

[54] **DISPENSING APPARATUS FOR
TOOTHPASTE DENTIFRICE AND OTHER
FLOWABLE VISCOUS-MATERIAL**

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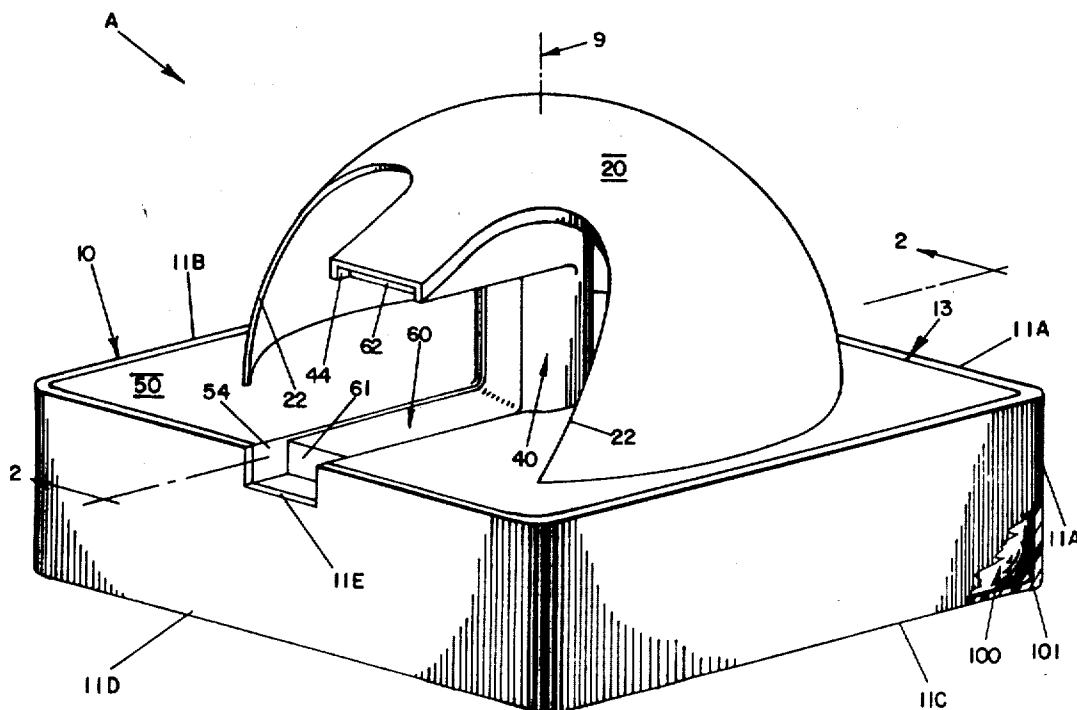
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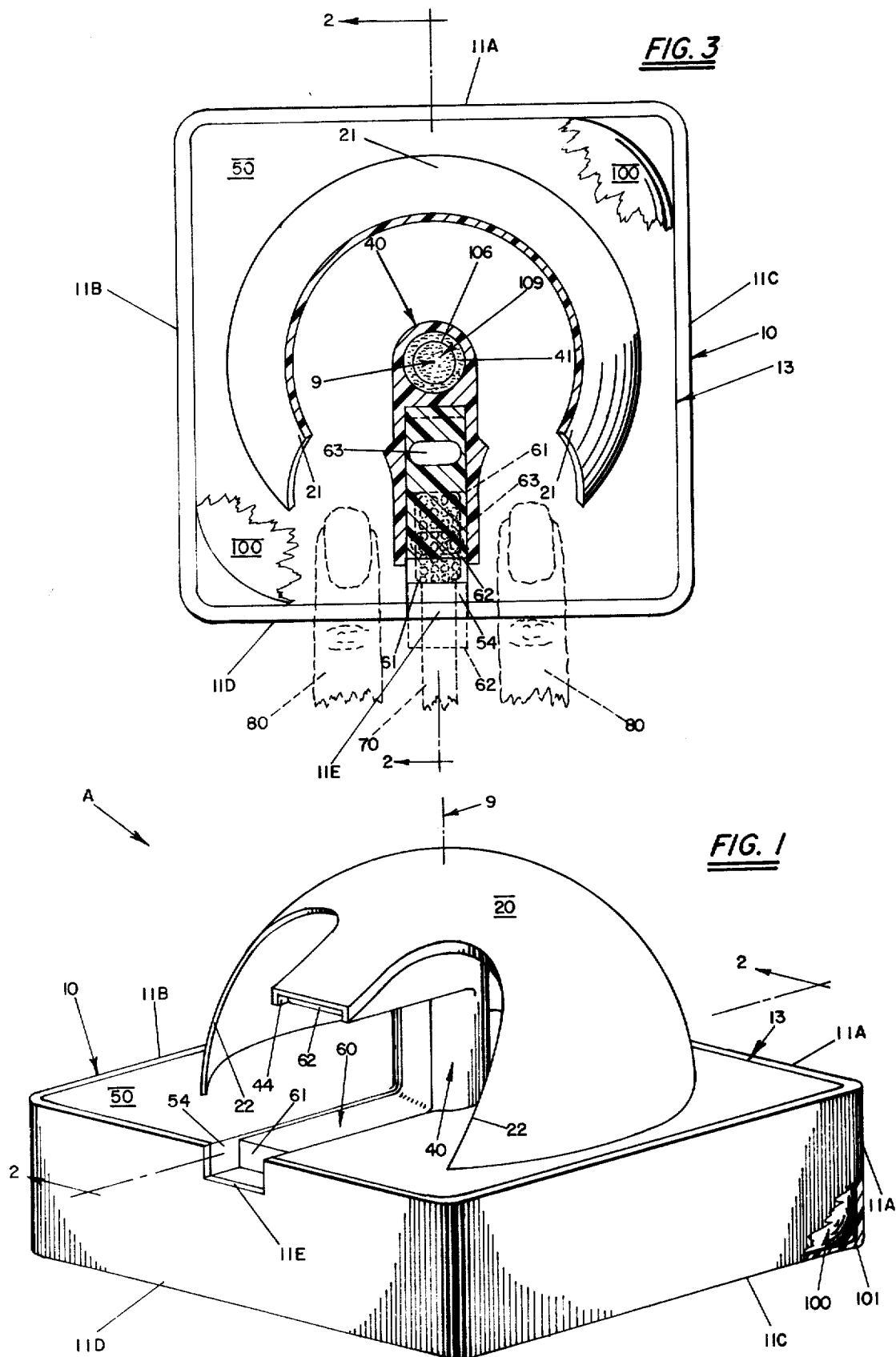
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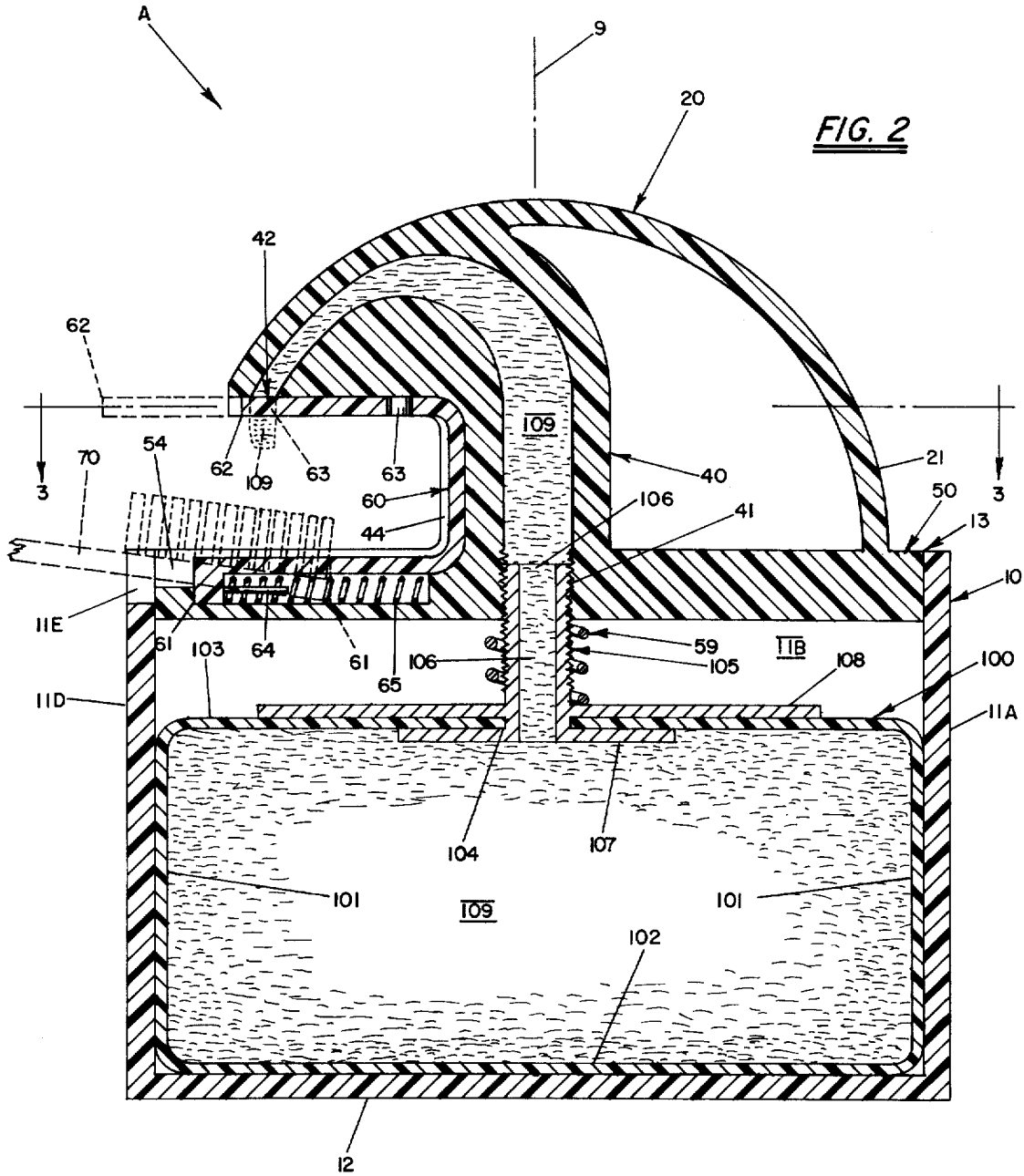
[57] **ABSTRACT**

Dispensing apparatus for flowable viscous-material such as toothpaste dentifrice and generally comprising a compressible pouch supply of dispensible viscous-material that is removably positioned as a replaceably expendable item within a shallow boxy receptacle, said pouch supply being cross-sectionally larger than the height thereof. There is a suitable conduit located above the pouch and in engageable communicating relationship therewith, the conduit having an elevated and transversely offset exit outlet which is provided with a slidable closure, and a manually operatable pressure plate (and preferably co-reciprocatable with the conduit) for expelling flowable viscous-material from the compressible pouch and thence ultimately through the conduit exit.

6 Claims, 3 Drawing Figures







DISPENSING APPARATUS FOR TOOTHPASTE DENTIFRICE AND OTHER FLOWABLE VISCOUS-MATERIAL

There are in the prior art numerous dispenser apparatus for flowable viscous-materials such as toothpaste dentifrices and the like. For toothpastes, dispensers of the prior art are structured around the so-called conventional "toothpaste tube" supply of the toothpaste which extend longitudinally along the vertical-axis and have a threaded discharge-opening at one end and a transversely linear crimp at the other end. For such conventional "toothpaste tubes," which annularly surround the vertical-axis in regular cross-sectional size and shape, the longitudinal vertical length greatly exceeds the average cross-sectional dimension (usually the circular diameter) and this lengthiness imposes structural limitations upon the dispenser apparatus therefor. Moreover, prior art dispenser apparatus are apt to be deficient in that the viscous-material is very apt to solidify at the exit outlet in the presence of atmospheric air, which solidification disables the apparatus thereby necessitating laborious cleaning and repair thereof. Also, the required structural features of prior art dispenser apparatus tend to result in primarily utilitarian appearance which lacks the aesthetic appearance appropriate for modern elegant bathrooms.

It is accordingly the general object of the present invention to provide novel dispensing apparatus for flowable viscous-materials, and particularly for toothpaste dentifrices, which is of reliable and economical construction and that is of unusual structural nature to provide unexpected and challenging opportunities for aesthetically pleasing apparatus designs.

It is another object to provide dispenser apparatus that is usable over an indefinite period of time. In this vein, the viscous-material supply is expendable and replaceably removably associated with the apparatus framework, the apparatus conduit means is in reliable free-flowing relationship with the expendable pouch supply, and the apparatus exit outlet is not apt to be clogged even if the viscous-material employed be solidifiable in the presence of atmospheric air.

It is a further object to provide novel expendable pouch-like supplies of toothpaste dentifrice and to dispense the toothpaste therefrom in an unusually reliable, fastidious, and aesthetic manner.

With the above and other objects and advantages in view, which will become more apparent as this description proceeds, the dispensing apparatus for toothpaste or other flowable viscous-material generally comprises: a hollow receptacle member extending upwardly along a vertical-axis and including upright wall-means surrounding said vertical-axis and an enlarged mouth-opening for replacement of an internally positioned shallow pouch supply of dispensibly flowable viscous-material; the said pouch supply being provided with a discharge-opening and being manually compressible through externally located pressure-application means whereby viscous-material is caused to be expelled through the pouch discharge-opening; a conduit for the viscous-material in communicating relationship with the pouch discharge-opening and including an exit terminus located remote from the pouch and also generously transversely offset from the receptacle vertical-axis; and closure means for temporarily covering the conduit exit.

In the drawing, wherein like characters refer to like parts in the several views, and in which:

FIG. 1 is a perspective view of a preferred, though non-limiting, embodiment "A" of the dispensing apparatus for flowable viscous-material and particularly toothpaste dentifrice.

FIG. 2 is a sectional elevational view taken along lines 2—2 of FIGS. 1 and 3; and

FIG. 3 is a sectional plan view taken along line 3—3 of FIG. 2.

Embodiment "A" of the dispensing apparatus shown in FIGS. 1—3 generally comprises a hollow receptacle 10 extending upwardly along a vertical-axis 9 and wherein the receptacle mouth-opening is positioned at the upper end 13 thereof, a replaceable expendable pouch supply 100 of the flowable viscous-material herein as dentifrice 109, conduit means 40 having an entrance end 41 communicating (as with tubular fitting 105) with the pouch discharge-opening 104 and also an exit end 42 transversely well offset of vertical-axis 9 and too from pouch discharge-opening 104, closure means such as the resiliently yieldable slidable C-shaped tongue 60 for the conduit means exit 42, manually exertible pressure-application means located externally from pouch supply 100 such as pressing-plate 50 for expelling the viscous-material 109 from the pouch discharge-opening 104 and eventually through the conduit exit terminus 42.

At the outset it is to be emphasized that the pouch 100 supply of dispensible viscous-material, such as flowable toothpaste dentifrice 109, represents a radical departure from so-called conventional "tubes of toothpaste." Such conventional "toothpaste tubes" DO: extend longitudinally uprightly along a vertical-axis, have an upper discharge-opening, the tubular supply does surround the tube vertical-axis in regular annular cross-sectional size and shape, and the tube dimensionally along its vertical-axis does bear a many-fold multiple ratio as compared to its average cross-sectional dimension. In direct counterdistinction, to the conventional "toothpaste tube" supply currently sold in sundries departments, the pouch type container supply of flowable toothpaste dentifrice of the present invention (e.g. 100) is of exceedingly shallow height. That is to say the pouch container average cross-sectional dimension exceeds the container height along the own vertical-axis. For example, as alluded to in the three drawing Figures wherein the thin-shell pouch 101—103 carries is full capacity of flowable viscous-material (e.g. dentifrice 109) therein, said shell at 101 circularly surrounds a vertical-axis 9 and the circular cross-sectional size thereof is substantially uniform between its two transversely extending extremities e.g. roof-panel 103 and floor-panel 102. Herein, the annular 101, the floor-panel 102, and the roof-panel 103 parts are singularly constructed of a resinous plastic or other compressible structural material, and the herein horizontal roof-panel 103 is provided with a discharge-opening 104 surrounding vertical-axis 9. The pouch supply 100 which is preferably removably positioned within a receptacle portion 10, and thus expendably replaceable with an interchangeable expendable pouch supply after the dentifrice 109 is fully expelled therefrom, is desirably integrally provided with a co-expendable tubular fitting at the pouch discharge-opening 104. For example, upright tubular fitting 105 has an axial bore 106 along vertical-axis 9, the fitting upper portion being

provided with external helical threads. The lower portion of fitting **105** has two horizontal flanges **108** and **107** respectively surrounding the bore **106** and vertical-axis **9**, the flanges being tightly secured to the intervening pouch roof-panel **103** at discharge-opening **104**. It is therefore readily apparent that the exertion of manual pressure against the thin-shelled **101-103** pouch supply will cause the viscous-material **109** contained therein to be expelled along vertical-axis **9**, as upwardly through the pouch discharge-opening **104-105**.

The hollow receptacle for removably containing the pouch supply includes upright wall-means surrounding both said pouch supply **100** and the vertical-axis **9** and includes an enlarged mouth-opening **13** for inserting and removing the pouch supply **100**. Moreover, there are transversely extending base-means intersecting the vertical-axis **9** for resting the pouch floor-panel **102** thereagainst. Herein, hollow receptacle **10** is of a rectangularly boxy configuration including four interconnected rectangular planar upright-panels **11A-11D** which together provide a rectangular upper-mouth-opening **13** for receptacle **10**. If the dispensing apparatus "A" is to be employed resting downwardly against a tabletop, rather than being sidewardly attached to come columnar fixture, the receptacle base-means desirably comprises a horizontal planar panel as its lower end, herein as rectangular base-panel **12**. It can be seen that the vertical height **12-13** for receptacle **10** is drastically less than the horizontal spacing of upright-panels **11A-11D** or **11B-11C**.

It is the general purpose of a suitable conduit means to convey the flowable viscous-material (**109**) in first the vertical and then in the transverse directions from the pouch upper discharge-opening **104-105** toward a final exit opening. Preferably, the conduit means has a lower entrance opening **41** at vertical-axis **9** and has an upper exit opening **42** that is generously (and herein forwardly) transversely offset of the vertical-axis (**9**). The conduit **40** of FIGS. 1-3 is of generally seven-shaped configuration, its vertical stem lying along vertical-axis **9** and its lower end **41** threadedly engaged with the upper end of tubular fitting **106**, and with its transversely extending elevated stem progressively narrowing toward conduit exit **42**.

There are suitable pressure-application means located externally of said pouch supply **100** to permit the apparatus operator to apply manual pressure vertically against the pouch, causing the contained viscous-material **109** to be expelled upwardly through its discharge-opening **104-105** and thence ultimately to the transversely offset conduit exit **42**. The preferred type pressure-application means comprises a transversely extending pressing-panel that is vertically reciprocatably associated with the receptacle member. For example, the horizontal rectangular pressing-panel **50** overlies the pouch supply **100** just slightly below receptacle mouth-opening **13** and being slidably associated with the planar interior walls of the respective wall-panels **11A-11D**. It is desirable to have vertically resiliently yieldable spring means for the pressing-plate, such as a helical spring **59** surrounding fitting **105** with its lower end bearing against upper flange **108** and with its upper end bearing against pressing-plate **50**. Although it is possible to construct a conduit means **40** that could be at vertically immovable constant elevation, for economical and practical reasons both the conduit and the pressing-plate might be singularly con-

structed of the same structural material, such as the resinous plastic alluded to in FIGS. 2-3. With such unitized conduit and pressing-plate construction, herein collectively referred to as **20**, they are co-vertically reciprocatably. Moreover, as also indicated in FIGS. 2-3, the said unitized construction **20** might be augmented with integral webbed portions into an aesthetically pleasing and utilitarian dome-like contour, best seen in FIG. 1.

Fingers of an operator's left hand (assuming he be right-handed) appear as phantom lines **80** in FIG. 3 and at the instant he is just commencing to initiate downward manual pressure upon pressing-plate **50**. It can be appreciated from FIG. 2 (though not graphically encumbered with a descended phantom line position for pressing-plate **50**) that a manually initiated downward movement for pressing-plate **50** will compress the pouch supply **100**. Thus, viscous-material such as dentifrice **109** will be forceably ejected upwardly along vertical-axis **9** into conduit **40** and finally out exit orifice **42** to fall onto the bristles of an awaiting toothbrush **70**.

Many viscous-materials and including toothpaste dentifrices tend to solidify and become non-flowable when exposed to atmospheric air. Specifically, the dentifrice **109** is apt to become inimicably solidified at conduit exit **42**, whereupon the dispensing apparatus "A" would be rendered inoperative until laboriously cleaned at said exit **42**. Accordingly, the dispensing apparatuses of the present invention desirably include some type of closure means for temporarily closing the conduit exit outlet after each dispensing operation. Thus, the closure means effectively closes the conduit exit for an indefinite time period until the dispensing apparatus is to be used again.

The preferred closure means is desirably affirmatively connected to the conduit means, and in this vein, a flap hingedly attached to the conduit immediately adjacent to the exit opening might be employed. Preferably, however, the closure means takes the form of an elongated C-shaped tongue **60** slidably engaged with the conduit and the pressing-plate and including an apertured portion **63** temporarily alignable with the conduit exit outlet **42**. There are spring means **65** normally urging the tongue **60** so that its solid non-apertured portion is normally aligned with the conduit exit to function as an interim closure therefor. For example, C-shaped tongue closure **60** has an upper end **62** and an L-shaped lower end **61**, tongue **60** being slidably associated along a single C-shaped grooved track having two portions **44** (along the forward-upper side of conduit **40**) and **54** (along the upper forward side of pressing-plate **50**). As best seen in FIG. 2, the flanged lower end **61** of tongue **60** carries a pin **64** along **54**, and a helical spring **65** surrounds pin **64** and bears against the rearward end of pressing-plate grooved part **54**. Thus, as seen in solid line in FIG. 2, spring **65** normally tends to urge tongue lower end **61** in the forward direction whereby the aperture **63** of tongue closure **60** is rearwardly offset of conduit exit **42**. However, as indicated in phantom line in FIG. 2, whenever the operator pushes the toothbrush **70** rearwardly against tongue lower end **61**, spring **65** to compresses rearwardly and thereby allowing tongue **60** to flex and to slide sufficiently for aperture **63** to be aligned with conduit exit **42**. At this juncture, the operator **80** moves pressing-plate **50** downwardly to force dentifrice **109** to fall

downwardly through aperture 63 onto toothbrush 70. Upon operator withdrawal of the toothbrush, the spring 65 causes tongue 60 to resume its normally closed position, indicated in FIG. 2 solid line.

From the foregoing, the construction and operation of the dispensing apparatus will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

I claim:

1. Dispensing apparatus for toothpaste dentifrice and other similarly flowable viscous-material, said dispensing apparatus comprising:

- A. A boxy receptacle having an enlarged mouth-opening and including upright wall-means surrounding a vertical-axis for the receptacle and also including a transversely extending base panel means that intersects said receptacle vertical-axis;
- B. A dispensible supply of flowable viscous-material enclosed within a manually compressible pouch carried within said boxy receptacle, said dispensible pouch supply including a pouch floor-panel underlyingly supported by the receptacle base panel means and a pouch roof-panel provided with a discharge opening located substantially at the receptacle vertical-axis, the floor-panel and the roof-panel each substantially horizontally and transversely intersecting the vertical-axis and defining therebetween along the pouch vertical-height the pouch volumetric capacity, said pouch along the vertical-axis when enclosing its volumetric capacity of flowable viscous-material being of substantially regular annular cross-sectional size and shape and having the cross-sectional dimension thereof exceeding the pouch vertical-height;
- C. Pressure-plate means located externally of said pouch to permit the operator to apply manual pressure vertically against the pouch and toward the receptacle base panel means and thereby cause flowable viscous-material to flowably travel through a conduit means having an exit located above the said dispensible pouch supply;
- D. Said conduit means located above the pouch supply and in communicating relationship with the pouch discharge-opening whereby flowable viscous-material might flowably travel through said conduit upon the application of manual pressure by the operator vertically against the pouch through said pressure-plate means, said conduit including a transversely extending upper portion whereby the conduit has a forward side and a forward exit transversely offset from the vertical-axis, the forward side of the conduit and the upper side of said pres-

sure plate means are provided with a grooved track of generally C-shaped configuration; and

E. Closure means comprising a resiliently movable and flexible tongue slidably disposed along said C-shaped track means for temporarily closing the conduit exit during periods of non-use for the dispensing apparatus.

2. The dispensing apparatus of claim 1 wherein the pouch supply of flowable viscous-material is removably positioned within the boxy receptacle as an expendible replaceable item; and wherein the pouch supply includes a tubular fitting at the pouch discharge-opening and surrounding the receptacle vertical-axis.

3. The dispensing apparatus of claim 1 wherein the boxy receptacle is provided with an enlarged upper mouth-opening; wherein the receptacle transversely extending base panel means is a substantially horizontal base-panel located beneath the receptacle mouth-opening; wherein the pressure plate means comprises a transversely extending pressing-panel that is vertically reciprocatably associated with the receptacle and located above the base-panel; and wherein the conduit includes a transversely extending elevated upper portion whereby the conduit exit is generously transversely offset from the receptacle vertical-axis and located well above the pouch supply contained therewithin.

4. The dispensing apparatus of claim 3 wherein the conduit and the pressing-panel are rigidly attached and vertically co-reciprocatably associated with the receptacle; wherein the pouch supply includes a connected tubular fitting portion extending uprightly from the pouch discharge opening and surrounding said vertical-axis; and wherein the conduit lower portion remote of the conduit exit is removably engaged in flowable relationship with said tubular fitting portion of the pouch supply.

5. The dispensing apparatus of claim 4 wherein the tubular fitting is threaded and is horizontally flanged at the pouch roof-panel; wherein the conduit tower end is below the pressing-panel and removably threadedly engaged with the tubular fitting; and wherein the pressing-plate is slidably vertically associated with vertical interior surfaces of the receptacle wall means.

6. The dispensing apparatus of claim 1 wherein the pressing-plate is slidably vertically associated along vertical interior surfaces of the receptacle wall means; wherein the wall means at the receptacle forward side is recessed in horizontal alignment with the pressing-plate track means portion; wherein the tongue lower terminus along the pressing-plate is rearwardly offset of said wall means recess; wherein the tongue upper portion is apertured and alignable with said conduit exit; and wherein there are spring means resiliently urging the tongue lower portion toward the wall means forward recess.

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