

Dec. 27, 1955

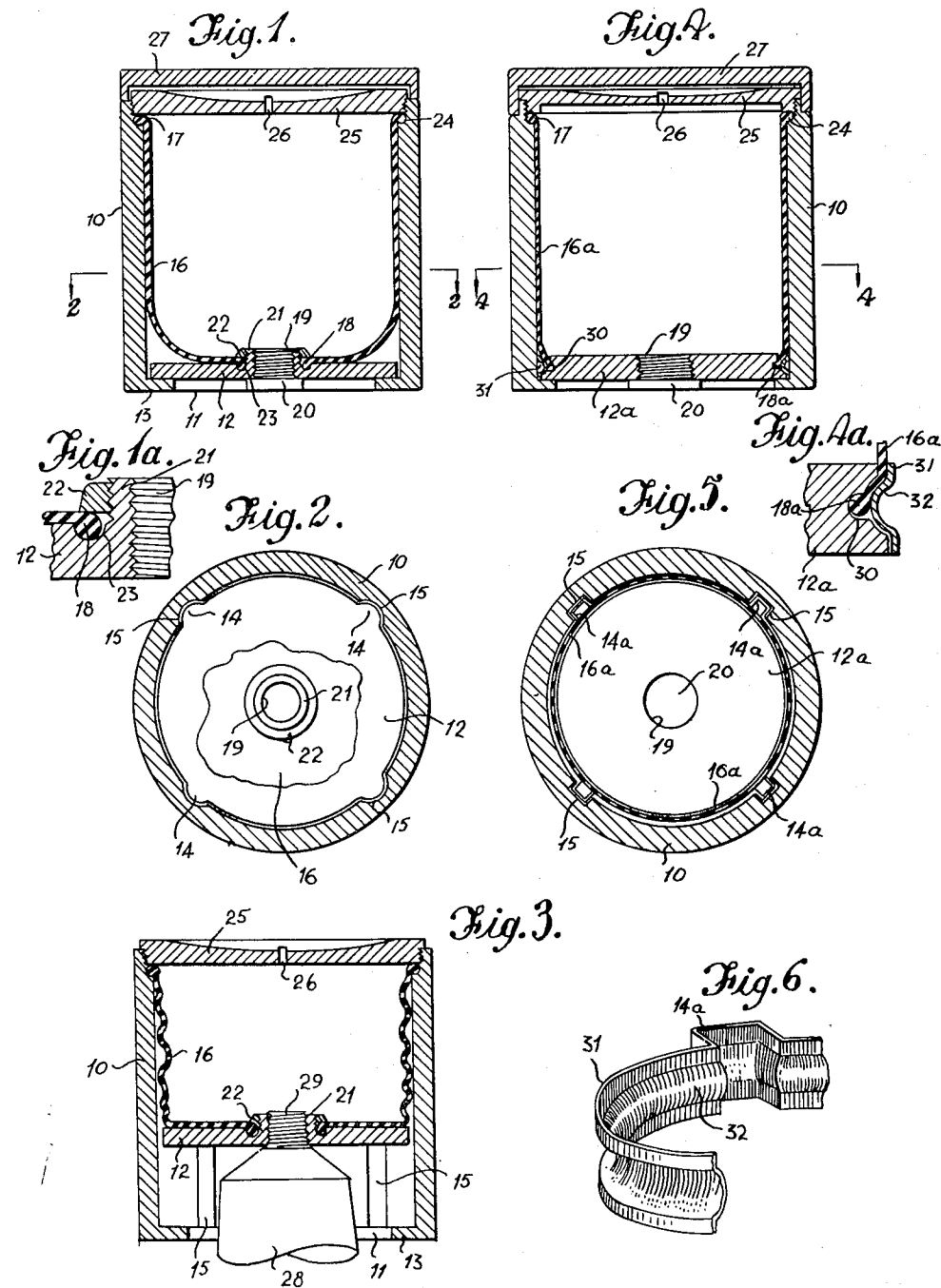
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2,728,494

CONTAINERS FOR PASTY AND SIMILAR SUBSTANCES

Filed July 5, 1951

2 Sheets-Sheet 1



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Fig. 7.

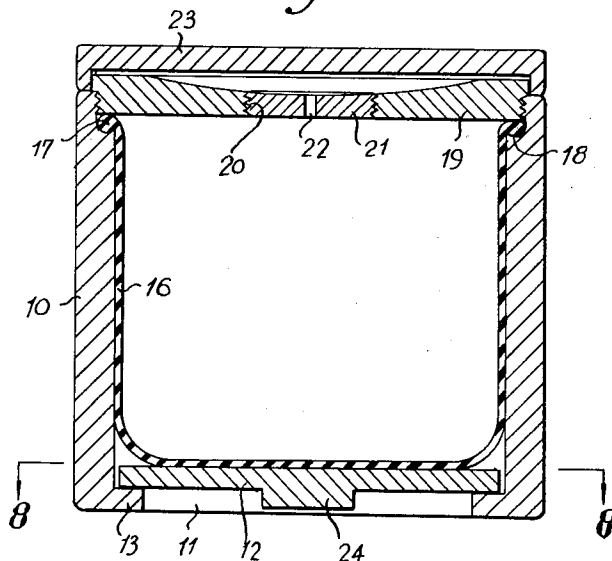
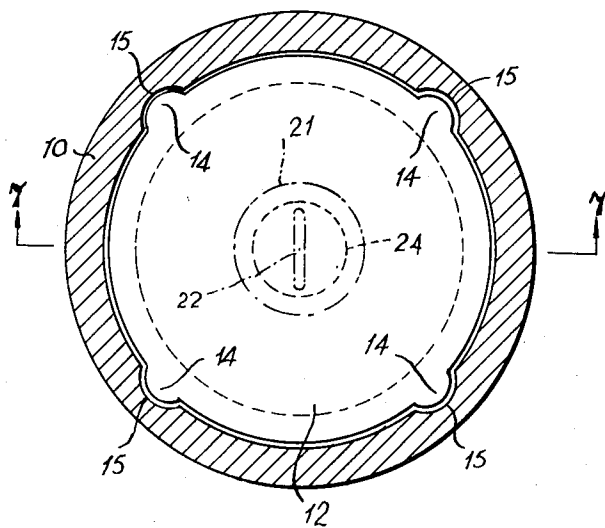


Fig. 8.



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CONTAINERS FOR PASTY AND SIMILAR SUBSTANCES

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Application July 5, 1951, Serial No. 235,194

9 Claims. (Cl. 222—386.5)

This invention relates to packages or containers for pasty and similar viscous substances, such as cosmetic, toilet and pharmaceutical cream preparations.

An object of the present invention is to provide a package or container that is readily refillable but which has a smart external appearance.

Another object of the invention is to provide a package or container that is refillable by the insertion of a refill package of a collapsible nature.

Another object is the provision of a package or container which has a collapsible sac within it, the contents of which may be expelled or extruded through an aperture in a closure member by pressing upon an operating plunger or the like that bears against the said inner sac.

Yet a further object of the invention resides in the provision of a package or container that is refillable through an aperture contained in it from a refill tube containing the substance desired, for example, a container that may be refilled from a tube having a screw nozzle.

With these and other objects in view, there is provided according to the invention, a container for pasty and similar substances comprising a substantially rigid outer case containing an inner collapsible sac for the substance, arranged between two substantially rigid disc-like members separable from the outer case, one of said members forming a closure for one end of the sac and being provided with an outlet aperture for the sac, and the other being movable in the outer case so that it can be pressed towards the other to squeeze the sac endwise in the case for expelling a quantity of the contents of the sac by extrusion through said aperture.

The invention also provides a container that comprises a substantially rigid outer case containing an inner collapsible sac for the substance, the sac being open at one end, the edge of which is held fast and outspread in a fixed position in the case by a closure member fixed to the case and closing the open end of the sac, said closure member having a filler aperture, fitted with a removable plug, through which the sac may be filled with the substance without removing the closure member from the case, the closure member serving to hold the open end of the sac fast and outspread while the sac is being filled, the case also containing a disc or like member arranged at the opposite end of the sac and slidable longitudinally in the case and accessible through an opening in the adjacent end of the case so that said slidable member can be pressed towards said closure member to squeeze the sac endwise in the case for expressing a quantity of the substance in the sac through an extrusion aperture or nozzle with which said closure member is provided.

Other objects and advantages of the invention will be apparent from the specific description which is to follow with reference to the accompanying drawings which show certain specific embodiments of the invention, and in which

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Fig. 1 is a sectional elevation of one embodiment of the container.

Fig. 1a is a fragmentary view of a portion of Fig. 1 shown on a larger scale.

Fig. 2 is a cross-section taken on the line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 1, showing the inner receptacle partially collapsed and illustrating a method of filling the container.

Fig. 4 is a sectional elevation of a modification of the container of Fig. 1.

Fig. 4a is a fragmentary view of a portion of Fig. 4 shown on a larger scale.

Fig. 5 is a cross-section taken on the line 5—5 of Fig. 4, and

Fig. 6 is a fragmentary perspective view of a detail of the container of Fig. 4, shown on a larger scale.

Fig. 7 is a section through a modified form of container according to the invention, taken on the line 7—7 of Fig. 8, and

Fig. 8 is a cross-section taken on the line 8—8 of Fig. 7.

Referring to Figs. 1 to 3, the container illustrated comprises a substantially rigid outer case 10 in the form of a cylindrical pot, jar or the like which may be made, for instance, of glass, metal, cardboard or a plastic. The case 10 is provided with a bottom opening 11 for access to a movable plate or disc 12 which forms a false bottom to the case and is retained therein by an inwardly directed abutment flange 13 at the bottom of the case, upon which the disc 12 rests in its lowermost position as seen in Fig. 1. The disc 12 is slidable axially in the case 10 and is guided by peripheral projections 14 (Fig. 2) on the disc engaging in longitudinal grooves 15 forming guideways in the cylindrical wall of the case, for preventing tilting or rotation of the disc 12 in the case 10. Of course, the alternative arrangement of longitudinal guide ribs on the case wall cooperating with peripheral slots in disc may be provided instead. The case 10 contains an inner collapsible sac 16 for the desired substance, which may be made from a suitable, e. g., thin, pliable material, such as cellulose acetate or other suitable plastic foil, metal foil, plastic and metal foils pressed or bonded together, or paper, e. g., waxed or greaseproof paper, or which may be formed as a moulding of rubber or a suitable plastic.

In the form shown, the mouth of the sac 16 is formed with a beaded edge 17 and the bottom of the sac has a smaller opening therein bounded by a beaded edge 18. The movable disc 12 has a filler opening 19 therein closed by a screw plug 20 and the sac 16 is fixed by its bottom bead 18 to the disc 12 over the opening 19. For fitting the sac to the disc, the latter is formed with a spigot 21 projecting from the upper face of the disc and of a suitable diameter to fit into the bottom opening of the sac, and the beaded edge 18 encircling the spigot 21 is seated and clamped in leakproof manner against the disc 12 by a clamping ring 22 screwed on to the end of the spigot. The disc 12 thus provides a closure for the bottom end of the sac. If desired, and as illustrated, the disc 12 may be provided with an annular seating groove 23 in its upper face at the base of the spigot, for receiving the beaded edge 18 of the sac.

Near its open top end, the cylindrical wall of the case 10 is formed with an annular shoulder 24 against which the beaded edge 17 of the sac is seated, preferably in an annular groove as shown, and is clamped in leakproof manner by means of a clamping disc 25 screwed into the case, and thus forming part of the case, closing its top. The disc 25 also provides a closure for the top end of the sac 16, and is provided with an aperture or slot 26 for extrusion of the substance in the sac. The case may also be provided with a removable lid 27 fitting over the disc 25.

In the use of the container, the case is held (with the lid 27 removed) and the movable bottom disc 12 is pressed upwardly so as to squeeze the sac endwise and thereby expel a desired quantity of its contents by extrusion through the aperture 26 in the fixed top disc 25 of the case. In this operation, the cylindrical wall of the case surrounds the sac sufficiently closely to provide a backing-up support for it, restraining or preventing transverse expansion or distention of the sac (which might otherwise be disrupted) by its contents in response to the endwise pressure exerted on it. The head of the filler plug 20 serves as a convenient fingerhold or button for enabling the movable bottom disc 12 to be withdrawn towards the bottom of the case, should this be required for returning excess extruded substance into the sac again, by the effect of suction thereon created by thus longitudinally expanding the sac.

The sac 16 may be filled or refilled by the removal of the filler plug 20 and introduction of the desired substance through the filler opening 19. The container may thus be repeatedly recharged. As illustrated in Fig. 3, the container may be filled, for example, from a collapsible tube 23, the nozzle 29 of which is screwed into the filler aperture 19, with the filler plug 20 removed, so that the contents of the tube may be transferred into the sac. The inter-engaging guide ways 15 and projections 14 of the case and bottom disc also serve, in this instance, to prevent rotation of the disc 12 when the collapsible tube 23 is screwed into the disc.

In a modification, as illustrated in Figs. 4 to 6, the sac 16a is of tubular form open at both ends and is attached at its bottom end to the periphery of the movable bottom disc 12a, the periphery of the latter being formed with a groove 30 in which the lower beaded end 18a of the sac is held in leakproof manner by an annular clip 31, e. g., of metal or a plastic, which is formed with an annular inwardly projecting portion 32 (seen more clearly in Fig. 6) which matches the groove 30 and grips the beaded end 18a of the sac therein, and with external rib-like projecting portions 14a which cooperate with the longitudinal guideways 15 in the cylindrical wall of the case 10. Other parts of the container of Fig. 4 are similar to those of Fig. 1 and are accordingly denoted by the same reference numerals.

The invention is by no means limited to the examples above described, since numerous modifications may be made therein without departing from the invention. For example, the filler aperture 19 and plug 20 need not be provided in the movable bottom disc 12 or 12a, but may, instead, be provided in the fixed upper disc 25. In that arrangement, the extrusion aperture 26 may be provided in a removable plug (corresponding to plug 20) for the filler aperture in the disc 25; also, in view of the omission of the filler plug in the movable bottom disc 12 or 12a, the latter may be provided with a button or other suitable fingerhold to facilitate withdrawal of the disc towards the bottom of the case 10; and furthermore, with the removal of the filler opening and plug from the movable bottom disc 12 to the fixed upper disc 25, the sac 16 in Fig. 1 could then be formed with a closed bottom resting upon but unattached to the disc 12, which may then also be without the spigot 21, clamping ring 22 and seating groove 23.

It will also be evident that, as another modification, the bottom disc 12 or 12a may be fixed, forming a fixed bottom to the case, and the upper disc 25 with the sac attached thereto made movable in the case and provided (instead of the bottom disc) with the projections 14.

Thus, in another construction combining certain of the modifications indicated above, both the outer case and the sac may be formed with a closed bottom, the bottom of the sac resting on but unattached to the bottom of the case, and the open top end of the sac being fixed in leakproof manner to a plate or disc which corresponds to disc 25 and is provided with an extrusion

orifice in a removable filler plug for a filler aperture in the disc, but which, in this arrangement, is not fixed to the case but is movable therein so that it can be pressed downwardly in the case to squeeze the sac endwise between the movable plate and the fixed bottom of the case.

In another modification, the inner receptacle may be pleated or corrugated in the form of a bellows so that it collapses in an orderly fashion, along the line or lines of its fold or folds. Such a bellows may be attached at its opposite ends respectively to fixed and movable plates of the case. Thus, for instance, the sac 15a in Fig. 4 may be pleated or corrugated like a bellows.

In the use of the container, it will be appreciated that when the sac has been fully collapsed it may still retain a certain minimum thickness due to the packing of the collapsed material of the sac, and a corresponding depth of the substance may remain in the sac, which cannot be expelled. This may be particularly evident with the bellows form of sac. In another modification, therefore, the fixed or movable plate of the case, or both of them, according to the form of construction employed, may be made to project like a plug into the sac a sufficient distance, substantially equal to or preferably slightly exceeding the minimum thickness of the sac when fully collapsed, so as substantially to fill the residual space that would otherwise be present in the sac when fully collapsed. Thus, for example, in the construction illustrated in Fig. 1, the disc 25 may project into the sac for this purpose, and in the construction of Fig. 4 either the disc 25 or the disc 12a, or both of them, may so project.

If desired, the movable plate, such as 12 or 12a, may be provided with a thickened periphery or the equivalent such as a peripheral flange so that it has a sufficient effective length of bearing at its periphery in the case 10 to prevent any appreciable tilting, with consequent jamming, of the movable plate in the case.

The container shown in Figs. 7 and 8 of the drawings comprises a substantially rigid outer case 19 in the form of a cylindrical pot, jar or the like which may be made, for instance, of glass, metal, cardboard or a plastic. The case 10 is provided with a bottom opening 11 for access to a movable disc 12 which forms a false bottom to the case and is retained therein by an inwardly directed abutment flange 13 at the bottom of the case, upon which the disc 12 rests in its lowermost position as seen in Fig. 1. The disc 12 is slidable axially in the case 10 and is guided by peripheral projections 14 (Fig. 2) on the disc engaging in longitudinal grooves 15 forming guideways in the cylindrical wall of the case, for preventing tilting or rotation of the disc 12 in the case 10. Of course, the alternative arrangement of longitudinal guide ribs on the case wall cooperating with peripheral slots in the disc may be provided instead. The case 10 contains an inner collapsible sac 16 for the desired substance, which sac may be made from a suitable, e. g., thin, pliable material, such as cellulose acetate or other suitable plastic foil, metal foil, plastic and metal foils pressed or bonded together, or paper, e. g., waxed or greaseproof paper, or may be formed as a moulding of rubber or a suitable plastic.

In the form shown, the mouth of the sac 16 is formed with a beaded edge 17. Near its open top end, the cylindrical wall of the case 10 is formed with an annular shoulder 18 against which the beaded edge 17 of the sac is seated, preferably in an annular groove as shown, and is clamped in leakproof manner by means of a clamping disc 19 screwed into the case, and thus forming part of the case, closing its top. The disc 19 provides a closure for the open top end of the sac 16. The closure disc 19 has a screw-threaded filler aperture 20 therein closed by a removable screw plug 21 provided with an aperture 22 for extrusion of the substance in the sac. The aperture 22 is in the form of a slot, which also provides a convenient means for screwing the plug 21 in and out.

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The case 10 may be provided with a removable lid 23 fitting over the disc 19.

In the use of the container, the case 10 is held (with the lid 23 removed) and the movable bottom disc 12 is pressed upwardly (as viewed in Fig. 1) so as to squeeze the sac endwise and thereby express a desired quantity of its contents through the aperture 22 in the disc 19. In this operation, the cylindrical wall of the case 10 surrounds the sac 16 sufficiently closely to provide a backing-up support for it, restraining or preventing transverse expansion or distention of the sac (which might otherwise be disrupted) by its contents in response to the endwise pressure exerted on it.

The sac 16 may be filled or refilled without removing the closure disc 19, by removing the filler plug 21 and introducing the desired substance through the filler aperture 20. The disc 19 holds the open end of the sac fast and outspread while the sac is being filled, thus facilitating the filling operation. The filler aperture may be screw-threaded to receive alternatively the filler plug 21 or the screw-threaded nozzle of a collapsible tube, so that the sac may be filled from a collapsible tube by screwing the nozzle of the latter into the filler aperture 19, after the filler plug 20 has been removed, and squeezing the tube to transfer its contents into the sac. If desired, the movable disc 12 may be provided with a button or other convenient fingerhold 24 which facilitates withdrawal of the disc 12 towards the bottom of the case.

Modifications may be made in the described embodiment without departing from the invention. For example, the sac may be pleated or corrugated in the form of a bellows so that it collapses in an orderly fashion, along the line or lines of its fold or folds. Again, in the use of the container, it will be appreciated that when the sac has been fully collapsed it may still retain a certain minimum thickness due to the packing of the collapsed material of the sac, and a corresponding depth of the substance may remain in the sac, which cannot be expelled. This may be particularly evident with the bellows form of sac. In another modification, therefore, the fixed disc 19 may be made to project like a plug into the sac a sufficient distance, substantially equal to or preferably slightly exceeding the minimum thickness of the sac when fully collapsed, so as substantially to fill the residual space that would otherwise be present in the sac when fully collapsed. Furthermore, if desired, the movable disc may be provided with a thickened periphery or the equivalent, such as a peripheral flange, so that it has a sufficient effective length of bearing at its periphery in the case 10 to prevent any appreciable tilting, with consequent jamming, of the movable disc in the case.

I claim:

1. A container comprising a rigid tubular outer member and a collapsible inner receptacle of sac form open at one end, a beaded peripheral edge on said open end, a circumferential groove in the inner wall of said outer member, said beaded edge locating in said groove, a rigid disc having a slot therein, means for securing said disc within said outer member and in clamping relationship to the beaded edge of said inner receptacle, a second rigid disc at the opposite side of said inner receptacle, means on said outer member to define the lowermost limit of movement of said second disc, said second disc being movable axially of said container to collapse the inner receptacle towards said first-mentioned rigid disc to express the contents of said inner receptacle through said slot, a filling aperture in one of said discs, and securing means in said filling aperture for alternatively accommodating a closure member and a filling device.

2. A container comprising a rigid tubular outer member and a collapsible inner receptacle of sac form open at one end, a beaded peripheral edge on said open end, a circumferential groove in the inner wall of said outer member, said beaded edge locating in said groove, a rigid disc having a slot therein, means for securing said disc

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within said outer member and in clamping relationship to the beaded edge of said inner receptacle, a second rigid disc at the opposite side of said inner receptacle, means on said outer member to define the lowermost limit of movement of said second disc, said second disc being movable axially of said container to collapse the inner receptacle towards said first-mentioned rigid disc to express the contents of said inner receptacle through said slot, a filling aperture in one of said discs, axial ribs on the peripheral edge of said second disc, axial grooves in the inner wall of said outer member accommodating said ribs, and securing means in said filling aperture for alternatively accommodating a closure member and a filling device.

3. A container comprising a rigid tubular outer member and a collapsible inner receptacle of sac form open at one end, a beaded peripheral edge on said open end, a circumferential groove in the inner wall of said outer member, said beaded edge locating in said groove, a rigid disc having a slot therein, means for securing said disc within said outer member and in clamping relationship to the beaded edge of said inner receptacle, a second rigid disc attached to the opposite end of said inner receptacle, means on said outer member to define the lowermost limit of movement of said second disc, said second disc being movable axially of said container to collapse the inner receptacle towards said first-mentioned rigid disc to express the contents of said inner receptacle through said slot, a filling aperture in one of said discs, and securing means in said filling aperture for alternatively accommodating a closure member and a filling device.

4. A container comprising a rigid tubular outer member and a collapsible inner receptacle of sac form open at one end, a peripheral beaded edge to said open end, a circumferential groove in the inner wall of said outer member at one end thereof for accommodating said peripheral beaded edge, a rigid disc having a slot approximately through its centre, means for securing said disc within said outer member and in clamping relationship with said beaded edge of said inner receptacle, the free face of said rigid disc being centrally dish-shaped about said slot, an aperture in the opposite end of said inner receptacle and having a beaded edge, a second rigid disc having a centrally upstanding projection, a groove in said second disc circumambulating said upstanding projection and shaped to accommodate said beaded edge of the aperture in said opposite end of the inner receptacle, means cooperating with said upstanding projection to clamp said last-mentioned beaded edge into said circumambulating groove, means on said outer member to define the lowermost movement of said second disc, said second disc being movable axially of said container to collapse the inner receptacle towards said first-mentioned rigid disc to express the contents of said inner receptacle through said slot, a filling aperture in said second disc and through said upstanding projection, and securing means on said filling aperture for alternatively accommodating a closure member and a filling device.

5. A container comprising a rigid tubular outer member and a collapsible inner receptacle of sac form open at one end, a beaded peripheral edge on said open end, a circumferential groove in the inner wall of said outer member, said beaded edge locating in said groove, a rigid disc having a slot therein, means for securing said disc within said outer member and in clamping relationship to the beaded edge of said inner receptacle, a second rigid disc forming a closure for the opposite end of said inner receptacle, means on said outer member to define the lowermost limit of movement of said second disc, said second disc being movable axially of said container to collapse the inner receptacle towards said first-mentioned rigid disc to express the contents of said inner receptacle through said slot, a filling aperture in one of said discs, and securing means in said filling aper-

ture for alternatively accommodating a closure member and a filling device.

6. A container comprising a rigid tubular outer member and a collapsible inner receptacle of sac form open at one end, a peripheral beaded edge to said open end, a circumferential groove in the inner wall of said outer member at one end thereof for accommodating said peripheral beaded edge, a rigid disc having a slot therein, means for securing said disc within said outer member and in clamping relationship with said beaded edge of said inner receptacle, a second rigid disc forming a closure for the opposite end of said inner receptacle, said second disc having a peripheral groove for locating a beaded edge on the end of said inner receptacle remote from said open end, clamping means for clamping said last-mentioned beaded edge in said groove in said second disc, means on said outer member to define the lowermost movement of said disc, said second disc being movable axially of said container to collapse the inner receptacle towards said first-mentioned rigid disc to express the contents of said inner receptacle through said slot, a filling aperture in said second disc, and securing means in said filling aperture for alternatively accommodating a closure member and a filling device.

7. A container comprising a rigid tubular outer member and a collapsible inner receptacle of sac form, open at one end and closed at the other, a beaded peripheral edge on said open end, a circumferential groove in the inner wall of said outer member, said beaded edge locating in said groove, a rigid disc having an aperture therein, a plug for said aperture, a slot in said plug, means for securing said disc within said outer member and at the open side of said inner receptacle, a second disc at the closed side of said inner receptacle, and means on said outer member to define the lowermost limit of movement of said second disc, said second disc being movable axially of said container to collapse the inner receptacle towards said first-mentioned rigid disc to express the contents of said inner receptacle through said slot in said plug, said aperture in said first-mentioned rigid disc forming a filling aperture, and said first-mentioned rigid

disc being dished at its free end centrally about said slot.

8. A dispensing container comprising a rigid tubular outer casing, a flange projecting radially inwards at one end of said casing, a collapsible inner receptacle of sac form having an open mouth, a first disc member secured to the other end of said casing and clamping the open mouth of said inner receptacle to said outer casing at its said other end, an aperture in the unclamped end of said inner receptacle, a second disc member slidably mounted within said outer casing between said flange and said inner receptacle, an aperture in said second disc member, the said aperture in the unclamped end of said inner receptacle being secured to a portion of said second disc member about its said aperture, a dispensing aperture in said first disc member, and means for closing said aperture in said second disc member.

9. A dispensing container comprising a rigid tubular outer casing, a flange projecting radially inwards at one end of said casing, a collapsible inner receptacle of sac form having an open mouth, its other end being closed, a first disc member secured to the other end of said casing and clamping the open mouth of said inner receptacle to said outer casing at its said other end, a second disc member within said outer casing and located between said flange and said closed end of said inner receptacle for sliding movement within said outer casing to collapse said inner receptacle axially, a removable plug in said first disc for filling said inner receptacle, and a dispensing aperture in said removable plug.

References Cited in the file of this patent

UNITED STATES PATENTS

580,052	Lindemeyer	Apr. 6, 1897
1,555,705	Roberts	Sept. 29, 1925
1,911,094	Skoglund	May 23, 1933
2,009,761	Calderara	July 30, 1935
2,198,564	Robison	Apr. 23, 1940
2,471,852	Bau	May 31, 1949
2,518,751	Carlton	Aug. 15, 1950