

Aug. 18, 1970

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3,524,296

METHOD OF MAKING A DISPENSING PACKAGE

Original Filed Oct. 24, 1965

2 Sheets-Sheet 1

FIG. 1

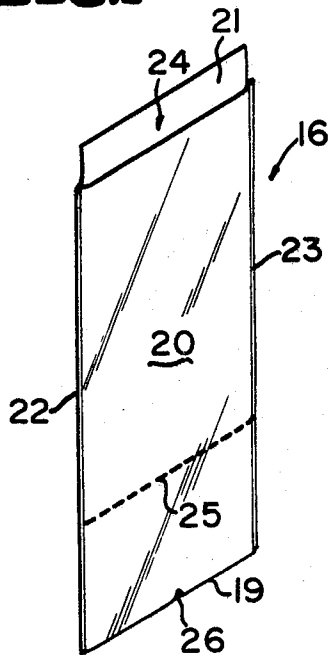


FIG. 3

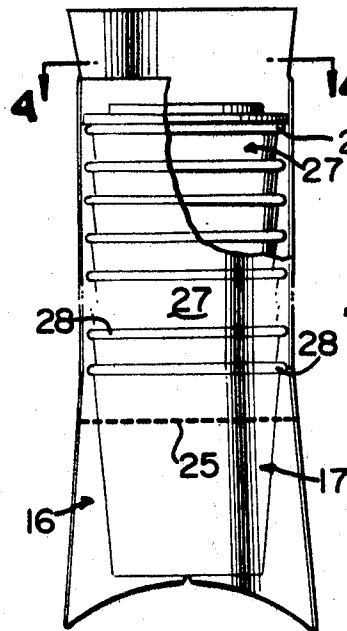


FIG. 4

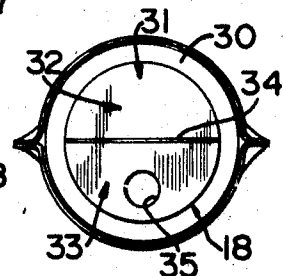


FIG. 2

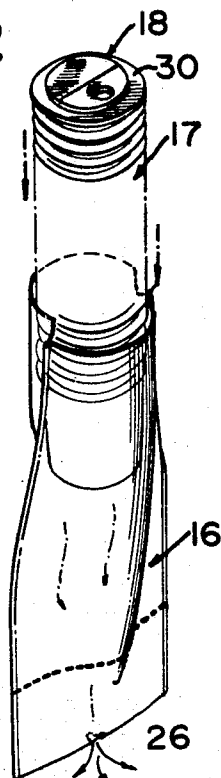


FIG. 5

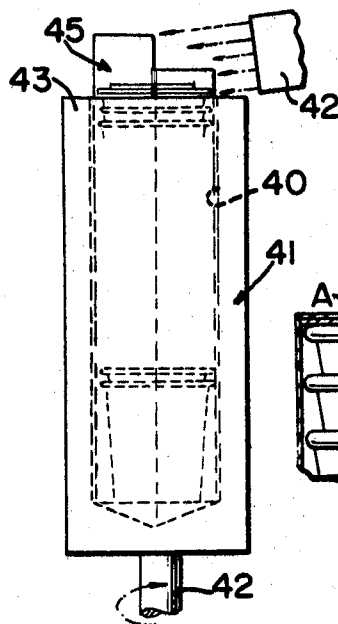


FIG. 6

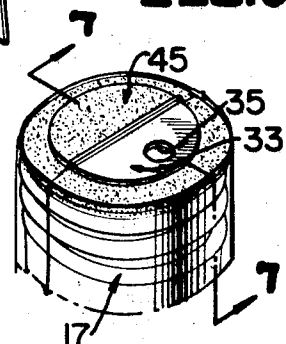
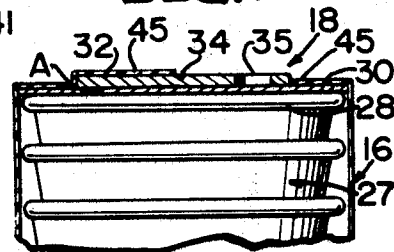


FIG. 7



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2 Sheets-Sheet 2

FIG. 8

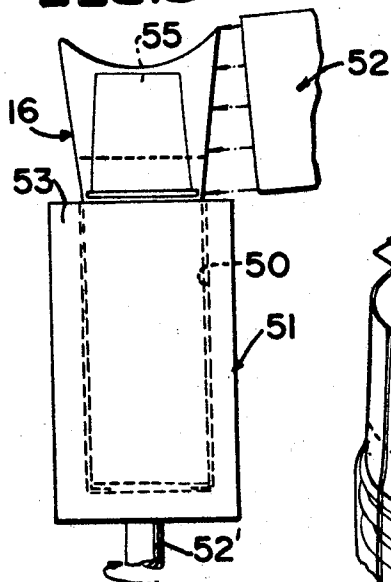


FIG. 9

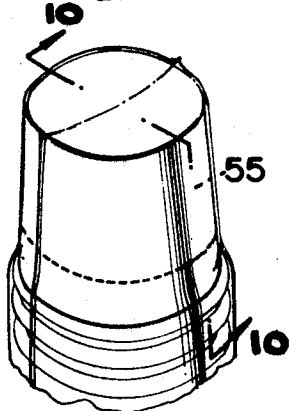


FIG. 10

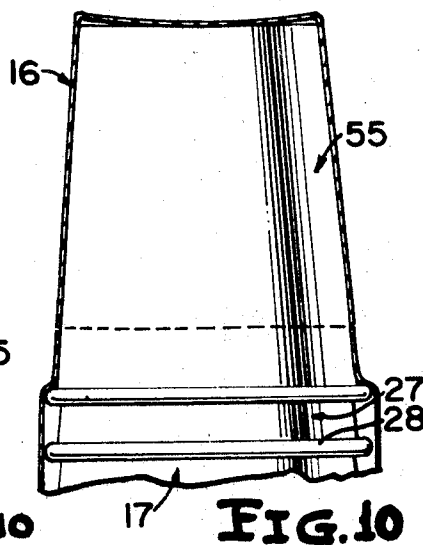


FIG. 11

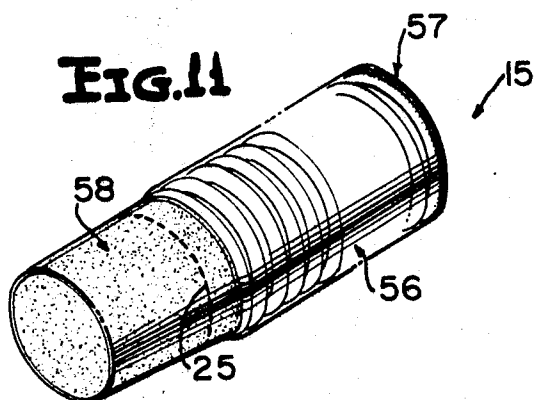


FIG. 12

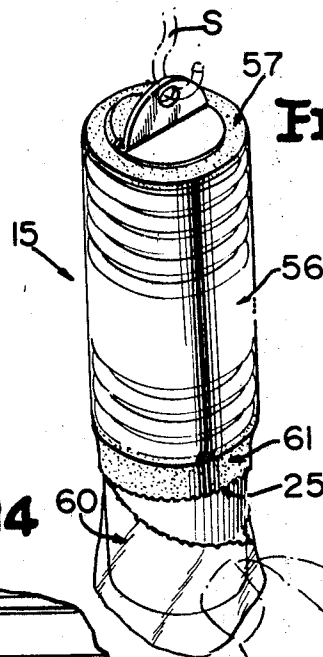


FIG. 13

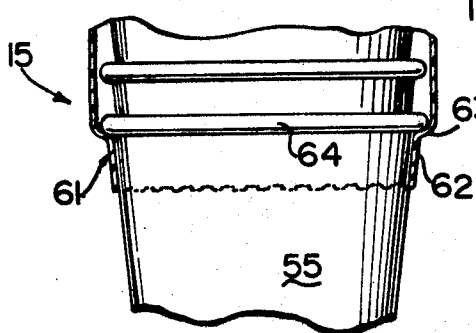
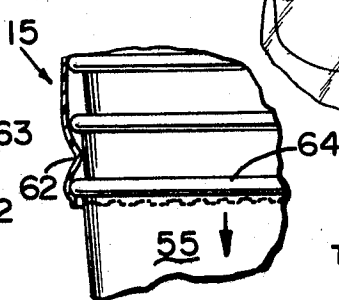


FIG. 14



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1

2

3,524,296

METHOD OF MAKING A DISPENSING PACKAGE
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Original application Oct. 24, 1965, Ser. No. 504,481, now
Patent No. 3,365,100, dated Jan. 23, 1968. Divided and
this application Nov. 1, 1967, Ser. No. 679,701

Int. Cl. B65b 61/14

U.S. Cl. 53—14

7 Claims

ABSTRACT OF THE DISCLOSURE

This invention is directed to a novel method of manufacturing a dispenser package by depositing a plurality of dispensable articles into a bag of heat-shrinkable material having an apertured bottom through which air is vented during the insertion of the articles into the bag. A closure is inserted with an open end portion of the bag and the latter portion is heat-shrunk to maintain the closure and bag in assembled relationship. An opposite end portion of the bag is also heat-shrunk to form a dispensing opening upon the subsequent removal of the bottom end portion of the bag.

This application is a division of applicant's copending commonly assigned application Ser. No. 504,481, filed Oct. 24, 1965, and now Pat. No. 3,365,100.

An object of this invention is to provide a novel method of forming a dispensing package by providing a bag or container of heat-shrinkable material having an open mouth and an opposite closed bottom provided with a peripheral weakening line between the mouth and the bottom, inserting a plurality of articles into the container through the mouth, closing the mouth, and heat-shrinking a portion of the container adjacent the closed bottom into conforming relationship to an article at the heat-shrunk portion.

A further object of this invention is to provide a novel method of forming a dispensing package in the manner heretofore defined wherein the bag bottom is provided with an aperture through which air is vented during the insertion of the articles into the bag.

Still another object of this invention is to provide a novel method of forming a dispensing package in the manner described wherein a closure is inserted into the open mouth, and a portion of the bag defining the open mouth is heat-shrunk into overlying relationship to the closure for retaining the latter in assembled relationship relative to the bag and the articles packaged therein.

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 claimed subject matter, and the several views illustrated in the accompanying drawings:

In the drawings:

FIG. 1 is a perspective view of a flattened tubular container formed from heat shrinkable material, and illustrates a weakening line adjacent a bottom end of the container.

FIG. 2 is a perspective view of the container of FIG. 1, and illustrates a plurality of internested articles and a cover being inserted into the container through a mouth thereof.

FIG. 3 is a side elevational view of the articles and container of FIG. 2 with parts broken away for clarity, and illustrates the articles fully inserted within the container.

FIG. 4 is a sectional view taken generally along line 4—4 of FIG. 3, and more clearly illustrates the cover

positioned within the container adjacent the container mouth.

FIG. 5 is a highly schematic elevational view of a rotatable mandrel and a source of hot air, and illustrates the packed container of FIG. 3 positioned within the mandrel and hot air directed toward the mouth of the container for heat shrinking the material of the container into clamping engagement with the cover.

FIG. 6 is a fragmentary top perspective view of the packed container, and illustrates a shrunken portion of the container retaining the cover in assembled relationship.

FIG. 7 is an enlarged fragmentary sectional view taken generally along line 7—7 of FIG. 6, and more clearly illustrates the heat shrunken portion of the container retaining the cover in assembled relationship.

FIG. 8 is a highly schematic elevational view of another mandrel and source of hot air, and illustrates the application of hot air toward an end portion of the package container opposite the cover.

FIG. 9 is a fragmentary perspective view of a lower inverted end portion of the now completely formed dispenser package, and illustrates the lower end portion of the container heat shrunken into conforming relationship to a lowermost one of the articles.

FIG. 10 is an enlarged fragmentary sectional view taken generally along line 10—10 of FIG. 9, and more clearly illustrates the conforming relationship of the lower end portion of the container and a lowermost one of the articles.

FIG. 11 is a perspective view of the dispenser package, and illustrates the heat shrunken portions of the package by stippling.

FIG. 12 is a perspective view of the dispensing package, and illustrates the package being supported in a vertical plane by a portion of the cover, and the removal of a portion of the container along the weakening line prior to a dispensing operation.

FIG. 13 is a fragmentary sectional view of a lower end portion of the dispenser package, and illustrates a dispensing opening, a lowermost of the articles partially projecting through the dispensing opening, and a remaining portion of the shrunken portion above the weakening line retaining the articles in the dispenser package.

FIG. 14 is a fragmentary sectional view corresponding to FIG. 13, and illustrates the removal of the lowermost article during a dispensing operation.

A novel method of forming a dispenser package in accordance with this invention will be best understood by first referring to FIGS. 11 through 12 of the drawings which illustrate the completely formed dispenser package, which is generally referred to by the reference numeral 15. The dispenser package 15 comprises a container or bag 16 (FIGS. 1, 2 and 3) a plurality of articles 17 (FIGS. 2 and 3), and a cover or closure 18 (FIGS. 2, 4 and 7).

The container or bag 16 is constructed from a sheet of heat shrinkable material, such as polyethylene, polypropylene or similar plastic material, folded along a fold line 19 into walls or panels 20, 21. The walls 20, 21 are heat sealed or otherwise secured to each other along longitudinal edge portions 22, 23. An upper portion (unnumbered) of the wall 21 projects beyond an upper portion (unnumbered) of the wall 20 and defines a mount or opening 24 therewith. A line of weakening 25 in the form of an interrupted score line or a line of perforations is formed in the walls 20, 21 adjacent the fold line 19. An aperture or notch 26 places the interior of the container 16 in communication with the exterior thereof the bottom for a purpose which will be apparent hereafter.

The articles 17 are a plurality of interestested containers, such as paper or plastic drinking cups. Each container is identical and includes a container body 27 having an upper conventional peripheral curl 28 and a closed bottom wall (unnumbered).

The cap or closure 18 includes a generally circular member 30 having a diameter slightly greater than the diameter of the article curls 28, as is best illustrated in FIG. 7 of the drawings. The member 30 is formed of paperstock or plastic material and directly overlies and rests upon the curl of an uppermost one of the containers 27 (FIGS. 3 and 7). A smaller circular member 31 having semi-circular portions 32, 33 overlies the larger circular member 30. The semi-circular portion 32 is secured by adhesive A (FIG. 7) or other conventional securing means to the larger circular member 30. A score or fold line 34 (FIGS. 4 and 7) separates the semi-circular portions 32, 33 and permits the semi-circular portion 33 to be folded from the position illustrated in FIG. 7 of the drawings to the position shown in FIG. 12. An opening or aperture 35 in the semi-circular portion 33 is employed to suspend the dispenser package 15 from a conventional support S (FIG. 12), such as a hook or similar supporting member.

The plurality of interestested articles 17 and the closure 18 are inserted into the container 16 through the open mouth 24 thereof, as is illustrated in FIG. 2 of the drawings. As the interestested articles 17 move toward the bottom of the container 16 air within the container 16 is forced outwardly therefrom through the aperture 26, as indicated by the unnumbered headed arrows adjacent the opening 26 in FIG. 2 of the drawings.

After the interestested articles 17 and the closure 18 have been inserted into the container 16 (FIGS. 3 and 4), the container 16 is positioned in a chamber 40 (FIG. 5) of a mandrel 41 having a shaft 42 which is rotated by conventional means (not shown). A source 42 of hot air or a similar heating medium is positioned adjacent an upper end portion 43 of the mandrel 41. The source 42 of hot air can take the form of one or a plurality of nozzles for directing hot air toward the end portion 45 of the container 16. As the hot air impinges against the upper portion 45 of the container 16, the portion 45 shrinks into clamping contact with the closure 18, as is best illustrated in FIGS. 6 and 7 of the drawings.

The shrunken end portion 45 overlies the semi-circular portion 32 of the member 31 while the semi-circular portion 33 is exposed and free to fold about the line 34 between the positions illustrated in FIGS. 7 and 12 of the drawings.

After the end portion 45 of the container 16 has been shrunk in the manner illustrated in FIGS. 6 and 7, the same is removed from the mandrel 41, inverted and inserted into a chamber 50 (FIG. 8) of a mandrel 51 which includes a shaft 52' rotated by conventional means (not shown). A source 52 of hot air or a similar heating medium is positioned adjacent an upper end portion 53 of the mandrel 51. The source 52 of hot air can take the form of one or a plurality of nozzles for directing hot air toward the end portion of the container 16. As the hot air or similar heated medium impinges against the projecting end portion of the container 16, as indicated by the unnumbered headed arrows in FIG. 8, the material shrinks into conforming relationship to the inverted lowermost article, generally referred to by the reference numeral 55 (FIG. 10). The dispensing package 15 is thereby provided with a major central portion 56 (FIGS. 11 and 12) which is unshrunk, an upper end portion 57 which is shrunk (the shrunk portions being indicated by stippling in FIGS. 11 and 12) and a lower heat shrunk end portion 58.

The dispensing package 15 is hung from the support S by folding the semi-circular portion 33 of the closure member 31 from the position shown in FIGS. 4 and 6 to the position illustrated in FIG. 12. Thereafter a portion 60 of the heat shrunk portion 58 is removed along

the weakening line 25 by simply manually grasping and tearing the portion 60 in the manner illustrated in FIG. 12 of the drawings. Upon the removal of the portion 60 a remaining portion 61 (FIG. 13) releasably clampingly grips the lowermost article 55. As is best illustrated in FIG. 13 of the drawings, the remaining heat shrunk portion 61 includes a peripheral portion 62 conforming to the body (unnumbered) of the article 55 and a radially outwardly and upwardly directed heat shrunk portion 63 conforming to a curl or rim 64 of the article 55. The portion 63 defines means for retaining the lowermost article 55 and the remaining interestested articles within the dispensing package until such time as it is desired to remove one or more of the articles. The articles are removed by merely grasping the portion of a lowermost article exposed through a dispensing opening (unnumbered) defined by the peripheral portion 62 of the remaining heat shrunk portion 61. The article is drawn downwardly in the direction of the unnumbered headed arrow in FIG. 14 whereupon the heat shrunk portions 62, 63 yield to permit the lowermost article to be withdrawn and progressively rebound to prevent a next succeeding article from being accidentally or inadvertently removed from the dispensing package 15, as is best illustrated in FIG. 14 of the drawings. In this manner, articles are withdrawn singularly from the dispensing package 15, noting that the interestested articles 17 are free to continually drop downwardly due to the unshrunk major central portion 56 of the dispensing package 15.

From the foregoing, it will be seen that novel and advantageous provisions have been made for carrying out the desired end. However, attention is again directed to the fact that additional variations may be made in this invention without departing from the spirit and scope thereof as defined in the appended claims.

I claim:

1. A method of forming a dispensing package comprising the steps of providing a container of heat shrinkable material having an open mouth, an opposite closed bottom, and a weakening line between the mouth and bottom, inserting a plurality of articles into the container through the mouth, inserting a closure in the mouth, heat shrinking a portion of the container adjacent the closure into overlying relationship to the closure to retain the same within the container, heat shrinking a portion of the container adjacent the closed bottom into conforming relationship to an article at said portion, and the heat shrinking of the container portion adjacent the closed bottom being localized downwardly from a point above said weakening line.

2. A method of forming a dispensing package comprising the steps of providing a container of heat shrinkable material having an open mouth, an opposite closed bottom, and a weakening line between the mouth and bottom, inserting a plurality of articles into the container through the mouth, closing the mouth, heat shrinking a portion of the container adjacent the closed bottom into conforming relationship to an article at said portion, and the heat shrinking of the container portion adjacent the closed bottom being localized downwardly from a point above said weakening line.

3. The method as defined in claim 1 including the step of rotating the container and articles relative to a heating source during the heat shrinking operation.

4. The method as defined in claim 2 including the step of rotating the container and articles relative to a heat source during the heat shrinking operation.

5. A method of forming a dispensing package comprising the steps of providing a container of heat shrinkable material having an open mouth and an opposite closed bottom, inserting a plurality of articles into the container through the mouth, providing a closure which includes means for suspending the dispensing package, inserting the closure in said mouth, heat shrinking a portion of the container adjacent the closure into overlying relationship to the closure but not to the suspend-

5

ing means thereof to retain the closure within the container yet permit the package to be suspended by the suspending means, and heat shrinking a portion of the container adjacent the closed bottom into conforming relationship to an article at said portion.

6. The method as defined in claim 1 wherein the bottom is provided with a venting aperture whereby the movement of the articles toward the bottom during the insertion thereof into the container forces air within the container outwardly thereof through the venting aperture.

7. The method as defined in claim 5 wherein the bottom is provided with a venting aperture whereby the movement of the articles toward the bottom during the insertion thereof into the container forces air within

6

the container outwardly thereof through the venting aperture.

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U.S. Cl. X.R.

53—30, 37