June 18 1929. P. A. ROSE ET AL 1,718,182

HUMIDIFYING APPARATUS

Filed Dec. 7, 1925

Fig. 1.

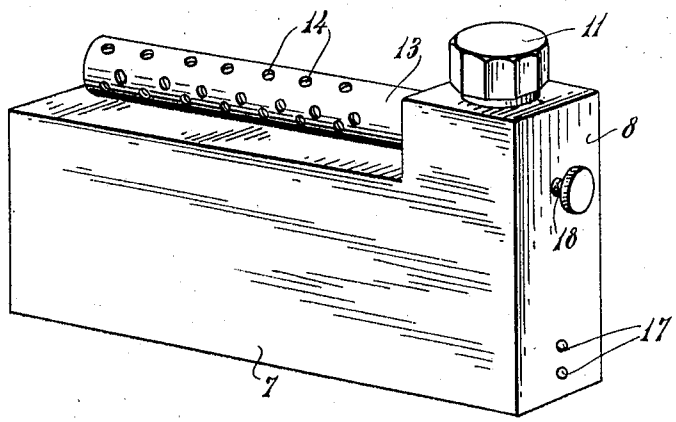



Fig. 2.

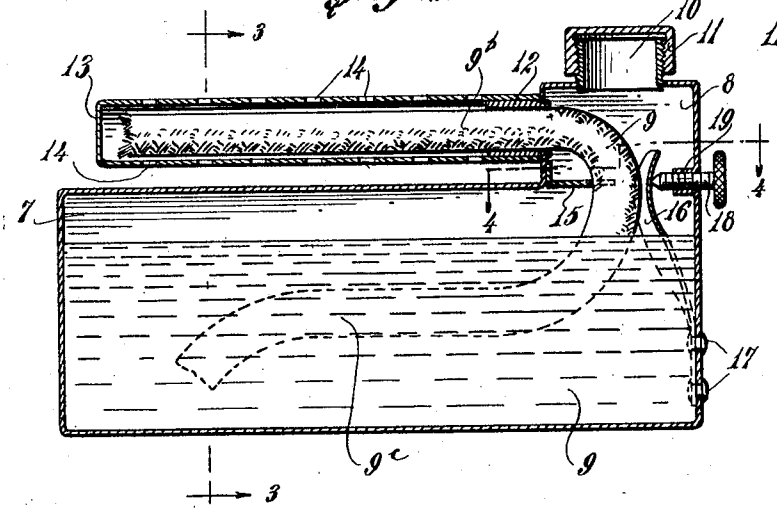



Fig. 3.

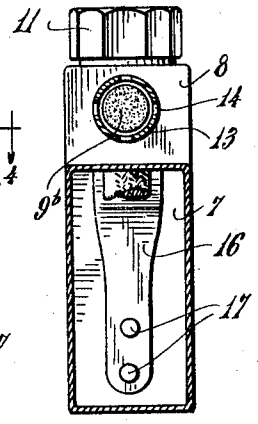



Fig. 5.

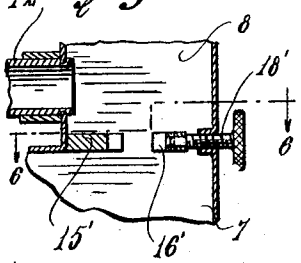



Fig. 6.

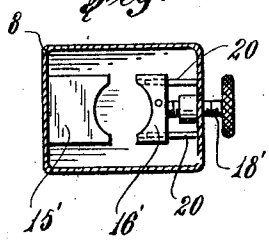
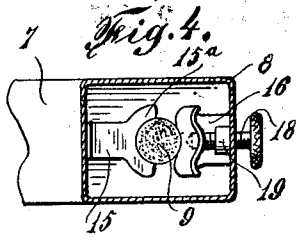



Fig. 4.




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# UNITED STATES PATENT OFFICE

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## HUMIDIFYING APPARATUS.

Application filed December 7, 1925. Serial No. 73,925.

This invention relates to the art of air-conditioning, and more particularly aims to provide a new and improved apparatus for humidifying, or moistening, and aromatizing also if desired, the air and other contents of the chamber wherein such method is carried out or the apparatus located.

The invention as its various fields of usefulness are now understood is of special utility when employed in connection with any enclosure for storing or temporarily preserving tobacco or tobacco products in prime condition.

One of the broad objects of the invention, however, is to provide an apparatus for evaporatively treating the contents of any chamber which are desirably maintained in a certain condition as to moisture, odor, flavor or the like, and for predetermining nicely in advance a condition which is to be unvaryingly maintained for comparatively long periods of time.

Another important object of the invention is to provide an apparatus capacitated as just described, and yet one wherein the evaporative agent is of an absorbent nature and is soaked or immersed in a collection of the liquid which is to be vaporized after transport by capillary action to a higher level than before.

A further object of the invention is to provide such an apparatus, and one wherein the rate of evaporation may be predetermined in advance or varied whenever desired and yet the evaporization area of said agent maintained constant.

Still another object is to provide such an apparatus, and one wherein such predetermination or variation may be entirely independent of the volume of liquid in which the absorbent agent is soaked or immersed.

As to the apparatus, the invention may take various forms, all of course facilitative of a carrying out of the method. However, as already indicated, an apparatus of special utility is provided when the same embodies a humidifier, moistener or aromatizer for humidors, and particularly cigar humidors of the kind owned personally by the smoker himself.

One of the objects of the invention is to provide such a humidifier, and one of small, compact and attractive form, yet one wherein a reservoir for the liquid may be provided in the shape of a liquid chamber of considerable capacity.

Another object is to provide a humidifier wherein the action of the humidifier is within wide limits independent of the liquid level in said chamber, and so that the rate of moisture discharge of the humidifier may be quickly and easily predetermined for a comparatively long period or varied whenever desired.

Another obect is to provide such a humidifier, and one fairly inexpensive to construct.

Another object is to provide a humidifier, wherein all the operating parts, including an absorbent instrumentality for elevating the liquid and for providing an evaporization surface substantially constant in area, are so longlived as to be practically indestructible.

Another object is to provide such a humidifier, wherein means are provided for substantially completely housing and shielding from observation or unattractive conspicuousness the evaporation surface of said instrumentality.

Various other objects and advantages of the invention will become apparent from the following description, when taken in connection with the accompanying drawing, wherein is shown a humidifier illustrative of one of the many possible apparatus embodiments of the invention.

In said drawing,

Fig. 1 shows the humidifier in perspective;

Fig. 2 is a longitudinal vertical sectional view;

Fig. 3 is a transverse vertical section, taken on line 3—3 of Fig. 2;

Fig. 4 is a horizontal section, taken on line 4—4 of Fig. 2;

Fig. 5 is a fragmentary vertical section, showing a modified construction; and

Fig. 6 is a horizontal section, taken on line 6—6 of Fig. 5.

Similar reference characters refer to similar parts through the several views of the drawing.

Referring to Figs. 1 to 4 more in detail, the humidifier shown has a main casing of lazy-L shape, including a rectangular base-body forming a chamber 7 for liquid, and also including a rectangular appendant body constituting a columnar throat 8. Through this throat passes an intermediate length of a wick 9.

At the top of throat 8 is a fixed cylindrical tube 10, opening at its bottom to the interior of the casing. This tube at its upper end is exteriorly threaded and there carries a readily removable screw-cap 11. Thus by way of the throat 8 the chamber 7 may be replenished with liquid when desired.

The lower length $9^c$ of the wick 9 is loosely suspended for immersion in or absorptive contact with the liquid.

The upper length $9^b$ of the wick is extended from throat 8 of the main casing, through a horizontal sleeve 12 fixed in that wall of said throat which joins directly the top wall of the chamber 7. This sleeve 12 projects outwardly from the throat, to overlie the chamber 7, for a short distance. As will be seen, the length $9^b$ of the wick is such as to have a considerable portion of the wick project beyond the outer or free end of sleeve 12. It is the part of length $9^b$ of the wick which thus projects, which provides the evaporization surface of substantially constant area.

Frictionally and hence impositively mounted on sleeve 12 is an elongate cylindrical cap 13. This cap, when applied as shown houses the length $9^b$ of the wick, supports this wick-length against its natural tendency to droop, and shields the same from observation or at least from being unattractively conspicuous. The cap is suitably foraminous, carrying a plurality of apertures 14, for affording egress to the vapor.

This cap acts also as a means for regulating the rate of evaporation of the length $9^b$ of the wick, or for predetermining the maximum rate of evaporation of such length under given humidity conditions of the surrounding air. Such means, consequently, acts indirectly to control or predetermine the maximum rate of capillary elevation of the liquid; but, on the other hand, acts directly, as a throttling agent, relative to the evaporation area established by said length $9^b$.

As a means for regulating the capillary action of the wick by acting directly on the wick, the intermediate portion of the wick at its concavely bent side is engaged by the yoke portion $15^a$ (see Fig. 4) of a stamped metal fixture 15, and at an opposite point on its convexly bent side is adapted to be engaged by the upper transversely arched portion of a leaf-spring 16. The fixture is suitably anchored within the throat 8 immediately below sleeve 12, and the lower end of the leaf-spring is riveted at 17 within chamber 7.

In order to press the leaf-spring toward squeezing or choking coaction with the yoke-fixture relative to the wick, to any extent desired, even to choke completely the wick, a screw 18 is provided. This screw is threaded through a stud or boss 19 in the longer end wall of the casing, and is so disposed that the point of the screw bears on the side of the leaf-spring away from the yoke-fixture. The head of the screw, beyond the confines of the casing, is readily manipulable, not only to adjust the parts for a precise rate of capillary action by the wick, but to insure that such adjustment will persist until the screw is again itself adjusted.

Referring to Figs. 5 and 6, it will be noted that the construction illustrated is somewhat similar to that already described. In lieu of the stamped metal yoke-fixture 15 there is present a yoke-block 15′. In lieu of the leaf-spring 16 is a movable yoke-block 16′ connected to the inner end of an adjusting screw 18′ by a familiar pin-and-groove connection whereby the screw is locked to the block 16′ and yet may rotate relative thereto. The block 16′ is guided on rods or pins 20.

Thus it will be seen that the apparatus of the present invention operates as follows: The container is provided with a certain bulk of liquid, and this liquid is confined against indiscriminate or indefinite spread. Portions of said liquid are elevated by capillary action to a higher location; in the present case, the location of the length $9^b$ of the wick. There the elevated liquid is exposed to the air over an evaporation surface of substantially constant area. The evaporation efficiency of said area is in part controlled directly, that is, at said higher location. This may be done by selecting, say, a particular one of several caps 13, differing from its fellows only as to the number and size of the openings 14, and mounting the selected cap as described. As a possible substitute for such direct control, preferably as a main control, the evaporation efficiency of said area is indirectly regulated. Such regulation may be exercised by maintaining or varying certain pressures transversely or constrictively of the line or lines of passage of the liquid from the lower to the higher location. In the present case, as already described, convenient means to this end are shown in the embodiment of Fig. 1 as well as in the embodiment of Fig. 5.

Since certain changes may be made in the above 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.

We claim:

1. A humidifier for tobacco and the like comprising a substantially horizontally disposed receptacle, a projection on one end thereof extending above the remainder of the receptacle and an evaporation chamber car-

ried by said projection to be horizontally disposed over the remainder of said receptacle, a wick disposed throughout said evaporation chamber and into said receptacle, and means for controlling the flow of liquid through said wick.

2. A humidifier for tobacco and the like comprising a substantially horizontally disposed receptacle, a projection on one end thereof extending above the remainder of the receptacle and an evaporation chamber carried by said projection to be horizontally disposed over the remainder of said receptacle, a wick disposed throughout said evaporation chamber and into said receptacle, and means for controlling the flow of liquid through said wick comprising a pair of members relatively movable toward each other to pinch said wick, and means including a screw for effecting said relative movement.

3. A humidifier for tobacco and the like comprising a substantially horizontally disposed receptacle, a projection on one end thereof extending above the remainder of the receptacle and an evaporation chamber carried by said projection to be horizontally disposed over the remainder of said receptacle, a wick disposed throughout said evaporation chamber and into said receptacle, means for controlling the flow of liquid through said wick, and a filling opening on said projection.

4. A device for maintaining tobacco fresh comprising a liquid container adapted to fit within a humidor, said container having inlet means at one end thereof permitting liquid to be poured within the container, an evaporation chamber comprising a perforated shell above and parallel with the container substantially the length thereof and connected to and communicating with said inlet means, and a wick running from the container thru said means and within the shell.

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