Dec. 29, 1936. H. F. COLVIN 2,065,795

APPLICATOR

Filed July 29, 1936

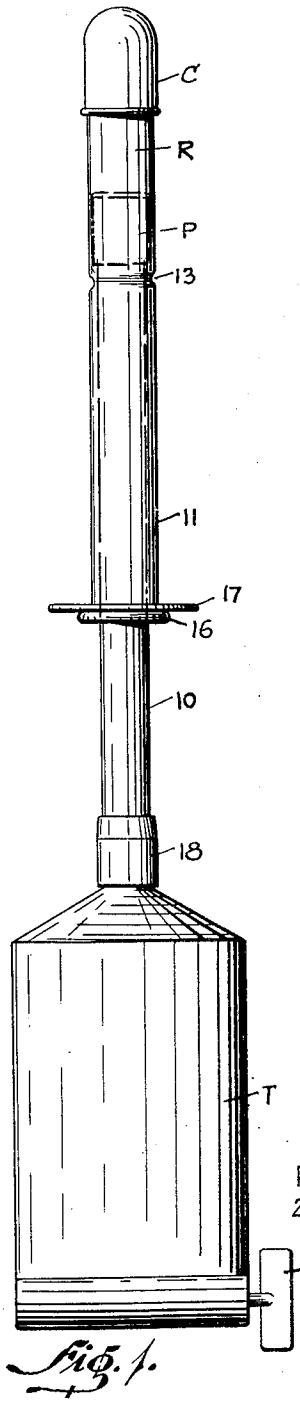


Fig. 1.

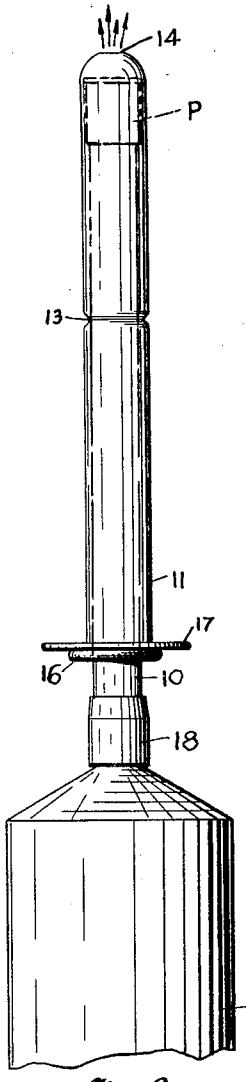


Fig. 2.

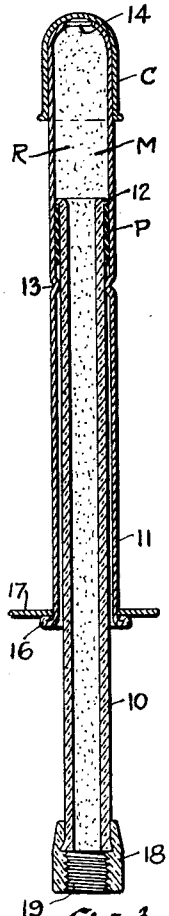


Fig. 3.

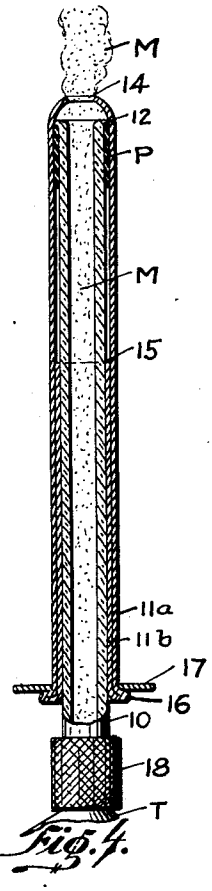


Fig. 4.

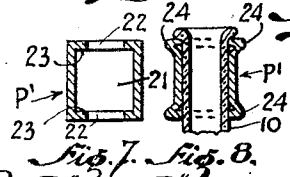
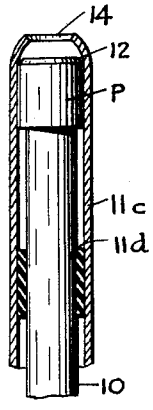


Fig. 7. Fig. 8.



Fig. 6.

Fig. 5.



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APPLICATOR

Henry F. Colvin, South Orange, N. J.

Application July 29, 1936, Serial No. 93,168

5 Claims. (Cl. 128—230)

This invention relates generally to applicators and particularly to the class capable of dispensing a definite quantity of the contents thereof when manipulated.

This invention has application where it is required that substances, such as, for example, powders, pastes, jellies, liquids, and the like be used in certain definite or measured amounts, as for feminine hygiene or medicinal purposes. Although particularly adapted for such purposes, devices made in accordance with this invention are not limited thereto but are capable of a variety of uses.

The device contemplated by this invention is a manually operable applicator adapted to be attached to a container from which it is to be filled.

It is an object of this invention to provide a practical, efficient, economical and simple applicator designed to dispense or eject a predetermined or metered charge or dosage.

It is a further object of this invention to provide an applicator adapted to be attached to a container holding the material to be discharged therein and therefrom, said applicator comprising in one of its aspects, two relatively slidable concentrically arranged or telescopic tubular members, the outer of which is adapted to receive in its upper portion the measured charge of material through the inner member, the said charge being exuded or ejected from the outer member by relative movement of the members.

Where the device is used for feminine hygiene purposes it is desirable that the inner tube be made of moisture-impervious and diffusion-resisting material, such as, for example, glass, and the outer tube of non-fragile, preferably resilient or elastic material, such as, for example, cellulosic material, the outer tube thereby also functioning as a protective casing for the inner tube.

A still further object of this invention resides in providing in an applicator a reservoir for containing a measured quantity of material to be dispensed and having an outlet, and a plunger through which the reservoir may be filled and by operation of which the material in the reservoir may be dispensed through said outlet.

This invention accordingly consists in the features of construction, combination of parts and in the unique relations of the members and in the relative proportioning and disposition thereof; all as more completely outlined herein.

To enable others skilled in the art so fully to comprehend the underlying features thereof that they may embody the same by the numerous modifications in structure and relation contemplated by this invention, a drawing depicting certain forms of the invention has been annexed as a part of this disclosure, and in such drawing, like characters of reference denote corresponding parts throughout all the views, of which:—

Fig. 1 is a front elevational view of an applicator embodying the invention, showing the same attached to a collapsible container, the applicator being in extended position.

Fig. 2 is a view similar to Figure 1 with cap removed and showing the applicator in retracted position.

Fig. 3 is a longitudinal sectional view of the applicator extended as shown in Figure 1.

Fig. 4 is a partial longitudinal sectional view of an applicator in a modified form and shown in retracted position.

Fig. 5 is a longitudinal sectional view of the top portion of an applicator embodying the invention in a further modified form and in retracted position.

Fig. 6 is a side elevational view of a closure screw cap employable in the invention.

Fig. 7 is a front elevational view of a packing or piston ring in a modified form.

Fig. 8 is the same as applied to the device.

The applicator generally consists of two substantially telescopic members, one of the members being hollow and providing a reservoir or chamber therein when the members are relatively extended, an outlet being provided for the chamber; the other member having an inlet to receive material to be dispensed and a passageway for a charge of said material to be stored in such chamber, the stored charge being ejected through the outlet by relative retraction of the members.

More specifically, the applicator may consist of two concentrically-arranged, relatively-slidable tubular members 10 and 11, inner and outer respectively. These telescopic members may be made of any suitable material, metal or non-metal, but are preferably made of tubes of non-metals such as celluloid, pyroxylin, other ethers and esters of cellulose, or horn-like materials having approximately the physical properties of cellulosic materials or materials having similar characteristics. Or either or both the tubular members may be made of any other suitable composition; or of glass.

In the example illustrated in the accompanying drawing, the inner member 10 is indicated as being made of glass tubing and the outer member 11 as being made of cellulosic tubing. Where the inner member is made of glass, the outer

member forms, in addition to its function as a container for the material to be dispensed, a protective casing for the fragile inner tube.

The inner member 10 functions as a hollow plunger and its upper end is provided with a piston ring P made preferably of resilient material, such as, a piece of rubber tubing. The top of inner member 10 may be flanged outwardly at 12 to form a stop for the inner member or plunger 10.

The outer hollow member 11 is provided with a suitable stop at a predetermined distance from its outlet 14. This stop may be a constriction 13 formed in the wall of tube 11. Or the stop may be formed at 15 (Fig. 4) by re-entering an extension 11*b* of tube 11*a*. The stop may be further formed by securing a sleeve 11*d* within the wall of the outer tube 11*c* at a predetermined distance from the top of the tube and as illustrated in Fig. 5. Constriction 13 may be an annular groove or partial closure in the outer member. The stop is disposed relatively close to the discharge outlet 14, so as to permit only the desired dosage of material in the chamber of the outer member. Said outer member is sufficiently extended below the stop so as to maintain the substantial alignment of the tubes when relatively extended to their limits.

The lower end of outer tube 11 may be flared as indicated at 16 to provide a rest for a finger hold or stop which is shown in the drawing as being a flat ring 17 or disc fitting over the tube 11.

Secured to the bottom of inner tube 10 is a connecting sleeve 18 which may be of hard rubber or any other suitable material. This sleeve may be provided with internal threads 19 adapted to threadedly engage the applicator with a container T or a closure screw cap 20. Any other suitable connecting means may be employed. A cap C is provided to close the outlet of outer tube 11.

To operate the device, the tubes 10, 11 are placed in relative extended position by relative axial movement of the tubes as shown in Figures 1 and 3. Let it be assumed that container T is attached to the applicator. Then by turning handle or key H the material M is forced from container T into the passageway provided in inner tube 10 and into the upper reservoir or chamber R in the outer tube 11. Chamber or reservoir R is defined by the top of plunger 10 and top 14 of outer tube 11 and the wall of tube 11 intermediate said points. Then cap C is removed and the applicator inserted in the orifice within which the material is to be received.

If the orifice is at least as deep as the length of outer tube 11, then ring 17 will function as a stop against the outside surrounding surface of the orifice and by sliding or retracting inner tube 10 relative to the outer tube 11, the measured or predetermined quantity or dosage of material M contained in reservoir R will be ejected as illustrated in Figure 4 and into the orifice.

If it is desired, after material M has been forced into the applicator, container T may be removed and the cap 20 screwed into sleeve 18 and then the inner tube 10 slidably operated by the pressure of a finger of the operator's hand thereagainst.

The piston ring or packing P' is made of resilient material, such as, for example, rubber or suitable composition, and comprises substantially a sleeve having a passage or opening consisting of the center portion 21 and end portions 22. The diameter of the center portion 21 of the opening is substantially the same as the external diameter of tube 10. The end portions 22 of the opening are narrower in diameter than the center portion 21 whereby flanges 23 are formed. Since the diameter of the opening at its ends 22 is less than the external diameter of tube 10, then when the sleeve P' is forced on tube 10, the pressure of flanges 23 against the external wall of the tube 10 will urge the sleeve at its ends to bulge outward as clearly indicated at 24 in Figure 8, thus providing seal-tight annular joints between the inner and outer tubes 10, 11 when telescoped.

In the accompanying drawing I have illustrated the invention embodied in some of their practical commercial forms but as these illustrations are primarily for purposes of disclosure it will be understood that the invention is not limited to these particular forms of structure and that it may be modified in many respects without departure from the true spirit and scope of the invention as herein defined and claimed. I wish it further understood that the terms which I have employed herein are used in a descriptive rather than in a limiting sense, except however, for such limitations that may be imposed by the state of the prior art.

It is to be understood that the cancellation or amendment of any claim to change the phraseology more clearly to define the construction or to meet the views of the examiner is not to be construed as a waiver of any rights which applicant may hereafter desire to assert in case of any future litigation on the patent eventuating out of this application.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. An applicator comprising internal and external tubular members telescopically connected together, the external member being a relatively long narrow tube adapted to be inserted into a relatively deep cavity approximately throughout the depth thereof, the external member having a stop therein intermediate its ends for the internal tube and having a chamber therein between said stop and an end of said external tube when the tubes are relatively extended, said external tube having a discharge orifice at the last-mentioned end, the stop being spaced forwardly substantially from the end of the outer tube opposite the discharge orifice to provide for a single dose of material in the chamber and to prevent relative extension of the tubes to enlarge the chamber greater than the required dosage, the internal tube having laterally deflected stop means between the stop and discharge orifice for limiting the retraction of the inner tube relative to the external tube.

2. An applicator comprising internal and external members telescopically connected together and freely slidable longitudinally relative to each other, each of said members being a relatively long narrow tube, the external member having a stop therein intermediate its ends and having a chamber therein between said stop and an end of said external tube for containing a predetermined quantity of material, said external tube between said stop and the opposite end thereof being sufficiently extended to maintain the substantial alignment of the tubes when relatively extended, said internal tube having lateral stop means between the stop and the discharge orifice for limiting the retraction of the inner tube relative to the external tube.

3. An applicator comprising internal and external tubular members telescopically connected together, each of said members being relatively long and narrow, the external member having an annular internal stop between the midportion and one end thereof and said member having a discharge orifice at said end and enclosing a chamber between said stop and orifice, the portion of said external member between the stop and the opposite end thereof from the orifice being sufficiently extended to maintain the substantial alignment of the members when relatively extended to their limits, the internal member having an annular portion greater than the external diameter thereof, and disposed within said chamber for limiting the retraction of the inner member relative to the external member, and said internal member having means at the opposite end thereof for attachment of a source of supply, and a laterally-directed plate-like ring secured to the external member at the opposite end from the orifice forming a hand-hold therefor.

4. An applicator comprising internal and external members telescopically connected together, each of said members being a relatively long narrow thin-walled tube adapted to be inserted into a relatively deep cavity approximately throughout the depth thereof, the external tube having a circumferential inwardly depressed stop formed therein and having a discharge orifice at one end with a chamber between said end and the stop when the members are relatively extended, the stop being spaced forwardly substantially from the end of the outer tube opposite the discharge orifice to provide for a single dose of material in the chamber and to prevent relative extension of the tubes to enlarge the chamber greater than the required dosage, said internal member having an external peripheral piston of greater external diameter than the internal diameter of the stop and located in the chamber to limit the retraction of the inner member relative to the external member, the internal member having a passageway therethrough in unobstructed open communication at one end with said chamber, and said internal member having means at the opposite end thereof for attachment of a source of supply.

5. An applicator comprising internal and external tubular members telescopically connected together, the external member being a relatively long narrow thin-walled tube adapted to be inserted into a relatively deep cavity approximately throughout the depth thereof, and having a stop therein intermediate its ends for the internal tube and having a chamber therein between said stop and an end of said external tube when the tubes are relatively extended, said external tube having a discharge orifice at the last-mentioned end, the stop being spaced forwardly substantially from the end of the external tube opposite the discharge orifice to provide for a single dose of material in the chamber, and to prevent relative extension of the tubes to enlarge the chamber greater than the required dosage, the internal tube having means between the stop and the discharge orifice for limiting the retraction of the inner tube relative to the external tube, said internal tube being of frangible material impervious to moisture, and the external tube being of non-frangible material having the characteristics of cellulose material forming a protective casing for the inner tube.

HENRY F. COLVIN.