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HEATED AEROSOL DISPENSING ADAPTER

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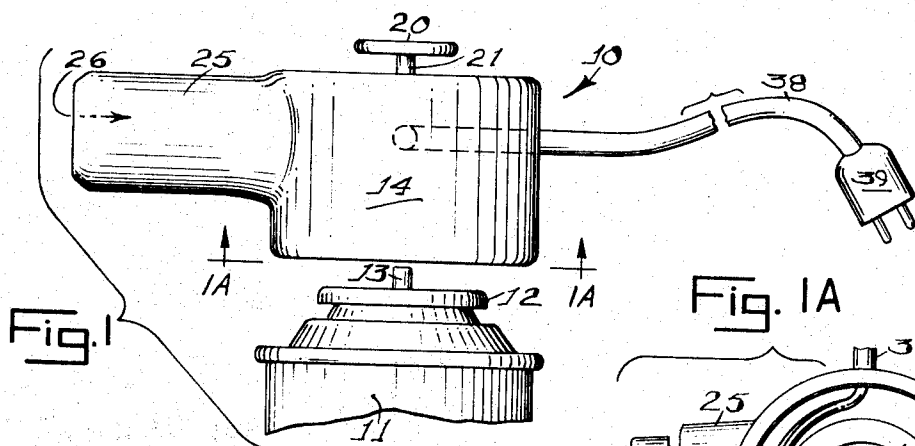


Fig. 1

Fig. 1A

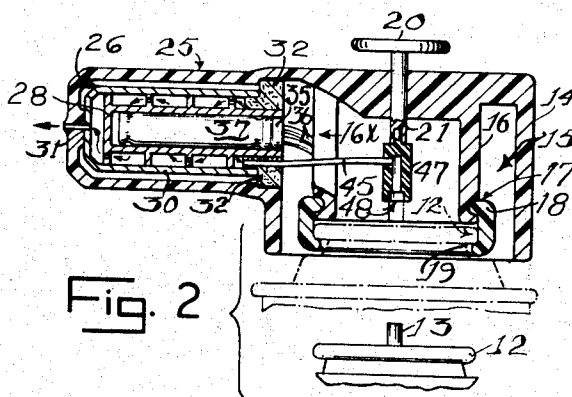


Fig. 2

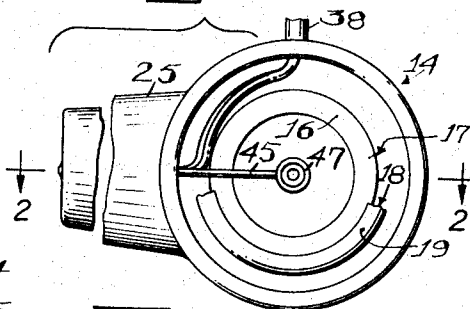


Fig. 2A

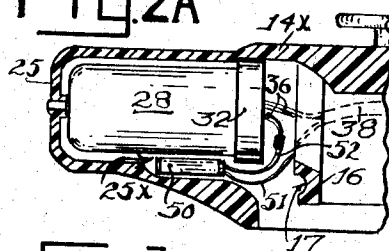


Fig. 3

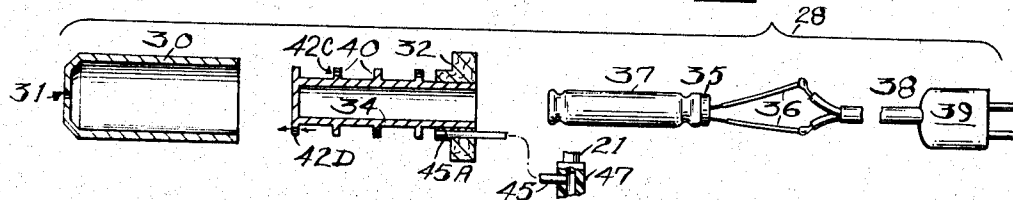


Fig. 4

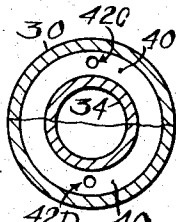
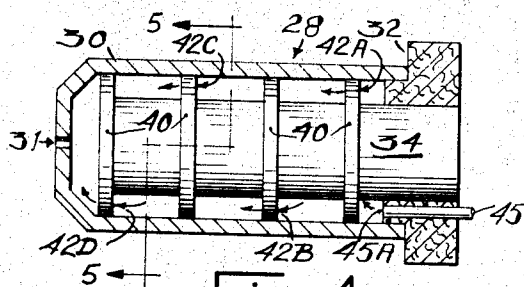


Fig. 5

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HEATED AEROSOL DISPENSING ADAPTER
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ABSTRACT OF THE DISCLOSURE

The dispensing attachment is characterized in that it comprises a one-piece head and hollow nozzle structure fitting onto an aerosol canister with a multi-chambered heat-exchanging cartridge means divided into an effluent compartment and a heater compartment, and fitting into the nozzle in a condition of abutment which aligns an escape orifice from the effluent compartment with a discharge opening in the nozzle, there being the further provision wherein a heat-exchanging wall defining the multiple compartments affords with the jacket of the cartridge an end-wise chamber in which the escape orifice is located for central alignment with the discharge opening of the nozzle.

This is an invention pertaining to devices for dispensing cosmetic and similar substances from pressurized containers, for example, shaving cream, soaps and the like, the disclosure affording a dispensing adapter which may be fitted upon a standard type of pressurized container or canister equipped with the usual aerosol type of dispensing valve, and having means for heating the effluent as it is released from the canister with substantially no delay in issuing from the dispensing nozzle.

Among the principal features of novelty and utility characterizing the device are the provision of a dispensing attachment or head which may be snapped onto the rim of a standard type of pressurized canister and having a release button cooperable with the valve of the canister operable to effect release of the pressurized contents, whether shaving cream, soap, shampoo or light-bodied cosmetic creams, or the like; wherein the effluent material released from the canister is directed by means defining an elongated path in contact with confining metallic wall portions heated by an internal electric heater cartridge with such rapidity that the material is brought to a temperature comfortable for immediate use while it is in transit through the adapter; wherein the elongated path which the effluent is caused to follow consists in a number of adjacent compartments communicating one with another from the canister valve through apertures of a size and relative placement contrived to maintain sufficient pressure behind the material to effect transit thereof in contact with said confining heat-transfer wall formations and through the discharge nozzle at a rate not objectionably slower than would be the case in issuing directly from the canister without the adapter.

Other objects and aspects of novelty relate to details of the construction and operation of the embodiment described hereinafter in view of the annexed drawing in which:

FIGURE 1 is a side elevation of the dispensing adapter with portion broken away;

FIGURE 1A is a bottom plan view of the device taken along lines 1A—1A of FIGURE 1;

FIGURE 2 is a vertical section through the adapter;

FIGURE 2A is a sectional view similar to FIGURE 2 showing a modification;

FIGURE 3 is an exploded view of the components of the heat-transfer unit or cartridge;

FIGURE 4 is an enlarged cross section of parts of the cartridge in assembled relation;

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FIGURE 5 is a cross-sectional detail of the compartmentalized heat exchange means, as seen along lines 5—5 of FIGURE 4.

The form of the dispenser 10 shown in FIGURE 1 is adapted for use on a pressurized can 11 of shaving cream which has a rim 12 at its top, and an upwardly projecting nozzle valve 13 which may be depressed to release the contents in desired amounts, depending on how long the nozzle valve is held in its depressed condition.

As viewed in FIGURE 2, the dispenser comprises a body portion 14 having a downwardly-opening well 15 within which is centrally disposed an annular depending wall 16 approximating the diameter of the can rim 12 and provided near its lower margins with a circumferential groove 17 into which is tightly fitted the upper annular rim portion 18 of an adapter ring made of a moderately yieldable plastic and having a lower marginal sealing rim 19 adapted to fit securely about and seize the can rim 12, whereby the adapter is attached to the can and with it the dispenser, as in FIGURE 1.

A vertical bore is provided centrally of the top of the dispenser body to receive the stem 21 of a finger button 20, the lower end of said stem being provided with any suitable means, such as a press-on washer, to capture the stem and finger button with the dispenser body.

Projecting from one side of the body is a long dispensing nozzle 25 having a large bore 26 communicating into said well in alignment with an opening 16X in the annular wall, said bore being adapted to receive the heating means, which is in the form of a cartridge 28, such as depicted in FIGURES 3 and 4, consisting of an outer shell 30 having a dispensing opening 31 at one end for the effluent and a larger opening at its opposite end closed by a plug 32 of insulating material fitted forcibly therein. Disposed centrally and longitudinally or axially within the bore of the shell is an inner shell or cylindrical tube 34 closed at its end adjacent the shell nozzle and having fitted and sealed into its opposite end a ceramic or like insulating and heat resistive plug 35 (FIGURES 2 and 3) through which issue the lead wires 36 for an electric heating element 37 supported within the tube, said lead wires also passing outwardly of the larger plug 32 for connection with a line cord 38 which issues from a side opening in the skirt of the dispenser body and is provided with a power receptacle plug 39.

As seen in FIGURES 3 and 4 the inner shell or tube 34 is provided with heat exchange means affording an elongated path for the effluent admitted from the pressurized canister, which in its preferred form comprises the provision of a plurality of circular flanges 40 secured in heat-exchanging relationship, for instance integral, with the inner shell and spaced apart approximately equally, the spaces between succeeding ring flanges being closed off from one another except for the provision of a small feed hole 42 in each flange, these holes occurring, however, in angularly offset relation one from another from one flange to the next, for example the first or inlet hole 42A in the first flange will be displaced about 180° from the discharge end 45A of the feed tube 45 in plug 32, and the feed hole 42B in the next adjacent flange will appear at the bottom thereof or about 180° away from the first-mentioned hole 42A opposite the end 45A of the feed tube, and so-on to the end of the heat exchanging unit, the angularly-displaced relationship of the offset feed holes being illustrated further in FIGURE 5 wherein two of the flanges 40 are seen with their feed holes 42C and 42D respectively situated in upper and lower vertically-aligned positions.

It will be evident that the shaving cream or similar heat-able effluent which is released under pressure from the associated canister will tend to fill the annular chambers existing between the heated flanges progressively working

past one flange after another toward the discharge outlet 31. This form of heat exchange means is particularly useful for heating relatively large amounts of the effluent in a brief dispensing interval initiated by pushing the button 20, which may be as short as 20 seconds in relatively cold ambient temperatures.

A feed tube 45 has one end fixed in the plug 32 out of alignment with the feed hole 42A in the first flange, and an opposite end communicating into a coupling nipple 47 of inverted cup shape disposed to underlie the end of the push button stem 21, the bore or well 48 of the nipple being aligned with the valve nozzle 13 and having its inner wall portions tapered to fit tightly onto said nozzle in such manner that when the push button 20 is depressed, the trigger nozzle 13 is depressed to release the pressurized contents of the canister which enters the heat exchange means via the feed tube 45, the effluent, owing to pressure being forced to follow the elongated path in contact with the metal of the flanges and the inner shell, which will be heated to a sufficiently high temperature by the cartridge 34, 37, so that, in the case of shaving cream for example, the effluent may be continually released from the canister by holding the push button down and will issue slowly but continually from the nozzle 25 into the hand of the user at a temperature of around 180° F., which will be suitable for most brands of pressurized shaving cream to prevent the liquefaction which can result otherwise in some instances when excessive heat is applied to some creams.

In this connection, a thermostat may be included to permit higher intermittent temperatures in the heat exchanger for use with a class of creams stabilized against liquefaction.

Such a construction is depicted in FIGURE 2A wherein the adapter body 14X is formed in the lower regions of the nozzle to provide a small internal cavity 25X beneath the heat-exchanging cartridge 28 to receive a small thermostatic switch device 50 connected by conductors 51, 52 in series with the line cord 38. This arrangement permits the use of higher temperatures in the heating element 37 for a faster warm-up as short as 20 seconds in favorable ambient temperatures around 50° F.

While other forms of construction are contemplated for achieving an elongated path for the effluent, for example a deep spiral groove about the tube 34, the contiguous chamber structure shown is preferred because the residual effluent remaining in the heat exchanger is not confined to a small track and does not tend to pack to the point of resisting dislodgement after the dispenser has stood unused for a period.

I claim:

1. A heated dispensing attachment for use with aerosol canisters for shaving cream and like substances having a combination valve-orifice means located in the top of the canister and movable along the canister axis through said top to discharge the effluent, said attachment comprising: a hollow head member removably interfitting with top portions of the canister and having a crown portion over-

lying said valve-orifice means; trigger means including a manually-actuable part exteriorly of said crown portion and interior coupling means within the cavity of the head member and removably interfitting with said valve-orifice means to receive the effluent responsive to actuation of the exterior part of the trigger means; said head member including a hollow nozzle member integrally formed therewith and projecting laterally therefrom with respect to said axis, said nozzle opening at one proximal end into the cavity of the head member and being substantially closed at an opposite distal end except for a discharge opening thereat; and heating means comprising an elongated tubular cartridge fitting into said nozzle through the proximal end thereof with a distal end abutting with the inner side of the distal end of the nozzle, said cartridge having open end portions proximate to the head member and opening into the cavity of the latter; means providing a heat-exchanging wall structure within said cartridge dividing the same into at least two inner and outer compartments, one surrounding the other; electrical heating means in the inner one of said compartments and having electrical connections through the proximate end thereof with a power conductor leading from within the cavity of the head member; means providing an escape and orifice for effluent from the outer one of said compartments into alignment with said dispensing opening at the distal end of the nozzle when the cartridge is fitted therein as aforesaid; plug means closing off the proximal end of at least the outer compartment to prevent escape of the effluent therefrom; and means for guiding the effluent from said valve-orifice means via said coupling means into the outer compartment of the cartridge at its proximal end for displacement therethrough and dispensation from the discharge opening of the nozzle by the aerosol pressure responsive to actuation of the trigger means aforesaid.

2. The construction of claim 1 wherein said cartridge includes an outer jacket defining, with said heat exchanging wall means, a chamber having an escape orifice aligned and communicating with said discharge opening in the nozzle, as the escape path aforesaid.

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