

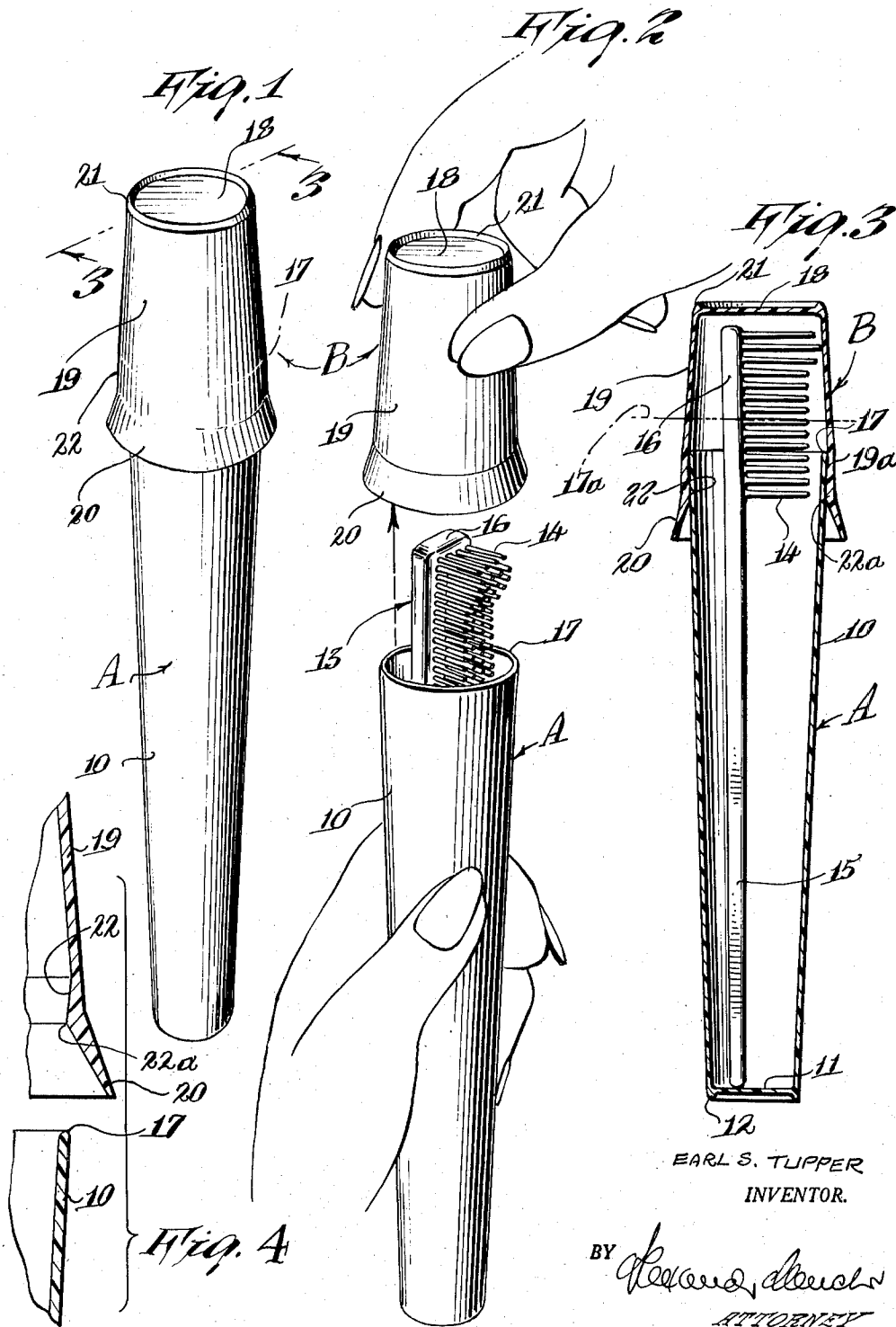
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TOOTH BRUSH CONTAINER AND COVER

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TOOTH BRUSH CONTAINER AND COVER

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6 Claims. (Cl. 150—.5)

This invention relates generally to a plastic container and cover for toothbrushes or the like, but more specially to a container and cover of a gauge sufficient to be self shape-retaining and yet subject to local deformation at areas of pressure and further being capable of being reused as a cooperating container and cover, or alternately the container and cover may be used independently of each other as reusable closure for bottles or the like.

The primary object of the invention herein resides in the provision of a reusable container and frictionally engageable cover for toothbrushes or the like which will hermetically seal the toothbrush therewithin in a sanitary manner owing to the nature of the material forming the container and cover and further owing to the construction of the parts, the sealing being effected at the telescoping and engaging surfaces of inner and outer frusto-conical portions which are subject to local deformation at areas of pressure and which provides live contacting and frictionally compressive engagement.

It is still another object of the present invention to provide a container and cover of the above characteristics wherein the container and cover may be used independently of each other as reusable closures for bottles or the like and wherein the nature of the material forming the closure and container as well as the frusto-conical construction thereof affords a hermetic seal for the contents of the bottles.

A still further feature of the invention resides in the provision of a container and closure of the above characteristics which are preferably formed of a thermoplastic such as polyethylene, treated styrene, vinyl, derivatives thereof or other substance having similar physical characteristics, all being locally distortable and capable of withstanding and yielding to shock without breakage or fracture, and further being flexible and sufficiently soft for effecting the hermetic seal therebetween. In addition, the material used is non-absorptive to and not readily wetted by water, odorless, resistant to acids, alkalis, solvents and other chemicals at ordinary temperatures. Moreover, the material does not soften far below the boiling point of water, is resistant to mildews, micro-organisms, and insects and absorbs blows and shocks by ready yieldability. Furthermore, the container and closure are capable of a degree of distortion to enable easy storage for transportation when quarters are cramped and are capable of easy expansion and contraction thereby having capacity for variations in temperature and pressure.

Although polyethylene has been found to be most suitable from which the container and cover are formed, as mentioned other thermoplastic materials reduced to similar physical properties are applicable.

Another object of the invention resides in the provision of a container and cover for toothbrushes or the like which is strong, easily cleaned, durable, resistant to wear, tear, shocks of handling, storage and impact, is

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electrically and heat-wise non-conductive and is capable of reusability.

A further object of the invention resides in the utilization of easily yieldable, thin-walled material in the formation of the container and cover which are strengthened in an improved manner despite thinness of gauge by virtue of the frusto-conical shape of the component parts.

It is still another object of the present invention to provide a plastic container and cover therefor of the above characteristics which owing to the nature of the material employed and to frusto-conical shape elements may be press fitted together to form a hermetic seal, or may be used independently as closure for bottles or other vessels to be press fitted downwardly thereon to hermetically seal the contents of the bottle therewithin.

These objects and other incidental ends and advantages of the invention will hereinafter appear in the progress of the disclosure and as pointed out in the appended claims.

Accompanying this specification are drawings showing a preferred form of the invention wherein:

Figure 1 is a perspective view of a preferred embodiment of the present invention showing the closure in operative position upon the container to hermetically seal a toothbrush therewithin;

Figure 2 is a perspective view showing the manner of removing the closure from the container to expose the toothbrush therewithin;

Figure 3 is a longitudinal sectional view taken along the line 3—3 of Figure 1;

Figure 4 is an enlarged, exploded and fragmentary view of the cover and container showing the engageable portions in independent positions.

Referring now more in detail to the drawings, and more particularly to Figures 1-3, there is shown a type of container and cover for toothbrushes or the like suitable for reusability. This type of container has a friction engaging type of cover. Thus, A represents the container member and B the cover therefor. Container A includes an elongated frusto-conical side wall 10 having a circular bottom wall 11. As shown, the side wall 10 is rounded and slightly outwardly tapered from the bottom wall 11. The undersurface of bottom wall 11 is integrally formed with the peripheral bead 12 providing linear contact with the supporting surface and preventing adhesion thereto when the bottom wall is moist. Bead 12 further resists deformation.

The container A is adapted to contain therewithin a toothbrush 13 with the lower end of the toothbrush handle 15 resting on the bottom wall 11 and the head 16 and bristles 14 extending partially above the open upper edge of the container. Items other than toothbrushes are storable such as fluids, the cover serving as a jugger.

Container A is made of a material locally deformable to pressure and at the same time is additionally rigid to be self shape-retaining. Cover member B is made of the same material and of comparable gauge as container A and cooperates with the open peripheral edge 17 of the container and adjacent wall portions to aid the shape-retaining characteristics thereof and to bring about the hermetical sealing line and areas of contact as will hereinafter appear.

Cover B is provided with a bottom circular central wall 18 and terminates edgewise in a depending, outwardly flared frusto-conical side wall 19 adapted to receive therewithin in sealing engagement the peripheral edge 17 of the container A (Figure 3). The lower peripheral edge of the side wall 19 is integrally formed with an outwardly flared frusto-conical skirt 20 which by vir-

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tue of its structure serves as a reinforcing rim for the closure B arresting the tendency of easy collapsing and deformability of the cover member thereat and further serves as a grip for removal of said closure. It will be noted that when the cover B is in operative position on the container A (Figure 3), a portion of the toothbrush head 16 and bristles 14 project above the container edge 17 so that upon removal of the closure B (Figure 2) the upwardly projecting head 16 permits the easy removal thereof from the container A.

The upper surface of central wall 18 is integrally formed with a peripheral rim 21 reinforcing the central wall and providing linear contact with the supporting surface when the closure is inverted whereby to prevent adhesion when moist. Cover B as stated, is of the same material and of comparable gauge as container A, and is likewise capable of local deformability, the distortion, however, being controlled and arrested by the reinforcing effect of the skirt 20 and rim 21 as described.

Due to the cooperating frusto-conical structures of the cover and container members and the deformable material employed, a hermetic seal is effected therebetween at least along the peripheral edge 17 of the container in contact with the inner face of the side wall 19 of the closure to retain the toothbrush 13 or other contents fluid or otherwise in a sanitary and air-tight condition until used.

It will be noted that the cooperating and oppositely inclined frusto-conical side walls 19 and 10 not only increase the pressure of the sealing line contact area between container edge 17 and the cover B, but increase the rigidity of the combination at this area. To extend the line contact area to a live surface engagement and to facilitate application of the cover to the container, side wall 19 above skirt 20 develops into a substantially cylindrical or frusto-conical bore 22 oppositely inclined to 19, the skirt 20 preferably increasing in thickness as it approaches and meets the base of the bore as at 22a, as shown in Figure 3. It is to be noted that the outside diameter of the container peripheral edge 17 exceeds the diameter of bore portion 22a and the greatest diameter of bore 22. Owing to this construction, a muted click type of action is afforded when pressing the cover B onto container A beyond portion 22a thereby sealing the contents. When removing cover B from the container and at the separation of edge 17 from bore portion 22a, a muted pop sound is emitted showing the breaking of the seal.

In applying cover B on container A, it is merely necessary to progressively press the cover downwardly thereon until container edge 17 is first forced beyond bore base 22a; then frusto-conical wall 10 adjacent the top passes through bore 22 with less resistance and edge 17 extends somewhat beyond the top of bore 22 causing a stretch of conical side wall 19 as shown in Figure 3 at portion 19a whereby the cover wall below container edge 17 and extending to portion 22a engages the container side wall under tension for live, frictional and hermetically sealing engagement. If edge 17 is forced into the cover as shown in phantom in Figure 3 to line 17a, thereby increasing internal pressure of the container, the cover may return to its originally set position by itself or by slight outward pressure applied by the hand. On the other hand, if edge 17 is forced by manual pressure to a greater extent into the interior of cover B, the stretch and deformability of the material will bring about an exceedingly tight fit which will require an increased amount of pressure for removal.

Although it is preferable to utilize the same material as well as gauge in the formation of both cover and container, it is understood that slight variations to suit requirements and economy may also be used. Both the container and cover may be formed by any of the known methods and the manner of production thereof in no way affects the invention herein. Included in such meth-

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ods are injection, compression, blow molding and vacuum forming means.

Rigidity is afforded to the container and cover when connected together; while in separated condition; the parts are self shape-retaining even though the open end portions thereof are by reason of the gauge of the material easily deformable. Such rigidity and self shape-retaining characteristics are due to the frusto-conical structure of the side walls 10 and 19 and the frusto-conical skirt 20 and bore 22.

The container A and cover B are capable of serving as a form of packaging accomplished at a filling plant where contents are initially introduced and maintained in seal-tight condition. Thereafter, the consumer may reuse such package for the same or similar purposes either as a combination or individually.

It is distinctly understood that minor changes and variations in the size, shape, integration, combination, location and material of the parts of the invention herein may all be resorted to without departing from the spirit of the invention and the scope of the appended claims. Furthermore, the container and cover when in engagement for hermetical sealing may serve as a fluid shaker for industrial, commercial and home use.

I claim:

1. A container and hermetically sealable and removable cover therefor, said container having a frusto-conical side wall and an open end at the largest end of said side wall, a cover for said container having an opposing frusto-conical side wall, an oppositely tapered rim portion terminating from the cover side wall and engageable externally and telescopically with the container side wall to effectuate a live sealing therebetween, the diameter of the open edge of the container member exceeding any inner diameter of the engageable cover side wall, said container and cover being formed of a locally deformable and resilient thermoplastic material including polyethylene.

2. A container and hermetically sealable and removable cover therefor, each having an oppositely inclined frusto-conical side wall, the container having an open end at the largest diameter thereof, the cover having a second and oppositely inclined side wall portion beyond and from the rim and telescopically engageable with the container side wall to effectuate a live sealing therebetween, the outside diameter of the open edge of the container exceeding any diameter of the cover second inclined side wall, said container and cover being formed of a locally deformable and resilient thermoplastic material including polyethylene.

3. A container and hermetically sealable and removable cover therefor, each having an oppositely inclined frusto-conical side wall, the container having an open end at the largest diameter thereof, the cover having an outwardly flared rim flange and having a second frusto-conical side wall portion opposite in inclination to the first and adjoining the base of said flange, said second frusto-conical side wall portion being adapted to be engageable with the container side wall to effectuate a live sealing therebetween, the outside diameter of the container edge exceeding the diameter at said base, said container and cover being formed of a locally deformable and resilient thermoplastic material including polyethylene.

4. A container and hermetically sealable and removable cover therefor, each having an oppositely inclined frusto-conical side wall, the container having an open end at the largest diameter, the cover having an outwardly flared rim flange and having a second frusto-conical side wall portion opposite in inclination to the first, a thickened junction between the second frusto-conical side wall and the outwardly flared rim flange for reinforcing the rim of the cover member whereby said second frusto-conical side wall portion is engageable with the container side wall to effectuate a live sealing there-

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between, the outside diameter of the container edge exceeding the diameter of said junction, said container and cover being formed of a locally deformable and resilient thermoplastic material including polyethylene.

5. A container and hermetically sealable and removable cover therefor, each having an oppositely inclined frusto-conical side wall, the container having an open end at the largest diameter, the cover having an outwardly flared rim flange joining the edge of the cover member whereby the container adjacent the edge portion 10 is engageable with the cover side wall to effectuate a live sealing therebetween, the outside diameter of the container edge exceeding the diameter at the base of said rim flange, said container and cover being formed of a locally deformable and resilient thermoplastic material 15 including polyethylene.

6. A container and hermetically sealable and removable cover therefor, the container having a frusto-conical side wall and having an open end at the largest diameter thereof, and the cover having a differentially inclined 20

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side wall engageable with the container side wall to effectuate a live sealing therebetween, an outwardly flared flange extending from the edge of said cover side wall to reinforce said side wall, the diameter of the edge of the container exceeding the greatest inner diameter of the engageable cover side wall, at least one of the said container and cover elements being formed of a locally deformable and resilient thermoplastic material including polyethylene.

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