

Nov. 22, 1966

F. J. STEC

3287,053

PLASTIC CONNECTOR WITH INSERT

Filed March 5, 1965

2 Sheets-Sheet 1

FIG. 1

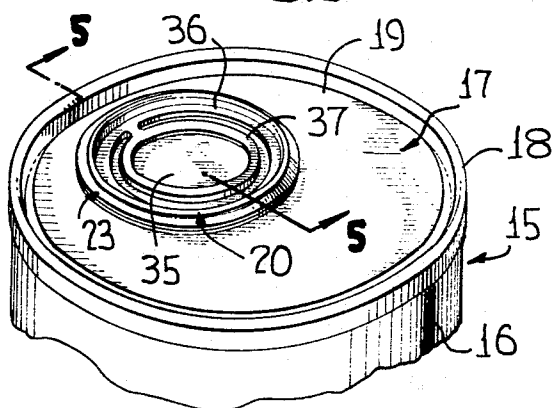


FIG. 2

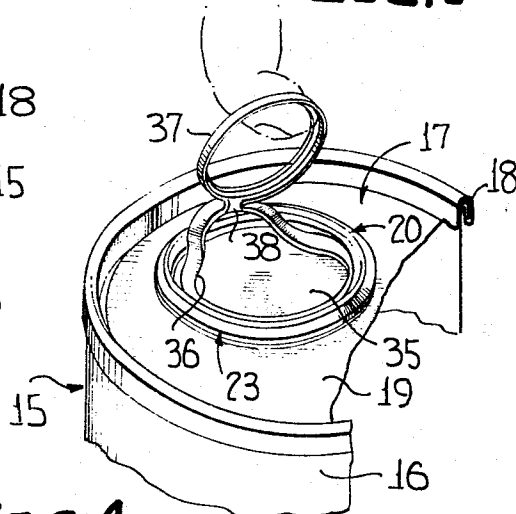


FIG. 3

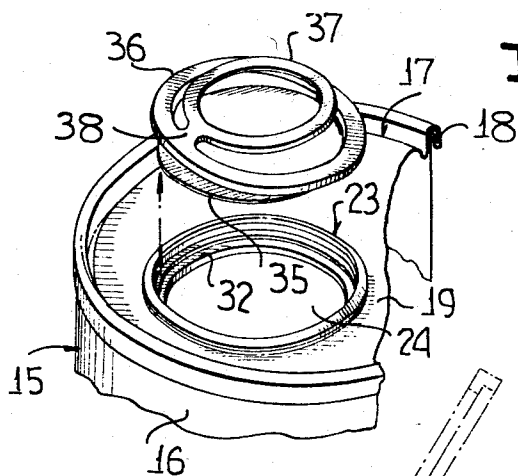


FIG. 4

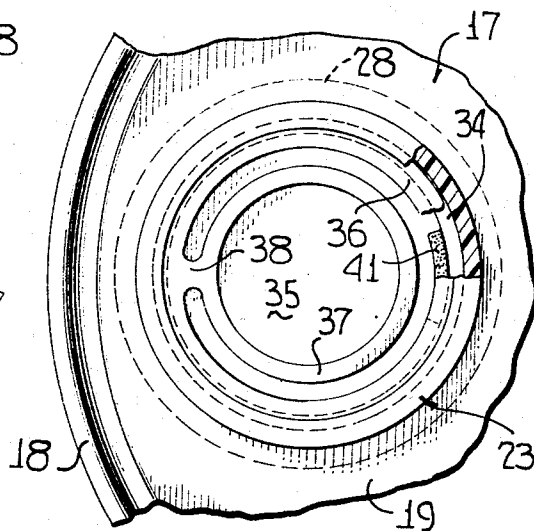
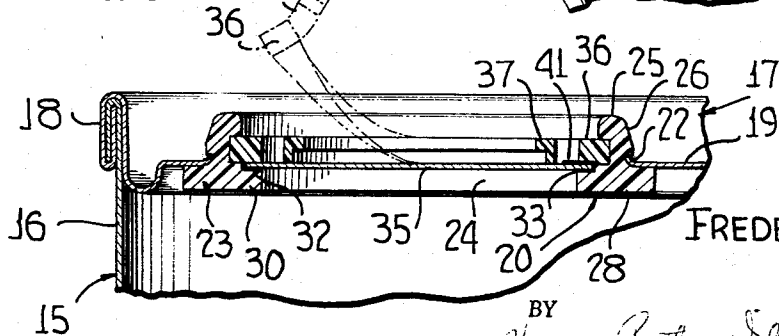


FIG. 5



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2 Sheets-Sheet 2

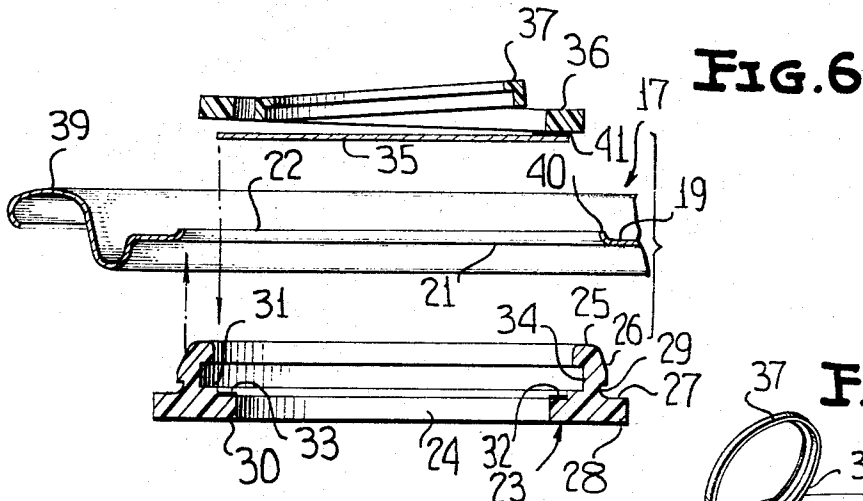


FIG. 6

FIG. 7

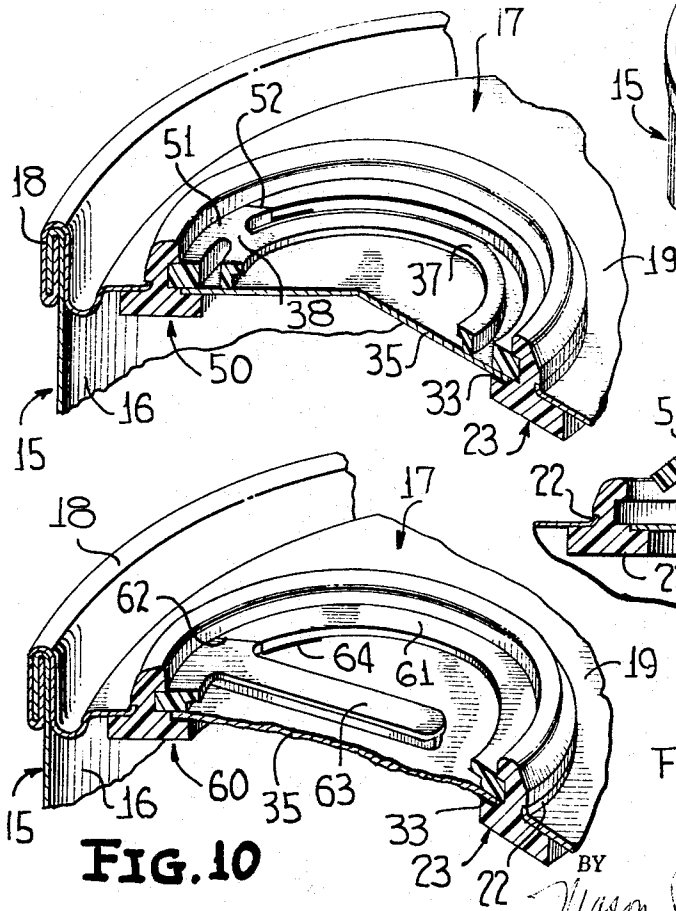


FIG. 10

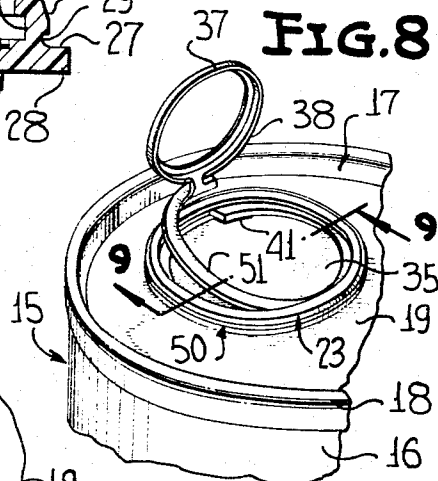


FIG. 8

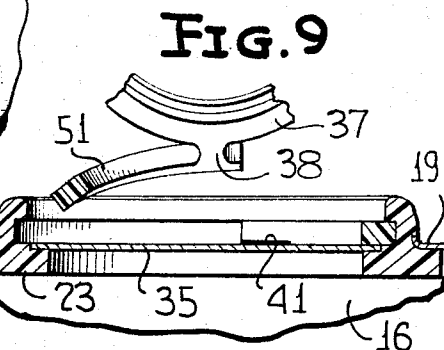


FIG. 9

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1

3,287,053

PLASTIC CONNECTOR WITH INSERT

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6 Claims. (Cl. 292-256.63)

This invention relates in general to new and useful improvements in container construction, and more particularly to a novel connector which may be incorporated in conventional types of containers to facilitate the dispensing of products therefrom.

This invention particularly relates to a plastic connector which may be inserted in an opening in a container end and which plastic connector has means which are readily removable and replaceable for closing a bore therethrough whereby a container equipped with the plastic connector may be readily opened for the purpose of dispensing the contents thereof, and thereafter readily closed.

Another object of this invention is to provide a novel connector which may be readily snapped through an opening in a container panel, the connector being tubular for the dispensing of a product therethrough, a seat surrounding the opening through the connector, a closure disc seatable on the seat in sealed relation, and the removable locking ring carried by the connector normally retaining the closure disc on the seat.

Another object of this invention is to provide a novel dispensing unit which may be readily incorporated in a panel of a conventional container, the dispensing unit including a tubular connector which may be readily snapped into place through an opening in the container panel, and the connector carrying means for readily opening the bore therethrough with the same means being readily useable for the purpose of reclosing the bore.

Another object of this invention is to provide a novel dispensing unit which is particularly adapted for snap-in engagement within an opening in a container panel, the dispensing unit including a tubular connector, and means for closing the tubular connector, the means including a closure disc and a locking ring, the locking ring having a last removed portion which is anchored to the closure disc whereby when the locking ring is removed, the closure disc is automatically removed therewith.

A further object of this invention is to provide a novel dispensing unit for use with conventional types of containers, the dispensing unit being of a construction wherein an associated container may be readily opened and closed with the opening of the container being accomplished by a mere pulling on a portion thereof, and at the same time the disadvantages of present types of easy opening containers are eliminated.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawings:

In the drawings:

FIGURE 1 is a fragmentary top perspective view of a container incorporating the dispensing unit of this invention.

FIGURE 2 is a fragmentary top perspective view similar to FIGURE 1 and shows a first step in the opening of the container of FIGURE 1.

FIGURE 3 is a fragmentary top perspective view showing the container in its open state.

FIGURE 4 is an enlarged fragmentary plan view of the container of FIGURE 1 with portions of the dispensing unit being broken away and shown in section to clearly illustrate the details thereof.

2

FIGURE 5 is an enlarged fragmentary vertical sectional view taken along the line 5-5 of FIGURE 1 and shows the specific details of the dispensing unit and the relationship thereof with respect to the container.

FIGURE 6 is an enlarged exploded transverse vertical sectional view showing the components of the container of FIGURE 1 in their separated state.

FIGURE 7 is an enlarged fragmentary top perspective view of a container incorporating a slightly modified form of dispensing unit.

FIGURE 8 is a fragmentary top perspective view similar to FIGURE 2 and shows the dispensing unit of FIGURE 7 in its partially opened position.

FIGURE 9 is an enlarged fragmentary transverse vertical sectional view taken along the line 9-9 of FIGURE 8 and shows further the details of the dispensing unit of FIGURE 7.

FIGURE 10 is an enlarged fragmentary top perspective similar to FIGURE 7 and shows the details of still another modified form of dispensing unit.

Referring now to the drawings in detail, it will be seen that there is illustrated in FIGURE 1 a conventional type of container which is generally referred to by the numeral 15. The container 15 is illustrated as being in the form of a can which includes a can body 16. The can body 16 has a lower portion (not shown) which is closed in the conventional manner. The upper end of the can body 16 is closed by means of a can end 17 which is secured to the can body 16 by means of a conventional double seam 18. The can end 17 is provided with an end panel 19 which carries a dispensing unit formed in accordance with this invention, the dispensing unit being generally referred to by the numeral 20.

Referring now to FIGURE 6 in particular, it will be seen that the end panel 19 of the can end 17 has an opening therethrough, which opening is referred to by the numeral 21 and is defined by an upstanding peripheral flange 22. In order to effect the sealing of the end panel 19 surrounding the opening 21, it is preferred that the opening 21 be circular in outline although other configurations may be utilized.

The dispensing unit 20 includes a connector which is generally referred to by the numeral 23. The connector 23 is of a tubular construction and has an outline generally corresponding to the outline of the opening 21. It is to be noted that the connector 23 is preferably formed of a resilient plastic material.

The connector 23 varies in cross section axially thereof and includes an outer wall and an inner wall with the inner wall generally defining a dispensing opening 24 through the connector 23.

The outer wall of the connector 23 includes a rounded nose portion 25 to facilitate the movement of the connector 23 through the opening 21. The rounded nose portion 25 terminates in a generally outwardly flaring portion 26. The outer wall of the connector 23 also includes a shoulder 27 which faces in the same general direction as the rounded nose 25 and which is defined by a flange 28. Immediately adjacent the shoulder 27, the outer wall of the connector 23 is recessed as at 29 to receive the flange 22.

The inner wall of the connector 23 is configured so as to define a flange 30 which surrounds the dispensing opening 24. The flange 30 is notched as at 31 to define a seat 32 which faces in the same general direction as the shoulder 27. The seat 32 is preferably provided with a coating of sealing compound 33 for a purpose to be described hereinafter. The inner wall of the connector 23 is also configured to define a groove 34 which is radially outwardly offset with respect to the seat 32 and which opens radially inwardly.

3

The dispensing unit 20 also includes a closure disc 35 which is of a size to be fully engaged with the seat 32, the notch 31 being of a configuration to permit the flush seating of the closure disc 35 on the seat 32. It is preferred that the closure disc 35 be formed of metal and it is feasible to form the closure disc 35 from the same metal which is removed from the end panel 19 in the formation of the opening 21 therethrough. However, it is to be understood that while it is advantageous to utilize the metal removed from the end panel 19 in the forming of the closure disc 35, the closure disc 35 may be formed from other metal or can be formed from materials other than metal, including plastic. When the seat 32 is provided with sealing compound prior to the positioning of the closure disc 35 thereon, sealing of the closure disc 35 with respect to the connector 23 is assured. However, in certain instances, the sealing compound 33 may be omitted.

The dispensing unit 20 further includes a locking ring 36 which is seatable in the groove 34 and which is of a size to overlie the closure disc 35 and retain the same firmly seated on the seat 32. The locking ring 36 is preferably formed of a resilient deformable plastic material to facilitate the removal thereof from the connector 23.

It is intended that the container 15 be of the easy opening type. To this end, the locking ring 36 is provided with a ring type handle 37 which is connected to the locking ring 36 by means of a connecting strap 38, as is best shown in FIGURE 3 for example.

It is to be understood that for the purposes of production, the entire dispensing unit 20 may be assembled as a unit and then passed through the opening 21 in the can end 17. It is to be noted from FIGURE 6 that the connector 23 is passed through the can end from the inner surface thereof so that when the dispensing unit 20 is assembled with the can end 17, any pressure which may be within the container 15 will tend to seal the connection between the connector 23 and the end panel 19 in that the pressure within the container more firmly forces the shoulder 27 against the underside of the end panel 19. As is shown in FIGURE 6, when the connector 23 is assembled with the can end 17, the can end 17 has not been assembled with the can body 16 and is provided with a peripheral flange 39 of a configuration particularly adapted for the formation of the double seam 18. It is pointed out that the opening 21, the flange 22 and the connector 23 are so dimensioned whereby it is merely necessary to snap the connector 23 through the opening 21 for the desired seal to be effected. When the connector 23 is in position in the end panel 19, the exposed raw edge 40 of the flange 22 is completely concealed by the outwardly projecting portion of the connector 23 with the raw edge 40 in pressure engagement with the connector 23, as is clearly shown in FIGURE 5.

Although from a production standpoint it is preferred to completely assemble the dispensing unit 20 before it is positioned within the end panel 19, it is to be understood that it is also possible to utilize the locking ring 36 in the retention of the connector 23 in the panel 19. If desired, the connector 23 per se may be snapped through the end panel 19, after which the closure disc 35 and the locking ring 36 may be positioned within the connector 23. By forming the locking ring 36 of relatively stiff material, it will be seen that the locking ring 36 would reinforce that portion of the connector 23 which projects above the end panel 19 and aid in preventing the inward deformation of the projecting portion of the connector 23.

Referring now to FIGURE 2 in particular, it will be seen that the locking ring 36 is removed from the connector 23 by exerting an upwardly and radially inwardly directed pull on the locking ring through the use of the ring type handle 37. Inasmuch as the handle 37 is connected to the locking ring 36 at a localized point by means of the strap 38, it will be seen that the connection

4

between the handle 37 and the locking ring 36 will define that portion of the locking ring 36 which is first removed from the connector 23, as is clearly shown in FIGURE 2.

In order that the closure disc 35 may automatically be removed with the locking ring 36, that portion of the locking ring 36 which is last removed from the connector 23 is permanently bonded to the closure disc 35 by means of a suitable adhesive 41. The particular configuration of the locking ring 36 is such that the last removed portion thereof is diametrically opposite to the strap 38.

From the foregoing, it will be readily apparent that the container 15 may be opened merely by pulling out the locking ring 36 with the closure disc 35 being automatically removed therewith. It is also to be noted that the locking ring 36 and the handle 37 thereof, being formed of plastic, have no sharp edges on which one's fingers may be cut accidentally during the opening of the container 15. Furthermore, it is to be noted that the connector 23 protects the raw edge 40 while the locking ring 36, for all practical purposes, protects the raw edge of the closure disc 35 when the closure disc 35 is formed of metal.

At this time it is pointed out that the dispensing unit 20 is of a construction whereby reclosure of the container 15 is possible. When it is desired to reclose the container, it is merely necessary to place the closure disc 35 back on the seat 32 and then deform the locking ring 36 so that it again snaps into the groove 34. Inasmuch as the closure disc 35 remains connected to the locking ring 36, it will be readily apparent that there is no need to deform the closure disc 35 during the removal thereof and the closure disc 35 and the locking ring 36 remain assembled as a convenient readily handleable unit.

Referring now to FIGURES 7, 8 and 9 in particular, it will be seen that there is illustrated a slightly modified form of dispensing unit which is generally referred to by the numeral 50. The dispensing unit 50 differs from the dispensing unit 20 only in the details of the locking ring thereof and accordingly, only the modified locking ring will be described here. The locking ring of the dispensing unit 50 is referred to by the numeral 51 and has a finger ring type handle 37 attached thereto by means of a connecting strap 38. However, instead of being continuous, as is the locking ring 36, the locking ring 51 is severed closely adjacent the connection of the strap 38 thereto so that the locking ring 51 is of a split construction with the two ends thereof being separated along a line 52.

In FIGURES 8 and 9 it is clearly shown that when the locking ring 51 is being removed, that portion thereof to which the strap 38 is connected would be removed from the connector 23 first and that the locking ring will be progressively removed so that the opposite end thereof will be the last removed portion. Accordingly, in lieu of the adhesive 41 being placed diametrically opposite to the strap 38, it is applied to the underside of the terminal portion of the locking ring 51, as is clearly shown in FIGURES 8 and 9.

It is to be understood that the locking ring 51 may be formed of a stiffer material than the locking ring 36 and be removed with the same force. On the other hand, if it is formed of the same material as the locking ring 36, it may be more readily removed.

In FIGURE 10 there is illustrated a still further form of dispensing unit which is generally referred to by the numeral 60. The dispensing unit 60 differs from the dispensing unit 20 only in the details of the locking ring thereof. The locking ring of the dispensing unit 60 is referred to by the numeral 61 and is of the same split type as the locking ring 51. The ends of the locking ring 61 abut along a line of separation 62. The locking ring 61 differs from the locking ring 51 in the construction of the handle thereof, the handle being referred to by the numeral 63. In lieu of the handle being in the form of a ring, the handle 63 is in the form of a bar or lever which is of a T cross section. The handle 63 is

5

connected to the split locking ring 61 adjacent the line of separation 62. It is to be noted that the opposite end of the locking ring 61 from the connection of the handle 63 thereto is provided with adhesive 64 which secures the terminal end of the locking ring 61 to the closure disc 35. As is clearly shown in FIGURES 8 and 9 with respect to the locking ring 51, when the locking ring 61 is removed, that portion which is connected to the handle 63 will be first removed and the removal of the locking ring 61 will be progressive until the terminal end thereof is moved out of the groove 34 and the closure disc 35 is lifted therewith.

Although only several preferred embodiments of the dispensing unit have been specifically illustrated and described herein, it is to be understood that minor modifications may be made in the details of the dispensing unit without departing from the spirit and scope of the invention, as defined by the appended claims.

I claim:

1. A dispensing unit for insertion in an opening in a container comprising a tubular connector having an opening therethrough and including inner and outer walls, means on said outer wall for snap-in locking engagement, said connector being of varying longitudinal section to define a seat surrounding said opening, a closure disc seated on said seat, a radially outwardly extending groove in said inner wall longitudinally adjacent said seat, and a deformable locking ring seated in said groove and releasably retaining said closure disc on said seat, said locking ring having handle means for facilitating the removal thereof, and means securing said closure disc to said locking ring for removal therewith.

2. The dispensing unit of claim 1 wherein said connector and said locking ring are formed of a plastic material and said closure disc is formed of metal with securing means being an adhesive.

3. A dispensing unit for insertion in an opening in a container comprising a tubular connector having an opening therethrough and including inner and outer walls, means on said outer wall for snap-in locking engagement, said connector being of varying longitudinal section to define a seat surrounding said opening, a closure disc seated on said seat, a radially outwardly extending groove in said inner wall longitudinally adjacent said seat, and a deformable locking ring seated in said groove and re-

6

leaseably retaining said closure disc on said seat, said locking ring having handle means for facilitating the removal thereof, the point of connection of said handle means to said locking ring defining a first removal area of said locking ring, said locking ring also having a last removal area, and means at said last removal area securing said closure disc to said locking ring for removal therewith.

4. The dispensing unit of claim 3 wherein said locking ring is continuous and said last removal area is opposite said first removal area.

5. The dispensing unit of claim 3 wherein said locking ring is of a split construction and said areas of first and last removal being adjacent opposite ends of said locking ring.

6. A dispensing unit for insertion in an opening in a container comprising a tubular connector having an opening therethrough and including inner and outer walls, means on said outer wall for snap-in locking engagement, said connector being of varying longitudinal section to define a seat surrounding said opening, a closure disc seated on said seat, a radially outwardly extending groove in said inner wall longitudinally adjacent said seat, and a deformable locking ring seated in said groove and releasably retaining said closure disc on said seat, said locking ring having handle means for facilitating the removal thereof, said handle means including a ring disposed concentric with said locking ring and a connecting strap extending between said locking ring and said handle ring.

References Cited by the Examiner

UNITED STATES PATENTS

1,682,096	8/1928	Schweigert	292—256.63
1,694,354	12/1928	Rollason	292—256.63
1,767,217	6/1930	Kraft	292—256.63
2,064,069	12/1936	Kriek	292—256.63
2,288,412	6/1942	McDermott	292—256.63
2,674,495	4/1954	Lyon	292—256.63
3,081,005	3/1963	O'Connor	222—545

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