

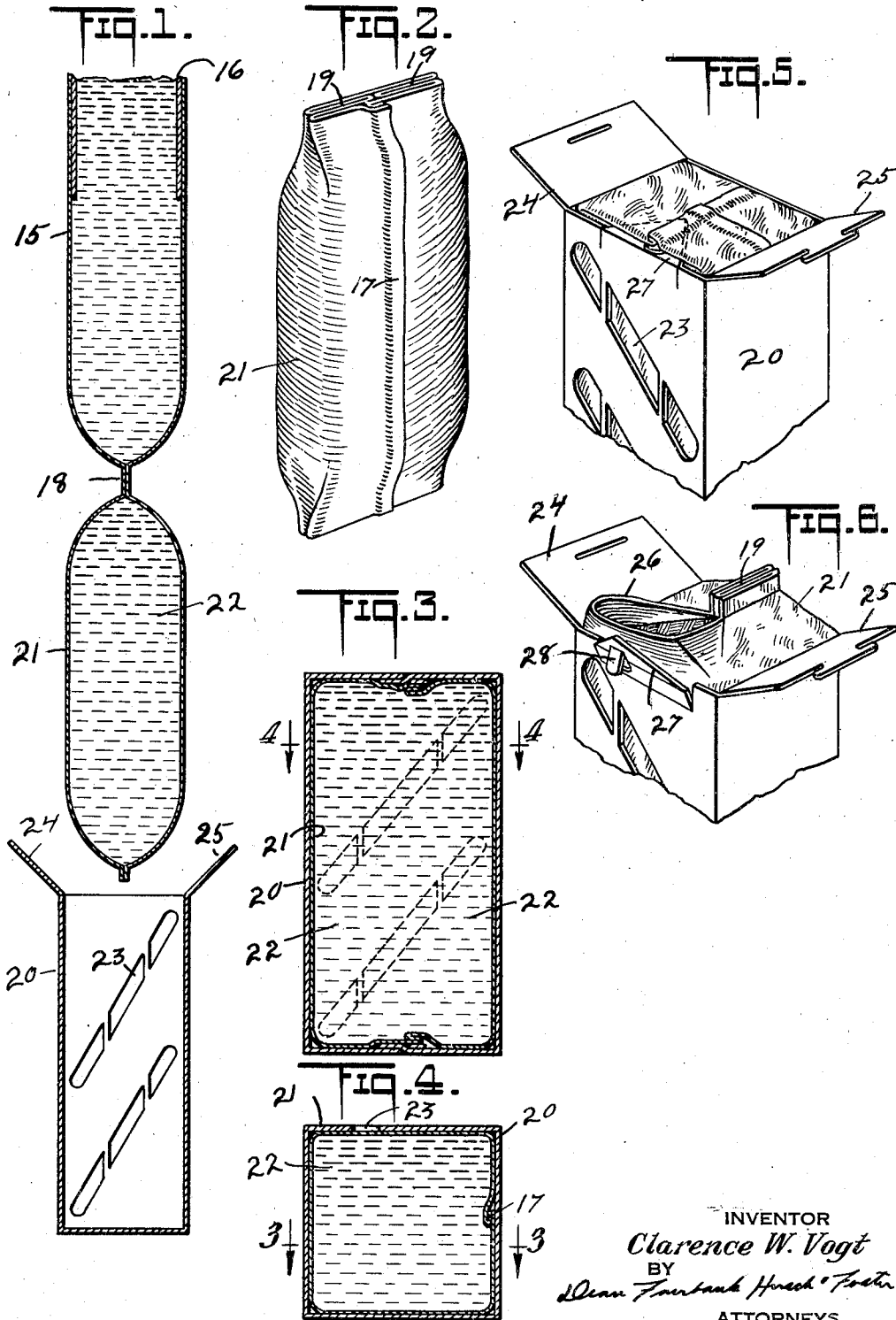
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PACKAGE OF LIQUID OR PLASTIC MATERIAL

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PACKAGE OF LIQUID OR PLASTIC MATERIAL

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This invention relates to packages of material of a liquid or plastic nature, and involves a completely filled container having flexible walls and hermetically sealed whereby the contents are protected from contamination by external agents during transportation and storage, and whereby the contents of the container may be conveniently expelled in whole or in part as desired.

One object of the invention is to provide a container which may be completely filled without exposure of the contents to the atmosphere.

A further object is to provide a container whereby filling may take place without the foaming which occurs with the ordinary milk or cream filling machine of medium or high speed production. Thus it is not necessary to either draw off any foam after filling or to make the container oversized to allow the foam to settle.

A further object is to provide a package in which the content is sealed and retained by a thin flexible wall and in which said wall is reinforced and supported by an outside casing and protected from rupture or injury during shipment and storage.

A further object is to provide a container having a thin flexible wall capable of stretching or expansion under varying pressures which may result from the action of changes in temperature upon the contained material, including a gaseous medium, and which flexible wall is protected and supported by an outside casing.

A further object is to provide a package from which liquid or plastic contents may be dispensed at will and delivered into smaller molds or in layers of the desired thickness without the use of additional utensils, such as spoons, knives or the like.

Various other objects and advantages will be apparent from a consideration of the specific forms illustrated in the accompanying drawing, or will be apparent from the following description. In this drawing:

Fig. 1 is a central longitudinal section through a flexible tubing and illustrating how the inner container may be completely filled and sealed,

Fig. 2 is a perspective view of a filled flexible container after being sealed and severed from the end of the tube shown in Fig. 1,

Fig. 3 is a vertical section through a package including the container shown in Fig. 2 enclosed in a carton, said section being taken on the line 3—3 of Fig. 4,

Fig. 4 is a transverse section taken on the line 4—4 of Fig. 3,

Fig. 5 is a perspective view of the upper portion of the carton shown in Fig. 3 with the top flaps opened, and

Fig. 6 is a view similar to Fig. 5, but with the flexible inner container severed below the sealed end and opened to provide a pouring spout.

In forming the inner container, I preferably provide an endless tube 15 of thin flexible material which may be progressively formed by bringing together the opposite edges and sealing them as the tube is delivered over a hollow mandrel or filling spout or nozzle 16. Although various materials may be employed I preferably use a material recently placed on the market under the trade name "Pliofilm" which is made from a material having a rubberoid base and possessing the characteristic of being readily vulcanized or sealed at a temperature of approximately 115° C., and overlapped sections may be vulcanized or sealed together even though the surfaces have been previously wetted by contact with liquids or moisture-carrying plastic materials. Another material which may be satisfactorily used in some constructions and for some materials is a moisture-proof cellulosic material of a type sold under the trade-name "Heat Sealing Cellophane."

The sealing together of the edges is preferably effected by bringing the edges together in parallelism as an outstanding flange, pressing said edges together with or without intermediate adhesive material, depending upon the nature of the material forming the sheet, and then pressing the overlapped edges down as a seam 17 shown particularly in Fig. 2. Other forms of sealing and other forms of seams might be employed, particularly if the seam be of such a character that the same may be progressively formed as the sheet is folded around and delivered lengthwise of the mandrel or filling nozzle. As the tube is formed and passes over the end of the filling pipe or nozzle, preferably with the latter in a vertically disposed position, the tube is filled, but the liquid level is kept at least at an elevation above the lower end of the filling pipe so that the tube will be completely filled and without any foam in the tube. After a sufficient length of the tube has passed beyond the end of the filling pipe and is completely filled the opposite walls of the tube are brought together and pressure is applied, together with heat if necessary, to form an intermediate section 18, sealing off the lower section of the tube and forming a bottom wall for the lower end of the upper section. The act of bringing these walls together tends to force a portion of the contents upwardly,

so that rounded or tapered ends will be formed on the successive sections.

The material forming the tube is preferably of such a character that upon bringing the two surfaces together, as indicated at 18, these surfaces will adhere to form a tight closure.

In order that the sealed-off section may be of accurately predetermined size and contain a measured amount of material, the members which come together to seal off the section may include casing portions which will completely enclose the sealed-off section and insure that it be of the exact size desired.

The mechanism for sealing off preferably includes members which tuck in opposite portions of the wall so that the portion 18 will be of a length not greater than the diameter of the tube and preferably of somewhat shorter length. The nature of such tucking in is indicated in Fig. 2 where it will be seen that tucks 19 extend in from opposite sides, and if desired to such an extent that the ends of these tucks abut.

The thickness of the material is shown on a somewhat exaggerated scale in the drawing, and the material is flexible enough so that upon pressing the walls together a complete and hermetic seal will be formed.

After the sealing has been effected the lower section may be cut off midway of the upper and lower edges of the sealed section to form the container as shown in Fig. 2. This container which will ordinarily be substantially cylindrical throughout the main length of its body and tapered at its ends, may then be placed in or encased by a suitable strengthening or reinforcing casing. As shown in Fig. 1 this casing may be in the form of a carton 20, square in cross-section and of such height that when the filled inner casing 21, formed by sealing and cutting off the end section of the tube, is placed in the carton, the lower and upper ends of the casing may be pressed into substantially flat transverse planes and the circular tubing will substantially completely fill the square cross-section of the carton. Such a complete package is shown in Figs. 3 and 4. This package is adapted for use with any liquid or readily flowing plastic material, and particularly a material which it is desired to maintain hermetically sealed to protect it from contamination. Such materials include milk, fresh cream, condensed milk, salad dressing etc. Such material is indicated in the drawing as 22.

For certain materials it is desirable that the contents be visible from the outside of the package. For instance, if the contents be milk, it is desirable to readily determine the cream line. For that purpose, the tube 15 is preferably transparent, and the outside carton may have a series of diagonal slots or other apertures 23 serving as windows. By making the windows in the form of diagonal slots and providing two or more of them in offset relationship the liquid may be inspected at any point in the height of the package.

Upon placing the filled flexible walled container in the carton and pressing the top down substantially flat, the top of the carton may be closed by any suitable type of flaps 24, 25 which may be provided with any suitable form of interlocking means.

For dispensing the material from the container a portion of the sealed end, for instance about one-half of such end, may be cut off directly below the seal so that the portion directly below the cut off section may be opened up as a

pouring spout 26. To facilitate the pulling out of the tuck 19 after opening the carton and cutting off of a part of the sealed end, the carton may be provided with a flap or flange 27 which upon closing the carton may be folded in beneath the sealed end of the container. The under side of this flap 27 may have adhesive so that it will stick to the wall of the container, and upon pulling up the flap 27 the wall of the container will be opened up as shown particularly in Fig. 6.

To facilitate the lifting up of this flap 27, the latter may be provided with a suitable tab 28 which may be integral with the flap or may be a part glued or stapled thereto.

With the parts in the position shown in Fig. 6 all or any desired portion of the contents may be poured out, if thin enough to flow. If sufficiently thick so that it does not flow readily, then the flap 27 is preferably omitted and the inside container may be removed from the carton and the desired contents squeezed or forced out. If only a part of the contents is dispensed the pouring spout may be folded together and the top portions of the container squeezed together to close the container in a substantially air-tight condition.

Various changes may be made in the construction illustrated and within the scope of the present invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A shipping receptacle including an outer carton having closure flaps at one end thereof, and an inner container of flexible sheet material sealed at the end adjacent to said closure flaps, a portion of the wall of the inner container being attached to one of the said closure flaps, and said closure flap having a tab whereby the flap may be pulled up to lift a portion of the wall of the inner container.

2. A shipping receptacle for liquid or plastic materials, including a carton having closure flaps, one of which is substantially triangular, and an inner container of flexible impervious material attached to the inner surface of said flap.

3. A package including a carton having top closure flaps, one of which is substantially triangular in shape, and an inner container of flexible material closed at the top by a transverse seal, said flap extending inwardly beneath a portion of said seal.

4. A package including a carton having top closure flaps, one of which is substantially triangular in shape, and an inner container of flexible material having the top closed by a transverse seal, said flap extending inwardly beneath a portion of said seal, a portion of the wall of said container being secured to said triangular flap whereby upon opening a portion of said seal and lifting said flap a pouring spout reinforced by said flap is formed.

5. A shipping receptacle for liquid or plastic materials, including an outer container having closure flaps at the upper end thereof, one wall of said container having slits extending downwardly from the opposite ends of the base of the attached flap, and an inner container of flexible material having a portion of one wall secured to said flap.

6. A package including a carton rectangular in cross-section and having top closure flaps, one of which is substantially triangular in shape, and an inner container of flexible material, two opposite walls being infolded at the top, and all four

walls being sealed together at their upper edges to form recesses on the two opposite sides beneath the seal, said triangular flap extending into one of said recesses.

5 7. A package including a carton rectangular in cross-section and having top closure flaps, and an inner container of flexible material, two opposite walls being infolded at the top, and all four walls being sealed together at their upper edges to form
10 recesses on the two opposite sides beneath the seal, one of said flaps extending into one of said recesses.

15 8. A package for liquid or plastic materials, including an outer container having top closure flaps and an inner container of flexible sheet material closed at the top by a transverse seal of a length substantially equal to the width of said outer container, and having one of said flaps extending beneath an end portion of said seal.

20 9. A package for liquid or plastic materials, including an outer container having top closure flaps and an inner container of flexible sheet material closed at the top by a transverse seal of a length substantially equal to the width of said
25 outer container, and having one of said flaps extending beneath an end portion of said seal, and

having its inner surface secured to the juxtaposed wall of said inner container.

10. A package including an outer container substantially rectangular in cross-section, and provided with a top closure flap, and an inner container having two opposite side walls infolded at the upper end and all of the side walls secured together at their upper edges to form a transverse seal of a length substantially equal to the width of the outer container, and intermediate of opposite side walls of the latter, and said flap being secured to a juxtaposed wall of said inner container.

11. A package including an outer container substantially rectangular in cross-section, and provided with top closure flaps, and an inner container having two opposite walls infolded at the upper end and all four walls secured together at their upper edges to form a transverse seal of a length substantially equal to the width of the outer container and intermediate of opposite side walls of the latter, and one only of said flaps being secured to a juxtaposed wall of said inner container, and beneath an end portion of said seal.

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