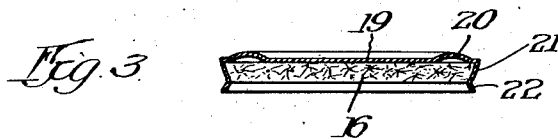
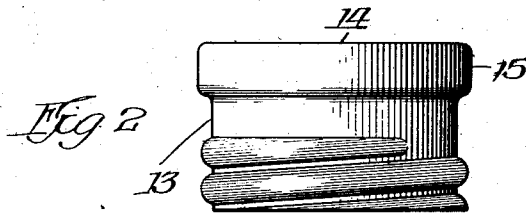
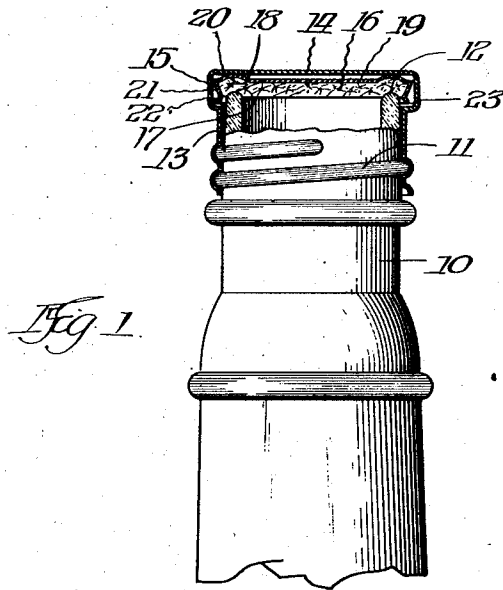


R. E. BRUNS.  
SEALING CAP.

APPLICATION FILED OCT. 9, 1918. RENEWED OCT. 20, 1920.

1,361,225.

Patented Dec. 7, 1920.



Witness:  
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# UNITED STATES PATENT OFFICE.

RICHARD E. BRUNS, OF CHICAGO, ILLINOIS.

## SEALING-CAP.

1,361,225.

Specification of Letters Patent.

Patented Dec. 7, 1920.

Application filed October 9, 1918, Serial No. 257,443. Renewed October 20, 1920. Serial No. 418,341.

*To all whom it may concern:*

Be it known that I, RICHARD E. BRUNS, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sealing-Caps, of which the following is a specification.

My invention relates to sealing means for bottles and similar containers and has reference to an improvement on the construction disclosed in my co-pending application, Serial No. 220,142, filed March 4, 1918.

One of the most important considerations in the manufacture of sealing devices for bottles of the character here contemplated is that of economy, not only in manufacturing cost but in raw materials. It is common in packing certain food products to employ a relatively long cork for sealing the container and, in addition, to provide a metallic screw cap which incloses the bottle top. After the cork has been removed, however, it is discarded and the metal cap acts merely as a dust excluding device having no practical sealing effect. Thus the relatively large quantity of cork has no function other than that of initially sealing the container, and is, so far as the consumer is concerned, a waste product. In my construction I secure the sealing effect by the use of a relatively thin disk of cork, which may, for the reasons hereafter explained, be of cheap quality, furthermore, the disk continues to perform its function after the original seal is broken.

One of the fundamental principles observed by packers is that no metal likely to corrode shall be permitted to remain in contact with the material in the package and this has prevented the adoption of disk sealing constructions due to the difficulty in retaining the disk in proper relation to the cap. If the disk was firmly secured to the cap the disk was necessarily rotated with the cap during the sealing operation and any irregularity in the top of the bottle served to grind the disk and destroy its value as a sealing agent.

The construction disclosed herein possesses all the advantages of that disclosed in my co-pending application referred to and in addition has numerous other advantages. One of the important advantages of the present construction is in that the cork disk is mechanically held in proper relation to the cap. This serves to avoid any difficul-

ties due to uncertainty of the connection by adhesives. A further advantage is that the device will effectually seal the bottle notwithstanding any irregularities in the top edge. The cork disk which I provide will be of such thickness and resiliency as to overcome any slight imperfections in the finish of the bottle and securely seal the contents thereof. This is possible only because of the fact that the disk is applied to the top edge of the bottle and is not rotated after having been seated thereon; there is therefore no grinding effect but a straight pressure, the screw-cap rotating on the anti-friction bead or rib provided on the upper surface of the disk container. The rib or anti-friction bead is located directly above the top edge of the bottle and therefore the clamping force is applied at exactly the right point. Furthermore, the force is applied near the periphery of the cap and thus the metal employed in the cap may be of thinner gage than would be possible if the clamping force were applied at a point near the center thereof.

The invention will be more readily understood by reference to the accompanying drawing, wherein,

Figure 1 is a fragmentary elevation partly in section showing the cap as applied to a bottle of common form;

Fig. 2 is an enlarged elevation of the cap, and,

Fig. 3 is a sectional view through the sealing disk and its holder.

In the drawings it will be seen that the bottle 10, is of the usual form and is provided with cast threads 11, thereon. The top edge 12, of the bottle is of the usual rounded form, no change being necessary over the construction as furnished by the glass manufacturer. This is an important feature as it requires no special shape.

The bottle is sealed by means of a screw cap comprising the cylindrical threaded portion 13, the top wall 14, and the intermediate annular portion 15. An important feature in the matter of economy in cost of manufacture is that the annular portion 15 is spun in the cap thus avoiding the handling of a separate part such as shown in my prior application. The sealing device also includes an imperforate cork or composition cork disk 16, which covers the top of the bottle and is adapted to be compressed as shown at 17, to tightly fit over

the rounded edge 12, thereof. The circular depression formed in the cork disk by the act of forcing the disk onto the top edge of the bottle is permitted because of the provision of a correspondingly shaped recess 18, in the retaining device for the disk. This retaining device comprises a metallic disk portion 19, having the lateral annular bead 20, the concave side of which provides the recess 18. It also includes a downwardly and inwardly inclined marginal flange 21, which terminates in a short diagonally projecting flange 22. The flange 21, provides a space the outlet from which is contracted and the cork disk is forced into this space. The flared flange 22, serves to assist in guiding the disk as it is forced into the retainer and also for the purpose of engaging with the adjacent wall 23, of the cap which constitutes the bottom wall of the spun enlargement 15. By this means the disk is forced from engagement with the bottle when the screw-cap is retracted.

It will be noticed that the disk is imperforate and that it is firmly united with the cap by mechanical means. The retaining device and the cork disk do not rotate with the screw-cap and there is therefore no tendency to grind the disk in event of any unevenness in the top surface of the bottle. The area of frictional resistance between the screw-cap and retaining disk is considerably reduced by providing the annular bead 20, on the metallic retainer, and the concave side of the bead serves the purpose of providing a recess within which the material of the sealing disk may be accommodated as the disk is forced onto the extremity of the bottle. The location of the bead at the point indicated is desirable as it is directly over the extremity of the bottle and is near the periphery of the screw-cap. Thus the force exerted by the screw-cap, tending to clamp the disk onto the top of the bottle, is near the side walls of the screw-cap and there is a reduced tendency to bend or distort the top wall 14, of the screw-cap. In the use of this device it will be seen that the container may be effectually sealed each time it is opened and that the screw-cap acts other than as a mere means for excluding dust. In other words, the invention comprises a sealing device operable throughout the life of the container, in which the sealing disk is mechanically held in position, is not rotated on the top of the container and in which no metallic parts are in contact with the substance within the container.

I claim:

1. In a sealing device for a bottle having a rounded upper edge, the combination of a screw cap having an annular enlargement in its upper end, a metallic retaining device loosely held in said enlargement, an imperforate cork disk and means for mechanically

securing the cork disk in said retaining device, substantially as described.

2. In a sealing device for a container, the combination of a screw cap having an annular enlargement spun in its closed inner end, a metallic retaining device, the flanged periphery of which occupies said enlargement with capacity for limited freedom of vertical movement, the flange on said retaining device defining an outwardly converging space, substantially as described.

3. In a sealing device, the combination of a screw cap having an annular enlargement in its closed end, a metallic retaining device, the flanged periphery of which occupies said enlargement with capacity for limited freedom of vertical movement, an imperforate cork disk, means for firmly uniting said disk to the retaining device, and an anti-friction bead provided on the retaining device near the periphery thereof, substantially as described.

4. In a sealing device, the combination of a screw cap having an annular enlargement in its closed end, an imperforate sealing disk, a disk retaining device, means on said retaining device for providing an outwardly converging space within which the cork disk is forced, and means on the retaining device located in line with the end of the bottle for permitting lateral deflection of the cork disk to conform to the contour of the extremity of the bottle, substantially as described.

5. In a sealing device, the combination of a screw cap having an annular enlargement in its closed end, a retaining device permanently held in said enlargement with capacity for limited freedom of movement, said retaining device comprising a metallic disk having an integral intumed marginal flange, an imperforate sealing disk adapted to be forced into the tapering space thus formed, and means carried by the metallic disk for accommodating lateral deflection of the cork disk to conform to the contour of the periphery of the retainer, substantially as described.

6. In a sealing device, the combination of a screw cap having an enlarged space in its closed end, a retaining device mounted in said space, an imperforate sealing disk means for mechanically uniting the disk and the retaining device, an annular bead being formed on said retaining device at a point near the periphery of the latter, said bead providing a recess adapted to accommodate the deflection of the sealing disk at its engagement with the extremity of the retainer, substantially as described.

Signed at Chicago, Ill., this 5th day of October, 1918.

RICHARD E. BRUNS,

Witness:

T. D. BUTLER.