

May 27, 1941.

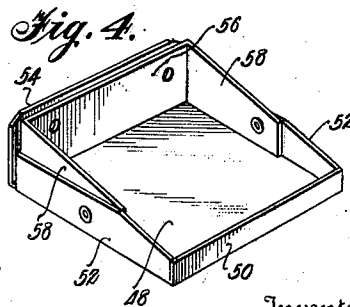
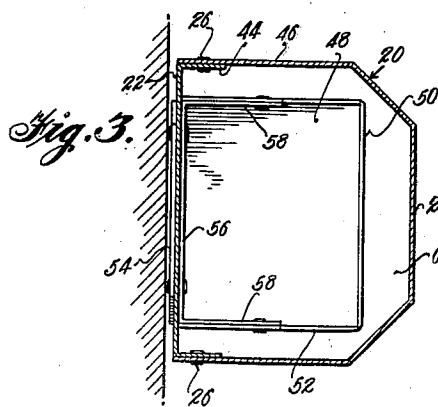
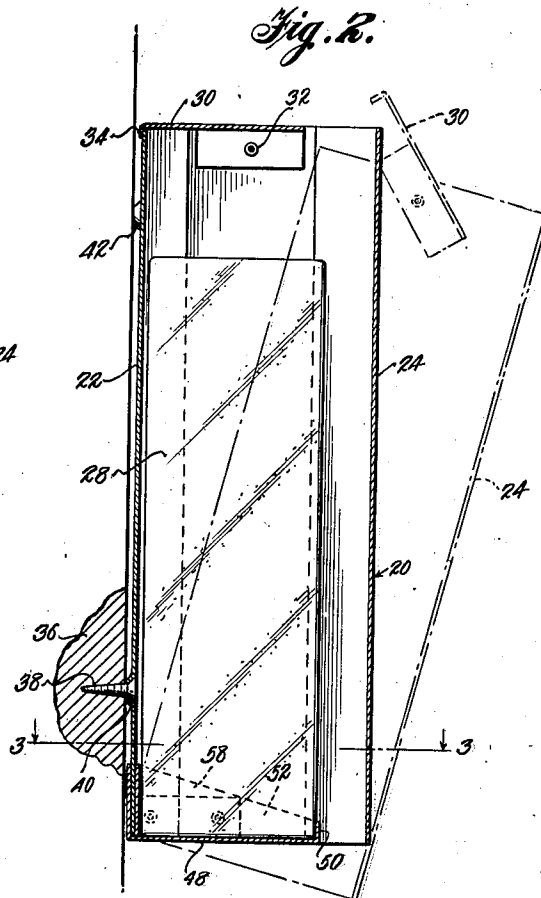
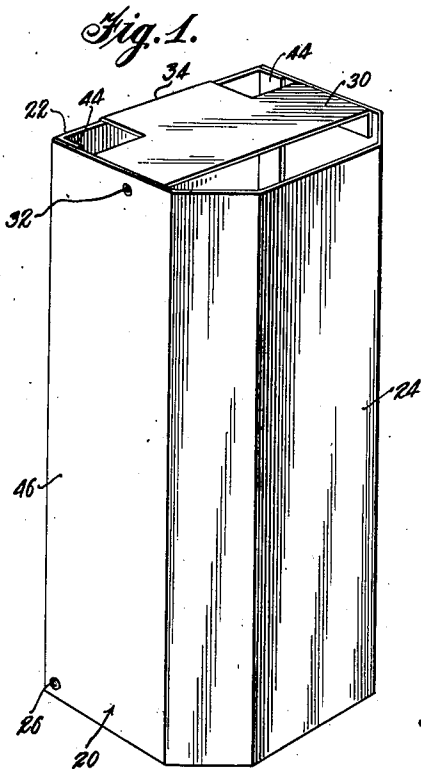
M. FULD ET AL

2,243,151

DIFFUSER

Filed July 20, 1939

2 Sheets-Sheet 1



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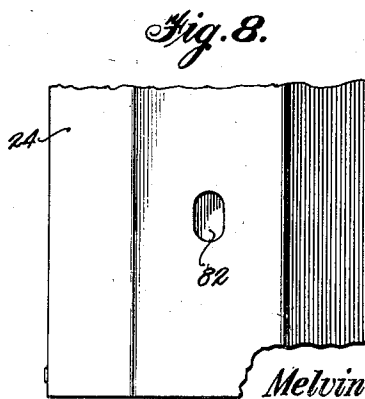
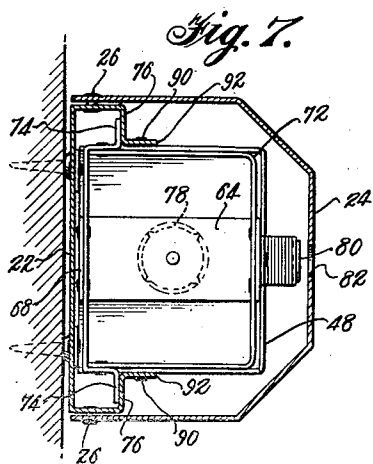
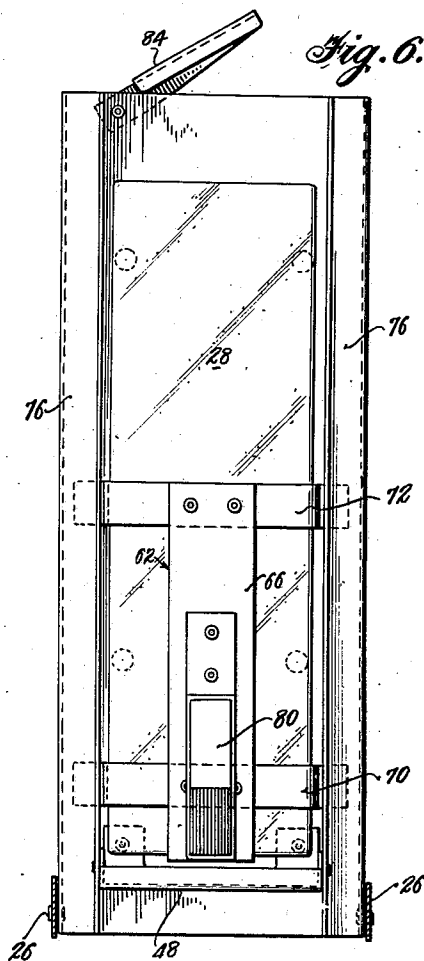
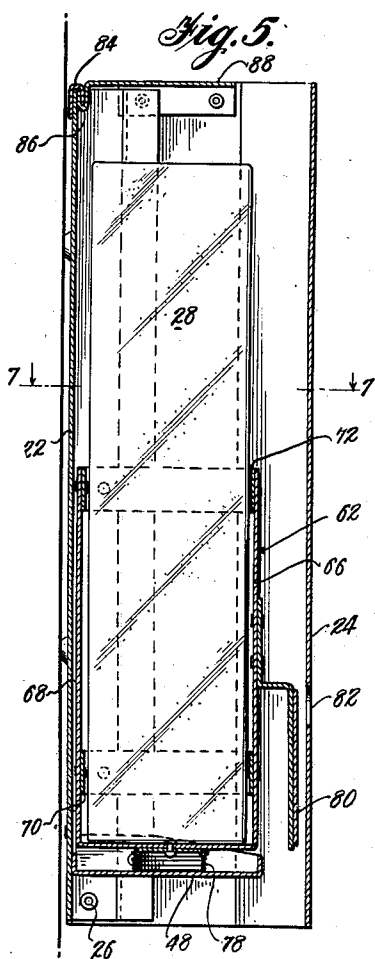
M. FULD ET AL

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DIFFUSER

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2 Sheets-Sheet 2



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DIFFUSER

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8 Claims. (Cl. 299—24)

This invention relates to a diffuser for volatile deodorant materials.

Deodorant diffusers in use up to the present time have usually consisted of a casing having perforated vertical walls and closed upper and lower ends. Inasmuch as the vapors formed during volatilization of deodorant material tend to rise or fall depending upon whether they are lighter or heavier than air, diffusers of known construction have failed to take advantage of this phenomenon, since by virtue of their closed upper and lower ends, there could be no vertical circulation through such casings. As a consequence, containers of this known type become filled with air saturated with the deodorant vapor, which depends for its escape from the container upon artificially created drafts and air currents moving horizontally through the room or enclosure in which the diffuser is mounted.

Another known type of deodorant diffuser has been proposed wherein the casing has openings at its upper and lower ends and substantially closed vertical walls, as will be illustrated by the patent to Fessler, 1,954,765, dated April 10, 1934. In accordance with the Fessler disclosure, however, the deodorant material is received on a plurality of staggered trays necessitating that the air passing through the container take a tortuous path, thus to a large extent negating any vertical circulation of air and vapor, since the resistance offered by the trays causes them to act as baffles.

In accordance with the present invention, a deodorant diffuser is provided in the form of a casing having openings at its upper and lower ends with means to support a volatile deodorant material within the casing, the supporting means and the deodorant material which it contains being so positioned with respect to the casing as to permit an unimpeded circulation between the openings at the upper and lower ends, volatilization of the deodorant material bringing about what is in effect, a chimney action. Under these circumstances, as the deodorant material volatilizes in contact with the surrounding air, the vapors will pass upwardly or downwardly depending upon the nature of the particular vapor produced, thus promoting circulation of the body of air within and through the casing together with the volatilized deodorant material. This circulation will continue as long as any unvaporized deodorant material remains and as long as the ambient conditions, such as temperature, are conducive to vaporization. Thus it will be understood that there is no opportunity for a body of air to become saturated and remain dormant within the casing as is the case with diffusers of the type known heretofore.

In order to facilitate filling the diffuser of the present invention with deodorant material, it is

proposed to make the casing separable in accordance with one contemplated embodiment, whereby the casing will comprise two sections pivoted together in such a manner that one may be fastened to a wall or other support while the other may be swung on a pivot or hinge to expose the interior of the casing and permit a new charge of deodorant material to be inserted. One of the sections is arranged to receive the body of deodorant material by providing a support or tray carried at or near one end thereof, which support or tray is spaced with respect to the other casing section so that it defines therewith a passage to permit the desired circulation through the casing. The sections are also preferably provided with fastening means to hold them in cooperating relationship after the device has been charged with a new supply of deodorant material. This fastening means may suitably comprise a latching element pivoted to one of the sections adapted to engage the other, the fastening means being preferably spaced with respect to the casing walls so as not to preclude the desired circulation through the casing. The openings at the upper and lower ends of the casing are ordinarily at least partially aligned so that at least a portion of the air passing there-through will be unimpeded and thus produce a circulation simulating that of a chimney, or in the case of a vapor which tends to move downwardly, the reverse of a chimney action will be produced.

In operation, volatilization of the deodorant material stimulates circulation, and this same circulation brings fresh air into contact with the deodorant material to effect renewed and continued volatilization. Thus the process is self sustaining as long as unvaporized material remains, and due to the enlarging air capacity of the casing as the amount of deodorant material is reduced, there is a tendency for the output to remain substantially uniform.

In order to obtain an indication as to when the deodorant material should be renewed, it is also proposed in accordance with the present invention to provide a carriage slidable within the casing for receiving the volatile deodorant, together with means for indicating the position of the carriage with respect to the casing. The carriage is preferably supported by means of a yieldable element so that its position will be varied in accordance with the weight it is supporting. The yieldable element may suitably be in the form of a spring interposed between a relatively fixed portion of the casing and the slidable carriage. An indicator movable with respect to the casing is operated by movement of the carriage and the indicator is preferably visible from the exterior of the casing, thereby serving as a visual signal to announce the amount of deodorant material

remaining within the casing. Where this slidable carriage arrangement is employed, one of the casing sections will preferably be provided with guiding means to restrain movement of the carriage to a desired path, for example, a vertical path.

In addition to these operating advantages over the prior art, the construction of the present invention may dispense with the usual perforations in its vertical walls, thereby obviating the collection of dirt and dust so commonly experienced with diffusers of the prior art. Moreover, the present construction may partake of a large number of ornamental forms which may be not only modern in appearance and pleasing to the eye, but easy to clean and inexpensive to maintain.

The fastening devices for holding the casing sections in cooperating relationship are simple in construction, and at the same time difficult for an inexperienced person to operate, thus discouraging tampering and vandalism. The latching surfaces are preferably disposed between the rear of the casing and the supporting wall and thus not readily discerned.

A more complete understanding of the present invention will follow from a more detailed description made in conjunction with the attached drawings wherein:

Fig. 1 is a perspective of one form of the invention;

Fig. 2 is a sectional elevation of a device similar to that shown in Fig. 1, containing a deodorant block and attached to a wall;

Fig. 3 is a section taken along line 3—3 of Fig. 2;

Fig. 4 is a detail in perspective illustrating one form of a deodorant support;

Fig. 5 is a sectional elevation of a modification;

Fig. 6 is a front elevation of the rear casing of the modification shown in Fig. 5;

Fig. 7 is a section taken along line 7—7 of Fig. 5 with the deodorant block removed; and

Fig. 8 is a fragmentary elevation of the front of the casing showing a detail.

With particular reference to Figs. 1 to 4, the casing 23 comprises a rear section 22 and a front section 24 provided with suitable pivots 26 whereby the front section may be swung through an arc with respect to the rear section to open the casing for the insertion of deodorant material in the form of a block 28 or in other suitable form. In order to retain the pivoted sections in cooperating relationship, the front section may have pivoted thereto a fastening element 30, attached to the front section by means of pivots 32 and having a downturned flange 34 for engagement behind the wall of the rear section. The rear section may be attached to a wall or other support 36 by means of screws 38 or the like passing through suitable apertures 40. As shown, the apertures are punched or pressed in the rear section in such a way as to define struck-up feet 42 which contact the wall or other supporting surface 36 and space the wall of the rear section of the casing slightly therefrom, thus providing ample room for the flange 34 of the fastening element to engage behind the wall of the rear casing section.

The rear casing section is provided with a pair of forwardly extending flanges 44 which are telescopically received by the side walls 46 of the front casing section 24. The lower end of the rear casing section carries a support or tray 48 intended to hold a quantity of volatile deodor-

ant material. As clearly shown in Fig. 4 of the drawings, the tray is provided with upturned flanges at its edges consisting of a front flange 50, side flanges 52 and a rear flange 54. The rear flange is received behind the wall of the rear casing section and riveted or otherwise fastened thereto. A reinforcing element 56 may be used for rigidifying the tray or support, and as shown in Fig. 4 of the drawings, is substantially U-shaped, its base being fastened to the front surface of the wall of the rear section and its arms 58 being riveted to the side flanges 52 of the tray.

It will be observed from Fig. 3 of the drawings that the tray or support 48 is spaced on three sides from the front casing section, defining therewith a passage 60 through which air and vapor may pass to or from the casing in accordance with the chimney type of circulation proposed. It will be readily understood from Fig. 1 of the drawings, that the fastening element 30 is so designed that it is spaced from the casing sections at points aligned with the space defined by the tray or support 48. It is thus clear that at least a portion of the air entering the device will pass therethrough unimpeded, thus promoting a continuous circulation due to the volatilization of the deodorant material, as long as any of the material remains.

The diffuser depicted in Figs. 5 to 8 retains most of the features of the modification already described. In addition, a carriage 62 is provided for reception of the deodorant block 28 or deodorant material of other suitable form. The carriage shown is in the form of an open basket-like structure having a bottom 64 provided with a pair of upstanding arms 66 and 68. These arms are riveted or otherwise suitably attached to a pair of spaced loops 70 and 72 which assume the form of bands substantially conforming to the shape of the body of deodorant material to be used with the device. These loops are provided with outwardly directed projections 74 which engage behind inwardly directed flanges 76 provided on the rear casing section 22. These inwardly directed flanges serve as guides to restrain the carriage from substantial movement in other than a vertical direction, thus preventing jamming and failures in operation. Attached to the lower end of the carriage, a helical spring 78 is provided, which bears upon the tray or support 48 and as shown in Fig. 5 of the drawings, is in compressed condition when the carriage is fully loaded with a newly inserted charge of deodorant material. As the deodorant material volatilizes and its weight decreases, the spring will expand and lift the carriage to an upper position, until the deodorant material has become entirely evaporated, whereupon the carriage will assume its uppermost position. In order to indicate these conditions from the outside of the casing, a signal or indicator 80, bearing suitable indicia, is mounted on the carriage in a convenient manner, as by riveting. The front casing section is provided with an aperture 82 through which the indicator may be observed. Thus an attendant may tell at a glance whether the device requires a new charge of deodorant material, or approximately how long it will be before such a charge is required.

The fastening or latching arrangement is also somewhat different in this modification, a pivoted element 84 mounted on the wall of the rear casing section having downturned flanges for engagement with the rear wall of the rear casing

section and an upturned flange 86 carried by the front casing section. The upturned flange 86 may be integral with a bracing element 88 extending between the side walls of the front casing section and suitably fastened thereto. Here again, it will be noted that the tray and carriage as well as the bracing element at the upper end of the casing are spaced with respect to the vertical walls of the casing sections so that openings in alignment are provided at the upper and lower ends of the casing, thus permitting the circulation of air and vapor in accordance with the chimney principle hereinbefore referred to.

In accordance with both forms of the invention depicted in the drawings, it will be noted that the body of deodorant material itself is of such a shape that it does not extend entirely across the casing and thus does not interfere with the mode of circulation desired in accordance with the present invention. In lieu of the reinforcing element 56 used in conjunction with the modification of Figs. 1 to 4, the tray 48 is reinforced in the second modification by means of rivets 90 extending through forwardly directed flanges 92 carried by the rear casing section.

The present invention is well suited to sheet metal construction and it may be decorated in a variety of ways. Its smooth, substantially unbroken surface permits ready cleaning and inexpensive maintenance and the structure as a whole is light in weight and relatively simple in arrangement. Deodorant materials such as paradichlorobenzene and camphor adapt themselves admirably to the purposes of the present invention, such materials effecting a down-flow through the casing. It is to be clearly understood however that other forms of deodorant material may be used in the construction of the present invention and that the details of construction may be widely varied without departing from the scope contemplated by the present claims. If desired, a liquid deodorant material may be used, in which case, a porous body may be filled therewith, evaporation being effected at its surface.

We claim:

1. A diffuser for a volatile deodorant comprising a separable casing having substantially closed and continuous vertical walls, a tray attached near the lower end of said casing for supporting a volatile deodorant, said tray being shallow relative to the body of deodorant supported thereby, said tray being partially spaced from said casing to define an opening in the lower end of said casing, the upper end of said casing containing an opening which is in part aligned with the opening at said lower end, said casing containing a substantially straight passage between said openings and adjacent said body of deodorant.

2. A diffuser for a volatile deodorant comprising a separable casing having substantially aligned openings at its upper and lower ends, a support arranged to support a volatile deodorant within said casing, said support being shallow relative to the body of deodorant supported thereby, said support being misaligned with respect to said openings and said deodorant defining a passage with said casing to permit unimpeded circulation between said openings upon volatilization of said deodorant, and fastening

means to prevent accidental separation of said casing, said casing being separable in a plane intersecting at least one of said ends.

3. A diffuser for a volatile deodorant comprising pivoted sections defining a casing having substantially closed vertical walls and open ends, a tray supported solely by one of said sections for receiving a volatile deodorant, said tray being shallow relative to the body of deodorant supported thereby, said tray being spaced from the other of said sections whereby portions of said open ends define with said casing an uninterrupted passage, said passage being adjacent said body of deodorant, and fastening means pivoted to one of said sections and engaging the other to hold the sections in cooperating relationship.

4. A diffuser for a volatile deodorant comprising a casing having communicating openings at its opposite ends for the circulation of fluid, a resiliently supported carriage freely slidable within said casing for receiving a volatile deodorant, and means indicating the position of said carriage with respect to said casing.

5. A diffuser for a volatile deodorant comprising a casing, a carriage for a volatile deodorant slidably arranged within said casing, a biasing element supporting said carriage with respect to said casing and means indicating the position of said carriage with respect to said casing as its position varies due to said biasing element.

6. A diffuser for a volatile deodorant comprising a rear section adapted for attachment to a support, a front section pivoted with respect to said rear section to define a casing having substantially closed vertical walls and open ends, a carriage for a volatile deodorant slidably received by said casing, a guide for said carriage provided on one of said sections, and means indicating the position of said carriage with respect to said casing.

7. A diffuser for a volatile deodorant comprising a pair of separable sections cooperating in assembled relationship to define a casing having substantially closed vertical walls and openings at its ends, a support arranged near the end of one of said sections and spaced from the other of said sections to provide for circulation through the casing, a carriage slidable within said casing and adapted to receive a volatile deodorant, a spring interposed between said support and said carriage to vary the position of the carriage in accordance with changes in weight, and an indicator mounted on said carriage and visible from the exterior of said casing to indicate the relative position of said carriage.

8. A diffuser for a volatile deodorant comprising a rear casing section of substantially channel shape having its flanges forwardly directed, a front casing section pivoted to said flanges, and in closed position said sections defining a casing having open ends, a tray adapted to receive a volatile deodorant carried by the rear section near the lower end thereof, a latching element carried by the upper end of one of said sections for holding said sections in closed position, said tray, said deodorant and said latching element being so spaced with respect to said casing that a circulation passage is provided through the diffuser.

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