(No Model.) 2 Sheets—Sheet 1.

F. H. HEATH & J. R. NAGELL.

BOTTLE SEAL.

No. 582,644. Patented May 18, 1897.

Fig. 1.

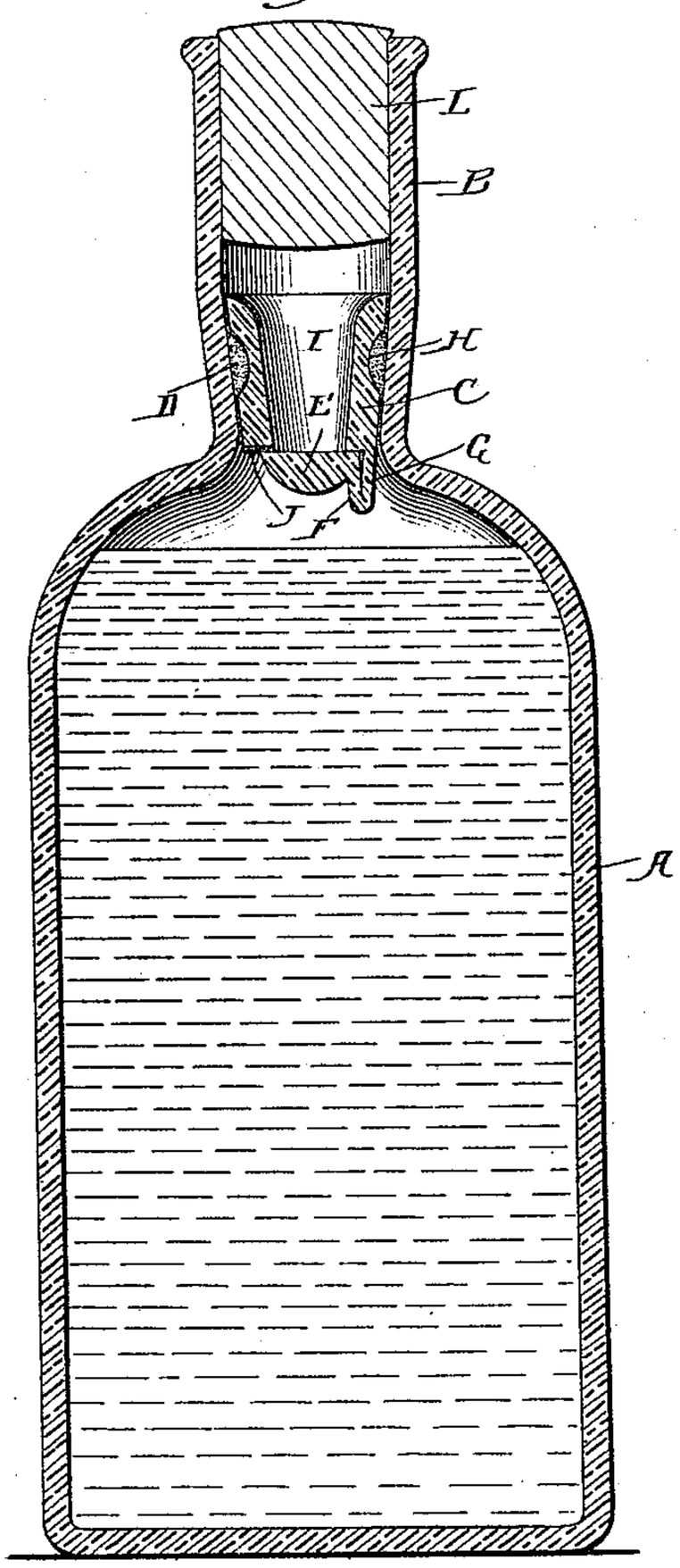

Fig. 2.

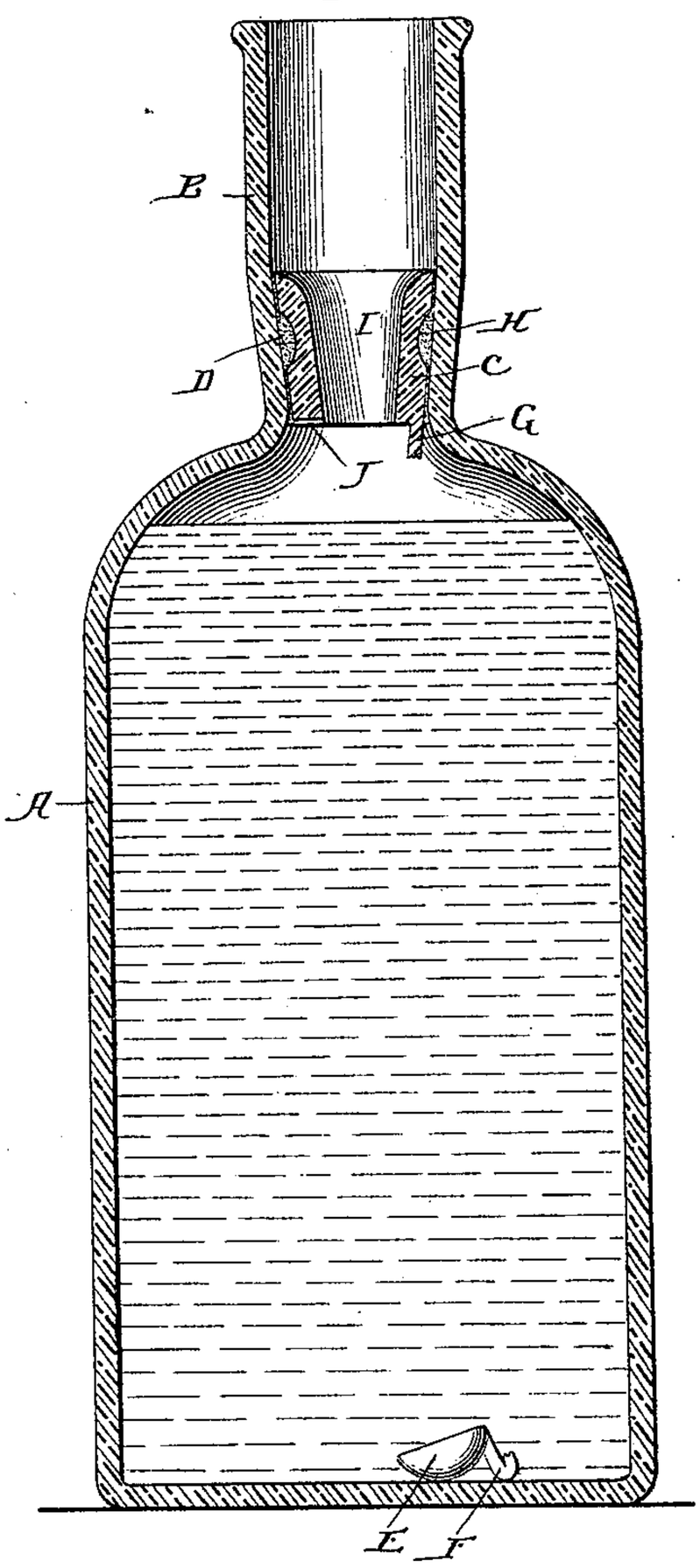

Fig. 3.

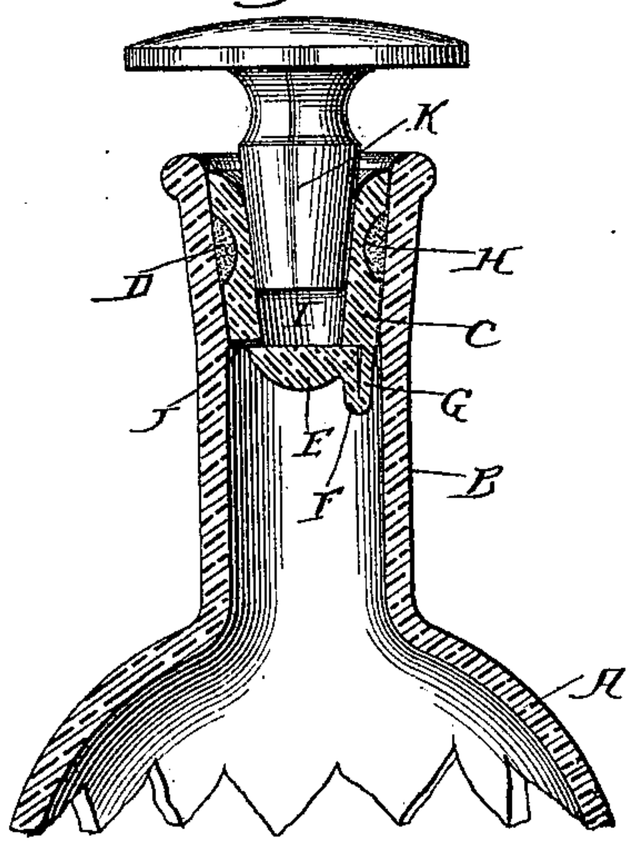

Fig. 4.

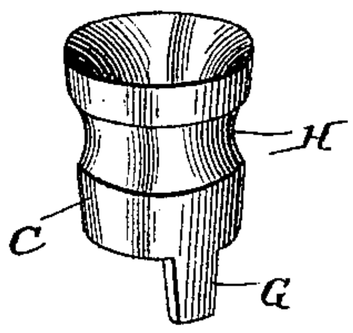

Fig. 5.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 6.

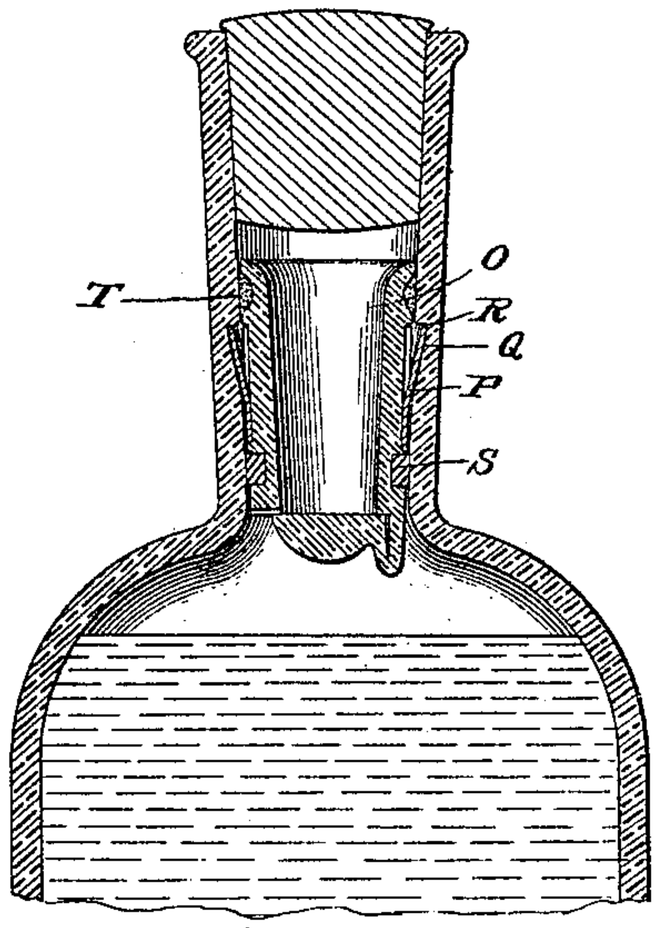


Fig. 7.

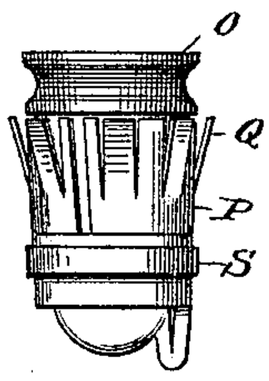
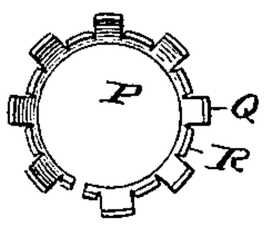


Fig. 8.



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UNITED STATES PATENT OFFICE.

FREDERICK H. HEATH AND JOHN R. NAGELL, OF TACOMA, WASHINGTON.

BOTTLE-SEAL.

SPECIFICATION forming part of Letters Patent No. 582,644, dated May 18, 1897.

Application filed June 30, 1896. Serial No. 597,557. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK H. HEATH and JOHN R. NAGELL, citizens of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Bottle-Seals, of which the following is a specification.

This invention relates to a new and useful improvement in bottle-seals, and has for its object to provide such a device that while it may be filled once and its contents poured therefrom, as desired, yet it cannot again be filled without destroying the bottle itself or some portion thereof, so as to render it useless.

It is a well-known fact that the goods of certain manufacturers are imitated by the refilling of the bottles in which such goods originally came, and the public is thus deceived in the purchase of an inferior article, as well as the manufacturer defrauded of his just returns; but by the use of this improvement this will be impossible, since when the bottle is once filled and sealed it cannot again be filled after its contents have been withdrawn without destroying the bottle or seal thereof.

Referring to the drawings, Figure 1 is a central section of a bottle having this improvement applied thereto, the cork being in place; Fig. 2, a similar view, the cork being removed and the fragile portion of the seal broken; Fig. 3, a slight modification of the improvement, illustrating the method of embodying it in a bottle with which a glass stopper is used; Fig. 4, a detailed perspective of the seal, the fragile part being broken away; Fig. 5, a similar view of said fragile part; Fig. 6, a section of a portion of the bottle, illustrating a modification of our improvement by means of which the tube may be secured within the neck of the bottle without the use of cement; Fig. 7, a detail view of the tube, showing the keeper in place thereon; and Fig. 8, a plan view of the keeper before being placed in position upon the tube.

Referring to the drawings in detail, A indicates the walls of a bottle having a neck B more or less sloping to its lower end, where it is slightly contracted. The irregularly-shaped tube C is held in place in the neck of the bottle with cement at D in the groove H. The tube C has a projection G upon one side of its under end, as clearly shown in Fig. 4, and the seal E has a projection F upon one side of its under surface, as shown in Fig. 5.

The seal E is united to the tube C at the projections F and G by the application of heat sufficient to fuse the projections F and G together before this device is placed in the neck of the bottle, as shown in Fig. 1.

Across the under edge of the tube C is an aperture J to permit the compressed air to escape beneath the seal in the operation of corking the bottle. This device is easily and cheaply manufactured of glass, either clear or opaque, and of any color, or of porcelain or any substance suitable for the purpose, and in various sizes to suit the aperture of the receptacle to which it is to be applied, and does not require skilled labor to apply it.

The process of applying and using this device is as follows: The bottle to which it is desired to apply this device is first filled. Then the device, as shown in Fig. 1, is placed in the neck of the bottle in the position desired with the seal downward, the groove H being first filled with any insoluble cement which will unite the device to the circular inside walls of the neck of the bottle to prevent the device from being removed. After the device is placed in position the bottle is closed by the cork L in the usual manner. In opening the bottle the cork is withdrawn in the usual way, and with a rod or any similar instrument that may be convenient for the purpose the seal E is broken off by a gentle blow and falls into the bottle, as shown at E in Fig. 2, the upper end of the opening I being enlarged, with a rounded edge to admit easy access of the instrument used. The contents of the bottle is then easily emptied, and the seal E will not come out from the bottle, as the aperture I is smaller than the diameter of the seal E. The seal E being made in a hemispherical shape cannot be broken into pieces by the blow given to it to break it away, for the projections F and G, when fused together, being more fragile than the seal, will break instead, and the break of the projections will be clean.

While the device can be applied to the neck

of the bottle at any desired place below the cork, it can be cemented at the entrance of the neck, the aperture I being ground to fit a ground-glass stopper K, as shown in Fig. 3.

We do not confine ourselves to the circular form of the outer surface of this device, nor to the hemispherical form of the seal, for the said outer surface can be readily made in a square shape or other form to fit receptacles having such shape or opening, and the seal be made in conformity thereto.

We are aware that prior to our invention several methods have been used to prevent the refilling of bottles and we are also acquainted with some of the forms used. We do not claim that a bottle or other receptacle with our device applied is non-refillable, but we do claim that a bottle or other receptacle with this device applied cannot be refilled without detection, as the contents cannot be emptied without breaking the seal, after which the broken device and the detached seal in the bottle remain as detectives or telltales, and we know of no method by which the device can be removed or the detached seal replaced in its original position. It can be readily and quickly observed whether the seal is broken or not by looking through the neck of the bottle beneath this device or by the movement of the detached seal in the bottle when the bottle is turned or shaken.

It is obvious that instead of fusing the seal E to the lower portion of the tube the projections F and G may be cemented together by an insoluble substance which will in some cases answer as a substitute for the fusion of the said projections.

One of the advantages of this improvement is that it can be manufactured at a very small cost and easily applied to the neck of any bottle, so long as said neck is slightly flared outward, and when once applied the bottle can by no means be reused after its contents have been withdrawn without detection by the most casual observer.

When desired, the tube C may have formed upon its outer walls, by blowing or otherwise, the name or trade-mark of the maker of the contents therein, and the transparent cement used for securing the tube within the neck of the bottle in order that this name or trade-mark may be observed through said neck, thus providing a prevention for the fraudulent sale of goods by one manufacturer under the name of another, and this name or trade-mark may be also placed upon the seal, so as to afford a further protection against such fraudulent sale.

In the modifications shown in Figs. 6, 7, and 8 the tube O, which is adapted for the same purpose as that described in connection with the tube C, is an annular recess formed around the central portion thereof, into which is fitted the keeper P, and this keeper is preferably made of sheet metal, such as aluminium, and is so formed as to provide a number of spring-points Q, projecting upward and outward for engagement with the upper shoulder of the recess R, formed in the inner wall of the neck of the bottle, by which arrangement it will be seen that when the tube has been forced in place within the neck of the bottle and the spring-points Q have sprung into engagement with the shoulder of the recess R said tube cannot be withdrawn, and it will therefore be impossible to gain access to the contents of the bottle without breaking away the wall, as before described.

In order that there shall be no leakage, the tube O may be provided with a ring S, of cork or other suitable material, fitted within a suitable groove formed therein, and also the upper portion of this tube may be further secured in place by cement, as indicated at T.

Since the upper portion of the tube O fits snugly within the neck of the bottle, the shoulder-springs cannot be tampered with, and therefore there is no likelihood of the removal of the tube when once forced in place.

Having thus fully described this invention, what is claimed as new and useful is—

1. In combination with a bottle a tube adapted to be permanently retained in the neck thereof, a seal united to said tube, said seal being adapted to be broken off, said tube having an aperture across its lower edge, as and for the purpose described.

2. In combination with a bottle, a tube adapted to be permanently retained in the neck thereof, said tube having a groove across its lower edge, a projection formed on the lower edge of the tube, a seal having a projection on its edge adapted to be fused to the projection of the tube, as and for the purpose described.

3. In combination with the neck of a bottle, a tube having an annular groove formed around its outer face adapted to receive cement, a projection depending from the under side of the tube, a seal, a projection depending from the edge of the seal adapted to be secured to the projection of the tube, said tube having a groove formed across its lower edge, as and for the purpose described.

4. In combination with the neck of a bottle, a tube having an annular groove formed around its outer face adapted to receive cement, said tube having also a rounded upper edge, a projection depending from the under side of the tube, a seal having the shape of a hemisphere, a projection depending from the edge of the seal adapted to be secured to the projection of the tube, said tube having a groove formed across its lower edge, as and for the purpose described.

5. In combination with the neck of a bottle, a tube having an annular groove formed around its outer face for the reception of cement, said tube also having an annular recess, a metal band adapted to fit in said recess, spring-points projecting upward and

outward from said band and adapted to engage a recess formed in the bottle, a projection formed on the under side of the tube, a seal having a projection depending from the edge thereof adapted to be secured to the projection of the tube, said tube having a groove formed across its lower edge, as and for the purpose described.

In testimony whereof we have hereunto affixed our signatures in the presence of two subscribing witnesses.

FREDERICK H. HEATH.
JOHN R. NAGELL.

Witnesses:
S. S. WILLIAMSON,
H. K. MOORE.