Nov. 16, 1965 K. R. KASPARIAN 3,217,937

PRESSURE CAN FOR HOT DISPENSING

Filed Nov. 13, 1963

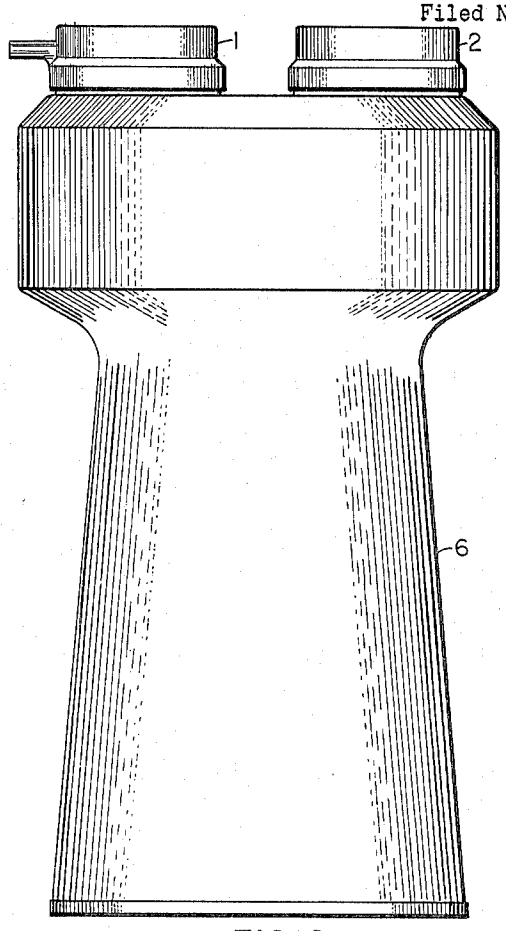


FIG. 2

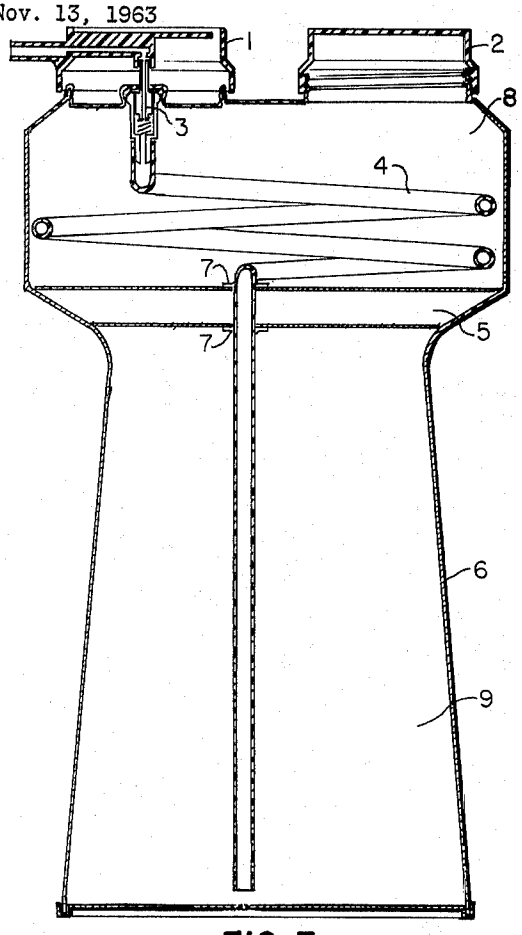


FIG. 3

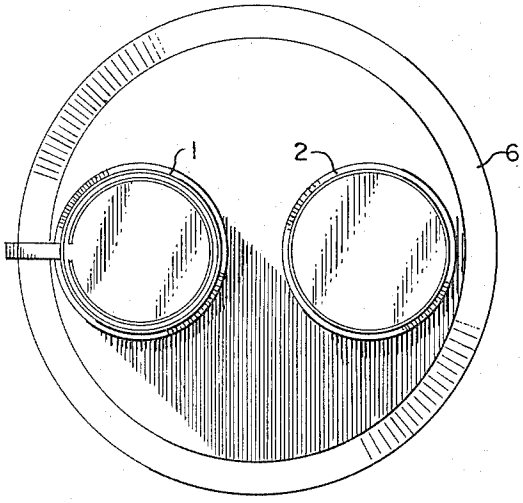


FIG. 1

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United States Patent Office 3,217,937
Patented Nov. 16, 1965

3,217,937

PRESSURE CAN FOR HOT DISPENSING

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Filed Nov. 13, 1963, Ser. No. 323,301
1 Claim. (Cl. 222—146)

This invention relates to a pressurized dispensing can. It has particular applicability to the relatively small metal containers suitable for home use in dispensing a wide variety of products.

One type of such pressure can to which the invention is applicable is the "Aerosol" type, although other forms of gas pressure loading are equally suitable.

The invention has particular applicability in such cans as are used to dispense products which are preferably warm when dispensed. Such products include shaving creams and certain food products. It is clear that the lack heretofore of efficient means for providing heated product dispensing has probably inhibited the appearance or wide-spread presence of products on the market whose natures indicate that they could best be dispensed in a heated fashion.

The application to shaving cream dispensers is quite obvious. It has been known to attempt to dispense heated shaving creams through relatively large stationary units in which a supply of shaving cream is supplied. Such units are commonly seen in barber shops. There have been attempts made to heat the shaving cream as dispensed from pressure cans. One such expedient mounts the can in a stationary structure. Another such expedient provides an attachment to the dispensing spout of the pressure can. Another such expedient provides for passing the shaving cream through a finely divided metal volume which is intended to provide better heat conductivity. The present invention is intended to be an improvement over these other expedients and to provide a more satisfactory and universal solution to the heating problem.

It is apparent that merely holding a pressurized can under running hot water, or leaving it in hot water, is an inefficient expedient.

It is an object of this invention to provide a pressurized can.

It is an object of this invention to provide a pressurized can comprising two compartments, one of said compartments containing the product to be dispensed and a propelling agent, and the other of said compartments containing heat exchange means.

It is yet another object of this invention to provide a pressure can dispenser in which the product and its propelling agent in one compartment are led through a tube into a second compartment sealed from said first compartment, said second compartment containing a plurality of convolutions of said tube, and comprising a hot water tank, said tube thence going to a discharge valve.

Other aims and objects of this invention are made apparent in the following specification and claims.

The invention is best understood in connection with the accompanying drawing in which like reference numerals refer to like parts and in which:

FIGURE 1 is a top view of the pressure can;

FIGURE 2 is a front elevation view thereof; and

FIGURE 3 is a cross-sectional longitudinal view taken through the center of the caps.

The invention is best described as to its structure in connection with FIGURE 3. A can or container **6**, preferably of the usual metal construction is provided. This can has a first or main compartment **9** in which the product to be dispensed, together with the liquid or gaseous propellant is provided, all within the scope of well known art. This propellant-product combination may be of

the aerosol type or may not be. All the various ways in which propellant and product can be utilized in a single container are within the scope of this invention, and no novelty is claimed with respect to the product or propellant.

A second or hot water compartment **8** is provided as an integral part of container **6**, but above the main, first or product compartment **9**. The two compartments are preferably kept thermally isolated from each other by insulation **5**. In the embodiment shown, the insulation **5** consists merely of an air space, although it is within the scope of the invention to provide a solid insulating material, such as asbestos if desired.

A tube **4** leads from the main compartment **9** to the dispenser cap **1**. This tube is preferably of extruded or otherwise molded plastic, although it may be of metal construction. In so far as the relationship between the tube extending into and toward the bottom of the product compartment **9** and its connection to the dispenser cap is concerned, the functional relationship is in accord with the normal practice and teaching of the well known art. The dispenser cap **1** contains within it a valve **3**. In accord with normal practice, when the dispenser cap **1** is depressed, the valve **3** is opened, and product, or mixed product and propellant travels through tube **4** and the cap **1**, and thence out the dispensing spout.

A departure from known practice comes in that instead of tube **4** running directly from the product compartment to the valve, it is extended in length, and this extended length is positioned within the second or hot water compartment **8**. As shown, a preferable arrangement of the extended portion of tube **4** is that of a coil of large diameter in comparison to the size of the compartment. Quite preferably, a plurality of these coils are provided. As illustrated, there are only two complete turns in the coil, for simplicity of illustration, and the structure is workable. For better heat exchange purposes, more coils would be provided. The exact nature of the disposition of the tube **4** within the hot water compartment **8** is not critical. In principle, it is only required that the tube pass through this compartment; in practice, the more coil length disposed within the compartment, the better the heat exchange, and the hotter the dispensed product. The coil **4** may be convoluted in the hot water compartment in a manner other than a neat coil; it may simply be stuffed in, for example.

An opening into the hot water compartment **8** is provided, normally covered by a hot water cap **2**. In use, the cap **2** is removed, hot water from any available source is run into the compartment **8** and the cap **2** is replaced.

The hot water immediately begins the transfer of its heat to the product lying within that portion of the tube contained in the upper or hot water compartment. The container **6** need not be held under running water either continuously or for any particular period of time, nor need it be immersed. There is no necessity of attempting to heat the entire product content of the container **6** or to heat the propellant. There is an elimination of whatever minor danger there may be of putting too much stress on the container by overheating it since the application of heat is confined ot only a small portion of the product, that is, that lying within the convoluted section of tube **4**. There is no mixing of the water (or other heating liquid) with the product to be dispensed, since, as illustrated, the interior of the second or hot water compartment is sealed or isolated from the interior of the main compartment. Thus, there is no problem of possible contamination of the product. This is particularly important regarding food products. Furthermore, there is no possibility of rusting or other corrosion on the part of metal heat exchange aids in contact

with the product. The device permits moderately accurate control of the heat of the product to be dispensed, since a little experience in use indicates the temperature of the water which should be loaded into compartment **8**. Furthermorme, in the design of the device for various uses, such as foods or shaving creams, the amount of exposed heat exchange surface within compartment **8** may be chosen as a matter of simple design to meet the particular requirements. Another advantage of this present device over previously known attempts is that resistance to the passage of the product through the tube and out the dispensing spout is increased only by a relatively small amount due to the increased length of the tube and the turns therein. The structure permits this additional length and the additional turns to be kept to the minimum required for the heat exchange, and there are no additional outside connections or restrictive passages.

It is noted that once the hot water compartment has been filled, the user is independent of the source of hot water, and the user may carry the can with him to some other place of use.

In its broadest sense, the second compartment **8** is adapted to receive any liquid having a temperature differing from the ambient temperature, that is, differing from the normal temperature of the product contained in the can **6**. Examples of products which can be usefully dispensed heated with the teachings of this invention include shaving cream, shampoo, hair dyes, hair cream rinses, and food toppings such as fudges and syrups.

The scope of this invention is to be determined by the appended claim and is not to be limited to the foregoing description and drawing, which are intended to be illustrative.

I claim:

A disposable pressurized dispensing can adapted to dispense warm product, integrally comprising (a) a main compartment adapted to contain product to be dispensed and a propelling agent therefor, (b) a second compartment positioned above said main compartment and insulated therefrom by an air space and sealed therefrom, (c) a dispensing cap including a manually operable valve and a spout on said second compartment, a tube extending from said main compartment through said second compartment to said dispensing cap valve, said tube having an extended convoluted heat exchange section within said second compartment, the interior of said tube being sealed from said second compartment, and an opening in said second compartment whereby a liquid having a temperature differing from ambient may be received into said second compartment.

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