

No. 706,556.

Patented Aug. 12, 1902.

R. HAY, Dec'd.

J. B. HAY, Executrix.

BOTTLE NECK.

(Application filed Apr. 16, 1901.)

(No Model.)

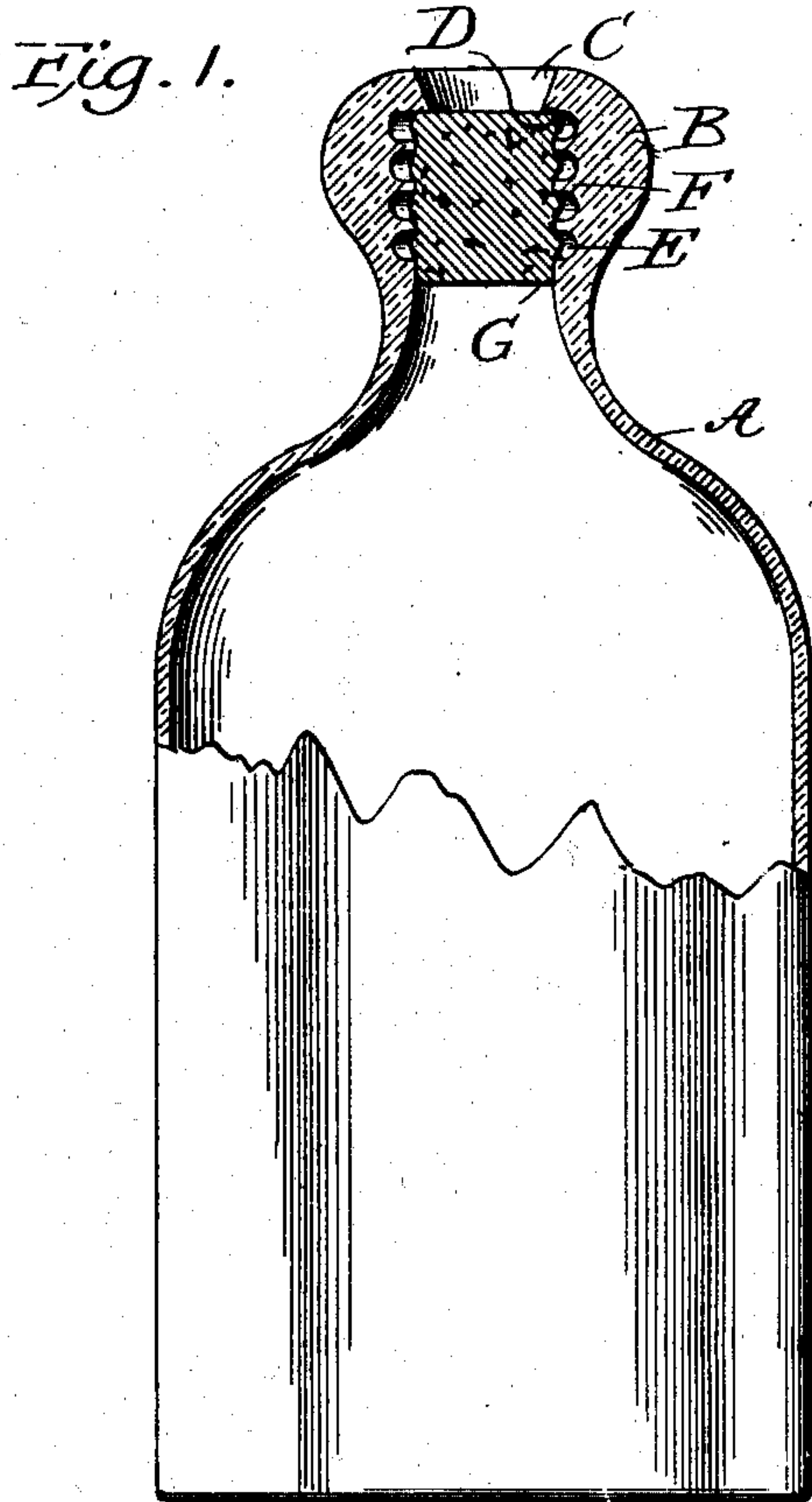
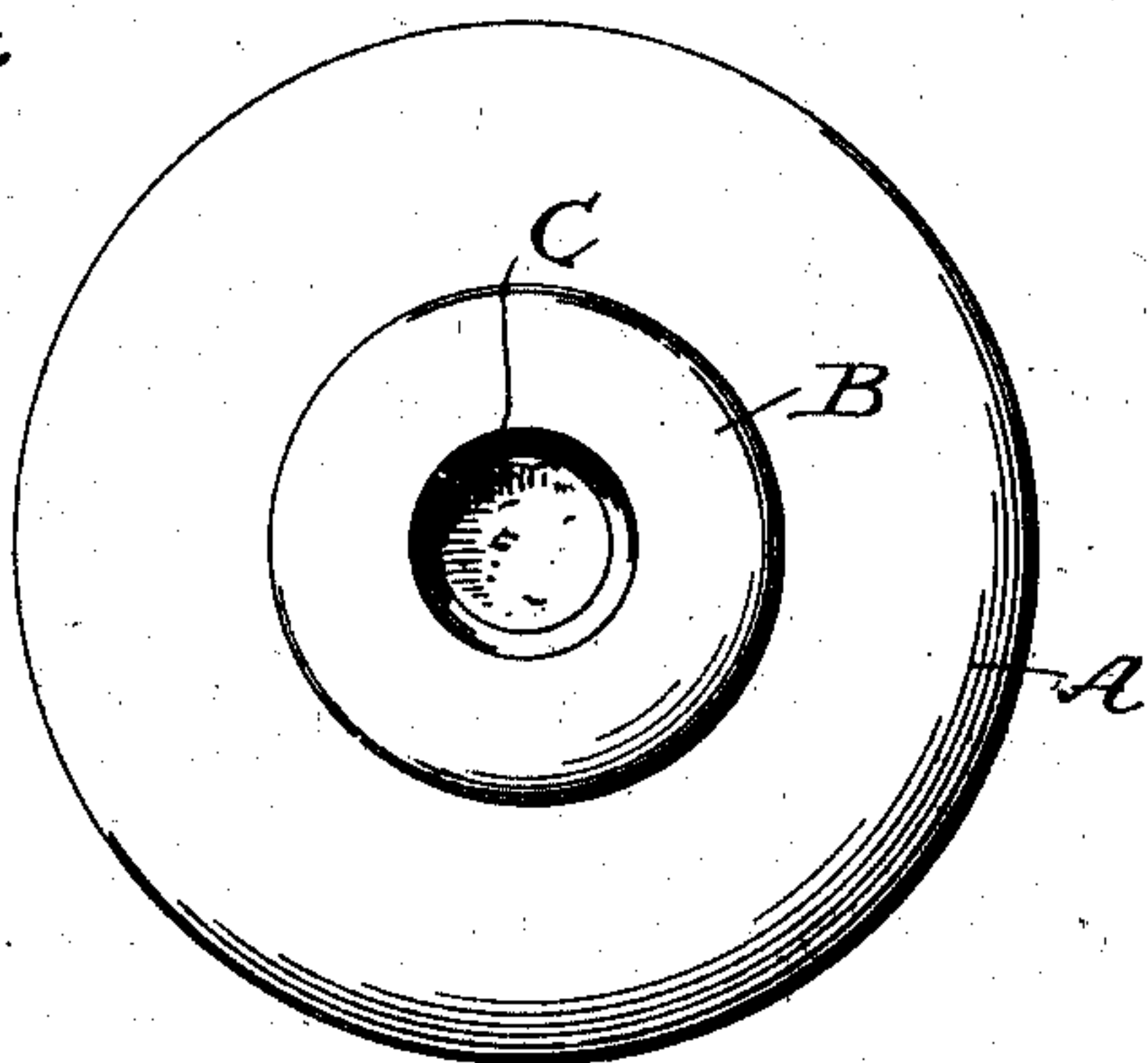


Fig. 2.



WITNESSES:

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ROBERT HAY, OF SUMMIT, NEW JERSEY; JULIA BOOTH HAY EXECUTRIX  
OF SAID ROBERT HAY, DECEASED.

## BOTTLE-NECK.

SPECIFICATION forming part of Letters Patent No. 706,556, dated August 12, 1902.

Application filed April 16, 1901. Serial No. 56,033. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT HAY, a citizen of the United States of America, residing at Summit, county of Union, State of New Jersey, have invented certain new and useful Improvements in Necks for Bottles, of which the following is a specification.

My invention relates to improvements in bottle-necks whereby the ordinary cork or other stoppers may be used to tightly seal the mouth of the bottle and secured within the bottle-mouth firmly without any other fastening means; and to this end my invention consists in certain elements fully described and claimed in this specification.

In order that those skilled in the art to which my invention appertains may understand, construct, and use my invention, I will proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a vertical central section of a vessel-mouth constructed according to my invention with a cork stopper applied to it. Fig. 2 is a top view of the same.

A is the body of a vessel. In this instance it is a bottle.

B is the nose of the vessel-neck.

E represents corrugations within the vessel-mouth, impressed into and below the inner surface thereof as continuous annular rings, not spiral, the one corrugation lying close to the other, so that the curves form substantial edges where they come together. The inner vertical lines of the vessel-mouth are preferably parallel, not tapering. These corrugations I make in most instances somewhat below the top of the vessel-mouth in order to provide room for a seal above the cork stopper D. The stopper D used is larger than the inner diameter of the bottle-mouth and is forced by pressure into the mouth. Of course the stopper is in this way contracted, and being more or less elastic it springs back toward its original size after it is forced in and expands into the corrugations E. The top of the stopper expands outward, and its upper edge presses against the inside of the upper corrugation and resists ejection from pressure within the vessel. Also the pressure for ejection of the stopper being from the under side, the upward force presses the mate-

rial of the stopper into the lower corrugations first, and so on as the pressure increases into each successive corrugation until the upper one is reached. This construction is very effective and can be used safely in vessels containing beer, champagne, and other effervescing liquids.

The mouth of the vessel is made tapering somewhat from the top downward to a diameter less than the diameter of the inner neck of the bottle, so that a horizontal flat surface extending from the upper line of the top corrugation is formed. The diameter of the mouth of the bottle at its top is about equal to the diameter of the inner neck where the corrugations are formed; but the bottom of the taper is of less diameter, so that when cork or stopper D is pressed in the top of the cork stopper expands after compression to its original diameter before compression and springs under this flat portion beneath the mouth, so that the pressure from within the bottle tending to eject the cork stopper is resisted by said flat portion, and consequently the pressure forces the cork stopper into the corrugations in the inner neck. This causes increased resistance to its ejection and also effectually seals the bottle, because the elastic stopper is prevented from moving outward by the flat shoulder above the corrugations, against which it is forced by the pressure of the contents of the vessel, and is held firmly until the said inner pressure compresses the stopper into the corrugations, and a perfect sealing results.

I am aware that corrugations in the neck of a bottle have been used previous to my invention, and also I am aware that they have all failed to effect a perfect sealing. I am also aware that a shoulder has been used in a vessel-neck to prevent the cork stopper from being removed; but I am not aware that a shoulder in the neck of a vessel combined with corrugations in the neck beneath it for the purpose of holding the stopper firmly in its place until the stopper is expanded into the corrugations to secure a tight sealing has ever been known or used previous to my invention thereof.

The operation of this device is most satisfactory and overcomes the imperfections of



other previous devices designed for the purpose.

Having now fully described my invention and the manner in which I have embodied the same, what I claim as new and as my invention, and desire to secure by Letters Patent, is—

1. The combination with a bottle-neck having a series of corrugations, contiguous to each other and forming edges between them, the said edges between the corrugations being all of equal internal diameter throughout the whole neck; a discharge-opening or mouth located above said corrugations of smaller diameter than the inner diameter of the said edges between the corrugations, and forming a flat shoulder beneath the said mouth, the said mouth being flared outwardly and upwardly on its upper surface; of a compressible stopper, of a diameter equal to about the inner diameter of the edges of the said corrugations, and of any available length which may be pressed through the said mouth, and beneath the said flat shoulder, and expand again to its normal size, only, and be forced upward by the internal pressure against the said flat shoulder, and held there while the said internal pressure forces the body of the stopper outward against the edges of the said corrugations, and thereby cause a sealing of the bottle by means of the internal pressure only, substantially as specified.

2. A bottle-neck whose internal bore is of

equal diameter throughout its length, and provided with a series of corrugations, contiguous to each other, and forming edges at their junction, the internal bore of the neck being surmounted, at its upper end, by an angular flange and centrally of said flange having a discharge-opening or mouth of less diameter than the internal diameter of the bottle-neck, the upper surface of said flange being tapered from its exterior diameter toward the said mouth; and a compressible stopper adapted to enter beneath said flange, and to seal the bottle by internal pressure only, substantially as specified.

3. As an article of manufacture a bottle having a neck with corrugations formed within it, the internal diameters of which are equal, and above said corrugations having a narrow flange turned inwardly, and a discharge-opening of smaller diameter than the inner edges of said corrugations, and above said flange having an upper surface flaring outwardly from said discharge-opening substantially as specified.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 7th day of February, 1901.

ROBERT HAY.

Witnesses:

R. M. BOOTH, Jr.,  
JOHN H. BROWNE.