United States Patent

[11] 3,588,469

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[54] **SAFETY HEATER FOR PRODUCT DISPENSED FROM AEROSOL CONTAINER**
6 Claims, 4 Drawing Figs.

[52] U.S. Cl. 219/308, 219/214, 219/301, 219/328, 219/541, 222/146, 239/135, 337/381
[51] Int. Cl. B67d 5/62
[50] Field of Search ..... 219/301, 296—299, 302—309, 328, 331, 541, 214, 327; 337/381; 222/146, 146 (HE), 146 (HA); 239/135

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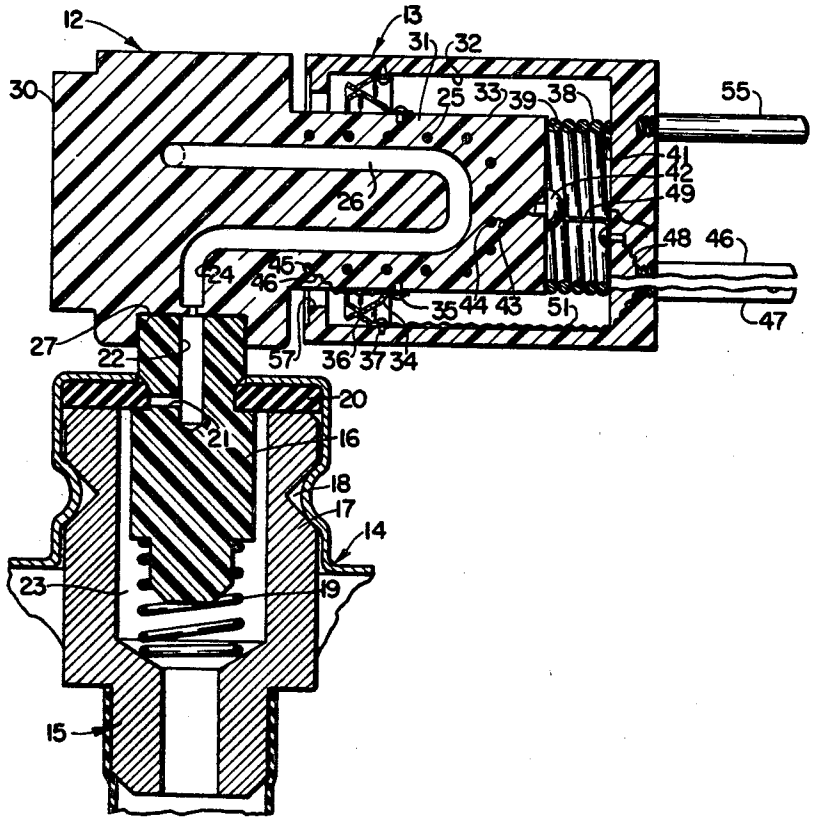
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Primary Examiner—A. Bartis
Attorney—Strauch, Nolan, Neale, Nies and Kurz

ABSTRACT: A safety heater assembly for warming shaving cream being dispensed under pressure from an aerosol type container comprising a head adapted to be mounted on the depressible hollow discharge valve stem of the container and having an internal through passage surrounded by an electrical heater coil, and a contact making and breaking plug component movably mounted on the head adapted to close the circuit to the coil when connected to an electrical outlet and to automatically open that circuit when the head passage walls are sufficiently heated to warm the shaving cream being dispensed.



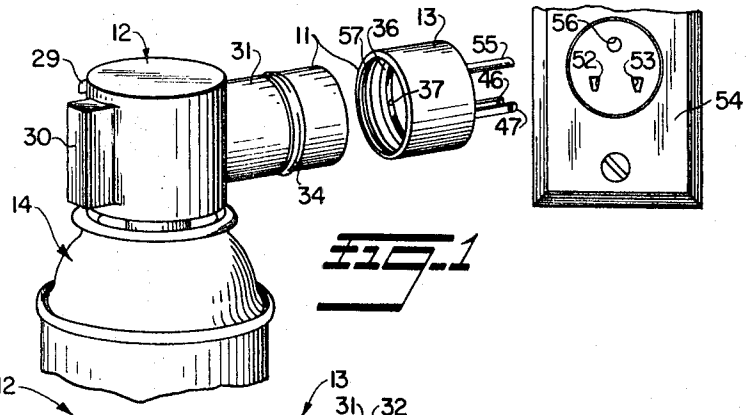


FIG. 1

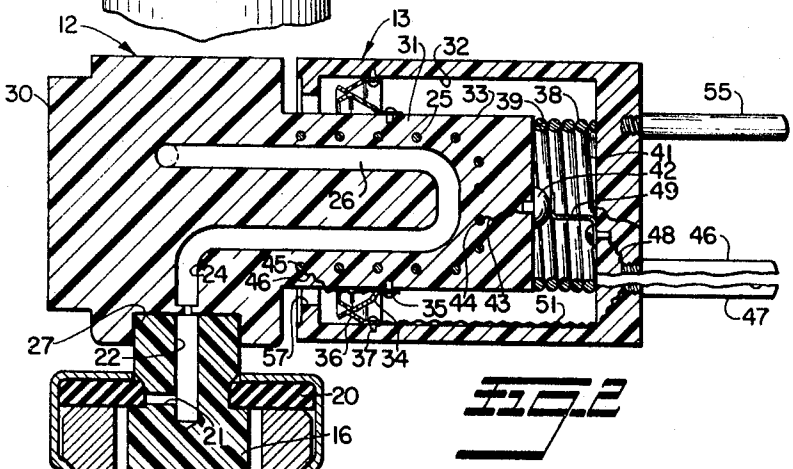


FIG. 2

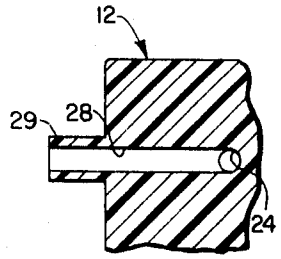
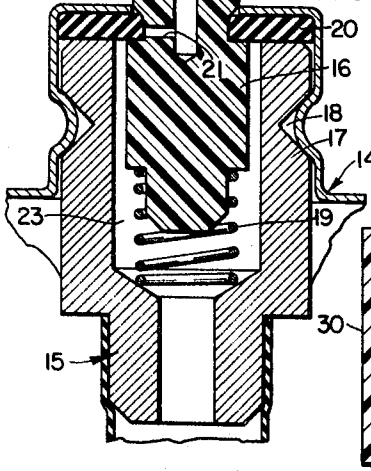


FIG. 4



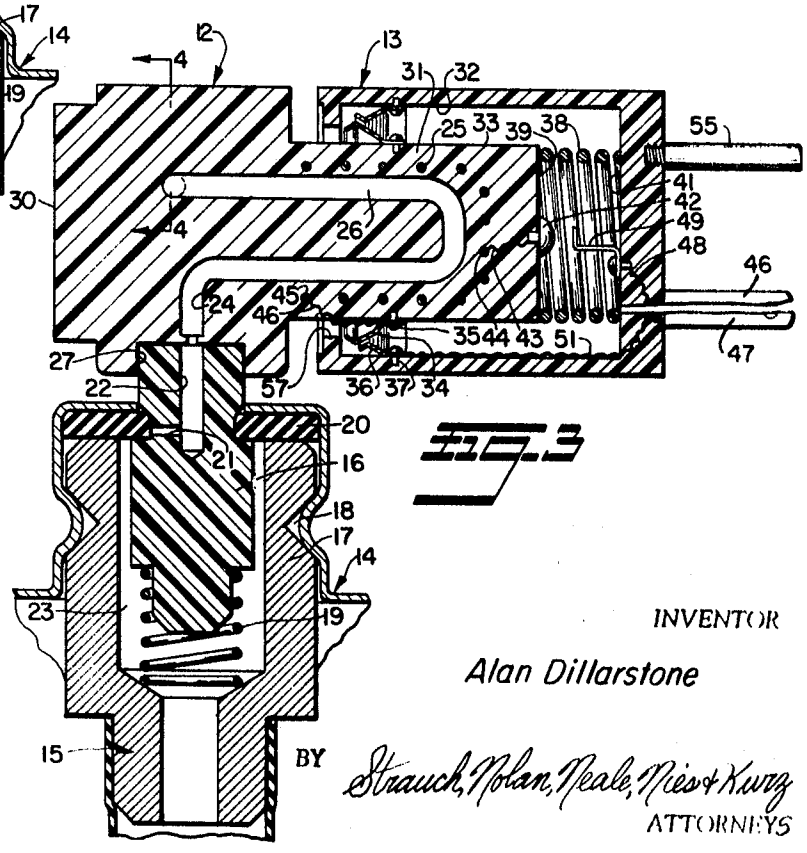


FIG. 3

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SAFETY HEATER FOR PRODUCT DISPENSED FROM AEROSOL CONTAINER

BACKGROUND, FIELD AND SUMMARY OF INVENTION

The dispensing of shaving cream for aerosol type containers is known. One practical objection from customers is that they experience shock when cold lather or cream encounters the skin. A considerable number of expedients and devices have been proposed and marketed in attempting to remedy this objectionable condition, and many of these seek to warm the shaving cream during dispensing. Hot water and electrical heaters have been proposed. A difficulty with the former is that sufficiently hot water may not be available. Many of the latter require special thermostatic units, safety fuses and like components adding to the complexity and expense. Some maintain electrical contact with a source during use, with attendant possibility of danger.

The present invention relates to electrical heating of shaving cream as it is dispensed from an aerosol type container, and it represents an improvement over known devices of this type mainly with respect to safety and simplicity of structure without sacrificing reliability.

According to the invention a removable attachment is provided wherein the shaving cream is dispensed through a passage heated by an electrical coil and which also includes a plug component for insertion into the usual electrical wall outlet and having means for establishing the coil circuit when plugged into the outlet and for automatically breaking that circuit when the passage has been heated.

It is a major object of the invention to provide in an attachment for an aerosol dispensing container a dispensing passage heated by an electrical resistance element, an energizing circuit for the coil established when the attachment is connected to a source of electrical energy, and an automatic circuit breaking arrangement effective when the passage has been heated, so that the aerosol container with the attachment thereon may be disconnected from the source and warmed shaving cream or the like dispensed for use in safety.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is an exploded fragmentary generally perspective view illustrating the invention according to a preferred embodiment;

FIG. 2 is an enlarged section showing the heater unit assembly in position on a container prior to plugging it into the electrical outlet;

FIG. 3 is an enlarged section similar to FIG. 2 but showing the heater unit assembly after removal from the electrical outlet following automatic opening of the heater coil circuit; and

FIG. 4 is a fragmentary section on line 4–4 of FIG. 3 showing the shaving cream path at the discharge end of the heater unit.

EMBODIMENTS OF THE INVENTION

FIG. 1 shows a heater unit assembly **11** consisting essentially of a head **12** adapted for mounting directly upon a conventional aerosol container and a combination plug and switch component **13** movably mounted on the head in assembly as shown in FIGS. 2 and 3.

The aerosol container **14** illustrated is of the general type disclosed in Abplanalp U.S. Pat. No. 2,631,814 having a top mounted valve assembly **15** for controlling selective discharge under pressure of the contents of the container. The valve assembly comprises a stem **16** vertically reciprocable within a body **17** suitably anchored rigidly to the container as at **18**. A spring **19** biases stem **16** upwardly to valve closed position where the lateral passage **21** is closed by the resilient sealing seat annulus **20**. Passage **21** intersects a longitudinal stem passage **22** that extends to an open end at the upper end of the stem which projects above the container. When stem **16** is pushed sufficiently downwardly in FIG. **2**, passage **21** moves below seat **20** to communicate with the interior bore **23** of body **17** and allow the pressurized contents of the container to discharge through bore **23** and passages **21** and **22**. When stem **16** is released spring **19** recloses the valve to stop such discharge.

Head **12** preferably is a molded block of electrically insulating material having permanently incorporated therein a flow passage **24** and an electric heater **25** in the form of a resistance wire coil mainly surrounding an intermediate U-shaped section **26** of the passage **24**.

On the underside of head **12**, passage **24** opens into an enlarged cylindrical bore **27** adapted to snugly receive the upper end of valve stem **16**, so that valve stem passage **22** is axially aligned with head passage **24**. The opposite end **28** of passage **24** turns at right angles to pass through a spout **29** as shown in FIG. **4**. Bore **27** is preferably sufficiently deep that the entire heater assembly **11** may be wholly supported on stem **16** as shown in FIG. **2**. There is sufficient clearance between the underside of head **12** and the top of the container that a downward push on head **12** will displace stem **16** to open the container valve and allow discharge of the container contents from stem passage **22** through head passage **24** to emerge at spout **29**. An external handle **30** is formed on the head.

Plug component **13** is cup-shaped with a cylindrical wall telescoped over the cylindrical side projection **31** of head **12** with the internal surface **32** of the cup spaced a substantial distance from surface **33** of the projection. A sheet metal spring contact ring **34** has one edge fixed to surface **33** as by rivets **35** and extends outwardly as a flexible spring annulus toward the cup. A cooperating sheet metal spring contact ring **36** has one edge fixed to the inner cup surface **32** as by rivets **37** and extends inwardly as a flexible annular spring clip.

A compression spring **38** extends between the end **39** of projection **31** and the closed bottom **41** of plug component **13**. A center contact button **42** is fixed on the end of the head projection and connected by conductor wire **43** to a terminal **44** of heater coil **25**. The other heater coil terminal **45** is connected by conductor wire **46** to contact ring **34**.

Two contact blades **46** and **47** project outwardly from cup **13**. Blade **46** is connected by contact wire **48** to a flexible center contact **49** within the cup, and blade **47** is connected by conductor wire **51** to contact ring **36**. Blades **46** and **47** are adapted to enter terminals **52** and **53** of the usual standard electrical outlet receptacle **54**. If desired a ground prong **55** may be provided on cup **13** to enter ground socket **56** in the receptacle.

Handle **30** is diametrically opposite projection **31**. In use the entire heater unit assembly **11** is placed upon the valve stem, care being taken not to depress stem **16**. Then the plug is aligned with receptacle **54** with the operator pushing on handle **30** to insert blades **46** and **47** and make electrical contact. This action displaces cup **13** to the left in FIG. **2** to compress spring **38**, engage contact rings **34** and **36** in axial latching and contacting relation as shown, and engage contact **49** with button **42**. With the parts in this position, heater coil **25** is energized and the head particularly all around passage **24** is correspondingly heated.

After a short time this heat expands ring **34** sufficiently to weaken the latching engagement of contact rings **34** and **36** and enable spring **38** to expand and automatically relatively displace cup **13** and head **12** to the positions shown in FIG. **3** where the electrical circuit to heater coil **25** is broken. Now the operator pulls the assembly away from the receptacle **54**, and upon pressing down on head **12** the pressurized contents of the container **14** will pass through the heated passage **24** to emerge from spout **29** as warm shaving cream.

An internal ledge **57** at the open end of cup **13** is located in the path of ring **34** to prevent cup **13** from being accidentally axially separated from head projection **12**.

The invention thus provides a simple device for warming shave cream and the like. Electrical contact is broken when the device is being used during shaving. There are no exposed wires, safety fuses or special thermostatic controls. The entire assembly **11** may be transferred to a fresh container as soon as

one is exhausted. The discharged cream does not contact the electrical connections so that cleaning is simplified. The tortuous path of passage 24 through the warmed head provides adequate heating of the shave cream.

It will be understood that the contact locations, latching structure and other relationships of parts may be changed from that illustrated without departing from the inventive concept of providing for automatic breaking of the heating circuit when the head passage is adequately heated.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

I claim:

1. A device for warming fluent material during discharge under pressure from an aerosol or like container having a movable hollow discharge valve stem comprising a head structure provided with means by which it may be mounted on a container stem and having a through passage with its inner end operatively aligned with the stem outlet opening, electrical resistance heating means for said passage in the head structure, a plug component movably mounted on said head structure and having contact means for operative connection to an electrical outlet for providing a source of energy to said heating means, cooperating latching means on said head structure and plug component including temperature responsive means holding the plug component in electrical circuit with said heating means operative when the walls of said passage become heated to automatically displace said plug component to a circuit interrupting position on said head structure, and stop means on said plug component adapted for cooperative engagement with a part of said latching means on said head structure for preventing accidental separation of said plug component and head structure after movement of the plug component to circuit interrupting position on said head structure.

2. A device for warming fluent material during discharge under pressure from an aerosol or like container having a movable hollow discharge valve stem comprising a head structure provided with means by which it may be mounted on a container stem and having a through passage with its inner end operatively aligned with the stem outlet opening, electrical resistance heating means for said passage in the head structure, a plug component movably mounted on said head structure and having contact means for direct operative connection to an electrical outlet for providing a source of energy to said heating means, means including temperature responsive means holding the plug component in electrical circuit with said heating means operative when the walls of said passage become heated to automatically displace said plug component to a circuit interrupting position on said head structure, and cooperating means on the head structure and plug component for preventing accidental separation of said plug component and head structure after movement of the plug component ti circuit interrupting position, said plug component being substantially cup-shaped with an open inner end extending over part of said head structure, and said cooperating means including an internal ledge at the open end of said plug component.

3. A device for warming fluent material during discharge under pressure from an aerosol or like container having a movable hollow discharge valve stem comprising a head structure mounted on said container and having a through passage with its inner end operatively aligned with the stem outlet opening, electrical resistance heating means for said passage in the head structure, a plug component movably mounted on said head structure and having means for operative connection to an electrical outlet for providing a source of energy to said heating means, and means including temperature responsive means holding the plug component in electrical circuit with said heating means operative when the walls of said passage become heated to automatically displace said plug component to a circuit interrupting position on said head structure, said last means comprising cooperating annular latching and electrical contact means on the head structure and plug component, and compressed spring means between the head and plug component biasing said plug component toward said circuit breaking position, at least one of said latching and contact means being expansible when heated to effect latch release by said spring means.

4. In the device defined in claim 3, cooperating means on the head structure and plug component for preventing accidental separation of said plug component and head structure after movement of the plug component to circuit interrupting position.

5. In the device defined in claim 3, said head structure having a laterally projecting portion within which is located a tortuous section of said passage and wherein said resistance heater means is imbedded wiring surrounding said section, said plug component being cup-shaped to extend over said projecting head portion with said latching and contact means being mounted between the inside of the plug component and the adjacent projecting head portion, said spring means being compressed between the outer end of said projecting head portion and the inside bottom of the cup-shaped plug component, and said connecting means on the plug component comprising prongs projecting from the other side of the bottom of said plug component.

6. A device for warming fluent material during discharge under pressure from an aerosol or like container having a movable hollow discharge valve stem comprising a head structure having means by which it may be mounted on a container stem and having a through passage with its inner end operatively aligned with the stem outlet opening, electrical resistance heating means for said passage in the head structure, a plug component movably mounted on said head structure and having external contact means for direct operative connection to an electrical outlet for providing a source of energy to said heating means, holding means comprising coacting latch and switch means on the head structure and said plug components for maintaining the plug component in electrical circuit with said heating means, resilient means biasing said plug component toward a displaced circuit interrupting position relative to said head structure, and temperature responsive means operative when the walls of said passage become heated to release said holding means to permit said resilient means to automatically displace said plug component to said circuit interrupting position, said plug component being hollow and having a substantially telescopic mount on said head structure, and said holding means being protectively enclosed by said plug component.