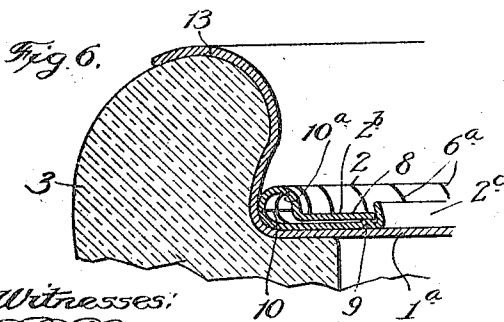
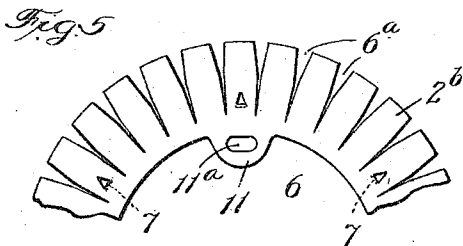
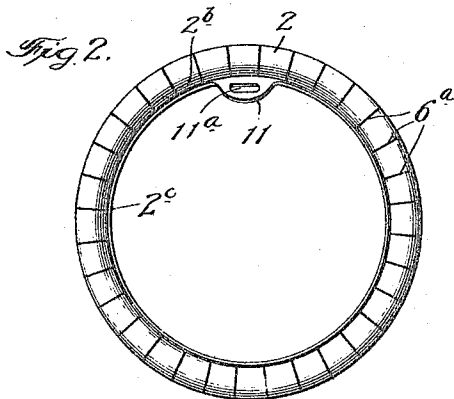
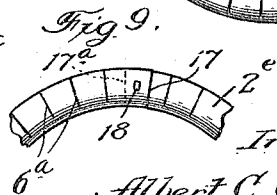
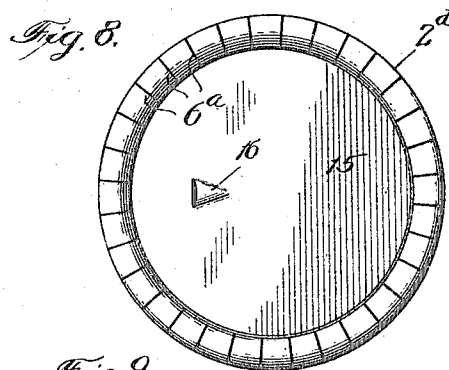
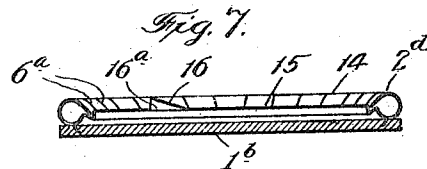
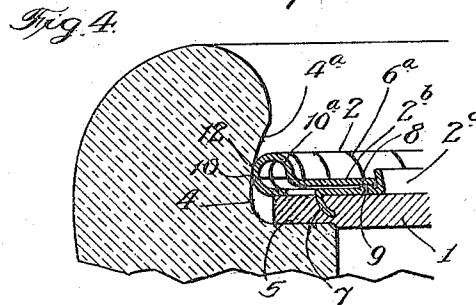
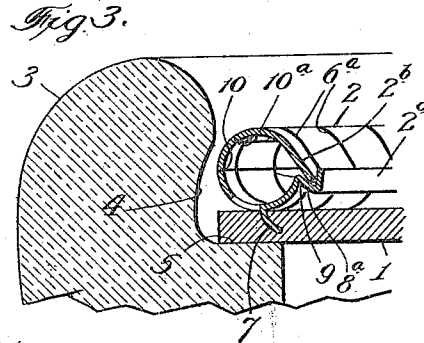


1,123,733.



Chas. H. Dwell



By Dymond, Lee, Critton ^{and} Wiles
Attys.

UNITED STATES PATENT OFFICE.

ALBERT C. GRUNWALD, OF MAYWOOD, ILLINOIS.

BOTTLE-SEAL.

1,123,733.

Specification of Letters Patent.

Patented Jan. 5, 1915.

Application filed March 1, 1913. Serial No. 751,453.

To all whom it may concern:

Be it known that I, ALBERT C. GRUNWALD, a citizen of the United States, residing at Maywood, in the county of Cook and State of Illinois, have invented new and useful Improvements in Bottle-Seals, of which the following is a specification.

My invention relates particularly to seals or closures for use in connection with milk-bottles or analogous receptacles; and my primary object is to provide an improved device of the character indicated which can be cheaply manufactured, and applied or removed with facility, but which will give indication in case the device has been tampered with.

The invention is illustrated in the preferred embodiment in the accompanying drawing, in which—

Figure 1 represents a fragmentary sectional view of a milk-bottle with my improved closure ready to be secured therein; Fig. 2, a plan view of the closure; Fig. 3, an enlarged broken sectional view of the same nature as Fig. 1; Fig. 4, a view similar to Fig. 3, but illustrating the condition after the retainer-ring has been flattened, or forced to the engaging position; Fig. 5, a broken plan view of a blank employed in the formation of the retainer-ring; Fig. 6, a view similar to Fig. 4, but showing a modified form of sealing disk; Fig. 7, a sectional view of my improved seal in a modified form; Fig. 8, a plan view of the seal shown in Fig. 7; and Fig. 9, a broken plan view showing a modified form of retainer-ring.

Referring to Figs. 1 to 5, inclusive, the seal, as there illustrated, comprises a sealing disk 1 and a retainer-ring 2. The device is shown applied to a bottle 3, the mouth-portion of which is provided internally with an annular recess 4 above the shoulder 5. The disk 1 may be of cardboard, paraffined paper, or any other suitable material. The retainer 2 comprises a hollow annular member, which may be collapsed, or flattened, to cause its outer portion to be forced into close contact with and beneath the overhanging sloping wall 4^a of the recess 4. In this operation, the sealing material 1 is compressed between the retainer and the shoulder 5 of the bottle, the retainer being of sufficiently stiff material to securely hold the sealing disk upon its seat. The annular hollow member 2 may be conven-

iently formed from substantially non-resilient sheet metal, by first stamping therefrom a blank 6 of the form illustrated in Fig. 5. The blank 6 is slitted or incised from its outer edge, as indicated at 6^a. This is preferably accomplished by cutting away narrow V-shaped portions of the metal. The incisions extend to within a short distance of the inner edge of the blank. The blank thus presents at its outer edge an annular series of tongues 2^b. The blank is then formed into hollow form, being of approximately cylindrical cross-section. In this operation, the inner or uncut margin of the blank is curved upwardly to form an annular flange 2^c, against which the extremities of the tongues 2^b may abut. It is preferred to attach the retainer to the sealing disk 1. For this purpose, the prongs 7 may be struck downwardly from the base portions of some of the tongues 2 and caused to enter the disk 1 in such manner that the disk will be fastened to the retainer, as illustrated in Fig. 3. In the forming operation, the base- portions of the tongues are curved upwardly to a point 8 and there form an acute angle with the part 8^a which carries the flange 2^c. The material is scored at this point, as indicated at 9, to weaken the retainer. The tongues are scored on their inner surfaces, as indicated at 10, 10^a. The purpose of the scoring is to so weaken the retainer that if any effort is made to dislodge it from the bottle-mouth, the retainer will be injured or ruptured, so that the result can be seen at a glance. It is preferred to equip the edge of the flange 2^c with a perforate lip or ear 11, through which an instrument may be inserted to effect the withdrawal of the retainer. The ear 11 is preferably in the plane of the upstanding inclined flange 2^c, so that an implement may be readily inserted through the perforation 11^a of the ear. The operation of collapsing the retainer-ring within the bottle mouth may be performed by means of an annular implement, which serves to compress the retainer-ring between the implement and the shoulder 5, thus flattening the retainer-ring and causing it to expand, so that its outer or folded portion 12 will be forced into close engagement with the overhanging inclined surface 4^a. The outer portion 12 is preferably left in the form of a small hollow annular bead, as shown. When it is desired to remove the

bottle-seal, this may be readily effected by means of a suitable implement, but, in this operation, the retainer will be ruptured, or so injured that the effects of removal will be readily apparent in case an effort is made to use the seal again.

In the modification shown in Fig. 6, a paper disk 1^a is substituted for the disk 1. In this case, the peripheral portion of the disk 1 is provided with a flange portion 13, which conforms to the lip of the bottle and is reflected over the same, so that the lip of the bottle will be kept in a clean condition.

In the construction shown in Figs. 7 and 8, the sealing disk is designated 1^b; and the retainer is designated 14. In this form, the construction is similar to the construction heretofore described, except that the central portion 15 of the metal is not cut away, but remains as a disk, bordered by the annular collapsible retainer-ring 2^a, which is of approximately the same construction as the retainer-ring 2. In this case, it is preferred to partially sever and force upwardly a lug 16, struck from the disk 15, thus providing a channel 16^a through which an implement may be inserted to enable the retainer to be removed.

The effect of incising the metal of the retainer in the manner illustrated in Fig. 5, is to facilitate the bending of the material into hollow form, also to facilitate the operation of flattening the retainer; and finally to enable the retainer to be more readily ruptured when an effort is made to remove the seal from the bottle. It frequently happens that when the seal is being removed a large number of the scored tongues 2^b are broken off, while the uncut portion of the retainer-ring 2 is ruptured.

In the modified construction shown in Fig. 9, 2^c represents a retainer-ring, the construction of which is similar to the first-described construction, except that the retainer-ring is formed from a strip of sheet metal which is curved to annular form, and also shaped to form a hollow ring. In this case, the end portions 17 and 17^a of the strip are overlapped and joined by striking the metal at a point 18.

If desired, a cork disk, or plug, extending downwardly to the line 19 (Fig. 1) may be inserted in the bottle-neck. In such case the disk 1 may be omitted, if desired.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitation should be understood therefrom.

What I regard as new and desire to secure by Letters Patent is:

1. The combination with a receptacle having a mouth-portion provided with a seat and a recessed wall above said seat presenting an overhanging surface, of a sealing medium resting on said seat, and a retainer having a hollow annular part of non-resilient material adapted to be permanently expanded beneath said overhanging surface.

2. A closure device for receptacles, comprising a sealing disk and a retainer of non-resilient sheet metal having an annular hollow collapsible portion adapted to be forced in the collapsing operation into engagement with the internal overhanging wall of the recessed mouth of the receptacle.

3. In a closure device, comprising a sheet metal member having a hollow annular portion with radial incisions therein and having also an upwardly struck portion adjacent the inner diameter of the hollow annular portion, said hollow annular portion being collapsible, thereby to expand the ring to a larger diameter, for the purpose set forth.

4. A closure device, comprising a sealing disk, and a hollow collapsible retainer-ring of non-resilient sheet metal equipped with a series of prongs extending into the sealing disk, for the purpose set forth.

5. A closure device, comprising a sealing disk, and a hollow collapsible retainer-ring secured thereto, said retainer-ring composed of an annular piece of sheet metal having its inner marginal portion turned upwardly and having its outer portion provided with a series of radial incisions, forming tongues, said tongues curved upwardly and inwardly and having their extremities disposed adjacent said upwardly turned inner margin.

6. A closure device, comprising a hollow collapsible retainer-ring having radial incisions therein, forming tongues, said tongues having transverse scorings across them, affording lines of weakening.

7. A closure device, comprising a disk, a collapsible retaining member of non-resilient material co-acting therewith adapted to engage under an overhanging surface and shaped to expand permanently to a larger diameter to engage said overhanging surface, and means associated with said retainer for maintaining the same in expanded position.

ALBERT C. GRUNWALD.

In presence of—

O. C. AVISUS,

J. G. ANDERSON.