A. Albertson,

Bottle Stopper.

No. 44,684. Patented Oct. 11, 1864.

Fig. 1.

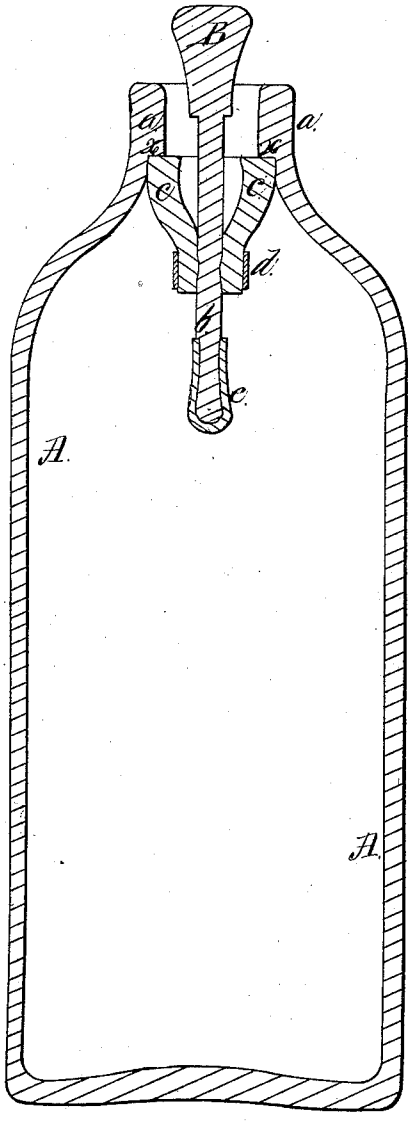
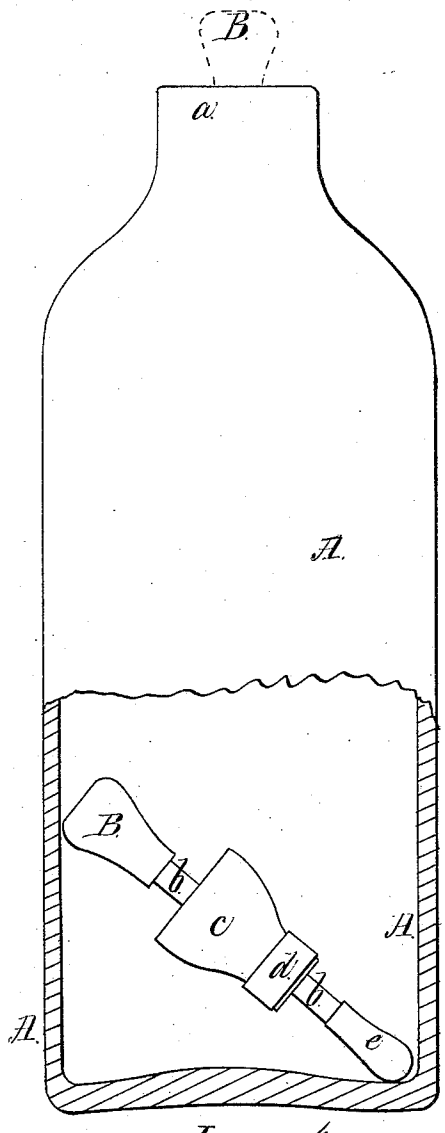


Fig. 2.



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UNITED STATES PATENT OFFICE.

ALBERT ALBERTSON, OF NEW YORK, N. Y., ASSIGNOR TO J. N. McINTIRE, OF SAME PLACE.

IMPROVED METHOD OF STOPPING BOTTLES.

Specification forming part of Letters Patent No. 44,684, dated October 11, 1864.

To all whom it may concern:

Be it known that I, ALBERT ALBERTSON, of New York, of the county of New York, in the State of New York, have invented a new and useful Improvement in Stopping Bottles; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.

Previous to my invention several methods of stopping bottles have been suggested and patented, all having for a main object to dispense with the employment of ordinary corks (which have to be renewed at each filling of the bottles and are expensive) and avoid the labor involved in the use of them, especially in bottling gaseous liquids, where the cork has to be tied or otherwise secured in the mouth of the bottle.

Among the inventions suggested heretofore, having for their object the great desideratum of dispensing with the expensive and laborious system of corks and fastenings, the best method, to my knowledge, is that shown and described in Letters Patent granted to me on the 26th day of August, 1862; but experience and thorough practical tests have shown that in the method patented to me there are serious objections when put into general use—as, for instance, the liability of the mechanism to clog up, the necessity of an instrument for the purpose of readily opening the mouth of the bottle to empty it of its contents, and the liability of the necks of the bottles, from their necessarily weak form, to break during transportation or handling. These objections and others I propose to effectually overcome by my present invention, which has for a further object to produce a more economical, durable, and desirable method of stopping bottles than any heretofore known; and to these ends my invention consists in the employment of a stopper which may be inserted through the neck of the bottle, and so constructed that it can be brought into close contact with a suitable bearing-surface or seat on the interior of the neck of the bottle to close it, and be depressed or pushed down into the bottle to open it, as will be hereinafter more fully explained. And my invention consists, further, in so constructing the stopper and forming the seat or bearing-surface in the neck of the bottle that while the stopper may be readily forced into the bottle any tendency to force it out will only tighten the joint between the stopper and its seat in the bottle-neck, as will be presently more fully explained. And my invention further consists in making the entire stopper of a length exceeding the diameter of the bottle in which it is to be used, so that the stopper while resting in the body of the bottle cannot turn round, but must always present itself right end foremost to the mouth of the bottle, as will be more fully described hereinafter.

To enable those skilled to make and use my invention, I will proceed to describe its construction and operation, referring by letters to the accompanying drawings, in which—

Figure 1 is a vertical or longitudinal section of a bottle with the stopper represented in the position in which it closes or stops the mouth of the bottle. Fig. 2 is an elevation of the same, (with the lower portion of the bottle broken out,) showing the position of the stopper after opening or unstopping the bottle to empty it.

In the several figures the same letter indicates the same part of the apparatus.

A is the bottle, (of any shape or design,) on the interior of the neck of which I propose to form a shoulder, as seen at *x*. The stopper is formed of a stem or rod, *b*, having a suitable knob portion, B, and having secured (or formed) on it a gutta-percha or other elastic or yielding valve or cork, *c*. I have represented the stem *b* as made of metal, and with a thimble or cover, *e*, of soft material—such as gutta-percha—at its lower end, the object of which is to avoid any possibility of injuring the bottle by the sudden contact with the glass of the hard stem, when the latter is forced or drops down into the bottle in "opening."

The valve portion *c*, I have shown secured to the stem *b* by means of a band or collar, *d*, and an annular depression in the stem *b*, into which the yielding stock of *c* is forced and held by the encircling-collar *d;* but in lieu of this mode of construction the entire stopper may be formed (if found practicable and expedient) of rubber, the stem portion "hard," with its lower end "soft," and the conical valve portion *c* of the proper flexibility. The

position of the valve portion *c* on the stem *b* is such as to allow the knob or upper end of the stopper to protrude a short distance beyond the mouth of the bottle when the valve *c* is in its seat—that is, when the bottle is closed—in order that the stopper may be readily forced down into the bottle by pressure, or a blow with the hand to open the bottle.

The entire length of the stopper (its stem) is such that when resting in the empty bottle, as shown at Fig. 2, it cannot turn over and get wrong end toward the mouth of the bottle. At Fig. 2 I have shown in dotted lines the position of the projecting end of the stopper before the bottle is unclosed.

I prefer to make the valve *c*, as shown, conical, with upper end hollow, and provide the interior of the neck with a shoulder, *x*, for in this form of valve and seat the stopper is readily forced down through the neck; but in being forced up against its seat or shoulder the valve *c* will be bulged or upset and cannot be forced out, which is a desideratum where the contents of the bottle embrace gas or fixed air—as, for instance, when soda-water is contained; but other forms of valve may be used without destroying the advantages of my invention. The valve *c* and neck of the bottle should, however, be so shaped (even when the shoulder *x* is employed) that the former will be compressed in the taper portion of the neck before it comes against the shoulder, in order to create friction sufficient to prevent the falling in of the stopper when still liquors are contained in the bottle—as, for instance, a valve slightly conical on its upper end and fitting into the neck of the bottle shaped correspondingly and without any shoulder.

The operation of my new stopper for bottles, &c., may be thus explained: I may remark first, however, that the manipulation in closing a bottle with my invention is different somewhat when different liquors are to be bottled—that is, those which are bottled under pressure, such as soda-water, and those which are still liquids, or without gas or pressure. In all instances, however, the stopper is formed as shown, and is forced into the bottle, as seen at Fig. 2. To bottle soda-water and other gaseous liquids, (under pressure,) I take the bottle (thus provided with its stopper) and place it in the filling-machine, in which the given quantity of water and gas is supplied to the bottle, (the stopper remaining as seen at Fig. 2.) I then invert the bottle while it is yet attached to the supply-tube, (which must for this purpose be flexible and have its cock arranged so as to admit of the bottle, while attached to the tube, being thus turned over,) when the stopper falls into the neck of the bottle, the valve *c* resting in its seat, and in this position I disconnect the bottle from the filling-machine, when the pressure within the bottle retains the valve *c* against its seat and keeps the bottle effectually closed. When it is desired to empty the bottle, a slight blow or pressure on top of the knob B will cause the stopper to descend to the bottom of the bottle, as seen at Fig. 2, and the liquid is poured out. The stopper being of a much greater specific gravity than the liquid and being so long, will not impede the flow of the liquid from the bottle if it is gradually poured out. In bottling still liquids—such as cider, porter, &c., which make more or less gas after being closed up—I take the bottle, provided with its stopper, as before mentioned, and pour in the liquor in the usual manner, then, quickly inverting the bottle, cause the valve *c* to drop into its seat partially, and, taking hold of the protruding end or knob, B, I pull the valve *c* tight into its seat, when the mouth of the bottle will be effectually closed, and the compression of the valve *c* (of elastic material) in the tapering portion of the neck will insure the retention of the stopper when the bottle is turned up again. The mode of unclosing is the same in all cases. It will be understood that the emptied bottles are returned to the factories (or filling-depots) and refilled as many times as the duration of the bottle and stopper will permit.

Having fully explained the construction and operation of my new bottle-stoppers, and wishing to be understood as not limiting my claims of invention to any particular materials or precise forms of the parts, so long as they embody the characteristic features of form and the mode of operation involved in my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The employment, in combination with a bottle having the interior of its neck suitably formed to receive it, of a stopper constructed to operate in closing and unclosing the bottle, substantially as described.

2. So constructing the valve *c* and the mouth of the bottle that the former may be readily forced through the latter in one direction and incapable of easy passage through it in the opposite direction, as hereinbefore described, for the purpose set forth.

3. Making the entire stopper of such a length that it cannot turn over in the body of the bottle, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand and seal this 8th day of August, 1864.

ALBERT ALBERTSON. [L. S.]

In presence of—
J. N. McINTIRE,
M. M. LIVINGSTON.