June 16, 1953 G. W. MEEK ET AL 2,642,310

DIFFUSER AND BINDER BASE FOR RESIDUE OF EVAPORABLE MATERIAL

Filed March 22, 1950

Fig. 1.

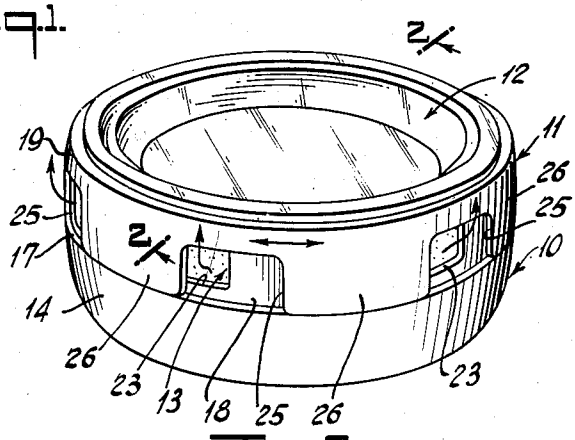


Fig. 2.

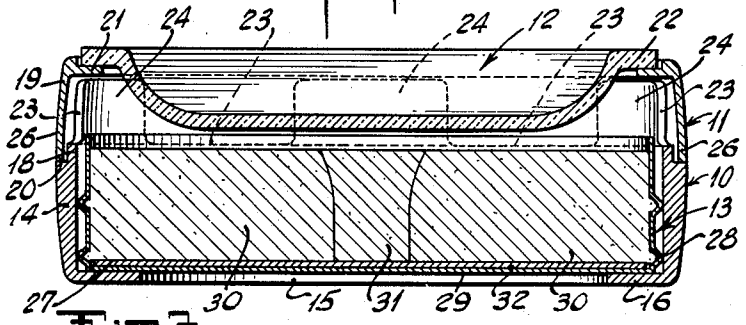


Fig. 3.

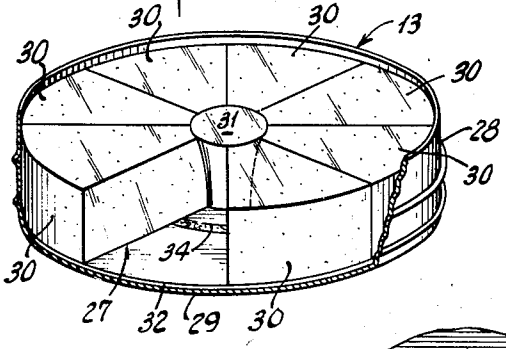


Fig. 4.

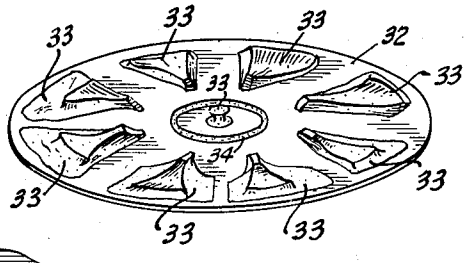
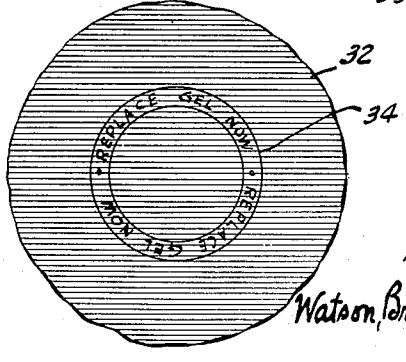


Fig. 5.



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Patented June 16, 1953

2,642,310

UNITED STATES PATENT OFFICE

2,642,310

DIFFUSER AND BINDER BASE FOR RESIDUE OF EVAPORABLE MATERIAL

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Application March 22, 1950, Serial No. 151,212

3 Claims. (Cl. 299—24)

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The present invention relates to improvements in diffusers and, more particularly, to means thereof for binding together segregable units of residue of evaporable material when used therein, such means being employable to advantage in various types of diffuser structures such as that disclosed in the copending application of William H. Wheeler, John Max von Bergen and the applicant, entitled Combined Vapor Diffuser and Ash Tray, Serial No. 151,211, filed March 22, 1950, now Patent No. 2,603,532 of July 15, 1952.

A general object of the present invention is to provide certain improved diffuser features and simple but effective means in such structures which assure automatic binding together or physically securing to a common element segregable units of residue of evaporable material to avoid annoying rattle of free residue units or unsightly arrangement of such units in an exhausted diffuser; such means being adapted, when desired, to serve as an effective replacement indicating or warning means.

A more specific object of the invention is to provide in such diffuser apparatus having container means or chamber structure for evaporable material the top surface of the bottom wall thereof of a character such as to have an effective adherent affinity for residue of such material desirably to bind segregable units thereof together.

Another object of the present invention is the provision of such binder means in a form characterized by a top surface which when exposed to view between separated bodies of the residue units provides, by visual structural or color contrast and/or characters thereon, indicating medium to direct timely replacement of evaporable material.

A further object of the present invention is to provide structural embodiments of the invention which may be readily and economically produced in commercial production and which permit simple and efficient use and operation thereof.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the features of construction, combination of elements and arrangement of parts, which will be exemplified in the construction hereinafter set forth, and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be

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had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is a perspective view of a diffuser apparatus in use in which features of the present invention may be embodied, showing the device manipulated to provide adjusted vapor outlets of particular size;

Fig. 2 is an enlarged elevational section taken substantially on line 2—2 of Fig. 1;

Fig. 3 is a perspective view, with parts removed, broken away and in section, of an inner container housable in the casing shown in Fig. 1 in the manner shown in Fig. 2 serving to carry a supply of the evaporable material there depicted as a segmented body of gel;

Fig. 4 is a perspective view of binder means of the present invention as embodied in the structures shown in Figs. 2 and 3, showing separated units of residue of the evaporable material adhered thereto; and

Fig. 5 is an enlarged central fragmentary view of the top of the binder means best shown in Fig. 4.

Referring to the drawing, in which like numerals identify similar parts throughout, it will be seen that the apparatus shown by way of example in Figs. 1 and 2 comprises a base member 10, a cover member 11 including a tray element 12, and a source 13 of air tempering or freshening vapors. The base 10 consists of a substantially cylindrical or circular wall 14 having an open bottom 15 and a lateral internal bottom flange 16 preferably made integral with the cylindrical wall and adapted to form a supporting ledge. The cylindrical wall 14 of the base 10 is provided at 17 with an external circular supporting shoulder and a circular rim flange 18 thereabove. That base structure is preferably formed of cast plastic material, but obviously can be formed of any other suitable material, such as metal, etc.

The cover 11 is in the form of a slip top cover structure having a downwardly depending flange 19 adapted to telescope over the rim flange 18 of the base structure 10 and with its lower edge 20 rotatably resting upon the circular shoulder 17 of the latter. Preferably the cover 11 is made in two parts, with the depending flange portion 19 terminating at the top thereof in a lateral internal flange 21 on which is supported rim 22 of dished tray 12. That portion of cover 11 which forms the depending flange 19 and the lateral supporting flange 21 is preferably made from cast plastic or any other suitable material.

The dished tray 12 is made in the commercial embodiment from transparent glass permitting observation of the body of evaporable material therebeneath. This construction permits the use of colored opaque plastic material in the formation of the side portions of the cover and of the base for enhancing the appearance of the device while retaining the desired characteristic of permitting observation of the interior from the top through the tray. Such observation may be desirable in order to apprise the user when depletion of the evaporable material has advanced to such a degree as to make replacement advisable without necessitating removal of the slip top cover 11. When the tray 12 and the remainder of the cover 11 are made as separate units, as indicated, the tray rim 22 may, if desired, be cemented or otherwise suitably anchored to the supporting flange 21. However, it will be understood that the tray portion 12 could be made as an integral part of the remainder of the cover 11 in the casting operation of the latter, particularly if, as may be desired, the whole slip top cover structure is made of transparent material.

The base structure 10 and the cover 11 are provided with suitable cooperating cut-outs to serve as vapor outlets, which could be alignable holes in the base rim flange 18 and the cover depending flange 19. However, in the preferred structure, such cut-outs for the base are in the form of spaced notches 23—23 in the rim flange 18 to provide therebetween circumambiently-spaced, upwardly-extending, curved or arcuate projections 24—24. The depending flange 19 of cover 11 is similarly notched at 25—25 to provide therebetween circumambiently-spaced, downwardly-extending, curved or arcuate projections 26—26. When the cover 11 is oriented relative to the base structure 10 by rotation of the projections 26—26 of the former on the shoulder 17 of the latter to fully staggered relative positions the outlet louver means provided by the described structure are substantially closed so as to minimize vapor emanation from the interior of the base structure. If the cover 11 then be rotated through a small radial angle relative to the base structure 10, portions of the base structure notches 23—23 will be brought to alignment with the cover notches 25—25 to provide adjusted vapor outlets, as indicated in Fig. 1.

As indicated in Figs. 2 and 3, the evaporable material may be in the form of a scored body 27 of gel which may be a jelled variant of the air freshening composition described in Paschal Patent No. 2,326,672 of August 10, 1943, for "Method and Composition for the Treatment of Air." Such a gel product is disclosed and claimed in the copending application of Turner et al., Serial No. 178,508, filed August 9, 1950. It is to be understood, however, that the body 27 of evaporable material may, if desired, be in the form of a liquid. The body of evaporable material 27 is suitably housed in a pan 28 having its circular bottom 29 resting upon the supporting base flange 16. In the commercial embodiment, the pan 28 forms the bottom of a slip top can structure in which the evaporable material may be distributed, with the slip top cover thereof suitably removed at the time the unit 13 is loaded into the apparatus of the present invention.

It is a common practice to employ such evaporable material in a form of a body of liquid containing solids in suspension and, of course, when such evaporable material is produced in the form of a gel, such solids are distributed throughout the body thereof. Consequently, as the constituents capable of evaporation are released in the form of vapor, some of the solids compact together eventually to form a residue which, after complete evaporation, may become a dark, hard, misshapen body. In the event that the evaporable material contains chlorophyll so that it may be a bright green when fresh, such dried residue may be of a greenish black color. In diffusers where no attempt is made to take advantage of features of the present invention, such residue has a tendency to be free from or freed from adjacent surfaces of diffuser chamber walls and, as a single body or broken pieces thereof, to rattle around annoyingly in the device when moved. This is particularly true when the body 27 of evaporable material is in the form of a segmented body of gel, as proposed by way of example in the accompanying drawing. As therein indicated, the cylindrical body of gel 27 may be segmented in a pattern providing a plurality of wedge units 30—30 arranged about a central core unit 31, one such wedge unit being shown removed in Fig. 3 for clarity.

In accordance with the present invention, the bottom wall 29 of container 28 has the top surface thereof conditioned or provided in a form so that it has an adherent affinity for the residue of the wedge units 30—30 and the core unit 31. Although such top surface might be provided by a layer of loosely matted cellulosic fibers or by a separate sheet of impervious material, such as plastic or metal, provided with a number of small apertures or the like, it is formed in the embodiment shown by way of example in the drawing as a porous paper or cardboard disc 32 closely fitting within the container 28 upon the bottom 29 of the latter. The semi-absorbent character of the cellular or fibrous structure of the paper or cardboard disc 32 assures some penetration therein of the liquid constituent of the evaporable material or gel body thereof so as to provide a secure bond between the residue and the disc as the evaporable material gives off vapor to dryness of the shrunken residue. The dried segregated units of residue are shown at 33—33 in Fig. 4 and the shapes thereof as indicated in that figure closely resemble those of residue units as actually observed. All of the pieces or units of residue 33—33 have been found to be tightly retained upon the surface of the disc 32, so as to avoid any possibility of rattling around in the diffuser or to be disarranged therein in an unattractive fashion, as contrasted with the fixed arrangement of the segregated units in a desired attractive pattern as provided by the present invention made apparent in Fig. 4. The rather considerable user objection to this tendency for the segregated units of residue to rattle around in the diffusers, to spill out and to pile up in unsightly disarrangements has been effectively eliminated by employing this binder base feature of the present invention. It is to be understood that such binding characteristic is attainable within the scope of the present invention by the employment of a properly conditioned top surface of the bottom 29 of container 28 as well as by the use of a separate disc of suitable structure, such as 32; and that the latter permits, if desired, separation and removal of the disc with its attached units of residue from the container. The porosity of the base surface is also useful in reducing the amount of free synaeresis certain quantities of which may be present in cans of the

gel and additional absorbent elements or units of similar nature may be employed therewith to increase the effectiveness of that action.

The top surface of the disc **32** should be of such character as to attract visual attention. This may be assured by the physical quality and the tint or color thereof so as to contrast sharply with adjacent surfaces when exposed to view between the segregated units of shrunken or contracted residue upon substantially complete evaporation of the evaporable constituents of the body of evaporable material. As a result, that binder means, provided as disc **32**, effectively serves as a replacement indicator, advising the user to replace the evaporable material unit **13** in the diffuser apparatus. For this purpose, the top surface of the binder means or the upper face of disc **32** may be provided with suitable indicia indicating such replacement, such as the words "replace gel now," as indicated in Fig. 5, arranged in some attractive pattern, such as the circle **34**. Further, as proposed in Fig. 5, the tinting of the top surface of disc **32** may be of a bright green hue visually to contrast with the greenish black color of the segregated units of residue **33—33**. It is to be understood, however, that any other sharply contrasting hue may be employed for the tinting of the top surface of the disc **32** if desired. The attractive design or arrangement of the adhered units of residue upon the binder means or disc **32** may be predetermined by the pattern in which the body of gel **27** is segmented so as to assure a pleasing and attractive arrangement of the adhered segregated units of residue. The shrinking or contracting of the gel units **30—30** and **31** upon progressive vaporization of evaporable constituents, with attendant increase in spacing as the margins of the bases thereof progressively recede, is particulary advantageous with respect to this replacement indicating feature since exposure of appreciable areas of the disc **32** and directions printed thereon is thus assured.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A dispensing unit of volatilizable material containing minor portions of nonvolatilizing residue forming components, said dispensing unit comprising a relatively flat receptacle having an enlarged bottom wall, a low peripheral side wall, and being open at the top thereof, and said bottom wall having a thin fibrous layer arranged along and in close proximity thereto, the surface of said fibrous layer being adherent to the volatilizable material and providing means for adhering bodies of said nonvolatilizing residue in fixed position with respect to said receptacle.

2. A dispensing unit of volatilizable material containing minor portions of nonvolatilizing residue forming components, said dispensing unit comprising a relatively flat receptacle having an enlarged bottom wall, a low peripheral side wall, and being open at the top thereof, and said bottom wall having a thin sheet of fibrous material arranged along and in close proximity thereto, the surface of said sheet of fibrous material being adherent to the volatilizable material and providing means for adhering bodies of said nonvolatilizing residue in fixed position with respect to said receptacle.

3. A dispensing unit of volatilizable material containing minor portions of nonvolatilizing residue forming components, said dispensing unit comprising a relatively flat receptacle having an enlarged bottom wall, a low peripheral side wall, and being open at the top thereof, said bottom wall having a thin sheet of fibrous material arranged along and in close proximity thereto, the surface of said sheet of fibrous material being adherent to the volatilizable material and providing means for adhering bodies of said nonvolatilizing residue in fixed position with respect to said receptacle, and said sheet being characterized to function as a replacement indicator as portions thereof become exposed through evaporation of volatilizable material from said receptacle.

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WILLIAM H. WHEELER.

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