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2,539,059

COMBINATION DISPENSER AND DEODORIZER

Filed Nov. 5, 1945

2 Sheets-Sheet 1

Fig. 5

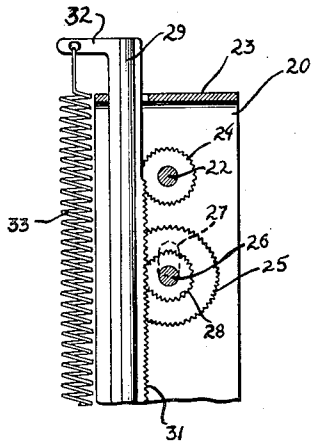


Fig. 6

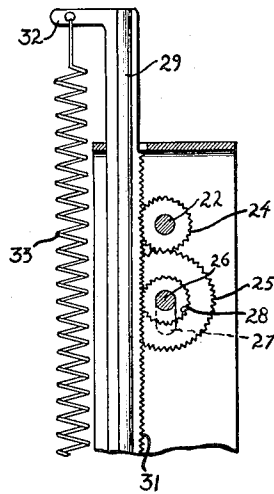


Fig. 1

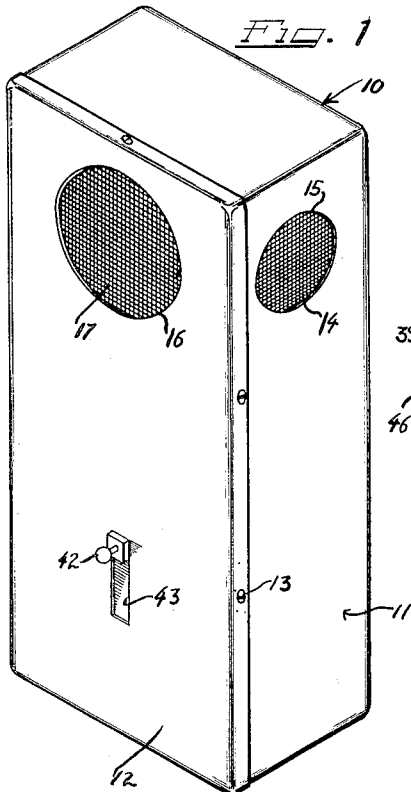
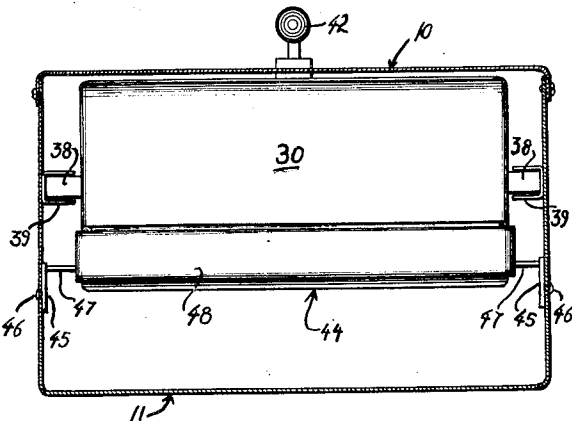


Fig. 4



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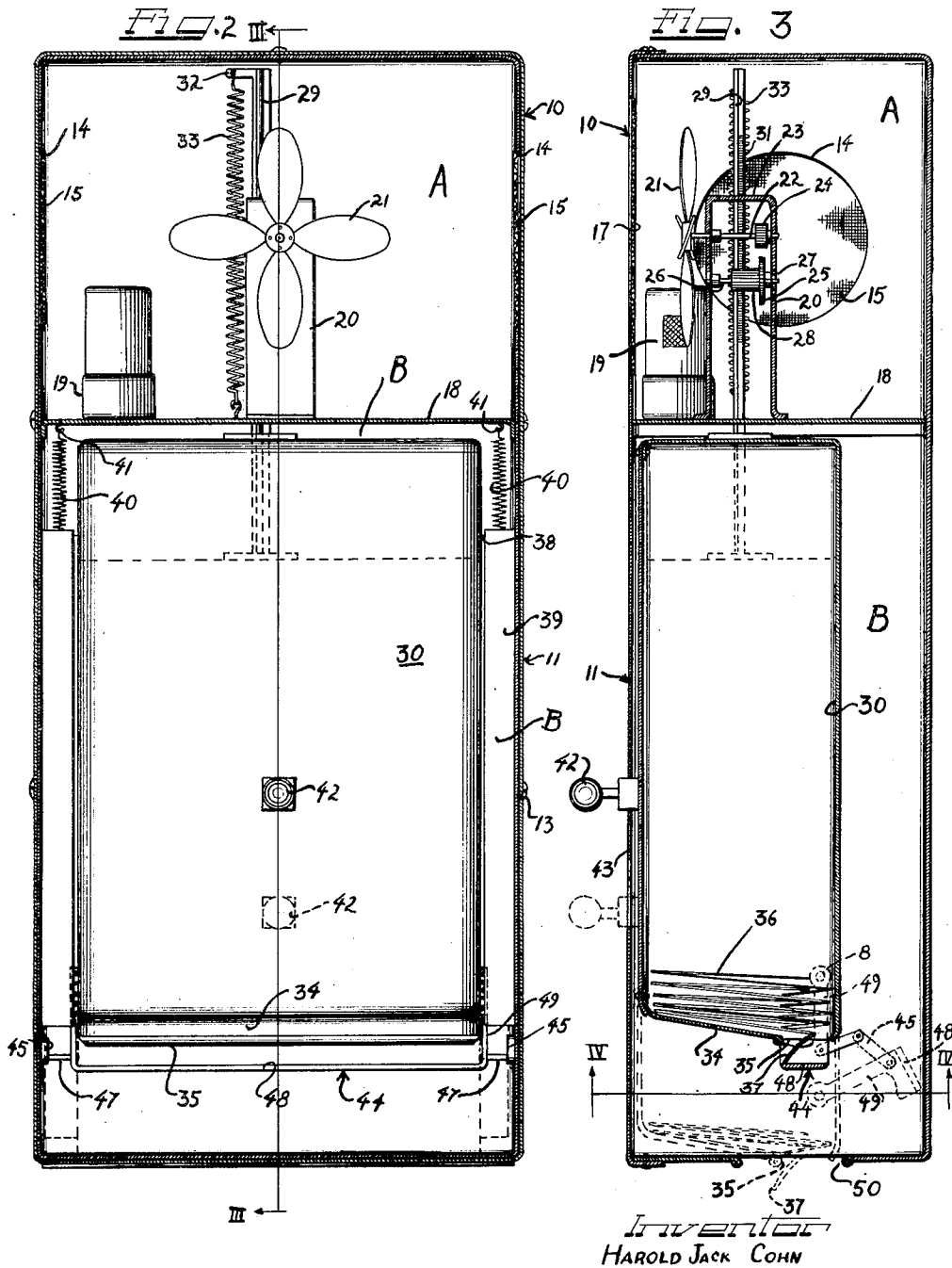
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2 Sheets-Sheet 2



The Firm of Charles Mills

UNITED STATES PATENT OFFICE

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COMBINATION DISPENSER AND
DEODORIZER

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11 Claims. (Cl. 21—77)

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This invention relates to a combination dispenser and deodorizing device, and more particularly to such a device for the dispensing of toilet paper, towelling or the like.

In order to counteract the unpleasant odors that may develop in closed spaces, such as toilets, it has heretofore been proposed to include within the cabinet mechanism for the dispensing of toilet paper and the like means for releasing a deodorant or disinfectant, rendered operative upon the operation of the paper dispensing mechanism. To the best of my knowledge, however, it is novel to provide in a combination such as this a fan that is operated by movement of a dispensing cabinet, so that each time the user moves the cabinet into dispensing position, the fan is actuated to create a stream of a deodorant-bearing fluid that is directed into the enclosed space, such as the toilet, or the like.

It is therefore an important object of this invention to provide a combination dispenser and deodorizing device wherein the movement of the dispenser into its dispensing position actuates a fan for blowing a deodorant-laden stream of air or the like into the space to be deodorized.

It is a further important object of this invention to provide a combination dispenser and deodorizing device including movable dispensing means, means for preventing the dispensing of articles therefrom except upon movement thereof into a dispensing position, and means for creating a stream of a deodorant-laden fluid actuated upon movement of said dispensing means into its dispensing position.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

On the drawings:

Figure 1 is a perspective view of a combination dispenser and deodorizing device of my invention.

Figure 2 is an enlarged vertical sectional view taken just inside the front cover of the device, with parts in elevation and illustrating in dotted lines the movement of the dispensing cabinet.

Figure 3 is a section view taken substantially along the line III—III of Figure 2, with parts in elevation and illustrating in dotted lines the movement of the dispensing cabinet and closure means therefor.

Figure 4 is a sectional view taken substantially along the line IV—IV of Figure 2.

Figure 5 is an enlarged fragmentary sectional view illustrating the fan actuating mechanism in its inoperative position.

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Figure 6 is a similar enlarged fragmentary sectional view illustrating the fan actuating mechanism in its operative position.

As shown on the drawings:

The reference numeral 10 indicates generally a combination dispenser and deodorizing device embodying the principles of my invention. Said device includes a housing comprising a box-like main portion 11 and a removable cover portion 12, which may be secured to the body portion by any suitable means, such as by the screws 13. Said main housing body portion 11 is provided with side openings 14, which may be protected by screening 15, and the cover portion 12 is provided with an opening 16 protected by screening 17, said openings 14 and 16 being in the upper portion of the device 10.

Internally, the device 10 is divided by a horizontal partition 18 into an upper compartment A and a lower compartment B. The partition 18 is suitably secured to the side walls of the main housing portion 11 and serves as a support for a deodorant container 19 and a fan mounting 20. A fan 21 is supported on a shaft 22 journaled in said fan mounting 20. Said fan mounting 20 comprises a pair of upright flat strips secured at their lower ends to said partition 18 and formed with an upper integral portion 23 holding said strips in parallel spaced relationship. The fan shaft 22 carries a pinion 24 for meshing with a second pinion 25 mounted upon a shaft 26. Said shaft 26 is journaled at its ends in slots 27 formed in the upstanding legs of the fan mounting 20. The slots 27 permit movement of the shaft 26 toward and away from the shaft 22 to bring the pinion 25 into and out of meshing engagement with the pinion 24, as will be later on explained in greater detail. A ratchet wheel 28 is also mounted on the shaft 26 for common rotation with the pinion 25. Said ratchet wheel 28 meshes with a rack arm 29 that is secured to the top of a dispensing cabinet 30 positioned in the lower compartment B. Said rack arm 29 is provided on its one face with ratchet teeth 31 that are normally in intermeshing engagement with the teeth of the ratchet wheel 28. At its upper end, the rack arm 29 is provided with a lug 32, between which and the partition 18 is secured a tension spring 33 which constantly biases the rack arm 29 downwardly.

The dispensing cabinet 30 is a box-like casing having a sloping lower wall 34 that provides for the back wall of the casing an opening 35 for the dispensing of the contents of the cabinet.

As illustrated, interfolded toilet tissue sheets 36

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are positioned within the cabinet 30 for dispensing through the opening 35, the lowermost of the sheets presenting an end 37 that normally extends through said opening 35.

The cabinet 30 is mounted for vertical movement within the compartment B. For this purpose, strips 38 (Figs. 2 and 4) are secured in vertical alignment on the opposite side walls of the cabinet 30 for projection into the grooves formed by channel-shaped guide members 39 that are secured to the side walls of the housing 11. Springs 40 extend from the upper ends of said guiding strips 38 to hooks 41 secured to the underside of the partition 18. Said springs 40, being under tension at all times, tend to raise the cabinet 30 to the full line position illustrated in Figures 2 and 3. A knob 42 is secured to the front wall of the cabinet 30 and projects through a slot 43 in the front wall of the cover 12. Said knob 42 serves for manual manipulation of the dispensing cabinet 30, the operation of which will more clearly appear as the description proceeds.

A releasable closure member, indicated generally by the reference numeral 44 is provided in the lower portion of the housing 11 for closing the dispensing opening 35 when the dispensing cabinet 30 is in its elevated position. Said closure member 44 comprises a pair of links 45 pivotally connected by means of pins 46 to the side walls of the housing 11. The free ends of the links 45 are secured to the ends of pins 47, which, in turn, are attached to the ends of a closure strip 48 that extends the full width of the dispensing opening 35. Said closure strip 48 is bent up at its ends to provide arms 49 that are pivotally connected at their upper ends to the side walls of the dispensing cabinet 30.

With the dispensing cabinet 30 in its elevated position, as shown in full lines in Figures 2, 3 and 4, the closure member 44 is so arranged that the transverse strip 48 lies directly beneath the dispensing opening 35 and in such closely spaced relationship therewith as to make it difficult, if not impossible, for one desiring to use the dispensing cabinet to grasp the leading edge 37 of the toilet tissue. However, when the cabinet 30 is displaced downwardly by manual depression of the knob 42 until the dispenser is in the dotted line position illustrated in Figure 3, the closure member 44 is swung out of the way into the dotted line position illustrated in said Figure 3, and the dispensing opening 35 is left unobstructed and in registry with a larger opening 50 in the bottom wall of the housing 11. When in such position, the user can grasp the leading edge 37 extending through the dispensing opening 35 and the larger opening 50.

During the downward movement of the dispenser 30, the ratchet arm 29, being secured to the cabinet 30, also moves downwardly. During its downward movement, the frictional engagement of the ratchet teeth 31 with the ratchet wheel 28 draws the ratchet wheel and its shaft 26 downwardly also until the ends of the shaft 26 abut against the lower ends of the slots 27, as illustrated in Figure 5. With the shaft 26 in its lower position as there illustrated, the pinion wheel 25 is no longer in engagement with the pinion wheel 24, so that no driving relationship exists therebetween during the downward movement of the dispenser 30.

However, upon the release of the knob 42, the cabinet 30 is urged upwardly by the tension springs 40 and the ratchet arm 29 also moves upwardly. During its upward movement, the shaft

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26 is caused to move in the slots 27 due to the upward thrust of the teeth of the ratchet arm 29 upon the teeth of the ratchet wheel 28 and the rotational inertia of the ratchet wheel 28, until the pinion 25 is again in engagement with the pinion 24. Further upward movement of the rack 29 causes the ratchet teeth 31 to drive the ratchet wheel 28 and, acting through the pinions 25 and 24, to drive the fan shaft 22. As soon as the upward thrust of the ratchet arm 29 is insufficient to overcome the action of gravity on the pinion wheel 25 and ratchet wheel 28, the pinion and ratchet wheels drop, leaving the fan 21 free to rotate without resistance from the pinion and ratchet wheels 25 and 28. The fan is thus caused to revolve rapidly and generate a current of deodorant-laden air that is discharged through the screened opening 16. By selecting the proper number of teeth on the pinions 25 and 24, one can drive the fan 21 at the desired rate of speed to generate a considerable volume-flow of the deodorant-laden air.

The action of the fan 21 serves to draw fresh air into the upper compartment A through the screened openings 14. While the fan is not being operated, evaporation of the deodorant from the supply 19 into the air so drawn into the compartment A continues until the fan is again operated by the manual operation of the dispensing cabinet 30. In this way, the space within which the device 10 is mounted is maintained in a deodorized condition.

The provision of the closure member 44 for the dispensing opening 35 of the cabinet prevents the toilet tissue 36 from being withdrawn without first manually displacing the cabinet downwardly into its dispensing position, and thus setting in motion the mechanism for driving the fan 21. Consequently, each time the cabinet is used, the fan is operated to blow a current of deodorant-laden air into the room.

It will, of course, be understood that various details of construction may be varied through a wide range without departing from the principles of this invention and it is, therefore, not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

I claim as my invention:

1. A combination dispenser and deodorizing device comprising an air permeable housing, a source deodorant therein, a fluid current generating device in said housing adjacent said source of deodorant for creating a current of a deodorant-bearing fluid, a dispenser cabinet movably disposed in said housing and means connecting said cabinet and said fluid current creating device to actuate the device upon movement of said dispenser cabinet, said means including interengaging gears carried by said current generating device and said cabinet, respectively, for actuating said device upon movement of said cabinet within said housing.

2. A combination dispenser and deodorizing device comprising a housing, means including a fan and a deodorant supply therein for creating a current of a deodorant-bearing fluid, a dispenser cabinet movably disposed in said housing and means connecting said cabinet and said fluid current creating means to actuate the latter means upon movement of said dispenser cabinet.

3. A combination dispenser and deodorizing device comprising a housing having an opening therein, a fan and a source of a deodorant posi-

tioned in said housing in back of said opening, a dispenser cabinet manually movable in said housing into a dispensing position, fan actuating means connected to said cabinet and operative upon movement of said cabinet to set said fan in motion and means preventing the dispensing of an article from said cabinet except when said cabinet is moved into dispensing position.

4. A combination dispenser and deodorizing device, comprising a housing having an upper opening and a lower dispensing opening, a fan for directing a deodorant-bearing stream of air through said upper opening, a dispenser cabinet having a lower opening for registry with said housing lower opening, means for manually depressing said cabinet from an upper non-dispensing position to a lower dispensing position, spring means for raising said cabinet back to its non-dispensing position and fan actuating means operatively connected to said cabinet for operating said fan when said cabinet is released from its depressed position.

5. A combination dispenser and deodorizing device, comprising a housing having an upper opening and a lower dispensing opening, a fan for directing a deodorant-bearing stream of air through said upper opening, a dispenser cabinet having a lower opening for registry with said housing lower opening, means for manually depressing said cabinet from an upper non-dispensing position to a lower dispensing position, spring means for raising said cabinet back to its non-dispensing position, fan actuating means operatively connected to said cabinet for operating said fan when said cabinet is released from its manually depressed position, and means for preventing access to said dispenser cabinet lower opening except when said cabinet is in its dispensing position.

6. A combination dispenser and deodorizing device comprising a housing having an opening therein, a fan and a source of a deodorant positioned in said housing in back of said opening, a toilet dispenser cabinet manually movable in said housing from an initial position into a dispensing position, a resilient means for urging said cabinet from its dispensing position back to said initial position, fan actuating means connected to said cabinet and operative upon movement of said cabinet back to its initial position to set said fan in motion, and means preventing the dispensing of toilet paper from said cabinet except when said cabinet is moved into dispensing position.

7. A combination dispenser and deodorizing device comprising a housing having an opening therein, a fan and a source of deodorant positioned in said housing in back of said opening, a dispenser cabinet manually movable in said housing from an initial position into a dispensing position, spring means urging said cabinet from its dispensing position back to said initial position, fan actuating means connected to said cabinet and operative upon movement of said cabinet from said dispensing position back to said initial position to set said fan in motion and means preventing the dispensing of an article from said cabinet except when said cabinet is moved into dispensing position, said fan actuating means being rendered inoperative to actuate said fan when said cabinet is being moved into said dispensing position.

8. A combination dispenser and deodorizing device comprising a housing, means therein for

containing a body of deodorant, a fan adjacent said deodorant, dispensing means disposed in said housing and manually movable from a non-dispensing position relative to said housing, and means associated with said dispensing means rendered operative upon said dispensing means being placed in a dispensing position relative to said housing to actuate said fan, said last-mentioned means including a rack carried by said dispensing means and movable therewith and a pinion operatively connected to said fan in mesh with said rack for rotating said fan as said dispensing means are moved from said operative position within said housing.

9. A combination dispenser and deodorant device comprising a housing, dispensing means disposed in said housing in a non-dispensing position relative thereto, means for effecting movement of said dispensing means within said housing to a dispensing position, a body of deodorant fixedly disposed in said housing, a fan carried by said housing and journaled therein for rotation, a pinion operatively connected to said fan for rotating the same, gear means carried by said dispensing means and movable therewith for effecting rotation of said pinion, and means for operatively connecting said pinion to said fan only upon movement of said dispensing means within said housing from said dispensing position to said non-dispensing position.

10. A combination dispenser and deodorizing device comprising a housing, a dispenser cabinet movably disposed in said housing, means for manually moving said cabinet to an adjusted position within said housing, resilient means biasing said cabinet from said adjusted position, and means including a deodorant supply, a fan adjacent said deodorant supply journaled for rotation within said housing, and a gear train operatively connecting said cabinet and said fan for converting longitudinal movement of said cabinet into rotational movement of said fan for creating a current of a deodorant-bearing fluid only upon movement of said dispenser cabinet from said adjusted position.

11. A combination dispenser and deodorizing device comprising a housing, a dispenser cabinet movably disposed in said housing, means for manually moving said cabinet to an adjusted position within said housing, resilient means biasing said cabinet from said adjusted position, a deodorant supply fixedly secured within said housing, a fan fixed within said housing for rotational movement only, and a gear train including a first gear carried by said cabinet for movement therewith and another gear carried by said housing operatively connected to said fan for actuating said fan for rotational movement to create a current of deodorant-bearing fluid upon movement of said dispenser cabinet from said adjusted position under the influence of said resilient means.

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The following references are of record in the file of this patent:

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