(No Model.)

J. D. ROBERTS.

BOTTLE FILLING APPARATUS.

No. 279,668. Patented June 19, 1883.

Fig 1.

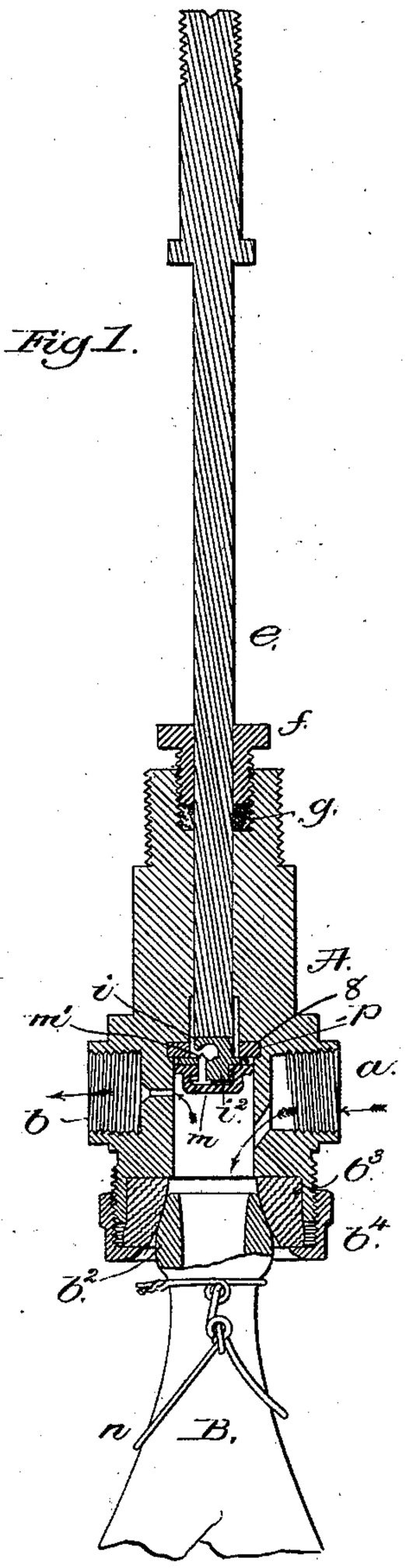


Fig 2.

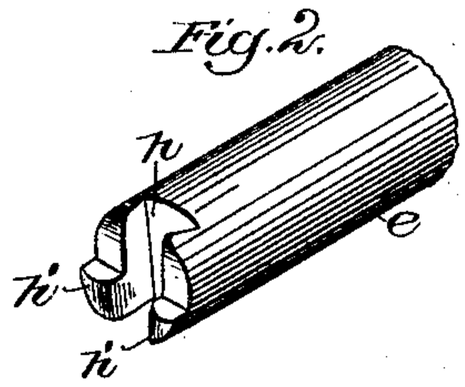


Fig 3.

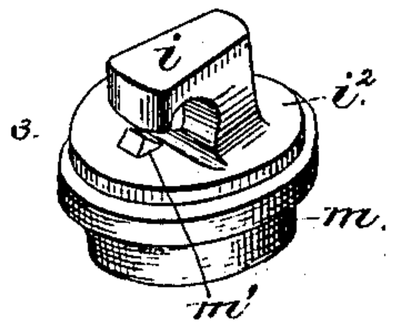
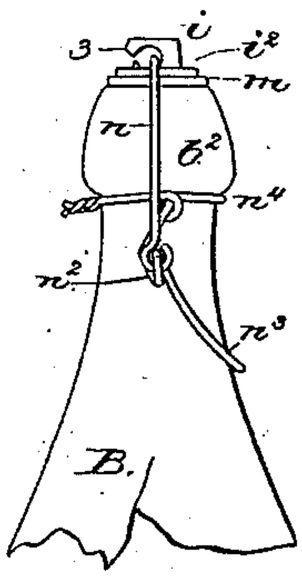


Fig 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES D. ROBERTS, OF BOSTON, MASSACHUSETTS.

BOTTLE-FILLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 279,668, dated June 19, 1883.

Application filed November 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES D. ROBERTS, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Bottle-Filling Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to simplify the method of filling and stopping bottles and permit the employment of metal stoppers of the class adapted to be held in place on the neck of the bottle by and to be operated by a so-called metal "bail." In my invention the stopper adapted to be held in the mouth of the bottle and to be lifted by the bail is inserted into the mouth of the bottle automatically by the plunger of the filling apparatus, it occupying the position of the usual cork-driver, but being provided with a fork or stopper-engaging device to positively carry the stopper, the head of which is suitably shaped to be engaged thereby. In this my invention the empty bottles, when returned to the bottler, have the stoppers attached to the bails, and the bottler at once disengages the stopper from the bail, and when the bottle is to be refilled connects the stopper to the plunger, to be again inserted into the mouth of the bottle to close it liquid and air tight.

The particular features in which my invention consists will be hereinafter described, and specified in the claims at the end of this specification.

Figure 1 represents in vertical section a sufficient portion of a bottle-filling apparatus, stopper, and bottle to enable my invention to be understood; Fig. 2, an enlarged detail of the plunger which engages, holds, and drives the stopper; Fig. 3, an enlarged detail of the stopper; and Fig. 4, a detail of the mouth and neck of the bottle, showing the stopper in place therein, and engaged and held by the metallic bail.

The metallic mouth or filling piece A, having an inlet, *a*, for liquid such as beer, wine, or carbonated liquids with which the bottle is to be filled under more or less pressure, and having an outlet, *b*, for air, has also, as usual, an india-rubber or other soft or yielding mouth-piece, b^3, against which the mouth b^2 of the bottle is pressed air and liquid tight.

The mouth-piece b^3 is held in place by a nut, b^4, screwed upon the piece A, which latter will be suspended in any usual way. The plunger *e*, placed within the piece or head A, will be connected at its upper end in usual or suitable manner with devices to reciprocate the same. The plunger is passed through a stuffing-box, *f*, below which is a packing, *g*. The lower end of the plunger, provided, as herein shown, with a notch or groove, *h*, is thereby adapted to engage and hold the head *i* of the stopper i^2, and the engagement of the stopper-head with the groove *h* of the plunger is effected by projecting the plunger to its lowermost limit through the head A, and then, before the bottle is in place, manually or otherwise inserting the headed stopper in said plunger. After the bottle is filled and the stopper inserted, the plunger being then in its lowermost position, the stopper is disengaged from the plunger by simply slipping the bottle laterally from the charger.

The groove *h* is made tapering from one to the other side of the plunger, and is also made of dovetail shape in cross-section, to thus receive and hold the correspondingly-shaped head *i* of the stopper, so that the stopper, once placed in position at the end of the plunger and engaged by it, will be suspended at the end of the plunger, as in Fig. 1, while the liquid is being filled into the bottle B, the mouth b^2 of which is pressed closely against the flexible mouth-piece b^3.

The stopper i^2 is provided with an india-rubber jacket, *m*, to be interposed between it and the interior of the mouth of the bottle. The jacket is held in place on the stopper by a suitable collar or projection, 8, thereon, as in Fig. 1. The head *i* of the stopper i^2 is cut away or slotted at one side, as shown, leaving the head with preferably an inclined face, 3, and in the stopper-head is a yielding or spring-operated catch, *m'*, which has, as shown, oppositely-inclined faces, so that as the wire loop *n* is pushed against the said faces the catch will yield and permit the passage of the wire beyond it.

As herein shown, the india-rubber jacket *m*

is made to serve the purposes of a spring for the catch m', the latter being shown as a pin, with its head at the under side of the stopper, as in Fig. 1.

I do not limit my invention to the exact form of dovetail groove and stopper-head shown, as other forms of dovetails may be employed of such shape that the stopper may be supported or suspended at the end of the plunger e, and be carried by it into the mouth of the bottle in a straight line, and be free to be disengaged from the plunger after the latter has pushed or forced the stopper into the mouth of the bottle.

The wedging shape of the slot h acts to arrest the head of the stopper in proper position to permit the stopper to be thrust straight into the mouth of the bottle.

The lower end of the plunger is cut away in front of the lugs h', to permit the wire loop n to be turned from the position, Fig. 1, over the top of the stopper, as shown in Fig. 4, while the lower end of the bottle is upon a firm seat, as it will be when the plunger places the stopper i^2 into its mouth, and while the plunger yet engages and retains the stopper pressed firmly and closely into the said mouth. After engaging the wire loop n with the stopper, as in Fig. 4, the bottle may be moved a little laterally and slip its head i out from engagement with the plunger. The wire loop is pivoted upon the ears n^2 of the lever n^3, having its ends pivoted in the metal or wire band n^4, secured to the neck of the bottle. When the plunger e is in its highest position, as in Fig. 1, the top of the stopper strikes against a packing, p.

The wires n n^3 constitute a metal lever-like bail to act upon and pull the stopper i^2 from the mouth of the bottle when the lever n^3 is raised in the usual manner.

I have herein shown a stopper having a slotted head and provided with a catch, and also a loop, n, lever, and band to hold the said stopper on the bottle-neck; but I do not herein claim the same, broadly, as they will form the subject-matter of another application.

I claim—

1. The reciprocating plunger e, having its lower end provided with a dovetail groove, h, to positively engage and hold the stopper, to carry it to its seat in the bottle-neck and insert it therein, substantially as shown and described.

2. The reciprocating plunger e, having its lower end provided with a dovetail groove, h, adapted to engage and hold the stopper, combined with a stopper shaped to fit the said grooved plunger, whereby the said stopper is positively carried to its seat in the bottle, substantially as shown and described.

3. The plunger e, having its lower end shaped and arranged to positively engage and hold the stopper while inserting it in a bottle, and cut away to permit the placing of the stopper-fastening device in position over the stopper while the plunger holds said stopper, substantially as shown and described.

4. In a bottle-filling apparatus, the plunger e, provided with the dovetailed groove h, cut away to the shoulders h' h' to engage a stopper, carry it to its seat in the bottle, and permit the affixing to such stopper of the fastening device, substantially as shown and described.

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

JAMES D. ROBERTS.

Witnesses:
G. W. GREGORY,
W. H. SIGSTON.