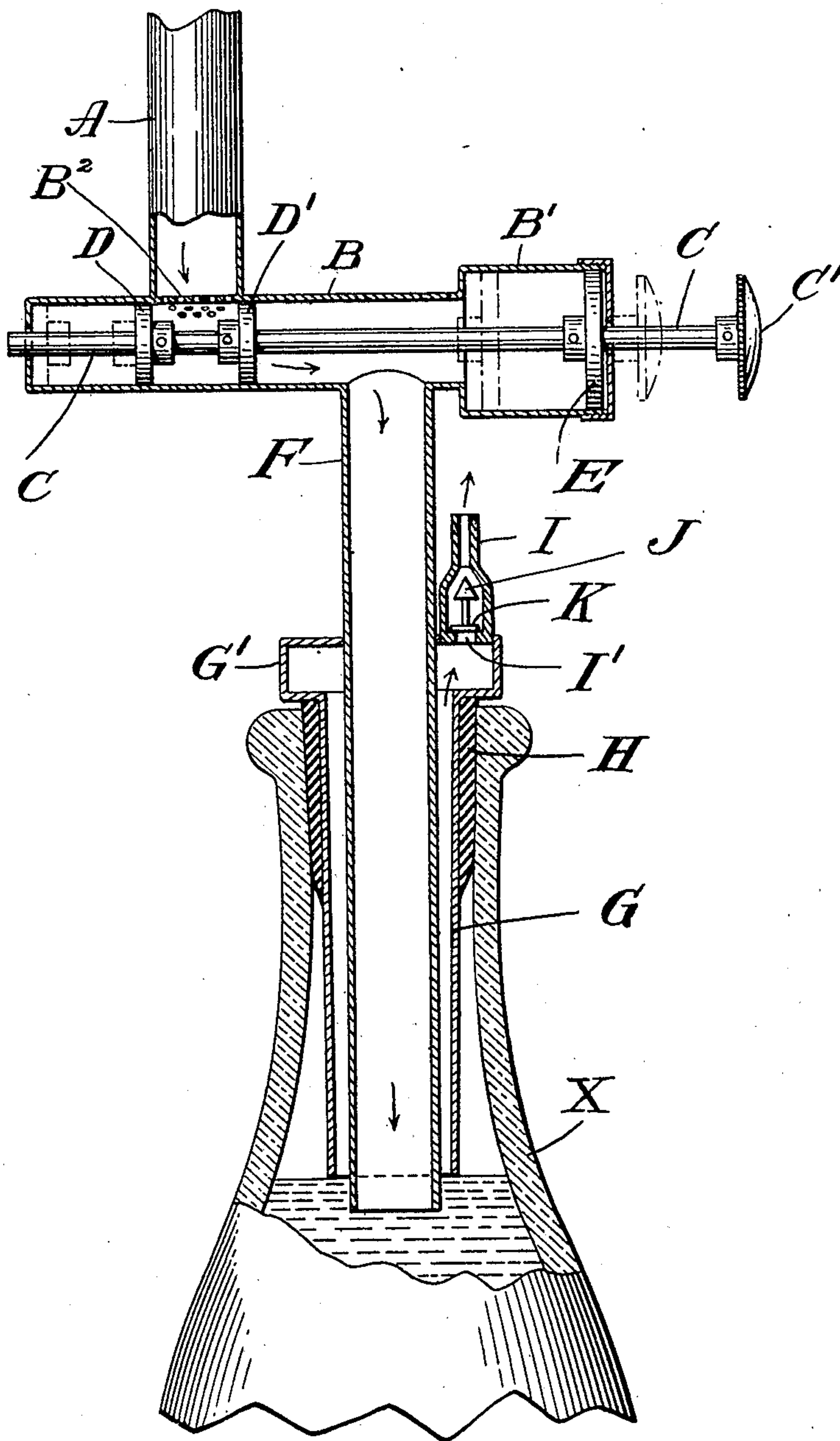


W. L. ELLINGWOOD.
BOTTLE FILLING APPARATUS.
APPLICATION FILED JULY 22, 1908.

916,425.

Patented Mar. 30, 1909.



Attest:
Edgeworth Garrison
Alan C. McDonnell.

Inventor:
by *W. L. Ellingwood*
S. J. Cox Att'y.

UNITED STATES PATENT OFFICE.

WALTER L. ELLINGWOOD, OF NEW YORK, N. Y.

BOTTLE-FILLING APPARATUS.

No. 916,425.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed July 22, 1908. Serial No. 444,793.

To all whom it may concern:

Be it known that I, WALTER L. ELLINGWOOD, a citizen of the United States, and a resident of the borough of Bronx, in the county of New York, city and State of New York, have invented certain new and useful Improvements in Bottle-Filling Apparatus, of which the following is a specification.

This invention relates to an apparatus for filling bottles with liquids, and its objects, among others are to produce an apparatus of simple, reliable and durable construction which will automatically prevent overflow and enable the operator to rapidly and accurately fill bottles without wasting the liquid.

To these ends the invention consists in the construction, combination and arrangement of parts herein described and claimed and illustrated in the accompanying drawings.

In the said drawing the figure is a general vertical section of an apparatus embodying the improvements with some of the parts shown in full.

The liquid supply pipe A communicates with the horizontal cylinder B connected at its lower end, and in this cylinder is the valve D' which controls the flow of liquid into the bottle filling nozzle. In the drawing this valve is shown as closed but it is adapted to be opened by pressing the knob or button C' on the end of this rod C in toward the enlarged end B' of the cylinder which causes the said valve to move across the lower end of the liquid supply pipe and open communication between the same and the nozzle. The valve D also secured to the rod C serves to equalize the water pressure when the valve D is closed so that it may be easily opened and prevents escape of the liquid at the small end of the cylinder B through which the rod passes.

The disk E is fixed on the rod C within the enlarged end B' of the cylinder and fits snugly therein. Its object is to provide means for causing the back pressure to move the rod C to the position shown in the drawing and thus close the valve D' at the proper moment.

The nozzle consists of the tube F, the sleeve G of larger diameter through which said tube F passes and the gasket H of compressible material on the upper part of this sleeve. The sleeve G has a head G', and on this head connecting with the space

between the sleeve and the tube F is a small air valve consisting of the nipple I with the needle valve plug J therein and the disk K on the shank of this plug normally seated on the small opening I' in the head G.

In operation the nozzle is inserted in the neck of the bottle. The gasket H serving to make a tight closure. The valve D is then opened in the manner hereinbefore described and the liquid permitted to run into the bottle. As the liquid flows into the bottle the air displaced thereby will escape through the air valve on the upper part of the nozzle, the air passing up through the space surrounding the tube F. It will be observed, however, that if desired this space could be closed up with the exception of a small tube or channel leading to the air valve. When the liquid has risen to the lower end of the nozzle and covered the same, as shown in the drawing, it will not rise farther in the bottle for the reason that there is no escape provided for the remaining air. It will, however rise in the space surrounding the tube F in the nozzle, and when it reaches the disk K of the air valve it will cause the same to rise and close the air outlet by thrusting the plug J thereinto. The closing of the air outlet immediately gives back pressure and this back pressure acting on the disk E moves it together with the rod C and the valve D' to the position shown in the drawing, and thus shuts off the water supply. It will be seen that the disk E will move the rod against the pressure exerted on the valve D by reason of the larger area presented by the disk E to the back pressure. The nozzle is now withdrawn from the bottle and the liquid in the space surrounding the tube F will immediately flow into the neck of the bottle and fill it to the desired level, as the air valve will open as soon as the back pressure is relieved. The space in the head G may be varied in size so that the amount of water held therein will be sufficient to fill the bottle to the proper point.

What I claim is:—

1. In a bottle filling apparatus, the combination of a liquid supply pipe, a filling nozzle adapted to be inserted into the bottle, a valve between the said supply pipe and the nozzle, an air outlet communicating with said nozzle and a valve on said outlet adapted to close against the liquid attempting to pass therethrough, and means for

causing the back pressure arising when the air outlet is closed to close the valve between the supply pipe and the nozzle.

2. In a bottle filling apparatus, the combination of a liquid supply pipe, a filling nozzle adapted to be inserted into the bottle, a valve between the said supply pipe and the nozzle, an air outlet communicating with said nozzle and a valve on said outlet adapted to close against the liquid attempting to pass therethrough, and means for causing the back pressure arising when the air outlet is closed to close the valve between the supply pipe and the nozzle, comprising a movable rod on which said valve is mounted, a disk of greater diameter than the valve and a cylinder in communication with the liquid supply and nozzle, in which the said parts are located.

3. In a bottle filling apparatus, the com-

bination of a liquid supply pipe, a filling nozzle adapted to be inserted into the bottle, a valve between the said supply pipe and the nozzle, an air outlet communicating with said nozzle and a valve on said outlet adapted to close against the liquid attempting to pass therethrough, and means for causing the back pressure arising when the air outlet is closed to close the valve between the supply pipe and the nozzle, a chamber in the nozzle communicating with the said air outlet and with the interior of the bottle when the nozzle is inserted therein.

Witness my hand this 18th day of July 1908, at the city of New York, in the county and State of New York.

WALTER L. ELLINGWOOD.

Witnesses:

ALAN C. McDONNELL,
STEPHEN S. NEWTON.