

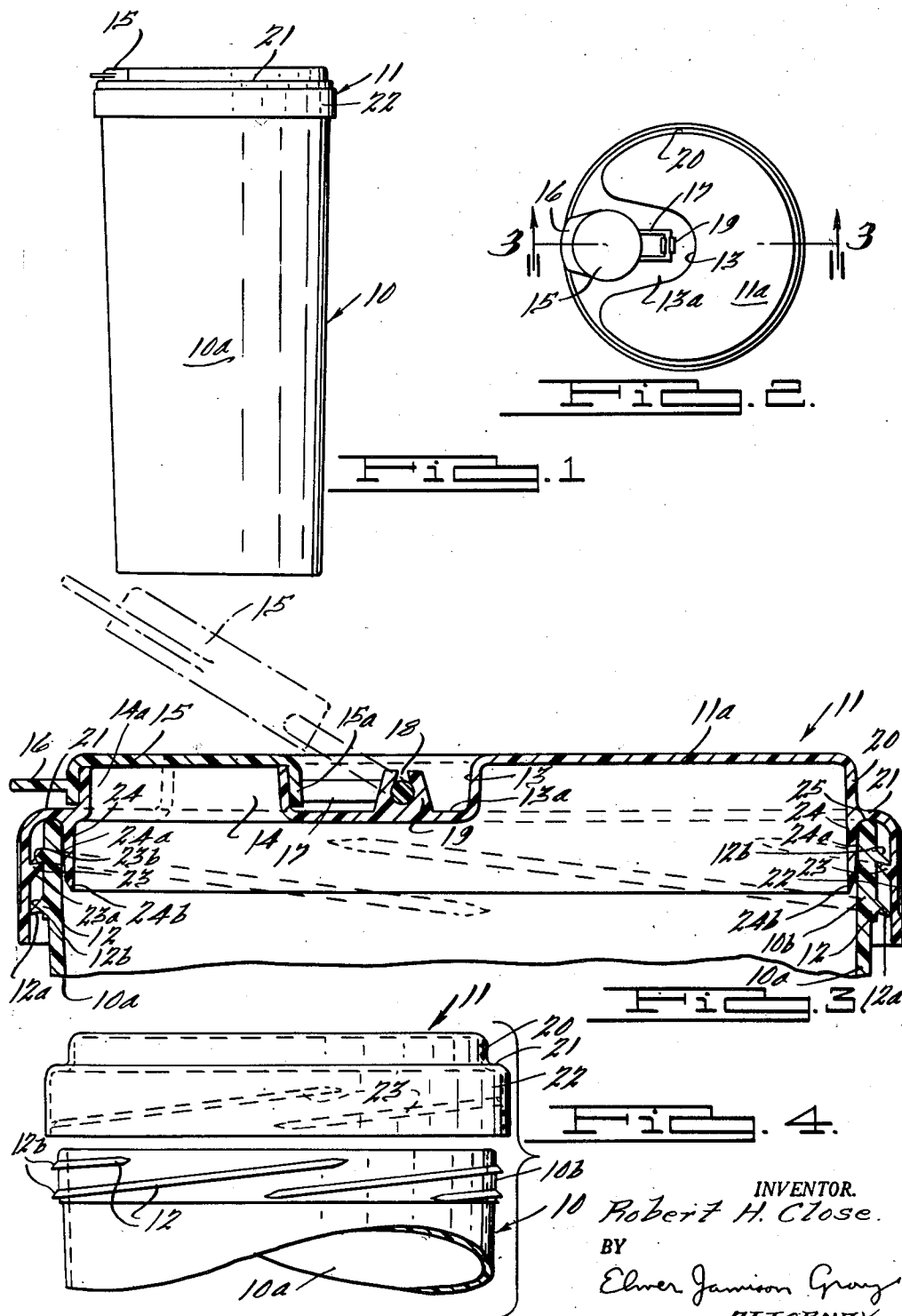
April 30, 1957

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2,790,475

PLASTIC CONTAINER

Filed Feb. 10, 1955



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PLASTIC CONTAINER

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Application February 10, 1955, Serial No. 487,250

8 Claims. (Cl. 150—5)

This invention relates to plastic containers and particularly to a container molded preferably from polyethylene plastic material and comprising an open top receptacle having a closure or cover adapted to be drawn down by screw action into sealing relation to the upper annular edge of the receptacle. The plastic container constructed in accordance with the invention is susceptible to various uses, such as for containing or storing in a refrigerator foods, beverages and liquids, especially such liquids as fruit juices and the like. The container may also be used as a shaker for mixing liquid ingredients, and when designed for the reception of liquids the screw closure for the receptacle is preferably provided with a pouring opening or spout having its own sealing cap and by means of which the liquid contents of the receptacle may be conveniently dispensed without necessitating the removal of the main closure from the receptacle.

An important object of the invention is to provide an improved container molded from plastic material and comprising an open top receptacle and a closure formed with a downwardly opening annular channel adapted to receive the upper annular edge of the receptacle, the closure and receptacle being constructed to provide for threaded engagement thereof enabling the closure when rotated or turned on the receptacle to be drawn down into position to dispose the upper closed end of the channel in proximate relation to the upper edge of the receptacle.

A further object of the invention is to provide a plastic container of the foregoing described construction wherein the closure or cover is molded to form laterally spaced annular side wall flanges depending from the top of the cover and forming an annular channel to receive the upper edge portion of the receptacle and into which this edge portion extends when the closure and receptacle are assembled. In accordance with this aspect of the invention the outer side wall flange, defining the outer wall of the channel, is formed with internal threads adapted to mate with external threads on the upper edge portion of the container. On the other hand, the inner depending side wall flange of the channel is disposed to provide an abutment or retainer wall adapted to resist disengagement of the threads and separation of the cover and receptacle under conditions where the flexible container is squeezed or partially collapsed inwardly by the pressure of the hand. This inner side wall flange preferably has its outer surface tapered or inclined upwardly and outwardly to its locality of juncture with the top web portion of the channel, and at this juncture there is preferably formed a curved surface adapted to coact with the curved upper edge of the container to provide a seal over a substantial area.

In accordance with a further aspect of the invention the cover or closure for the container has a depressed or recessed portion at one side, and within the recess thus formed the cover is provided with an aperture or opening formed with an upstanding pouring lip adapted to be received for closure or sealing purposes and to snugly fit

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within a recessed portion of a swingable cap hinged at a point inwardly of the pouring lip. This cap as well as the pouring lip are disposed within the recess, preferably substantially flush with the top surface of the main closure or cover, thus protecting the hinged cap during use and providing an improved construction in which the upper surfaces of the container and the hinged cap form a flat top facilitating stacking of containers one on another and also enabling articles to be placed thereon.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

Fig. 1 is a side elevation of a flexible plastic container or receptacle constructed in accordance with the present invention.

Fig. 2 is a top plan view thereof.

Fig. 3 is a fragmentary enlarged vertical section taken substantially through lines 3—3 of Fig. 2 looking in the direction of the arrows.

Fig. 4 is a fragmentary exploded view showing in side elevation the cover and the upper end of the receptacle.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

Referring to the drawings, wherein there is illustrated by way of example one embodiment of the present invention, there is shown at 10 a hollow container or receptacle open at its top and adapted to be closed by means of a cover or lid 11, the container and cover being preferably molded from polyethylene plastic material and, hence, possessing the desirable properties of being pliable or yieldable as well as unbreakable. The receptacle 10 comprises an annular side wall 10a which terminates at its upper end in a thickened annular edge portion 10b which, in the molding process, is integrally formed with a series, such as four separated screw threads 12. Each of the threads 12 is formed with a lower flat thread engaging surface 12a and an upper downwardly tapered or cam surface 12b, this construction providing wedge shaped threads as illustrated in Fig. 3.

The major area 11a of the top surface of the closure or cover 11 is preferably flat and at one side of the cover there is provided a recessed or depressed portion 13 forming a recess or well of suitable configuration, such as shown in Fig. 2. The bottom wall 13a of the recess is offset below the top surface 11a of the cover. Proximate to the margin of the cover at one side thereof the bottom wall 13a of the recess is formed with a pouring opening or orifice 14, circular in configuration and bounded by an upstanding annular pouring lip or flange 14a. This pouring lip provides in effect a spout permitting the liquid contents of the container to be conveniently dispensed or poured therefrom. The opening 14 in the cover is adapted to be closed and sealed by means of a cap 15 which is preferably molded from polyethylene plastic material as a separate unit or piece. The cap or closure 15 is provided with a depending annular wall flange 15a producing a recess into which the annular lip 14a snugly fits. As shown in Fig. 3 the flange 15a of the cap and the flange or lip 14a of the cover have complementary tapered surfaces so that when the cap is forced down it will effect tight sealing engagement with the pouring lip 14a. The cap 15 is preferably provided with a project-

ing finger piece 16 by means of which it may be lifted or swung upwardly, as shown in broken lines in Fig. 3, to permit the contents of the container to be dispensed through the pouring opening 14. The cap is also molded to provide an integral inwardly extending bail or yoke piece 17, the end of which is adapted to be pressed into a wedge shaped slot 18 in a bifurcated lug 19 projecting from the bottom wall 13a of the recessed portion 13. This interlocking connection between the bail 17 and the lug 19 provides a hinge mounting for the cap 15 by means of which the parts may be readily assembled.

In the present embodiment of the invention the outer side of the cover or closure 11 is provided with a depending double flange or wall formation which produces an annular channel of substantial depth to receive and confine the upper free edge portion of the container or receptacle 10. In the preferred construction the top of the cover 11 is formed with a depending annular side wall 20 which terminates at and is interrupted by the depressed portion 13. As indicated in Fig. 2 the side wall 20 merges into the side wall of the depressed portion 13. In the present instance the side wall portion 20 of the cover is laterally offset to provide an annular ledge or web portion 21 which in turn merges into a depending outer wall flange 22. This flange is formed with a series of separated threads 23, such as four in number, complementary to the corresponding threads 12 on the container. The threads 23 in cross-section may be similar to the threads 12 except reversed therefrom, and accordingly each thread 23 is formed with an upwardly tapering lower surface 23a and an upper flat thread engaging surface 23b. The threads 23 and 12 are circumferentially inclined and the surfaces 23b and 12a will have threaded engagement when the cover is screwed onto the container.

The side wall 20 of the cover merges into an inner depending wall flange 24 which is spaced inwardly of the wall flange 22 and extends generally parallel thereto. The wall flange 24 is formed with an upwardly and outwardly tapered surface 24a which preferably terminates at the lower edge of the flange 24 in an annular tapered or bevelled lead edge 24b.

The spaced annular wall flanges 22 and 24 form an annular channel closed at its top by the web portion 21 and dimensioned so as to provide adequate space between the threads 23 and the inner flange 24 for entry of the wall portion 10b when assembling the cover with the container. Insertion or entry of the wall portion 10b of the container into the channel is facilitated by means of the bevelled lead edge 24b and the tapered surface 24a. At the locality of juncture of the tapered surface 24a of the flange 24 and the bottom of the web 21 there is preferably formed a curved surface 25 adapted to conform substantially to the curved upper edge of the container and coact therewith, when the cover is tightened on the container by screw action to provide a liquid seal over a substantial area. In preferred practice the depth of the outer flange 22 is materially greater than the depth of the inner flange 24 so as to provide adequate area for screw threads and also to extend well down over the upper side of the container. Thus, when the cooperating threads of the cover and container are engaged and the cover is screwed down tightly, the upper edge of the container will effect a tight sealing engagement with the bottom surface of the ledge 21 in the region at 25; the proper positioning of the upper edge of the container to effect the seal being aided by the tapered surface 24a of the inner wall flange 24.

Although the arrangement of the threads in the present embodiment provides four starting positions for interengaging the threads upon assembly of the cover with the container, the tapering construction of the threads in fact permits interengagement of the threads in any position of the cover with relation to the container. In

other words, by virtue of the reversed tapered surfaces of the threads on the cover and container the cover may be readily forced down over the top of the container in any relative positions thereof to effect interengagement of the threads due to the flexibility or yield of the wall flange 22.

Since the container, when formed of polyethylene plastic material, is inherently flexibly or pliable the inner wall flange 24 serves the important function of retaining or restraining the upper part of the container against inward displacement under conditions in which the container is squeezed or partially collapsed inwardly by the pressure of the hand. When this occurs the wall flange 24 serves as an abutment or restraining wall effective to resist disengagement of the threads and undesirable separation of the cover from the container.

I claim:

1. A container molded from polyethylene plastic material, comprising an open top receptacle provided around its upper edge portion with external screw threads, a cover for said receptacle comprising a top having a depending marginal wall terminating in a laterally projecting web portion and a pair of outer and inner depending flanges merging into said web portion, said flanges and said web portion forming a downwardly opening annular channel closed at its upper end by said web portion and adapted to receive the upper edge portion of the receptacle, said outer flange having internal screw threads cooperable with said first named screw threads upon turning the cover to draw the upper free edge of the receptacle and said web portion into sealing engagement.

2. A container molded from polyethylene plastic material, comprising an open top receptacle provided around its upper edge portion with external screw threads, a cover for said receptacle comprising a top having a depending marginal wall terminating in a laterally projecting web portion and a pair of outer and inner depending flanges merging into said web portion, said flanges and said web portion forming a downwardly opening annular channel closed at its upper end by said web portion and adapted to receive the upper edge portion of the receptacle, said outer flange having internal screw threads cooperable with said first named screw threads upon turning the cover to draw the upper free edge of the receptacle and said web portion into sealing engagement, and said inner flange being disposed within the upper end of the receptacle in substantially abutting relation thereto when the cover and receptacle are assembled.

3. A container molded from polyethylene plastic material, comprising an open top receptacle provided around its upper edge portion with external screw threads, a cover for said receptacle comprising a top having a depending marginal wall terminating in a laterally projecting web portion and a pair of outer and inner depending flanges merging into said web portion, said flanges and said web portion forming a downwardly opening annular channel closed at its upper end by said web portion and adapted to receive the upper edge portion of the receptacle, said outer flange having internal screw threads cooperable with said first named screw threads upon turning the cover to draw the upper free edge of the receptacle and said web portion into sealing engagement, and said inner flange having its outer surface tapering upwardly and outwardly to form with said web portion a curved surface cooperable with the upper curved free edge of the receptacle to provide a seal.

4. A container molded from plastic material, comprising an open top receptacle and a closure therefor, said closure having outer and inner depending wall flanges and an upper generally horizontal web portion merging into said wall flanges and forming therewith a downwardly opening annular channel closed at the upper end thereof and adapted to receive the upper annular edge portion of the receptacle, said upper edge portion of the receptacle and said outer wall flange being provided respectively

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with external and internal screw threads cooperable upon turning the closure to draw down said web portion into proximate relation to the upper free edge of the receptacle, and said inner wall flange being disposed within and in confronting relation to the upper end portion of the receptacle when the closure and receptacle are assembled.

5. A container molded from plastic material, comprising an open top receptacle and a closure therefor, said closure having outer and inner laterally spaced depending wall flanges joined along the upper portions thereof to form a downwardly opening annular channel having a closed upper end and adapted to receive the upper annular edge portion of the receptacle, one of said wall flanges having internal screw threads and said upper edge portion having at one face thereof screw threads cooperable with said first named threads upon turning the closure to draw down said closed upper end thereof into proximate relation to the upper free edge of the receptacle, and said other wall flange being disposed in confronting relation to the upper end portion of the receptacle when the closure and receptacle are assembled.

6. A container molded from plastic material, comprising an open top receptacle and a closure therefor, said closure having outer and inner laterally spaced depending wall flanges joined along the upper portions thereof to form a downwardly opening annular channel having a closed upper end and adapted to receive the upper annular edge portion of the receptacle, one of said wall flanges having internal screw threads and said upper edge portion having at one face thereof screw threads cooperable with said first named threads upon turning the closure to draw down said closed upper end thereof into proximate relation to the upper free edge of the receptacle, and said other wall flange having its inner surface tapering upwardly in the direction of the upper end portion of the receptacle and disposed in confronting relation thereto.

7. A container molded from plastic material, comprising an open top receptacle provided adjacent its upper edge portion with screw threads, a cover for said receptacle

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comprising a top having a downwardly offset recessed portion at one side and also having a depending marginal wall portion extending from opposite outer ends of said recessed portion, said wall portion terminating in a laterally projecting web portion and a pair of outer and inner depending wall flanges merging into said web portion, said flanges forming with said web portion and the base of said recessed portion a downwardly opening channel closed at its upper edge portion and adapted to receive the upper edge portion of the receptacle, one of said wall flanges having screw threads cooperable with said first named screw threads upon turning the cover to draw down said web portion into proximate relation to the upper free edge of the receptacle.

8. A container molded from plastic material, comprising an open top receptacle and a closure therefor, said closure having outer and inner depending wall flanges and an upper web portion merging into said wall flanges and forming therewith a downwardly opening annular channel closed at the upper end thereof and adapted to receive the upper annular edge portion of the receptacle, said upper edge portion of the receptacle and one of said wall flanges being provided with cooperable thread means adapted upon turning the closure to draw down portions of said channel into substantially sealing relation with the upper edge portion of the receptacle, and the other of said flanges having its inner surface tapering upwardly in the direction of the upper terminal edge of the receptacle.

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