

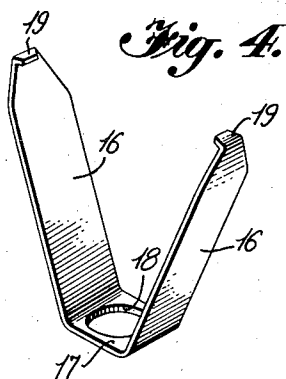
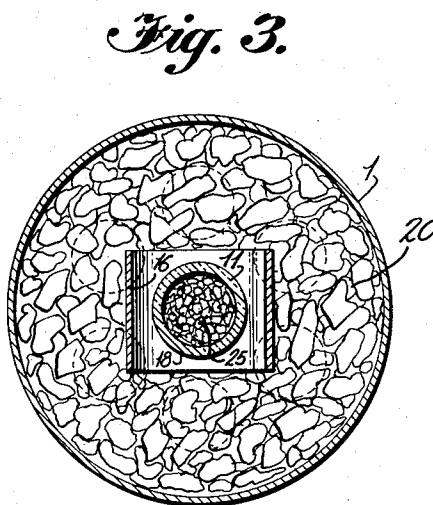
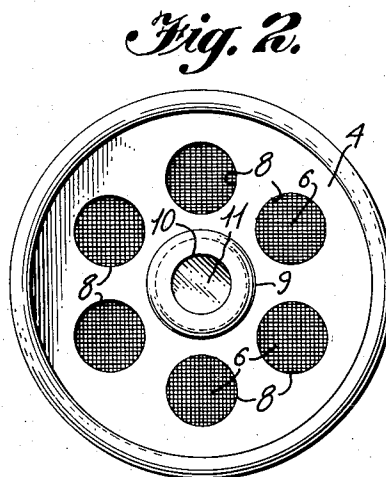
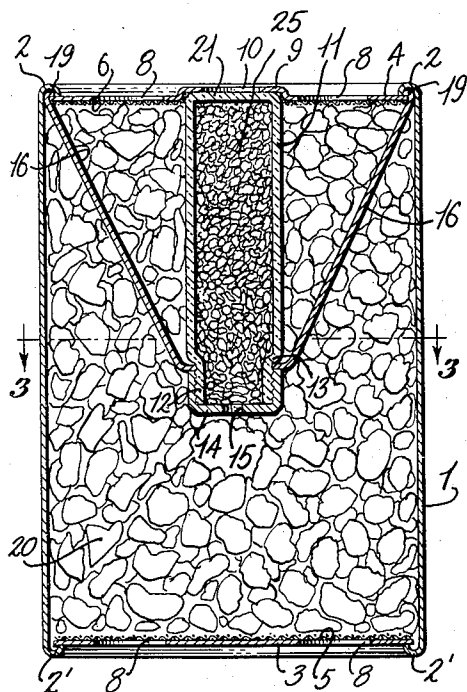
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2,575,234

DEHUMIDIFIER

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DEHUMIDIFIER

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3 Claims. (Cl. 183-4.4)

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This invention relates to dehumidifiers, and more particularly to devices of this character intended for household use for removing the moisture from the air in closets, drawers and the like where apparel is kept, with a view to preventing mold and objectionable odors, as well as injury to the stored garments.

The invention relates to an improved structure for a device of this character utilizing certain essential features disclosed in my prior and co-pending application, Serial No. 104,327, now Patent No. 2,554,879, issued May 29, 1951 but modified in structure to render the same simpler in manufacture and capable of undergoing more arduous duty by reason of its structural features.

An object of the invention is to provide an improved dehumidifier for domestic purposes capable of being regenerated by heating in an oven or the like, and which is simple and inexpensive to assemble, while at the same time providing a rugged construction permitting the stacking of units if desired to supplement the drying effects within closures of varying size.

Other objects will more particularly appear in the course of the following detailed description.

The invention consists in the novel construction, arrangement and combinations of parts hereinafter more particularly described and claimed.

One sheet of drawings accompanies this specification as part thereof, in which like reference characters indicate like parts throughout.

In the drawing:

Figure 1 is a longitudinal cross sectional view through the improved dehumidifier;

Figure 2 is a top plan view of the device of Figure 1;

Figure 3 is a transverse cross section taken on line 3-3 of Figure 1; and

Figure 4 is a perspective view of the bridge support for the indicator vial.

In accordance with the present invention a tubular body 1 herein illustrated as of cylindrical form, is provided, preferably formed of a heat-resisting, form-retaining material, and desirably formed of aluminum.

Within the tubular container 1 are positioned outer end disks 3 and 4 conforming in shape to the shape of the interior of the container 1, and adapted to operate as end closures for said container.

Both of the end disks 3 and 4 are provided with spaced ports 8 through which air can circulate from one end of the container to the other.

The upper or head end disk 4 is further pro-

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vided with a central port 10 formed in a depressed seat 9 shaped and sized to accommodate the bottom or closed transparent end of the elongated vial 11, so as to position said vial substantially on the central axis of the container 1 with its transparent bottom 21 under and closely adjacent the port 10.

The vial 11 is formed with a threaded neck 12 of slightly less diameter than the body portion of the vial, providing a shoulder 13 against which a bridge member 16 can rest.

The bridge member 16 is of general U-shape having a central head portion 17 provided with an orifice 18 adapted to seat over the neck of the vial 11 and against the shoulder 13. The legs 16 of the bridge member are formed with terminal lugs 19 adapted to engage diametrically opposed marginal portions of the head disk 4, as is well illustrated in Figure 1, thereby in conjunction with the seat 9 in said head disk 4 positioning the vial 11 securely with respect to the container 1 and in alignment with its axis.

Against the inner face of each of the end disks 3 and 4 are positioned circular screen members 5 and 6, the screen member 6 differing from the opposite screen member 5 by having a central orifice through which the vial 11 can pass, but both the screen members 5 and 6 overlying and screening all of the ports 8 in the respective end disks.

In assembly, the peripheral edge of one end of the tubular container 1 is turned or burred inwardly to form an annular shoulder 2. Against this annular shoulder is positioned the top end disk 4 with which is associated the vial 11 having its transparent bottom 21 positioned in the seat 9, the vial being secured to the disk 4 and its associated screen 6 by having the lugs 19 of the arms 16 of the bridge member engaging said disk. With these parts in position, the container 1 is inverted and the vial 11 filled with comminuted moisture-sensitive material capable of changing color, dependent upon its moisture content. The screw cap 14 is then threaded over the threaded neck 12 of the vial 11, the cap 14 being provided with a central orifice 15 through which air circulating within the container 1 can enter the vial 11. After the vial 11 has been filled with this moisture-sensitive material 25, the screw cap 14 is secured to the vial, thus rigidly associating the vial and its contents with the head 4 and container 1. Thereafter, the container 1 is filled with comminuted moisture-absorbing material 20 until the container 1 is filled. The screen 5 and end disk 3 are then positioned over the comminuted material 20 and the pe-

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ripheral edge of the container 1 is turned inwardly as at 2' to form a second annular flange, thereby retaining the bottom end disk 3 in position.

It will be apparent that as thus constructed the vial with its contents and surrounded water-absorbing material are permanently positioned within the container 1 and protected by the rigid character of said container.

The moisture laden air in the closet or other compartment is free to circulate through the container 1 and the water-absorbent material 20 therein, but by reason of the positioning of the vial 11 with its inner end substantially medial of the container 1, the air surrounding the water-sensitive material 25 will only become affected when the water-absorbent material has become substantially saturated throughout the entire area of the container 1. When the water-absorbent material has become substantially saturated throughout the container 1, the natural attraction existing between moisture and the water-sensitive material 25 will cause the absorption of said moisture through the comminuted material 25 so that when the entire device is water saturated that condition will be indicated by the portion of the granulated water-sensitive material 25 observable through the central port 10 on the head end of the device.

When the device has thus become water saturated, it will be placed in an oven and subjected to dry heat which will gradually drive off the moisture from both the water-absorbent material 20 and the water-sensitive material 25, and the material adjacent the transparent bottom 21 visible through port 10 will only change its color to indicate a dry state when all of the water-absorbent material and water-sensitive material are completely dry, at which point the device has been restored to its maximum utility as a dehumidifier.

From the above it will be apparent that the location of the vial with its single port 15 positioned substantially medial of the contents of the container 1, is essential to the functioning of the device with maximum efficiency. It will further be apparent that by positioning the vial 11 containing the moisture-sensitive material rigidly with respect to the end disk 4, the proper positioning of the vial is definitely assured under all conditions.

Having thus fully described my invention, I claim:

1. Dehumidifier comprising, a drum-like body, top and bottom disks each formed with a plurality of spaced ports, screen disks positioned inwardly of and in contact with said bottom and top disk, a vial having a transparent bottom and a threaded neck, a threaded cap to engage the neck of the vial said cap having a vent and a bridge member engaging said vial at its neck end and having its ends engaging the marginal edge of the top disk to maintain said vial with its transparent bottom in register with one of the ports in the top disk, with said vial filled with comminuted material reflecting moisture

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content by color change, and the drum body filled with comminuted water absorbent material surrounding said vial.

2. Dehumidifier comprising, a drum-like body of form retaining, heat resisting material, top and bottom disks each formed with a plurality of spaced ports, the top disk formed with a central port surrounded by an outwardly depressed seat, a vial having a transparent bottom said vial adapted to be positioned within the drum with its bottom in said seat, said vial formed with a threaded neck, a threaded cap closure for the vial having a port, a bridge member having a central orifice to receive the neck end of the vial and oppositely extending arms having their ends engaging the marginal edge of the top disk to secure said vial to said disk, screen disks positioned within the drum against the inner faces of the top and bottom disks to mask the ports in said disks, said vial filled with a comminuted moisture sensitive indicating material, and said drum filled with a comminuted water absorbent material surrounding said vial, the marginal edges of said drum being turned inwardly to permanently secure said parts in assembled relationship.

3. Dehumidifier comprising, a drum-like body of form retaining, heat resisting material, top and bottom disks each formed with a plurality of spaced ports, the top disk formed with a central port surrounded by an outwardly depressed seat, a vial of a length substantially one half the length of the drum having a transparent bottom said vial adapted to be positioned within the drum with its bottom in said seat said vial formed with a threaded neck, a threaded cap closure for the vial having a port, a bridge member having a central orifice to receive the neck end of the vial and oppositely extending arms having their ends engaging the marginal edge of the top disk to secure said vial to said disk, screen disks positioned within the drum against the inner faces of the top and bottom disks to mask the ports in said disks, said vial filled with a comminuted moisture sensitive indicating material and said drum filled with a comminuted water absorbent material surrounding said vial the marginal edges of said drum being turned inwardly to permanently secure said parts in assembled relationship.

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