank in any desired manner and having weights  $k$ , which hold the inner ends of the siphons normally seated on the pointed rubber posts  $k'$ ; but when a bottle 10 is placed on the spout end of the siphon above the drip-trough S in the usual manner the inner end will be raised from its seat and the liquid permitted to flow out into the bottle. The bottle is supported on the spout 15 by means of a plate L, which is provided with a notch  $l$  at each siphon to receive the neck of the bottle. This plate is adjustably supported on the body A by means of threaded bolts M, secured to the body and passing 20 through slots  $m$  in the plate and fastened thereto by the nuts  $m'$ . The plate can be adjusted up and down by reason of the slots, and the bolts and nuts provide for a lateral adjustment, which adapts the machine for 25 use with bottles of any size and shape and greatly facilitates the operation.

An important feature of my invention consists in providing automatic devices for regulating the flow of liquid from the receiving 30 to the siphon tank. It is desirable to keep the liquid in the siphon-tank as free from foam as possible, and I therefore provide the communication between these tanks at the bottom of the partition  $a$  between them, so that 35 the liquid will be drawn off from the bottom of the receiving-tank, while the foam is permitted to pass off from the top. This prevents the foam on the liquid in the receiving-tank from entering the siphon-tank, and provision is made for closing the outlet when 40 the liquid in the receiving-tank falls below a predetermined level.

At the bottom of the partition  $a$  I provide one or more openings N, preferably covered 45 with gauze  $n$  or some similar material to prevent the passage of foreign matter. Each of these openings is provided with a float-valve, operating in the receiving-tank, which automatically opens and closes as the liquid in 50 said tank rises above and falls below a predetermined level. Float-valves of different kinds may be employed; but I have found the valve constructed as shown in the drawings to operate very satisfactorily.

The valve-plate P is faced with rubber or 55 other suitable material and pivotally secured to the frame  $p$  on the sides  $p'$ , which are arranged at each side of the opening N in the partition, or it may be pivoted to the partition above the opening therein, and is normally seated on the inclined edges of the 60 sides to shut off communication between the receiving and siphon tanks. A float Q is carried by an arm  $q$ , mounted on the valve-plate, 65 and to enable the float to be adjusted I prefer to provide it with a threaded post R, which passes through the end of said arm and is

held in its adjusted position by the nuts  $r$  or by other suitable devices. By this means provision is made for changing the predetermined level whereby the operation of the 70 float and valve is controlled.

The operation of the float-valve is automatic and exceedingly simple. When the liquid in the receiving-tank has risen above the 75 predetermined level indicated by the position to which the float is adjusted, the float will be carried up with the liquid, and thus open the valve, thereby permitting the liquid at the bottom of the receiving-tank to flow into 80 the siphon-tank, while the foam runs off into the foam-tank. By thus drawing off the liquid from the bottom of the receiving-tank I prevent the foam on the liquid in said tank 85 from passing into the siphon-tank and in this way keep the liquid in the siphon-tank practically free from foam.

I am aware that changes in the form and proportion of parts and in the details of construction may be made without departing 90 from the spirit or sacrificing the advantages of the invention, and I thereby reserve the right to make all such changes and alterations as fairly fall within the scope of the invention. 95

My machine presents many and important advantages over those of the prior art, and it provides for filling bottles with far greater rapidity and regularity and at an expenditure 100 of much less labor than has ever before been possible. The liquid is automatically supplied to the siphon-tank and in such a way that the foam which is usually produced in the receiving-tank is prevented from entering 105 the siphon-tank and in this way kept out of the bottles. This enables the operator to place the bottles on the siphon-spouts one after the other and leave them there until they are filled without requiring him to handle or manipulate them in any way to dispose 110 of foam which with the old machines of the prior art accumulates in the neck of the bottle and must be removed to get the bottle full of liquid.

To facilitate cleaning the machine I prefer 115 to hinge or otherwise pivot the body on the supporting - legs, as indicated in Fig. 1, so that the body can be turned up on its side to enable easy access to the interior parts.

Having thus fully described my invention, 120 what I claim, and desire to secure by Letters Patent, is—

1. In a bottle-filling machine, the combination of a siphon-tank and a receiving-tank, a partition between said tanks having an opening 125 therein at its bottom, and a float-valve within the receiving-tank to open and close communication between said tanks through said opening, substantially as described.

2. In a bottle-filling machine, the combination 130 of a siphon-tank and a receiving-tank, a partition between said tanks having an opening therein at its bottom, sides  $p$  adjacent to said opening within the receiving-tank and

having inclined edges, and a valve normally seated on said sides to close communication between the tanks through said opening and adapted to be automatically operated and controlled by the level of the liquid in the receiving-tank, substantially as described.

3. In a bottle-filling machine, the combination of a siphon-tank, a receiving-tank, a partition between said tanks having an opening therein, a valve to open and close communication between said tanks through said opening, an arm carried by said valve, and a float supported on said arm within the receiving-tank and having an adjustable connection with the arm, substantially as described.

4. In a bottle-filling machine, the combination of a receiving-tank, a foam-tank, a partition between said tanks constructed to permit the foam on the liquid in the receiving-tank to run off into the foam-tank, and means for preventing the liquid from escaping to the foam-tank, substantially as described.

5. In a bottle-filling machine, the combination of a receiving-tank, a siphon-tank having a communication with the bottom of the receiving-tank to receive liquid from said tank therethrough, and a foam-tank having a communication with the top of the receiving-tank

through which the foam on top of the liquid in the receiving-tank may pass into the foam-tank, substantially as described.

6. In a bottle-filling machine, the combination of a siphon-tank and a receiving-tank, a partition between said tanks having an opening therein at its bottom, a float-valve arranged within one of said tanks to automatically open and close communication between said tanks through said opening, and a foam-tank adjacent to the receiving-tank and having a communication with the top of the receiving-tank by means of which the foam on the liquid in the receiving-tank may pass into the foam-tank, substantially as described.

7. In a bottle-filling machine, a body, partitions  $a, a'$  within the body dividing the same into a siphon-tank, a receiving-tank and a foam-tank, the partition  $a'$  between the receiving and foam tanks being lower than the other sides of said tanks, and a cover secured over the tanks and leaving a space between itself and the partition  $a'$ , substantially as described.

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Witnesses:

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