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2,974,453

METHOD OF PRESSURE FILLING AEROSOL CONTAINERS

Filed Dec. 15, 1958

Fig. 1

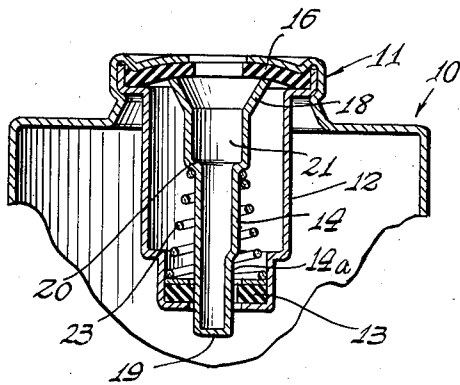


Fig. 2

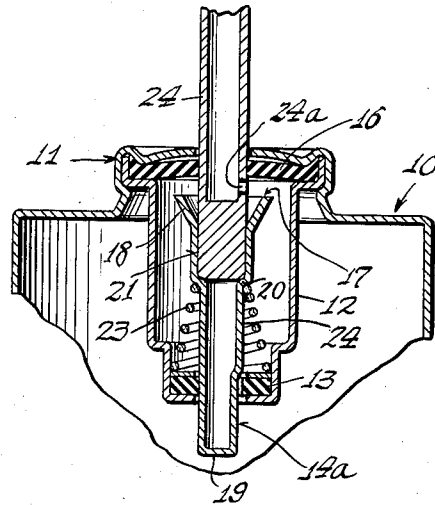


Fig. 3

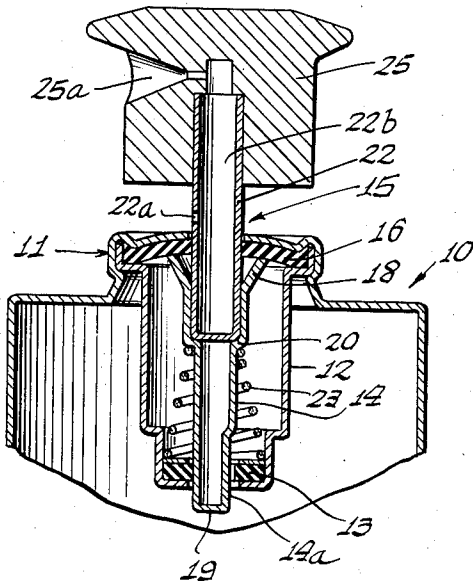
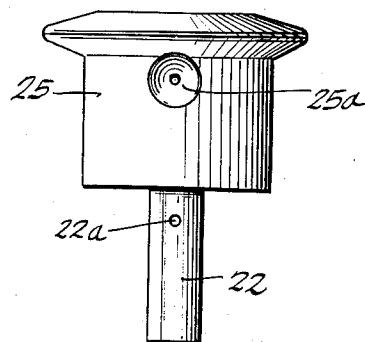


Fig. 4



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METHOD OF PRESSURE FILLING AEROSOL CONTAINERS

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5 Claims. (Cl. 53—29)

This invention relates to the method of pressure filling a container having a metering valve thereon.

In my Patent No. 2,837,249 there is disclosed a container having a metering valve embodying a two-part stem in which passages are provided for the entrance of fluid under pressure during the pressure filling operation. While these passages are sufficient when small amounts of material are to be fed to the container as in the case of cosmetics and pharmaceuticals, it has been found that it is too slow a method to be used commercially in filling larger containers of material such as shaving cream and the like.

Accordingly, it is an object of the present invention to provide a method of pressure filling in which the container can be more rapidly filled. This is accomplished by providing a two-part stem and assembling the inner part of the stem with the valve means and manipulating the inner part of the stem in such a manner as to provide a substantially free passage of the aerosol material under pressure past the metering means and into the container. After the container is filled, the other part of the stem having the dispensing passage therein is assembled with the inner part of the stem to control the measured flow of material from the container.

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 shows the container with the valve means in position thereon to be pressure filled.

Fig. 2 shows the valve means of Fig. 1 in pressure filling position.

Fig. 3 shows the valve means of Fig. 1 with the other part of the stem in position.

Fig. 4 shows a view of the stem and dispensing button in position ready to be assembled to the filled container.

As is shown in Fig. 1, the container 10 is provided with a neck 11 in which is mounted a measuring housing 12 of the metering valve. At the bottom of the housing there is positioned an apertured seal 13 adapted to cooperate with a reduced or flattened portion 14a of the inner part 14 of a two-part stem 15 to form a normally open valve. The upper end of the housing is provided with a second seal 16 which is engaged by an abutment 17 on the inner part of the stem to form a normally closed valve. While the abutment may be formed in various ways, it is herein illustrated as a flaring 18 on the upper end of the inner stem portion 14 which is formed as a tubular member having a bottom closing wall 19. The upper end of the stem part 14 is of enlarged diameter forming a shoulder 20 and a socket 21 to receive the end of the other part 22 of the stem 15. A spring 23 is disposed within the housing and engages the shoulder 20 and normally urges the abutment 17 into sealing relation with the top seal 16 and holds the stem in position wherein the inner valve means is normally open and provides communication for the passage of the aerosol from the container to the housing.

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When it is desired to fill the container, as will be noted in Fig. 2, a filling nozzle 24 is inserted into the socket in the first part of the stem with the passage 24a therein disposed above the socket. The part 14 of the stem is depressed by the nozzle to the position shown in Fig. 2. It will be noted herein that the abutment 17 is moved away from the top seal 16 and the flattened portion 14a of the stem is still disposed within the aperture in the lower seal so that both the inner and outer valve means are in open position. The material fed from the passage 24a of the pressure nozzle has free passage, therefore, across the top of the stem into the housing 12 and down through the normally open valve to the container.

After the container is completely filled, the nozzle is retracted and the inner stem returns to the position of Fig. 1 in which the outer seal is closed. The nozzle is then removed. Thereafter, the second part of the valve stem is inserted into the socket in the first portion. While the two parts can be held together by threads or the like connectors, they are shown as being connected by a friction fit so as to be operable to control the passage of fluid from the container, the second stem part having an inlet passage 22a and a central dispensing passage 22b therein for conducting the aerosol from the housing when the stem is depressed. If desired, an actuating button 25 having a dispensing nozzle 25a can be mounted on the outer stem portion 22 as shown in Fig. 3.

It will be noted that the location of the inlet port 22a in the outer stem is such that it will not pass into the housing until the flattened part 14a of the inner stem has completely closed the normally open valve in the bottom of the housing so that only the measured charge trapped in the housing will be dispensed.

With this arrangement it will be seen that the container and the valve means, with the exception of the outer part of the valve stem, can be assembled and shipped to the filler, who, after filling, merely assembles the outer part of the stem, which may have the button 25 assembled thereon, to the inner stem to complete the package.

It will be apparent from the foregoing that by the method of the present invention more extensive passages are provided to enable greater quantities of the material to quickly pass into the container and hence greatly expedite the filling of larger containers.

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. The method of pressure filling an aerosol container having a metering valve means embodying a two-part stem and a measuring housing having a seal cooperating with a valving portion adjacent the inner end of a first part of said stem to form a normally open inner valve means for controlling passage of the aerosol from the container to the housing and a second seal against which the other end of said first part of the stem is normally urged by urging means to form a normally closed outer valve means for controlling passage of the aerosol from the housing during the dispensing thereof through dispensing passages in said other part of the stem when secured to said first part; the steps of assembling the housing having the two seals and cooperating first part of the stem with the container, applying the nozzle of a pressure filling means to said first part of the stem, depressing said first part of the stem against the urging means to a position wherein the seal at the top thereof is broken and the seal at the bottom is not closed, feeding an aerosol under pressure through said nozzle and past said seals into the container to fill the container, and thereafter assembling the other part of the valve stem with the first part to operate the valve means to dispense measured amounts of aerosol from the container.

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2. The method of pressure filling an aerosol container having a metering valve means embodying a two-part stem and a measuring housing having therein the inner part of said stem to cooperate therewith to form a normally open inner valve means for controlling passage of the aerosol from the container to the housing and a seal against which a shoulder on said part of the stem is normally urged by urging means to form a normally closed outer valve means for controlling passage of the aerosol from the housing during the dispensing thereof through dispensing passages in said other part of the stem when secured to said first part; the steps of assembling the housing having the inner and outer valve means and cooperating inner part of the stem with the container, applying the nozzle of a pressure filling means to said inner part of the stem, depressing said stem part to a position wherein the shoulder is moved out of engagement with the seal and the outer valve means is opened and the inner valve means at the bottom is not closed, and feeding an aerosol under pressure through said nozzle and past said open valve means and into the container to fill the container.

3. The method of pressure filling an aerosol container having a metering valve means embodying a two-part stem and a measuring housing having therein the inner part of said stem to cooperate therewith to form a normally open inner valve means for controlling passage of the aerosol from the container to the housing and a seal against which a shoulder on said part of the stem is normally urged by urging means to form a normally closed outer valve means for controlling passage of the aerosol from the housing during the dispensing thereof through dispensing passages in said other part of the stem when secured to said first part; the steps of assembling the housing having the inner and outer valve means and cooperating inner part of the stem with the container, applying the nozzle of a pressure filling means to said inner part of the stem, depressing said stem part to a position wherein the shoulder is moved out of engagement with the seal and the outer valve means is opened and the inner valve means at the bottom is not closed, feeding an aerosol under pressure through said nozzle and past said open valve means and into the container to fill the container, and thereafter assembling the other part of the valve stem with the first-mentioned part of the stem.

4. The method of pressure filling an aerosol container having a metering valve means embodying a two-part tubular stem, the inner part having a socket to receive the end of the outer part, and a measuring housing having therein one part of said stem to cooperate therewith to form a normally open inner valve means for controlling

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passage of the aerosol from the container to the housing, a seal carried by the housing and against which a shoulder or said part of the stem is normally urged by urging means to form a normally closed outer valve means for controlling passage of the aerosol from the housing, said part having a socket in the end thereof to receive the end of the other part of the stem; the steps of assembling the housing having the inner and outer valve means and cooperating part of the stem with the container, applying the end of a nozzle of a pressure filling means to the socket of said first-mentioned part of the stem, depressing said stem part to a position wherein the shoulder is moved out of engagement with the seal and the outer valve means is opened and the inner valve means at the bottom is not closed, feeding an aerosol under pressure through said nozzle and past said open valve means and into the container to fill the container, and thereafter inserting and securing the other part of the valve stem in the socket of said first-mentioned part of the stem.

5. The method of pressure filling an aerosol container having a metering valve means embodying a two-part stem and a measuring housing having a seal cooperating with a valving portion adjacent the inner end of a first part of said stem to form a normally open inner valve means for controlling passage of the aerosol from the container to the housing and a second seal against which the other end of said first part of the stem is normally urged by urging means to form a normally closed outer valve means for controlling passage of the aerosol from the housing during the dispensing thereof through dispensing passages in said other part of the stem when secured to said first part; the steps of assembling the housing having the two seals and cooperating first part of the stem with the container, positioning the nozzle of a pressure filling means to sealingly close said housing to the atmosphere, depressing said first part of the stem against the urging means to a position wherein the seal at the top thereof is broken and the seal at the bottom is not closed, feeding an aerosol under pressure through said nozzle and past said seals into the container to fill the container, and thereafter assembling the other part of the valve stem with the first part to operate the valve means to dispense measured amounts of aerosol from the container.

References Cited in the file of this patent

UNITED STATES PATENTS

2,746,796	Germain	May 22, 1956
2,802,490	Ward	Aug. 13, 1957
2,837,249	Meshberg	June 3, 1958
2,881,808	Germain	Apr. 14, 1959

UNITED STATES PATENT OFFICE
CERTIFICATION OF CORRECTION

Patent No. 2,974,453

March 14, 1961

Philip Meshberg

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 3, for "or" read -- on --.

Signed and sealed this 15th day of August 1961.

(SEAL)

Attest:

ERNEST W. SWIDER

Attesting Officer

DAVID L. LADD

Commissioner of Patents