United States Patent

Dean

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[54] ELECTRICALLY HEATED DISPENSER FOR GRANULAR SUBSTANCES

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[30] **Foreign Application Priority Data**

Aug. 22, 1969 New Zealand 157559

[52] **U.S. Cl.** ..... **219/214,** 219/385, 219/438, 219/521, 219/541, 222/146 HE, 222/565

[51] **Int. Cl.** **H05b 3/02,** A47g 19/24

[58] **Field of Search** ..... 219/214, 200, 201, 385–387, 219/429–442, 520–522, 541; 222/146 R, 146 HE, 565

[56] **References Cited**

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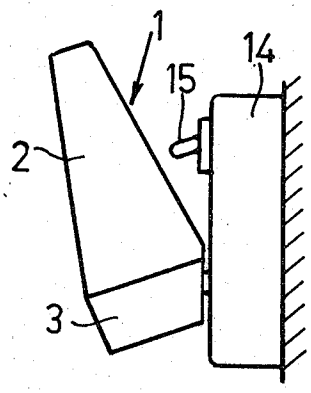
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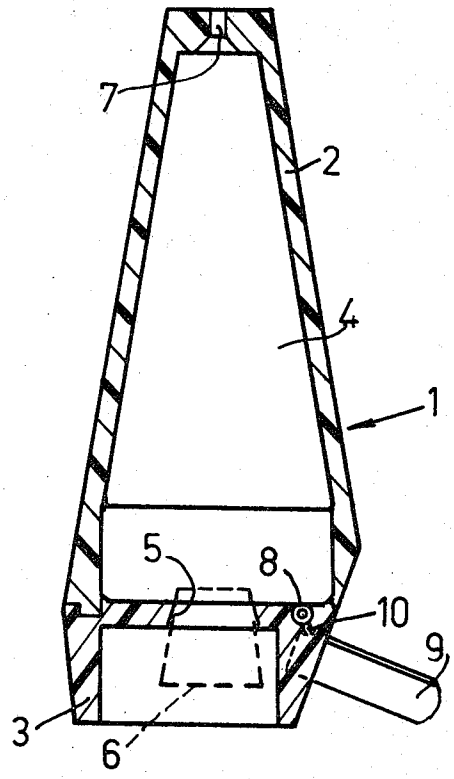
Primary Examiner—A. Bartis
Attorney—Holman & Stern

[57] **ABSTRACT**

Dispensers for granular materials such as salt, pepper and other spices and including a container capable of enclosing the said materials therein and at least one dispensing orifice situated in the container and providing for restrained egress of said materials from the interior of the container to the exterior thereof. There is also included an electric heating means which may be wholly or partially embedded in part of the container and positioned in relation to the interior of the container such that heat when generated by said means can pass to said interior and heat granular materials when contained in the container to evaporate any moisture contained therein such that the evaporated moisture leaves the interior of the container by of the orifice. Electrical contact pins are connected to and lead from the heating means and these pins protrude generally perpendicular to a downwardly and inwardly inclined exterior surface of the container and are adapted to be engageable with an electric socket whereby said electric heating means can be electrically connected to a source of electric supply.

7 Claims, 11 Drawing Figures





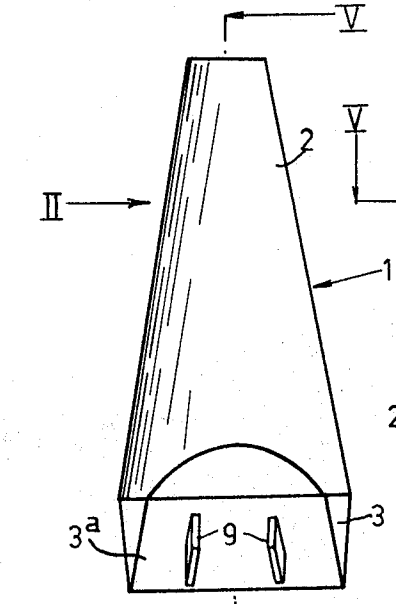


FIG.1

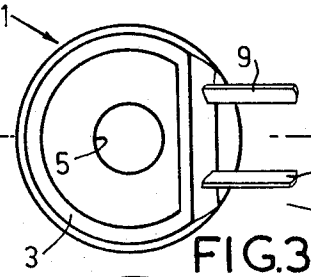


FIG.3

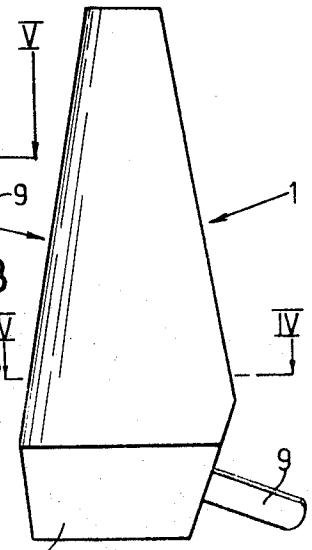


FIG.2

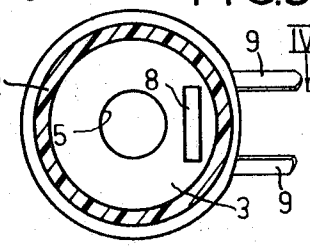


FIG.4

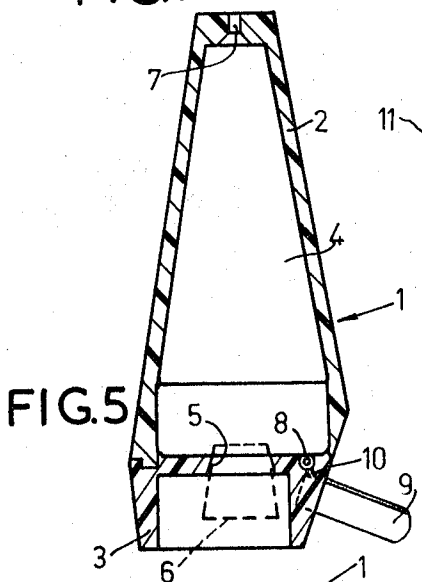


FIG.5

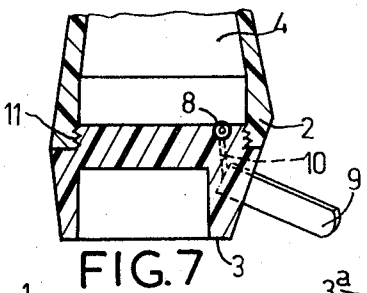


FIG.7

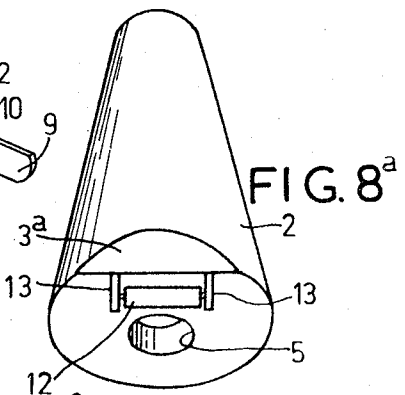


FIG.8a

FIG.8b

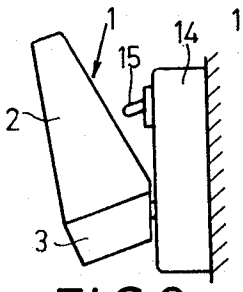


FIG.9

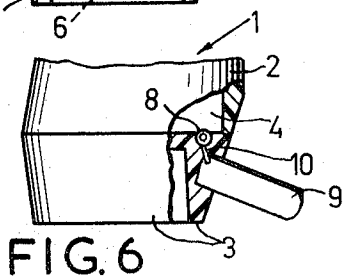


FIG.6

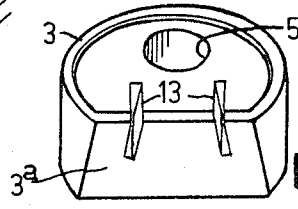


FIG.8c

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ELECTRICALLY HEATED DISPENSER FOR GRANULAR SUBSTANCES

This invention relates to articles used in the dispensing of granular substances such as salt, and more particularly relates to the kind of dispensers used during the preparation and/or cooking of food or the partaking of food, the dispenser normally being available in the vicinity of the preparation and cooking operation, or on the table where food is being partaken.

Depending upon atmospheric or other ambient conditions in the location in which the dispenser is situated, when dry air conditions prevail the said granular substances such as salt, pepper, or other spices, may have a low moisture content such that the granules of the substances do not clump together but readily separate and thereby permit the granules to be dispensed from such as a shaker with ease, whereas when the atmospheric or ambient conditions are humid or moist, the granular substances may have sufficient moisture content to cause clumping of the granules thereby retarding and sometimes preventing easy flow of the granular substances from such as a dispenser particularly when the dispensing orifice is a small one.

It is an object of this invention to provide a dispenser which when operating in the manner hereinafter described, should ensure that there is always available a quantity of granular substances such as salt, pepper and other spices, which will readily dispense from the dispenser in which it is contained.

Accordingly by this invention there is provided a dispenser for granular materials of the kind described comprising a container capable of enclosing the said materials therein, at least one dispensing orifice situated in the container and providing for restrained egress of said materials from the interior of the container to the exterior thereof, an electric heating means wholly or partially embedded in part of the container and positioned in relation to the interior of the container such that heat when generated by said means can pass to said interior, and electrical contact pins connected to and leading from the heating means and protruding from a surface of the container and adapted to be engageable with an electric socket whereby said electric heating means can be electrically connected to a source of electric supply and thereby heated to cause moisture present in said granular materials to evaporate and leave the interior of the container by way of the orifice.

The container for the granular substances may be of any convenient shape to suit the particular purpose for which the granular substances are required and the quantities desired to be stored in the dispenser.

For example the container may be of substantially hollow cylindrical or conical form or box-like form having a tapered upper end portion in which portion there is provided at least one dispensing orifice wherethrough granular substances can be caused to egress from within the container when the container is up-ended.

The container preferably is one which can readily be handled by a person while cooking food or while partaking of food, although it will be appreciated that the container may be of a size capable of containing and storing a considerable quantity of a granular substance from which container smaller dispensers may be replenished.

Further, the container may be composed of two parts of different materials, say a base and an upper hollow portion adhered or bonded together. Preferably the base is composed of a plastic material.

The container has access means whereby the container may be charged with a selected granular substance such as salt or sugar, and this means may be one selected from several known means. For example the container if cylindrical or spherical or conical in shape may have an upper portion in screw threaded connection with the lower portion of the container so that the two portions may be separated thereby providing access to the interior of the container. Alternatively, a separate aperture having a closure means may be provided in the wall or bottom of the container as desired. In other words it is envisaged that

access into the container may be obtained by one of any of the known usual means for gaining access to salt or pepper dispensers. The electric heating means is in the form of an electric heating element, or like resistance, or a lamp, of low wattage, the heating means being situated within the interior of the container and arranged in a manner such that said means is in contact with a granular substance when the latter is contained in the container. Contacts adapted to connect the heating means with a source of electric power are provided and these contacts may be of the normal kind used in providing such connections. For example, contact pins may lead through a side of the container, the contacts at their inner ends communicating with the electric element, resistor or lamp and the contacts at their outer end portions being adapted to be inserted in the normal household electric socket which one normally finds available in the kitchen or in the room in which meals are partaken. By the beforegoing arrangement, the contacts associated with the dispenser can be inserted in the socket and electric power switched on so that the element, resistor or lamp is heated.

The above construction and arrangement may be modified in several ways and still remain within the scope of the invention. For example, the dispenser may have a base separable therefrom and containing a heating means of the kind described, namely an electric heating element or like resistor or lamp, there being provided connections whereby the said heating means can be connected to a source of electric supply such as the usual household electric socket.

Alternatively a dispenser can be provided as described earlier, the heating means being contained within the container and contacts leading therefrom, and there may be provided a separate support or a base for the container said support having a socket arrangement arranged to receive the contacts connected to the heating means within the container, which support or base is suitable connected to or connectable with a source of electric power.

The heating means may be chosen from such as "-Nichrome" wire or small resistors or lamps as desired. When experimenting, I have used in one experiment a half watt 100 K resistor and in another an 82 K half watt carbon resistor. I further envisage that the source of electric supply may be an electric storage battery of any suitable kind which battery may be suitably housed within the base of the container or the separate support or base if provided.

Preferably, the heating means may be an electric heating element which is embedded or moulded into the body of the container such that the element does not actually contact the granular substance, but the heat from the element is transferred to the substance by conduction through the material of the body. If desired the heating element may be partially embedded and protrude slightly from the surface of the moulded material.

In another embodiment of the invention the heating means is provided for by an electrode or electrodes in connection with the electrical contact pins which electrodes react to moisture or dampness in the contained granular material such that the electric circuit is completed and current flows.

The dispenser of this invention is primarily intended for use in dispensing salt or pepper, but it will be appreciated that a dispenser constructed and arranged in accordance with the invention may be used to good effect with other granular or powdered substances.

The invention will now be described by way of example with reference to the accompanying drawings in which:

FIG. 1 is an elevation view of the dispenser

FIG. 2 is another elevation view of the dispenser viewed in the direction of arrow II in FIG. 1

FIG. 3 is a view from below of the dispenser in the direction of arrow III in FIG. 2

FIG. 4 is a cross section on line IV — IV in FIG. 2

FIG. 5 is a view in longitudinal section on line V — V of FIG. 1

FIG. 6 is a fragmentary view with part of the container broken away to show electrical connections

FIG. 7 is a fragmentary view, in section, showing a lower part of the container in screw-threaded engagement with an upper part of the container,

FIGS. 8*a*, 8*b* and 8*c* illustrate collectively an exploded view of another embodiment of the invention where FIG. 8*a* shows a body part, FIG. 8*b* shows a heating means connected to contact pins, and

FIG. 8*c* shows a base part, and,

FIG. 9, on a smaller scale shows a dispenser engaged with an electric power socket.

In the drawings, the container is generally indicated by arrow 1 and includes a hollow body portion 2 extending upwardly from a base portion 3, the combination of body 2 and base 3 providing a container capable of containing granular materials.

In the example shown in FIGS. 1 to 6 of the drawings, access to the interior 4 of the container is gained by way of aperture 5 formed or provided in base 3, which aperture 5 is conveniently normally closed by means of plug member 6 shown in broken lines in FIG. 5.

The example shown in the drawings, may be considered suitable for containing salt and as is usually present in a salt shaker, container 1 is provided with one dispensing orifice 7 situated at the upper end portion of body 2, wherethrough said dispensing orifice 7, granular material such as salt may egress under restraint when container 1 is up-ended.

Base 3, preferably, is formed from a plastic material such as a polyester cold set mixture, and body 2 likewise may be of a plastic material, or may be made from wood or metal.

In the drawings, the electric heating means is indicated by numeral 8, which may be a resistor and may include moisture sensitive cathodes, and the electric contact pins are indicated by reference numeral 9.

Conveniently, electric heating means 8 is embedded in the material forming base 3, and as shown, preferably as close as possible to the surface of base 3 forming part of interior 4, i.e., the upper surface thereof. Heating means 8 may protrude slightly into interior 4, and it has been found that when moulding base 3 from a plastic material such as a polyester cold set mixture, a thin film of the mixture covers the protruding surface of the heating means 8. This does not affect to any appreciative degree, the passage of heat from the heating means 8 into interior 4. However, if desired, means 8 may only be embedded partially in the material forming base 3, the surface of heating means 8 being exposed to interior 4.

During moulding of base 3, contact pins 9 are embedded, simultaneously with heating means 8, in the material of base 3. FIGS. 5, 6 and 7 show electrical contact 10 providing conduction forming means between the resistor 8 and one of the pins 9.

In the arrangement shown in FIGS. 5 and 6, base 3 is bonded to body 2, but in FIG. 7, an alternative arrangement is shown where base 3 is screw-threaded at 11 into body 2 thereby providing a separable base, and if desired, access to interior 4 may be gained by unscrewing base 3 from body 2, or vice versa.

In another embodiment of this invention, body 2 and base 3 may each be composed of a plastic material and the various components prepared for assembly in a manner the same as or similar to that shown in FIGS. 8*a*, 8*b*, and 8*c*. In this embodiment, which is given by way of an example, complementary slots 13 are formed in both the upper surface of base 3 and the lower surface of body 2, and furthermore the undersurface of body 2 is formed with recess 12 conjoining with slots 13 adjacent thereto, the arrangement being such that for ease and quickness in assembly, contact pins 9 may be inserted into lower slots 13, body 2 brought down on to base 3 so that heating means 8 is received in recess 12, a bonding agent being placed between the upper surface of base 3 and the under surface of body 2 before bringing the parts together, thereby bonding body 2 to base 3 and embedding heating means 8 in part of the container. If required, the upper surface of base 3 or the undersurface of body 2 may be recessed slightly to accommodate the bonding agent, but this is not essential to the invention.

Conveniently, as shown, the exterior surface 3*a* of the base 3 from which protrude pins 9 is inclined downwardly and inwardly in relation to the vertical axis of the container, the pins 9 extending generally perpendicular to this inclined surface, which inclined shape facilitates the positioning of the dispenser in relation to an electric power socket, particularly where the switch for the socket is situated above the socket apertures which receive contact pins 9. This general arrangement is illustrated in FIG. 9 where the numeral 14 indicates an electric power socket and 15 the switch therefor, and it will be seen that the inclination of the surface 3*a*, and hence of the container itself, provides clearance for the switch 15.

The contact pins 9 shown in the drawings, have a shape which is in common use in New Zealand, and it will be appreciated that the shape of the pins may differ from that shown in the drawings, to conform with the kind of pin required and to suit requirements.

I claim:

1. A dispenser for granular materials, comprising a container for enclosing the said materials therein, a dispensing orifice situated in the container and providing for restrained egress of said materials from the interior of the container to the exterior thereof, said container having an exterior surface which is inclined downwardly and inwardly with respect to the vertical axis of the container, an electric heating means at least partially embedded in part of the container and positioned in relation to the interior of the container such that heat when generated by said means can pass to said interior, and electrical contact pins connected to and leading from the heating means and protruding from said inclined surface of the container generally perpendicular to said surface and adapted to be engageable with an electric socket, whereby said electric heating means can be electrically connected to a source of electric supply and thereby heated to cause moisture present in said granular materials to evaporate and leave the interior of the container by way of the orifice.

2. A dispenser as claimed in claim 1 wherein at least a base portion of the container is composed of a mouldable material and the electric heating means and the electric contact pins connected thereto are embedded in said material.

3. A dispenser for granular materials as claimed in claim 1 wherein the container includes a hollow body part and a base part and the base is composed of a mouldable plastics material in which is embedded the heating means and the electric contact pins connected thereto.

4. A dispenser for granular materials as claimed in claim 3 wherein the base part is bonded to the body part.

5. A dispenser for granular materials as claimed in claim 4 wherein access to the interior of the hollow body is gained through an aperture in the base which aperture is closable by a plug member.

6. A dispenser for granular materials as claimed in claim 3 wherein the connection between the base and the body part is a screw-threaded one and access to the interior of the container is gained by separating the base and body parts.

7. A dispenser as claimed in claim 1 wherein the container includes a hollow body part and a base part, both composed at least partially of a plastics material, and complementary slots are formed in both the upper surface of the base and the lower surface of the body; and a recess formed in the under surface of the body conjoins with the said slots, the slots being arranged to receive the contact pins and the recess being arranged to receive the heating means.

* * * * *