# Beard & Fairbanks,

## Bottle Stopper.

No. 45,373. Patented Dec. 6, 1864.

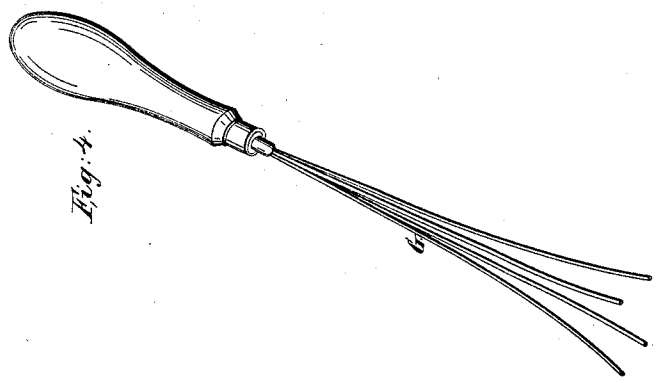

Fig: 4.

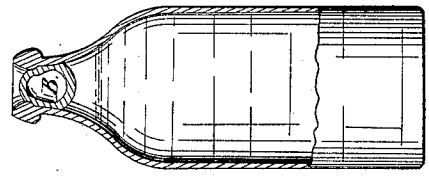

Fig: 3.

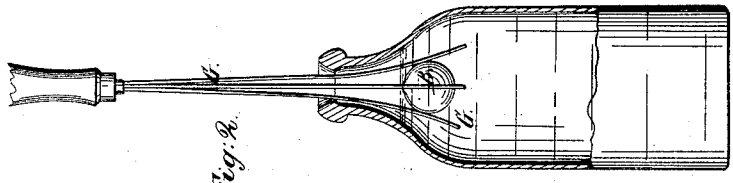

Fig: 2.

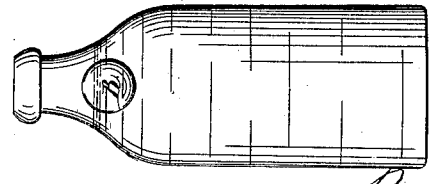

Fig: 1.

Witnesses:

L. D. Townes

Jack. Coombs.

Inventor:

Beard & Fairbanks,

A. Wilkie their atty.

# UNITED STATES PATENT OFFICE.

JOSIAH BEARD AND MOSES FAIRBANKS, OF BOSTON, MASS., ASSIGNORS TO AUTOMATIC BOTTLE CLOSING COMPANY, OF NEW HAVEN, CONN.

## IMPROVEMENT IN BOTTLING STILL LIQUIDS.

Specification forming part of Letters Patent No. **45,373**, dated December 6, 1864.

*To all whom it may concern:*

Be it known that we, JOSIAH BEARD and MOSES FAIRBANKS, both of Boston, in the county of Suffolk and State of Massachusetts, have invented a certain new and useful method of bottling still liquids or stopping bottles containing still liquids—*i. e.*, liquids not charged with gases; and we hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a bottle filled with the liquid to be bottled, the ball B or internal valve being shown floating upon the surface of the liquid. Fig. 2 is a sectional elevation, in part, of the said bottle, showing the instrument G in the act of grasping the valve. Fig. 3 is a sectional view, in part, of the said bottle stopped, and Fig. 4 a detail view of the instrument G.

This invention relates to a method of bottling still liquids—*i. e.*, liquids not charged with gases—or stopping bottles containing such liquids; and it consists in the employment, in combination with a bottle of suitable form and a ball, made of vulcanized india-rubber, lighter than the liquid to be bottled, of an instrument, substantially as herein described, whereby the ball may be seized in the bottle and brought up into the neck thereof, and which on being withdrawn from the bottle will leave behind the ball, which shall remain tightly wedged in the neck without the aid of internal pressure.

To carry this invention into effect it is necessary that the neck of the bottle should be so contracted as to prevent the ball from being drawn out by the force necessary to pull out the instrument, yet hold the ball when drawn up by as large a surface as possible, giving such frictional hold as to prevent the ball from springing back and dropping into the liquid. The drawings exhibit a form of bottle which produces good results. In some cases it may be necessary to give at the part most contracted an additional and more sudden contraction, in order to more effectually retain the ball. For bottling beer or other fermentable substance which when bottled is liable to generate expansive gases, this mode of constructing bottles is particularly recommended. The ball is very elastic and of a diameter somewhat larger than that of the contraction in the neck, and although no positive rule can be given for the degree of elasticity of the ball, or the relative dimensions of the ball and the neck, it will suffice to say that the ball must be such as to admit of its entering the neck from within the bottle by gradual compression, and when compressed, as shown in Fig. 3, of being elongated, without, however, such diminution of its diameter as will allow of its being thrown out.

The mode of making the balls as required for the purposes of this invention—*i. e.*, light, impervious, and elastic—is well known to those acquainted with the manufacture of india-rubber. We prefer to make them hollow—*i. e.*, in two parts united and vulcanized in the mold.

The instrument used to pull up the stopper or ball is composed of three or more diverging springing or elastic wires firmly secured in a handle. The form of the wires may be varied according to circumstances. They may be straight, or curved to flare at their under sides, as in Fig. 4, or curved inwardly in the form of a claw. The latter mode is adopted when more resistance and firmer hold on the ball are required for the purpose of pulling the ball higher up the neck, and for wedging it into its seat with increased power. The ball will thus be compressed and held more firmly than when the wires are straight or curved outwardly.

Operation: The bottle being filled, the ball will float upon the surface of the liquid. The wire instrument is then introduced by bringing the ends together. On passing the neck the wires are allowed to open or expand, and are then directed over the floating ball. On further descending the wires, the ball engaged among the wires will be forced in between them with a force proportionate to the buoyancy of the ball, which is sufficient to maintain it therein. The wires are now withdrawn, and in so doing the ball is drawn up, compressed, and wedged into its seat with a force equal to the frictional hold of the compressed wires on the ball. When the ball is brought home the wires will slip off. With a little practice bottles may be filled and stopped with great celerity.

Having thus described our invention and the manner in which the same is or may be

carried into effect, we desire to observe that we do not wish to be understood as claiming the employment of an internal valve or stopper, such as hereinbefore described, nor the use of such stoppers or valves in bottles in connection with liquids charged with gases. These we understand to be the invention of Edward Hamilton, of Chicago, Illinois. We therefore disclaim such parts of our invention as belong to the said Hamilton or his assignees. Nor do we claim a wire instrument for seizing the ball within the bottle. Such has been used for the purpose of drawing the ball out of the bottle. We therefore further disclaim the wire instrument unless constructed as described for operation in the manner and for the purposes set forth; but

What we do claim is—

The method of bottling still liquids—*i. e.*, liquids not charged with gases—or stopping bottles containing such liquids by the employment, in combination with a bottle of suitable form and a ball, made of vulcanized india-rubber, lighter than the liquid to be bottled, of an instrument, substantially as herein described, whereby the ball may be seized in the bottle and brought up into the neck thereof, and which on being withdrawn from the bottle will leave behind the ball, which shall remain tightly wedged in the neck without the aid of internal pressure.

In testimony whereof we have signed our names to this specification before two subscribing witnesses.

JOSIAH BEARD.
MOSES FAIRBANKS.

Witnesses:
JOSEPH GAVETT,
MERRICK G. FAIRBANKS.