Oct. 27, 1936. E. C. CROCKER 2,058,571

CEDAR RECEPTACLE AND METHOD OF COATING SURFACES THEREOF

Original Filed Feb. 1, 1932 2 Sheets-Sheet 1

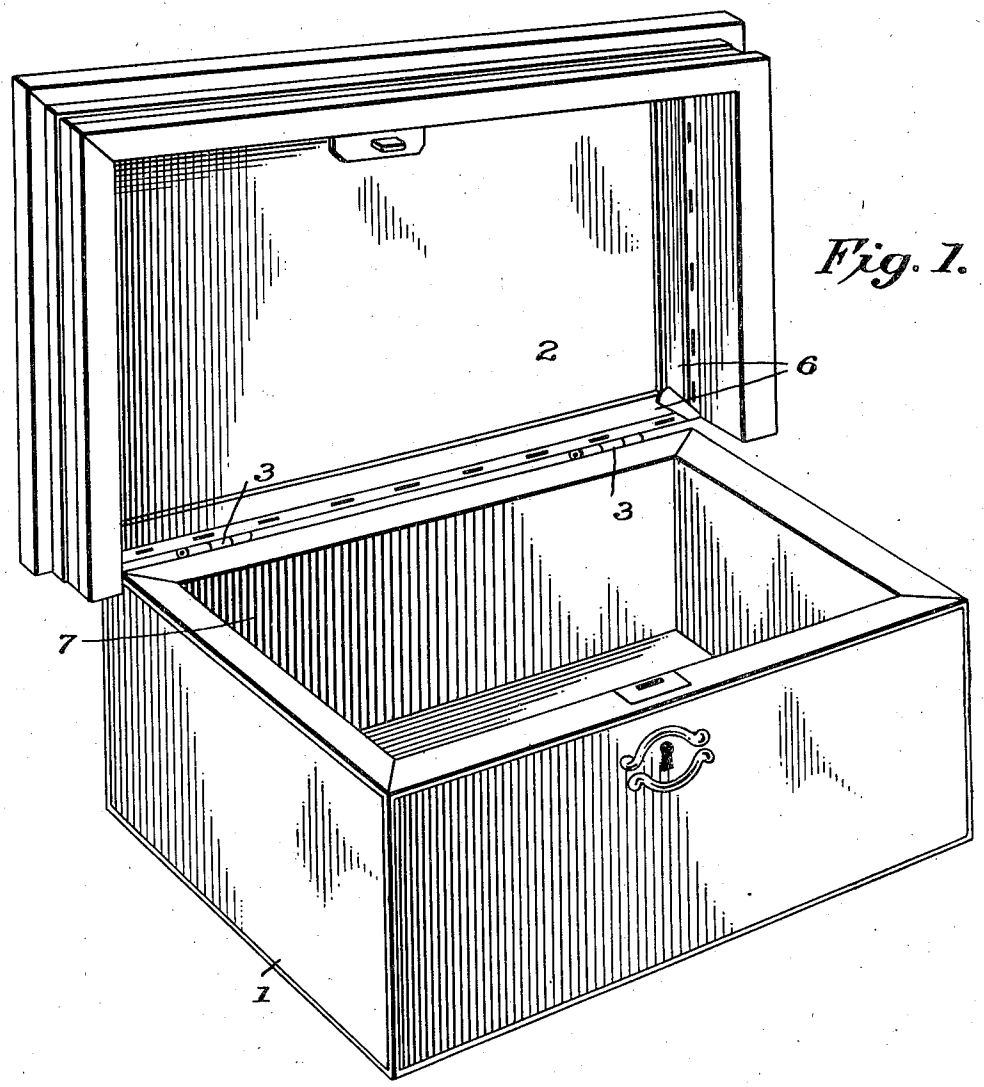


Fig. 1.

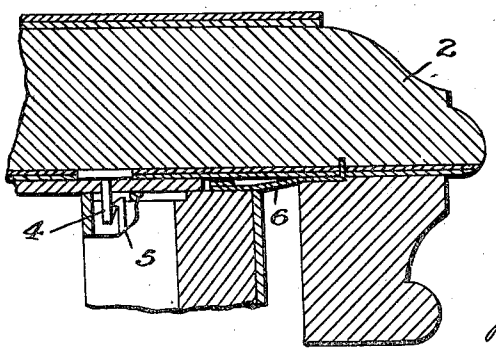


Fig. 2.

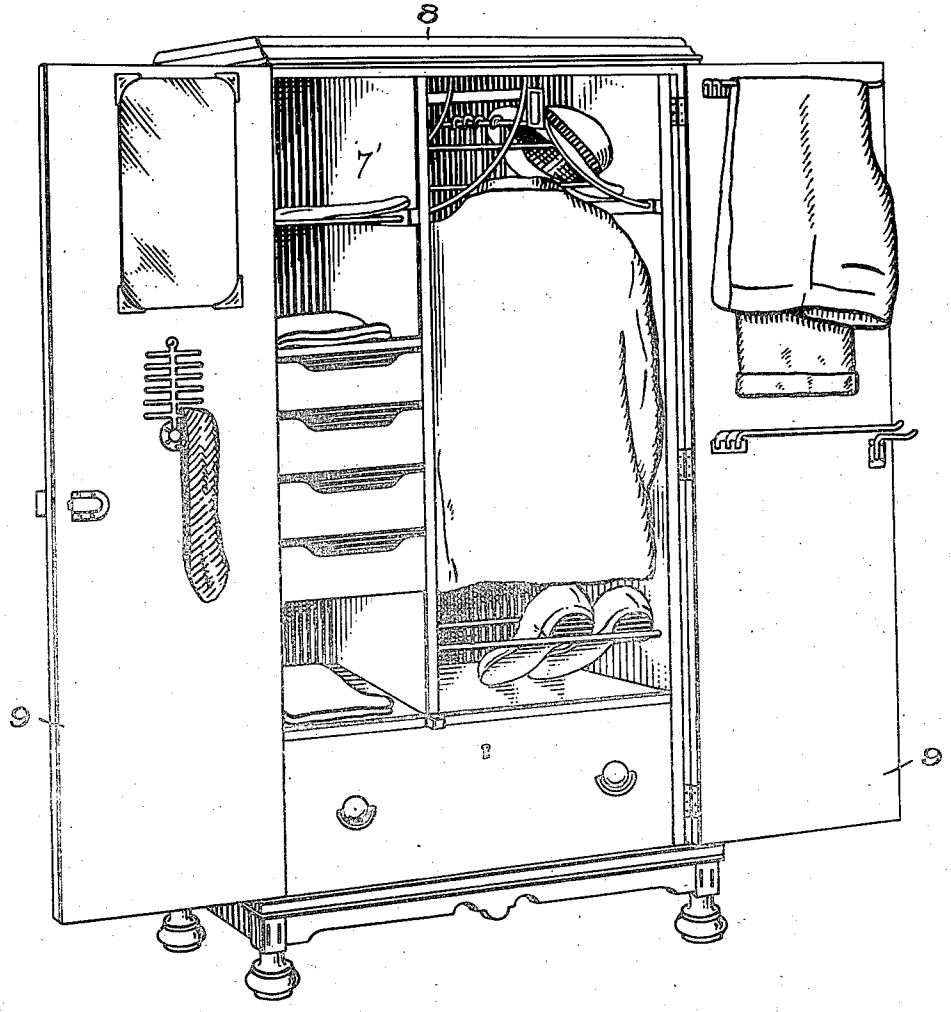
INVENTOR.
Ernest C. Crocker
BY
Edwin S. Clarkson
ATTORNEY

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Fig. 3.



Inventor

Ernest C Crocker

By Reuben S Clarkson

Attorney

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UNITED STATES PATENT OFFICE

2,058,571

CEDAR RECEPTACLE AND METHOD OF COATING SURFACES THEREOF

Ernest C. Crocker, Belmont, Mass., assignor, by mesne assignments, to The Lane Company, Inc., a corporation of Virginia

Original application February 1, 1932, Serial No. 590,281. Divided and this application December 29, 1932, Serial No. 649,402

5 Claims. (Cl. 299—24)

This invention relates to improvements in cedar chests, cedar wardrobes, and other like storage receptacles made wholly or partly of cedar oil bearing wood, and particularly to a receptacle of such character having its interior surfaces provided with a finishing lacquer or like preservative and decorative coating which is without affinity for cedar oil but is permeable by its vapor.

Cedar chests and wardrobes are quite commonly used for the storage of clothes, furs and other articles subject to attack by moths, for the well known reason that cedar oil aroma (vapor) is obnoxious to such insects and, when existing in proper strength in the atmosphere of the storage space of the chest, will destroy both moths and their larvae. Lane chests are specially made of cedar oil bearing woods of high oil content and specially constructed and provided with special sealing means, as shown, for example, in application of Lawrence K. Loftin, filed November 15, 1929, Serial No. 407,549, to ensure the impregnation of the air in the chest with cedar oil aroma in such volume concentration as to destroy moths and their larvae and to keep the chest sealed sufficiently tight, even when the lid is carelessly or imperfectly closed, to maintain such a condition of the internal atmosphere of the chest for a period of years before any material reduction in the amount of cedar oil aroma given forth occurs. Such chests are tested for determination of their oil bearing quantity and tightness against escape of vapors by apparatus of the type disclosed in the applications of Ernest C. Crocker, Serial No. 468,980, filed July 8, 1930, and Serial No. 493,636, filed November 5, 1930, which give very accurate results, and all chests not fully standing the tests to which they are subjected are rejected as not sufficiently conforming to the prescribed standard to warrant putting them on the market for sale. As a result of the special features of construction referred to, chests of this type have been found to protect clothes stored in them against the ravages of moths to such a degree that a policy of a standard insurance company is issued to each purchaser of a chest guaranteeing to protect the purchaser for a period of years against losses due to damage by moths and their larvae to clothes stored in the chest, without requirement as to condition of clothes, i. e., whether or not the same are free from moths and moth larvae at the time they are placed in the chest; in other words, without requirement that the clothes be specially cleaned or treated to free them from such pests.

Chests of ordinary construction, that is, made without great care or special provision for sealing the walls, joints between the walls and any spaces or crevices which may exist between the chest body and its closed lid or cover, are inefficient because of leakage of the aroma, so that a proper degree of diffusion and strength of aroma can not be maintained for more than a limited period of time after manufacture of the chest. Most makes of chests are provided with an outer veneer of walnut, mahogany, or some other suitable finishing wood which seals the pores of the cedar walls on their outer sides against the escape of cedar aroma. Cedar oil aroma, however, is much heavier than air and tends to sink by gravity to the bottom of the chest, and the vapor pressure, though small, is sufficient to cause leakage of the aroma through any small spaces or crevices which may exist at the joints. The inner surfaces of the cedar walls of the chest have heretofore always been left bare, that is, uncoated with paint, varnish or other protective and preservative coating, in order to allow emanation of the cedar oil aroma therefrom into the chest. In a new chest, owing to the presence of open pores close to the inner surfaces of the wood walls, there is ordinarily first a "flush" or free and rapid flow of aroma from the open pores, followed by a slow and normal rate of flow from the more remote or deeper pores in the wood. Where the joints of the chest are leaky, and leakage also exists between the chest body and lid, the amount of aroma emanating from the walls may be sufficient for a time to impregnate the atmosphere to such a degree as to destroy moths and their larvae, but the amount of leakage may be such as to rapidly exhaust the supply of flush oil and cause waste of the normal supply so that the amount of aroma maintained in the chest after exhaustion of the flush oil supply will not be enough to give protection. The useful life period of a leaky chest of ordinary type, that is, the period during which it is effective to destroy or repel moth worms of any age, is thereby reduced to a considerable degree with respect to chests which are absolutely aroma tight or even fairly tight against leakage.

The Lane chest, by reason of its tight construction, overcomes these objections to ordinary chests and provides a chest in which the amount of leakage is so reduced as to ensure a high vapor laden atmosphere for quite a period of years. It has been found, however, that the practical marketing of a chest of such construction and with such a high vapor laden atmosphere as the Lane chest is open to certain difficulties and commercial objections of importance alike to manufacturer, seller and user. These difficulties and objections are as follows:

First.—It has been found that the hardware in cedar chests, such as hinges, holdbacks, locks, etc., tends to become covered with a sticky, gummy

coating, which is always unattractive, and which may stain articles kept in the chest which come in contact therewith. This has always been noted to some degree in the better makes of cedar chests, all of which seem to be more or less liable to it, but the Lane chests, of truly tight construction, are particularly badly affected, because of the tight construction and exceptional duration in the chest body and internal atmosphere of the cedar oil and cedar oil vapor, commonly known in the trade as "aroma". This condition, as set forth in an application for patent of Ernest C. Crocker, filed May 1, 1931, Serial No. 534,418, is due to the fact that hardware parts of certain metals, such as iron, brass-plated or lacquered iron, copper, brass and bronze, etc., have a very strong affinity for cedar aroma, or power of attracting the same, so that the aroma vapor condenses thereon and forms a coating which, under catalytic action of the metal, oxidizes and attracts more oil which, in turn, oxidizes and attracts still more oil, etc., until in from six to eight months a very gummy condition exists. This coating is often of such depth that a quantity of the oil may be transferred by rubbing contact or by creeping or capillary attraction to the walls of the chest or to clothing kept in the chest, so that the chest walls or clothing become badly discolored or stained. This objection, so far as the action of the hardware is concerned, may, as set forth in said Crocker application, Serial No. 534,418, be prevented or reduced to the minimum by the use of hardware parts of aluminum or aluminum alloys, or the coating of catalytic metals with non-catalytic metallic coatings, but this will not wholly prevent gumminess or other objections, as hereinafter explained.

Second.—The gummy condition of the walls of the chest, resulting from the deposit of aroma vapor thereon and the oxidation of the deposits, has also been found to be due to other causes than the use of hardware of catalytic metals. Cedar or other sap wood, if used in the chest, commercial lacquers and varnishes, machine oil, waxes, and resins have been found attractive to cedar oil and are liable to cause the gummy conditions mentioned. The presence of resin containing knots in the wood will also cause a gummy deposit. The presence of oily chips or waxes or resins of any kind within the chest will result in gumminess. Ordinarily the outer surfaces of the walls of cedar chests are given one or more finishing coats of a finishing varnish or lacquer, which is generally sprayed thereon. If the chest lid is not kept closed during this spraying operation, or if it should be leaky in any respect, passage of the lacquer or varnish vapor into the chest will take place, so that the inner surfaces of the chest walls will become coated with oil-attracting neuclei whereby gumminess will be produced. These gummy deposits on the chest walls and on hardware fittings have caused many complaints and have been found a source of objection to the marketing of tight high vapor laden chests.

Third.—It is highly desirable to be able to provide the inner surfaces of the cedar wood walls of a chest or wardrobe with a protective coating, in order to prevent unduly rapid dissipation of its "flush" oil, and to regulate and control the discharge of the aroma into the chest, for the purpose of prolonging the useful life of the chest, as well as to prevent soiling or discoloration of the walls for esthetic reasons, and to prevent warping of the walls or the lid or doors liable to occur when the receptacle is frequently opened for use of its contents, particularly in the case of a wardrobe in daily use, and for the still further and important reason that warping of the walls or lids or doors is liable to occur owing to the exposure of uncoated inner walls to moisture against the action of which the outer surfaces of the walls are protected by a surface veneer and coating of varnish or lacquer. Prior to my present invention it has been impossible to provide the inner surfaces of the cedar walls with a protective coating of paint, varnish or lacquer, because such a coating would seal the wood against the emanation of cedar oil aroma and such coating would attract the oil and cause gumminess of the entire surface of the chest.

One object of my present invention is to provide a chest the inner surfaces of which are provided with a protective coating which is permeable to the passage of cedar oil vapor, but is of a non-catalytic character, and is neutral and unaffected by and has no deleterious action upon cedar oil or its vapor, whereby such surfaces may be covered with a protective coating which will prevent their soiling or discoloration and will seal the same sufficiently to regulate the discharge of the cedar oil to prevent its unduly rapid dissipation.

A further object of the invention is to provide a coating of the character described which will also prevent catalytic action of catalytic hardware, if and when used, and which will further develop the grain and coloring of the cedar material of the chest, so that cedar chests of more attractive internal appearance may be produced.

A still further object of the invention is to provide a coating composition of the character described which may be applied by spraying or any of the other commonly employed methods of applying lacquers and varnishes, and which when applied will increase the useful life period of the chest or wardrobe and effectually protect the inner surfaces of the chest or wardrobe from gumminess or oily deposits.

In the accompanying drawings illustrating the invention,—

Figure 1 is a perspective view of a cedar chest embodying the invention.

Figure 2 is a sectional view through a portion of the body and the closed lid of the chest.

Figure 3 is a perspective view of a wardrobe embodying the invention.

Referring now more particularly to Figs. 1 and 2, 1 designates the body of a high aroma type of cedar chest, 2 the lid or cover for closing the chest at its top, 3 the hinges attaching the lid or cover to the body, 4 and 5 coacting lock members on the body, the parts 3, 4 and 5 constituting hardware elements on the body, and 6 a metallic sealing strip on the lid or cover having a free edge portion arranged for contact with the upper edges of the walls of the body so as to tightly close the joint between the cover and body when the cover is closed even if the cover is not fully pushed down and bound or locked; all of which parts may be of the construction disclosed in the Crocker applications 468,980 and 493,636, above referred to. In accordance with my invention the inner surfaces of the walls of the body and lid are provided with a coating or lacquer 7, of a composition hereinafter described. In Fig. 3 of the drawings there is shown a wardrobe comprising a body 8 provided with doors 9 and hardware fittings of the character referred to, and which may be of the general type of construction disclosed in the application of Warren C. Church, filed September

28, 1931, Serial No. 565,636. The walls of the bodies of the chest and wardrobe, lid or cover of the chest and doors of the wardrobe are or may be formed of cedar wood of the desired richness, i. e., containing in its cells or pores a desired store of cedar wood oil, and provided on their outer sides with a veneer sheathing of walnut, mahogany or other suitable finishing wood, and one or more coats of a finishing varnish or lacquer. These outer coats of lacquer may, however, if desired, be of the novel lacquer composition herein described. The inner surfaces of the walls of the body and the doors of the wardrobe are protected, like the walls and lid of the chest, with a protective coating 7' of the novel lacquer composition.

The coating 7 may be formed from a lacquer composition comprising or embodying a base or material which has the properties of being non-catalytic, permeable to a suitable degree to the passage of cedar oil vapor, and which is non-absorbent of cedar oil and neutral against any deleterious action on the cedar oil. As a result of long and extensive experimentation I have discovered that there are two materials suitable for this purpose, namely, pyroxylin and shellac. Both of these when used must be substantially free from the customary gums, waxes and plasticizers commonly used in varnish and lacquer compositions for the reason, as stated above, that all these latter materials are cedar oil aroma absorbents. For the purpose of briefly designating the condition of the shellac, or the compositions including the same, the term "de-waxed" may be employed as indicating shellac or lacquer free from added or deleterious amounts of resins, waxes and plasticizers. When shellac is selected for the purpose, it should have its brown-yellow color neutralized by the addition of a correct amount of the complementary dye, methyl-violet. Pyroxylin is essentially colorless, and therefore needs no such color neutralization. The lacquer used may be made by dissolving the shellac or cotton in a suitable solvent therefor, to which may be added a modifying ingredient as a safeguard to prevent or lessen the oxidation of any cedar wood oil which may condense from the aroma onto any part of the surface of the wood or hardware liable to have an oxidizing action on the oil.

We prefer to use either:

1.—A filtered 1-lb. "cut" of pure D. C. "de-waxed" shellac in a solvent composed of 95% denatured alcohol and 5% butanol, plus enough methyl violet base to "neutralize" the color, plus about ⅕ ounce to each gallon of sodium salicylate or salicylic acid, or

2.—A 3 to 4 ounce "cut" of 15–20 second soluble cotton in any standard lacquer solvent, plus about ⅕ ounce to each gallon of sodium salicylate or preferably salicylic acid.

The concentrations of lacquer given above are such as will coat the surface of the interior of the chest and its hardware to give a good-looking surface which will not get gummy, and which coating will not be such density that the pores of the wood will be entirely sealed thereby. The concentration of thickness of the first lacquer or lacquer No. 1 is of such degree as to be permeable to or adapted to permit from 50 to 60% of the customary amount of aroma to pass from the wood into the air space of the chest, and that of composition or lacquer No. 2 such as to allow from 75 to 85% of the normal amount of aroma to pass from the wood into the air space of the chest. If it should be found desirable to have more or less transmission than this, for the purpose of controlling the amount of cedar oil flowing to the air space in a given period of time, and consequently the duration of the useful life period of the chest, it is understood that the concentration of the film forming material or base in the lacquer may be varied to accomplish this end.

Each lacquer preferably contains about ⅕ ounce per gallon of sodium salicylate or salicylic acid as set forth, for the purpose of providing an ingredient having an effective anti-catalytic action. One or the other of these materials is preferably used an an anti-catalyst to prevent or lessen the oxidation of any cedar wood oil which may condense from the aroma onto any sensitive, i. e., oily, resinous or catalytic metallic surface which may be present in or on the wood or hardware. Of many materials treated, the salicylates and salicylic acid itself have been found to be most effective in retarding the oxidation of any initial films of oil which may condense onto the surface. Their use in the protective lacquer greatly diminishes the tendency for oily and gummy patches to appear.

In practice, the protective lacquer may be applied by spraying or in any of the conventional ways to the interior surfaces of the chest to be coated and protected, and one or more coats may be applied, and the amount or density of the basic material employed regulated, to seal the pores of the wood to a greater or less degree to regulate the amount of transfusion of the cedar oil therethrough, while at the same time protecting the material of the chest from physical injury.

This application is filed as a division of my application Serial No. 590,281, filed February 1, 1932.

What I claim is:

1. Method of controlling the rate of emanation of a volatile material from the pores of a solid body containing the same, which consists in sealing a portion of the surfaces of said body against leakage of vapors, applying to other portions of said surfaces a lacquer the film-forming ingredients of which is neutral to said volatile material and having a concentration of film-forming ingredients to volatile lacquer solvents such that the film is permeable to the emanation of said volatile material whereby a protective coating is formed which is unaffected by and has no deleterious effect upon the volatile material or its vapor and effective to control the rate of evaporation according to the permeability of the film as determined by the concentration of the lacquer.

2. Method as defined in claim 1 in which the solid body is cedar wood.

3. Method as defined in claim 1 in which the film-forming ingredient is shellac.

4. Method as defined in claim 1 in which the film-forming ingredient is pyroxylin.

5. Method as defined in claim 1 in which the film-forming ingredient comprises salicylic acid or a salicylate.

ERNEST C. CROCKER.

CERTIFICATE OF CORRECTION.

Patent No. 2,058,571. October 27, 1936.

ERNEST C. CROCKER.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, second column, lines 51 and 53, claim 1, for the word "ingredients" read ingredient; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22nd day of December, A. D. 1936.

(Seal)

Henry Van Arsdale
Acting Commissioner of Patents.