

July 28, 1970

N. E. WILSON

3,521,816

VAPOR RELEASING DEVICES

Filed Jan. 11, 1968

2 Sheets-Sheet 1

FIG. 1

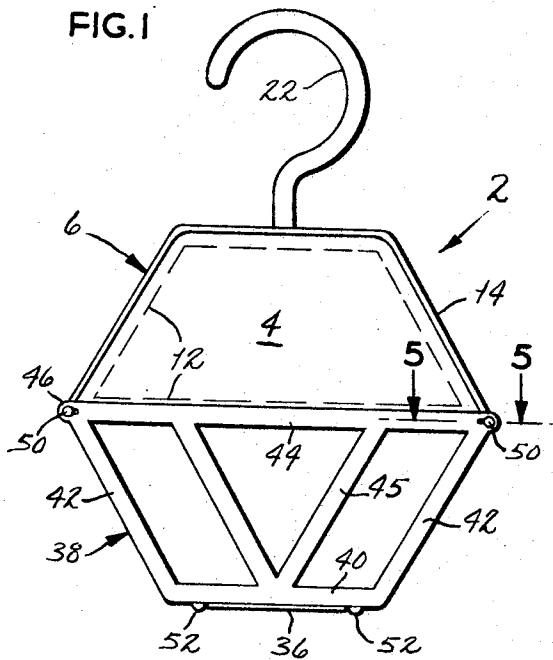


FIG. 2

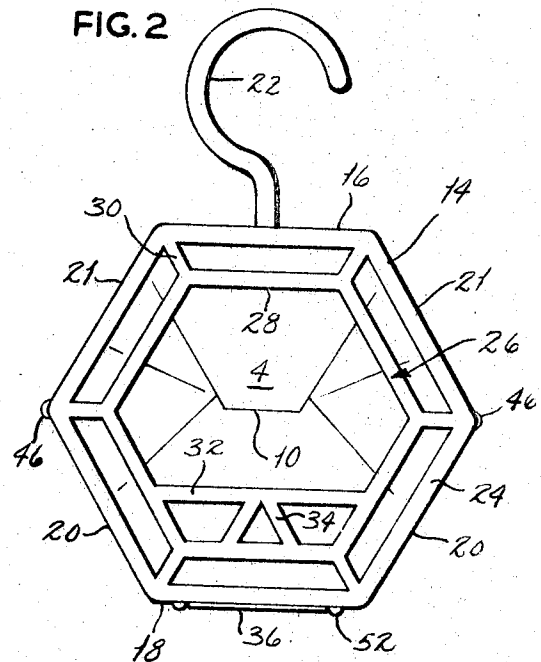


FIG. 3

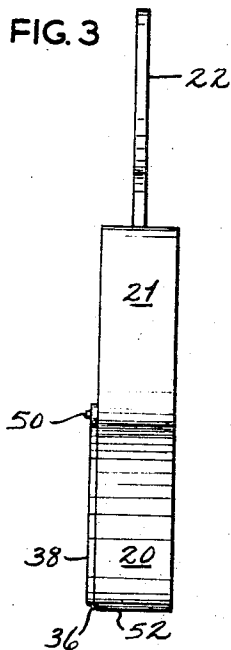


FIG. 4

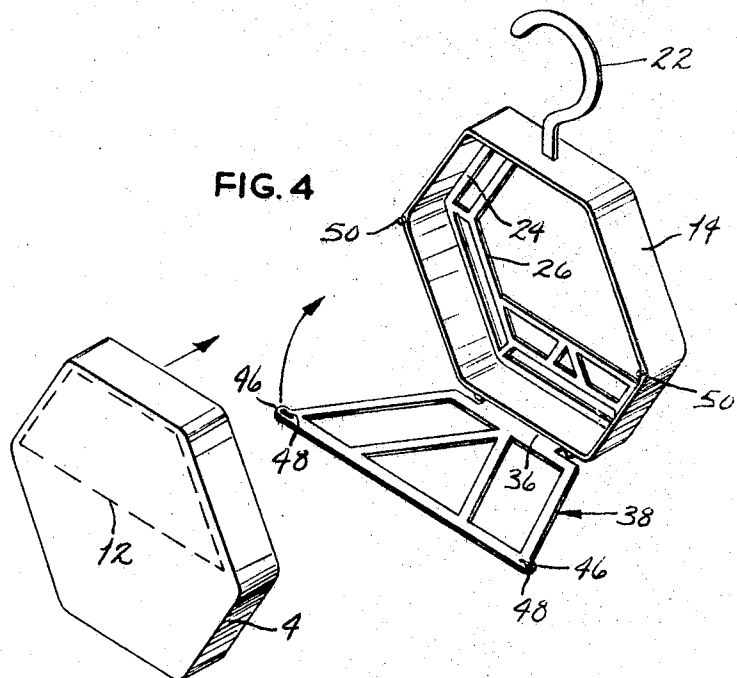
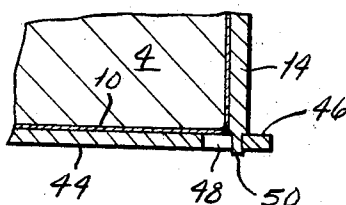


FIG. 5



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FIG. 6

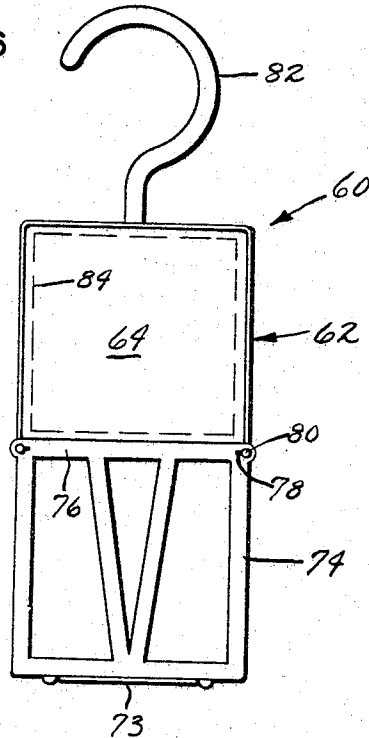


FIG. 7

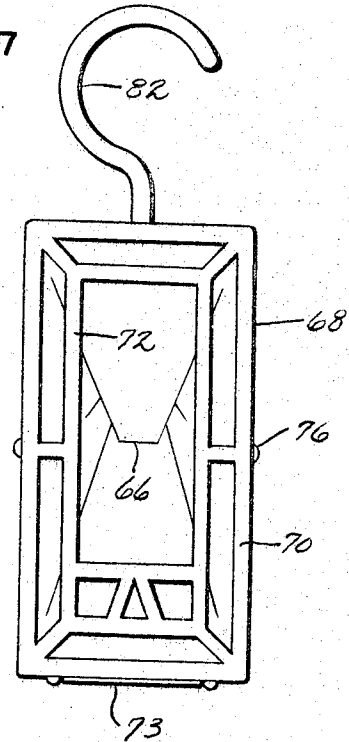
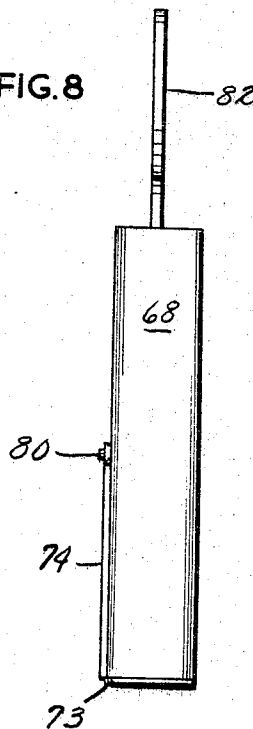


FIG. 8



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VAPOR RELEASING DEVICES

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13 Claims

ABSTRACT OF THE DISCLOSURE

An evaporative cake holder having a peripheral wall which is shaped to accept an evaporative cake encased in a plastic wrapper. The wall merges into a webbing along one of its margins while a closure flap is hingedly connected to the opposite margin. A dotted guide line is provided on the cake wrapper above the closure flap for designating a line along which the wrapper can be cut to expose a limited area of the cake to the atmosphere.

This invention relates in general to devices for releasing vapors to the atmosphere and, more particularly, to an evaporative cake and holder therefor.

It is common practice for homeowners to hang cakes of paradichlorobenzene or naphthalene in clothes closets to kill moths and prevent mildew. Sometimes additional components such as perfumes are added to the paradichlorobenzene or naphthalene, in which case the cakes can be used as air fresheners not only for closets, but also for washrooms as well.

The cakes normally have hook-shaped wires embedded in them so that they can be conveniently hung on a clothes rack or other elevated support, and this presents wrapping problems since it is difficult to either hand or machine wrap the cakes with wires protruding from them. Furthermore, it is difficult to provide an adequate seal around the outwardly protruding wire to prevent premature evaporation of the cake, and consequent lessening of its shelf life. Both paradichlorobenzene and naphthalene sublime when exposed to the atmosphere and unless cakes of these substances are kept completely wrapped they will dissipate while awaiting sale to the ultimate user. A substantial portion of the cost of wrapping such cakes is directly attributable to the presence of the outwardly protruding wire hooks.

Once the cake completely sublimates, the wire is discarded and a completely new cake including a hanger wire must be purchased to replace it. Also such cakes hang completely exposed in the closet and care must be exercised to avoid hitting or otherwise striking them. Finally, the plastic wrappers on such cakes are such that the entire wrapper must be removed prior to hanging a cake in a closet or other enclosed space, and consequently no means exists for controlling the evaporation of the paradichlorobenzene or naphthalene.

Among the several objects of the present invention may be noted the provision of a vapor releasing device which is attractive in appearance and economical to manufacture; the provision of a reusable holder for individually wrapped evaporative cakes; the provision of a holder for accepting individually wrapped evaporative cakes which do not have hanger wires extending from them; the provision of a holder and cake wrapper which affords controlled evaporation of the cake; the provision of an evaporative cake which can be economically wrapped to prevent exposure to the atmosphere; and the provision of an evaporative cake which has a long shelf life. Other objects and features will be in part apparent and in part pointed out hereinafter.

In the accompanying drawings, in which several of

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various possible embodiments of the invention are illustrated,

FIG. 1 is a front elevational view of a vapor releasing device constructed in accordance with and embodying the present invention;

FIG. 2 is a rear elevational view of the vapor releasing device;

FIG. 3 is a side elevational view of the vapor releasing device with the closure flap shown in dotted lines in its open position;

FIG. 4 is an exploded perspective view of the vapor releasing device;

FIG. 5 is a fragmentary sectional view taken along line 5—5 of FIG. 1;

FIG. 6 is a front elevational view of a modified form of vapor releasing device;

FIG. 7 is a rear elevational view of the modified vapor releasing device; and

FIG. 8 is a side elevational view of the modified vapor releasing device.

Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

Referring now to the drawings, 2 designates a device for releasing vapors into the atmosphere including a vapor releasing block or cake 4 and a holder 6 adapted to receive and retain cake 4.

Cake 4 is hexagonal and is formed of paradichlorobenzene, naphthalene, or other suitable substance. In addition to the foregoing substances, cake 4 may also contain additional components such as a limited amount of perfume to impart a desired odor to the vapors released by evaporation of the active ingredient. Completely encasing cake 4 is a cellophane wrapper 10, the ends and sides of which are brought together and secured to one another in overlapping relation against one hexagonal face of cake 4 so as to isolate cake 4 from the surrounding atmosphere (FIG. 2). Imprinted on the continuous sheet-like portion of cellophane wrapper 10 extending across the opposite hexagonal face of cake 4 are directions for use, etc. Also imprinted on this portion of wrapper 10 are dotted lines 12, one of which approximately bisects the hexagonal face by interconnecting two opposed vertices on it. The remaining lines 12 extend along the peripheral edge of that face adjacent the three side margins of cake 4 located to one side of the bisecting portion.

Holder 6 is molded from a flexible plastic which is compatible with the substance from which cake 4 is formed. Holder 6 includes a hexagonally-shaped peripheral wall 14 having upper and lower faces 16, 18, which are interconnected at their ends by pairs of upwardly diverging and converging side faces 20, 21. Hexagonal wall 14 slidably receives cake 4 and molded integral to it and projecting upwardly from its upper face 16 is a hook 22 which is preferably sized to fit over a conventional closet hanger rod. Also molded integral to and further projecting inwardly along one hexagonal margin of wall 14 is a hexagonal retaining flange 24 and disposed inwardly from and coplanar with flange 24 is an inner retaining web 26 including an inner hexagonal section 28 and a plurality of connecting members 30 radiating from the vertices thereof and connecting to flange 24 at its vertices. Web 26 also includes a lower cross-member 32 interconnecting two of the lower sides of hexagonal section 28 and a pair of downwardly diverging reinforcing members 34 which are formed integral to and interconnect cross-member 32 and the lowermost side of hexagonal section 28.

Foldably connected to the opposite margin of the lower face 18 on peripheral wall 14 by means of an integrally

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formed thin plastic hinge element 36 is a retaining or closure flap 38, including a lip 40, to which hinge element 36 is connected, and a pair of side members 42, the outer margins of which diverge from lip 40 and align with upwardly diverging faces 20 of peripheral wall 14 when flap 38 is in its raised or closed position. Side members 42 upwardly terminate at an upper cross-member 44 which traverses hexagonal wall 14 at the vertices formed by the intersections of side faces 20, 21, when flap 38 is closed. Diverging from the center of lower lip 40 parallel to side members 42 and also terminating at cross-member 44 are a pair of web members 45. Cross-member 44 projects beyond side members 42 in the provision of a pair of lateral tabs 46 provided with apertures 48 which align with and forcibly receive studs 50 projecting outwardly from peripheral wall 14 at the vertices formed by the intersections of side faces 20, 21. Stud 50 are formed integral with wall 14, while tabs 46 are relieved at apertures 48 in the provision of inwardly extending radial slots which make tabs 46 more flexible so that they readily, yet retentively, accept studs 50.

Projecting downwardly from lower face 18 of wall 14 below hinge element 36 are a pair of ridge-like embossments 52 which serve as legs for supporting holder 6 in an upright position on a horizontal surface such as a closet, bathroom, or store shelf.

Holder 6 is preferably formed as an integral unit in a one-step molding operation, while cake 4 is formed in the conventional manner. Shortly after its manufacture cake 4 is completely encased in cellophane wrapper 10 in the manner previously described, preferably by machine. Thereafter with closure flap 38 open, cake 4 encased in its wrapper 10 is fitted into peripheral wall 14 of holder 6 with dotted lines 12 located upwardly toward hook 22 and presented toward the side of holder 6 on which flap 38 is carried. After cake 4 is slid inwardly into abutment with retaining flange 24 and web 26, closure flap 38 is folded over along hinge element 36 against the hexagonal face of wrapper 10 which bears dotted lines 12. In so doing apertures 48 will align with studs 50 and by the exertion of a slight amount of pressure on tabs 46 studs 50 will be forced into apertures 48, thereby maintaining closure flap 38 in closure forming relation with respect to peripheral wall 14. In that position cake 4 is securely retained within holder 6.

Cake 4 is distributed to the consumer within holder 6, and since it is completely encased within wrapper 10 with no wire or other protuberances interrupting the wrap, evaporation is reduced to an absolute minimum. Accordingly, the shelf life of the product is greatly extended.

When the purchaser desires to moth-proof a closet or freshen the air in a particular space, he removes cake 4 from holder 6 after lowering flap 36, this being accomplished by merely pressing the outwardly projecting portions of lateral tabs 46 outwardly away from wall 14 until they are free of studs 50 and thereafter turning holder 6 so that cake 4 falls out. After removing wrapper 10, cake 4 is reinserted into holder 6 and closure flap 38 is raised into engagement with studs 50. Cake 4 freed of wrapper 10 will release vapors toxic to moths, and effective in preventing mildew and in freshening air within a confined space such as a closet where device 2 may be hung by means of hook 22. If a more restricted release of vapor is desired, the user without removing cake 4 from holder 6 can cut along dotted line 12 with a knife and remove that portion of wrapper 10 delineated by dotted line 12. This will expose a more limited surface area of cake 4 to the atmosphere and the rate of evaporation will be reduced. In either case once cake 4 has completely sublimed, another cake 4 can be purchased and placed in holder 6. Moreover, holder 6 protects cake 4 and also items which may be within the particular space by preventing objects from coming into contact with it.

Referring now to FIGS. 6-8 a modified form of vapor releasing device 60 is shown. It is similar to vapor releasing device 2 and includes a holder 62 and a rectangular cake 64 encased in a cellophane wrapper 66. Holder 62 integrally includes a rectangular peripheral wall 68 which along one of its end margins merges into a retaining flange 70 which carries a retaining web 72. Along the lower segment of its opposite peripheral margin, a hinge element 73 is molded integral to wall 68 as well as to a closure flange 74 which, when closed, extends approximately half way up wall 68. Closure flap 74 upwardly terminates at an upper cross-member 76 having apertures 78 which accept outwardly projecting studs 80 formed integral to wall 68 for securing flap 38 in its closed position. Formed integral to and projecting upwardly from the upper face of wall 68 is a hook 82. Above cross-member 76 wrapper 66 is provided with a dotted line 84 which designates a line along which wrapper 66 may be cut to expose a limited portion of cake 64 to the atmosphere without removing it from holder 62.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As various changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A vapor releasing device comprising an evaporative cake; a wrapper encasing said evaporative cake for isolating it from the surrounding atmosphere; a holder for accepting and supporting said evaporative cake while said cake is enclosed within said wrapper; indicia means on said wrapper for designating a place at which said wrapper may be ruptured while said cake is in said holder to expose part of the surface of said cake to the atmosphere; and retaining means extending across a limited portion of said cake encased in said wrapper so that a portion of said cake is exposed through said retaining means, said indicia means being on the portion of said cake so exposed.

2. A vapor releasing device according to claim 1 in which the holder further includes a peripheral wall which encircles the evaporative cake and wrapper; and in which the retaining means extends across both ends of the peripheral wall so as to confine the cake within the holder, the portion of the retaining means extending across one of the ends of the peripheral wall being shiftable from an open position wherein it does not obstruct that end of the wall so that the cake can be inserted into the holder to a closed position wherein it blocks the end of the holder and prevents withdrawal of the cake.

3. A vapor releasing device according to claim 2 wherein the shiftable portion of the retaining means is a flap hingedly connected to the peripheral wall.

4. A holder for an evaporative cake, said holder comprising a peripheral wall sized to slidably accept an evaporative cake; first retaining means extending inwardly from said peripheral wall along one of its end margins for preventing said cake from passing completely through said peripheral wall; said first retaining means including a web covering a portion of said cake whereby said cake is exposed to the atmosphere through said web; and second retaining means attachable to said peripheral wall for preventing removal of said cake in the opposite direction; said second retaining means being shiftable from an open position wherein it does not obstruct the opposite end of the wall so that said cake can be inserted into the confines of said wall to a closed position wherein it extends inwardly from the opposite end margins of said wall in spaced relation to said first retaining means.

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5. A holder according to claim 4 wherein said second retaining means includes a web whereby said cake is exposed to the atmosphere through said web of said second retaining means when said second retaining means is in its closed position.

6. A holder according to claim 4 wherein the second retaining means is a closure flap hingedly connected to the peripheral wall.

7. A holder according to claim 6 wherein the flap is provided with at least one aperture in spaced relation to its hinged connection to the wall; and at least one stud projects outwardly from the wall and forcibly fits within the aperture when the flap is in its closed position, whereby the flap is secured in its closed position.

8. A holder according to claim 6 and further characterized by a hinge element connected to the peripheral wall along its opposite end margin and to the closure flap; and the closure flap comprises a lip to which the hinge element is connected, side members extending from the lip along the end margin of the wall, and a cross-member connected to the opposite ends of the side members and traversing the end of the peripheral wall in spaced relation to the second retaining means.

9. A holder according to claim 8 wherein the cross-member projects beyond the peripheral wall in the provision of tabs provided with apertures; and the wall is provided with studs which forcibly fit into the apertures whereby the flap is secured to the wall in its closed position.

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10. A holder according to claim 8 wherein the second retaining means comprises a flange projecting inwardly from the wall along its end margin and a web carried by the flange in inwardly spaced relation thereto.

11. A holder according to claim 7 wherein the peripheral wall is hexagonal; a pair of studs project outwardly from the walls at vertices located on opposite sides of the wall; and the hinge element is substantially parallel to a line intersecting the studs.

12. A holder according to claim 8 wherein the peripheral wall is rectangular.

13. A holder according to claim 8 and further characterized by ridge-like embossments formed on the peripheral wall adjacent the hinge element and projecting outwardly from the outer face of the wall a distance greater than the outward extension of the hinge member so that the holder will rest in an upright position when set upon a horizontal surface.

References Cited

UNITED STATES PATENTS

2,896,853	7/1959	Curran	239—60 X
2,979,268	4/1961	Brun	239—60 X
2,878,061	3/1959	Saeks	239—60

STANLEY H. TOLLBERG, Primary Examiner