This invention relates to a suppository mold and container and more particularly it is concerned with a flexible plastic suppository mold and container and a method for filling the same.

Suppositories are usually prepared from oil of thebromine or glycerinated gelatin which are easily fusible and are commonly made in the form of a cone or cylinder for introduction into an open body cavity. There are many kinds of molds used to form suppositories, such as shell molds, which are capable of retaining a liquefied medicated suppository preparation and which can be broken to permit the withdrawal of the suppository after solidification. These shell molds are often joined into large banks to increase the number of suppositories that may be formed during a single pouring operation. In such cases, however, the molds serve the single function of holding the liquefied medicated preparation and retaining it until sufficiently cooled to permit rapid hardening and solidification of the medicated preparation. When the suppository has become a solid waxy body, the molds are either broken or separated, permitting the suppository to be withdrawn for subsequent wrapping and packaging. During these operations it is essential that room temperature be carefully controlled so that it will not melt the shaped suppository. It is also generally advised that packages of suppositories be stored in cool locations and preferably in refrigerated areas.

In addition to the requirement for careful regulation of room temperature, the disadvantages of the above and other related processes of forming and packaging suppositories are many. The known processes involve two independent operations. The first step or operation is to shape the suppository and the second step is to package it. Each of these steps is both costly and time consuming and frequently, because of improper hardening, produces an irregularly or defectively shaped suppository.

The present invention overcomes these disadvantages by providing a flexible plastic mold which not only shapes the suppository but also provides an excellent packaging container. The mold and container of the present invention is constructed to permit easy removal of the suppository and, if desired, may be used as a suppository applicator. Since the suppository is held within the mold and container from its initial pouring until final application, the problem of temperature changes is of little or no importance. The suppository containers are provided with caps which may be connected together by a plastic ribbon to hold them in a fixed attitude and location when packed in a merchandising box. Rows of the aligned containers may be nested together in interlocking arrangement when placed in merchandising boxes thus eliminating spacers, wrappings and the like.

The primary object of the present invention is to provide a flexible plastic suppository mold and container for forming and holding fusible medicated preparations.

Another object of the present invention is to provide a suppository mold and container which is constructed to permit easy removal of the suppository from the container without physical contact with the suppository.

An additional object of the present invention is to provide a suppository mold and container which is adapted to shape a suppository into a pre-determined configuration.

A further object of the present invention is to provide suppository molds and containers which have interlocking caps to provide nested packaging of the containers in the merchandising box.

A still further object of the present invention is to provide a suppository mold and container which may be used as an applicator.

Another additional object of the present invention is to provide a suppository mold and container constructed to force the suppository out of the container by compressing the base of the container and breaking any seal between the solidified suppository and the sides of the container.

A still further additional object of the present invention is to provide a method of filling the containers and packaging the same in merchandising boxes.

Additional objects and features of the invention include structural details which are simple and economical to construct and which are trouble free to operate.

Briefly described, the present invention comprises a suppository mold and container which has a tubular body having tapered cylindrical walls, a base section which may be either round or flat and a cap section. The tubular body section may comprise a lower tapered section and an upper tapered section. The lower section of the body has a taper greater than the upper section of the body. The top of the mold and container body is open and provided with an outwardly extending peripheral ridge or bead. The cap is generally circular and has a downwardly extending circumferential skirt or flange which registers over the top of the tubular body. The inside surface of this flange is provided with an annular groove constructed to contain the peripheral ridge or bead at the top of the body member when the cap registers over the top of the said body member. In addition, the cap may also be provided with a centrally disposed downwardly extending annular flange. The wall forming this annular flange is tapered outwardly so that it comes to a pointed edge and registers with the inside walls of the upper section of the body member. This inside annular flange is rounded at its connecting point with the cap so that it would have the cross-sectional shape of an inverted U. The base section, as before mentioned, may be either flat or round and can be provided with a downwardly extending hollow compressible sleeve or collar.

Other objects and advantages will become apparent from the following description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of the suppository mold and container of the present invention;
FIG. 2 is a vertical cross-section taken along lines 2—2 of FIG. 1;
FIG. 3 is a vertical cross-sectional view similar to FIG. 2 showing a second variation;
FIG. 4 is a vertical cross-sectional view similar to FIG. 2 showing a third variation;
FIG. 5 is a side elevational view showing a plurality of suppository molds and containers held together in strip form;
FIG. 6 is a top elevation view showing strips of suppository holders and containers nested in a merchandising box;
FIG. 7 is a diagrammatic view of the apparatus for filling suppository molds and containers;
FIG. 8 is a diagrammatic view of the loading block during the filling operation;
FIG. 9 is a diagrammatic view of the loading block during the capping operation;
FIG. 10 is a plan view of a modified form of suppository and mold;
FIG. 11 is a longitudinal section taken along the plane of line 11—11 of FIG. 10; and
FIG. 12 illustrates diagrammatically a method of filling of said modified form.
FIGS. 1 and 2 illustrate a typical suppository mold and container formed by a flexible or compressible plastic material. It comprises a tubular body which is generally designated as 10, a circular cap 11 and a rounded base section 12. The tubular body preferably contains two integral tapered wall sections which shall hereinafter be called the upper tapered body section 13 and the lower tapered body section 14. The thickness of the walls forming the said body sections and particularly the lower body section should be such that they may be compressed readily when squeezed between the fingers of a hand. As shown in FIG. 2, the tubular wall sections taper inwardly toward the central axis. It has been found preferable that the taper of the lower body section be greater than that of the upper body section and more preferably, that the lower body section form a taper angle between 8° and 12° with the central vertical axis or about 9° and that the upper body section form a taper angle between 2° and 4° with the central vertical axis or about 3°. The tapered angles forming the lower and upper body sections may be varied if the length of the body is increased or decreased or if for some other reason an unusually shaped suppository is desired.

The body section 10 is open at the top and provided with an outwardly extending circumferential ridge or bead 15. This outwardly extending ridge may be aligned with the top of the body section or be closely adjacent thereto and is constructed to act as a locking means for the cap which will hereinafter be described.

The circular cap 11 has a thickness approximately equal to that of the body section, and is provided with an integral downwardly extending peripheral flange 16. The cap 11 is constructed to fit over the top of the upper body section 13 in such a manner that the inside surface of the peripheral flange 16 is juxta posed with the outside surface of the upper body wall section 13 adjacent the top thereof. Consequently, the inside diameter of the peripheral flange 16 should be equal to or just slightly larger than the outside diameter of the top of the body 10. The inside vertical surface of the peripheral flange 16 is provided with an annular groove or recess 17 adapted to register with the outwardly extending body ridge or bead 15 when the cap is fitted over said body. The registration between the ridge 15 in groove 17 locks the cap 11 firmly over the body section 10 and provides a leak-proof seal between the two members. The cap 11 and its peripheral flange 16 are also constructed of a flexible plastic material so as to permit some distortion and thus allowing the cap to be press or snap fitted over the top of the body.

The base section 12 shown in FIG. 2 is round to form the desired configuration for the end of a suppository. It extends from the lower tapered base section and is integral therewith. The base section is also flexible so that it may be squeezed on the sides or pushed upwardly from the bottom to decrease the volume within the bottom of the body section 14.

The body 10 and base 12 sections shown in FIG. 2 provide a cavity 18 having the shape of a dual tapered conical suppository with a flat top and rounded base section. The cavity 18, formed by the body and base, is filled with a liquified medicated suppository preparation and cooled or allowed to stand until the preparation solidifies into a wax-like material. When the suppository is in the solid state within the cavity, it strengthens the entire structure which is desirous when press or snap fitting the cap over the suppository container body. However, the cap should have sufficient flexibility so that it may be fitted over the body when the suppository preparation is still in the liquid state. The formed suppository within the container may then be packaged in the merchandising box without removing the suppository or applying protective wrapping or the like. If the suppository is to be used, the cap is removed by exerting an upward pressure on one side of the flange 16 which disengages the locking seal of the ridge 15 in groove 17. With the cap off, the suppository is eased out of the body 10 by squeezing the bottom of the tapered lower section 14. As before mentioned, the body is flexible and when compressed the suppository body will decrease, thus forcing the suppository through and out of the opening at the top of the body 10.

FIG. 3 shows a second variation of the present invention wherein the base section is substantially flat to form a diaphragm 19 which is provided with a downwardly extending annular collar 20. The base of the diaphragm 19 is integrally formed with the lower body section 14 and preferably provided with rounded interior corners 21. The circumferential collar 20 extends downwardly approximately ¾ to 1 inch below the diaphragm 19. The thickness of the collar wall is less than the thickness of the body wall and may be readily compressed. The function of the diaphragm collar is to assist in the initial breaking of the vacuum seal that naturally forms between the suppository and the container wall upon solidification of the medicated preparation. To remove a suppository from the container illustrated in FIG. 3, collar 20 is compressed which causes the diaphragm 19 to bulge upwardly in the center causing a force to act against the bottom of the suppository to push it up a slight distance. This slight movement breaks all the vacuum seals between the suppository and the inside of the body wall. To force the suppository entirely out of the container the same procedure is used as explained in the first embodiment, namely, compressing the bottom of the lower body section 14 to decrease the area in the bottom of cavity 18.

The cap shown in FIG. 3 is similar to the embodiment shown in FIG. 2, however, it is provided with an additional centrally disposed downwardly extending annular flange 22. The annular walls of said flange are outwardly tapered from the central vertical axis and come to a sharp edge 23 at their bottom. The outside wall surface of the flange 22 is constructed to be juxta posed with the inside surface of the top of the upper body section 13. Therefore, the outside diameter of annular flange 22 shall be approximately equal to the inside diameter of the top of the upper body section 13. The inside connecting corner 24 between the annular flange 22 and the bottom of the cap 11 is rounded to provide a domed shape or an inverted U shape when viewed through the cross-section.

The minute centrally disposed air vent aperture 25 which unites the atmosphere with the cavity 18 formed by the body member 10. The diameter of the aperture is about .008".

The domed shaped cap as shown in FIG. 3 is applied to the top of the body 10 while the suppository preparation is still hot and in liquid state. When the domed shaped cap is pressed or snapped over the body some of the liquified suppository preparation is displaced by the annular flange 22 into the upper section adjacent the top of the dome. Air that may be entrapped in this area is released through the aperture 25 in the cap into the atmosphere. The diameter of this aperture is so small however, that it will not allow any of the suppository preparation to pass through it.

The function of the outwardly tapered annular flange 22 and domed shaped cap is to form a suppository having a rounded upper end so that the suppository may be inserted directly from the container into an open body cavity. When functioning in this manner, the device of the invention not only molds and contains the suppository but also is the suppository applicator. It should be noted that it is unnecessary to handle the suppository at any time, it is only necessary to squeeze the plastic container which in turn forces the suppository out of the container into the body cavity. When the suppository is to be used, the cap is removed by exerting an upward pressure one side of the flange 16 which disengages the locking seal of the ridge 15 in groove 17. With the cap off, the suppository is eased out of the body 10 by squeezing the bottom of the tapered lower section 14. As before mentioned, the body is flexible and when compressed the suppository body will decrease, thus forcing the suppository through and out of the opening at the top of the body 10.

FIG. 4 illustrates a third embodiment of the present invention wherein the plastic feeding sprue 26, which is
used in forming the plastic body section 10, remains affixed to the base section 12. This sprue, as will hereinafter be described, assists in nesting the containers in their merchandising box.

Although only one embodiment of the body section has been illustrated in the figures, it is within the scope of the present invention to provide a tubular section with only a lower tapered section as previously described. It is preferable to use this construction with a suppository preparation which does not form a vacuum seal with the inside of the container. It has been found that the taper of the upper body section greatly assists in breaking any vacuum seal between the suppository preparation and container and, in addition, reduces any tendency to any suppository preparation which is known to form a vacuum seal with the container.

The body section of the suppository container may be molded in any suitable fashion and, as before mentioned, the feeding sprue for the plastic material does not have to be removed since it performs a beneficial function in spacing and aligning the suppositories in their merchandising box.

The caps, whether containing the embodiment shown in FIGS. 2 or 3, should be interchangeable provided the diameter of the top of the container body is the same. As shown in FIG. 3, the caps may be molded in groups of two, three, four, six, etc., and connected together by a thin ribbon of polyethylene or whatever particular flexible molding material is being used to form the caps. The number of caps to be interlinked together depends upon the size of the merchandising box 28 into which they are to be nested. A merchandising box containing two rows of six interlinked suppository containers nested together is shown in FIG. 6.

The preferred method of filling the before described suppository molds and containers is schematically illustrated in FIG. 7 and will hereinafter be described. The individual body members 10 are selected from a storage area 30 by a tumble-feed method or the like and fed into a conventional carriage frame 31 where they are collected in groups of two, three, four, six, etc. The carriage frame is moved along a conventional conveyor line 32 and deposits the suppository molds and containers into loading blocks 33.

The loading block 33, as shown in FIG. 8, is generally rectangular in construction and has a vertical elevation. The blocks are horizontally divided into two sections and provided with means for maintaining these two sections in vertically spaced relationship 34. The upper block section 35 is provided with cavities 36 which align with cavities 37 in the lower block section 38 and are adapted to hold the body of the suppository container 10 when said blocks are held in said vertically spaced relationship. An annular shoulder 39 surrounds the top of the aperture 36 in the upper block section 35 to receive the extending circumferential ridge or bead 15 of the suppository container body 10. The base of the cavity 37 in block 38 may be provided with downwardly extending recesses 40 to accommodate the collar 20 shown in FIG. 3 or the sprue 26 shown in FIG. 4. When the suppository container rests in the aperture 36 and cavity 37, the top circumferential edge 41 of the container should horizontally align with the top surface 42 of the upper block section 35 when said block sections are held in vertically spaced relationship.

The split loading blocks containing the suppository molds are moved along a conventional conveyor line 43 to a filling station 44. The filling station comprises a heated filling head 45 which stores the liquefied medicated suppository preparation. The filling head may be provided with a plurality of filling spouts 46 which align with the suppositories held in the loading blocks and are equipped with measuring means 47 to regulate the amount of liquefied medicated preparation permitted to pass through the spout 46 into the suppository mold 10.

The suppository molds may be filled at a time, or all at once, or they may be flood-filled by admitting an excessive quantity of medicated suppository preparation to cover the entire area of the top loading block section. After the suppository molds have been filled they are moved along the conveyor line 43 and the top and bottom loading block sections are brought together which causes the suppository mold to be kicked upwardly a short distance as shown in FIG. 9. The major part of the suppository still remains with the loading block aperture and cavity but the top 41 of the suppository body now extends above the top surface of the top loading block. The loading blocks, with upwardly extended filled suppository molds 10 aligned in the conveyor line to the capping station generally designated as 48.

At the capping station, the caps 11 either individually or in strip form of two, three, four, six, etc., are aligned over the suppository molds 10 and lowered under pressure to press or snap fit over the filled suppository molds.

After the caps are placed on the suppository molds they are moved along and each of the peripheral units is alternately kicked out, once to each side, on to a feeder belt which drops them into a merchandising box 28 in nested relationship as shown in FIG. 6. The merchandising box is covered and wrapped in cellophane and moved to the shipping tables 34.

After the filled suppositories have been kicked out of the loading blocks, the blocks pass through a steam cleaning bath 49 which removes all the excessive suppository preparation. The loading blocks then pass into an ice water bath 50 to cool them to the desired starting point temperature and then into a pressure air dryer 51 and finally, back to the loading table to receive another collection of suppository molds.

The steam cleaning operation 49 prevents the blocks from becoming clogged with the medicated preparation thus avoiding shutdown periods during production. The cooling operation 50 is to reduce the temperature of the loading blocks which in turn increases the rigidity of the thermoplastic suppository molds when they are contained within the cooled loading blocks. It is preferable that the mold be as rigid as possible during the capping operation 48 since pressure must be exerted to position the caps 11 over the suppository body members 10.

It is preferable to permit the liquid suppository preparation to harden after pouring and before capping thereby giving additional support to the suppository body. However, as previously described, when caps having the centrally disposed annular flange 22 are used, as shown in FIG. 5, it is essential that the caps be affixed while the preparation is still in the liquid state since these caps also function to form the top of the suppository into a rounded shape upon cooling.

A modified embodiment of suppository and suppository container and mold is illustrated in FIGS. 10 and 11. In this embodiment, the suppository container and mold is of flexible and compressible material similar to that of FIGS. 1 and 2. It comprises generally a tubular body 10a and a cap 11a. The body 10a has a rounded base 12a. The tubular body section preferably has an upper tapered portion 13a and a lower tapered portion 14a directly adjoining the rounded base 12a. The wall thicknesses of the body 10a, particularly in its lower tapered portion 15a are such as to permit ready inward compression thereof by finger squeezing action. The relative taper angles internally of the walls of body 10a may be like those of the embodiment of FIGS. 1 and 2.

The body section 10a is open at its top and provided with a circumferential ridge or bead 15a serving as a lock for the removable cap 11a. The cap 11a has wall thicknesses approximately that of body 10 and its internal surface is concentrically rounded to give it dome-like configuration. The cap 11a has a peripheral flange 16a along its rim which is intended to fit over the bead 15a.
and to snap into place below the latter to lock the cap and body together. The flange 16a is widened at portions 16b to be engageable conveniently by the fingers of the user to facilitate detachment of the cap 11a from the body 6a upon being desired. The flange 16a of the assembled cap and body is intended to be filled completely with the same kind of medicated suppository preparation as in the first described modifications.

The cap 11a at its outer surface bears a tubular spire 69 upstanding from its surface and formed during manufacturing of the cap.

Filling of the body 10a and cap 11a may be effected as hereinbefore described. However, an alternative process for filling with suppository preparation is illustrated diagrammatically in FIG. 12. Therein, assembled empty caps and bodies, successively with caps up are passed below a filler machine which at a filling station includes a pair of hollow needles 61 and 62 connected respectively to a filling line 63 for liquid medicated suppository preparation and to a vacuum line 64. The two needles 61 and 62 are lowered simultaneously through tubular spire 68 to pierce the upper wall of cap 11a. When this occurs and lines 63 and 64 are opened, medicated preparation from line 63 is injected into the cavity 18a of the assembled cap 11a and body 10a while its air content is withdrawn via vacuum line 64. When the entire cavity is filled with said preparation, the needles 61 and 62 are withdrawn. Immediately thereafter, a pair of reciprocally movable heated clamping jaws 65 are moved toward each other to engage the walls of the spire 68 and to press them against each other under sufficient heat to effect their fusion, thus providing a seal S over the residual holes in the cap body left by the withdrawn needles. When sealing has been effected, the jaws 65 are separated and the filled suppository container after cooling is treated and packaged in any desired way such as those hereinbefore described.

This alternative filling method may be utilized to fill the other types of molds earlier herein described with medicated suppository material.

For use, the cap 11a is forced off body 10a by finger engagement with the tabs 160 and the suppository content 13a then squeezed out of body 10a by exertion of finger pressure on the latter's external walls preferably in the region 14a thereof.

It can be seen from the above description that the present invention provides suppository molds and containers and a way of using them. Although various embodiments of the invention have been shown and described herein, it is understood that changes and additions within the scope of the appended claims may be made by those skilled in the art without departing from the scope and spirit of this invention.

1. A flexible plastic suppository mold and container comprising a tubular body having an inwardly tapered upper section, an inwardly tapered lower section and a base section, said base section comprising a tubular body and a cooperating circular cap, said cap having an apertured and annular flange provided with a downwardly extending peripheral flange having an annular groove around its inside surface, and a centrally disposed downwardly extending annular flange, said annular flange having an outward taper and a dome shaped top, said cap fitting over the top of said tubular body whereby the said outwardly tapered annular flange registers with the inside surface of the wall at the top of said tubular body and the said peripheral flange registers with the outside surface of the top of the wall of said tubular body and said annular ridge registers in said annular groove.

2. A flexible plastic suppository mold and container comprising a tubular body having an inwardly tapered upper section, an inwardly tapered lower section and a base section, said base section comprising a tubular body and a cooperating circular cap, said cap having an apertured and annular flange provided with a downwardly extending peripheral flange having an annular groove around its inside surface, and a centrally disposed downwardly extending annular flange, said annular flange having an outward taper and a dome shaped top, said cap fitting over the top of said tubular body whereby the said outwardly tapered annular flange registers with the inside surface of the wall at the top of said tubular body and the said peripheral flange registers with the outside surface of the top of the wall of said tubular body and said annular ridge registers in said annular groove.

3. A flexible polyethylene suppository mold and container comprising a tubular body having an inwardly tapered upper section, an inwardly tapered lower section, and a base section, said base section comprising a circular flexible diaphragm having a downwardly extending compressible circumferential collar, said upper and lower sections having approximately the same length, the taper of said upper body section having an angle of about 5° from the perpendicular vertical axis, the outside surface of said upper section having a protruding annular ridge adjacent its top, a circular cap cooperating with the top of said upper body section, said cap having a downwardly extending peripheral flange, the inside surface of said flange provided with an annular groove, said protruding annular ridge registering in said groove when said cap cooperates with the top of said upper body section.

4. A flexible plastic suppository mold and container comprising a tubular body having an inwardly tapered upper section, an inwardly tapered lower section and a base section, said base section comprising a circular flexible diaphragm having a downwardly extending compressible circumferential collar, the taper of said upper body section having an angle of about 5° and the taper of said lower body section having an angle of about 9° from the perpendicular vertical axis, the outside surface of said upper section having a protruding ridge adjacent its top, a circular cap having an aperture therein and provided with a downwardly extending peripheral flange having an annular groove around its inside surface, and a centrally disposed downwardly extending annular flange, said annular flange having an outward taper and a dome shaped top, said cap fitting over the top of said tubular body whereby the said outwardly tapered annular flange registers with the inside surface of the wall at the top of said tubular body and the said peripheral flange registers with the outside surface of the top of the wall of said tubular body and said annular ridge registers in said annular groove.

5. A plastic suppository mold and container comprising a tubular body and a cooperating circular cap, said body having an inwardly tapered upper section, an inwardly tapered lower section, and a flat base section, said base section comprising a circular flexible diaphragm having a downwardly extending compressible circumferential collar, the taper of said lower body section being greater than the taper of said upper body section, an outwardly extending annular ridge adjacent the top of said upper body section, a circular cap having a downwardly extending peripheral flange, said cap and flange cooperating with the top of said upper body section, the inside surface of said cap and flange provided with an annular groove, said annular ridge registering in said groove when said cap cooperates with said upper body section.

6. A plastic suppository mold and container comprising a tubular body and a cooperating circular cap, said body having an inwardly tapered upper section, an inwardly tapered lower section, and a flat base section, said base section comprising a circular flexible diaphragm having a downwardly extending compressible circumferential collar, the taper of said lower body section being greater than the taper of said upper body section, an outwardly extending annular shoulder, a circular cap provided with a downwardly extending peripheral flange having an annular groove on its inside surface, said cap fitting over said tubular body whereby said peripheral flange telescopes over said body and said annular shoulder registers in said annular groove.

7. A plastic suppository mold and container comprising a tubular body and a cooperating circular cap, said body having an inwardly tapered upper section, an inwardly tapered lower section, and a flat base section, said base section comprising a circular flexible diaphragm having a downwardly extending compressible circumferential collar, the taper of said lower body section being greater than the taper of said upper body section, an outwardly extending annular shoulder, a circular cap provided with a downwardly extending peripheral flange having an annular groove on its inside surface, said cap fitting over said tubular body whereby said peripheral flange telescopes over said body and said annular shoulder registers in said annular groove.

8. A plastic suppository mold and container comprising a tubular body and a cooperating circular cap, said body having an inwardly tapered upper section, an inwardly tapered lower section, and a flat base section, said base section comprising a circular flexible diaphragm having a downwardly extending compressible circumferential collar, the taper of said lower body section being greater than the taper of said upper body section, an outwardly extending annular ridge adjacent the top of said upper body section, a circular cap having a downwardly extending peripheral flange, said cap and flange cooperating with the top of said upper body section, the inside surface of said cap and flange provided with an annular groove, said annular ridge registering in said groove when said cap cooperates with said upper body section.

9. A plastic suppository mold and container comprising a tubular body and a cooperating circular cap, said body having an inwardly tapered upper section, an inwardly tapered lower section, and a flat base section, said base section comprising a circular flexible diaphragm having a downwardly extending compressible circumferential collar, the taper of said lower body section being greater than the taper of said upper body section, an outwardly extending annular ridge adjacent the top of said upper body section, a circular cap having a downwardly extending peripheral flange, said cap and flange cooperating with the top of said upper body section, the inside surface of said cap and flange provided with an annular groove, said annular ridge registering in said groove when said cap cooperates with said upper body section.

10. A plastic suppository mold and container comprising a tubular body and a cooperating circular cap, said body having an inwardly tapered upper section, an inwardly tapered lower section, and a flat base section, said base section comprising a circular flexible diaphragm having a downwardly extending compressible circumferential collar, the taper of said lower body section being greater than the taper of said upper body section, an outwardly extending annular ridge adjacent the top of said upper body section, a circular cap having a downwardly extending peripheral flange, said cap and flange cooperating with the top of said upper body section, the inside surface of said cap and flange provided with an annular groove, said annular ridge registering in said groove when said cap cooperates with said upper body section.
body having an inwardly tapered upper section, an inwardly tapered lower section, and a flat base section, said base section comprising a circular flexible diaphragm having a downwardly extending compressible circumferential collar, the taper of said lower body section angling inwardly at about 8" to 12" from the vertical axis, the taper of said upper body section angling inwardly at about 2" to 4" from the vertical axis, said upper and lower body sections having approximately the same vertical length, the top of said upper body section provided with an outwardly extending annular shoulder, said circular cap having an aperture and provided with a downwardly extending peripheral flange having an annular groove around its inside surface, and an centrally disposed downwardly extending annular flange, said annular flange having an outward taper and a dome shaped top, said cap being in register over the top of said tubular body whereby the said outwardly tapered annular flange cooperates with the inside surface of the wall of said tubular body and the said peripheral flange cooperates with the outside surface of the wall of said tubular body and said annular shoulder registers in said annular groove.

7. In combination, a suppository and a suppository mold and container enclosing said suppository, said mold comprising a tubular body having an independently fillable body space that is substantially completely filled by the suppository, said body being tapered internally in a portion thereof to facilitate ejection of the suppository from the body by application of pressure externally of said body, said body having a rounded end portion, a stud portion extending outwardly from said rounded end portion, a section of said stud portion at right angles to the longitudinal axis thereof and adjacent said rounded end portion being substantially tangential to the outer surface thereof, a closure removably mounted on said body to retain said suppository therein until it is to be used, said closure having an aperture therein and being shaped internally to define a rounded nose-like cavity to which shape a portion of said suppository conforms to facilitate its direct insertion into a body cavity when ejected from said tubular body by said pressure and an upwardly extending tubular portion disposed about said aperture to facilitate the filling of said mold, the upper end of said tubular portion being adapted for sealing said tubular portion after said filling.

8. A flexible plastic suppository mold and container comprising a tubular body having an inwardly tapered upper wall section, an inwardly tapered lower wall section, the taper of said lower wall section being greater than the taper of said upper wall section, a base section, a stud portion extending downwardly from said base section, a horizontal section of said stud portion adjacent said base section being substantially tangential to the outer surface thereof, an outwardly extending annular ridge adjacent the top of said upper wall section, and a circular cap having an aperture therein, an upwardly extending tubular portion disposed about said aperture to facilitate the filling of said container through said aperture, and a downwardly projecting peripheral flange, said cap and flange closing the top of said upper wall section, the inner surface of said cap and flange provided with an annular groove, said annular ridge registering in said annular groove when said cap is assembled with said upper wall section.

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FOREIGN PATENTS

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