

932,268.

Patented Aug. 24, 1909.

Fig. 4.

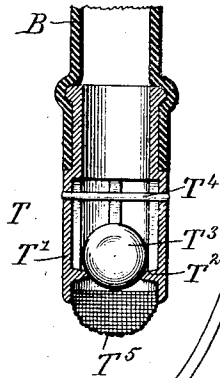
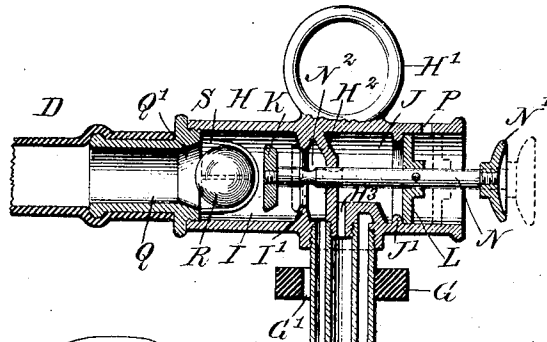


Fig. 1.

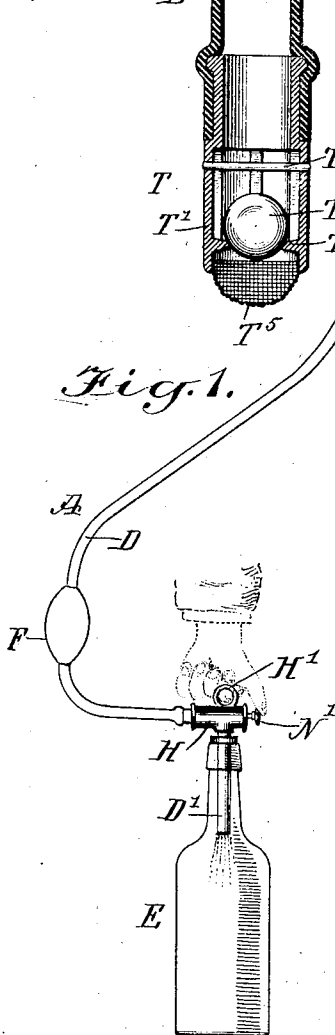


Fig. 2.

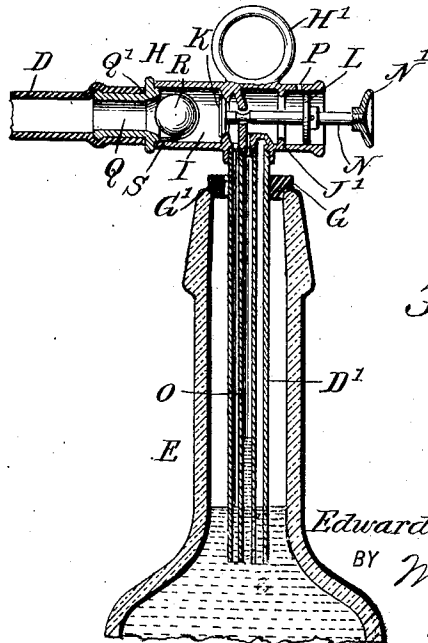


Fig. 3.

WITNESSES

Geo. W. Taylor
Rev. J. H. H. H.

INVENTOR

Edward N. Gaudron

BY

Mum & Co

ATTORNEYS

UNITED STATES PATENT OFFICE

EDWARD N. GAUDRON, OF HASBROUCK HEIGHTS, NEW JERSEY, ASSIGNOR OF ONE-HALF TO
JOHN W. C. VAN DER HARST, OF NEW YORK, N. Y.

FILLING DEVICE.

932,268.

Specification of Letters Patent.

Patented Aug. 24, 1909.

Application filed April 18, 1908. Serial No. 427,796.

To all whom it may concern:

Be it known that I, EDWARD N. GAUDRON, a citizen of the United States, and a resident of Hasbrouck Heights, in the county of Bergen and State of New Jersey, have invented a new and Improved Filling Device, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved filling device, more especially designed for filling bottles and other receptacles with liquids contained in kegs, barrels, vats, tanks and other storage vessels, and arranged to automatically stop the filling operation at the time the bottle is filled, to prevent the return flow of the liquid into the storage vessel and thus avoid disturbance of any sediment.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement as applied, the storage vessel being shown in section; Fig. 2 is an enlarged sectional side elevation of the terminal of the discharge leg of the siphon, the valve being open; Fig. 3 is a reduced sectional side elevation of the same showing the valve closed, and Fig. 4 is an enlarged sectional elevation of the suction valve.

The filling device is provided with a siphon A, having its short or suction leg B extending into the barrel, tank or other storage vessel C containing liquid, as illustrated in Fig. 1. The discharge or long leg D of the siphon A has its terminal in the form of a pipe D' extending into the bottle or other receptacle E, to be filled with the liquid contained in the storage vessel C. The discharge leg D is provided with a suitable valve suction bulb F, for starting the siphon by pumping the air out of the same. The pipe D' is provided near its upper end with a collar G adapted to rest on the mouth of the receptacle E, so as to support the pipe D', and to bring the lower end thereof the desired distance down into the neck of the receptacle E, the collar G being held adjustable up or down on the

pipe D' to suit bottles having necks of different length. The collar G is provided with an air vent G' for the escape of the air from the receptacle E while filling the same. The upper end of the pipe D' is secured to a valve casing H provided with a handle H' for conveniently placing the pipe D' into the receptacle E or removing it therefrom. The valve casing H is provided with a transverse partition H² separating the casing H into an inlet chamber I and a compressed air chamber J, the said inlet chamber I being provided with a valve seat I' for engagement by a valve K, to open or close the chamber I to the pipe D'.

The compressed air chamber J is provided with an annular shoulder J', on which is adapted to be seated a piston L mounted to slide in the outer portion of the compressed air chamber J, and the said piston L is rigidly connected with the valve K by a stem N, so that the valve K and the piston L move in unison, and when the piston L is seated on the shoulder J' then the valve K is off its seat I', and when the piston L moves outward then the valve K moves to its seat I', to disconnect the chamber I from the pipe D'.

On the outer end of the stem N is secured a handle N' under the control of the operator, for pushing the piston L inward against the shoulder J' whenever it is desired to open the valve K with a view to fill the receptacle E, as hereinafter more fully described.

In the partition H² is formed an opening H³ leading to a pipe O attached to the partition H² and extending within the pipe D', the lower end of the pipe O being flush with the lower end of the pipe D'.

In the outer end of the compressed air chamber J is formed an air vent P, adapted to be uncovered by the piston L when the latter moves outward, so as to allow the compressed air to escape by way of the air vent P, and to allow air to pass into the compressed air chamber J when lifting the pipe D' out of the receptacle E after the filling operation is completed, so as to drain any liquid that may be in the pipe O back into the receptacle E.

The stem N is provided with a reduced portion N² adapted to register with the opening in the partition H² at the time the valve K is moved onto its seat I', so that air from the chamber J can pass into forward end of the chamber I and to the pipe D', to allow

of draining the latter of any liquid that may be in it at the time the pipe D' is lifted out of the receptacle E.

In the outer end of the chamber I is secured a nozzle Q connected with the flexible tube forming the legs D and B of the siphon A, and on the nozzle Q is formed a valve seat Q' adapted to be engaged by a ball valve R held in a cage S secured to the nozzle Q and projecting into the chamber I in the rear of the valve K, as plainly indicated in Figs. 2 and 3. This valve R takes the place of the valve ordinarily employed in the suction bulb F, and in addition to its function as a valve, it serves as a deflector for the liquid entering the nozzle for a purpose presently described. When the valves K and R are open as shown in Fig. 2, then the liquid flowing through the nozzle Q into the chamber I is directed by the ball R to the wall of the chamber I, so that the liquid readily flows over the edge of the valve K without any tendency of the flowing liquid to move the valve K into a closed position.

The terminal of the short or suction leg B of the siphon A is provided with a suction valve T, shown in detail in Fig. 4. The casing T' of the suction valve T is provided with a valve seat T², on which is mounted a ball valve T³, the upward movement of which is limited by a stop pin T⁴. A perforated cap T⁵ is held on the lower end of the casing T' to prevent extraneous matter from being drawn into the siphon A.

The operation is as follows: When the several parts are in the position shown in Figs. 1 and 2, and the siphon A is started, then the liquid flows from the storage vessel C by way of the siphon A into the receiving receptacle E, the valves T³, R and K being open. The liquid at the outflow of the pipe D' produces a suction in the pipe O, so that a partial vacuum is produced in the inner end of the air chamber J, and consequently the piston L is held to its shoulder J' by atmospheric pressure against the outer face of the said piston L. Thus the valve K is held open against the flow of the liquid through the chamber I to the pipe D'. When the liquid rising in the receptacle E reaches the lower ends of the pipes D' and O, then the suction in the pipe O ceases, and the liquid on rising in the pipe O compresses the air therein and in the chamber J, so that finally the compressed air pushes the piston L outward, and in doing so the valve K is moved to its seat P', and consequently the flow of the liquid from the chamber I to the pipe D' ceases. During this movement of the piston L and the valve K, air is admitted to the upper ends of the pipes D' and O, so that when the operator lifts the pipe D' out of the receptacle E, then the liquid contained in the pipes D' and O drains back into the receptacle E. The operator can now raise the pipe

D' into an empty receptacle E to be filled, and when this has been done the operator pushes the handle N' inward, so that the valve K moves into an open position and the liquid again flows through the siphon into the receptacle to be filled, and the above described operation is then repeated.

From the foregoing it will be seen that the valve K automatically controls the flow of the liquid through the siphon into the receptacle E, and when the latter is filled to a predetermined point then the valve K automatically closes by the action of the compressed air on the piston L.

The device shown and described is very simple in construction and can be conveniently manipulated to rapidly fill receptacles E from a storage vessel C or the like. It is understood that by having the suction valve T, fluttering of the piston L and the valve K is prevented, and at the same time the return flow of the liquid in the suction leg B back into the storage vessel C is prevented, and consequently the sediment contained in the storage vessel C is not liable to be disturbed.

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

1. A filling device, comprising a siphon extending with its suction leg into a storage vessel and with its discharge leg into a receptacle to be filled, a valve in the said siphon for controlling the flow of the liquid through the siphon from the said storage vessel to the said receptacle, a piston controlling the said valve, an air pressure chamber in the said discharge leg and in which air is compressed by the rising liquid in the said receptacle, the compressed air actuating the said piston for the latter to move the valve shut, and means for automatically admitting air to the discharge leg of the siphon to permit the liquid contained in said leg to drain back into the receptacle at the time it is being removed from the said receptacle.

2. A filling device, comprising a siphon extending with its suction leg into a storage vessel and with its discharge leg into a receptacle to be filled, a suction valve in the said suction leg, a valve in the said discharge leg for controlling the flow of the liquid through the siphon, a compressed air chamber in the said discharge leg and in which the air is compressed by the liquid rising in the said receptacle and in the said air chamber, a piston controlling the said valve and actuated by the said compressed air to move the valve shut, and means controlled by the piston for admitting air to the discharge leg of the siphon to permit the liquid contained in said leg to drain back into the receptacle at the time it is being removed from said receptacle.

3. A filling device, comprising a siphon extending with its suction leg into a storage

vessel and with its discharge leg into a receptacle to be filled, a suction valve in the said suction leg, a valve in the said discharge leg for controlling the flow of the liquid through the siphon, a compressed air chamber in the said discharge leg and in which the air is compressed by the liquid rising in the said receptacle and in the said air chamber, a piston controlling the said valve and actuated by the said compressed air to move the valve shut, and a vent for the said air chamber and controlled by the said piston.

4. A filling device, comprising a siphon extending with its suction leg into a storage vessel and with its discharge leg into a receptacle to be filled, a suction valve in the said suction leg, a valve in the said discharge leg for controlling the flow of the liquid through the siphon, a compressed air chamber in the said discharge leg and in which the air is compressed by the liquid rising in the said receptacle and in the said air chamber, a piston controlling the said valve and actuated by the said compressed air to move the valve shut; and a vent for the said discharge leg and the said air chamber and controlled by the said piston, to allow the liquid in the discharge leg and air chamber to drain into the receptacle on lifting the discharge leg out of the receptacle.

5. A filling device, comprising a siphon extending with its suction leg into a storage vessel and with its discharge leg into a receptacle to be filled, a suction valve in the said suction leg, a valve in the said discharge leg for controlling the flow of the liquid through the siphon, a compressed air chamber in the said discharge leg and in which the air is compressed by the liquid rising in the said receptacle and in the said air chamber, a piston controlling the said valve and actuated by the said compressed air to move the valve shut, and a ball valve in the said discharge

leg in the rear of the said piston-controlled valve.

6. A filling device, comprising a siphon having its suction leg arranged for insertion into the storage vessel and its discharge leg adapted to pass into a receptacle to be filled, a support on the said discharge leg for supporting the latter in the receptacle, a compressed air chamber on the said discharge leg and having an inlet pipe extending within the said discharge leg, a piston movable in the said compressed air chamber, a valve for controlling the flow of the liquid in the said discharge chamber, and a stem connecting the said valve and piston with each other.

7. A filling device, comprising a siphon having its suction leg arranged for insertion into the storage vessel and its discharge leg adapted to pass into a receptacle to be filled, a support on the said discharge leg for supporting the latter in the receptacle, a compressed air chamber on the said discharge leg and having an inlet pipe extending within the said discharge leg, a piston movable in the said compressed air chamber, a valve for controlling the flow of the liquid in the said discharge chamber, and a stem connecting the said valve and piston with each other, the said stem passing through a wall separating the said air chamber and the interior of the said discharge leg, the stem having a reduced portion for connecting the air chamber and the interior of the discharge leg with each other, and the said air chamber having an air vent adapted to be uncovered by the said piston.

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

EDWARD N. GAUDRON.

Witnesses:

THEO. G. HOSTER,
JOHN P. DAVIS.