

No. 676,089.

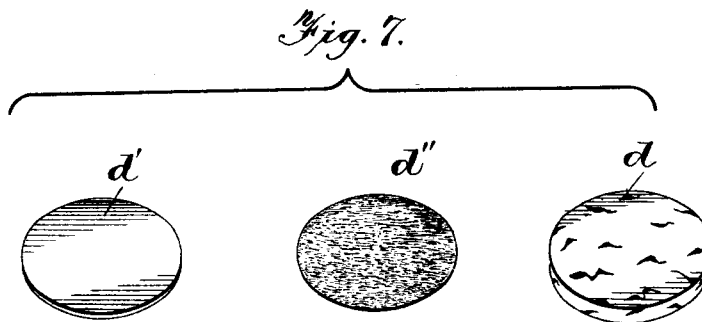
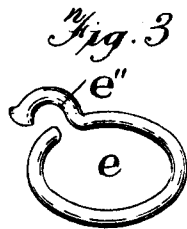
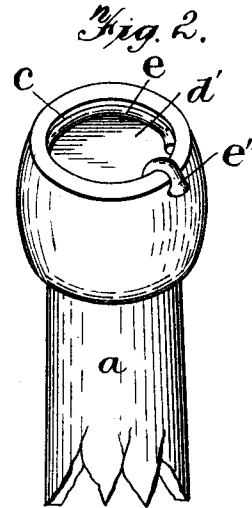
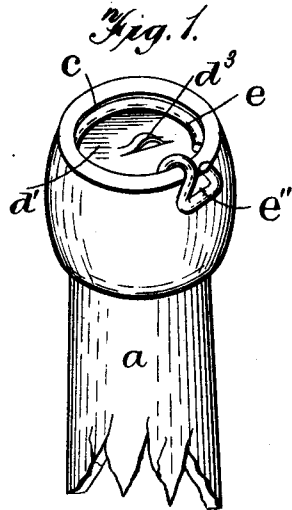
Patented June 11, 1901.

W. E. HEATH.  
BOTTLE SEAL.

(Application filed Nov. 17, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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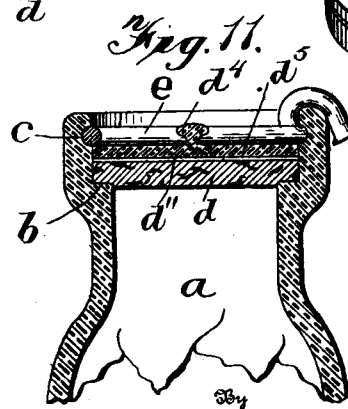
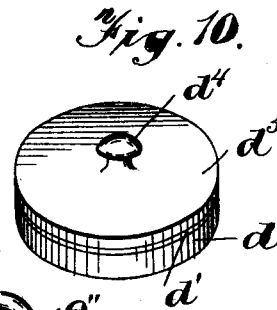
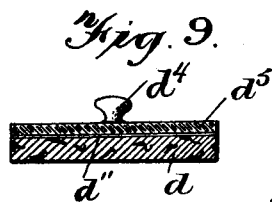
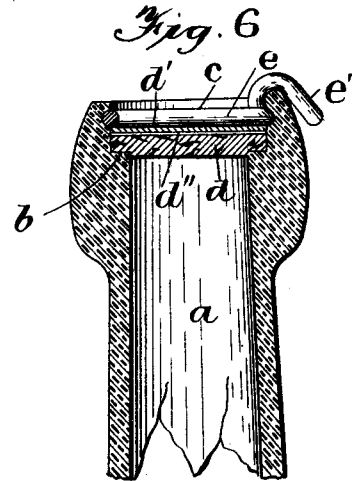
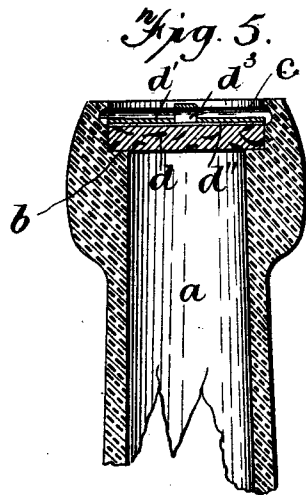
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2 Sheets—Sheet 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM E. HEATH, OF BALTIMORE, MARYLAND, ASSIGNOR TO CORONET BOTTLE-SEAL COMPANY, OF SAME PLACE.

## BOTTLE-SEAL.

SPECIFICATION forming part of Letters Patent No. 676,089, dated June 11, 1901.

Application filed November 17, 1900. Serial No. 36,875. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. HEATH, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Bottle-Seals; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art in view of the appertains to make and use the same.

This invention relates to certain improvements in bottle-seals; and the objects and nature of my invention will be readily perceived by those skilled in the art in view of the following explanation of the examples shown in the accompanying drawings of structures within the spirit and scope of my invention.

The invention consists in certain novel features in construction and in combinations and in arrangements of parts, as more fully and particularly pointed out and described hereinafter.

Referring to the accompanying drawings, Figure 1 is a perspective view of the mouth or neck portion of a bottle sealed by devices constructed in accordance with my invention. Fig. 2 is a corresponding view showing a modified form of spring-retainer. Fig. 3 is a detail perspective view of the spring-retainer shown in Fig. 2. Fig. 4 is a detail perspective view of the spring-retainer shown in Fig. 1. Fig. 5 is a vertical section through the neck portion of the bottle, showing the sealing-plug therein before being compressed and before the spring-retainer has been inserted. Fig. 6 is a section corresponding to Fig. 5, but showing the sealing medium compressed and the spring-retainer in place locking the same. Fig. 7 is a detail perspective view of the sealing-plug, the sealing-medium disk, the impervious sheet, and the metal disk being shown separated from each other for purposes of illustration, the metal disk of this view not being shown with the finger-hold shown in Figs. 1 and 5. Fig. 8 is a detail cross-sectional view, enlarged, of the sealing-plug of Fig. 7, with the parts thereof assembled and adhesively secured together. Fig. 9 is a cross-sectional view of a sealing plug or cover in-

tended for use in a large mouth or jar. Fig. 10 is a detail perspective view of the plug shown in Figs. 9 and 11. Fig. 11 is a sectional view through the mouth or neck portion of a jar or large-mouth bottle sealed by the cover or plug of Figs. 9 and 10 and a retainer such as shown in Fig. 3.

In the drawings, *a* is a part of a bottle, jar, or other closure having a mouth or neck opening.

*b* is an annular sealing seat or shoulder in the liquid passage or mouth of the bottle, above which shoulder the internal diameter of the liquid passage or mouth is enlarged or greater than the diameter below said shoulder or seat.

The bottle-mouth is suitably formed to receive and hold a spring-retainer above said seat for the purpose of locking the sealing medium down on the seat. As an instance of what might be employed for this purpose I show the annular locking groove or seat *c* in the inner face of the wall of the bottle-mouth a distance above the sealing-seat.

A suitable sealing-plug is employed having a diameter greater than that of the liquid-passage at the inner edge of the sealing-shoulder.

The sealing-plug shown consists of the flat disk or imperforate washer *d*, composed of some material suitable to form a sealing medium, and a stiff strong disk *d'* adhesively secured thereto. This sealing material is preferably somewhat soft, pliable, or compressible on the application of considerable force and is preferably impervious or practically impervious to moisture. I have used cork and other materials of equivalent qualities for this purpose. The flat stiffening-disk *d'* is preferably of the same diameter as the sealing-washer and rests on and is secured to the flat top face of said washer. Various materials can be employed to adhesively secure the flat stiffening-disk on the sealing medium or washer; but I preferably employ for this purpose some material of a plastic or mucilaginous nature which is impervious to moisture and which after being applied will set or harden and render it impossible for moisture

to work through the sealing medium into contact with the flat stiffening-disk when made of metal and will at the same time firmly fasten adhesively the disk on the sealing medium. I also preferably employ such material for this purpose as will not soften and run under such temperature as is usually applied in treating certain bottled beverages and other goods.

In Figs. 1, 2, 5, 6, 7, and 8 I show the flat stiffening-disk  $d'$  formed of sheet metal. In Figs. 9, 10, and 11 the disk  $d^5$  is formed of glass molded or otherwise formed integral with the upwardly-projecting central finger-hold  $d^4$ . When this top disk is made of glass, the sealing medium need not be so thick as in the other form shown and can be adhesively secured to the glass in any suitable manner, usually without considering the melting-point of the adhesive material or its decided impervious qualities. The device shown is of material advantage when used for sealing all kinds of fruit-jars or large-mouth or other bottles or jars containing table-sauces, &c. For the purpose of applying this impervious adhesive material I usually employ, although not necessarily, a paper or fabric sheet  $d''$ , which I coat or saturate with the material, and then apply the sealing medium and metal disk to opposite faces of the sheet, as clearly illustrated in the drawings; but the disk, especially when made of glass, may be, if desired, adhesively attached direct to the sealing medium without any interposing paper or fabric. If desired, certain kinds of varnishes or their main constituents can be employed for the impervious adhesive material hereinbefore referred to. In the sealing-plug thus described the surrounding edge or circumference of the sealing medium or washer is exposed, while there is only a very thin edge of metal exposed at the circumference of the plug.

The flat circular sealing-plug is of such diameter as to pass into the bottle-mouth with the flat under face of its sealing medium resting on the sealing-seat of the bottle-mouth and the plug somewhat snugly fitting in the liquid-passage above said shoulder. However, the plug should fit into the liquid-passage so that it can be readily removed when the lock or retainer therefor is removed—that is, I prefer that the plug should fit in the bottle-mouth without frictional engagement with the walls thereof, so that in case the plug is used in bottles or jars containing non-carbonated beverages or sauces, &c., it can be readily lifted out or replaced with the fingers after removal of the retainer. To this end I can for some purposes stamp up the small loop or projection  $d^3$  in the central portion of the metal disk of the plug. This small loop can be easily pressed up from the sheet-metal portion of the plug about at the center part thereof, so as to afford a finger-hold in re-

moving or applying the plug, so that the same can be used as a cover when used with fruit-jars, table-sauces, or other non-carbonated bottled goods. The loop can be struck up from the metal part of any plug whatever the shape of the metal disk, whether cup-shaped or otherwise; but this specific feature of my invention is not limited to the specific form of sealing-plug shown.

In sealing a bottle or jar according to my invention the plug when first applied projects above the under edge of the groove  $c$ , as shown in Fig. 5 of the drawings. Downward pressure is then applied to the plug to compress the sealing medium and form the liquid and gas tight joint between the same and the sealing-shoulder in the bottle, and while the plug is thus held compressed a contracted spring-retainer is released on the top face of the plug and thereupon expands into the locking-groove  $c$  and projects over the plug, and hence holds the plug down in its compressed position.

My peculiar plug described is not limited to use in connection with the particular retainer shown in this case, but can be employed in connection with any suitable retainer—such, for instance, as shown in my pending companion applications for United States patents.

The sealing-plug described possesses material advantages in that it is very simple and economical to manufacture, as the flat metal and sealing-medium disks can be easily cut out from sheet material and no flanging or perforating of parts is necessary. Furthermore, when sealed in a bottle, however snug the fit may be, the thin metal edge does not project beyond the circle of the sealing-medium edge and there is not sufficient metal surface at the edge of the plug to stick to the adjacent wall of the bottle-mouth. The sealing-medium edge will cause no trouble by sticking to the glass; but the glutinous material in certain beverages is liable to dry between metal faces and abutting glass surfaces and cause the metal to strongly adhere to the glass. This is not possible with the plug disclosed herein.

The spring-retainer shown consists of the split ring  $e$ , of spring-wire or other suitable material. The ring is so formed as to normally spring open to its distended position, so that the ring must be compressed to enter the bottle-mouth and rest on the metal top face of the plug, and on being released will at once expand or spring open into the locking-groove or other locking-seat therefor in the bottle-mouth. The ring is provided with extracting means extending up over the bottle-mouth to the exterior or outer surface of the bottle-mouth, so that the projection above the edge of the bottle-mouth will be reduced to a minimum. As one way of accomplishing this object I show one end of the wire form-

ing the ring deflected upwardly from the circle or plane of the ring and then curved or deflected laterally and downwardly to form the extractor-arm or lever thumb-piece *e'*,  
 5 passing up within the bottle-mouth and then laterally over the top edge of the mouth, with a downward deflection at the exterior thereof, preferably to a point below the plane of the top edge of the mouth. In Fig. 2 the thumb or  
 10 finger piece or projection *e''* has a slightly-enlarged outer end located outwardly a slight distance from the outer surface of the bottle-mouth to afford a finger-hold to receive the lateral upward pressure necessary for the initial releasing movement of the extractor portion of the retainer.

In Fig. 1 I show the extractor projection *e'* having the single ply of the wire projecting upwardly and laterally to fit over the top edge  
 20 of the bottle-mouth, and the wire at the exterior of the bottle-mouth is doubled back or looped to form the downwardly and outwardly inclined portion enlarged, constituting a broad bearing-surface or finger-hold.

With either form of retainer shown the releasing or extracting operation is practically the same. In extracting, the thumb is placed under the lower outer end of the extractor, and upward lateral pressure thereon releases  
 30 the end of the ring carrying the extractor projection from the locking-groove by pressing said end inwardly and upwardly. Usually, on account of the peculiar formation of the retainer-ring at the point where the wire bends  
 35 up to pass over the edge of the bottle, this portion of the ring and the extractor projection remain in the position just described on the initial extracting movement. The first finger is then applied to the right-hand side  
 40 of the extractor projection, and pressure is applied thereon toward the left, which completes the operation of springing the ring completely from the bottle-mouth and releasing the sealing-plug.

Peculiar advantages are attained by employing the retainer with the bent-over extractor, as the retainer cannot be accidentally released by blows against the extractor-arm nor by reason of the bottle falling and striking  
 50 on its mouth or neck. A blow from the exterior of the bottle directly against the extractor-arm will not release the retainer.

In the act of pasteurizing beer or other liquors it is sometimes necessary to place the  
 55 metal boxes containing the bottles one upon the other in the steaming-tank, and the bottom of one box then rests on the top edges of the mouths of the bottles in the box below. It is hence desirable that the top edges of the  
 60 bottle-mouths present an approximately even or flat surface. My present retainer presents this advantage and permits the above-noted arrangement during steaming or transportation of the sealed bottles.

65 The retainer herein described can be em-

ployed in connection with any sealing disk or plug, and it is not limited to employment with the plug described herein. It might be used, for instance, in connection with the sealing-plugs shown in my pending companion applications for United States patents.

It is evident that various changes might be made in the forms, constructions, and arrangements of the parts described without departing from the spirit and scope of my invention,  
 75 and hence I do not wish to limit myself to the exact constructions shown.

Having thus fully described my invention, what I claim is—

1. In a bottle-sealing device of the character substantially specified, a spring-retainer ring provided with an extractor projection rigid therewith and extending upwardly and laterally to fit over the top edge of the bottle-mouth and project laterally to the exterior of  
 85 the bottle, substantially as described.

2. A bottle having a sealing-seat and a locking-seat above the same, in combination with a sealing-plug to rest on the seat and an expandible spring-retainer to lock in said locking-seat and hold the plug down, said retainer having an extractor-arm extending upwardly and laterally to a point at the exterior of the bottle-mouth and beside the outer surface thereof, substantially as described. 95

3. A bottle-seal comprising in combination a separate spring-retainer ring having a thumb-piece projecting upwardly to an accessible point at the exterior of the bottle-mouth, a flat sealing-plug composed of an imperforate flat disk of elastic compressible sealing material and a flat top stiffening-plate adhesively secured on and covering the top face of the disk and on which said retainer rests, substantially as described. 105

4. A bottle-seal comprising in combination a spring-retainer ring having an extractor projection extending to an accessible point at the exterior of the bottle-mouth, and a flat sealing-plug composed of a comparatively  
 110 thick elastic imperforate sealing-medium disk and a stiff plate adhesively secured on the top face of said disk and having a raised finger-hold at its central portion, substantially as described. 115

5. In combination, in a bottle-seal, a spring-retainer, an imperforate sealing-washer, a flat metal disk secured on the flat top face of the washer by impervious material and having the metal thereof struck up to form the loop  
 120 finger-hold, substantially as described.

6. In a bottle-seal, in combination a spring-retainer, a flat imperforate elastic compressible sealing-medium disk, and a flat sheet-metal plate of approximately the same diameter as the disk and adhesively secured on the top face thereof by interposed adhesive and impervious material, substantially as described. 125

7. In a bottle-sealing device, the combination 130

tion of an internal sealing-plug, and an internal spring-retainer having an extractor-arm projecting to the exterior of the bottle-mouth and extended downwardly at the exterior thereof, substantially as described.

5 8. An internal bottle-seal comprising a sealing-plug and a separate spring-retainer having an extractor projection extending up and over the top edge of the bottle-mouth and de-

flected downwardly at the exterior thereof, 10 substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM E. HEATH.

Witnesses:

ELISHA S. HEATH,  
ALFRED NEWTON.