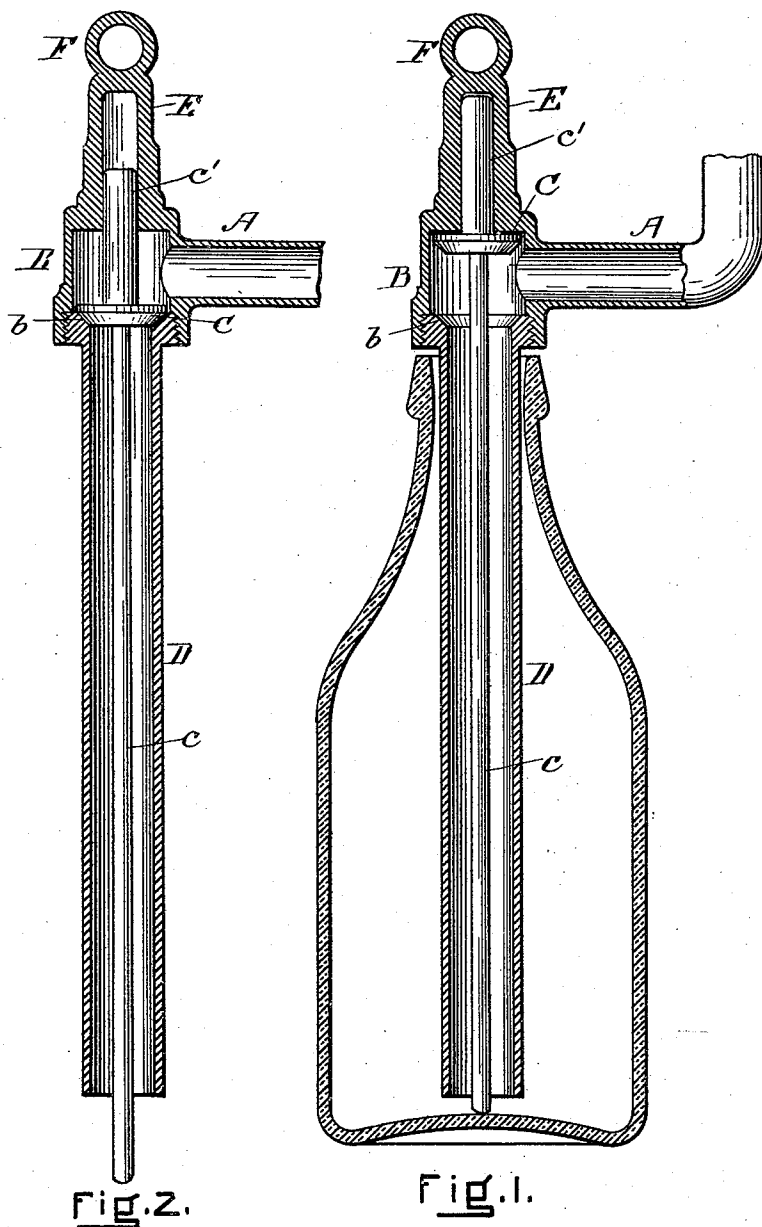


(No Model.)

C. A. KING.
AUTOMATIC NOZZLE.

No. 478,698.

Patented July 12, 1892.



WITNESSES

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CHARLES A. KING, OF BOSTON, MASSACHUSETTS.

AUTOMATIC NOZZLE.

SPECIFICATION forming part of Letters Patent No. 478,698, dated July 12, 1892.

Application filed December 21, 1891. Serial No. 415,701. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. KING, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Automatic Nozzles for Filling Bottles or other Vessels, of which the following is a specification.

In order not to fret the beer or other liquid to be transferred, the nozzle on the delivery end of the conveying-tube must be long enough to deliver the beer at the bottom of the vessel to be filled and should be automatic, so as to open by contact with some part of the vessel and close when that contact is broken. By this means the tube is kept normally full when not in active use and much time is saved in filling the packages. In this case there is less waste, and consequently the process of filling is comparatively clean.

My invention relates to nozzles of this class; and it consists of a nozzle having a valve which shall be normally closed, but shall open automatically by contact between its stem and some portion of the vessel, preferably the bottom, and remain open so long as that contact is maintained.

It also consists in a nozzle in which the valve is so located and arranged that when the nozzle is in use the valve will be so removed that it will in no wise obstruct the passage for the liquid.

In the drawings, Figure 1 shows in section a bottle with a nozzle embodying my invention placed therein, the valve being open and the parts being in such condition as to allow liquid to flow from a tank into the bottle. Fig. 2 is a section of my nozzle, showing the valve closed.

A is the tube which leads from the reservoir or tank, with which it may be connected by a rubber hose or in some other convenient way. It is connected to a valve-chamber B, at the lower side of which is an opening surrounded by a valve-seat b.

C is the valve, which is ground to fit the seat b and has sufficient play to enable it to be so lifted as not to obstruct the connection between the tube A and the valve-chamber.

The passage from the valve-chamber to the vessel to be filled is formed by the tube D. The tube extends down to nearly the bottom

of the vessel—say within a quarter or eighth of an inch, depending on the diameter of the tube—so as to deliver the liquid freely with as little chance for fretting or splashing as possible. The valve has a spindle c, which extends from its under surface and is a little longer than the combined length of the valve-chamber and tube D, so that when the valve is in the position shown in Fig. 1 the bottom of the spindle will project about a quarter of an inch beyond the end of the tube D. The valve is also provided with a guide-rod c', which slides up into a socket formed in the cap E for the purpose. This is a convenient means for keeping the valve properly centered. The cap E is also provided with a ring F, by means of which the nozzle may be hung up when not in use.

The operation of this nozzle is as follows: When it is dropped into the bottle or other vessel, the bottom of the spindle c strikes the bottom of the vessel and lifts the valve off its seat, while the rest of the nozzle settles into position on the top of the valve. When the vessel is full, the nozzle is lifted out. The weight of the valve and its spindle and guide is sufficient to cause the valve immediately to drop into its seat, the force of the liquid in the tube A tending, also, to close the valve. The valve-opening must be sufficiently large to allow the free passage of all the liquid which passes into the valve-chamber from the tube A, and where the valve-spindle passes through it, as in the device shown in the drawings, it is well that the valve-opening and tube D be larger in diameter than the diameter of the tube A to allow for the space which is taken up by the spindle. The tube D must be sufficiently small, however, to allow the air to pass freely around it out of the vessel as it is filling with the liquid.

It is desirable that the location of the valve in the valve-chamber shall be such in relation to the inlet-pipe and the outlet or delivery pipe that when the valve is opened by contact with some portion of the bottle or other vessel the valve shall be lifted or removed from the liquid-carrying passage, so that when the nozzle is discharging the flow of liquid will not be interrupted, and it is evident, also, that this does not depend upon the means by

which the valve is opened, but upon the movement of the valve in its chamber with reference to the inlet-pipe and the valve-seat.

What I claim as my invention is—

5 1. The nozzle above described, containing a valve-chamber provided with an inlet-pipe and a delivery-tube and having a valve-seat at the entrance to said delivery-tube, in combination with a valve provided on its under
10 side with a spindle of a greater length than said delivery-tube, said valve being adapted to fit said valve-seat and also to be lifted clear of the entrance to the delivery-tube and leave an uninterrupted passage therein for the es-
15 cape of the liquid, all as set forth.

2. In a bottle-filling nozzle containing a valve-chamber having a cover provided with a socket, said valve-chamber being also provided with a valve-seat and delivery-tube, a
20 valve adapted to fit said valve-seat and provided with guide-rod extending from its upper side into the socket in the cover to said chamber and having a spindle projecting from its lower surface down through and beyond

the farther end of said delivery-tube, as set forth. 25

3. In a nozzle of the kind described, a valve-chamber provided with a delivery-tube having a valve-seat at its entrance, an automatically-closing valve, and means, substantially
30 as described, whereby it may be automatically opened, in combination with an inlet-pipe connected with said valve-chamber above the valve-seat and located to discharge its contents on the under side of the valve when
35 the valve is opened, whereby when said valve is opened an unobstructed passage will be provided for the liquid from the inlet to the delivery tube through the valve-chamber, all
40 as set forth.

In testimony whereof I have hereunto subscribed my name this 15th day of December, A. D. 1891.

CHARLES A. KING.

Witnesses:

GEORGE O. G. COALE,
EVA A. GUILD.