April 24, 1934. C. P. WELLMAN 1,955,865

COLLAPSIBLE CONTAINER

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Fig. 1

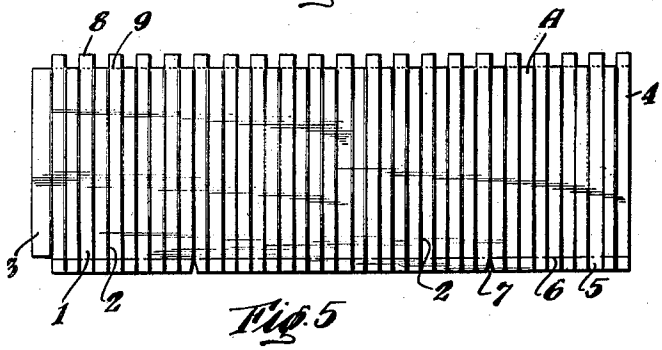


Fig. 2

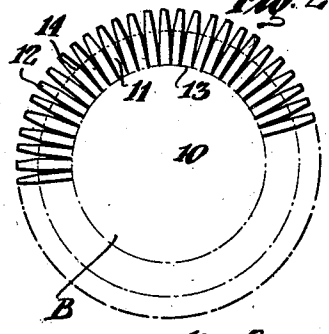


Fig. 5

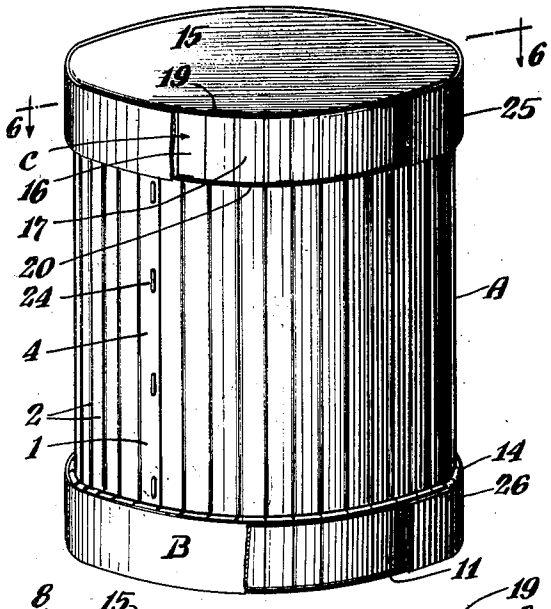


Fig. 3

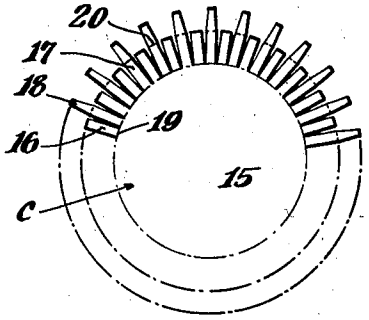
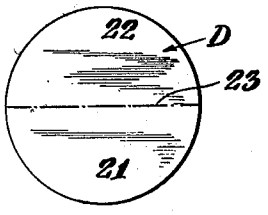


Fig. 4



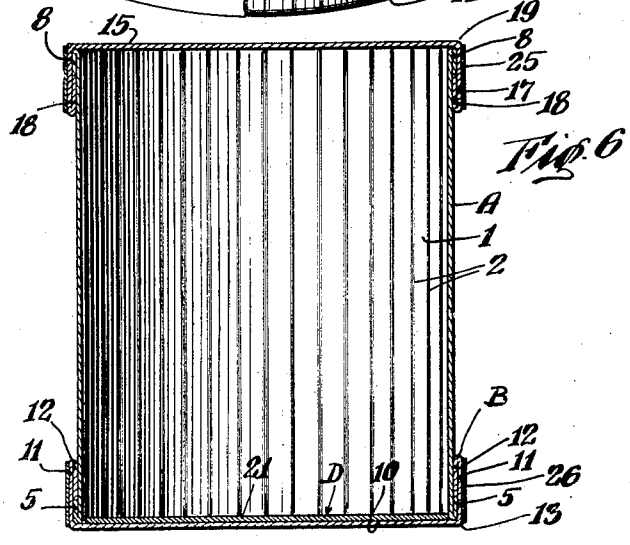


Fig. 6

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Fig. 9

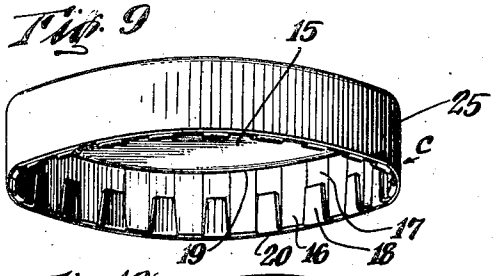

Fig. 10

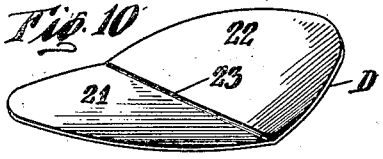

Fig. 7

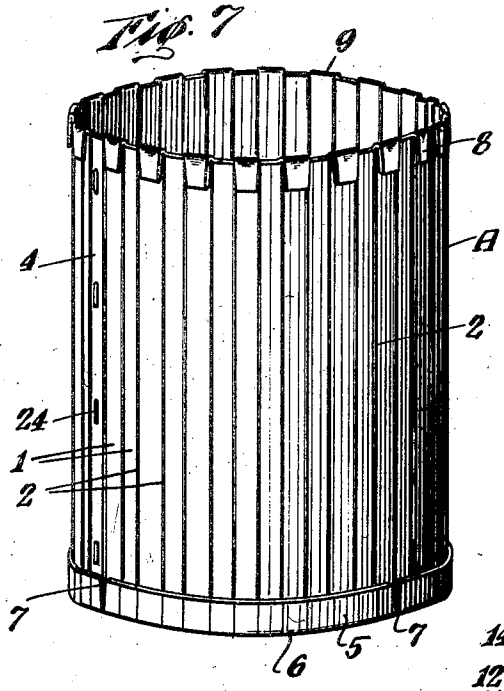

Fig. 8

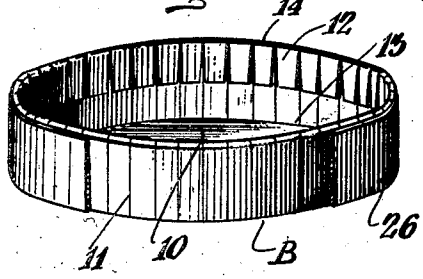

Fig. 11

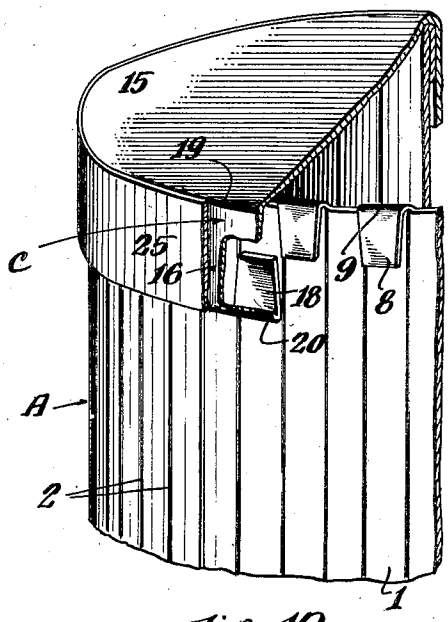

Fig. 12

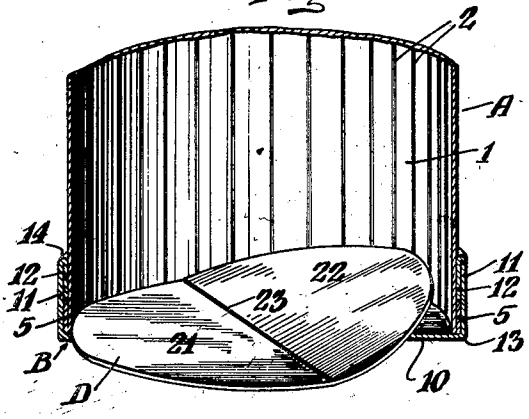

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Fig. 13

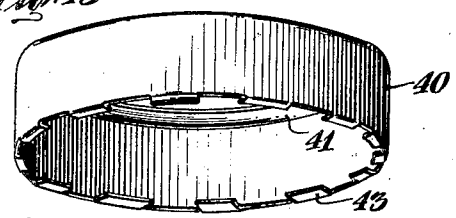


Fig. 14

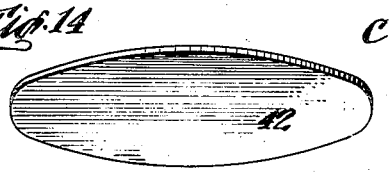


Fig. 18

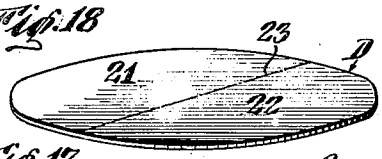


Fig. 17

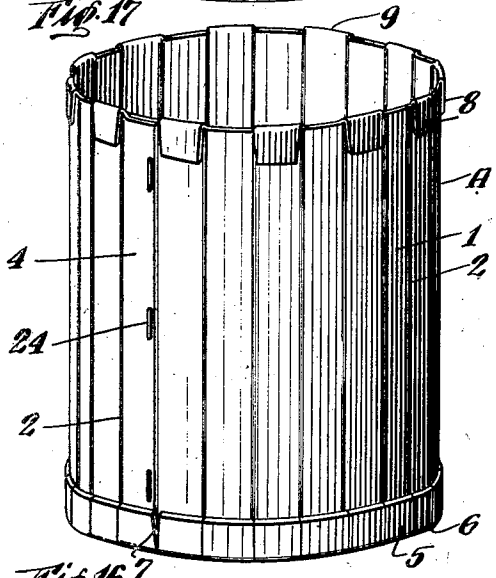


Fig. 16

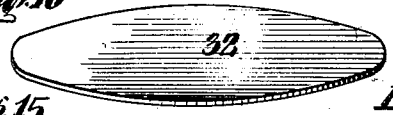


Fig. 15

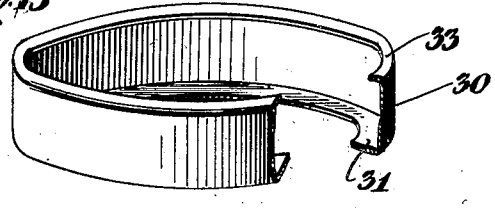
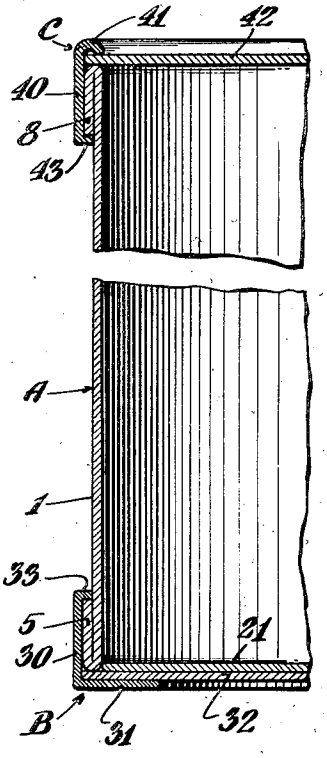


Fig. 19



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Patented Apr. 24, 1934 1,955,865

UNITED STATES PATENT OFFICE

1,955,865

COLLAPSIBLE CONTAINER

Charles P. Wellman, Medford, Mass.

Application December 30, 1932, Serial No. 649,465

5 Claims. (Cl. 229—5.5)

This invention relates to collapsible containers and more particularly to containers which may be shipped and stored in flat, knockdown condition and then set up and assembled by the packer or user as needed.

The container herein disclosed comprises generally a body member of tubular form which is provided with a number of vertical creases or scores which permits the body member to be completely collapsed. The lower end of the body member is provided with a rim which serves to stiffen and strengthen the same and also provides means by which the bottom closure member is retained in position on the body member. The bottom closure member may be formed of any suitable material and it comprises essentially a bottom wall having an upstanding surrounding rim portion or side flange. The side flange is provided with a portion which projects laterally therefrom so as to seat over and engage the rim portion of the body member when telescoped together. To insure a firm lock between the body member and closure member, a relatively stiff disc may be provided which may be inserted into the body member. This disc is of sufficient size to expand the lower end of the body member into tight interlocking engagement with the inturned projections provided on the closure member.

The top closure or cover member comprises a top wall and a flange or side wall which telescopes over the top end of the body member. The top end of the body member is provided with a series of spaced out-turned tabs which are preferably glued or otherwise secured to the body member. A series of corresponding inturned projections or tabs are provided on the side flange of the cover member which are adapted to engage the body projections to maintain the cover member locked to the body member. The projections on the body member and cover member are so arranged that by rotating the cover member a predetermined amount the projections on the cover member will clear the projections on the body member so as to permit the cover member to be removed when desired.

The container may be made of any desired material. Preferably, the body member is made of paperboard of fibreboard which is of sufficient strength and toughness to withstand the abuse to which it will be subjected. The bottom closure and top closure or cover member may be formed entirely of paperboard, or the end walls may be made of paperboard and the side flange or wall portion thereof made of metallic material, whichever is most convenient and desirable for the purpose at hand. The container is especially adapted for the packaging of ice cream and similar frozen products, although it may also be used to receive dry or semi-dry products or commodities. The container is attractive in appearance, strong and durable. It can be cheaply and economically manufactured and easily assembled by the packer or user.

An object of this invention is to provide a container which may be shipped in collapsed knockdown condition and thereafter be readily set up and assembled by the packer or user as needed or desired.

Another object of my invention is to provide a container having a collapsed body portion and a bottom closure member associated therewith which can be easily and quickly applied and when applied automatically locks itself to the body member to provide a unitary set up and fully assembled container.

Still another object of my invention is to provide a container having a cover member which may be firmly locked to the body member, but which can be also easily and quickly unlocked and removed by a slight predetermined manipulation thereof.

Still another object of my invention is to provide a container especially adapted for the packaging of frozen products and the like which can be made with a minimum of material, which can be produced on automatic machinery without hand operation, which can be easily and quickly assembled by the user without special tools, which is substantially leakproof and fully protects the contents against contamination and deterioration, which will stand great abuse and rough handling without weakening, and which may be made into a number of attractive designs and patterns.

Other objects of this invention will become apparent as the disclosure proceeds.

Although the novel features which are believed to be characteristic of this invention will be particularly pointed out in the claims appended hereto, the invention itself, as to its objects and advantages, and the manner in which it may be carried out, may be better understood by referring to the following description taken in connection with the accompanying drawings forming a part thereof, in which

Fig. 1 represents a blank from which the body member of the container may be made;

Fig. 2 represents a blank from which the bottom member is made;

Fig. 3 represents a blank from which the cover member is made;

Fig. 4 represents a cutout disc used to lock the body member and bottom member together;

Fig. 5 is a perspective view of the container as it appears when completely set up and assembled together;

Fig. 6 is a vertical cross sectional view through the container taken along lines 6—6 of Fig. 5;

Fig. 7 is a perspective view of the assembled

body member formed from the blank shown in Fig. 1;

Fig. 8 is a perspective view of the bottom member assembled from the blank shown in Fig. 2;

Fig. 9 is a perspective view of the top closure member assembled from the blank shown in Fig. 3;

Fig. 10 is a perspective view of the insert disc ready for insertion into the body member and which operates to lock the body member and bottom member together in firm set up assembly;

Fig. 11 is an enlarged perspective view of the top portion of the container, certain parts being broken away to illustrate the detachable interlocking connection between the body member and the top closure member of the container;

Fig. 12 is a fragmentary vertical cross sectional view through the container and illustrates how the bottom member is locked to the body member of the container;

Fig. 13 is a perspective view of the rim portion of a cover member of modified construction;

Fig. 14 is a perspective view of a sheet of stiff material shaped to fit within the cover rim shown in Fig. 13 to form the top end of the container;

Fig. 15 is a perspective view of a rim piece which forms a part of a bottom member of modified construction;

Fig. 16 is a perspective view of a plate shaped to fit within the rim piece shown in Fig. 15 to form the bottom end of the container;

Figs. 17 and 18 are perspective views of the body member and locking disc of the container as they appear when ready for assembly with the modified bottom member and cover member as disclosed in Figs. 13 and 14, and 15 and 16; and

Fig. 19 is a fragmentary vertical cross sectional view through the container as it appears when assembled together from the parts shown in Figs. 13 to 18, inclusive.

Similar reference characters refer to similar parts through the several views of the drawings and specification.

Referring more particularly to Fig. 1 there is shown a blank A which may be formed of fibreboard, paperboard or other composition sheet material. The blank is divided by score lines 2 into a number of vertical segments or side walls 1. A securing tab 3 is provided in one edge of the blank which is adapted to be secured by means of staples 24, stitches or other convenient securing means to the free edge 4 of the blank so as to provide a tubular member. The body member is preferably divided into an even number of wall segments 1 so that the body member, when assembled into tubular form, may be collapsed into flat condition. The lower end of the body member is provided with a rim portion 5 defined from the segments 1 by the transverse score line 6. A plurality of cuts 7 may be formed in the bottom rim 5 so as to facilitate bending of the same upwardly against the side wall segments 1, as illustrated more particularly in Fig. 5. The rim portion 5 is preferably glued or otherwise secured to the side segments 1 so as to provide a rim or shoulder surrounding the bottom end of the body member for a purpose hereafter to be described.

The upper end of the body member is provided with a plurality of tabs 8 hinged along the score line 9 to alternating side wall segments 1, as shown more particularly in Figs. 1 and 7. The tabs 8 are bent downwardly and preferably glued or otherwise secured to the side wall segments 1 so as to provide a top rim comprising disconnected or spaced segments, as illustrated in Fig. 7.

The bottom member B of the container may be formed from a single blank of paperboard, fibrous or other sheet material cut and scored in the manner shown in Fig. 2. The blank B comprises a bottom end portion 10 having a plurality of fingers 11 radiating therefrom and hinged thereto along the score line 13. The fingers 11 are further provided with claws 12 hinged along the score line 14.

The bottom member B is assembled by bending the fingers 11 at right angles to the bottom portion 10. A strip of strong, tough sheet material 26 is then glued or otherwise secured to the fingers 11 by banding the strip 26 around the same, as is evident by referring to Figs. 5 and 8. The strip 26 serves to bind the fingers 11 together so that a continuous side flange is provided. The claws 12 are then bent inwardly into the position shown in Fig. 8. The purpose of the claws 12 will be presently described.

The top closure or cover member C is formed from the blank shown in Fig. 3. The cover member comprises a top wall 15 having a plurality of fingers 16 and 17 radiating therefrom and hinged thereto along the score line 19. Fingers 17 are each provided with a claw 18 hinged thereto along the score line 20. Fingers 16 are without claws and are alternately arranged with respect to the clawed fingers 17, as shown in Figs. 3 and 9. The fingers 16 and 17 are held in upright assembled relation to provide a side flange for the cover member by means of a binding strip 25 which is glued or otherwise secured thereto.

In assembling the container, the body member A is expanded into tubular form as shown more particularly in Fig. 7. The lower end of the tubular body member is then telescoped into the surrounding flange of the bottom member B, as shown more particularly in Fig. 8. The claws 12 on the side flange of the bottom member are resilient and permit the rim portion 5 of the body member to pass the same during the telescoping operation. When the bottom edge of the body member strikes the end portion 10 of the bottom member the resilient claws 12 are in a position to snap inwardly and over the rim portion 5 of the body member. It is thus seen that the bottom member B is securely locked to the body member A to provide a fully assembled container. To further insure the locking connection between the claws 12 and the rim 5, a relatively stiff insert disc D is provided. Insertion of the disc D may be facilitated by providing a score line 23 through the same dividing the disc into hinged segments 21 and 22. The disc D is forced through the body member A until it comes to rest on the bottom portion 10 of the bottom member, the outer edge of the disc D engaging the bottom edge of the body member, retaining the same fully expanded at all times and preventing any inwardly collapse of the body member which would permit the rim portion 5 to disengage itself from the resilient claws 12.

The cover member C is telescoped over the body member A when the container has been filled with material. The resilient claws 18 slip over the spaced tabs 8 as the cover member is forced downwardly. When the cover member is fully seated the resilient claws 18 will then spring inwardly so as to engage and interlock with the tabs 8. The cover member is thus securely locked to the body member so that it cannot be accidentally removed. The cover member can be re-

moved, however, by rotating the same about the body member sufficiently to permit the claws 18 to clear the tabs 8. The claws 18 are then free to slide upwardly between the tabs 8 permitting the cover to be removed by a direct upward pull. It is understood that the cover member can be placed on the body member by a reverse operation, that is, by positioning the cover member so that the locking claws 18 slide downwardly between the tabs 8. Locking of the cover member can then be effected by a slight rotary movement of the cover member with respect to the body member so as to place the claws 18 in abutting interlocked position with respect to the tabs 8.

There is shown in Figs. 15 and 16 a bottom member of somewhat modified construction. The bottom member therein shown comprises a rim preferably made of metal or other relatively stiff and strong material comprising an upstanding side flange 30 and inwardly extending bottom flange 31. A bottom piece 32 which may be of strong stiff fibreboard is cut to size and inserted within the side wall 30 of the rim piece so as to rest on the inturned bottom flange 31. An inwardly extending lip 33 is provided around the upper edge of the side wall 30 which is adapted to snap over the rim 5 when the lower end of the body member is telescoped into the bottom member as above described.

The closure or cover member may be somewhat similarly formed, comprising a metallic rim having a side wall 40 and an inwardly extending edge portion 41. A cover piece 42 is positioned within the rim and seats against the inturned edge portion 41. The cover piece 42 is preferably made of strong fibreboard material and may be held within the rim of the cover member either by frictional engagement with the inside face of the side wall 40 or by means of the clamping action exerted by the inturned edge portion 41. The lower edge of the rim is provided with a plurality of spaced inturned lip projections 43 which are adapted to snap into engagement with the tabs 8 provided at the upper end of the body member. Removal of the cover member may be effected by rotating the same with respect to the body member so as to free the lip projections 43 from the tabs 8. The cover member can then be removed by an upward pull on the same in the manner heretofore described.

The container as above described is especially adapted for the packaging of ice cream and similar frozen products. The vertical extending creases 2 provided in the body member permit of a certain amount of expansion thereof as the material contained therein freezes and expands. This expanding action further assists in securely locking the body member to the bottom member and the cover member, since the bottom and cover members are provided with non-expansible side flanges against which the body member is expanded. Where frozen products are packed it may be found that the locking disc D need not be used, thus saving considerable material, as well as an assembling operation. The body member, bottom member and cover member may be shipped separately in collapsed or knockdown condition and can be quickly assembled by the packer or user without special equipment or tools.

While certain novel features of the invention have been disclosed and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. A container of the character described including in combination, a body member of paperboard material, a closure member having a metallic side flange and a removable paperboard end piece telescoped over one end of said body member, spaced projections provided on said body member adapted to engage corresponding projections on the closure member, said projections being so arranged that when said closure member is in one position the projections firmly interlock and when the projections are shifted to another position they will be free of one another so as to permit removal of the closure member.

2. A container of the character described including in combination, a collapsible body member, a closure member having a side flange in telescoped engagement with said body member, spaced projections provided on said body member, corresponding spaced resiliently expansible projections provided on the closure member which are adapted to interlock with the projections first mentioned when the cover member is in one position, unlocking of said cover member to permit removal thereof being accomplished by rotating the closure member to a position where the projections on the body member and the projections on the cover member will clear one another.

3. A container of the character described including in combination, a body member of paperboard material having spaced tab portions secured to one end thereof, a closure member having a side flange telescoped over said end, spaced resiliently expansible projections extending inwardly from said side flange, said side flange projections being adapted to engage the body projections when in one position thereby securely locking the closure member in place, unlocking of the closure member being accomplished by shifting the relative position of the flange projections and the body projections so that they will be moved out of engagement and clear one another.

4. A container of the character described including in combination, a collapsible body member of paperboard material, spaced projections secured to the outside face of said body member at one end thereof, a closure member having a metallic side flange and a removable end piece telescoped over said end, spaced projections associated with said flange extending inwardly, said body projections and said side flange projections being so arranged as to interlockingly engage when said cover member is in one position, and to clear one another when said cover member is rotated into another position, thus permitting the closure member to be removed.

5. A container of the character described including in combination, a collapsible body member, spaced projections secured to the outside face of said body member at one end thereof, a closure member having a side flange telescoped over said end, spaced projections associated with said flange extending inwardly, said body projections and said side flange projections being so arranged as to interlockingly engage when said cover member is in one position and to clear one another when said cover member is rotated into another position thus permitting the closure member to be removed, some of said projections on said closure member and body member being resiliently expansible so as to spring into engagement with the fixed set of projections.

CHARLES P. WELLMAN.