Nov. 15, 1955 C. PARKER ET AL 2,723,779

FLEXIBLE CONTAINER AND DISPENSER

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Fig. 1.

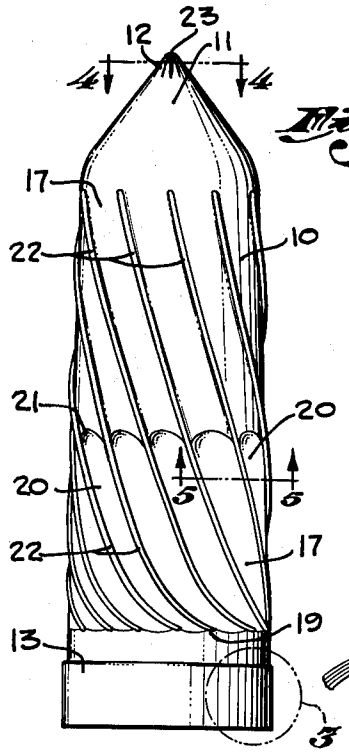

Fig. 2.

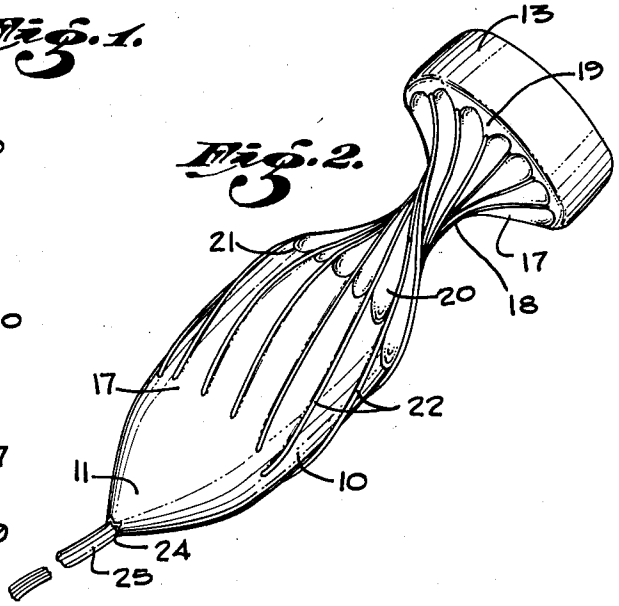

Fig. 3.

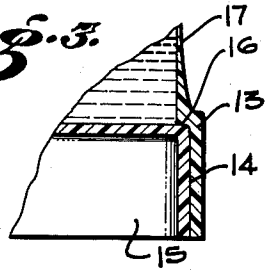

Fig. 4.

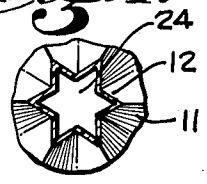

Fig. 5.

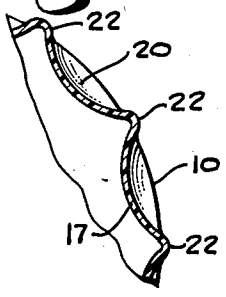

Fig. 6.

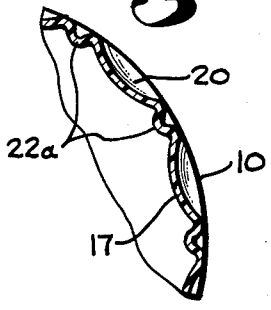

Fig. 7.

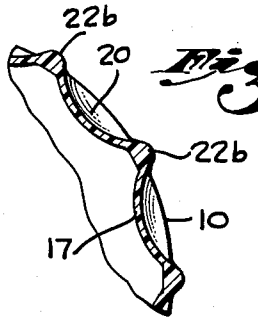

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Fig. 8.

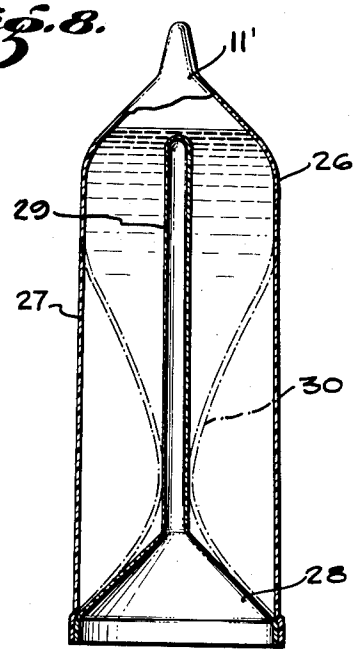
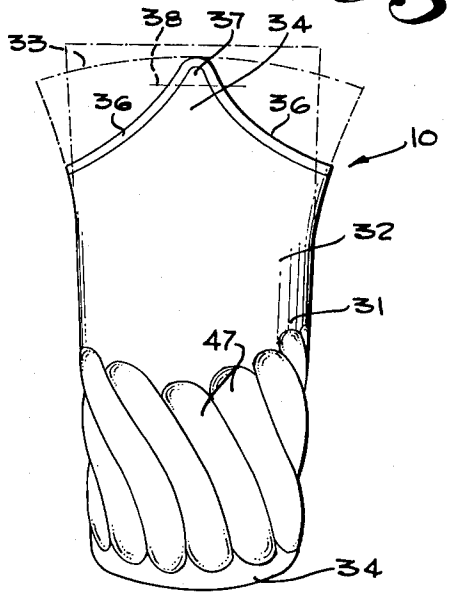


Fig. 9.



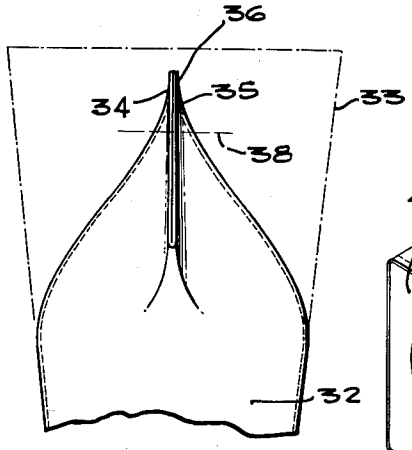
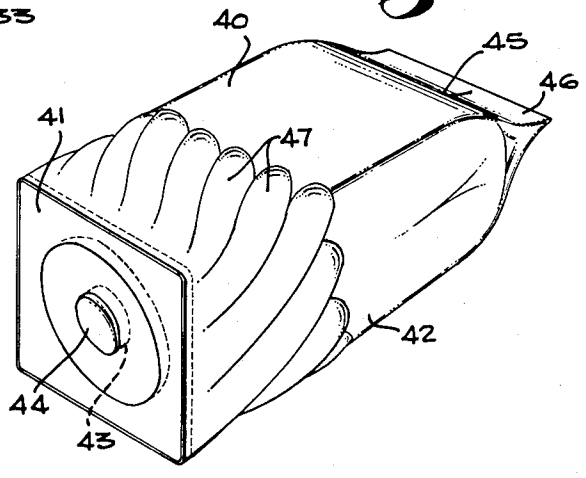


Fig. 10.

Fig. 11.



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FLEXIBLE CONTAINER AND DISPENSER

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Application December 19, 1951, Serial No. 262,445

12 Claims. (Cl. 222—104)

This invention relates in general to containers for products of fluid and viscous character and relates in particular to a dispensing container which may be made from a thin flexible material of the character of the known flexible plastics.

It is an important object of the invention to provide a container which is especially adapted for the holding and dispensing of food products, and especially those food products which are of a viscous or plastic character, for example whipped cream, cake topping, peanut butter, catsup and the like.

It is an object of the invention to provide a dispensing container having a relatively rigid base portion on which the container may rest and upon which it will stand erect, and having flexible, but reinforced side walls which, by their flexure under externally applied force, will cause discharge of the contents of the container from the discharge or dispensing opening with which it is provided.

It is a further object of the invention to provide a simple dispensing container of the character set forth in the preceding paragraph having indications on at least a portion of its side wall which will guide the user in twisting the upper and lower portions of the container relatively to each other so that a so called "twist" will be produced in the container which will reduce the volume of the container and therefore tend to force the contained product out through the discharge opening of the container.

It is also an important object of the invention to provide a dispensing container, which may be easily made from a material of the general character of the known flexible plastics, or of such plastics, having impressions in the side wall thereof constituting indications for the twisting of the container in the manner described.

A further important object of the invention is to provide a dispensing container having flutes or shallow channels in the side wall which indicate the twist to be made and are also of such flexibility and character that they assist in or facilitate the forming of the twist in the side wall of the container.

It is also an object of the invention to provide a container of the character described having side walls which are so flexible that the described twist may be readily formed therein, and which are provided with ribs acting to reinforce the side wall of the container.

It is also an object of the invention to provide a form of the dispensing container having its side wall and/or reinforcing ribs so formed that the container will return to an expanded condition after the force which has produced the twist therein has been released.

Further objects and advantages of the invention will be brought out in the following part for the specification wherein details have been set forth for the purpose of disclosure, without limiting the scope of the invention set forth in the appended claims.

Referring to the drawings which are for illustrative purposes only:

Fig. 1 is an elevational view of a preferred form of the invention;

Fig. 2 is a perspective view showing the manner in which the container is used;

Fig. 3 is an enlarged fragmentary section of the area indicated by the dotted circle numeral 3 of Fig. 1;

Fig. 4 is an enlarged fragmentary sectional view taken on the plane indicated by the lines 4—4 of Fig. 1;

Fig. 5 is an enlarged fragmentary sectional view taken as indicated by the lines 5—5 of Fig. 1;

Figs. 6 and 7 are fragmentary sectional views similar to Fig. 5 showing different types of reenforcing ribs;

Fig. 8 is a sectional view showing an alternative form of the invention having a reenforcing element;

Fig. 9 is a perspective view showing an alternative form of the invention made from one piece, the upper portion of the container being closed after it is filled;

Fig. 10 is a fragmentary view of the upper portion of the container shown in Fig. 9, taken from the position of the arrow 10 in Fig. 9; and

Fig. 11 is a perspective view of the invention in rectangular form.

The form of the invention shown in Figs. 1 to 5 comprises a plastic shell 10 of generally cylindrical form but tapering upwardly and then, near the upper end thereof converging rapidly to form a conical tip 11 having a plurality of serrations 12. The lower end 13 of the shell 10 is open and the opening 14 thereof is arranged to receive a closure 15 which is installed in the opening 14 and preferably against an internal shoulder 16 formed within the lower end 13 of the shell 10.

The closure 15 is relatively rigid and the lower portion 13 of the container 10 may be made of a thickness which will contribute to the rigidity of the lower end of the container. Above the lower end portion 13, the shell 10 has a relatively thin and flexible wall 17. The thickness of the wall 17 depends upon a number of factors, the kind of material to be contained and the stiffness of the plastic material. Ordinarily the thickness of the wall 17 will be in the range of 1/64 to 1/32 of an inch in thickness, but the wall thickness may vary from the foregoing range as may be required by variations of conditions. It is a characteristic of the invention that at least the side wall of the container is made of a plastic material of sufficient flexibility that the side wall may be twisted as indicated at 18 as the result of the application of relative rotation to the upper and lower portions of the container, around the axis of the container, and it is a feature of the invention that the container has thereon indications that the side wall thereof should be twisted by the user, so that the user by such twisting may reduce the volume of the container to cooperate in the discharge of the contents of the container. From a line 19 adjacent the upper extremity of the bottom portion 13 of the container flutes 20 are extended upward spirally in counterclockwise direction, these flutes 20 having their upper ends 21 disposed slightly below the middle of the container. Between the flutes 20 stiffening ribs 22 are formed in the wall 17, these ribs 22 extending above the upper ends 21 of the flutes 20 to a level near the top of the shell 10. In the preferred form of the invention, the stiffening ribs 22 are formed so as to project externally from the surface of the shell. As shown in Fig. 6, the stiffening ribs or flutes may be formed so to project inwardly as indicated at 22*a*. As further shown in Fig. 7, the shell 10 may have stiffening ribs 22*b* which are solid instead of being formed as narrow channels in the plastic wall 17.

The shell 10 is placed in inverted position for filling so that the opening at the lower end thereof will be faced upwardly. The product is then poured into the shell to the desired level and the closure 15 is installed. When use of the contents of the container is desired a portion 23 of the tip 11 is cut off by use of a knife or shears, along a horizontal plane such as indicated by the

line 4—4, the removal of the portion 23 then leaving an opening 24 in the tip of a cross section depending upon the shape of the serrations. Then, by squeezing the side wall of the container a portion of the contents may be caused to issue through the discharge opening 24. In accordance with the indications on the container that the shell thereof is to be twisted, the user may grasp the upper portion of the container in the left hand and the bottom portion 13 thereof in the right hand, twisting the lower portion 13 in clockwise direction and thereby producing a twist at 18, initially in the fluted portion of the shell 10, as product 25 is discharged through the opening 24 in the tip 11. Continued twisting of the container in the manner described will cause the extension of the twisted portion 18 right down to or close to the tip 11. In conjunction with the twisting, pressure may be applied to the shell, as desired, to cause discharge of the product through the opening 24, the twisting of the container being relied upon to force the contents into the interior space of the container adjacent the tip 11. In some practices of the invention the wall of the container will be of such strength and resilience that when the twisting force is released, the shell 10 will return to the original position thereof shown in Fig. 1. In other practices of the invention this may not be desirable, and under such circumstances the material of the shell will have essentially no resilience, with the result that the container will remain twisted.

In the preferred form of the invention the shell 10 has been disclosed with means for maintaining rigidity sufficient to cause the container to remain erect even though empty or partly empty. In Fig. 8 a container 26 is shown having other means for causing it to remain erect even though a portion of its viscous contents have been removed. This container 26 has a shell 27 of non-resilient material and the closure 28 of rigid material. A stem 29 projects upwardly from the closure 28 within the shell 26, this stem 29 being shown hollow so as to reduce the weight thereof. When the shell 26 is filled with viscous material, such as whipped cream or the like, and the closure 28 is installed, the container will remain erect because of the fact that the shell 27 is filled and thereby expanded. When the container is twisted in part to reduced size as indicated by phantom lines 30, the stem 29 will act to maintain the upper and lower portions of the container in alignment. If the upper portion of the container sags downwardly, the upper end of the stem 28 will engage the interior of the tip 11'.

The form of the invention shown in Fig. 9, the container is made of one piece. That is to say, it does not comprise a shell and an insertable bottom, but initially consists of a plastic cup 31 having the general characteristics of the shell 10 insofar as wall material, resilience, and twistability are concerned. This cup 31 has a side wall 32 which extends as indicated by dotted lines 33, and an integral bottom 34. The cup is placed in upright position and the product is applied to the interior through the upper open end portion indicated by the dotted lines 33. Afterward, the cup 31 is closed by bringing the halves 34 and 35 of the upper or lip portion of the container together, and then suitably sealing these portions 34 and 35 together diametrically across the top of the container. Such sealing may be by application of heat, where a heat-sealing plastic is employed, or a narrow metal sealing strip may be clamped over the flattened and closed lip of the container. As shown in Fig. 9, the seal or seam 36 across the top of the container may be shaped so that a protuberance or tip 37 will be formed, which may be cut off along the plane indicated by the dotted line 38, to provide a discharge opening through which the contents of the container will flow when the side wall of the cup is squeezed or twisted.

The form of the invention shown in Fig. 11 is of rectangular cross section. It comprises a bag 40 having a rigid rectangular bottom 41 and a thin, flexible side wall

42. The bottom 41 has an opening 43 arranged to receive a plug 44 after the container of Fig. 11 is filled. The lip 45 at the upper or front end of the side wall 42 of this container is closed in a manner similar to the folding in and closing of a paper bag, and a heat seal is formed along the edge 46 where the lips are brought together, so that the upper end of the container is closed, and may be opened only by cutting a portion of the plastic wall of which the lip portion 45 is made. Both of the forms of the invention shown in Figs. 9 and 11 have indications that the container should be twisted. It will be understood that these indications may be markings on the container, but they preferably consist of shallow flutes 47 arranged spirally so as to be indicative of a twisting action and so as to assist of the collapsing of the side wall of the container as the twisting action is applied.

Another method of opening the container is to make crossing vertical cuts with a knife downwardly into the tip, and markings are provided to serve as guides for the making of the cuts. Referring to Figs. 1 and 4, the serrations 12 provide marks or indications crossing the end of the tip 11. The crossing cuts divide the tip into approximately triangular lips meeting at the extreme end of the tip and which will separate and thereby form a discharge opening when sufficient pressure is applied to the product in the container.

We claim as our invention:

1. In a container of the character described: a tubular plastic side wall of such thickness that it may be readily collapsed by external pressure, the upper end of said side wall being closed and having means forming a discharge opening for the container, said side wall having a plurality of visible spirals indicated thereon to guide the user in twisting the container around its longitudinal axis by rotating the upper and lower portions thereof in opposite directions so that the volume thereof will be reduced; and a bottom wall connected to the lower end of said side wall.

2. In a container of the character described: a tubular plastic side wall of such thickness that it may be readily collapsed by external pressure, the upper end of said side wall being closed and having means forming a discharge opening for the container, said side wall having spaced spiral ribs to indicate that the container is to be twisted and having flexible portions between said ribs to assist the user in forming a twist between the upper and lower portions of the container to reduce the volume thereof; and a bottom wall connected to the lower portion of said side wall.

3. In a container of the character described: a tubular plastic side wall of such thickness that it may be readily collapsed by external pressure, the upper end of said side wall being closed and having means forming a discharge opening for the container, said side wall having a plurality of spaced flutes disposed so as to indicate that the container is to be twisted at the location of the flutes and to enable the ready twisting of the side wall by rotation of the lower end of the container around the longitudinal axis thereof while the upper portion of the container is held relatively stationary, so as to reduce the volume of the container; and a bottom wall connected to the lower portion of said side wall.

4. In a container of the character described: a tubular plastic side wall of such thickness that it may be readily collapsed by external pressure, the upper end of said side wall being closed and having means forming a discharge opening for the container, said side wall having spaced spiral ribs alternated with spiral flutes to indicate that the container is to be twisted and to facilitate the forming of the twist in the container between the upper and lower portions thereof by rotation of the lower end of the container around the longitudinal axis thereof while the upper portion of the container is held relatively stationary, whereby the volume of the con-

tainer will be reduced; and a bottom wall to close the lower end of the container.

5. In a container of the character described: a tubular plastic side wall of such thickness that the side wall may be readily collapsed by external application of pressure, the upper end of said side wall being closed and having an integral hollow tip portion with internal serrations and adapted to be cut off intermediate the ends thereof so as to form a generally star-shaped discharge opening for the container; and a bottom wall to close the lower end of the container.

6. In a container of the character described: a tubular plastic wall of such thickness that it may be readily collapsed by external pressure, the upper end of said side wall being closed and having an integral hollow tip portion with internal serrations and adapted to be perforated to form a discharge opening for the container, said serrations imparting a non-circular form to the material which is forced out through said opening, and the side wall of the container having indications on the lower portion that the container is to be there twisted around its longitudinal axis so as to be reduced in volume, and a bottom wall to close the lower end of the container said side wall being of such resilience as to return to expanded condition when the twisting force is released from the container.

7. A container as defined in claim 6 wherein said indications comprise alternated spiral ribs and flutes.

8. In a container of the character described: a tubular plastic side wall of such thickness that it may be readily collapsed by external pressure, the upper end of said side wall being closed and having means forming a discharge opening for the container, said side wall having spaced spiral flutes adjacent the lower portion thereof of such flexibility that it may be readily longitudinally twisted and also having markings that the container is to be there twisted so as to be reduced in volume; and a bottom wall to close the lower end of the container, the lower portion of the container comprising wall portions characterized by rigidity so as to not collapse when grasped by the user in applying twisting force to the lower portion of the container around its longitudinal axis while an upper portion of the container is held relatively stationary.

9. In a container of the character described: a tubular plastic side wall of such thickness that it may be readily collapsed by external pressure, the upper end of said side wall being closed and having means forming a discharge opening for the container, said side wall having spaced spiral ribs alternated with spiral flutes to indicate that the container is to be twisted around its longitudinal axis and to facilitate the forming of a twist in the container between

the upper and lower portions thereof whereby the volume of the container will be reduced; and a bottom wall to close the lower end of the container, the lower portion of the container comprising wall portions of such rigidity that the lower end of the container will not collapse when pressure is applied thereto in the operation of twisting the container around its longitudinal axis while an upper portion of the container is held relatively stationary.

10. A container as described in claim 9, wherein said means forming a discharge opening comprises an integrally formed plastic tip having internal serrations through which the contents of the container will pass when being discharged.

11. A container as defined in claim 8, wherein said means forming a discharge opening for the container comprises an integrally formed plastic tip having internal serrations and adapted to be cut off at an intermediate plane so as to form an opening of non-circular cross-section.

12. In a container of the character described: a tubular plastic side wall of such thickness that the side wall may be readily collapsed by the external application of pressure, the upper portion of said side wall being closed and having a portion arranged so as to provide a discharge opening for the container and said side wall having spiral rib means to facilitate the forming of a twist in the container wall, said container including a bottom in crossing relation to the longitudinal axis of the container and being of such rigidity at its lower end that said lower end may be manually grasped for the purpose of rotating said lower portion of the container around the longitudinal axis thereof while an upper portion of the container is held relatively stationary, thereby forming a twist in the lower portion of said side wall, said side wall being of such resilience as to return to expanded condition when the twisting force is released from the container.

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