

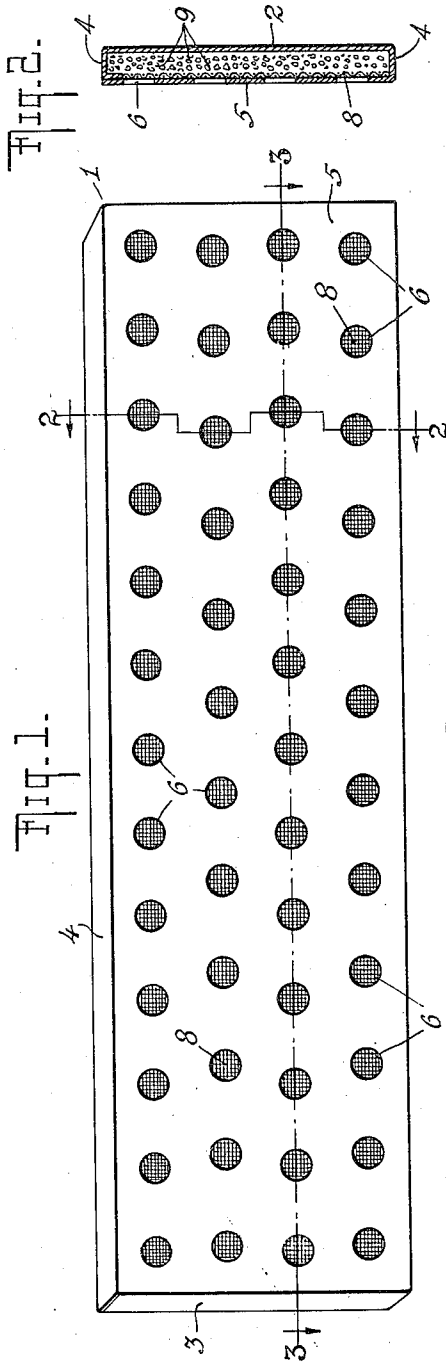
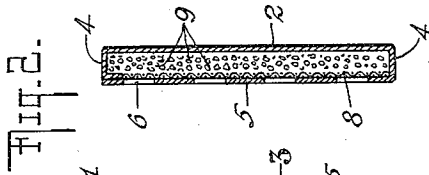
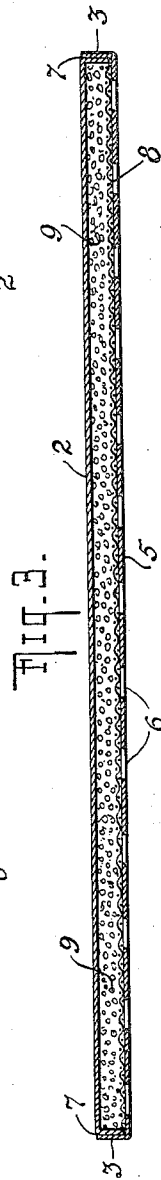
Aug. 9, 1932.

R. H. McKEE

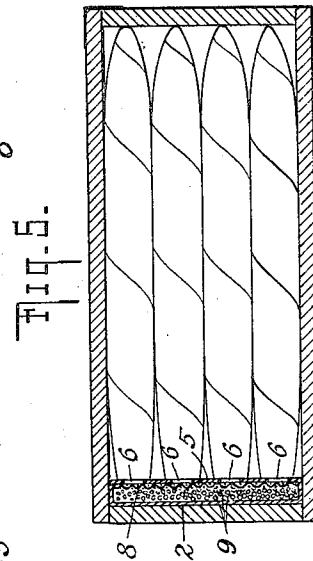
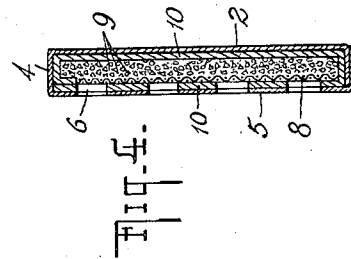
1,871,418

HUMIDOR

Filed April 11, 1929



BY



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HUMIDOR

Application filed April 11, 1929. Serial No. 354,380.

The present invention relates to humidors, and more particularly to humidifying packets suitable for incorporation within boxes or the like which contain articles or products that are to be maintained in a humid state and are to be prevented from becoming dry.

Although my invention is applicable to a variety of industries, it will be described with particular reference to the tobacco and allied industries. Cigar manufacturers, for instance, have refused to sell retailers more cigars than can be sold within a relatively short period of time. If a retailer buys too large a supply, the boxes of cigars stand on the shelf for so long a time that the cigars tend to become dry and lose their quality. When dried cigars have been sold to the consuming public, the cigars have been unsatisfactory and have fallen into disfavor and the brands of those cigars have a tendency to get a bad reputation. Manufacturers of cigars or the like have been faced with the aforesaid problem for a long time and in spite of the many proposals made to solve this problem, all attempts thus far made, as far as I am aware, have been unsatisfactory for one reason or other. Among the more important suggested proposals were absorbents and chemicals. Absorbents were intended, as is well known, to hold water in the liquid state and to give off the water vapor to the surrounding atmosphere. In addition to other objections, a humidor of the absorbent type could not be incorporated within a container such as a box of cigars. Attempts have been made to use chemicals for maintaining the atmosphere within show cases or the like, in a humid condition by placing a mass of chemicals in an open jar or vessel which was positioned inside of the show case. In practice it was found that the chemicals tended to dust out of the jar into contact with the articles in the show case and thus spoil the articles particularly by giving them a salt or salt like taste. The art consequently has never adopted chemical humidors particularly in close contact with cigars as inside of a cigar box. All prior efforts to provide individual humidors for cigar boxes, as far as I am aware, have been unsatisfactory and unsuccessful.

I have discovered a compact chemical packet which is suitable for insertion in a cigar box or the like for preserving a humid condition therein and which is not subject to the shortcomings of prior humidifying devices. My invention also contemplates providing a compact humidifying packet which is portable, sanitary, odorless, and dustless and which is simple and economical to manufacture and easy to use.

The invention, as well as other objects and features thereof, will be readily understood from the following description taken in conjunction with the accompanying drawing, in which:—

Fig. 1 is a perspective view of a humidifying packet embodying my invention;

Figs. 2 and 3 are sectional views taken on the lines 2—2 and 3—3 respectively, of Fig. 1;

Fig. 4 is a view similar to Fig. 2 of a modified embodiment of my invention, and

Fig. 5 illustrates, somewhat diagrammatically, a cigar box provided with one of my new humidifying packets, the end of the box being broken away to illustrate internal arrangement of parts.

Referring more particularly to Fig. 1, the numeral 1 designates a packet which can be made of cardboard, coated blotter, or the like. The packet 1 may have any appropriate shape but I prefer to use a thin rectangular box or casing which has a closed back or rear portion or wall 2, closed side portions 3, and closed top and bottom portions 4. In the front face 5 of the box I prefer to provide a plurality of ventilating apertures or windows 6 of suitable shape such as a circular cross section. Although the aforesaid portions may be united to each other in any suitable manner, I have illustrated the box as being made of one piece of cardboard and as being united at side joints 7, 7 and top joint 4 by a convenient binding agent such as glue or the like.

Within packet 1, an aperture lining or covering 8 is positioned on the inner surface of front face in such a way as to cover the ventilating apertures or ports 6. This covering is preferably made of one single sheet of material which is bonded to the front portion

5 of the packet by a cementitious substance like glue, paste or similar material. The constitution of the aperture covering is such that it is porous or permeable enough to permit the passage or diffusion of water vapor
5 but of fine enough mesh to prevent the dusting out of solid material contained inside of the packet. In practice I employ a fibrous material for the aperture covering 8 and I
10 prefer to use a tissue paper or a closely woven fabric like fine cheesecloth, muslin and the like. When a lining or covering is pasted over the apertures, a multiplicity of passages is provided for the free flow of water vapor
15 without dusting of fine particles of solid material. This arrangement provides a dust-proof packet which is nevertheless capable of permitting the diffusion of water vapor from its interior.

20 Before a side or top portion of the packet is sealed a charge of humidifying material 9 is introduced into the interior of the packet. The humidifying material which I prefer to use is a solid which is odorless, free from
25 deleterious, detrimental or deteriorating effect, non-poisonous, and sanitary. Among the materials I have found to be suitable for this purpose are Glauber's salt ($\text{Na}_2\text{SO}_4, 10\text{H}_2\text{O}$), sodium phosphate ($\text{Na}_2\text{CO}_3, 10\text{H}_2\text{O}$) and sodium carbonate ($\text{Na}_2\text{SO}_3, 10\text{H}_2\text{O}$). In other words, salts containing
30 considerable amounts of water of hydration. These salts give off all or a part of their moisture to dry air and will take up moisture from wet air when in a dehydrated or partially
35 dehydrated state. For example, Glauber's salt gives a relative humidity at temperatures normally prevailing within inhabited quarters of about 70%. Sodium phosphate gives
40 a relative humidity of about 65% but after a loss of one fourth of its water it gives only about 30%. Sodium carbonate gives a relative humidity of about 65% until nine-tenths of its water has been removed, and then a
45 very much lower humidity.

Of these salts I prefer to use Glauber's salt because it gives a practically constant humidity. To fill a packet or container such as described hereinabove which is about 8"
50 long, about 2" high and about $\frac{1}{4}$ of 1" thick (4 cubic inches), I use approximately 100 grams of Glauber's salt ($\text{Na}_2\text{SO}_4, 10\text{H}_2\text{O}$). This amount of salt contains about 56 grams of water which is potentially available in the
55 charged packet as a humidifying agent.

In Fig. 4 a modified humidifying packet is exhibited which is the same as the one described hereinabove with the exception that the interior is partly or wholly lined with a
60 coating 10 of blotting paper or the like. Such a packet would be capable of absorbing any surplus moisture or solution, if the packet were subjected to heat. This arrangement would prevent a possibility of moisture
65 draining or seeping out of the packet and

injuring articles with which such moisture comes into contact.

Instead of using a coating of blotting paper for lining the packet, an absorbent material such as saw-dust, paper pulp or the
70 like can be added and mixed with the Glauber's salt which is used to charge the packet. In this manner, the absorbent material will take up surplus moisture and will hold it in reserve until needed to maintain the surrounding environment in a humid condition.
75

In using my new humidifying packet, I prefer to shape and to dimension it so as to fit snugly and nicely in the box or container containing the articles to be maintained in a
80 moist condition. For instance, in Fig. 5 I have illustrated my new packet in combination with a box of cigars. In this illustration I have depicted humidifying packet 1 as fitting in the cigar box between the front of the box and the cut ends of the cigars. When
85 my packet is used with a cigar box having a volume of about 1,400 c. c., the packet contains sufficient water vapor to change the relative humidity within the box from approximately 15% to 60% about 5,000 times. In
90 other words the box can be opened and closed about 5,000 times without the cigars drying out. Air, of course, is continually leaking in and out of the cigar box, and my humidifying packet automatically maintains the cigars
95 and the interior of the box in a humid condition and controls the moisture concentration in the cigar box as it stands on the dealer's shelves or as it is opened and closed.
100

An ordinary cigar carries from 0.25 g. to 1.00 g. of moisture depending upon its size and the character of the tobacco. Accordingly a container such as indicated hereinabove would be sufficient fully to take care
105 of the moisture from a box of fifty cigars. Indeed it is far more than that because the loss of moisture from the cigar occurs only when the air about it becomes dry, that is, of low relative humidity.
110

Although I have described my invention with particular reference to cigars, it is to be observed that the invention is equally applicable to other tobacco products such as
115 smoking tobacco, cigarettes and the like.

My invention can also be used in a box used for candy thereby preventing the candy from drying out and becoming hard in winter time and in summer from absorbing moisture and becoming damp. For candy this is of much
120 less importance for chocolates than it is for bon bons and other types of candy with a sugar surface, coconut candies or similar candies not protected by a layer of fatty material such as a layer of chocolate.
125

In certain cases, say in summer, for use with candy, it is possible to arrange the device so that it could absorb considerable moisture and do so promptly. This could be accomplished by mixing some of the crys-
130

tallized salt (Glauber's salt) with a portion of the corresponding anhydrous salt (Na_2SO_4), and, thereby produce a mixture which is capable not only of giving off moisture but of absorbing moisture. For use in summer with candy, sodium phosphate in the anhydrous form is particularly advantageous.

While I have given a specific example of my improved process merely by way of illustration, it is to be understood that I am not to be confined to the exact steps nor the specific reagents given as they are to be regarded only as illustrative and typical. Various modifications may be made without departing from the nature of my invention as defined in the appended claims.

I claim:

1. A compact humidifying packet for incorporation within containers containing articles to be maintained in a relatively moist condition comprising a hollow rectangular casing having thin fibrous walls and narrow cross section, a plurality of ventilating and dust-proof ports provided in the front wall of said casing, a coating of blotting paper lining a portion of the interior of said casing, a fine meshed, thin, fibrous lining located within said casing and bonded to the inner face of the front wall with cementitious substance, and a charge of Glauber's salt provided within said casing and capable of evolving water vapor when the packet is placed in an atmosphere of low relative humidity without dust passing through said lining.
2. A compact humidifying packet for incorporation within containers containing articles to be maintained in a relatively moist condition comprising a hollow rectangular casing having thin cardboard walls and narrow cross section, a plurality of ventilating and dust-proof ports provided in the front wall of said casing, absorbent material provided within the interior of said casing to absorb surplus moisture, a fine meshed, thin, fibrous lining located within said casing and bonded to the inner face of the front wall with cementitious substance, and a charge of Glauber's salt provided within said casing and capable of evolving water vapor when the packet is placed in an atmosphere of low relative humidity without dust passing through said lining.

In testimony whereof I have hereunto set my hand.

RALPH H. McKEE.