2 Sheets—Sheet 1.

H. CODD.

Apparatus for Filling Bottles.

No. 203,243. **Patented May 7, 1878.**

Fig: 1.

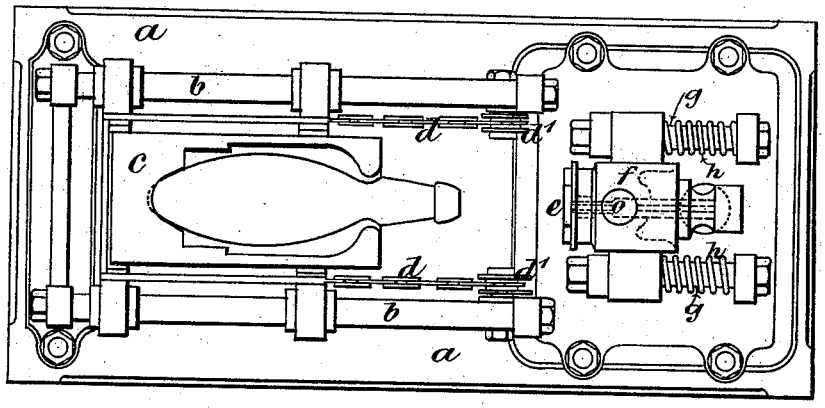

Fig: 2.

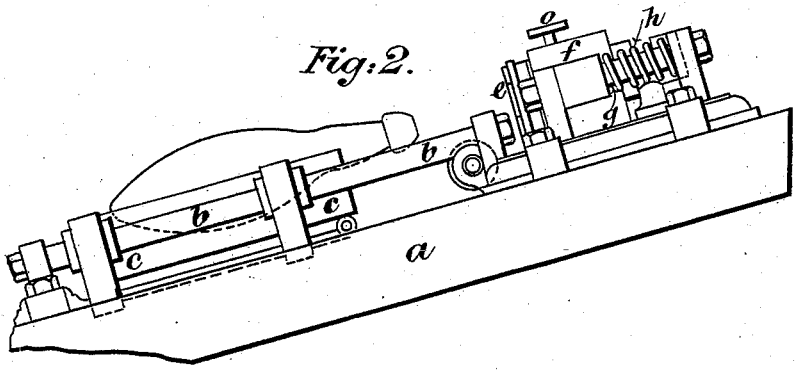

Fig: 3.

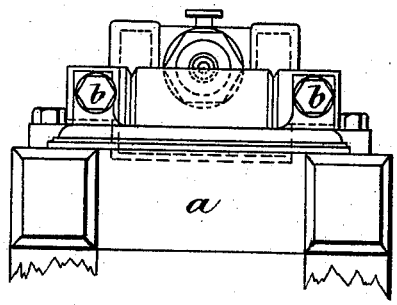

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Fig: 4.

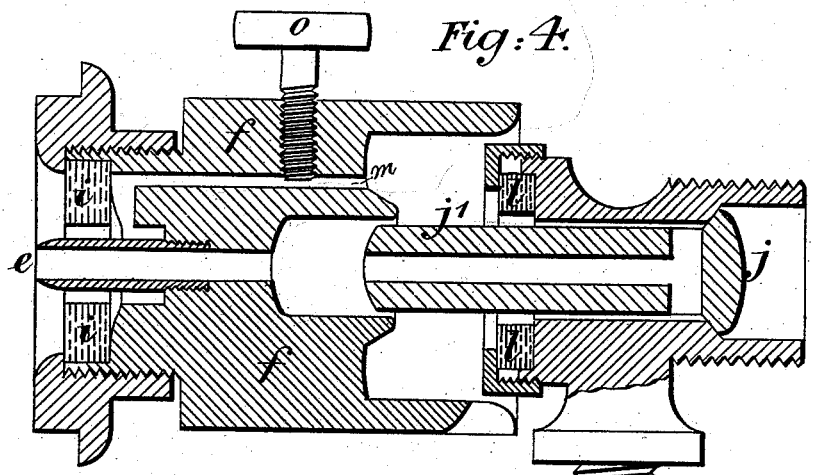
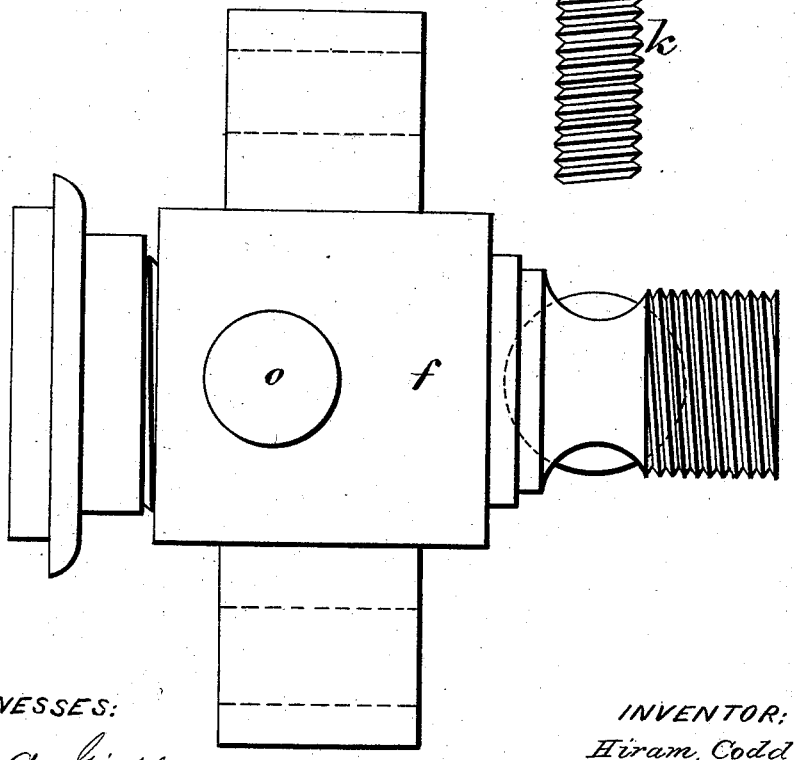


Fig: 5.



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UNITED STATES PATENT OFFICE.

HIRAM CODD, OF CAMBERWELL, ASSIGNOR OF ONE-HALF HIS RIGHT TO RICHARD BARRETT, OF LONDON, ENGLAND.

IMPROVEMENT IN APPARATUS FOR FILLING BOTTLES.

Specification forming part of Letters Patent No. **203,243**, dated May 7, 1878; application filed March 31, 1877.

To all whom it may concern:

Be it known that I, HIRAM CODD, of Grove Lane, Camberwell, in the county of Surrey, England, have invented new and useful Improvements in Apparatus for Filling Aerated Liquids into Bottles which have Internal Stoppers, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

Heretofore apparatus for filling bottles which have globular or internal stoppers with aerated liquids have been so constructed that the bottles, when being filled or charged, have had to be held up to a nozzle, through which the liquid is supplied, and before being removed from the nozzle have had to be inverted, the nozzle turning on a joint to allow of this being done. The ball or stopper then drops to the mouth of the bottle and at once closes it, when the bottle is drawn back from the nozzle. The disadvantages of this arrangement are that the apparatus is costly, and that, by reason of each bottle having to be inverted after it is filled, more time than necessary is taken up in the filling and closing of the bottles.

By my invention I am enabled to fill and close bottles such as are described in the specification of a former patent of the United States, No. 129,652, granted to me July 23, 1872, without the necessity of inverting them, as heretofore. These bottles are fitted with an internal globular stopper, and the stopper is retained in the neck of the bottle by a contraction at the lower part of the neck, so that the stopper cannot drop away very far from the mouth.

To fill such bottles, I now cause them, while being filled or charged, to be held in an inclined position, and, when filled, move them quickly back away from the filling-tube, whereby the ball, not being moved back with the bottle, at once comes up to and closes the mouth.

Figure 1 shows a plan view, Fig. 2 a side view, and Fig. 3 an end view, of apparatus constructed to fill bottles in the manner above described. Figs. 4 and 5 show some of the parts in detail and to a larger scale.

a is an inclined table, mounted on any suitable stand. Above this table are two fixed parallel rods, *b*, upon which slides a block or bottle-holder, *c*. In the upper face of this bottle-holder is a cavity, into which the bottle to be filled is placed, as shown. The cavity (shown in the drawing) is shaped so as to receive three different forms of bottles. *d d* are chains attached to the bottle-holder, and led over pulleys *d'* to a treadle or lever, so that by depressing the treadle or moving the lever the bottle-holder *c* can be shifted upward along the rods *b*. When the bottle-holder is thus drawn upward, the head of the bottle carried by it is brought up to the nozzle *e*, through which the aerated liquid is to be supplied. The nozzle *e* is carried by a block or filling-head, *f*, which is free to slide a distance to and fro upon fixed guide-rods *g*, and is held in its forward position by coiled springs *h*. *i* is an elastic ring carried at the front of the block *f*. This serves to make a tight joint around the head of a bottle when the bottle is pressed up toward it. *j* is a valve, closing the end of the pipe through which aerated liquid is supplied. The seat in which this valve works is fixed by a screw-standard, *k*, to the table. The stem *j'* of the valve is hollow, and projects forward into a recess in the block *f*. *l* is an elastic ring at the front of the seat or block in which the valve *j* is contained. When the head of a bottle is forced against the elastic ring *i* it presses back the block *f*, and, after moving it back a distance, the block comes against the end of the stem *j'* of the valve *j*, and forces this valve back from its seat, so allowing aerated liquid to flow from the supply-pipe through the hollow stem of the valve, and through the nozzle into the bottle. At the same time a tight joint is made between the back end of the filling-head or block *f* and the elastic ring *l*. As the bottle fills, the air previously in the bottle is free to escape by the passage *m*. The freedom with which it is allowed to escape can be controlled by more or less screwing in the screw-valve *o*.

When the bottle has been filled the pressure upon the treadle is relieved; then jerk or suddenly and quickly force back the bottle-holder and bottle, while the stopper, not being carried back with the bottle, comes up to the mouth of the bottle and at once closes it.

Small spring-buffers (not shown in the drawing) are used to arrest a backward movement

of the bottle-holder, and a spring is also connected to the bottle-holder to draw and hold it back.

In place of the bottle-holder being arranged to slide to and fro on fixed guides in the line of movement of the nozzle or filling-head, it might be carried by lever-arms which would similarly allow of its moving to carry the bottle endwise up to and away from the filling-nozzle.

I claim—

1. The hereinbefore-described improvement in the method of filling bottles having internal stoppers, which consists in placing the bottle in a sliding holder, adjusting its head to the filling-nozzle, and, when filled, quickly withdrawing it endwise from the nozzle by a sudden movement of the holder, which causes the stopper to come up to the mouth of the bottle and close it.

2. The combination, substantially as hereinbefore set forth, of a sliding bottle-holder, a filling-head or nozzle, and means for imparting to the holder a sudden movement away from said nozzle.

3. The combination, substantially as hereinbefore set forth, of a sliding bottle-holder, a sliding filling-head or nozzle, toward and away from which said holder moves, carrying the bottle endwise, the valve-stem to admit liquid to said sliding head, and its valve, automatically opened by the pressure of the bottle-head and closed by its sudden withdrawal.

4. The combination of the bottle-holder *c*, the valve *j*, and movable block *f* in front of valve, and pressed forward by springs or equivalent means, the whole acting substantially as herein described.

5. The combination, substantially as hereinbefore set forth, of the sliding head or nozzle, its springs, its front packing-ring, its back packing-ring, the fluid-pipe, the valve-stem, and the valve.

6. The combination of the inclined table, the rods, the bottle-holder sliding thereon, the sliding head, its springs, the packing, and the valve, these members being constructed and operating substantially as hereinbefore set forth.

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