

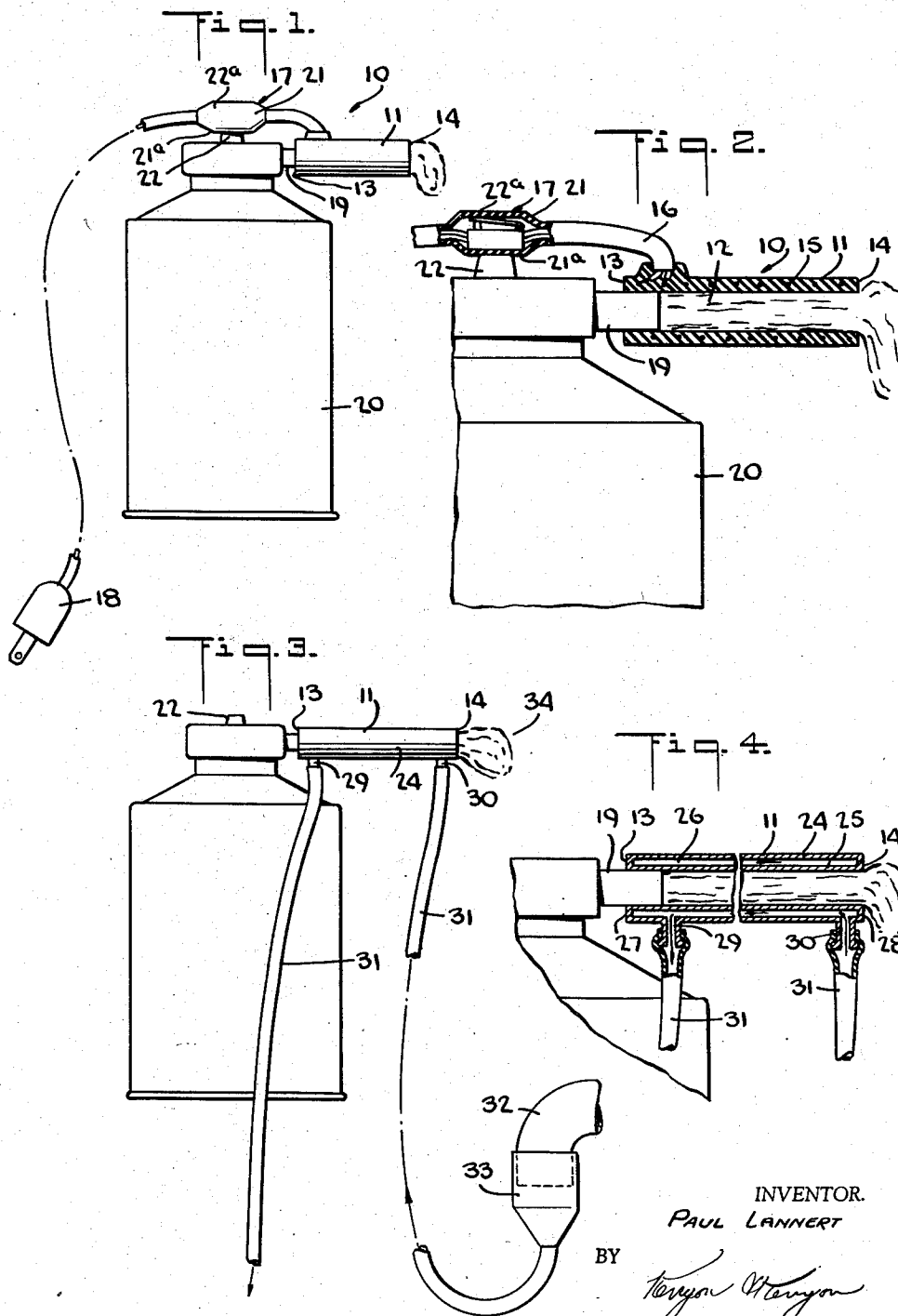
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OUTLET HEATER FOR AEROSOL-TYPE DISPENSER

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OUTLET HEATER FOR AEROSOL-TYPE DISPENSER

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10 Claims. (Cl. 219—39)

This invention relates to a heating device, and more particularly to a heating device which can be affixed to the discharge opening on a pressurized aerosol-type dispenser for heating the contents thereof as they are being discharged for use or consumption.

In recent years the packaging of sundry food products and various other fluid materials such as cosmetics, shaving cream, etc., has been to a great extent in the pressurized or aerosol form, i. e. packaged in a container under gaseous pressure and expellable from such container in controlled amounts by virtue of such pressure and in response to manipulation of a spring biased valve mechanism. With the exception of those materials maintained at refrigerated temperatures, e. g. whipped cream, most of them are dispensed at ambient temperature, and although it is highly preferred and desirable that such things as shaving lather and even some of the foodstuffs be discharged from the container at somewhat elevated temperatures to make them more suitable for use, heretofore no adequate remedy had been found to provide the necessary increase in temperature.

It is an object of this invention to provide a heating device which is removably affixable to the outlet of an aerosol-type dispenser to heat the contents thereof as they are being discharged.

Another object is to provide such a device which is adaptable to all types of aerosol dispensers and is of simple, sturdy and compact construction.

Still another object is to provide such a device which in one embodiment is adapted for interconnection with the domestic hot water faucet to supply the heating medium.

A further object is to provide such a device which in another embodiment is electrically heated and can be actuated in coordination with the aerosol valve mechanism.

Briefly, the present invention is comprised of a device having an elongated tubular body portion having a cylindrical passageway extending through the body portion from one end to the other.

It has an inlet means at one end of the passageway which is adapted to receive the outlet member or discharge opening of the aerosol can so that the shaving lather can be dispensed from the can through the passageway and out of the outlet means at the other end of the passageway.

Heating means is provided on the body portion for heating the shaving lather or other packaged fluid as it moves through the passageway. In one embodiment such heating means comprises an elongated electrical heating coil or other heating element which is disposed within the body portion surrounding and along the passageway. An insulated switch is provided for interconnecting the coil with a power source and is disposable in contact with the control valve on the dispenser so that it can be actuated therewith and with a lesser manual pressure than the valve, so that the coil can be heated

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slightly ahead of the actuation of the valve to release the fluid.

In another embodiment the heating means is comprised of a cylindrical jacket surrounding the passageway of the body portion and which defines an internal annular heat exchange fluid space along the body portion adjacent the passageway. Fluid ports are provided at opposite ends of the jacket which are adapted for interconnection with hose means or the like for circulating hot water or other exchange fluid through the annular space.

Other objects and features of the invention will become apparent in the following specification and claims, and in the drawings in which:

Fig. 1 is an elevation of one embodiment shown affixed to an aerosol can;

Fig. 2 is an enlarged partially sectioned fragmentary elevation of the device shown in Fig. 1;

Fig. 3 is an elevation of another embodiment shown affixed to an aerosol can; and

Fig. 4 is an enlarged partially sectioned fragmentary elevation of the device shown in Fig. 3.

Referring now to the drawings, and in particular Figs. 1 and 2, one embodiment of the invention is shown and designated generally by the reference numeral 10. It is comprised of an elongated tubular body portion 11 having an internal cylindrical passageway 12 extending through the body portion from one end 13 to the other end 14. The body portion 11 may be constructed of any material such as plastic or the like having the desired electrical property of being a good electrical insulator on the one hand while also having at least reasonably good thermal conductivity. It is even contemplated that the body portion can be constructed of an inner layer of material of one kind exhibiting the above described properties, and an outer layer of electrical and thermal insulation.

As shown in Fig. 2, embedded within the body portion 11 concentrically about the passageway 12 and extending along the passageway 12 is an electric heating coil 15 being interconnected through external cord 16 and electric switch means 17 to male plug 18 for interconnection with a power source, i. e. the normal household current supply of 110 volts A. C. or D. C. The switch 17 is a single pole single throw type which is for a purpose to be described.

The inlet end 13 of the passageway 12 is dimensioned or otherwise adapted by any convenient means to receive the discharge spout 19 of an aerosol type container 20 as shown. It is preferably capable of being manually applied with a slip fit, but it is also possible to have it threaded or grooved for applying to complimentary formed portions of the container spout. In addition, it may be desirable to have the inlet end 13 tapered for accommodating spouts of different diameters.

The electric switch means 17 which is encased in insulating material 21, is located along the electric cord 16 at an appropriate distance from the body portion 11, so that when the heating device is in place on the aerosol can, the bottom 21a of the switch will lie against the release mechanism or valve actuation device 22 on the can so that when manual pressure is applied to the upper portion 22a of the switch 17, first the switch 17 will be closed to supply electric current to the coil 15, and further pressure in a downward direction as viewed in Fig. 2 will actuate the release mechanism 22 and will cause the shaving lather or other fluid material to be delivered from the spout of the can through the passageway 12 and out of the outlet end 14 for further use. By the above arrangement, a suitable time delay can be provided in operating the device in conjunction with the aerosol container, so that the electric current will be supplied

to the coil 15 and heat thereby generated along the passageway 12 before the release 22 is pressed to dispense the fluid. This insures that all the material will be dispensed with and properly heated as desired by the user. It is possible to have some sort of engaging recess or other means on the bottom 21a of the switch 17 to maintain it in position against the release mechanism 22.

Another embodiment of the invention is shown in Figs. 3 and 4. It is comprised of a similar type of elongated tubular body portion 11 with the cylindrical passageway 12, and in place of the electrical heating means, a concentric cylindrical member 24 of larger diameter than the passageway portion 25 is concentrically disposed about the latter to provide an annular heat exchange fluid space 26 therebetween. The ends 27, 28 are enclosed as shown and fluid ports 29, 30 are provided near the opposite ends of the body portion and affixed to the outer cylindrical member or jacket 24 and appropriately adapted for interconnection with hose means 31 as shown for circulating hot water or other heat exchange medium through said annular space. In use the inlet end 13 of the device is fitted in the same manner as previously described to the spout 19 of the aerosol can and the inlet port 30 on the jacket 24 is interconnected with the hot water faucet 32 as shown, by hose 31 and adapter 33. The discharge port 29 is connected to a hose 31 which discharges the hot water into a suitable receptacle. In use the hot water is turned on a short time before the release 22 is pressed on the can in order to heat the apparatus up and then the shaving lather or other contents 34 are discharged through the passageway 12 and are delivered at the outlet end 14 thereof at the desired temperature for use.

The latter embodiment can be constructed of any suitable material such as glass, plastic, metal or the like and can be either transparent, opaque or translucent as designed. Thus it can be seen that the present invention provides a device meeting the objects previously referred to, and by affording means for increasing the temperature of shaving lather provides a device of great utility. It is well-known that increasing the temperature of lather or soap increases its solubility in water and by so heating shaving lather in this fashion its solubility on the soap or shaver's face is increased and provides better contact of the soap with the beard, as well as affording greater comfort for the shaver.

While two embodiments of this invention have been shown and described, it is to be understood that certain changes and additions can be made by those skilled in the art in addition to those suggested above. For example, any suitable type of electric heating element can be used in addition to the specific coil type described. In fact, other types of heating means can be employed in addition to the electrical and the hot water device, such as the exothermic chemical heating devices well-known in the art. These as well as other changes can be made without departing from the scope and spirit of this invention.

I claim:

1. A heating device removably affixable to the outlet member of an aerosol-type dispenser, comprising a body portion having a passageway extending through said body portion, an inlet means on said passageway adapted for interconnection with said outlet member whereby the pressurized contents of said dispenser can be dispensed through said passageway; heating means on said body portion for heating the contents in said passageway, and an outlet means on said passageway for dispensing the heated contents therefrom for use.

2. A heating device removably affixable to the outlet member of a valve-operated aerosol-type fluid dispenser, comprising a body portion having a passageway extending through said body portion, an inlet means on said passageway adapted for interconnection with said outlet member whereby the said fluid can be dispensed through said passageway; heating means on said body portion for heating the fluid in said passageway comprising a jacket sur-

rounding said passageway and defining an annular heat exchange fluid space there along, fluid ports disposed on said jacket for circulating a heat exchange medium through said annular space, and an outlet means on said passageway for dispensing the heated fluid therefrom for use.

3. A heating device removably affixable to the outlet member of a valve-operated aerosol-type fluid dispenser, comprising a body portion having a passageway extending through said body portion, an inlet means on said passageway adapted for interconnection with said outlet member whereby the said fluid can be dispensed through said passageway; heating means on said body portion for heating the fluid in said passageway comprising an electrical heating element disposed along said body portion adjacent said passageway, insulated electric switch means for selectively interconnecting said element with a power source and disposable against the control valve on said dispenser for actuation therewith; and an outlet means on said passageway for dispensing the heated fluid therefrom for use.

4. A heating device removably affixable to the outlet member of a valve-operated aerosol-type shaving lather dispenser, comprising an elongated body portion having a passageway extending through said body portion, an inlet means on said passageway adapted for interconnection with said outlet member whereby the said shaving lather can be dispensed through said passageway; heating means on said body portion for heating the shaving lather in said passageway comprising an elongated electrical heating coil disposed within said body portion along said passageway, insulated electric switch means for selectively interconnecting said coil with a power source and disposable against the control valve on said dispenser for actuation therewith and adapted for actuation with a lesser manual pressure than said valve; and an outlet means on said passageway for dispensing the heated shaving lather therefrom for use.

5. A heating device removably affixable to the outlet member of a valve-operated aerosol-type shaving lather dispenser, comprising an elongated tubular body portion having a cylindrical passageway extending through said body portion from end to end thereof, an inlet means at one end of said passageway adapted to receive said outlet member whereby the said shaving lather can be dispensed through said passageway; heating means on said body portion for heating the shaving lather in said passageway comprising an elongated electrical heating coil disposed within said body portion along said passageway, insulated electric switch means for selectively interconnecting said coil with a power source and disposable against the control valve on said dispenser for actuation therewith and adapted for actuation with a lesser manual pressure than said valve; and an outlet means at the other end of said passageway for dispensing the heated shaving lather therefrom for use.

6. A heating device removably affixable to the outlet member of a valve-operated aerosol-type shaving lather dispenser, comprising an elongated tubular body portion having a cylindrical passageway extending through said body portion from end to end thereof, an inlet means at one end of said passageway adapted to receive said outlet member whereby the said shaving lather can be dispensed through said passageway; heating means on said body portion for heating the shaving lather in said passageway comprising a cylindrical jacket surrounding said passageway and defining an annular heat exchange fluid space there along, fluid ports disposed at opposite ends of said jacket and adapted for interconnection with hose means for circulating hot water through said annular space; and an outlet means at the other end of said passageway for dispensing the heated shaving lather therefrom for use.

7. A heating device removably affixable to the outlet member of a valve-operated aerosol-type shaving lather dispenser, comprising an elongated body portion

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having a passageway extending through said body portion, an inlet means on said passageway adapted for interconnection with said outlet member whereby the said shaving lather can be dispensed through said passageway; heating means on said body portion for heating the shaving lather in said passageway comprising a jacket surrounding said passageway and defining an annular heat exchange fluid space there along, fluid ports disposed on said jacket for circulating hot water through said annular space; and an outlet means on said passageway for dispensing the heated shaving lather therefrom for use.

8. A heating device removably affixable to the outlet member of a valve-operated aerosol-type shaving lather dispenser, comprising an elongated body portion having a passageway extending through said body portion, an inlet means on said passageway adapted for interconnection with said outlet member whereby the said shaving lather can be dispensed through said passageway; heating means on said body portion for heating the shaving lather in said passageway; and an outlet means on said passageway for dispensing the heated shaving lather therefrom for use.

9. A heating device removably affixable to the outlet member of a valve-operated aerosol-type shaving lather dispenser, comprising an elongated tubular body portion having a cylindrical passageway extending through

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said body portion from end to end thereof, an inlet means on said passageway adapted for interconnection with said outlet member whereby the said shaving lather can be dispensed through said passageway; heating means on said body portion for heating the shaving lather in said passageway; and an outlet means on said passageway for dispensing the heated shaving lather therefrom for use.

10. A heating device removably affixable to the outlet member of a valve-operated aerosol-type shaving lather dispenser, comprising an elongated tubular body portion having a cylindrical passageway extending through said body portion from end to end thereof, an inlet means at one end of said passageway adapted to receive said outlet member whereby the said shaving lather can be dispensed through said passageway; heating means on said body portion for heating the shaving lather in said passageway; and an outlet means at the other end of said passageway for dispensing the heated shaving lather therefrom for use.

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