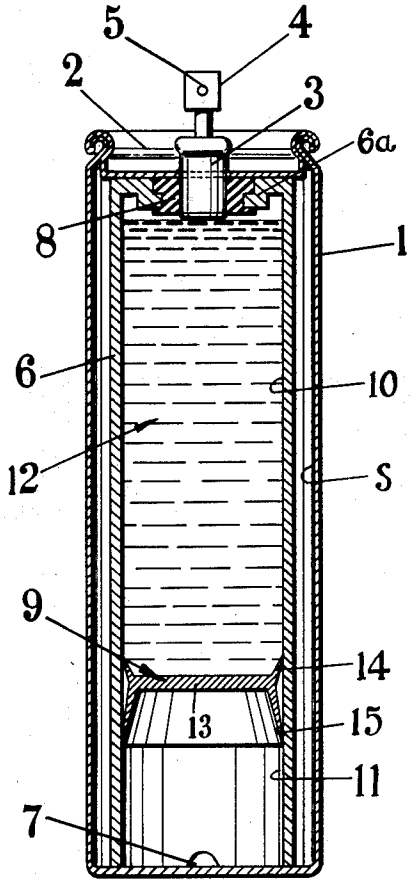
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DISPENSING CONTAINERS

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DISPENSING CONTAINERS

Charles B. Featherstone, Sale, and Brian F. Hawtin, Radlett, England, assignors to Richmond Aerosols Limited, Withington, Manchester, England, a British company

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This invention relates to containers for dispensing materials in the form of liquids, creams or pastes by means of a propellant consisting usually of a gas which is inert with respect to the material to be dispensed.

The device according to the invention comprises an outer container adapted to contain a propellant, an outlet valve on the container, a receptacle for the material to be dispensed arranged to seal on to the outlet valve at one end and to communicate with the interior of the container at the other end, and a freely movable piston in the receptacle exposed at one side to the pressure in the container and adapted to displace the material to be dispensed when the valve is opened.

The outer container may be of the type normally used as aerosol containers, with a valve cap crimped into position at its upper end. The inner receptacle may be a tube capable of passing through the outer container opening before the valve is fixed in position. It may be made of polyethylene or other material which is not affected by the contents, and must be sufficiently strong to withstand the pressures involved. The upper end of the tube may be formed so as to seal on to the valve cap and may be fitted with a rubber grommet. The lower end of the tube will rest on the bottom of the outer container, and has slots or holes to allow pressure to act under the piston contained therein.

The piston may be of any suitable material, such as polythene, and may be in the form of a disc having outwardly flared flanges above and below the same.

The tube, with the piston at its lower end, is filled with the material to be dispensed. A measured amount of propellant is introduced into the container, the filled tube is inserted, and the valve is placed in position and secured by crimping. On actuating the valve, the material is ejected in a smooth controlled manner, free from contamination with the propellant and without the formation of foam, irrespective of the position of the dispenser.

The accompanying drawing shows by way of example a device according to the invention, in vertical section.

The device includes an outer tubular member or container **1** having an open end adapted to be closed by a valve cap **2** carrying an outlet valve **3**, which is operated in the normal manner by pressure on a button **4** having a side opening **5** through which the contents of the device are dispensed. A tube **6** of polythene is located coaxially within the container **1** for defining therewith an annular space S with the open lower end of the tube resting on the bottom of the container and slots or holes **7** at the lower end providing communication between the interior of the tube and the annular space. The upper end of the tube **6** is provided with an internal flange **6***a* adapted to receive a rubber grommet **8** with the flange and grommet fitting under the valve cap **2** and the grommet fitting about the body of valve **3** in a sealing manner.

A slidable piston denoted generally **9** is mounted within the tube **6** and divides the interior of the tube into space **10** between the piston and the valve **3** and space **11** between the piston and the bottom of the container. The material to be dispensed indicated **12** is located in the space **10** while the propellant is in the annular space S and space **11**.

The piston **9** is in the form of a disc **13** having integral outwardly splayed conical portions **14** and **15** at the upper and lower sides thereof, respectively. These portions constitute in effect flanges which engage the inner surface of the tube and the flange **15** is of greater length than the flange **14**.

The material **12** to be dispensed is placed in the space **10** above the piston **9** and the propellant is placed in the annular space S. The underside of the piston **9** is exposed to the pressure of the propellant by virtue of the presence of the propellant in the space **11**, and when the valve **2** is opened, the piston **9** will rise and force the material out through the side opening **5** of the valve.

The invention is not to be confined to any strict conforming to the showings in the drawing but modifications or changes may be made therein so long as such modifications or changes mark no material departure from the spirit and scope of the appended claims.

What is claimed is:

1. A disposable dispenser for flowable materials comprising,

a tubular outer member having an open end and a closed end,

a tubular inner member located coaxially within the outer member to define therewith an annular space, said tubular inner member communicating with said annular space at a location adjacent the closed end of the tubular outer member and being sealed at its end remote from the closed end of the tubular outer member,

means for closing said annular space adjacent the sealed end of the tubular inner member,

a manually operable valve projecting from said sealed end of the tubular inner member operable to allow flowable material from said inner tubular member to escape therefrom,

a piston slidable within the inner tubular member and defining in the inner tubular member an upper space between the valve and the piston and a lower space between the piston and the closed end of the outer member,

material to be dispensed in said upper space, and

a propellant in said annular space and in said lower space.

2. The dispenser as claimed in claim **1** wherein said piston comprises a disc having integral therewith outwardly splayed conical portions at its edges fitting said inner tubular member.

3. The dispenser as claimed in claim **1** wherein the means for closing said annular space is defined by a metal member crimped at its edges to the edges of the open end of said tubular outer member, and said metal member having an opening through which the valve passes.

4. The dispenser as claimed in claim **1** wherein the tubular inner member is open at its end remote from its sealed end, said open end of the tubular inner member being in close communication with the closed end of the outer member and said tubular inner member having slots

adjacent said open end thereof whereby said lower space is in communication with said annular space.

5. The dispenser as claimed in claim 1 wherein a resilient grommet seals the valve to the sealed end of said tubular inner member.

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LOUIS J. DEMBO, *Primary Examiner.*

HADD S. LANE, RAPHAEL M. LUPO, *Examiners.*