Sept. 15, 1964 P. MESHBERG 3,148,806

DIRECTIONAL APPLICATOR

Filed Sept. 3, 1963

Fig. 1

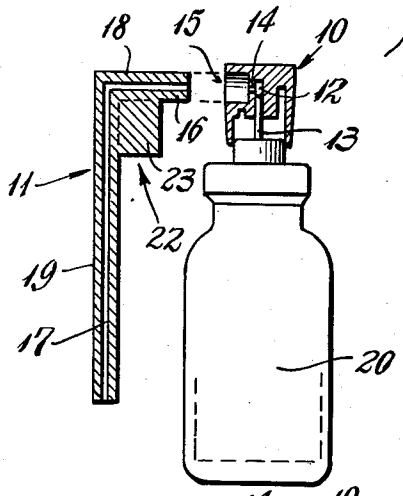


Fig. 2

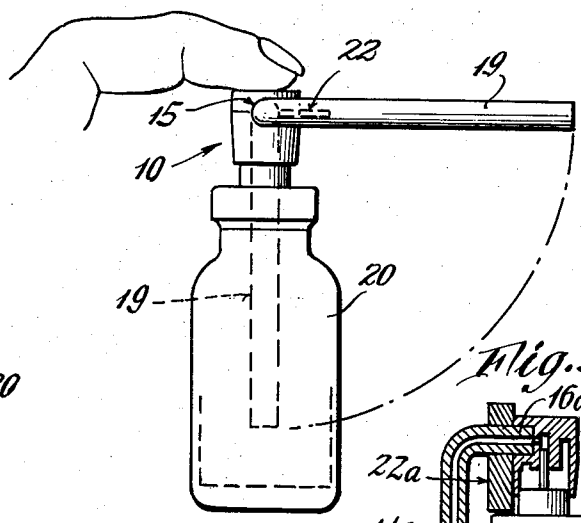


Fig. 4

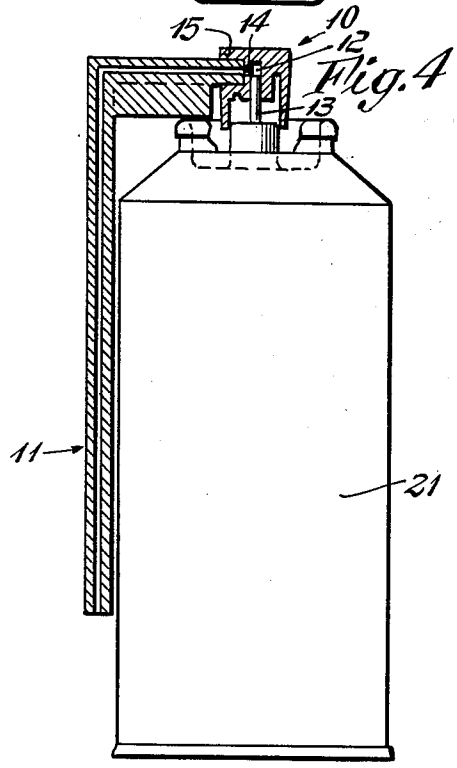


Fig. 5

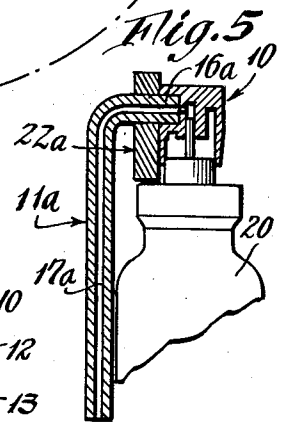


Fig. 3

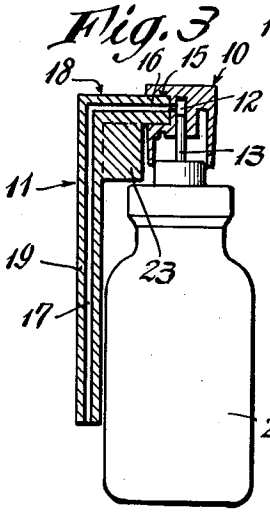
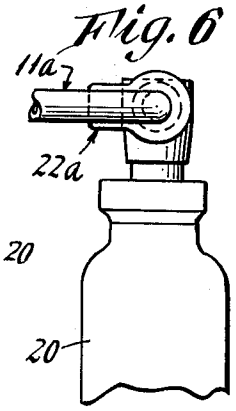


Fig. 6



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3,148,806
DIRECTIONAL APPLICATOR

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10 Claims. (Cl. 222—394)

The present invention relates to a simple and inexpensive directional applicator for aerosol packages for use in dispensing the material therefrom.

The present invention is particularly useful in the dispensing of pharmaceuticals and the like materials, and directing the same into specific locations, particularly within body cavities.

Heretofore, efforts have been made to provide directional applicators but these have been complicated structures involving unique valve assemblies and pivotal constructions in which the applicator is movable between an inoperative position and a fixed dispensing position in which the bore therein must be aligned with the bore in a button. These have been costly and have been on the whole not entirely satisfactory due to leakage and other factors.

The present invention overcomes these difficulties by providing a novel, yet simple directional applicator adapted to have a standard button and to be mounted on the aerosol package to which various types and shapes of applicator tubes can be readily assembled, as may be required by the particular requirements, for directing the discharge of the dispensed material through a wide range of positions with respect to the package.

A feature of the invention resides in the simplicity of the device and ease with which it is manufactured and operated.

Another feature of the device resides in the fact that the directional applicator can have means provided thereon for preventing inadvertent operation of the valve during storage or shipment or otherwise handling of the aerosol container.

A still further feature of the directional dispenser resides in the arrangement whereby the applicator tube can be located in adjacent but spaced relation to the side of the container so as to be readily packaged in packing containers and shipped without requiring any substantial excess space.

Other features and advantages of the invention will be apparent from the specification and claims when considered in connection with the accompanying drawings in which:

FIGURE 1 is a view of the directional applicator, in disassembled relation, for a bottle package.

FIG. 2 shows the applicator in dispensing position with the normal inoperative position shown in dash lines.

FIG. 3 is a view similar to FIG. 1 with the applicator assembled and in position on the bottle.

FIG. 4 is a sectional view of the applicator as applied to a can type container.

FIG. 5 is a view of another form of applicator with a separate stop applied.

FIG. 6 is a side view similar to FIG. 5 showing the stop in position.

As shown in the drawings, the novel directional applicator comprises two elements—a button **10** and a directional applicator tube **11**. The button, as shown in FIGS. 1 and 3, is preferably molded from thermoplastic material and has a bore **12** adapted to receive the end of a projecting reciprocable valve stem **13** of a valve means (not shown). The valve stem can be of any desired type having a discharge passage therein. For example, such a valve stem is shown in my patent, No. 2,721,010. The button has a passage **14** therein communicating with the end of the stem and with a recess **15** opening on the

surface of the button. While the recess may be of various shapes and located in any desired position, it is herein illustrated as a cylindrical recess opening on the side surface of the button with the passage **14** being axially disposed in the bottom thereof. The applicator tube **11** is provided with a cylindrical end portion **16** which is adapted to snugly fit into and be removably mounted in the cylindrical recess with the tube projecting therefrom and has a bore **17** extending therethrough, which bore is in communication with the passage **14** in the button so as to direct the aerosol material from the bottle through the tube to direct it and apply it in a precise location.

While the tube may take various shapes, in the herein illustrated form of the invention, as shown in FIGS. 1–3, the tube is an L-shaped tube having the cylindrical portion **16** formed at the end of the base **18** of the L and the discharge passage extending therethrough and along the stem **19** of the L to the end thereof. The end **16** of the tube is rotatably mounted in the recess **15** so that the tube can be moved relatively to the package to direct the material from a large number of positions. Since the passage **14** is always in communication with the bore **17** in all positions of adjustment of the tube, the need for aligning the passages and the precise positioning of the tube to effect satisfactory operation thereof is eliminated.

Preferably the base of the L is of such a length that the stem of the L, as shown in FIGS. 3 and 4, when the tube is in a normally inoperative position, lies adjacent to and parallel with the side of a bottle **20** (FIG. 1) or a can **21** (FIG. 4), whichever may be used in the package, so that it can be readily packaged in a cardboard carton or otherwise handled with a minimum of danger.

In the form of the invention shown in FIGS. 1–4, the tube is provided with a blocking member **22** formed integrally as a rib **23** lying in the angle of the base and stem of the L-shaped applicator tube and adapted, when the applicator is in said normal position on the button, to engage the top of the package and prevent operation of the reciprocating valve stem to inadvertently discharge material. The stop, however, as shown in FIG. 2, is moved out of blocking position when the applicator tube is moved to a dispensing position for directionally applying the material.

The applicator as shown in FIG. 2 has been moved to a right angle position. However, since the applicator rotates in the cylindrical recess and is always in commnication with the passage in the button, it can be moved to any position within approximately 340° and is dispensed therefrom when finger pressure is applied to the button as shown in FIG. 2.

While the directional applicator tube may be made of various materials, it is at present preferred to form it of thermoplastic material. In the form of the invention as shown in FIGS. 1 to 4, it is molded as a unitary structure.

In another form of the invention, an applicator tube **11*a*** is formed from an extruded tube of thermoplastic material which is bent as shown in FIG. 5, and has its cylindrical end portion **16*a*** rotatable in the cylindrical recess or socket **15** with the bore **17*a*** extending therethrough and forming a structure which can be readily fabricated in an inexpensive manner. In this form of the invention, if desired, a stop **22*a*** can be molded as a separate element to be assembled therewith and secured to the tube, as shown in FIGS. 5 and 6, in position to engage the package and prevent inadvertent operation of the button in the manner of the integral stop block of FIGS. 1–4.

In some cases where there is danger of contamination of the directional applicator tube during the use thereof, the tubes can be made of disposable material, such as paper, cardboard, or inexpensive plastic material, and

can be readily removed and replaced simply by withdrawing the end of the tube from the cylindrical recess and inserting the new tube.

It will be seen therefore that the present invention provides a simple and highly efficient directional applicator in which a standard button can be employed with a plurality of types of applicator tubes (which can be readily removed or replaced) depending upon the use to which the directional applicator is intended. Since the recess in the button forms the rotatable mount for the tube and the bore in the tube is always in communication with the passage in the button, the tube can be moved to many dispensing positions with respect to the package without requiring expensive pivot constructions or valving means therefor. Further, since the tube can be moved to a plurality of operative positions with respect to the package, the device can be used for most applications without requiring the package to be inverted or tilted to a point wherein the usual dip tube in the package becomes ineffective.

Variations and modifications may be made within the scope of the claims and portions of the improvements may be used without others.

I claim:

1. A directional applicator for a package of aerosol material having a projecting dispensing valve stem comprising a button having a bore to receive said stem and a passage having one end communicating with said valve stem and the other end communicating with the bottom of a cylindrical recess in the outer surface of the button with the axis of the cylindrical recess extending in the direction of the passage communicating therewith, and an applicator tube having a bend therein to provide a cylindrical end portion positioned in said cylindrical recess for rotation therein with the other end of the tube projecting therefrom at an angle and having a bore therein continuously communicating with the passage in the button to direct the application of the aerosol material dispensed from the package.

2. The invention as defined in claim 1 wherein the cylindrical end of the applicator tube snugly fits into said recess whereby said rotatable tube is readily removed and replaced.

3. A directional applicator for a package of aerosol material having a projecting dispensing valve stem comprising a button adapted to be mounted on said valve stem and having a passage therein having one end communicating with said dispensing valve stem and the other end communicating with the bottom of a cylindrical radially extending recess in the outer surface of a side of the button, and a bent applicator tube having an axially extending cylindrical portion on one end to be positioned in said cylindrical recess for rotation therein to position the other end of said tube in various desired positions for directing the application of said aerosol material, said tube having a bore therein continuously communicating with the passage in the button in all rotative positions of the tube to pass the dispensed aerosol material therethrough.

4. A directional applicator for a package of aerosol material having a projecting reciprocating dispensing valve stem comprising a button for said stem having a passage therein having one end communicating with said valve stem and the other end communicating with the bottom of a cylindrical recess in the outer surface of a side of the button, and a bent applicator tube having an axially extending cylindrical portion on one end to be mounted in said cylindrical recess for rotation therein from a normal inoperative position to position the other end of said tube in various desired positions for directing the application of said aerosol material, said tube having a bore therein communicating with the passage in the button in all rotative positions of the tube to pass the dispensed aerosol material therethrough, and cooperating means on the tube and package and controlled by the position of said tube for preventing inadvertent reciprocation of said valve stem in said inoperative position.

5. A directional applicator for a package of aerosol material having a projecting reciprocating dispensing valve stem comprising a button for said stem having a passage therein having one end communicating with said valve stem and the other end communicating with the bottom of a cylindrical recess in the outer surface of a side of the button, and a bent applicator tube having an axially extending cylindrical portion on one end to be mounted in said cylindrical recess for rotation therein about the axis of the tube from a normal inoperative position to position the other end of said tube in various desired positions for directing the application of said aerosol material, said tube having a bore therein continuously communicating with the passage in the button to pass the dispensed aerosol material therethrough, and a blocking member secured to said tube for engaging the package in said normal position to prevent reciprocation of and inadvertent operation of said valve.

6. A directional applicator for a package of aerosol material having a projecting dispensing valve stem comprising a button having an axial bore therein, a passage therein having one end communicating with said valve stem and the other end communicating with a cylindrical recess radially disposed in the outer surface of a side of the button, and an L-shaped applicator tube having an axially extending cylindrical portion on the end of the base of the L to be mounted in said cylindrical recess for rotation therein, said base being of a length to locate the stem of the L in a normal position spaced adjacent and parallel to the side of the package to facilitate storage and shipment of the package with said tube in place, said stem being movable in a plane parallel to the sides of the package upon rotation of the stem in the recess to a discharge position to direct the application of said aerosol material, said tube having a discharge bore therein communicating with the passage in the button to pass the dispensed aerosol material.

7. A directional applicator for a package of aerosol material having a projecting reciprocating dispensing valve stem operable to dispense said material in response to reciprocation thereof comprising a button having a bore therein to receive said stem and a passage therein having one end communicating with said valve stem and the other end communicating with a cylindrical recess in the outer surface of a side of the button, and an L-shaped applicator tube having a cylindrical portion on the end of the base of the L to be mounted in said cylindrical recess for rotation therein, said base being of a length that the stem of the L normally lies in a predetermined position with respect to the side of the package, said tube having a bore therein communicating with the passage in the button to direct the application of the dispensed aerosol material and an integral abutment formed at the juncture of the two legs to engage the package when the stem is in normal position to prevent inadvertent reciprocation thereof.

8. A directional applicator for a package of aerosol material having a projecting reciprocal dispensing valve stem for dispensing said material in response to reciprocation thereof comprising a button having an axial bore therein, a passage therein having one end communicating with said valve stem and the other end communicating with a cylindrical recess in the outer surface of a side of the button, an L-shaped applicator tube having a cylindrical portion on the end of the base of the L to be mounted in said cylindrical recess for rotation therein about the axis of said base of the L, said base being of a length to locate the stem of the L in a normal position parallel to the side of the package to facilitate storage and shipment of the package with said tube in place, said stem being movable upon rotation of the

stem in the recess to a discharge position to direct the application of said aerosol material, said tube having a discharge bore therein continuously communicating with the passage in the button to pass the dispensed aerosol material, and a blocking member carried by said tube for engaging the package when the tube is in said normal position to prevent inadvertent reciprocation of said dispensing valve stem and dispensing said material.

9. A directional applicator for a package of aerosol material having at its upper end a projecting dispensing valve stem comprising a button adapted to be mounted on said valve stem and provided with a passage therein having one end communicating with said valve stem and the other end communicating with the bottom of a cylindrical recess in the outer surface of a side of the button, and a bent applicator tube having a bore therein and a cylindrical portion on one end concentric with said bore and rotatably mounted in said cylindrical recess for moving the other end of the tube through a substantial arc relative to the package to direct the material dispensed therefrom over a large range without inverting the package, said bore in said tube communicating with the passage in the button in all rotative positions of the tube on the button.

10. A directional applicator for a package of aerosol material having a projecting reciprocal dispensing valve stem for dispensing said material in response to reciprocation thereof comprising a button having an axial bore therein, a passage therein having one end communicating with said valve stem and the other end communicating with a cylindrical recess in the outer surface of a side of the button, an L-shaped applicator tube having a cylindrical portion on the end of the base of the L to be mounted in said cylindrical recess for rotation therein about the axis of said base of the L, said base being parallel to the top rim of the container and of a length to locate the stem of the L in a normal position in a plane parallel to the side of the package to facilitate storage and shipment of the package with said tube in place, said stem being movable in said plane upon rotation of the stem in the recess to a discharge position to direct the application of said aerosol material, said tube having a discharge bore therein communicating with the passage in the button to pass the dispensed aerosol material, and a blocking member carried by said tube adjacent the juncture of the base and stem for engaging the top of the package when the tube is in said normal position to prevent inadvertent reciprocation of said dispensing valve stem and dispensing said material.

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