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F. W. STONE

3,454,745

HEATER FOR SHAVING LATHER CONTAINERS

Filed Sept. 25, 1967

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FIG. 1.

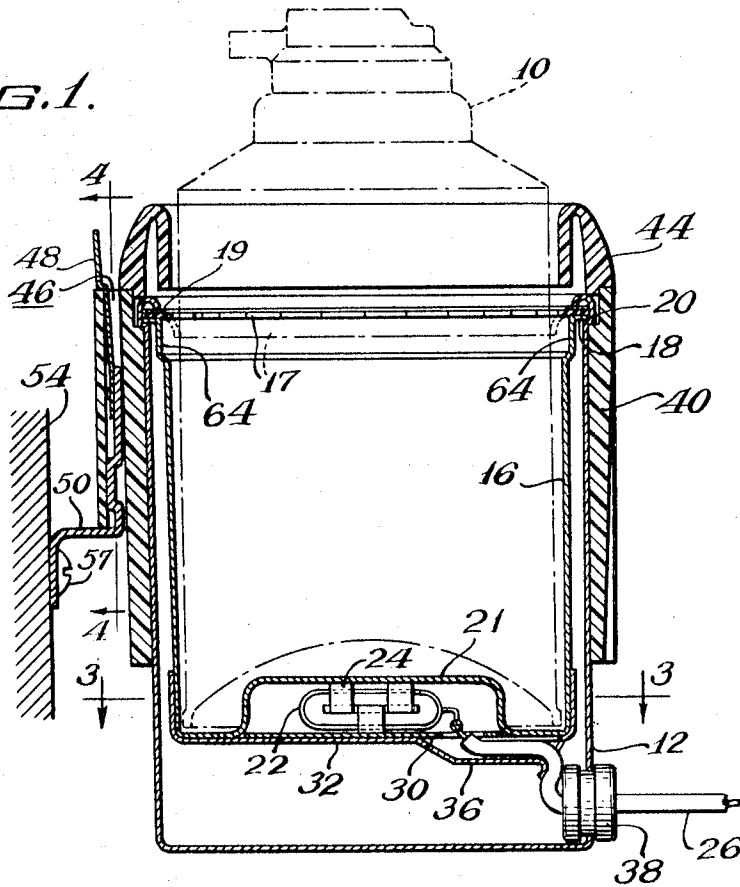
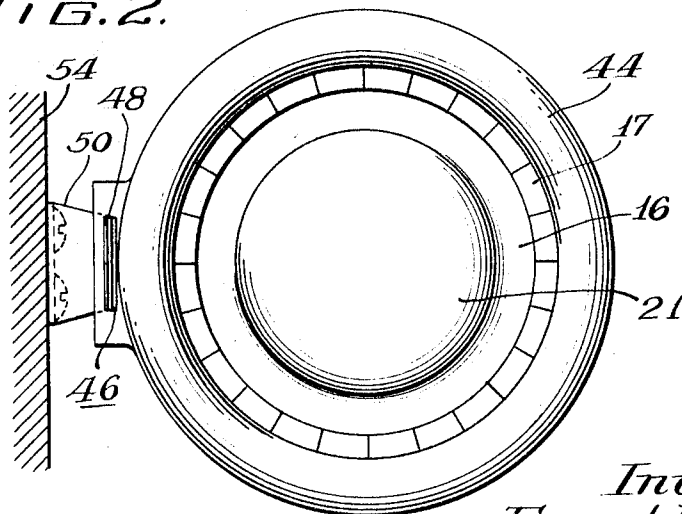


FIG. 2.



Inventor:  
Forrest W. Stone  
By Bair, Freeman & Molinare  
Attys.

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FIG. 3

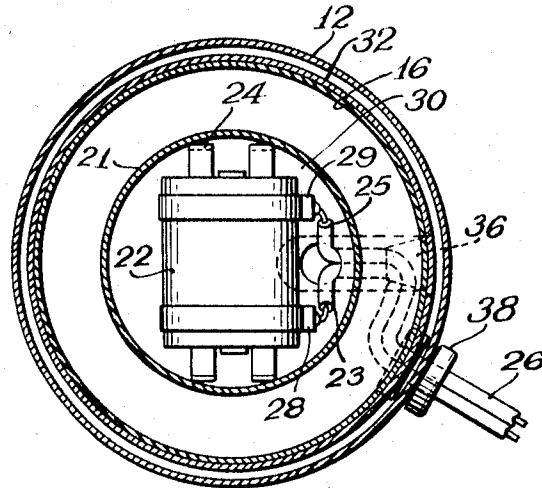


FIG. 4.

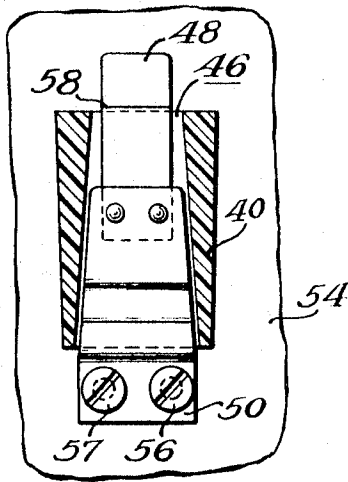
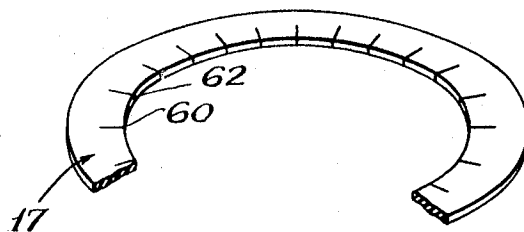


FIG. 5.



Inventor:  
Forrest W. Stone  
By *Bair, Freeman & Molinare*  
Attys.

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**HEATER FOR SHAVING LATHER CONTAINERS**  
Forrest W. Stone, St. Louis, Mo., assignor to Knapp-Monarch, a corporation of Delaware  
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7 Claims

## ABSTRACT OF THE DISCLOSURE

A heater for aerosol containers and their contents which provides a uniform constant temperature. The heater comprises an outer housing with an inner liner adapted to receive a container. A heating element is positioned at the bottom of the liner between the liner and housing, and an electric cord, which passes through the housing, connects to the heating element. A heating element cover which includes a channel runway for the electric cord is positioned over the bottom of the liner and the heating element and is sealed to the liner with a waterproof sealing compound. A flexible seal may be provided around the upper opening of the liner to fit against an aerosol container inserted within the liner. A heat insulating body shield surrounds the housing and is adapted to engage a wall bracket for permanent mounting of the device.

## Background of the invention

This invention relates to a heater for aerosol containers and more particularly to an improved heater which does not require temperature control means to maintain an aerosol container and its contents at a uniform constant temperature.

The desirability of providing consumers with heated shaving lather is evidenced by number of products presently on the market which provide a means to heat the shaving lather. For example, one such device provides for the transfer of heat, from a body member that is held in a stream of hot water, to a portion of the shaving cream in an aerosol shaving lather can. This modified construction of the aerosol can provides an extra expense for each new purchase of an aerosol can and, in addition, requires that the person shaving take time to hold the can in the water stream to heat the contents of the can.

Other devices are much more complicated and expensive and may only be found in professional barber shops. These would include devices which maintain the shaving lather at a thermostatically preset and uniform temperature. The more elaborate barber shop model would be considered prohibitively expensive by most shaving men.

## Summary of the invention

In a principal aspect, the present invention comprises a new and improved device for heating the contents of an aerosol can without requiring special construction or adaptation of the can and without requiring the purchase of an excessively expensive heater. The invention is an aerosol container heater which comprises an outer container-shaped housing with an inner container-shaped liner inserted into the housing, there being an insulating air space between the housing and the liner. A heating element is positioned on the bottom of the liner between the liner and housing. The element is sealed against the bottom of the liner by a cover element. The cover element has a channel which serves as a runway for the electric cord which provides power to the heating element. The channel is sealed with a waterproof sealer so that the sealed channel and sealed cover element in combination

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provide a waterproof and watertight seal for the heating element.

It is thus an object of the present invention to provide an improved heater for aerosol containers.

It is a further object of the present invention to provide an economical, easy to construct, easy to maintain and simple to operate aerosol container heater.

Still another object of the present invention is to provide an aerosol container heater which maintains a substantially constant temperature in the contents of the container.

It is still another object of the present invention to provide an aerosol container heater which does not require expensive temperature control means to maintain a constant, uniform temperature in the container and its contents.

These and other objects, advantages and features of the present invention will be more fully set forth in the detailed description which follows.

## Brief description of the drawings

FIGURE 1 is a side cross-sectional view of the improved aerosol container heater with a typical aerosol container shown positioned within the heater;

FIGURE 2 is a plan view of the heater shown in FIG. 1;

FIGURE 3 is a cross-sectional view of the heater element taken substantially along the lines 3—3 of FIG. 1;

FIGURE 4 is a cross-sectional view of the bracket taken substantially along the lines 4—4 shown in FIG. 1; and

FIGURE 5 is a partial perspective view of the sealing gasket used to effect a seal between the heater and an aerosol container.

## Description of preferred embodiment

In FIG. 1 an aerosol shaving container 10 is illustrated in phantom positioned in the heating device of the invention. The device is comprised of an outer housing 12 which is fabricated from a light gauge steel sheet. The housing 12 is cylindrically shaped and conforms to the shape of the container 10.

Cylindrically shaped container liner 16 is positioned on the inside of the housing 12. The liner 16 is constructed of sheet aluminum. The upper mouth portion of the liner 16 provides a circumferential flange 18 which overlaps a ridge 20 defined at the upper mouth of the housing 12. The liner 16 is thus held in a spaced relationship to the housing 12 to define an air space around and beneath the liner 16. This air space acts as an insulating medium for the device between the housing 12 and liner 16.

Positioned at the top of the device is a gasket 17 which is held in a secure position between the gasket retainer ring 19 and the upper flange 18 of the liner. The upper portion of the housing 12 is then crimped over against the gasket retainer ring 19 to lock the retainer ring 19 and the gasket 17 against the flange 18. The gasket retainer ring 19 is formed from a sheet steel material whereas the gasket 17 is preferably formed from a neoprene coated, temperature resistant cloth.

Referring to FIGS. 1 and 3, the bottom portion of the liner 16 is press formed upward to define a cylindrical protrusion 21. This protrusion 21 extends into the cavity defined by the convex bottom portion of the aerosol can 10. More efficient heat transfer is thus effected between the heating element 22 and the aerosol can 10.

Power resistor 22 is inserted in the protrusion 21 of the liner 16 and held in position by the mounting bracket 24. Typically a 2200 ohm ceramic, silicon coated power resistor with a rating of 30 watts is used. Connected to the resistor 22 are the leads 23 and 25 from the cord 26 passing through an opening in mica sheet 30. The leads

23 and 25 are soldered to the terminals 28 and 29 of the resistor 22. Circular mica sheet insulator 30 is positioned against the cover 32. The mica sheet 30 shields the resistor from the element cover 32, facilitates deflection of heat upward toward the container 10, and electrically insulates the terminals 28 and 29 to prevent grounding out on the cover 32.

Cover 32 is formed from sheet aluminum and slidably engages the liner 16 to form a watertight seal between the cover and the liner 16 thereby securing resistor 22 in position. Channel 36 is formed in the cover 32. The channel 36 provides a runway for the cord 26 which leads to the alternating current power source.

The cord is sealed in position within the channel 36 by a waterproof heat resistant sealer which fills the channel 36. Sealer is also placed between the cover 32 and liner 16. An example of such a sealer is sold under the tradename "Sylestic RTV 731" by the Dow Corning Corporation. Thus the resistor 22 is sealed within the cavity defined by the protrusion 21 so that water cannot penetrate between the cover 32 and the liner 16 or through the channel 36.

The cord 26 which passes through an opening in the housing 12 is secured in position by the strain relief washer 38. The cord 26 then terminates at a standard 115 volt wall plug.

Attached to the housing 12 is a circumferential heat insulating body shield 40 formed from a high impact, high temperature polystyrene material. Extending around the top portion of the device and attached to the body shield 40 is a cover shield 44 which is preferably fabricated from a thermo plastic material. The cover shield 44 prevents the escape of heat from the device and also acts as a shield for the hands of someone inserting or removing an aerosol can from the device.

The body shield 40 extends completely around the housing 12 and has a molded hanger slot 46 defined on one side of the housing 12. The locking spring 48 and wall bracket 50 slide through and engage the hanger slot 46 to hold the heater in a supported position on the wall.

FIG. 4 is a sectional view of the wall bracket assembly. The bracket is formed from a steel sheet strip and is fastened to the wall 54 by the screws 56 and 57. The flexible locking spring portion 48 of the bracket is riveted to the wall bracket 50. As the portion of the body shield 40 defining the slot 46 slides down over the locking spring 48 and wall bracket 50, a ridge 58 on the locking spring 48 engages the body shield 40 and holds the device in a substantially immovable position.

FIGS. 2 and 5 illustrate the construction of the gasket 17. The gasket 17 is comprised of a continuous circular heat resistant material which has a number of radial diecuts, as for example at 60 and 62, extending from the inner circumference partially through the gasket. The gasket 17 effects a watertight seal between the liner 16 and the housing 12. In addition, the diecuts permit the gasket to flex and easily contact the outside surface of variously sized aerosol cans inserted or removed from the device. This permits the heat within the device to be held more effectively thus requiring less power to keep the can and its contents at a constant uniform temperature. The gasket is preferably comprised of a neoprene coated cloth material which is temperature and water resistant.

From the construction of the device it can be seen that the air space between the liner 16 and the housing 12 in combination with the body shield 40 provides insulating characteristics which make it possible to use a low wattage heating element and to converse the heat of the element. In addition the design directs heat to where it is required, that is, toward the aerosol container. Consequently, thermostatic controls are not required on the device.

In addition, the heating element 22 is sealed watertight in the cavity defined by the protrusion 21 of the liner

16 and the cover 32 thus eliminating the necessity of elaborate sealing precautions throughout the device. The element 22 itself and its electrical connections are compactly sealed from any possible dangerous contact with water.

In the embodiment illustrated, the gasket 17 in combination with the remainder of the device tends to provide further heat conservation within the device and thereby eliminate some power requirements.

For example, as illustrated in FIG. 1, the upper portion of the liner 16, adjacent the flange 18, has an offset portion 64 extending around the entire upper circumference of the liner 16. The offset portion 64 extends downwardly from the top of the liner 16 for a distance at least equal to the width of the gasket 17. Thus the gasket 17 may occupy the peripheral area near the top of the liner 16 without touching the liner 16. This promotes the insulating effect of the gasket 17 by keeping the gasket 17 out of contact with the liner 16.

Although the embodiment described and illustrated in the figures utilizes a gasket 17, experimental tests with and without the gasket 17 have shown a small difference in thermal effectiveness. Thus the commercially preferred embodiment does not utilize the inwardly extending portion of the gasket 17. Elimination of said portion of the gasket 17 not only reduces the cost of material and manufacture but also makes it easier to insert and remove aerosol cans from the heater.

Models of this device rated at 6½ watts at 120 volts produce a stable uniform temperature in an aerosol dispensing can of shaving lather of approximately 120 degrees F. The device remains plugged in at all times and upon each reaching an equilibrium temperature, it will keep the aerosol container contents at the uniform temperature. While the device has been tested with shaving creams, it is possible to use the appliance with a multiplicity of pressurized aerosol cans containing various products. In addition the device may be used, if desired, for maintaining non-pressurized items at a constant uniform temperature.

While in the foregoing there has been set forth a detailed description of a preferred embodiment of the present invention, it is to be understood that all those embodiments obvious to persons skilled in the art are to be included within the scope of the invention as claimed.

What is claimed is:

1. A device for heating containers and their contents comprising in combination:

a housing having one open end,

a container-shaped housing liner having a bottom, sides, and an open top end, said liner being inserted within said housing, said liner being suspended from said housing in spaced relation from said housing bottom and sidewalls to provide an air space between said liner and said housing,

an electrical resistance heating element positioned adjacent the bottom of said liner between said liner and said housing,

electric cord means passing through said housing and connected to said element,

an element cover fitted over the bottom of said liner and over said heating element to secure said element in position adjacent said liner, said cover forming a water-tight seal between said cover and said liner, and

sealing material surrounding said cord means to provide a watertight seal for said heating element enclosed between said element cover and said liner.

2. The device of claim 1 including a flexible gasket extending circumferentially around and partially over the open end of said liner to provide sealing means between said device and a cylindrically shaped container positioned in said device.

3. The device of claim 2 wherein said gasket has an inner and an outer portion, said inner portion being com-

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prised of separate, flexible, adjacent segments and said outer portion being a continuous closed loop segment connecting said separate segments.

4. The device of claim 1 including mounting bracket means for attaching said device to a wall.

5. The device of claim 1 wherein said cover includes a channel defined therein leading from said space between said housing and said liner, said channel serving as a runway for said electric cord means, and wherein said sealing material includes sealing material in said channel sealing said channel.

6. The device of claim 1 including a heat insulating body shield surrounding said housing.

7. The device of claim 5 wherein said body shield includes a bracket opening adapted to engage bracket means for mounting said device on a wall.

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BERNARD A. GILHEANY, *Primary Examiner*.

H. B. GILSON, *Assistant Examiner*.

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