

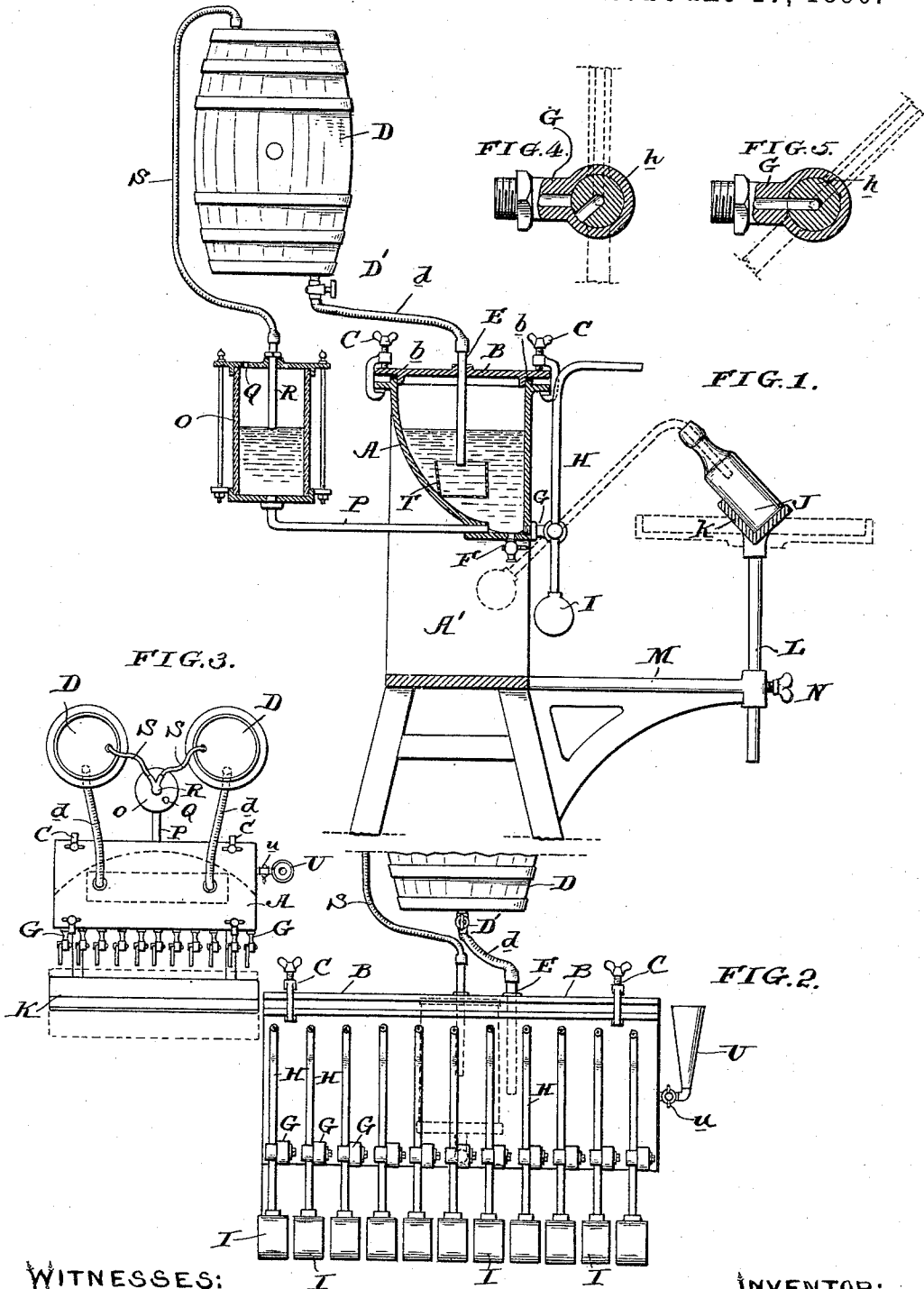
(No Model.)

J. J. DE KINDER & H. ROEMER.

BOTTLE FILLING MACHINE.

No. 430,526.

Patented June 17, 1890.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JOSEPH J. DE KINDER AND HERMANN ROEMER, OF PHILADELPHIA, PENNSYLVANIA; SAID ROEMER ASSIGNOR TO SAID DE KINDER.

## BOTTLE-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 430,526, dated June 17, 1890.

Application filed January 30, 1890. Serial No. 338,613. (No model.)

*To all whom it may concern:*

Be it known that we, JOSEPH J. DE KINDER and HERMANN ROEMER, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented an Improvement in Bottle-Filling Machines, of which the following is a specification.

Our invention relates to bottle-filling machines; and it consists of certain improvements, which are fully set forth in the following specification, and shown in the accompanying drawings, which form a part thereof.

While our invention relates to bottle-filling machines in general, it is especially adapted to beer-bottling, in which heretofore great difficulty has been experienced by reason of the great tendency of the beer to foam and of the difficulty of accomplishing the proper feeding of the beer from the barrel and of the loss of carbonic acid by exposure to the atmosphere. It is the object of our invention to overcome these difficulties and to accomplish a regular feeding of the liquid from the reservoir or supply without objectionable foaming in the bottles or overflowing of the liquid.

In carrying out our invention we employ a convenient receptacle or vessel provided with delivery-tubes for delivering the liquid to the bottles, and connect this vessel with the barrel or supply-reservoir, and by means of certain devices, hereinafter more fully described, control the flow of the liquor from the barrel or reservoir by the level of the liquor in the delivery-vessel. By this means the supply of liquor in the delivery-vessel is replenished from the reservoir as the liquor is allowed to flow into the bottles without the possibility of overflowing, for the moment the liquor in the delivery-vessel reaches a certain height the flowing of the liquor from the reservoir is automatically stopped and cannot begin again until the liquor-level has again fallen. This we accomplish by controlling the supply of air to the barrel or reservoir, as is hereinafter more fully described.

Our invention also consists of certain improvements in construction and combinations of parts, which are hereinafter more fully described and claimed.

Referring to the drawings for greater particularity, Figure 1 is a sectional side elevation of our improved bottle-filling machine, illustrating the connection with the barrel or supply-reservoir. Fig. 2 is a front elevation of the same with the supporting-tray and lower frame-work removed. Fig. 3 is a plan view of the same on a reduced scale, showing the connection of the delivery-reservoir with two barrels; and Figs. 4 and 5 are sectional side elevations of valves of the delivery-tubes.

A is a suitable receptacle or vessel for containing the liquor to be delivered to the bottles, provided with a removable lid or cover B, secured thereto by means of clamping-screws C, pivoted to the vessel A. The cover B is secured to the vessel with an air-tight joint, preferably by means of rubber or other suitable packing *b*. In practice we find it expedient to form this vessel inclined toward the bottom, and preferably having one of its walls curved both in horizontal and vertical section, as indicated in the drawings in Fig. 1 and in dotted lines in Fig. 3, so that the space at the bottom will be small and the vessel may be thoroughly drained of its contents.

F is a drainage-pipe or outlet at the bottom of the vessel A.

D is a barrel or supply-reservoir having its bung-hole connected by a piece of piping *d* with a tube E, projecting a distance downward into the vessel A through the cover or lid B. By having this tube project a distance into the vessel A the liquor is introduced from the bottom, and splashing and foaming are avoided. If desirable, this pipe E may be adjustable.

G are a series of liquor-outlets from the bottom of the vessel A.

H are a series of tubes pivoted to the outlets G, and having valves *h*, so that when the tubes H are lowered in position for filling the bottles with their ends projecting thereinto, as shown in Fig. 1, the valves *h* will be opened to allow the liquor to flow from the reservoir A through the outlets G and tubes H into the bottles.

I are the weighted ends upon the tubes H to cause them to normally assume an upright position.

J are the bottles.

K is a tray or frame for supporting the bottles J, which may be raised or lowered to suit different sizes of bottles by means of the rods L, working in suitable brackets M of the main frame A' of the machine and adjustable therein by means of screws N. The tray K may be made of any convenient form, either in the angular shape shown in Fig. 1 or flat, as indicated in dotted lines.

O is a small vessel having its bottom connected with the bottom of the vessel A by means of a tube P, so that the liquor may flow into it from the vessel A, assuming the same level in both. We prefer to construct the vessel O of glass, so that the height of the liquor in it may be observed. This vessel is provided with a suitable air vent or inlet Q.

R is a tube extending a distance downward into the vessel O, and preferably made adjustable therein.

S is a pipe connecting the tube R with the air vent or inlet of the barrel D. It will be seen from this description that the only inlet for the air to the barrel D is from the inlet Q through the vessel O and pipe R. The liquor will flow from the barrel D into the vessel A until it rises to a sufficient level in the vessel O to seal the end of the tube R, when the supply of air to the barrel D being stopped, the flow of liquor will immediately cease until the level of the liquor is again lowered by the outflow through the outlets G below the end of the tube R, when the air will again be admitted to the barrel D and the liquor will flow again into the reservoir A until the tube R is again sealed. By this means the vessel A may be constantly supplied with the desired amount of liquor, and the valve D', controlling the flow of the liquor from the barrel D, may be left continually open, as the flow of the liquor from the barrel is controlled wholly by the level of the liquor in the vessel O.

In operating the apparatus the valve D' is opened and the liquor is allowed to flow from the barrel D into the vessel A until it rises to a sufficient level to cut off the supply of air through the tube R and pipe S. The bottles J are then placed in position and the ends of the tubes H are inserted in them, opening the valves *h* and allowing the liquor to flow into the bottles J. When the bottles are filled, they are removed, releasing the ends of the tubes H and allowing them to assume their upright position through the action of the weighted ends I. Since the cover B forms an air-tight connection with the vessel A and the only inlet for the air is through the opening Q, it will be seen that there is the least possible exposure of the liquid to contact with the air, and consequently there will be little loss of the carbonic acid of the beer, which is highly objectionable.

U is a funnel connecting with the vessel A and provided with a valve *u*. Through this funnel any beer from the bottles may be

poured back into the vessel A, which is desirable in case any of the bottles become broken or injured, and thus the loss of liquor is reduced to a minimum. The bottles are supported when at rest with their necks on a level with the liquor in the reservoir. This will bring the bends of the tubes H above the level of the liquor, and normally there would be no flow. In introducing the tubes, however, into the bottles they are lowered so as to bring their bends below the level of the liquor, which will complete a siphonage and start a flow through the pipes H. This will continue when the bottles are put in their normal position until the level of the liquor reaches the top of the bottles; but when the liquor in the bottles is level with the liquor in the reservoir the flow will instantly cease, so that there cannot be any accidental overflow of the liquor from the bottles.

The vessel O forms a liquor-gage and serves to notify the operator when the barrel D is emptied, since the moment the level of the liquor falls and remains below the end of the pipe or tube R it is evident that the barrel D is drained of its contents, when another barrel or reservoir may be opened.

In Fig. 3 we show our apparatus employed in connection with two barrels or supply-reservoirs D, which are each connected with the vessel A by means of pipes, and are provided with the air-inlet tubes S, connecting with the pipe R of the vessel O, so that as soon as one of the barrels D is exhausted the other may be opened and the empty barrel replaced by a full one, and thus the operation of the machine need not be interrupted.

For the purpose of separating from the liquor before it flows into the bottles J any impurities that may be in it we find it expedient to arrange within the vessel A a trough or box T, of gauze-wire or other perforated or filtering material, arranged immediately under the ends of the supply-tube B, so that all of the liquor flowing into the vessel A will pass through the trough or box, in which the impurities will be collected. This box or trough T may be carried by the ends of the tubes E or may be supported within the vessel A under the ends of the tubes in any convenient manner.

While we prefer the details of construction which are here shown, we do not limit our invention to them, as it is apparent that they may be modified in many ways without departing from the principles of it.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a bottle-filling machine, the combination of a liquor-reservoir having a liquor-outlet and an air-inlet, a liquor-supply tank having one or more liquor-outlets and provided with an air-tight cover, a pipe connecting said liquor-supply tank with the outlet of the reservoir, a liquor-gage independent of the supply-tank, a pipe connecting the bot-

tom of the liquor-gage with the bottom of the supply-tank, whereby the liquor will assume the same level in both the supply-tank and gage, and a pipe connecting the air-inlet of the reservoir with the liquor-gage and opening in the liquor-gage to the air at the normal liquor-level, whereby the air to control the flow of the liquor is admitted to the reservoir only through the liquor-gage, and is controlled by the height of the liquor therein and does not come in contact with the liquor in the supply-tank which is fed to the bottles.

2. The combination, in a bottle-filling machine, of a liquor-reservoir having an air-inlet and a liquor-outlet, a supply-reservoir having an air-tight cover and provided with one or more liquor-outlets, one or more pivoted siphons pivoted at the liquor-outlets of the said tank and swinging below the level of the liquor in the tank on being inserted into the bottles, so as to complete the siphonage, a liquor-gage independent of the liquor-supply tank, but having its bottom connected with the bottom thereof, so that the liquor will assume the same level in the supply-tank and gage, and an air-inlet pipe connecting with the air-inlet of the reservoir and opening into the liquor-gage at the normal liquor-level, whereby the flow of the liquor from the reservoir is controlled by the height of the liquor in the supply-tank and the liquor

in the supply-tank does not come in contact with the air.

3. In a bottle-filling machine, the combination of a liquor-reservoir having an air-inlet and a liquor-outlet, a supply-reservoir having an air-tight cover and provided with one or more pivoted siphons pivoted at the liquor-outlets to the supply-tank and having weighted ends, so as to normally assume an upright position with their open ends above the level of the liquor, but adapted on being inserted into the bottles to be swung below the liquor-level, so as to complete the siphonage, a liquor-gage independent of the liquor-supply tank, but having its bottom connected with the bottom thereof, so that the liquor will assume the same level in the supply-tank and gage, and an air-inlet pipe connecting the air-inlet of the reservoir with the liquor-gage and opening therein at the normal liquor-level, whereby the flow of the liquor from the reservoir is controlled by the height of the liquor in the supply-tank, and the liquor in the supply-tank does not come in contact with the air.

In testimony of which invention we have hereunto set our hands.

JOSEPH J. DE KINDER.  
HERMANN ROEMER.

Witnesses:

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