MATERIAL DISPENSING PACKAGE

Philip Meshberg, 15 Stoneleigh Road, Fairfield, Conn. Filed Sept. 22, 1964, Ser. No. 398,295

12 Claims. (Cl. 222—182)

This invention relates to material dispensing devices of the type including a container for the material to be dispensed and relatively movable operating means projecting outwardly of the container for dispensing the material. More specifically, it pertains to a package for such a material dispensing device.

It is an important object of the invention to provide a package for a material dispensing device which encloses and protects the device and functions to facilitate the operation thereof.

It is also an object of the invention to provide a package for a material dispensing device which facilitates the relative movement of a container for the material being dispensed and an operating member projecting from the container through which the material is dispensed.

It is also an object of the invention to provide a package for a material dispensing device, wherein the device comprises a container for the material having a relatively movable operating member projecting therefrom through which the material is dispensed, the package including a housing open at one end and providing a cavity for removably receiving the container, the housing being provided with a recess communicatively the cavity outwardly of the housing and frictional receiving and holding the operating member of the device, the container being engageable through the open end of the housing for imparting a force thereto for moving it in the housing relative to the operating member and the housing having opposed outwardly flared wall means forming integral with and of substantially the same thickness as the side walls of the housing for providing shoulders at opposite sides thereof against which force may be applied in a direction opposed to the force applied to the container for relatively moving the container and operating member to dispense the material.

Another object of the invention is to provide a package for a material dispensing device including a container receiving housing and a removable cover member therefor, the housing and cover member each having side wall portions formed with opposed integral outwardly flared wall portions, the side wall portion of the cover member being adapted to frictionally receive the side wall portion of the housing and the outwardly flared wall portions of the cover member abutting and complementing the shoulders formed by outwardly flared wall portions of the housing and having means engaging the housing shoulders for preventing the relative turning of the housing and cover member.

Still another object of the invention is to provide a package for a material dispensing device which includes a mechanical breakup device in the path of the material being dispensed, the breakup device being located within the confines of the package so that accidental displacement thereof is prevented.

Yet another object of the invention is to provide a nasal applicator package for a material dispensing device that facilitates the relative movement of the material container and operating member therefor so that the material is dispensed, the nasal applicator package including a mechanical breakup device for the material being dispensed, the breakup device being positioned adjacent and within the applicating nozzle and secured against accidental displacement therefrom during the dispensing operation.

It is further an object of the invention to provide a package for a device for dispensing materials under pressure, the device including a container for the material having a valve with a relatively movable valve stem projecting therefrom through which the material is dispensed, the package including a housing open at one end and having a side wall portion of substantially uniform thickness and a closed end portion, the container being adapted to be removably received in the housing with its valve stem frictionally retained and held in a recess formed in the closed end portion and opening outwardly of the housing, the recess including a mechanical breakup device locked within the confines of the housing against accidental outward displacement and having a bore therethrough provided with baffles for receiving the valve stem and providing a passage through which the material is dispensed, the container being engageable through the open end of the housing for applying a force thereto for moving the same relative to the valve stem, the side wall portion of the housing being formed with opposed integral outwardly flared wall means, the outwardly flared wall means being of substantially the same thickness as the side wall portion and flaring outwardly from the open end of the housing and ending short of the closed end thereof for providing shoulders at opposite sides of the housing against which force might be applied in a direction opposed to the force applied to the container for relatively moving the container and valve stem.

It is still further an object of the invention to provide a package for a material dispensing device which is adapted to be manufactured by quantity production methods, is readily assembled with the device and is of such rugged character it will function over long periods of time with freedom from all difficulties.

Other objects and advantages of the invention will be apparent from the specification and claims, when considered in connection with the attached sheet of drawings, illustrating one form of the invention, wherein like characters represent like parts and in which:

FIGURE 1 is an elevational view, in section, of a package according to the invention in combination with a material dispensing device;

FIG. 2 is a view, taken in the direction of the arrows 2—2 in FIG. 1, of the dispensing package;

FIG. 3 is a bottom view of the cover member of the dispensing package of FIG. 1;

FIG. 4 is an elevational view of a dispensing package, showing the material dispensing device in dotted lines, being manually operated as contemplated by the invention;

FIG. 5 is a fragmentary elevational view, in section, of the nasal applicator end of the dispensing package of FIG. 1; and

FIG. 6 is an end view of the mechanical breakup device embodied in the end of the dispensing device shown in FIG. 5.

Referring now to the drawings for a more detailed description of the invention, in FIGS. 1 and 4 a material dispensing device 10 is shown in combination with a dispensing package 11, the latter made in accordance with the invention, for protecting the dispensing device and facilitating its operation.

While the packaging concepts of the present invention are applicable to a variety of dispensing devices, which include a container for the material to be dispensed and a dispensing operating member connected thereto, in the herein illustrated form of the invention the device 10 comprises a well known type of aerosol unit including a substantially cylindrical container 12, for holding the material to be dispensed and the propellant means therefor, and a valve means (not shown, but of any well known type) having a reciprocable operating member or valve
stem 13 projecting outwardly of the container for operating the valve means on being moved relative thereto, the operating member being formed with an axial passage (also not shown) through which the material is dispensed. As is customary, though not shown, the valve stem or operating member is resiliently biased to normally project outwardly of the container.

It is common practice in the material dispensing art, and particularly in the field of aerosol devices, to package the dispensing device for decorative or protective reasons. In most instances the packaging of the device presents no problems, other than those normally encountered in providing a casing, since the device is operated by manipulating the operating member which projects from the package. In certain devices, however, such as nasal applicators or the like, the operating member is inaccessible for manipulation and other means must be provided for operating the device.

The dispensing package 11, according to the present invention, is illustrated in forming the conventional decorative and protective casing for the device 10, provides the means for relatively moving the material container 12 and its dispensing valve stem 13 to operate the device.

As illustrated, the package 11, which may be molded or similarly formed from plastic or like material and is here shown with the nasal applicator forming or the like into a nasal passage, includes a housing 14, open at one end as at 15, having a cylindrical side wall portion 16 of substantially uniform thickness and a closed end portion 17. The side wall portion and closed end portion define within the housing a cavity 18 that substantially conforms in shape to the outline of material container 12 and is adapted to movably receive the container therein. As clearly shown in FIG. 4, the container is engageable through the open end 15 of the housing for applying a force thereto, as by thumb pressure or the like, for moving the container in the cavity.

The closed end portion 17 of the housing 14 is formed with a recess 17a communicating the cavity 18 outwardly of the housing, the recess being adapted to receive and frictionally retain the operating member 13 of the dispensing device 10 so that the passage therein is communicated outwardly of the housing and the dispensing device is held in position relative to the package. While the closed end portion 17 of the housing and the recess 17a therein may take many forms, depending upon the ultimate use to which the dispensing device is directed, in the herein illustrated form of the invention the closed end portion is formed with a boss 19, providing a nozzle or applicator tip for insertion into a nasal passage, and the recess includes a passage extending through the boss.

While it is within the concepts of the invention for the recess 17a to comprise merely a bore of uniform diameter extending through the closed end portion of the housing for providing the passage for frictionally receiving the operating member of the dispensing device, in the nasal applications, where it is desirable to diffuse or break up the body of material being dispensed, the recess includes a plurality of axially aligned communicating bores 20, 21 communicating with a bore 22 in an outer wall of the portion 17, said bores 20, 21 being adapted to receive and frictionally hold a mechanical breakup device 23, the bore 24 of which receives the operating member 13 and provides the passage through which the material is dispensed.

The mechanical breakup device 23, which may take any form well known to the art, but preferably has its passage 24 interrupted by baffles or undercuts, provides a tortuous path 24a for breaking up the material being dispensed, is locked in the recess 17a to prevent its accidental displacement and discharge into the nasal passage during the dispensing operation. As illustrated most clearly in FIG. 5, the mechanical breakup device 23 is locked in the recess by forming the axially aligned bores 20, 21 and 22 of reduced diameter relative to one another, progressing from the cavity 18 outwardly, thereby providing shoulders 26 and 27 against which shoulders 28 and 29, formed on the breakup device, abut.

In order to dispense the material from the container 12, by relatively moving the container and the housing carrying the dispensing operating member 13, shoulders 30 are provided at opposite sides of the housing against which a force, such as finger pressure, may be applied in a direction opposed to the force moving the container through the open end 15 of the housing. While the shoulders 30 may be provided in any known manner and take any desired form, in the preferred form of the invention illustrated they comprise outwardly flared wall portions along integral with the side wall portion 16 of the housing and flaring outwardly from the open end thereof and ending short of the closed end portion. It will be noted that the outwardly flared wall portions 31, which have their sides gently tapering into the surface of the housing side wall portion 16, are of substantially the same thickness as the side wall portion 16, and like when the dispensing package is manufactured by a molding operation or the like.

In order to complete the dispensing package 11 and protect the nozzle 19 when the applicator is not in use, a removable cover member 32 is provided as shown in FIG. 5. The cover member, which may be formed of the same material and in a manner similar to the package housing 14 and defines a chamber 33 for receiving the closed end portion of the housing, has an end wall 34 and a side wall portion 35, the latter including a depending annular skirt 36 for frictionally receiving a portion of the housing side wall and holding the cover member in place. In a manner similar to that described in connection with the package housing, the cover member 32 is formed with opposed outwardly flared wall portions 37, which are adapted to complement and abut the shoulders 30 of the housing for providing a symmetrical appearance to the overall package and close the pocket formed by the housing shoulders. Depending projections of the cover member, engage the shoulders 30 of the housing and extend into the pockets formed thereby for preventing the cover member from turning relative to the housing.

Thus, among others, the various objects and advantages of the invention as aforesaid have been achieved. Obviously numerous changes in construction may be resorted to without departing from the concepts of the invention as defined in the claims.

1. A package for a material dispensing device, said device including a container for said material having a relatively movable operating member projecting outwardly therefrom through which said material is dispensed; said package comprising a housing open at one end and having a side wall portion of substantially uniform thickness and a closed end portion of said housing and the closed end portion thereof defining a cavity substantially confining in shape to said container and being adapted to movably receive said container on insertion thereof through said open end, said container being engageable through said open end for applying a force thereto to move the container in the direction of said closed end portion, said closed end portion of said housing being formed with a recess communicating said cavity outwardly of said housing, said recess being adapted to frictionally receive and hold said operating member of said container in said housing so that said dispensing device is retained relative to said package and said material may be dispensed therefrom, and outwardly flared wall means formed integral with said side wall portion of said housing and being of substantially the same thickness, said flared wall means flaring outwardly from said open end and ending short of said closed end portion for providing a shoulder.
against which force may be applied in a direction opposed to the force moving said container, whereby said container and operating member are relatively moved for dispensing said material.

2. A package for a material dispensing device, said device including a container for said material having a relatively movable operating member projecting outwardly therefrom through which said material is dispensed; said package comprising a housing open at one end and having a side wall portion of substantially uniform thickness and a closed end portion, the side wall portion of said housing and the closed end portion thereof defining a cavity substantially conforming in shape to said container and being adapted to movably receive said container on insertion thereof through said open end, said container being engageable through said open end for applying a force thereto to move the container in the direction of said closed end portion, said closed end portion of said housing being formed with a recess communicating said cavity outwardly of said housing, said recess being adapted to frictionally receive and hold said operating member on insertion of said container in said housing so that said dispensing device is retained relative to said package and said material may be dispensed therefrom outwardly of said housing through which said material is dispensed; said package comprising a housing open at one end and having a side wall portion of said housing and the closed end portion thereof defining a cavity substantially conforming in shape to said container and being engageable through said open end for applying a force thereto to move the container in the direction of said closed end portion, the side wall portion of said housing and the closed end portion thereof defining a cavity substantially conforming in shape to said container and being adapted to movably receive said container on insertion thereof through said open end, said container being engageable through said open end for applying a force thereto to move the container in the direction of said closed end portion, said closed end portion of said housing being formed with a boss having a recess there through communicating said cavity outwardly of said housing, said recess including at least two aligned communicating bores of relatively reduced diameter progressing outwardly from said cavity for providing shoulder means therein, and a mechanical breakup device frictionally retained in said recess and having means abutting said shoulder means for preventing movement thereof in a direction outwardly of said housing, said mechanical breakup device having a bore therein provided with bore means for forming a passage communicating said cavity outwardly of said housing through said recess, said bore in said mechanical breakup device being adapted to frictionally receive and hold said operating member on insertion of said container in said housing so that said dispensing device is retained relative to said package and said material may be dispensed therefrom, and means formed integral with said side wall portion of said housing and projecting outwardly therefrom for providing a shoulder against which force may be applied in a direction opposed to the force moving said container, whereby said container and operating member are relatively moved for dispensing said material.

3. A package for a material dispensing device, said device including a container for said material having a relatively movable operating member projecting outwardly therefrom through which said material is dispensed; said package comprising a housing open at one end and having a side wall portion and a closed end portion, the side wall portion of said housing and the closed end portion thereof defining a cavity substantially conforming in shape to said container and being adapted to movably receive said container on insertion thereof through said open end, said container being engageable through said open end for applying a force thereto to move the container in the direction of said closed end portion, said closed end portion of said housing being formed with a recess communicating said cavity outwardly of said housing, said recess being adapted to frictionally receive and hold said operating member on insertion of said container in said housing so that said dispensing device is retained relative to said package and said material may be dispensed therefrom outwardly of said housing through which said material is dispensed; said package comprising a housing open at one end and having a side wall portion of said housing and the closed end portion thereof defining a cavity substantially conforming in shape to said container and being engageable through said open end for applying a force thereto to move the container in the direction of said closed end portion, said closed end portion of said housing being formed with a recess communicating said cavity outwardly of said housing, said recess being adapted to frictionally receive and hold said operating member on insertion of said container in said housing so that said dispensing device is retained relative to said package and said material may be dispensed therefrom, and means formed integral with said side wall portion of said housing and projecting outwardly therefrom for providing a shoulder against which force may be applied in a direction opposed to the force moving said container, whereby said container and operating member are relatively moved for dispensing said material.

4. A package for a material dispensing device, said device including a container for said material having a relatively movable operating member projecting outwardly therefrom through which said material is dispensed; said package comprising a housing open at one end and having a side wall portion and a closed end portion, the side wall portion of said housing and the closed end portion thereof defining a cavity substantially conforming in shape to said container and being adapted to movably receive said container on insertion thereof through said open end, said container being engageable through said open end for applying a force thereto to move the container in the direction of said closed end portion, said closed end portion of said housing being formed with a boss having a recess there through communicating said cavity outwardly of said housing, said recess including at least two aligned communicating bores of relatively reduced diameter progressing outwardly from said cavity for providing shoulder means therein, and a mechanical breakup device frictionally retained in said recess and having means abutting said shoulder means for preventing movement thereof in a direction outwardly of said housing, said mechanical breakup device having a bore therein provided with bore means for forming a passage communicating said cavity outwardly of said housing through said recess, said bore in said mechanical breakup device being adapted to frictionally receive and hold said operating member on insertion of said container in said housing so that said dispensing device is retained relative to said package and said material may be dispensed therefrom, and means formed integral with said side wall portion of said housing and projecting outwardly therefrom for providing a shoulder against which force may be applied in a direction opposed to the force moving said container, whereby said container and operating member are relatively moved for dispensing said material.

5. A package for a material dispensing device, said device including a container for a material to be dispensed under pressure of a propellant charge therein and valve means mounted on the container for dispensing the material upon the operation thereof, said valve means including a projecting reciprocable valve stem movable relative to the container for operating the valve means and having a passage therein for passing the material; said package comprising a housing open at one end and having a side wall portion of substantially uniform thickness and a closed end portion, the side wall portion of the housing and the closed end portion thereof defining a cavity substantially conforming in shape to said container and being adapted to movably receive said container on insertion thereof through said open end, said container being engageable through said open end for applying a force thereto to move the container in the direction of said closed end portion, said closed end portion of said housing being formed with a recess communicating said cavity outwardly of said housing, said recess being adapted to frictionally receive and hold said valve stem on insertion of said container in said housing so that said dispensing device is retained relative to said package and said passage in said valve stem is open through said recess outwardly of said housing, and outwardly flared wall means formed integral with said side wall portion of said housing at opposed sides thereof, said outwardly flared wall means each flaring outwardly from said open end of said housing in opposite directions and ending short of said closed end portion, the outer end of each of said outwardly flared wall means being spaced from said side wall portion of said housing at opposed sides thereof for providing open shoulders at opposite sides of said housing against which force may be applied in a direction opposed to the force moving said container, whereby said container and operating member are relatively moved for dispensing said material, and a cover member for said closed end portion of said housing for protecting the recess therein, said cover member including a portion frictionally receiving said side wall portion of said housing and portions comprising respectively outwardly flared wall means thereof and abutting said shoulders, said shoulder abutting portions each having integral projections extending into the space between their respective outwardly flared portion of the housing and the side wall portion for preventing said cover member from turning relative to said housing.
6. A package for a material dispensing device as in claim 5, wherein there is a mechanical breakup device disposed in said recess between the walls thereof and said valve stem, said breakup device having a bore therein provided with baffle means for frictionally receiving and holding said valve stem and communicating the passage therein outwardly of said housing past said baffle means and through said recess, said recess being formed with stop means said breakup device for preventing its movement outwardly of said recess.

7. A package for a material dispensing device as in claim 6, wherein said closed end portion of said housing is provided with a boss forming a nasal applicator, said recess extending through said boss so that the material is enabled to be dispensed through said valve stem and said mechanical breakup device into a nasal passage.

8. A package for a material dispensing device as in claim 7, and a cover member for said closed end portion of said housing for protecting said nasal applicator, said cover member including a chamber means having an integral depending skirt adapted to receive and frictionally engage said side wall portion of said housing so that said closed end portion thereof is disposed within said chamber means, and outwardly flared portions formed integral with said skirt, said flared portions being complementary with said outwardly flared wall means of said housing and adapted to abut the shoulders formed thereby when said cover member is assembled with said housing, said outwardly flared shoulder abutting portions each having integral projections extending into engagement with said outwardly flared wall means of said housing when said cover member is assembled therewith for preventing said cover member from turning relative to said housing.

9. A nasal applicator package for dispensing material into a nasal passage comprising a cylindrical container for the material to be dispensed, said container having a reciprocating operating member resiliently biased to project from an end thereof, said operating member being provided with a passage through which the material is dispensed and being movable relative to said container for dispensing the material; a cylindrical housing open at one end and having a side wall of substantially uniform thickness and a closed end portion, the housing defining a cavity adapted to movably receive said container on insertion of open end thereof, said container being engageable through said open end for applying a force thereto for moving the same in said housing relative to said operating member, said closed end portion of said housing being formed with a boss shaped for insertion into a nasal passage and having a plurality of axially aligned bores therethrough providing a recess communicating said cavity outwardly of said boss, said axially aligned bores being consecutively of reduced diameters progressing outwardly from said cavity for providing shoulder abutments within said recess; a mechanical breakup device frictionally received within said recess and having means engaging said housing and means for preventing its movement outwardly thereof, said breakup device being formed with a tortuous passage communicating said cavity through said recess and outwardly of said boss, said passage being adapted to frictionally receive and hold said operating member for retaining said container relative to said housing; means providing abutments at opposite sides of said housing and directed away from the open end thereof against which a force opposed to the force moving said container may be applied for relatively moving said container and operating member, said means each comprising outwardly flared wall portions of a substantially the same thickness of said housing, said outwardly flared wall portions being formed integral with said housing and flaring outwardly from the open end thereof and ending short of said closed end portion; and a removable cover member for enclosing the closed end portion of said housing and protecting said boss, said cover member including a cylindrical depending skirt, adapted to frictionally receive a portion of said side wall portion of said housing and integral portions complementing said outwardly flared wall portions of said housing and abutting said shoulders, said integral portions having dependent means engaging said shoulders for preventing the turning of said cover member relative to said housing; said container having a tortuous passage therein communicating said cavity outwardly of said housing through said recess and adapted to frictionally receive said operating member for retaining and holding said dispensing device relative to said package and providing a passage through which the material is dispensed, and actuating means for relatively moving said cover member and operating member for dispensing said material.

10. A package for a material dispensing device, said device including a container for said material having a relatively movable operating member projecting outwardly therefrom through which the material is dispensed; said package comprising a housing open at one end and having a closed end portion at the opposite end thereof, said housing providing a passage through which said device is located and said closed end portion substantially conforming in shape to said container and being adapted to movably receive said container on insertion thereof through said open end, said closed end portion of said housing being formed with a recess therethrough communicating said cavity outwardly to be dispensed under pressure of a propellant charge therein, valve means mounted on the container for dispensing the material upon the operation thereof, said valve means including a projecting reciprocable valve stem movable relative to the container for operating the valve means and having a passage therein for passing the material, a dispensing portion mounted on the projecting valve stem for movement therewith relative to the container and including a recess formed therein and extending to an outer wall having a bore therein, said recess communicating with said bore and having two aligned communication bores of relatively reduced diameter progressing from the container to dispense material, said aligned bores providing a shoulder means therein, and a mechanical breakup device frictionally retained in said recess and having means abutting said shoulder means for preventing movement thereof in a direction outwardly of
said portion toward said outer wall, said mechanical breakup device having a bore therein for frictionally receiving and holding said valve stem for movement therewith and having passage means communicating with baffle means disposed between said outer wall and the end of the mechanical breakup forming a tortuous path through which said material moves outwardly through said portion for breaking up the material dispensed therefrom.