This invention relates to frozen confections, containers therefor, their method of manufacture, and more particularly to the method of packaging and forming pre-measured units of normally liquid materials frozen to a substantially solid state, although certain features thereof may be employed with equal advantage for other purposes.

It contemplates more especially the provision of improved containers and a method of packaging normally liquid substances frozen to a substantially solid state so as to be vendible in pre-measured uniform quantities or units without undue apprehension as to the appreciable time, labor, or equipment expense.

Edible substances such as normally liquid compositions frozen or refrigerated for conversion into confections or sundaes have become increasingly popular for dispensing over the counter, but the objectionable feature thereof from a commercial standpoint is in the inability to pre-measure a quantity or unit to be dispensed for each order. As a result, accurate control of profits on compositions of this character that require preparation on order for immediate consumption over the counter, is impossible when such are vended in the usual manner known in the art. In fact, there is appreciate waste and surplus quantities prepared for each consumer because of the inability of the attendant to pre-measure such with any degree of accuracy or uniformity within the time allotted therefor. This substantially diminishes the profits otherwise realizable from such vendible compositions and, in fact, often results in a loss or at least requires the vendor to place a rather high price upon such refrigerated compositions sold in the form of drinks, sodas, sundees or other types of frozen confections.

Pre-measured units have heretofore been commercially exploited in the form of a roll or cylindrical molds of pre-measured quantity and size, but such requires an investment in expensive machinery which is elaborate in design and utilizes a great deal of floor space so that only large ice cream manufacturers can avail themselves of this equipment. It is now proposed to accomplish the same results in a much more inexpensive manner without any special equipment and to further limit the expense that approximates or is even less than the usual packaging process now used in the preparation of ice cream. With the teachings of the present invention, it is contemplated to employ a paper container that serves as a mold and also as a wrapper to enable the simple handling of pre-measured units in a clean and sanitary manner.

One object of the present invention is to provide an improved method for forming pre-measured units of normally liquid substances frozen to a substantially solid state.

Another object is to provide a simple and inexpensive container means serving as a mold for normally liquid material frozen to a substantially solid state and constituting the wrapper for a multiple of units thereof.

Still another object is to provide a simple and inexpensive container of improved construction that serves as a mold for preparing pre-measured units of normally liquid substances frozen to a substantially solid state.

A further object is to provide an elongated collapsible container having vent-holes to permit the filling thereof with a plastic freeze to serve as a mold therefor and to constitute a multiple for multiple units thereof.

A still further object is to provide an elongated paper container having calibrated dividing lines thereon and provided with vent holes to permit the filling thereof with a plastic freeze to serve as a mold therefor and to constitute a wrapper for multiple frozen units thereof.

Still a further object is to provide an elongated paper container having a longitudinal double wall that is adapted for slitting a longitudinal flap or flaps thereof to serve as an unraveling expedient after being filled with normally liquid material frozen to a substantially solid state and segregated into multiple units.

An additional object is to provide improved container slitting and guide means to provide flap means for container removal from its self-sustaining and form-containing contents.

Other objects and advantages will appear from the following description of an illustrative embodiment of the present invention.

In the drawings:

Figure 1 is a front plan view showing a collapsed container embodying features of the present invention.

Figure 2 is an end view showing the top end of a partially collapsed container illustrated in Figure 1 and embodying features of the present invention.

Figure 3 is a perspective view of the container shown in Figure 1, but filled with a normally liquid material frozen to a substantially solid state and with the sealing flap partially displaced in effecting container removal from its contents.

Figure 4 is a sectional perspective view of a
container filled with normally liquid material frozen to a substantially solid state together with a special mitre box for effecting the segregation thereof into multiple units.

5 Figure 5 is a fragmentary edge view of a partially collapsed container bottom portion. Figures 6 and 7 are perspective views of differently sized multiple units from which the container wrapper segments have been removed and after being cut to the desired size with the aid of a mitre box or other size guide serving means.

10 Figure 8 is a front view of a modified container embodying features of the present invention.

15 Figure 9 is a sectional view taken substantially along line IX—IX of Figure 8.

Figure 10 is a fragmentary sectional view of a container slitting device for use in conjunction with the container shown in Figure 8 after being filled and the contents has been rendered self-sustaining and film-retaining.

20 Figure 11 is a sectional fragmentary view of a filled container constructed similar to that shown in Figure 8 and after being slit by a device similar to that shown in Figure 10.

25 Figure 12 is an end view of the filled container shown in Figure 8 with a modified cutting mechanism applied thereto for longitudinal slitting along the median line of the double wall portion.

30 Figure 13 is a fragmentary side view in elevation of the structure shown in Figure 12, parts thereof being shown in section to clarify the situation.

35 Figure 14 is a fragmentary plan view of the structure shown in Figure 13.

40 Figure 15 is a sectional perspective view of a multiple unit cut transversely from the container after being filled, frozen and slitted preparatory to removal of the wrapper which formerly constituted a part of the container.

The structure selected for illustration exemplifies a method of forming pre-measured units of normally liquid material frozen to a substantially solid state. It comprises essentially the construction of an elongated container 10 prepared preferably though not essentially from glazed paper that renders such impervious to a plastic freeze which is to be poured therein and frozen to a substantially solid state. The container 10 is provided with the usual bottom flap 11 preferably though not essentially having a serrated or fringed overlapping edge 12. The front and rear walls 13 and 14, respectively, are separated by end walls 15 and 16 that are longitudinally creased along a median line thereof as at 17 and 18 to render the container 10 collapsible to assume a flat position that is compact for packing and shipment to the desired destination (Figures 1 and 2).

60 As shown, the collapse of the container 10 with the bottom flap 11 adjacent to and in parallelism with the rear wall 14, brings the mouth edge 19 of the front wall 13 inwardly and correspondingly below the edge 20 of the rear wall 14 (Figure 1).

65 The side walls 15 and 16 of the collapsed container 10 are simultaneously disposed inwardly along their median crease lines 17 and 18 that approach each other between the forward and rearward walls 13 and 14. As shown, the mouth edges 19—20 may be serrated or fringed depending upon the dictates of commercial practice, and the size of the component parts of the container 10 may be varied within a wide range to meet any commercial requirements.

70 In order to enable the container 10 to be utilized as a receptacle and a mold for normally liquid material that is to be frozen to a substantially solid state and to render such easily filled therewith, the bottom flap 11 is preferably though not essentially provided with vent holes 5 or apertures 21 and 22, in this instance two, that are punched or otherwise provided therein so as to extend entirely through the confronting front walls 13 and 14, these being minute apertures to permit the escape of air as the container 10 is filled with the plastic freeze which is frozen or otherwise is discharged from the customary freezer or other source of supply.

The restricted apertures or vent holes 21 and 22 are of such small size as to preclude the discharge of the plastic substance therethrough but permits the escape of air which is essential or preferable to properly fill the container 10. Then, too, the apertures 21 and 22 are disposed sufficiently close to the outer edges of the front and rear walls 13 and 14 so as to pierce the overlapping apertures of the end walls 15 and 16 when collapsed, thereby providing apertures 23 and 24 (Figure 6) in the side walls proximate to the bottom 11 affording additional venting without any further punching operations.

The rear wall 14 is preferably though not essentially provided with an overlapping seam 25 adhesively or otherwise attached together to form the enclosed container 10 from a flat sheet of paper.

29 The opposite front wall 13 is provided interiorly with a comparatively wider paper strip 26 to define a double wall in connection with the adjacent wall 13 to extend longitudinally for the entire length thereof (Figure 1). The paper strip 26 is of stronger material than the wall 13 of the container 10 and may only be adhesively joined thereto by adhesive spots 27 extending and spaced along the side edges of the strip 26. To enable the strip 26 to serve as a container searing element, the container wall 13 may be perforated along a longitudinal median line 21' to define a line of weakness and effect longitudinal severance by pulling the tear strap 29. It will be apparent that with the filling of the container 10 with a plastic freeze to the top of the container 10 which may have a measure indicating top line 28 inscribed thereon, the container 10 will assume a cylindrical shape (Figure 3) owing to the presence of the plastic freeze content 28 that is poured therein.

10 Thereupon, the container walls beyond the filling line 28 serve as flaps 29 to enclose the normal opening, these being retained in position owing to the adhesion of the paper to the plastic freeze preparatory to being placed in a cold storage room for hardening. The storage thereof in a refrigerated hardening room serves to convert the normally liquid material to a frozen solid state to render such self-sustaining and form-retaining. After the container 10 with its frozen contents 28 is removed from the hardening room, it then can be segmented into a multiple of units depending upon the size thereof that is desired for each individual serving.

To this end, the container 10 may have the forward wall 13 calibrated with transverse lines 30, 31, 32, 33 and the corresponding spaced top filling line 26' which will divide the elongated container 10 into a plurality of pre-measured units (Figures 6 and 7) along which the entire container and its contents can be cut or otherwise severed in any manner found expedient in production operations. In the present embodiment, the calibrations 30, 31, 32, 33, 34, 35, 36, 37, 38 and 39. 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38 and 39.
and 33 may be dispensed with and a severing guide substituted in lieu thereof. One form of severing guide may consist of a mitre box having a base 35 with an upstanding ledge 36 to which side members 37 and 38 are attached. The side members 37 and 38 are disposed vertically in spaced alignment for attachment to the up
standing base ledge 36 by means of suitable fasteners 39. An end member 40 is attached in a manner similar to the side members 37-38 to define a rectangular compartment with the aid of corner brackets 41 attached thereto in any suitable convenient manner.

As shown, the side members 37-38 are provided with transversely aligned knife receiving vertical slots 42 and 43 extending downwardly therein to the upper surface of the base ledge 36 to serve as guides for a suitable severing device such as a heavy knife which may be thrust thereupon to cut through the container 10 and its contents 28 which are disposed between the side members 37-38. To this end, the horizontally aligned slots 42-43 may be spaced uniformly along the length of the side members 37-38 so as to determine the size of the pre-measured units 28 (Figures 6 and 7).

The length thereof may be varied depending upon the dictates of commercial practice and the content form to be shaped within each serving or unit. Severing units may be utilized such as circular saws disposed and uniformly displaced along a rotating shaft which turns the severing saws at high speeds in the path of the filled container 10 by resort to suitable feeding equipment for the severing saws. Each of the units that are divided by lines 35-36, 36-37, 37-38, and 38-39 may be conveniently calibrated into sub-units by multiple markings 34 which are equidistantly spaced to dissect quarter units; however, this may be varied within a wide range depending upon the dictates of commercial practice and the servings which are desired from the complete container 10. After the container 10 with its contents has been frozen and segregated into the desired multiple pre-measured units by any well known severing operation, it will be found that each of the units are provided with a wrapper which formerly served as part of the container 10. It will be observed that the multiple units are severed from the initial container 10 while the latter is still kept intact in conjunction with the strap 26 that is adhesively or otherwise joined thereto. Consequently the wrapper of each multiple unit can be removed by merely exerting a pull on the strap 26 connected therewith.

It will be apparent that after the severing strip 26 has separated the container 10 along the perforate line of weakness 27', the adjacent severed container edges will extend from each of the multiple units outwardly to present pulling flaps enabling the wrapper removal from the hardened contents 28 so as to render such free for disposal in a dish, cone or other receptacle for consummation. Severing mentalities may take a variety of forms and may be composed of different structural elements depending upon the dictates of commercial practice. It is important, however, that in a container construction of the type disclosed in Figure 6, the reinforcing strip 27' may be slittered from the entire length thereof along its longitudinal median line in conjunction with that portion of the upper wall 13' which is in confronting relation therewith. This presents freely projecting and non-adhering flaps 44-45 that can be pulled to remove the container 10' that defines a wrapper for multiple units after being segmented in any suitable manner such as described in connection with...
the preferred embodiment illustrated in Figure 4.

Various changes may be made in the embodiment of the invention herein specifically described without departing from or sacrificing any of the advantages of the invention or any features thereof, and nothing herein shall be construed as limitations upon the invention, its concept or structural embodiment as to the whole or any part thereof except as defined in the appended claims.

I claim:

1. A package for normally liquid material frozen to a substantially solid state comprising an elongated paper container folded to normally assume a flat collapsed position along predetermined crease lines, elongated overlapping portions on said container presenting a longitudinal double wall along the length thereof, said overlapping portions being adhesively edge joined to present two confronting adjacent thicknesses of paper free from each other except at the longitudinal edges of adhesive attachment, said adjacent thicknesses of paper along said container being longitudinally cut through a median line thereof to present pairs of internal and external flaps to facilitate content removal by exerting a pull on the exterior confronting flaps.

2. A package for normally liquid material frozen to a substantially solid state comprising an elongated paper container folded to normally assume a flat collapsed position along predetermined crease lines, there being air vent openings in said container to permit the escape of air therethrough when the container is being filled with contents, predetermined markings on the exterior of said container, said markings being calibrated along the length thereof to designate predetermined units therealong, and an elongated longitudinal member adhesively joined along its side edge to a wall of said container for enabling the severance of said container to facilitate content removal.

3. A package for normally liquid material frozen to a substantially solid state comprising an elongated paper container folded to normally assume a flat collapsed position along predetermined crease lines, there being air vent openings in said container to permit the escape of air therethrough when the container is being filled with contents, and a longitudinal wide overlapping wall reinforcement adhesively joined to define a double wall portion along said container to present confronting pairs of flaps responsive to severance along a longitudinal median line to facilitate the separation of said container from the contents.

4. A package for normally liquid material frozen to a substantially solid state comprising an elongated paper container folded to normally assume a flat collapsed position along predetermined crease lines, there being air vent openings in said container to permit the escape of air therethrough when the container is being filled with contents, and a longitudinal paper reinforcement adhesively joined to said container to present a spaced double wall portion, said container being provided with said double wall for severance along a longitudinal median line thereof to define confronting pairs of flaps to facilitate the finger manipulated separated thereof from the contents.

5. A package for normally liquid material frozen to a substantially solid state comprising an elongated paper container folded to normally assume a flat collapsed position along predetermined crease lines, there being air vent openings in said container to permit the escape of air therethrough when the container is being filled with contents, and a longitudinal paper reinforcement adhesively joined to said container, said longitudinal paper reinforcement being of material having a greater tearing strength than the paper comprising the container body for presenting an intermediate inadhering region adjacent a wall of said container to facilitate the separation thereof from the contents.

6. A package for normally liquid material frozen to a substantially solid state comprising an elongated paper container that is not normally self-sustaining or form-retaining folded to normally assume a flat collapsed position along predetermined crease lines, there being air vent openings in said container to permit the escape of air therethrough when the container is being filled with contents, and a linear double wall region extending for the length of said container, said double walled region presenting spaced walls within the limits thereof to present confronting pairs of double pulling flaps upon severance therethrough.

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