Dec. 10, 1963 F. E. BROWN 3,113,672

CONTAINER-DISPENSER CONSTRUCTION FOR SUPPOSITORIES AND THE LIKE

Filed Aug. 14, 1959 2 Sheets-Sheet 1

FIG. 1.

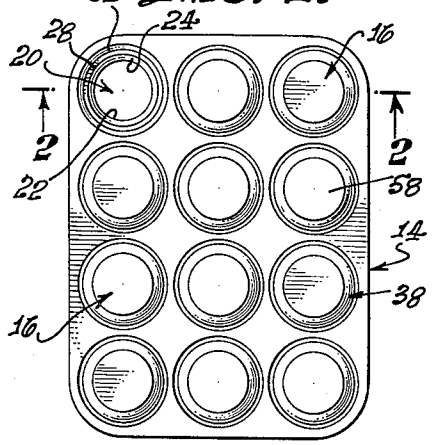


FIG. 3.

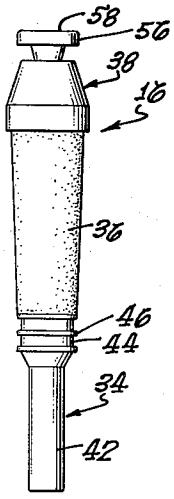


FIG. 4.

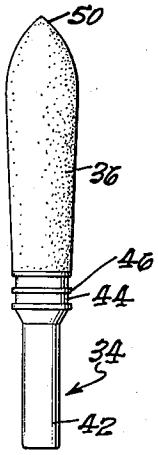


FIG. 2.

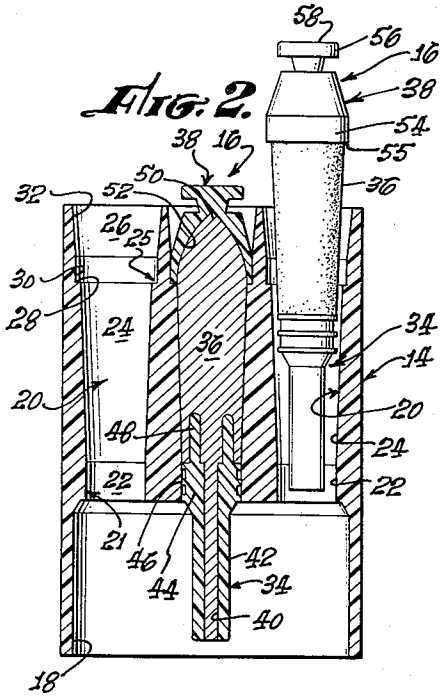


FIG. 6.

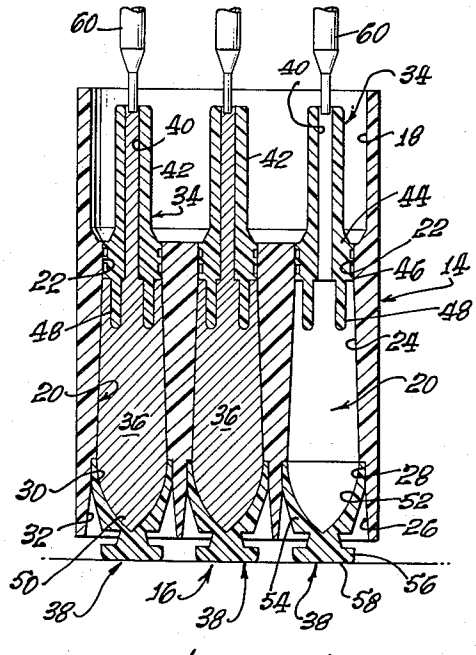


FIG. 5.



FRANK E. BROWN,
INVENTOR

BY HIS ATTORNEYS.

HARRIS, KIECH, RUSSELL & KERN.

Dec. 10, 1963 F. E. BROWN 3,113,672

CONTAINER-DISPENSER CONSTRUCTION FOR SUPPOSITORIES AND THE LIKE

Filed Aug. 14, 1959 2 Sheets-Sheet 2

FIG. 7.

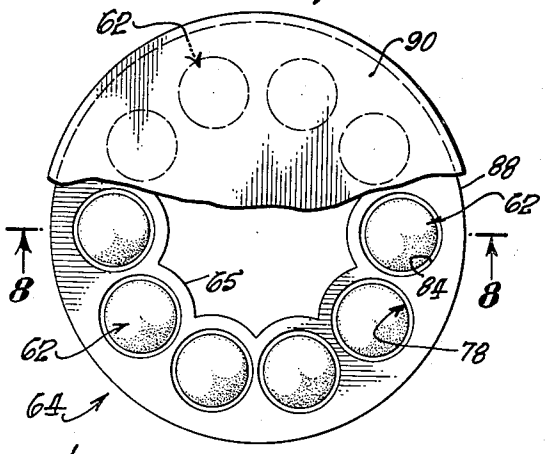


FIG. 9.

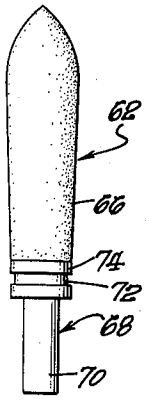


FIG. 11.

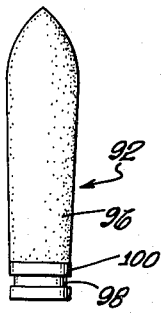


FIG. 8.

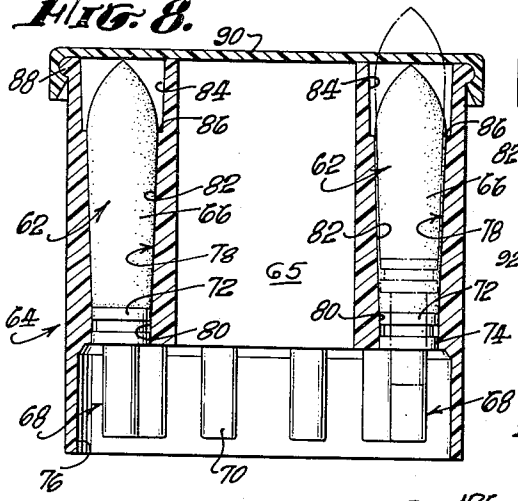


FIG. 10.

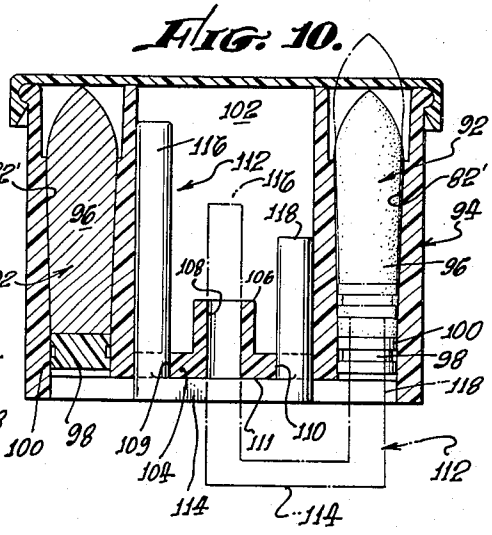
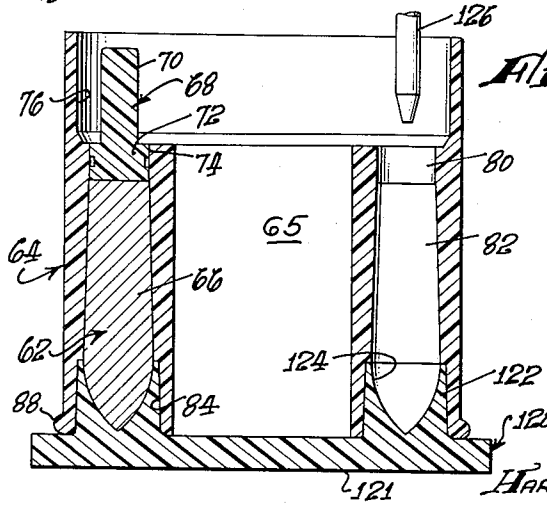


FIG. 12.



FRANK E. BROWN,
INVENTOR.

BY HIS ATTORNEYS.

HARRIS, KIECH, RUSSELL & KERN.

United States Patent Office 3,113,672
Patented Dec. 10, 1963

3,113,672

CONTAINER-DISPENSER CONSTRUCTION FOR SUPPOSITORIES AND THE LIKE

Frank E. Brown, 1842 Emerald Terrace, Glendale 1, Calif.

Filed Aug. 14, 1959, Ser. No. 833,837
7 Claims. (Cl. 206—63.2)

The present invention relates generally to the art of forming and dispensing articles and is particularly applicable to articles that should be dispensed or used without contamination. The invention will be particularly exemplified as applied to the medical appliance art and to a novel suppository and container-dispenser construction therefor.

At the present time, suppositories are usually individually wrapped in free form in foil or the like or they are sealed in similar material in a side-by-side relationship. Because they soften at body temperature, during hot months they must be shipped by air express in refrigerated packages. Also, in doctors' offices, hospitals, and the like the suppositories are usually maintained under refrigeration to prevent them from softening and becoming deformed. A further disadvantage with the known constructions is that the suppositories are difficult to unwrap and use without mutilating them because as soon as they are grasped in a person's hand they begin to soften and lose shape and become difficult to hold.

It is an object of the present invention, therefore, to provide a novel container-dispenser construction whereby suppositories or other articles can be shipped long distances without refrigeration during all types of weather without damaging them. More particularly, it is an object to provide a dispenser type of container in which the suppositories or other articles are supported in a rigid mold or cavity. Specifically, it is an object to provide such a device in which the suppositories or other heat-softenable articles are sealed in rigid molds or cavities so that even if they were to soften with heat, they would not change shape and could be solidified prior to usage by merely chilling the container-dispenser.

Another object is to provide a novel dispenser construction for suppositories, from which they can be easily and quickly dispensed ready for use. More particularly, it is an object to provide such a construction in which the suppositories are supported in an unwrapped form and from which they can be easily and quickly removed by manual pressure.

A further object is to provide a novel suppository construction whereby the suppository can be used without touching the suppository material itself. More particularly, it is an object to provide a novel suppository construction which contains handle means which can be easily and quickly detached from the suppository during use. Specifically, it is an object to provide a suppository which contains detachable handle means at one or both ends thereof whereby it is not necessary to touch the suppository material itself with the hands during any period of usage.

Another object is to provide a novel container-dispenser which is also used for forming the suppositories themselves. More particularly, it is an object to provide such a device which is used as a mold for forming the suppositories and which also functions as the shipping package and dispenser therefor.

Further objects and advantages of the present invention will be apparent from the following detailed description, reference being had to the accompanying drawings wherein preferred embodiments of the present invention are shown.

Briefly stated, the invention comprises a mold or container in which the suppositories or other articles are

formed and which also functions as a container-dispenser. The container-dispenser may contain a plurality of elongated chambers in side-by-side relationship which are open at both ends, one end being larger than the other one. In the preferred construction, individual removable caps are placed in the larger ends and removable handle members with passageways therethrough are positioned in the smaller ends. Suppository material is then injected into the chambers through the passageways in the handle members. The suppositories are shipped in these containers and are dispensed therefrom by pressing on the handle member and forcing the suppository, cap and handle member through the chamber and out the larger end. The cap (which may also function temporarily as a handle) is removed prior to use.

Although the following description and attached drawings are specifically directed to a suppository construction and a combination shipping container and dispenser therefor, it is to be understood that the present teachings can also be applied to other materials which are used in a preformed shape, e.g. materials which have a relatively low softening point, as for example contraceptives, vaginal medicaments, lipstick, and industrial lubricants, to name a few.

In the drawings:

FIG. 1 is a top plan view of a suppository and container-dispenser construction embodying the teachings of the present invention, one of the suppositories being removed to illustrate the internal construction of one of the chambers:

FIG. 2 is a vertical sectional view taken on the line 2—2 in FIG. 1, with one of the suppository assemblies partially removed from the chamber and shown in elevation;

FIG. 3 is a front elevational view of a suppository assembly as it appears when removed from the container-dispenser;

FIG. 4 is a view similar to FIG. 3 but with the cap removed from the suppository assembly, showing the suppository ready for usage;

FIG. 5 is a top plan view of one form of handle member for the suppository material;

FIG. 6 is a vertical sectional view of the container-dispenser as it appears during the filling or suppository forming operation;

FIG. 7 is a top plan view of a modified form of container-dispenser with the removable cover cut away to more fully disclose the internal construction thereof;

FIG. 8 is a vertical sectional view taken on the line 8—8 in FIG. 7, with the suppositories shown in elevation;

FIG. 9 is a front elevational view of a suppository containing a modified type of handle construction;

FIG. 10 is a vertical sectional view similar to FIG. 8, showing another form of container-dispenser with a built-in ejector member;

FIG. 11 is a front elevational view of the suppository construction which is used with the container-dispenser shown in FIG. 10, and containing a further modified handle construction; and

FIG. 12 is a vertical sectional view similar to FIG. 8 illustrating the manner in which the suppositories containing solid handle members are formed.

Referring to the drawings more particularly by reference numerals, 14 indicates a container-dispenser which houses a plurality of suppository assemblies 16, all of which are constructed in accordance with the teachings of the present invention. As will be described more fully hereinafter, the container-dispenser 14 may also function as a mold for forming the suppositories themselves.

As shown in FIGS. 1 and 2, the container-dispenser 14 includes a large lower handle chamber 18 which is open

at the bottom end and a plurality of axially extending suppository chambers 20 which are in side-by-side spaced relationship. Each of the suppository chambers 20 contains a first or lower seat 21 which may be a cylindrical portion 22 of uniform diameter which is in communication with the handle chamber 18, an intermediate portion 24 which increases in diameter in the upward direction, and an upper seat 25 opening on an enlarged throat 26. The seat 25 may be formed by a shoulder 28 which is immediately below a cylindrical section having a side wall 30 of uniform diameter which merges into an upwardly and outwardly diverging wall 32 of the throat 26. The container-dispenser 14 may be formed of molded plastic such as polyethylene.

The preferred suppository assembly 16 (FIG. 3) comprises a handle member 34, a suppository 36 or other article to be contained and dispensed, and a cap 38.

The handle member 34, which is preferably made from soft flexible plastic material, such as polyethylene, has an axially extending filling passageway 40 therethrough and includes an elongated stem portion 42 and a hub 44 which contains a plurality of spaced annular ridges 46, the outside diameter of the ridges 46 being slightly greater than the diameter of the lower chamber 22 so that there is a sealing press fit therebetween. Extending upwardly from the hub 44 is a suppository attachment means shown as three fingers 48 (FIGS. 2 and 5) for receiving and supporting the suppository 36 when withdrawn from the corresponding chamber 20. If desired the suppository attachment means may comprise a smaller or larger number of fingers but should be relatively close to the periphery of the base of the suppository 36.

As shown in FIG. 4, the suppository 36 is of upwardly increasing diameter and terminates in a pointed tip 50 which supports the cap 38. The suppository is generally made of coconut butter but it can be made of similarly soft material and it can be made either with or without medicaments incorporated therein.

The cap 38, which is preferably made of soft plastic material, has an inner cavity 52 which is the desired shape of the suppository tip 50 for a reason to be discussed more fully hereinafter, a cylindrical peripheral wall surface 54 which is substantially the same diameter as the side wall 30 of the throat 26 and which terminates in a lip 55, and a knob 56 which functions as a handle and which has a flat end surface 58.

To use the container-dispenser 14 as a mold for forming the suppository 36, a cap 38, which preferably has a parting material such as silicone applied to the cavity 52, is positioned in each of the upper chambers 26 so that its lip 55 seats on the shoulder 28 with the peripheral wall surface 54 in sealing engagement with the side wall 30. Handles 34 are then positioned with the hubs 44 thereof in the lower portions 22 of the chambers, the ridges 46 being in sealing engagement with the walls of said lower portions. The container-dispenser 14 is then positioned as shown in FIG. 6 with the caps 38 bearing on the flat surfaces 58 thereof and the handles 34 extending in the upward direction. Filling needles 60 are then lowered into position with the ends thereof a short distance inside the passageways 40, and the suppository material (e.g. coconut butter) in fluid form is injected into the suppository chambers 20. When the chambers 20 are filled, the material will rise in the filling passageways 40 to adjacent the ends of the needles 60. A filling system whereby measured amounts of material are dispensed from the needles 60 is preferred because if there is an obstruction in one of the passageways or an air pocket in a suppository chamber, the material will flow out of the filling passageway and thereby indicate a malfunction in the system. It is also preferable to chill the mold to about 32° F. prior to filling so that the suppository material will harden practically as soon as it is in the mold. However, even without chilling the mold, the container-dispenser can be turned over immediately after filling without any danger of the material leaking out of the passageways 40 because the latter are relatively small and the material is quite viscous.

With the handle members 34 and caps 38 in sealing engagement with the container-dispenser, the suppositories 36 can be transported therein without regard to the temperature conditions which may be encountered because even if the suppository material were to become quite soft, it could not flow from the suppository chambers or through the passageways 40 because of capillary action and the only requirement would be to chill the container-dispenser prior to use in order to make certain that the suppositories were in solid form. Inasmuch as suppositories are usually kept under refrigeration at the doctor's office or hospital, this does not require any additional step or unusual precaution.

To eject a suppository assembly 16 from the container-dispenser 14, the latter is held in one hand with the handle members 34 extending downwardly, and the index finger of the other hand is used to press upwardly upon the selected handle member until the suppository 36 breaks away from the wall of the chamber 20. Because the diameter of the chamber 20 increases in the direction away from the handle member 34, relatively little pressure is required to accomplish this result. After the suppository assembly 16 has been partially ejected from the chamber 20, it can be grasped by the knob portion 56 of the cap 38 and completely removed from the chamber. Thus, the handle member 34 at the one end and the cap 38 at the other end thereof permit the unit to be freely handled without touching the suppository 36 itself. Also, if necessary, the suppository assembly 16 can be supported in a vertical position by resting it on the flat end surface 58 of the cap, as by standing it on the top of a table or desk.

Immediately prior to use, the handle member 34 is held in one hand and the cap 38 is rocked back and forth very slightly with the other hand in order to break the cap away from the tip 50. Although the heat of the fingers and the rocking action are usually sufficient to break the cap away from the suppository, it is helpful to use a small amount of a parting agent (e.g. silicone) in the cavity 52 of the cap prior to inserting it in the container-dispenser 14 for the filling operation.

With the cap 38 removed, the suppository is held by means of the handle member 34 and placed in position in the patient's body. Because of the fingers 48 on the hub 44, the suppository 36 is held securely on the handle member during the insertion, but, after the suppository has been in the patient's body for a second or two, the suppository material will have softened sufficiently so that the handle can be easily removed with a slight rocking action. Although, as previously mentioned, the suppository material softens after a few seconds in the patient's body, it is preferable to make the handle member 38 of relatively soft flexible plastic material so that the fingers 48 will flex instead of crumbling the suppository material.

Although the container-dispenser 14 is shown in FIG. 1 as being of rectangular shape, it is readily apparent that it can be made in other forms as, for example, in an annular shape as shown in FIG. 7. Other changes can also be made in the shape of the suppository chambers and in the construction of the suppository assembly without departing from the teachings of the present invention. Thus, as shown in FIGS. 7 through 9, a suppository assembly 62 can be carried in and dispensed from an annular container-dispenser 64 which has a central passageway 65 therethrough. The suppository assembly 62 includes a separately molded suppository 66 which is supported on a handle member 68 containing a stem portion 70 and a hub 72 provided with peripheral annular ridges 74. It will be noted that in this construction the supporting fingers, the caps and the axial passageway through the handle members have been omitted.

The container-dispenser **64** includes a bottom chamber **76** and a plurality of axially extending suppository chambers **78**, each of which includes a lower portion **80** of uniform diameter for receiving the hub **72** in sealing relationship, an intermediate portion **82** in which the diameter increases in the upward direction, and a diverging upper portion **84** which contains a shoulder **86**. An outwardly extending lip **88** is provided at the upper end of the container-dispenser **64** for receiving a snap-on cover **90**. It will be readily apparent that the suppository assemblies **62** can be easily and quickly removed from the container-dispenser **64** by first removing the cover **90** and then pushing on the stem portion **70** of the handle, as previously described relative to the preferred construction.

A further modified construction is shown in FIGS. 10 and **11** in which a suppository assembly **92** is used with an annular shaped container-dispenser **94**, the suppository assembly **92** including a suppository **96** supported on a hub **98** which contains spaced annular ridges **100**.

The container-dispenser **94** is of annular shape with a central cavity **102** having a wall **104** extending across the bottom thereof, the wall **104** containing a hub **106** having a channel **108** therethrough. Diametrically opposed openings **109** and **110** (the same size as the channel **108**) are provided in the wall **104** adjacent the hub **106**. The container-dispenser **94** contains axially extending suppository chambers **82'** similar in shape to the ones previously described with respect to the container-dispenser **64**, but there is no handle chamber, and the inner wall adjacent the cavity is cut away at the bottom to provide a recess **111**. As shown in FIG. 11, the modified suppository assembly **92** does not include a stem portion which can be used for pressing the assembly from the suppository chamber by hand. Therefore, there is provided an ejector **112** which is of U-shape and which includes a transverse member **114** which is preferably formed integral with a long leg member **116** and a short leg member **118**. The members of the ejector **112** are preferably of cylindrical shape with an outer diameter which is slightly smaller than the diameter of the channel **108** and the openings **109** and **110**. As shown in solid lines in FIG. 10, the container-dispenser **94** is shipped with the ejector **112** positioned within the cavty **102** with the long leg **116** extending through the opening **109**, the short leg **118** extending through the opening **110**, and the transverse member **114** in the recess **111**.

To remove a suppository assembly **92** using the ejector **112**, the latter is moved to the position shown in broken lines in FIG. 10, in which the long leg **116** extends through the channel **108** in the hub **106**. The short leg **118** is then moved to a selected suppository chamber **82'** and the end of the short leg engaged with the bottom surface of the selected hub **98**. The entire ejector **112** is then moved into the container-dispenser **94** by pressing on the transverse member **114**, thereby forcing the selected suppository assembly from its chamber. It will be apparent that the suppository assemblies **92** could also be ejected from the container-dispenser **94** by using the end of a pen or pencil against the bottom surfaces of the hubs **98**.

FIG. 12 illustrates the manner in which the container-dispensers **64** and **94** may be filled. Thus, there is provided a plate-like end mold **120** which has an end face **121** and which contains a plurality of protuberances **122** which are spaced apart and shaped to fit within the upper sections **84** of the container-dispenser **64** and seat on the shoulder **86**. Each of the protuberances **122** contains a cavity **124** which is the same shape as the tip of of the suppository which is to be formed. With the end mold **120** positioned in the one end of the container-dispenser **64** and the entire assembly positioned with the end face **121** on a flat surface (not shown), filling needles **126** are brought into registry with the inner

ends of the suppository chambers and the suppository material introduced into said chambers until the upper level of the material rises to the inner ends of the lower portions **80**. The handle members **68** are then inserted into the lower portions of the chambers and into engagement with the ends of the suppositories **66**.

If the container-dispenser **64** is likely to be subjected to elevated temperature, it is shipped with the end mold **120** positioned in the end thereof so that the suppositories will retain the desired shape. A cover **90** is also shipped with the unit so that when it arrives in the hospital or doctor's office, the end mold can be removed and the cover snapped into position. On the other hand, if the unit will not be subjected to elevated temperatures in transit, the end mold can be removed immediately after the filling operation, and the cover snapped into position.

It is also to be understood that the solid handle constructions shows in FIGS. 9 and 11 can be used with the container-dispenser construction shown in FIG. 2 and the suppository chambers in the latter filled in the manner disclosed in FIG. 12. It is also possible to use the end mold member **120** (FIG. 12) with the container-dispenser **14** (FIG. 2) by substituting it for the individual caps **38**.

Thus it is apparent that there have been provided novel suppository and container-dispenser constructions which fulfill all of the objects and advantages sought therefor. A container-dispenser provided with individual caps **38** or the end mold member **120** can be shipped in the normal manner in all kinds of weather without adversely affecting the suppositories themselves. The suppositories can be formed with a handle on just one end or with a handle at each end thereof, whereby the suppository can be handled without touching it. The one handle can contain a passageway therethrough for filling the suppository chamber, or handles without passageways can be applied after the chambers have been filled. Furthermore, the one handle can be provided with supporting fingers embedded in the suppository, or the fingers may be omitted, depending upon how much holding action is desired. Also, the one handle can be used for ejecting a suppository assembly from the container-dispenser, or a separate ejector member **112** may be provided.

It is to be understood that the foregoing description and the accompanying drawings have been given only by way of illustration and example, and that changes and alterations in the present disclosure which will be readily apparent to one skilled in the art, are contemplated as within the scope of the present invention which is limited only by the claims which follow.

I claim:

1. In combination: a container-dispenser provided with at least one elongated chamber having an opening at each end thereof, the diameter of one of said openings being greater than the diameter of the other opening; a first cylindrical wall section of uniform diameter at that end of the chamber adjacent the smaller opening; a second wall section at the opposite end of said chamber terminating in an outwardly facing shoulder adjacent the larger opening; handle means having a hub portion positioned in the smaller opening with the hub portion in sliding sealing engagement with said first wall section, said handle means having a stem portion extending outside of the chamber, said handle means containing a filling passageway extending axially therethrough; and a cap member having an outer peripheral wall surface engaging said second wall section in sealing engagement therewith and having a lip seated on said shoulder.

2. In combination: a container-dispenser provided with a large open chamber and a plurality of elongated suppository chambers positioned in side-by-side spaced relationship and having an opening at each end thereof, the diameter of said openings at one end being greater than the diameter of the openings at the other end, the smaller

openings being in communication with said large chamber; handle means having a hub portion slidably positioned in each of said smaller openings, each handle means having a stem portion projecting into said large chamber; and a body of suppository material in each of said elongated chambers in contact with the handle means.

3. A combination as defined in claim 2 including a removable cover means sealing off the larger openings of the suppository chambers.

4. A suppository assembly for use with a container-dispenser, including: a handle member having an upper end; a suppository member removably connected to the upper end of the handle member, said suppository member having an upper tip; and a cap member removably mounted on said upper tip, said cap member having a protuberance extending from the upper end thereof provided with a flat surface, whereby the suppository assembly can be supported in a vertical position on said flat surface.

5. A method of producing, and dispensing suppositories by use of a molding cavity with open ends closed respectively by removable handle and cap members, each handle member having an end surface facing the molding cavity with at least one projection thereon, which method includes the steps of: molding each suppository in a respective molding cavity while closed by said removable members and with a portion of each suppository molded in contact with said end surface of and around the projection of a corresponding handle member whereby this handle member is anchored to the suppository; applying pressure to one of said handle members to displace it and its anchored suppository from the cavity with the corresponding cap member attached; and then removing said cap member to leave the suppository attached to its handle portion in a condition to be inserted in a body cavity while supported by such handle portion.

6. A method as defined in claim 5 including the steps of grasping the cap member of such suppository as the suppository is displaced and using such cap member as a handle while completing the withdrawal of said suppository from said cavity, and then twisting off such cap member from the end of the suppository while grasping said handle member as a handle for said suppository.

7. In combination: a container-dispenser provided with at least one tapered elongated chamber having an opening at each end thereof, one opening being smaller than the other, said elongated chamber diverging outwardly

toward the larger opening, said container-dispenser providing a cavity adjacent said larger opening coaxial therewith, said cavity being bounded outwardly by a side wall having a portion diverging outwardly in a direction away from said larger opening; removable handle means slidable in and closing off the smaller of said openings, said handle means having an end surface within said chamber and several rigid projections extending therefrom toward the larger opening of said chamber; a removable cap member closing off said larger opening, said removable cap member having an external surface slidably and removably engaging said side wall of said cavity; and a body of solid suppository material substantially filling the chamber between the handle means and the cap member, a portion of such solid material seating against said end surface, the projections from said surface extending into said solid suppository material to anchor same to said handle means, said removable cap member being removable with said body of suppository material by pressure transferred therethrough when the latter is forced from said chamber by pressure exerted on said handle means.

References Cited in the file of this patent

UNITED STATES PATENTS

604,063	Miller	May 17, 1898
1,481,700	Fatland	Jan. 22, 1924
1,495,800	Recker	May 27, 1924
1,554,690	Pride	Sept. 22, 1925
1,838,390	Goosmann	Dec. 29, 1931
2,012,535	Herrold	Aug. 27, 1935
2,612,261	Percopo	Sept. 30, 1952
2,616,424	Brown et al.	Nov. 4, 1952
2,767,834	Sherman	Oct. 23, 1956
2,854,133	Teller	Sept. 30, 1958
2,950,813	Koones	Aug. 30, 1960

FOREIGN PATENTS

188,227	Great Britain	Nov. 9, 1922
734,838	Great Britain	Aug. 10, 1955
934,398	Germany	Oct. 20, 1955
536,247	Italy	Nov. 28, 1955
1,113,451	France	Dec. 5, 1955
554,342	Italy	Jan. 10, 1957
959,218	Germany	Feb. 28, 1957
773,925	Great Britain	May 1, 1957