W. GEE.

BOTTLING AERATED OR EFFERVESCING LIQUIDS.

No. 185,518. Patented Dec. 19, 1876.

Fig. 1.

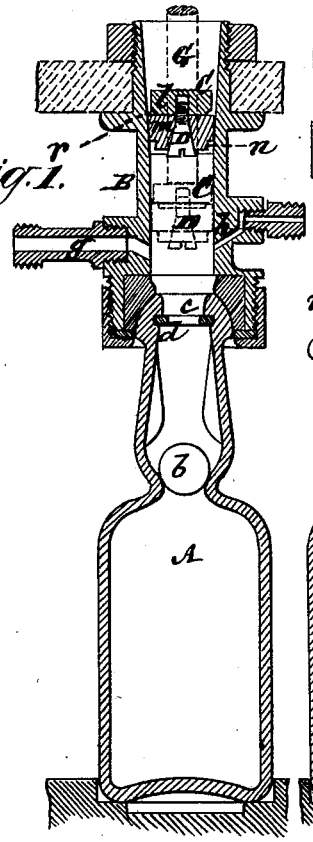


Fig. 2.

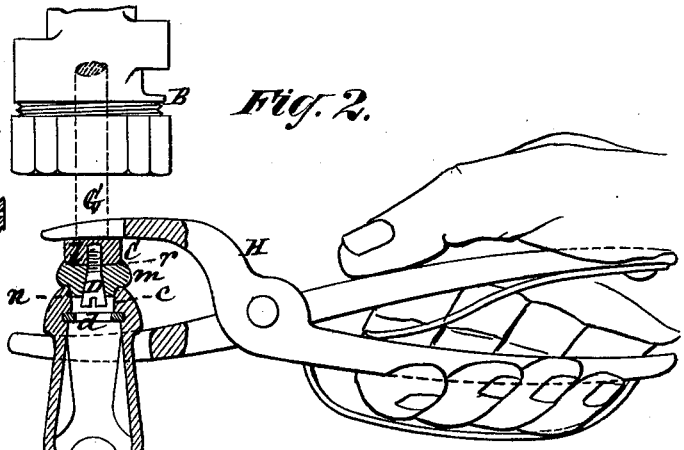
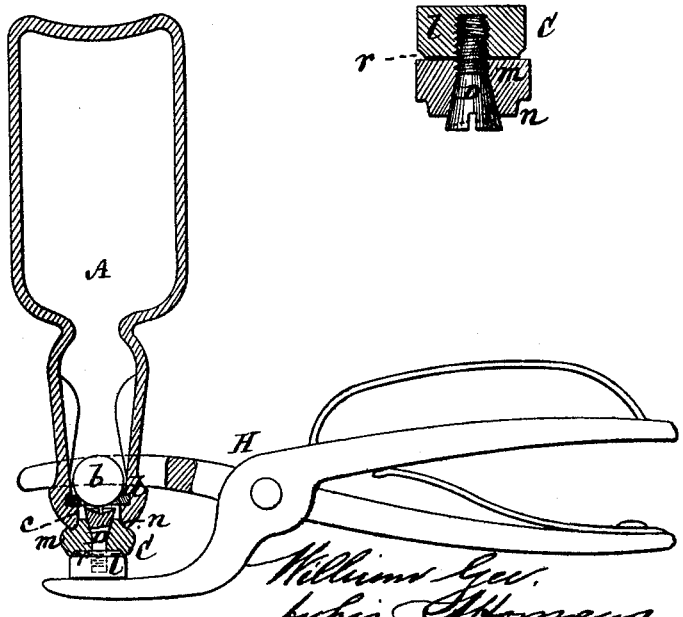


Fig. 4.

Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM GEE, OF NEW YORK, N. Y.

IMPROVEMENT IN BOTTLING AERATED OR EFFERVESCING LIQUIDS.

Specification forming part of Letters Patent No. **185,518**, dated December 19, 1876; application filed November 23, 1876.

To all whom it may concern:

Be it known that I, WILLIAM GEE, of the city, county, and State of New York, have invented certain new and useful Improvements in Bottling Aerated or Effervescing Liquids; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

This invention relates to the bottling of aerated or effervescing liquids in bottles having self-closing stoppers—that is, inside stoppers which are held up to the mouths of the bottles, or otherwise made to close said mouths, by the pressure of the air or gas within the bottles.

The invention consists in a temporary stopper of peculiar construction in one or more respects, for effectually and advantageously closing the mouth of the bottle after it has been filled, and before said mouth is permanently closed by the inside or self-closing stopper, whereby the necessity of inverting the bottle while in the bottling-machine to effect the closing of the mouth of the bottle by the inside or permanent stopper is avoided, and the loss of gas and water during the permanent closing of the bottle is reduced or prevented.

The invention also consists in the combination, with such a temporary stopper, of a filling head or cylinder of larger area than the mouth of the bottle, whereby the proper action of the temporary stopper is most effectually secured.

The invention likewise consists in a novel process of bottling aerated or effervescing liquids in bottles provided with inside or self-closing stoppers, by the combined action of a temporary stopper, a filling cylinder or head, and a plunger within said cylinder, substantially as hereinafter described.

In the accompanying drawing, Figure 1 represents a sectional elevation of the filling head or cylinder of a machine for bottling aerated or effervescing liquids, with the temporary stopper shown, by full and dotted lines, in different positions within the filling-cylinder prior to and during the filling of the bottle, which is provided with an inside self-closing ball-stopper. Fig. 2 is a sectional elevation of like devices, after the bottle has been filled with liquid, the temporary stopper brought down on and made to close the mouth of the bottle, together with a pair of pinchers applied to the bottle, and said stopper to hold the latter closed while the bottle is being removed from the bottling-machine, and to remove the bottle therefrom. Fig. 3 is a sectional elevation of like devices after the bottle has been removed from the machine, and inverted to secure the closing of the mouth of the bottle by the inside self-closing or permanent stopper. Fig. 4 is a sectional view, upon a larger scale, of the temporary stopper.

A is a bottle, to be filled with soda-water or other gas-charged liquid, and provided with an interior ball-valve, *b*, that, after the bottle has been filled and is inverted, closes the mouth *c* of the bottle by seating itself against an elastic ring, *d*, in the neck or mouth of the bottle.

This mode of permanently stopping the bottle is well known. Any other suitable form of permanent inside stopper may be used.

B is the filling cylinder or head of an ordinary bottling apparatus for bottling gaseous liquids—that is, said filling-cylinder is or may be generally similar to the filling-cylinder in such machine, in which the bottles are closed mechanically by forcible entry from the exterior of a cork into their mouths, said cylinder (having the cork inserted within it) first coming down on the mouth of the bottle, then a plunger descending to force the cork into the mouth of the bottle, and remaining down on the cork while the cylinder B rises, and said cylinder being provided with a supply-duct, *g*, for the gaseous liquid, and an escape-duct, *h*, for the air or surplus gas when filling the bottle; but such cylinder B differs in one very essential respect from that ordinarily employed to project a cork into the mouth of the bottle for permanently closing the latter, in being made of a larger instead of a lesser area in its transverse section over the mouth of the bottle, and throughout its length. This is necessary to the proper operation of my temporary stopper, as will hereinafter be explained.

C is the temporary stopper, the top or head *l* of which is solid or inflexible, and is of a size or constructed to snugly but freely fit the

filling-cylinder B, and the body or lower portion of which is composed of or provided with an india-rubber or other flexible and elastic packing, *m*, of somewhat larger diameter, for a portion of its thickness, than the interior of the filling-cylinder, but of a reduced diameter on its bottom *n*, so as to enter the mouth of the bottle, and to form an elastic shoulder at the junction of the bottom *n* with the portion *m* of said packing, which prevents the temporary stopper from entering sufficiently within the bottle to interfere with or displace the seat of the permanent stopper.

Provision is made for tightening up the packing *m*, as wear or other circumstances require, by fitting the temporary stopper with a conical follower, D, arranged to pass up through the packing *m*, and formed with a screw-thread at its upper end, which screws into the head *l* of said stopper, whereby, on suitably turning the follower D by a screw-driver applied to a nick in its lower end, or otherwise, said follower acts laterally as well as in direction of its length, to compress the packing, so as to secure its tight fit within the cylinder.

The head *l* of the temporary stopper is circumferentially reduced on its lower face, so as to form an annular channel or groove, *r*, around it, and between it and the upper edge of the packing *m*, whereby, as the temporary stopper is forcibly driven down within the filling-cylinder B, the upper edge of the packing is prevented from being cut by the head *l*.

The general operation is first to place the bottle A in an upright position under the filling-cylinder, and to insert the temporary stopper C, as shown by full lines in Fig. 1, in the upper portion of said cylinder, and to partly force the stopper down within the cylinder to the position shown for it by dotted lines in Fig. 1, by means of an ordinary corking-plunger, G. The bottle A is then filled with the gaseous liquid, and, when full, the supply shut off and the temporary stopper still further forcibly driven down within the filling-cylinder by the plunger G, till the larger portion of the packing *m* of said stopper is firmly pressed against the upper marginal portion of the neck of the bottle, which embeds itself within the larger portion of the packing, while the reduced portion *n* of the packing enters within the mouth of the bottle, and serves to displace any liquid in the upper portion of the mouth, and to prevent it from being wasted when the bottle is closed by the permanent or inside stopper. The enlarged diameter of the filling-cylinder B throughout its length relatively to the mouth of the bottle provides for the proper closing of the bottle by the temporary stopper C. After the bottle has been filled and temporarily closed, as described, the filling-cylinder B is raised, but the plunger G still kept down on the temporary stopper C till a pair of pinchers H, such as used in ordinary bottling-machines, is applied to the upper portion of said stopper, and under the shoulder on the neck of the bottle, to keep said stopper to its place, and to remove the bottle from the machine, as shown in Fig. 2, the corking-plunger G afterward rising to admit of such removal. After this, it is only necessary, during the removal of the bottle by the pinchers, to invert the bottle in order that the ball-valve or permanent stopper *d* may close the mouth of the bottle, as shown in Fig. 3. The pinchers H are then released and the temporary stopper C allowed to drop out, or, by giving it a slight side tap, is knocked out. In this way I dispense with all mechanism or any peculiar construction of the filling-cylinder for inverting the bottle to effect the closing of it by the inside stopper. A more perfect filling, also, of the bottle, with less waste of the liquid, is secured.

I claim—

1. The temporary stopper C, having a solid or inflexible head, *l*, a lower elastic packing, *m*, of larger diameter than said head, and a reduced bottom, *n*, essentially as and for the purposes herein described.

2. The temporary stopper C, constructed with an annular channel or groove, *r*, between and around the under side of the head *l* and the upper edge of the packing *m*, substantially as specified.

3. The combination of the conical follower D, the elastic packing *m*, and the head *l* of the temporary stopper, essentially as described.

4. The process of bottling aerated or effervescing liquids in bottles having inside or self-closing stoppers by the combined action of a temporary stopper, a filling-cylinder, and a plunger in the latter acting on the temporary stopper, substantially as specified, whereby the bottle may be inverted by hand after or during its removal from the filling-machine, to effect the closing of the bottle by its inside stopper.

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Witnesses:
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