Aug. 6, 1957 J. S. LOMBARD 2,801,892

HUMIDIFYING DEVICE

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Fig. 1.

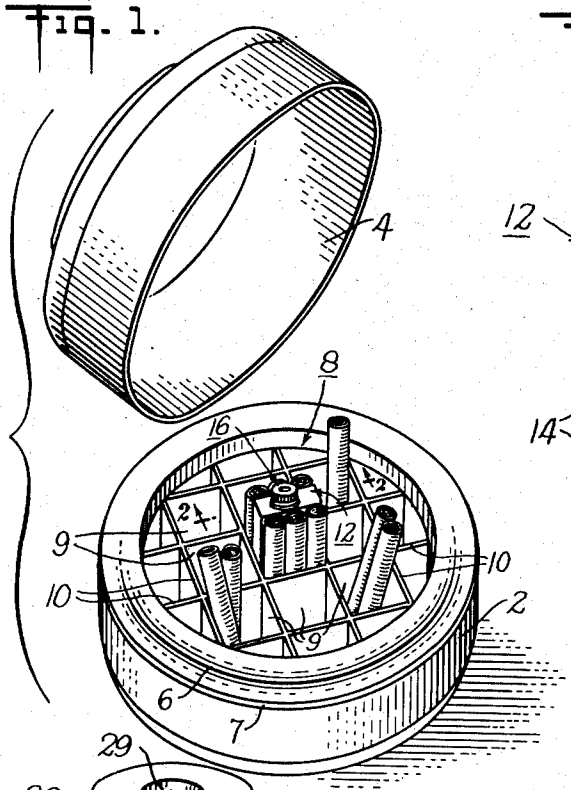


Fig. 2.

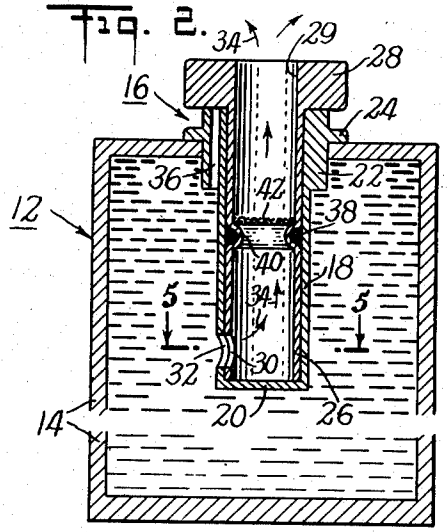


Fig. 6.

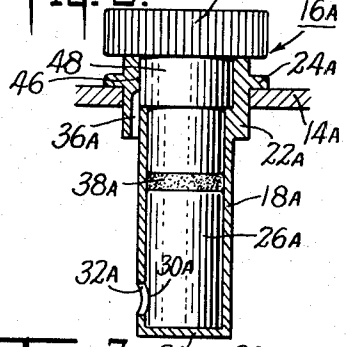


Fig. 3.

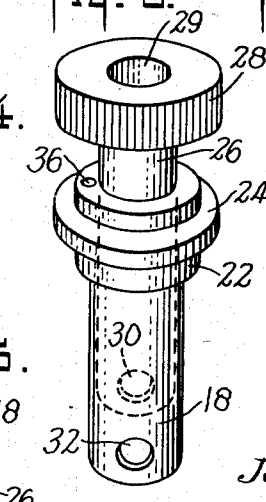


Fig. 7.

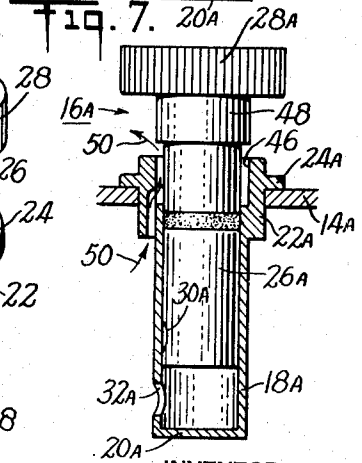


Fig. 4.

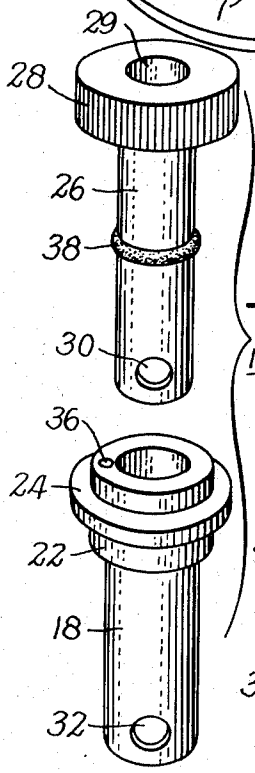
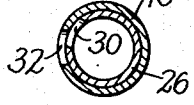


Fig. 5.



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Fig. 8.

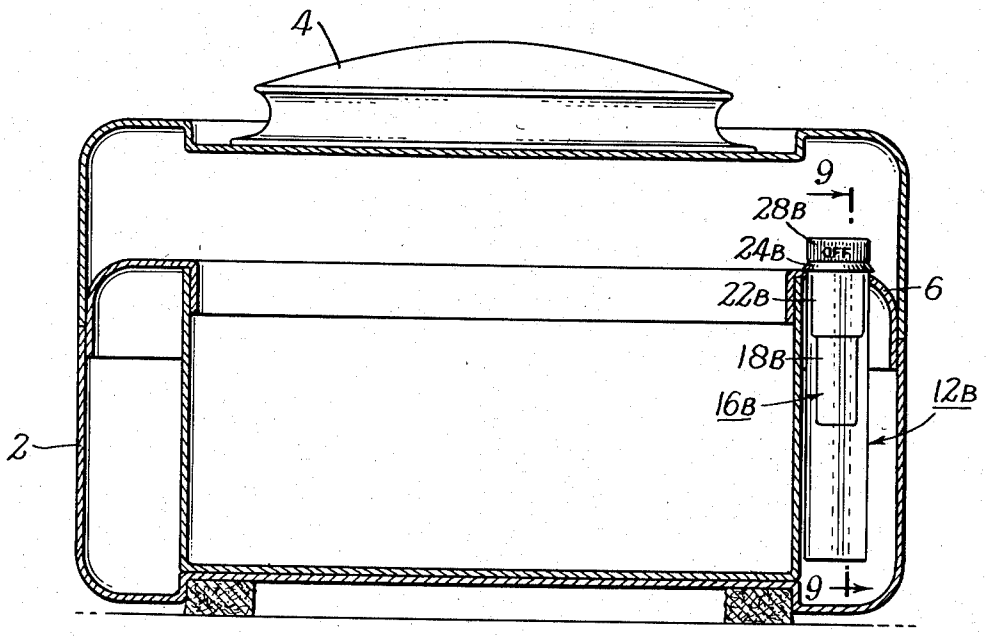
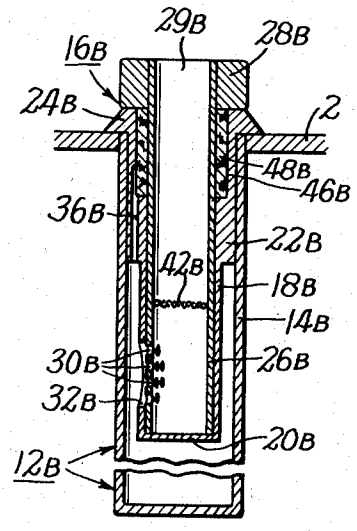


Fig. 9.



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HUMIDIFYING DEVICE

José S. Lombard, New York, N. Y.

Application June 2, 1954, Serial No. 434,053

1 Claim. (Cl. 312—31)

This invention relates to non-spill liquid reservoirs particularly adapted for use in tobacco humidors for storing cigarettes, cigars, and the like in a moist atmosphere, and which may be adapted for other uses if desired.

The invention provides a humidor in which vapor is supplied continuously from a non-spill reservoir that is especially simple in construction and low in cost. The simplified construction results in a reservoir that is easy to fill but which does not permit the escape of liquid from the reservoir into the tobacco chamber even though the humidor is accidentally turned upside down.

Other aspects, objects and advantages of this invention are in part pointed out in and will in part be apparent from the following description of a preferred embodiment of the invention, considered in conjunction with the accompanying drawings, in which:

Figure 1 is a perspective view of a humidor embodying the invention, the cover being removed to show the interior of the humidor;

Figure 2 is an enlarged vertical section of the humectant reservoir, taken approximately along the line 2—2 of Figure 1;

Figure 3 is an enlarged perspective view of the filler and breather plug of the reservoir of Figure 1 in position for the reservoir to be filled;

Figure 4 is a perspective view showing the two parts of the plug of Figure 3 separated from each other;

Figure 5 is a sectional view taken along line 5—5 of Figure 2;

Figure 6 is a sectional view of a filler and breather plug of modified construction;

Figure 7 shows the same plug in position for filling;

Figure 8 shows a modified form of the invention with the reservoir mounted between the spaced walls of the humidor; and

Figure 9 is a sectional view of the reservoir taken along lines 9—9 of Figure 8.

As best shown in Figure 1, the humidor includes a lower container portion 2 and a cover 4. The lower portion 2 of this container may be of double-wall construction in order to minimize temperature variations within the container. The cover is arranged to provide a substantially airtight seal of the inner chamber but can be readily placed on and removed from the lower container. To this end the portion 2 of the container is provided with an annular curved portion 6 just below which is positioned an O ring seal 7 that extends around the outside of the container and forms an airtight seal with the inner surface of the cover 4. The cover 4 preferably is weighted so that a good seal is assured without any necessity for pressing the cover down tightly onto the lower portion 2.

In the embodiment shown in Figure 1, the tobacco-receiving chamber 8 within the humidor is divided into a number of rectangular cigarette-receiving compartments 9, each of which in the present embodiment is adapted to hold sixteen cigarettes, by a number of vertical partitions 10. Around the outside of the nine cigarette-receiving compartments are a number of partially-formed compartments which may also receive cigarettes.

The partition 10 and the lower portion 2 of the humidor are shorter than the cigarettes so that the cigarettes are easily grasped even when the humidor is full.

A reservoir, generally indicated at 12, is positioned in the center compartment formed by the partitions 10 and is preferably rectangular in shape and of such dimensions that it is held in position by friction, or other means, and so that additional cigarettes may be positioned along each side of it, as illustrated in Figure 1.

The details of the reservoir 12 are best shown in Figures 2, 3 and 4. A water-receiving chamber 14 of rectangular cross-section is formed of plastic or other suitable material. A breather plug, generally indicated at 16, is positioned in an opening in the upper end of the water-receiving chamber 14 and is arranged to permit the chamber 14 to be filled conveniently and to permit the evaporation of water from the chamber 14 into the interior of the humidor.

This plug 16 consists of an outer shell 18 which is closed at its lower end, as is indicated at 20, and which is provided with an external collar 22 near its upper end. An annular flange 24 is formed integrally with this collar 22 and extends outwardly therefrom. The collar 22 fits snugly within the opening in the top of the water-receiving chamber 14 with the lower surface of the flange 24 abutting the outer surface of the chamber 14.

A sleeve 26 is positioned within the shell 18 and is provided at its upper end with an annular knob 28 having a central opening 29 extending into the interior of the sleeve 26. Both the shell 18 and the sleeve 26 preferably are formed of plastic material, but other materials may be used if desired.

In order to permit evaporation of the water from the interior of the chamber 14 into the interior of the humidor, an opening 30 is provided near the lower end of the sleeve 26 and an opening 32 is provided near the lower end of the shell 18. When these two openings are positioned in alignment, as illustrated in Figure 2, the water-vapor may pass from the chamber 14 through the openings 30 and 32 upwardly through the interior of the sleeve 26, and out of the opening 29, as indicated by the arrows 34, into the tobacco-receiving chamber.

In the event the chamber 14 is accidentally inverted, water will not flow through the openings 30 and 32 into the tobacco-receiving chamber because there is no opening to permit air to enter the chamber 14 to replace the water. However, the chamber 14 cannot be refilled with water through the opening 29 in the condition shown in Figure 2 because no other opening is provided which would allow the escape of air from within the container 14.

In order to fill the container, the sleeve 26 is moved upwardly within the shell 18 by means of the knob 28. This position is illustrated in Figure 3.

It will be noted in Figures 2 and 3 that an opening 36 extends vertically through the collar 22. When the sleeve 26 is positioned all the way within the shell 18, as shown in Figure 2, the under-surface of the annular knob 28 abuts the outer surface of the shoulder 22 and thus provides a seal for the opening 36. However, when the knob 28 is lifted upwardly to the position shown in Figure 3 the opening 36 is provided between the upper portion of the water-receiving chamber 14 and the outside atmosphere. Thus when water is poured in through the opening 29, it runs through the sleeve 26 into the lower portion of the shell 18 and through the opening 32 into the chamber 14. The air which must escape from the chamber 14 passes outwardly through the opening 36 in the shoulder 22. After the container is filled to the desired level, but below the lower end of the shell 18, the knob 28 is pushed downwardly to again seal the opening 36 and prevent the escape of liquid through the sleeve 26. In order to provide a fluid-tight seal between the outer

surface of the sleeve **26** and the inner surface of the shell **18** an O ring seal **38** is positioned within an annular groove in the outer surface of the sleeve **26**.

To prevent foreign material from accidentally entering the reservoir chamber **14**, a circular screen **42** is positioned across the interior of the sleeve **26** and is supported by an annular flange **40** on the inner surface of the sleeve **26**. This flange is formed conveniently by an annular indentation in the sleeve **26** which forms the groove for the sealing ring **38**.

To permit control of the rate of evaporation of the liquid within the water-receiving container **14**, the sleeve **26** may be rotated relative to the shell **18**, by means of the knob **28**, so that the openings **30** and **32** are in any desired degree of alignment. Thus the evaporation opening may be partially or completely closed. This is illustrated in the sectional view of Figure 5.

Another form of filler and breather plug is shown in Figures 6 and 7 in which similar parts are given the same numbers as in the earlier views followed by the suffix "A." This plug in function and operation is the same as that shown in Figure 3 but provides a more positive seal. A shell **18A** is closed at the bottom end **20A**. A collar **22A** formed integrally with the shell **18A** has an annular flange **24A** that engages the upper surface of the reservoir **14A**. The inner sleeve **26A** is positioned within the shell **18A** and is provided with an O ring seal **38A** and a knob portion **28A**. Openings through the shell **18A** and sleeve **26A** near the lower end permit the reservoir to be filled and moisture to evaporate from the reservoir.

To this point, the construction is generally similar to that of the plug described in Figure 3, however the air vent and sealing arrangement have been modified. An opening **36A** extends upwardly from the bottom surface of the collar **22A** and opens into the interior of the shell **18A**. The inner surface of the shell **18A** near the upper end has an annular channel **46** which receives a collar **48** of enlarged diameter on the sleeve **26A** just below the knob **28A**. When the sleeve **26A** is pushed all the way into the shell **18A** as shown in Figure 6, the collar **48** covers and seals the opening **36A** so that no liquid can escape as described above. Even when the knob **28A** is lifted upwardly, the opening **36A** remains sealed until the collar **48** is completely free of the shell **18A**. The air within the reservoir **14** can then pass out through the opening **36A** and the space formed by the channel **46** as indicated by the arrows **50** in Figure 7.

In the embodiment as shown in Figures 8 and 9 the general construction of the humidor base **2** and cover **4** is similar to that described in connection with Figure 1 of the drawing, except that in this instance the reservoir **12B** is positioned between the inner and outer walls of the lower portion **2** of the reservoir.

The reservoir **12B** is similar to the reservoir **12** described in connection with Figures 6 and 7 and the corresponding parts have been given similar numerals followed by the suffix "B." A circular opening is provided in the upper rim or edge portion of the lower container portion **2** just above the curved portion **6** of the container wall. This opening is such that the reservoir **12B** may be easily placed in or removed from this opening with the shoulder **24B** extending beyond the edges of the hole to support the reservoir **12B**.

As can be seen readily from Figure 8, the construction of the cover **4** with its substantially vertical side portions is such as to permit adequate circulation of the air between the upper end of the reservoir **12B** and the interior of the humidor where the tobacco is kept. With this arrangement all of the interior space in the humidor is available for the storage of tobacco products. In this particular example, the reservoir chamber **14B** is circular in cross section so that it may be conveniently fitted into the hole in the rim of the container portion **2**. In this example, the opening **30B** near the bottom of the sleeve **26B** is formed of a group of perforations. This arrangement adds further to the security against leakage and yet permits adjustment of the rate of evaporation of the humectant liquid from the reservoir chamber. Also in this example, the collar **22B** is substantially longer than the collar **22** or **22A** shown in Figures 2 and 6, respectively, to provide a tighter seal with the walls of the chamber **14B**. It will be noted in this example that substantially the full length of the sleeve **22B** fits snugly against the cylindrical walls of the chamber **14B** thus assuring against any possibility of leakage. With the construction shown in Figure 9 the reservoir remains clean and free from dust particles over long periods of use, provides excellent control of the humidification of the interior of the humidor, and requires filling only three or four times per year. Moreover, the chamber **14B** preferably is formed of clear plastic so that in order to check the supply of water in the reservoir it is only necessary to lift the entire unit from the humidor and examine it visually. Moreover, because the reservoir **12B** is not secured in any way to the humidor it can be readily removed from the humidor for filling, thus avoiding any possibility of spilling water within the humidor.

From the foregoing, it will be seen that I have provided an improved humidor which may be readily supplied with water or other suitable humectant and which will permit evaporation at a readily controllable rate so that the condition of the tobacco may be kept optimum at all times. The device can be constructed readily by conventional techniques from readily available materials; the fabrication steps being sufficiently simple to retain the advantages of low production cost. This application is a continuation in part of U. S. application Serial No. 390,888, filed November 9, 1953, now patent No. 2,756,096.

I claim:

A tobacco humidor comprising a tobacco container having a side wall, a closed bottom and an open top, an outer wall surrounding said side wall and spaced therefrom and upper and lower walls connecting said side wall and said outer wall, a removable cover for said tobacco container having a top spaced vertically above said upper wall and a side flange aligned with said outer wall to form an air space above said tobacco container, a humectant-supplying reservoir located in the space between said side wall of said tobacco container and said outer wall and opening into said air space and a valving device mounted within said reservoir for controlling the flow of humectant from said reservoir into said air space; said valving device comprising a first tube extending into said reservoir and having a closed lower end and an open upper end communicating with said air space and an opening adjacent its lower end communicating with said reservoir, and a second tube longitudinally slidable in said first tube and having an open lower end and perforations aligned with said last mentioned opening in said first tube in one position of said second tube and movable out of such alignment in another position of said second tube, said first tube having an air vent to establish communication between said reservoir and said air space when said second tube is in said second position and means for destroying such communication when said second tube is in such first position.

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