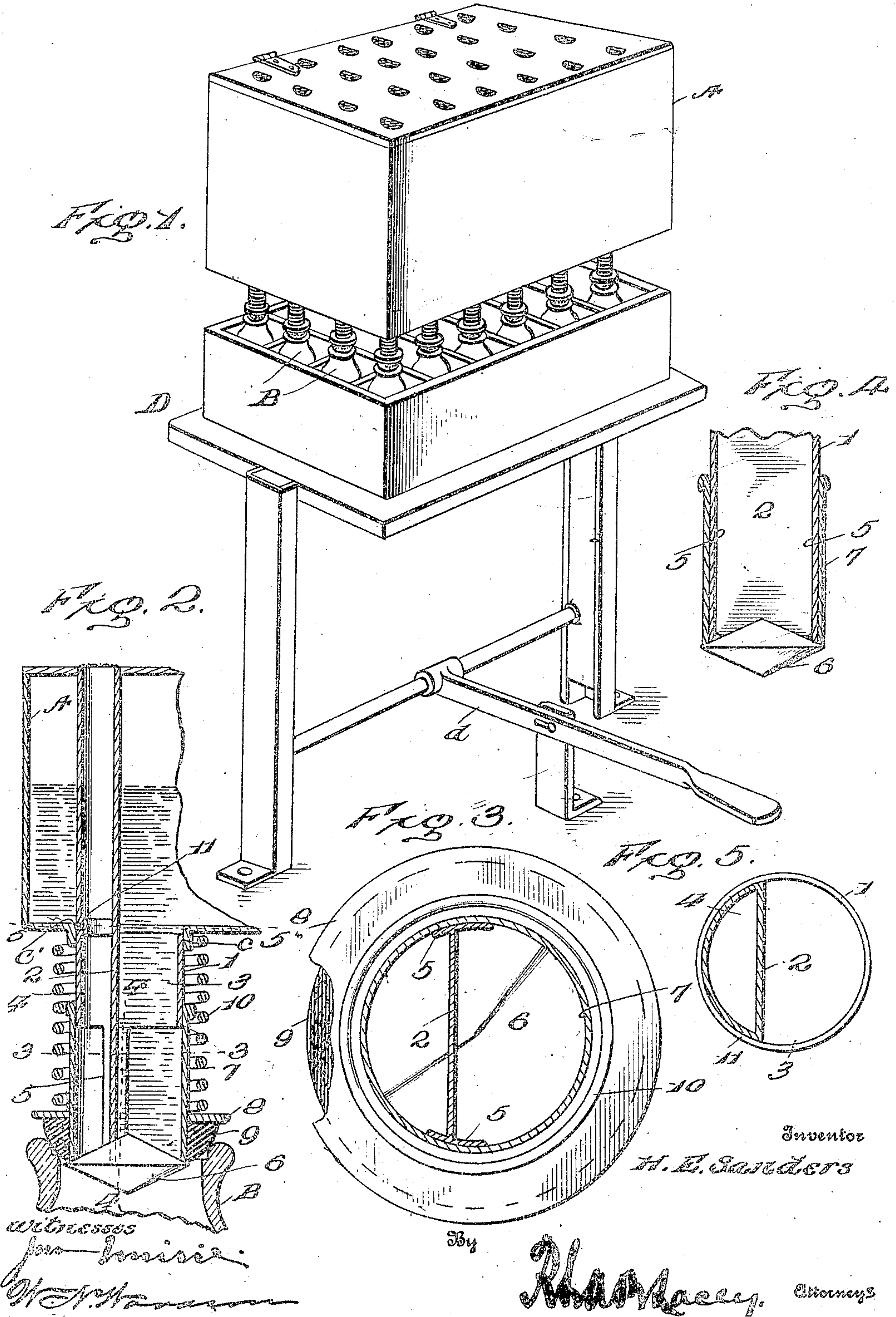


H. E. SANDERS.
BOTTLE FILLING APPARATUS.
APPLICATION FILED FEB. 7, 1908.

917,155.

Patented Apr. 6, 1909.



UNITED STATES PATENT OFFICE.

HARRY E. SANDERS, OF ZANESVILLE, OHIO.

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No. 917,155.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed February 7, 1908. Serial No. 414,790.

To all whom it may concern:

Be it known that I, HARRY E. SANDERS, a citizen of the United States, residing at Zanesville, in the county of Muskingum and State of Ohio, have invented certain new and useful Improvements in Bottle-Filling Apparatus, of which the following is a specification.

This invention contemplates certain new and useful improvements in apparatus for filling milk or other bottles and the object of the invention is an improved cut-off which is constructed of comparatively few parts that may be easily separated for cleaning purposes or the like, and which is designed to positively stop the flow of liquid when such is desired, and thus effectually prevent the waste of such liquid by the bottles overflowing. And a further object of the invention is an improved cut-off of that type that embodies a separate passage to permit the ready escape of the air from the bottle being filled and that is arranged to close the air passage simultaneously with cutting off the flow of the liquid and to thus prevent the liquid from backing up in the air passage, which is a most objectionable feature of cut-offs of this type.

With this and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions and arrangements of parts that I shall hereinafter fully describe and then point out the novel features thereof in the appended claim.

For a full understanding of the invention and the merits thereof, reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a perspective view of my improved bottle filling apparatus showing a case of bottles operatively supported beneath the same; Fig. 2 is a vertical section of the cut-off; Fig. 3 is a section on the line 3—3 of Fig. 2; Fig. 4 is a detail view in section of the lower portion of the cut-off with the flange and washer omitted, the section being taken on the line 4—4 of Fig. 2; and, Fig. 5 is a transverse section of the pipe showing the groove formed therein, with the section taken on the line 5—5 of Fig. 2.

Corresponding and like parts are referred to in the following description and indicated

in all the views of the drawings by the same reference characters.

Referring to the drawing, A designates the reservoir or tank that contains a supply of the liquid with which it is desired to fill one or more bottles B, said tank being formed with a plurality of bottom discharge openings c.

Cylindrical pipes 1 are secured at their upper ends in the several openings e of the tank and extend downwardly therefrom as shown. Each pipe is formed with a longitudinal web or partition 2 which divides the pipe into a liquid channel 3 that communicates with the interior of the tank, and an air passage 4, the web and the portion of the pipe coacting therewith to form the air passage being extended upwardly beyond the level of the liquid in the tank. The web 2 extends downwardly beyond the lower end of the pipe 1 and is provided at its depending side edges with legs 5 which in the present instance are formed integral with and extend downwardly from the lower end of the pipe.

A circular nipple 6 is secured to or formed integral with the lower end of the web 2 and is of greater diameter than the pipe 1 so that its edges project outwardly therebeyond, the upper and lower faces of this nipple being preferably cone-shaped and the upper face being thus adapted to serve as a deflector.

A hollow cylindrical casing 7 encircles the pipe 1 with its lower end normally resting on the outer edge of the nipple 6 and being preferably beveled to form a tight joint therewith. This casing is formed intermediate of its ends with an outstanding flange 8 and a resilient washer 9 encircles the casing beneath the flange and tapers downwardly therefrom to the lower end of such casing. An expansion spring 10 encircles the pipe and the casing and is interposed between the flange 8 of the latter and the bottom of the tank in order to exert its tension to force the lower end of the casing against the nipple and thus close the lower ends of the air passage and liquid channel.

In the preferred construction of the device that portion of the pipe 1 which extends upwardly from the bottom of the tank is formed with an exterior groove 11 in alinement with

the upper end of the liquid channel 3, said groove being designed to be turned into engagement with a segmental lip *c'* outstanding from the opening *c* and to thus detachably secure the pipe to the tank A.

In the practical use of my improved bottle filling apparatus, the bottles B are positioned beneath the cut off with each rim bearing against a washer 9 and forming an air-tight joint therewith, the nipple 6 being received in the mouth of the bottle and spaced therefrom. An upward pressure is applied by any suitable means to the bottle such upward movement obviously raising the casing and holding the lower end thereof in spaced relation to the nipple. The liquid then flows from the liquid channel 3 and is discharged into the bottle, the air in such bottle displaced by the liquid, escaping through the air passage 4. When the bottle has been filled to the desired point the upward pressure is removed from the bottle and the spring 10 exerts its tension to force the casing against the nipple 6 and thus simultaneously close the liquid channel 3 and the air passage 4.

As best illustrated in Fig. 1, the milk or other bottles to be filled are preferably supported in their case upon a vertically-movable bed or table D arranged to be raised by a foot-treadle *d* or the like so as to carry the bottles upwardly into operative position. Manifestly, however, my invention is not limited to the apparatus as arranged for use in connection with a plurality of bottles or any means for pressing the bottle or bottles against the casing 7.

It will be noted that by the conical form of

the lower face of the nipple, the latter will serve to "center" the bottle and thus insure its being held in operative relation to the cut-off.

Having thus described the invention, what I claim is:—

The combination with a tank formed in its bottom with a discharge opening and with a segmental lip projecting into said opening, of a pipe designed to be detachably secured to the tank and formed with a longitudinal web dividing the pipe into liquid and air passages, the former communicating with the interior of the tank and terminating flush with the bottom thereof, and the latter projecting upwardly above the level of the liquid in the tank and being formed in its periphery in alinement with the upper end of the liquid passage with a transverse groove adapted to be turned into engagement with the segmental lip, the web projecting downwardly beyond the lower end of the pipe, a nipple secured to the lower end of the web; a vertically movable casing encircling the pipe and projecting downwardly therebeyond with its lower end normally abutting against and forming a tight joint with the nipple, said casing being formed with an outstanding flange, and a spring encircling the pipe and the casing and interposed between the flange of the latter and the bottom of the tank, as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY E. SANDERS. [L. s.]

Witnesses:

DAISY SANDERS,
MYRTLE CRANE.