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H. F. RUNGE

3,477,614

DISPENSER

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FIG. 1

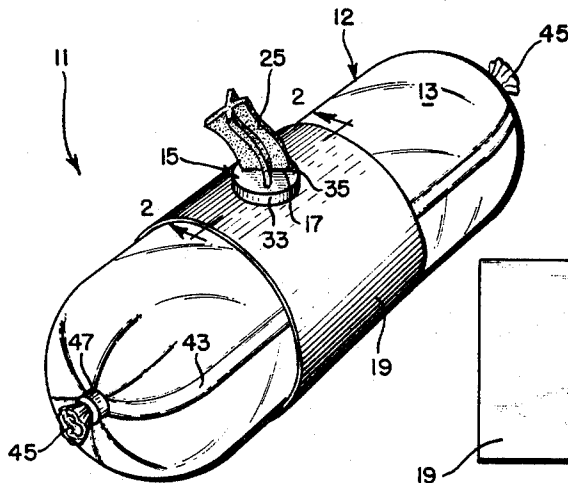


FIG. 3

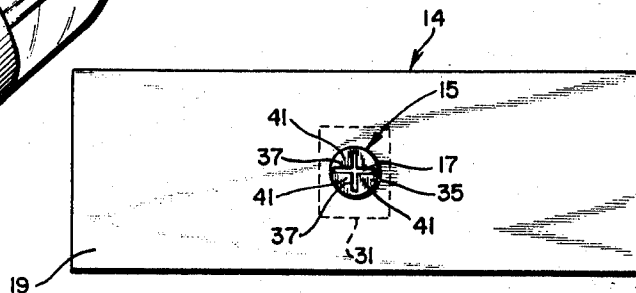


FIG. 2

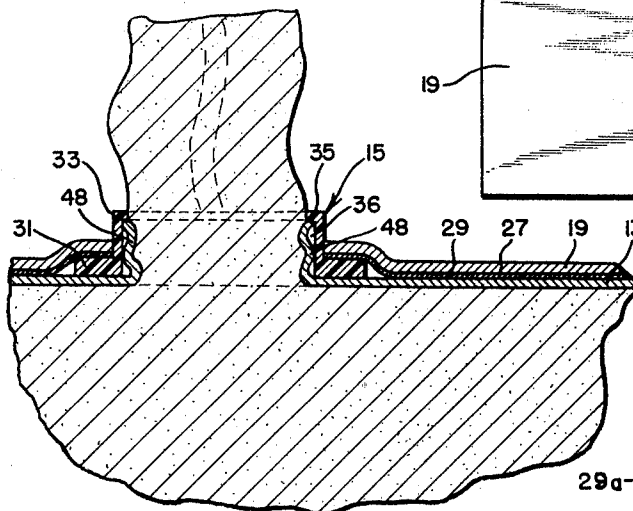


FIG. 4

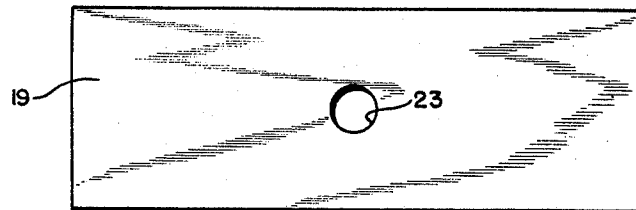


FIG. 5

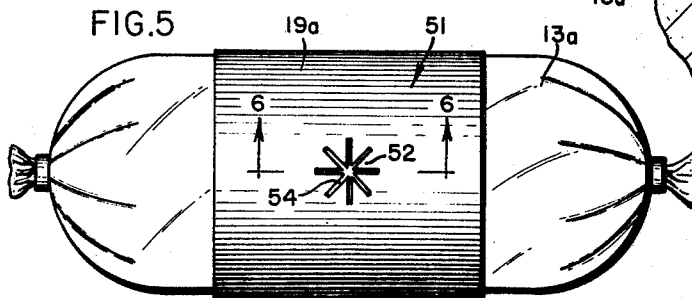
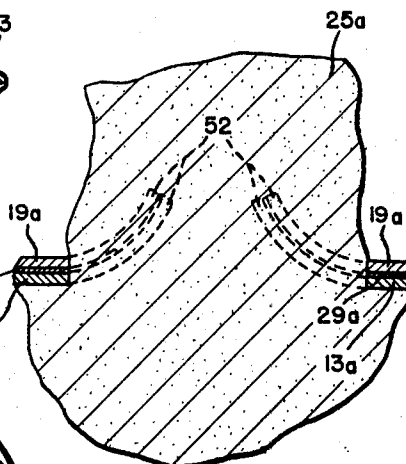


FIG. 6



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DISPENSER

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11 Claims

ABSTRACT OF THE DISCLOSURE

Flowable products of differing viscosities may be dispensed in a controlled stream from a nozzle of an inexpensive dispensing means which is adapted to be attached to a wall of a package. Relatively viscous products, such as processed cheese, may be packaged in a dispenser having such a dispensing means attached to a collapsible wall of the dispenser. The collapsible wall is punctured through the nozzle and is then squeezed to force the cheese to extrude through the nozzle. Preferably, a flexible strip is bonded to the collapsible wall in the region of the puncture and reinforces the wall against uncontrolled enlarging and tearing by the flowing cheese.

This invention relates to a dispenser which controls the flow of its contents through a nozzle or spout and to a nozzle for attachment to a package.

Primarily for ease of controlling the flow of a product from the package, a large number of flowable products are being packaged in and dispensed from aerosol containers, even though aerosol containers are considerably more expensive than other conventional, non-dispensing containers. The insertion of the contents into aerosol containers is also a relatively expensive operation as compared to packaging in non-dispensing containers or packages.

Many other forms of containers and packages are provided with a permanently attached nozzle at one end of the package or container through which the contents may be discharged. Still other packages have corners which may be torn to release the contents. Most relatively thin walled packaging materials, such as films of plastic, foil or laminates thereof have sufficient strength to resist bursting or tearing until an initial puncture or tear is begun. After this initial break, however, these materials continue to tear most readily and enlarge the size of the opening if the package is squeezed and the contents forced through the opening. The present invention is concerned with the problem of converting existing packages of conventional designs to dispensers with a nozzle which adds relatively little to the cost of the package as compared to prior art devices.

Such dispensers and nozzles have wide applicability to various kinds of products in widely differing fields. Although the nozzle can be used with thin liquids of low viscosity, the invention is of particular utility with more viscous materials which are easily extruded to take a predetermined cross section having a particularly decorative or aesthetic appeal.

The invention is described for use in the food industry where a number of food products such as, for example, processed cheese are being dispensed from aerosol cans through a nozzle which controls the diameter of the issuing cheese stream and facilitates manual control over the length of the cheese stream. Such streams are particularly useful for decorative effects and for application of small quantities of cheese to crackers or the like when making hors d'oeuvres. Compared to the cost of filling techniques for aerosol containers and the cost of aerosol containers for processed cheese, conventional thin walled tubes of

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flexible wrapping material for packaging cheese are considerably less expensive. With the present invention, such conventional packages of processed cheese may be converted into a dispenser with a nozzle for shaping the cheese into a thin stream as it issues from the package. More specifically, the nozzle is adapted to be attached to the exterior of a sealed package of processed cheese and, on a suitable puncturing of the package, the package may be squeezed and collapsed to eject its contents through the nozzle in a flowing stream, the cross section of which is controlled to achieve the desired decorative effect for the stream.

Accordingly, a general object of the invention is to provide an inexpensive, as compared to prior art, dispenser which permits flow of the product in a stream from the dispenser. A more specific object of the invention is to reinforce a wall of the package about an area to be pierced and to provide a nozzle for controlling the flow from the pierced area.

Other objects and advantages of the invention will become apparent from the detailed description taken in connection with the accompanying drawings in which:

FIGURE 1 is a perspective view of a dispenser embodying the present invention;

FIGURE 2 is an enlarged fragmentary cross sectional view taken along the lines 2—2 of FIGURE 1;

FIGURE 3 is a plan view of a dispensing means with a nozzle constructed in accordance with the preferred embodiment of the invention;

FIGURE 4 is a plan view of a flexible strip with the nozzle detached therefrom;

FIGURE 5 is a plan view of a dispenser constructed in accordance with another embodiment of the invention; and

FIGURE 6 is an enlarged fragmentary sectional view taken along the line 6—6 of FIGURE 5.

As shown in the drawings for purposes of illustration, the invention is embodied, very generally, in a dispenser 11 which includes a package 12 with a collapsible package wall 13 and a dispensing means 14 with a nozzle 15 attached to the package wall 13 for the purpose of controlling the flow of the contents of the package from an orifice 17 in the nozzle after puncturing the wall through the nozzle orifice 17. The nozzle 15 may be integral with the dispensing means 14 or may be separately fabricated. In the preferred embodiment of the invention, the nozzle 15 is fastened to the wall 13 by a strip 19 of flexible material which is wrapped about the package and fastened thereto by a suitable fastening means. Preferably, the nozzle orifice 17 (FIGURE 3) is a preformed opening or slit which is aligned with another preformed opening 23 (FIGURE 4) in the strip 19. Prior to dispensing, a point of a knife or a sharp instrument is inserted through the orifice 17 to puncture the package wall 13 whereby the contents may flow through the puncture, the opening 23 in the strip and the orifice 17.

In accordance with the present invention, the dispensing means 14 is extremely low cost and is easily secured to conventional packages produced at high speeds and with conventional apparatus whereby such packages may be provided with a dispensing nozzle for controlling the stream and flow of the contents from a package. In its preferred form the strip 19 is secured by means, for example, an adhesive to the exterior wall of the package by the manufacturer or packager. It will be appreciated, however, that the dispensing means 14 may be sold or provided in an unattached form for later attachment to a package by the ultimate user. The dispensing means 14 may be used with various kinds of packages and also with granular materials or liquids which are less viscous than products, such as processed cheese, which need to be

forced under pressure through the nozzle 15. More specifically, the package 12 may have various shapes other than the generally cylindrical "chub" package illustrated and may be made, filled or sealed in various manners other than that described in this application.

In accordance with another important aspect of the invention, dispensers 11 may be formed by attaching a dispensing means 14 to a thin walled collapsible package of various shapes, such as, for example, the illustrated tube-shaped package 12 and may be used to package and to dispense relatively viscous materials which can be extruded from the package in a stream of controlled shape. For example, the illustrated dispenser 11 (FIGURE 1) contains processed cheese and upon squeezing the package wall 13, the cheese is forced to flow through the nozzle 17 in the shape of the stream 25. The strip 19 is secured tightly to the wall 13 and reinforces it in the region of the puncture to prevent the tearing of the package wall and enlarging of the puncture opening substantially beyond the size of the strip opening 23. Without the reinforcement of the attached strip, the squeezing of such a package would result in the contents continuing to tear the wall 13 and to enlarge its puncture opening as the contents were extruded therethrough.

Referring now in detail to the elements of the invention, the strip 19 for attaching the nozzle 15 to the package is preferably in the form of an elongated band of inexpensive, flexible material such as a thin strip of metal, plastic film, paper or laminate of these materials. For example, the illustrated strip 19 is a thin laminate of paper and Mylar. Since the strip 19 is flexible, it can easily conform to and be held tightly against the package wall 13 to reinforce it about the puncture. While the strip 19 may be formed in varying shapes and lengths, it is preferred that the strip be sufficiently long to encircle the package 12. This encirclement provides sufficient material for a good strength reinforcement at the puncture and for a large area of adhesion to resist separation, i.e., peeling, of the strip 19 from the package wall 13 under the pressure of the extruding cheese.

The preferred manner of fastening the strip 19 to the wall 13 of the package 12 is by a bond such as an adhesive or a heat sealable bond, although it is appreciated that the strip could be provided with fasteners whereby the ends of the strip could be fastened to themselves or to the package walls. As best seen in FIGURE 2, an inner face 27 of the strip 19 is coated with an adhesive layer 29 which intimately bonds the strip 19 to the package wall 13 particularly about nozzle 13 and the puncture location. The nozzle 15 may be integral with the dispensing means 14 or may be separately fabricated. Thus, the package wall is in a sense provided with an increased strength laminate about the puncture.

To achieve better control of the flow, particularly of relatively viscous materials, it is preferred that the nozzle 15 be formed of a material which is stiffer and thicker than the material of the flexible strip 19. In the preferred embodiment of the invention, the nozzle 15 is formed separately of a molded plastic, such as polyethylene, with a base wall or flange 31 for abutting against the package wall 13. This base 31 is disposed intermediate the exterior wall 13 of the package 12 and the strip 19. A cylindrical wall 33 is integrally attached to the base 31 and projects through the preformed opening 23 in the strip 19. In this instance, the base is curved complementary to and abutted against a curved portion of the cylindrically shaped wall 13 so that it may fit more tightly against the wall 13.

Integrally formed on top of the cylindrical wall 33 of the nozzle 15 is a circular wall 35 which defines with the cylindrical wall an internal chamber 36 in the nozzle 15. Preformed intersecting slits 37 are formed in the wall 35 and are disposed at right angles to each other and intersect each other centrally of this top wall. The slits 37 generally define the orifice 17 and control the cross sec-

tional configuration of the stream 25 as it passes through them and, where the stream material is relatively viscous, the stream will retain this cross section. In this instance, the slits 37 form pointed leaves 41 in the top wall 35 between adjacent portions of the slits and these leaves 41 are flexed outwardly at their points by the flowing cheese so that the orifice 17 is enlarged and changed slightly in shape from its shape prior to flexing the leaves 41. When pressure on the collapsible wall 13 is released, the leaves 41 return and reduce the size of the orifice. If desired, the slits may be quite small in width so that the return of the leaves generally closes the orifice 17 and seals the contents against exposure with the atmosphere such as would dry the contents. It will be appreciated that the orifice 17 may be formed in various shapes to provide various cross sections for the stream 25 and still fall within the purview of the invention.

The illustrated dispenser 11 includes a so called "chub" package 12 which is made by forming a web into the shape of a tube with edges of the web overlapped and bonded together to constitute a longitudinally extending seam 43. The seam is preferably formed by conventional heat sealing, ultrasonic sealing or electronic sealing techniques. End seals 45 are formed at each end of the package by gathering the tube wall together and encircling the gathered end with a clenching metal band 47. The band 47 is clenched with sufficient pressure to provide suitable seals for the contents, which in this case is processed cheese.

In this preferred embodiment of the invention, the package 12 is formed and filled with cheese, and then in a subsequent operation the strip 19 with the nozzle 15 is wrapped about the exterior wall 13 of the package 12 and bonded tightly to the package wall by the adhesive coating 29. The strip holds the nozzle base 31 tightly against wall 13 of the package to reinforce the area which is to be pierced at the time of use.

When it is desired to dispense the contents, a pointed knife is inserted into the orifice 17 and through the opening 23 in the strip 19 to contact and pierce the package wall 13. The knife point is withdrawn and the user aims the nozzle 15 at a cracker or the like and squeezes the package wall. Under pressure, the cheese flows through the puncture in the wall 13 and forces jagged edges 48 of the wall 13 into the nozzle chamber 36 and against the cylindrical chamber wall. The tearing of the wall 13 is limited substantially to the size of the opening 23 in the reinforcing strip 19. With continued pressure, the cheese flows through the orifice 17 to form a generally cross-shaped, cross-sectional stream 25. The user may apply the cheese to the cracker in a decorative manner. As soon as the pressure on the package is released, the cheese stops flowing. The partially collapsed package has no tendency to return to its original shape so that no air is drawn into the package with release of the squeezing pressure. If air were drawn into the package with release of the squeezing pressure, the air would cause premature spoilage of the remaining food. Because the cheese is usually extruded in relatively thin streams, very small portions of cheese can be dispensed and in a decorative manner.

If the entire contents of the package are not used, the nozzle may be covered, as for example, by a small cap or piece of adhesive tape (not shown), or alternatively, left uncovered. Because only a small area of the cheese is exposed at the slits, the cheese within the package will not readily dry and may, in most instances, if properly stored, be used at a subsequent date.

A further embodiment of the invention is illustrated in FIGURES 5 and 6, and elements substantially identical to those previously described are identified with same reference characters to which is added a suffix *a*. The dispenser 11a includes the package 12a with a dispensing means 51 which differs from the previously described dispensing means 14 in that a nozzle 52 is constituted only by leaves 54 formed directly in the strip 19a. Thus,

the separate nozzle 15 of the preferred embodiment may be eliminated since the material forming the strip 19a functions to form the nozzle for the flowing stream 25a. As the adhesive coating layer 29a bonds the strip 19a to the package wall 13a, the latter is reinforced in the region of the aperture to resist tearing and enlarging the aperture to the extent that there is an uncontrolled flow of the package contents.

From the foregoing, it will be seen that the present invention provides a novel dispenser which upon squeezing a collapsible wall permits its contents to be dispensed through a dispensing means. The preferred form of dispensing means includes a flexible strip which can be readily attached to the wall of the package and a nozzle with an orifice through which the package wall may be pierced at the time of dispensing. The dispenser and dispensing means provides an inexpensive, conventional alternative to other prior art forms of dispensers such as aerosol cans.

The dispenser of the present invention is not limited to the dispensing of food products as the dispenser is usable to dispense a wide range of non-food products of varying viscosities.

While a preferred embodiment has been shown and described, it will be understood that there is no intent to limit the invention by such disclosure but, rather, it is intended to cover all modifications and alternate constructions falling within the spirit and scope of the invention as defined in the appended claims.

What is claimed is:

1. A collapsible dispenser for permitting flow of its contents therefrom, comprising a package having a one piece collapsible wall enclosing said contents on all sides thereof, means sealing said collapsible wall against leaking when said wall is collapsed under pressure, and dispensing means secured to the exterior of said wall providing reinforcing of said wall in a predetermined area in which said dispenser may be punctured, said dispensing means limiting the tearing of said wall in the region of puncture, said dispensing means including means having a nozzle through which the contents of said dispenser will flow after puncturing said wall in the region of said area.

2. A collapsible dispenser in accordance with claim 1 in which said nozzle means is defined by a plurality of flexible leaves formed by intersecting slits in the material constituting said nozzle means, said leaves adapted to be flexed outwardly away from said wall as said contents are dispensed.

3. A collapsible dispenser for permitting flow of its contents therefrom, comprising a one piece collapsible wall in the form of an elongated tube enclosing said contents on all sides thereof, end seals at the opposite ends of said tube sealing said tube ends against leaking when said wall is collapsed under pressure, and dispensing means secured to the exterior of said tube wall intermediate its ends providing reinforcing of said tube wall in a predetermined area in which said dispenser may be punctured, said dispensing means limiting the tearing of said tube wall in the region of puncture, said dispensing means including means having a nozzle through which the contents of said dispenser will flow after puncturing said tube wall in the region of said area.

4. In a disposable dispenser having a collapsible wall, a dispensing means comprising a strip of flexible material disposed on an exterior wall of the dispenser and adapted to conform to the wall and reinforce the same against tearing in a predetermined area, and means defining an orifice in said strip in the region of said predetermined area through which the dispenser wall may be punctured and the contents in the dispenser flow.

5. A disposable dispenser in accordance with claim 4 in which said means defining an orifice includes a plurality of flexible leaves which separate from each other

and flex outwardly to configure said stream with a predetermined cross section during flow.

6. A dispensing means for attachment to a dispenser having a collapsible wall comprising a strip of flexible material adapted to be wrapped about said dispenser, an adhesive coating on said strip for fastening said strip to said dispenser, and a nozzle means fastened to said strip and including a base for reinforcing the area of said dispenser to receive a puncture, a wall projecting outwardly from said base and defining a chamber to receive the contents of said dispenser, and outer wall attached to said projecting wall and having an opening therein defining an orifice through which the contents may flow when said dispenser is punctured and its contents flow through said chamber.

7. The dispensing means of claim 6 in which said opening is defined by a plurality of intersecting slits in said outer wall, and in which a plurality of pointed, flexible leaves are formed between adjacent slits for configuring the flowing stream with a predetermined cross section.

8. A collapsible dispenser for permitting flow of its contents therefrom comprising a package having a collapsible wall, means sealing said package against leaking when said wall is collapsed under pressure, and dispensing means secured to the exterior of said wall providing reinforcing of said wall in a predetermined area in which said dispenser may be punctured, said dispensing means limiting the tearing of said wall in the region of puncture, said dispensing means including means having a nozzle through which the contents of said dispenser will flow after puncturing said wall in the region of said area, said dispensing means including a strip of flexible material wrapped about said wall and collapsible with said wall.

9. A collapsible dispenser for permitting flow of its contents therefrom comprising a package having a collapsible wall, means sealing said package against leaking when said wall is collapsed under pressure, and dispensing means secured to the exterior of said wall providing reinforcing of said wall in a predetermined area in which said dispenser may be punctured, said dispensing means limiting the tearing of said wall in the region of puncture, said dispensing means including means having a nozzle through which the contents of said dispenser will flow after puncturing said wall in the region of said area, said dispensing means including a strip of flexible material wrapped about said wall and collapsible with said wall, said strip being bonded to said exterior of said wall and having a preformed opening therein through which said wall is to be punctured.

10. A collapsible dispenser for permitting flow of its contents therefrom comprising a package having a collapsible wall, means sealing said package against leaking when said wall is collapsed under pressure, and dispensing means secured to the exterior of said wall providing reinforcing of said wall in a predetermined area in which said dispenser may be punctured, said dispensing means limiting the tearing of said wall in the region of puncture, said dispensing means including means having a nozzle through which the contents of said dispenser will flow after puncturing said wall in the region of said area, said nozzle means being defined by a plurality of flexible leaves formed by intersecting slits in the material constituting said nozzle means, said leaves adapted to be flexed outwardly away from said wall as said contents are dispensed, said dispensing means including a strip of flexible material secured to the exterior of said wall and in which said nozzle means is formed of a more rigid material than said strip of flexible material.

11. A collapsible dispenser for permitting flow of its contents therefrom comprising a package having a collapsible wall, means sealing said package against leaking when said wall is collapsed under pressure, and dispensing means secured to the exterior of said wall providing re-

inforcing of said wall in a predetermined area in which said dispenser may be punctured, said dispensing means limiting the tearing of said wall in the region of puncture, said dispensing means including means having a nozzle through which the contents of said dispenser will flow after puncturing said wall in the region of said area, said dispensing means including a strip of flexible material secured to said package wall with an opening in said strip within said predetermined area, said nozzle means further including a base disposed between said flexible strip and said package wall, another wall integrally attached to said base and projecting through said opening and defining a portion of a chamber for receiving said contents, and a plurality of flexible leaves integrally attached to said chamber defining wall for flexing outwardly

as said contents flows between adjacent leaves and forms a stream with a predetermined cross section.

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