C. J. COLEMAN.

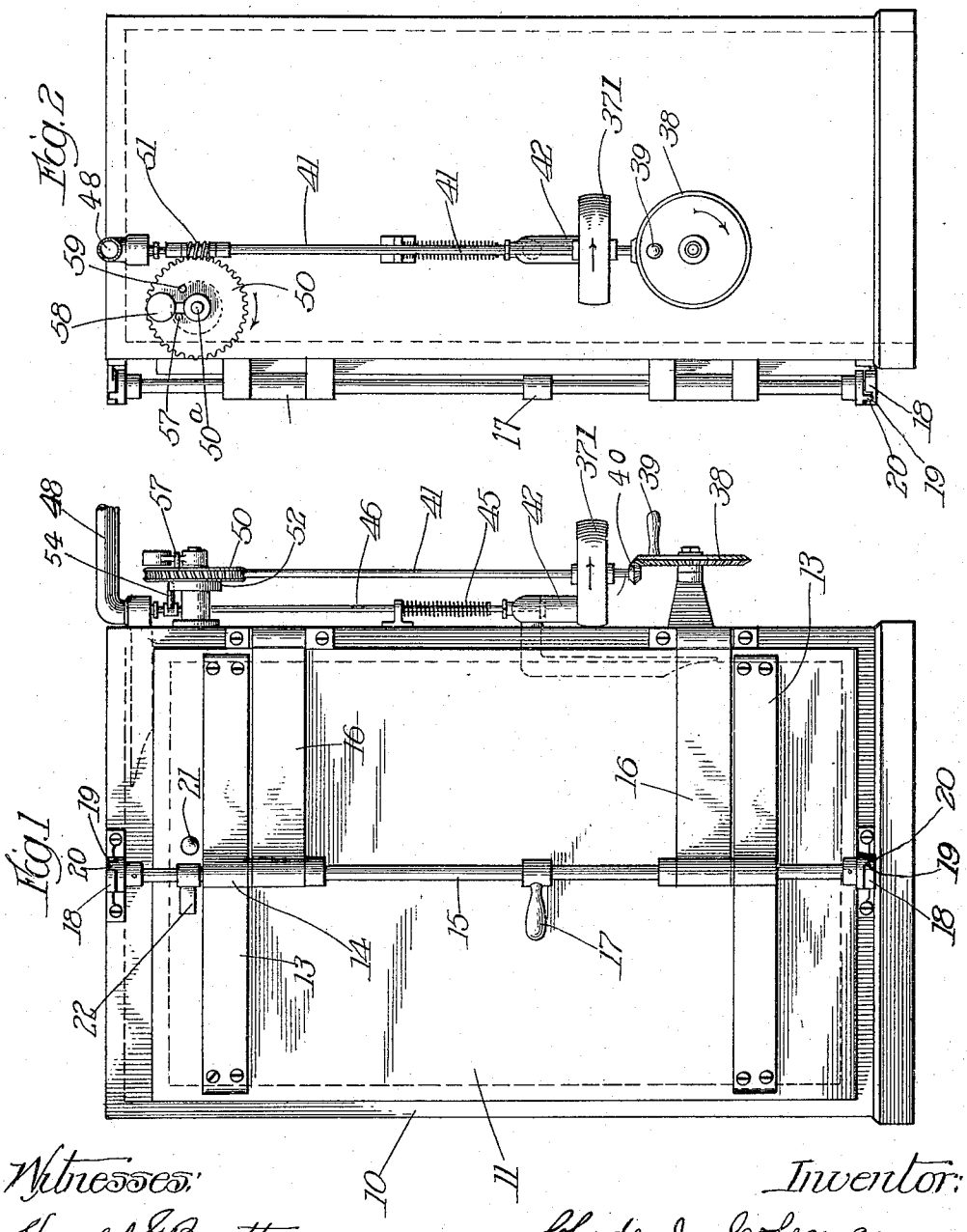
WARDROBE.

APPLICATION FILED MAY 20, 1909. RENEWED JUNE 21, 1915.

1,149,343.

Patented Aug. 10, 1915.

2 SHEETS—SHEET 1.



Witnesses:
Harold G. Barrett
Charles G. Cope.

Inventor:
Clyde J. Coleman,
By Jones, Addington & Ames,
Attys.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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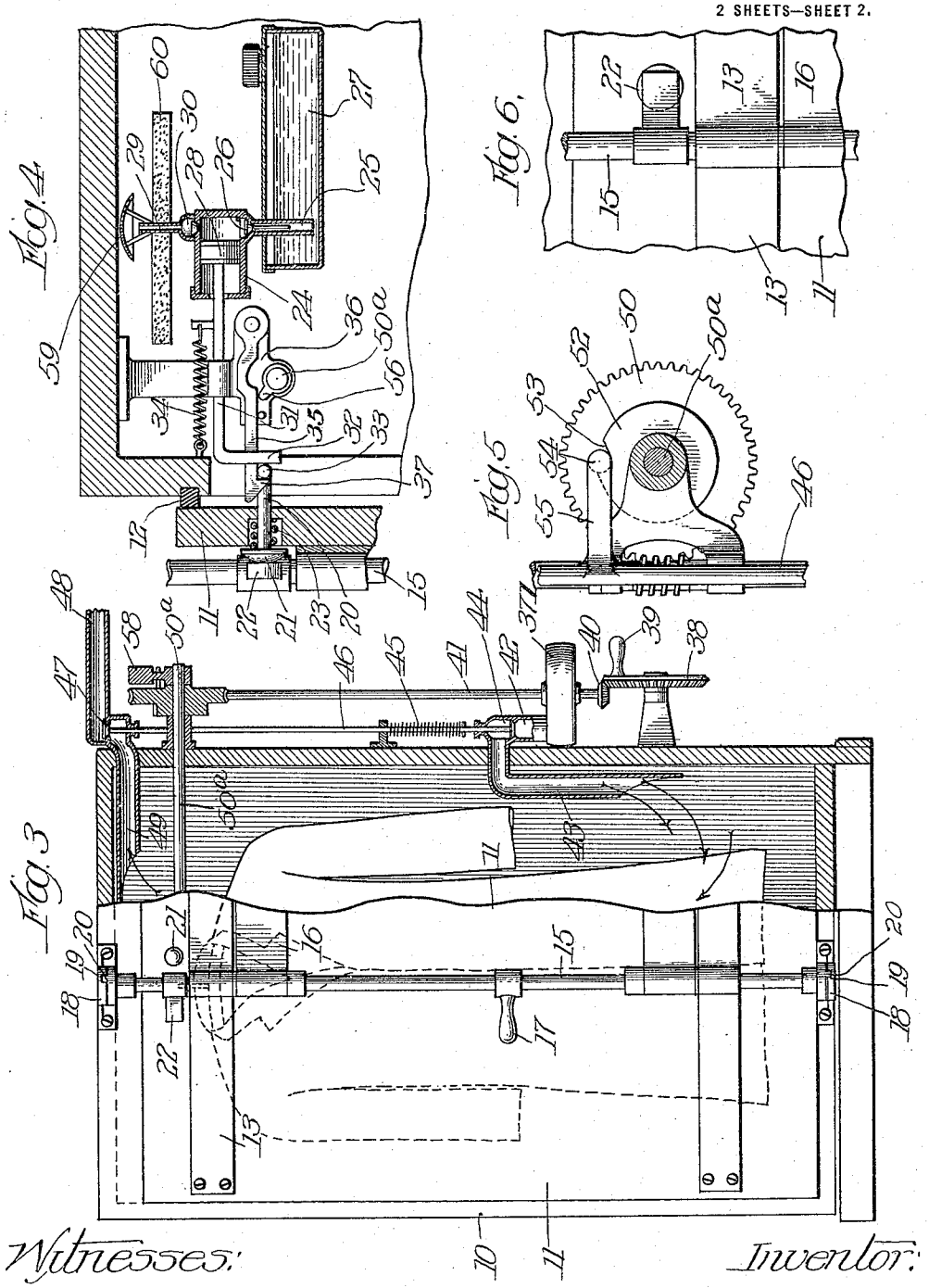


Fig. 3

Fig. 4

Fig. 6.

Fig. 5

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UNITED STATES PATENT OFFICE.

CLYDE J. COLEMAN, OF NEW YORK, N. Y.

WARDROBE.

1,149,343. Specification of Letters Patent. Patented Aug. 10, 1915.

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To all whom it may concern:

Be it known that I, CLYDE J. COLEMAN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Wardrobes, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

This invention relates to improvements in wardrobes, the object of the invention being to provide a wardrobe in which furs, garments, rugs or other articles likely to be damaged by moths or other vermin may be safely stored. In the accomplishment of this object I provide means whereby upon the closing of the door of the wardrobe, or substantially simultaneously with the closing thereof, a sufficient, and preferably a measured quantity of a vermin-exterminating means or substance is discharged into or set free in the wardrobe. This quantity of vermin-exterminating means or substance is preferably, but not necessarily, automatically liberated by the operation of locking the door. As most of the substances which are suitable for this purpose are of such nature that it would be undesirable to discharge the same into the air by the opening of the door, I further provide means for the removal thereof from the wardrobe prior to the opening of said door. To insure the complete discharge of the exterminating substance from the wardrobe prior to the opening of the door means are provided for automatically maintaining the door locked until the means for removing the substance has been fully operated, whereupon the door is unlocked and may be opened. This part of my invention, while not absolutely essential in all cases, is of particular value where naphtha, bisulfid of carbon or other substance, the fumes of which when combined with air form an explosive mixture, are used as the vermin-exterminating means. In some cases it may be desirable to use formaldehyde or other poisonous liquid, in which cases it would be desirable to eliminate the fumes from the wardrobe before the opening of the door thereof.

In the accompanying drawings—Figure 1 is a front elevational view of a wardrobe having the devices of my invention applied thereto; Fig. 2 is an end elevational view of the same; Fig. 3 is a view similar to Fig. 1 but partly sectional, looking into the wardrobe from the front; Fig. 4 is a view partly in section and partly in elevation of a form of liquid discharging apparatus in the upper part of the wardrobe; Fig. 5 is a detail view of a part of the fumes-eliminating means; and Fig. 6 is a detail view of a portion of a pressure bar used for locking the door, showing the means by which the liquid discharging device is operated upon moving the pressure bar to the locking position.

In the several figures of the drawings, in which like reference numerals indicate the same parts throughout, 10 is the wardrobe, the door of which is indicated 11. In order that the door may fit perfectly tight, the same is made to seat itself, when closed, against a strip 12 of cork or the like which extends around the edge of the doorway. The door is supported upon crane hinges, each of which comprises a bar 13 extending across the front of the door, and has a bearing 14 through which extends a pressure bar 15. Other bars 16, 16 are hinged at one end to the edge of the wardrobe, and at their opposite ends to the pressure bar. By this arrangement it is made possible to seat the door evenly against the strip 12 so as to make a perfectly tight joint between this strip and the door.

The pressure bar 15 is provided with a handle 17 by means of which it may be revolved, and means are provided whereby the turning of the bar by means of this handle, causes the door to be pressed firmly into contact with the strip 12. This means comprises plates 18, 18 secured to the wardrobe above and below the door and each provided with a cam groove 19 in which runs a pin 20 when the bar is revolved by throwing the handle 17 around to the position opposite that shown in Fig. 1.

Within the wardrobe, and preferably located in the upper portion thereof, is arranged apparatus for discharging into the wardrobe a sufficient, and preferably definite quantity of naphtha, carbon bisulfid, formaldehyde or other substance suitable for the purpose and capable, when volatilized, of exterminating moths, this device being so arranged that the same may operate to discharge said substance after the door has

been closed, and preferably operating automatically upon the locking of the wardrobe by means of the pressure bar. To this end the door carries a plunger 20 which extends therethrough and is provided on its outer end with a knob 21, this knob being so located as to be engaged by a short arm 22 which extends laterally from the pressure bar 15 and which, when the pressure bar is swung around to the locking position, engages the knob 21 and thrusts the plunger 20 inward against the tendency of a spring 23 to hold the same in its outward position.

The liquid-expelling apparatus comprises a pump, the cylinder 24 of which is provided with an inlet passage 25 having therein a valve 26 which opens to permit the flow of fluid therethrough from a tank 27 when the piston 28 moves outward in the cylinder 24. The pump is provided also with an outlet passage 29 having therein a valve 30 which opens to permit the passage of liquid from the cylinder upward when the piston is moved inward. The stem 31 of the piston 28 extends forward or toward the front of the wardrobe and has a downturned end 32, or is by some other convenient method arranged to be engaged by and moved inward by the inner end 33 of the plunger 20 when the plunger is forced in by the engagement therewith of the arm 22 of the pressure bar 15. A spring 34 tends to draw the piston 28 out. When the arm 22 is moved out of engagement with the plunger 20 by the unlocking of the pressure bar preparatory to opening the wardrobe, the plunger and piston are at first prevented from moving out under the influence of the springs 23 and 34 by a latch 35 which is pivoted at its inner end to a hanger or other support 36 and has its forward end bent downward to form a hook 37, this hook having an inclined face so that the plunger 20 may pass under the point of the hook and lift the latch when the plunger is being moved inward. The object of thus locking the plunger 30 is that the door may not be opened until the means which will be described hereinafter for expelling from the wardrobe the fumes of the exterminating substance have been operated.

At some convenient point, as upon the end of the wardrobe and exterior thereto, as shown, there is arranged a centrifugal or other form of blower 371 which may be operated by the turning of a bevel gear wheel 38 which, for this purpose, is provided with a handle 39. Movement from the bevel gear wheel 38 is transmitted and reduced by means of a bevel pinion 40 to a shaft 41 which extends through the rotary part of the blower 371. The outlet 42 of the blower is connected to a pipe 43 which opens into the wardrobe and is provided with a valve 44 which is normally held down by a spring 45 coiled about a rod 46 which carries the valve upon its lower end. This rod carries also, upon its upper end, another valve 47 which is normally closed but which, when open, establishes communication between an outlet pipe 48 and a pipe 49 which is located in and opens into the upper part of the wardrobe. It is evident that the operation of the blower, by revolving the gear 38, would not create a flow of air into the wardrobe through pipe 43, nor a flow of air outward through pipe 49 so long as the valves 44 and 47 remained closed. It is also evident that these valves should normally be firmly seated in order that the wardrobe may be maintained perfectly air tight. For this reason the spring 45 is made comparatively strong, and positively acting mechanically operated means are provided for opening these valves at the proper time. To this end the apparatus is so arranged that the first few revolutions of the rod 41 serve to operate a device for lifting the valves from their seats by moving the valve rod 46 upward. This rod-lifting device comprises a worm gear 50 which is loosely mounted on a shaft 50^a and revolves in the direction indicated by the arrows in Fig. 2 during the operation of the blower. This is caused by the engagement therewith of a worm 51 on the rod 41. Revolving with the worm gear 50 is a cam plate 52 provided with a notch 53, most clearly seen in Fig. 5. Riding on the edge of the cam is a cam follower 54, which may comprise a pin having a thimble thereon as usual, this follower being arranged on an arm 55 which extends laterally from the valve rod 46. During the greater portion of the revolution of the worm gear 50 and cam 52 the rod 46 is held stationary in its raised position with the valves open by reason of the fact that the greater part of the edge of the cam is at a constant distance from the center thereof. After the blower has been operated for a sufficient length of time to insure the blowing out of all the fumes from the wardrobe, and the substitution therefor of air from the exterior, the worm gear and cam come around to such a position as to permit the cam follower 54 to drop into the notch 53 and thus permit the valve rod 46 to descend and the valves to close. The outlet pipe 48 will preferably extend to a chimney, ventilating shaft or the like in order that the fumes may not be discharged into the room in which the wardrobe is located. If preferred, this pipe may be extended into a suitable device for absorbing the gases, such as a receptacle containing water, with the pipe so arranged as to discharge below the surface of the water and permit the fumes to pass up through the latter.

The shaft 50^a on which the gear 50 and cam 52 are mounted extends in toward the center of the wardrobe and carries upon its

inner end a cam 56 which, when the cam 52 has revolved to such a position that the cam follower is about to fall into the notch 53, reaches the position in which it is shown in Fig. 4, at which position further movement will cause the cam 56 to pass under latch 35 and raise the same, thus permitting the plunger 20 to move out from under the latch and unlock the door. In order that this unlocking movement may be effected quickly, the worm gear 50 and cam 52 are, as above stated, mounted loosely upon the shaft 50^a, movement being imparted to the shaft from the worm gear through a pin 57 which projects from the side of the worm gear and engages the side of an arm which is fast on the shaft 50^a and carries a ball or other suitable weight 58. When the shaft 50^a and ball 58 have reached the position shown in Figs. 2 and 4, further movement of these parts in the direction indicated by the arrow in Fig. 2 will carry the ball past a line extending vertically through the center thereof and the center of the shaft, thus permitting the weight to fall forward and come into engagement with a second pin 59 which extends from the face of the worm gear. When the weight thus falls forward it quickly carries the shaft around for a further short distance and causes the cam 56 to pass under and raise the latch 35, which releases the plunger 20, the latch again falling to the position shown in Fig. 4. The door is now unlocked and may be opened. When the plunger moves outward after being released by the lifting of the latch the spring 34 draws the piston 28 out to the limit of its movement, thus drawing a quantity of liquid into the cylinder from the tank 27. When the door is again closed the rotation of the pressure bar 15 to the locking position brings the arm 22 into engagement with the plunger 20 and thrusts the same inward. The engagement of the piston stem 31 with the inner end of the plunger causes the piston to be driven in, and the inward movement of the piston forces liquid from the cylinder up through the outlet 29 of the pump in a small stream, which, issuing from the upper end of the passage 29, impinges against the under side of a bell-shaped deflecting plate 59 which sprays the liquid and throws the same down upon an evaporating pad 60, which may be composed of felt or similar material, from which the liquid vaporizes and charges the air within the wardrobe with the fumes resulting from this evaporation.

Restated, the operation of the device when constructed as shown is briefly as follows: Suppose, first, that the door is open. The valves 44 and 47 are closed by reason of the fact that the cam follower 54 occupies the notch in the cam 52. The piston will be in its outward position and a certain quantity of the verimicidal liquid will be contained in the pump. The clothing or other articles having been hung or otherwise placed in position in the wardrobe the door thereof will be closed. To lock the door the handle 17 will be swung around to the position opposite that shown in Fig. 1. This movement causes the arm 22 carried by the pressure bar to engage the knob 21 of the plunger 20, forcing the same inward. At the same time the pins 20 of the locking devices upon the ends of the pressure bar will run into the grooves 19 of the plates 18 and cause the door to be firmly seated against the cork strip 12 which extends around the doorway. The inward movement of the plunger 20 is transmitted to the piston 28 through the piston stem 31, and a certain quantity of the vermicidal liquid is forced out of the pump cylinder 24 and sprayed upon the evaporating pad 60. Evaporation of this liquid charges the air within the wardrobe with the fumes of the liquid, which results in the killing of any moths or other vermin which may have gained access to the wardrobe while the door was open or been carried into the wardrobe upon the articles that were placed therein. Some of the substances which may be used for this purpose may not be capable of killing, when vaporized, the eggs of moths and the like, and thus preventing the same from hatching, but as the device is maintained air tight, and as the fumes are confined in the wardrobe until such time as it is desired to open the wardrobe for the removal of the articles, the moths that hatch from these eggs will be killed as soon as hatched.

When the wardrobe is to be opened this cannot be done until the fumes have first been expelled from the same. In order to open the wardrobe the pressure bar will first be revolved and the devices at the ends thereof unlocked by throwing the handle 17 around to the position shown in Fig. 1. This carries the arm 22 out of engagement with the plunger 20, but the door cannot be opened until the plunger 20 has been released from the latch 35. The handle 39 will now be turned to operate the blower 371. The first turn, or the first few turns, of the wheel 38 by means of the handle 39 serve to open the valves 44 and 47, because the rotation of the rod 41 is transmitted to the cam 52 by means of the worm 51 and worm gear 50, and the cam follower 54 rides up out of the notch 53 and runs upon the high part of the cam, thus lifting the rod 46 and valves 44 and 47 and holding the same in their raised position. When the valves have been opened air is forced from the blower past the valve 44 and into the wardrobe through the inlet pipe 43, the charged air within the wardrobe flowing out through the outlet pipe 48. During the operation

of the blower the shaft 50ª is being revolved by the engagement of the pin 57 with the arm 58 and at length the cam 56 carried thereby passes under the latch 35, raising the same and releasing the plunger 20, the latter being now driven out by the spring 23. The door is now unlocked. The piston of the pump is drawn outward by its spring and draws up a fresh supply of liquid from the tank 27. The cam follower 54 at the same time drops into the notch 53 and the device is ready for closing again.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. The combination of a wardrobe, and means automatically operating substantially simultaneously with the closing of the wardrobe for delivering a measured quantity of vermin exterminating composition within the wardrobe, the quantity delivered being independent of the extent of opening or closing of the wardrobe door.

2. The combination of a wardrobe, means automatically operating upon the closing of the wardrobe for delivering a measured amount of vermin-exterminating composition to the air within the wardrobe, and means for effecting the removal of the vermin-exterminating composition from the wardrobe prior to the opening of said wardrobe.

3. The combination of a wardrobe, means automatically operating upon the closing of the wardrobe for delivering a measured amount of vermin-exterminating composition to the air within the wardrobe, means for effecting the removal of the vermin-exterminating composition, and means for preventing the opening of said wardrobe until after said removal-effecting means have been operated.

4. The combination of a wardrobe, means automatically operating upon the closing of the wardrobe for discharging into the air within the wardrobe a quantity of chemical vermin-exterminating composition, means for discharging said exterminating composition from the wardrobe prior to the opening thereof, means for preventing the opening of said wardrobe, and means arranged to automatically unlock said last-named means after said discharging means have been operated.

5. The combination of a wardrobe, means for vaporizing a volatile vermin-exterminating liquid within said wardrobe upon the closing of said wardrobe, means for discharging the vapor from said wardrobe, and means for preventing the opening of said wardrobe until after said discharging means have been operated.

6. The combination of a wardrobe, means for automatically introducing into said wardrobe a vermin-destroying substance substantially at the time of closing said wardrobe, means for discharging the vermin-destroying substance from the wardrobe, and means for automatically locking said wardrobe in closed condition and maintaining same closed until said discharging means have been operated.

7. The combination of a wardrobe, means for vaporizing a volatile liquid within said wardrobe, means for effecting the removal of the vapor from said wardrobe, and means for preventing the opening of the wardrobe until said vapor-removing means have been operated.

8. The combination of a wardrobe, and means for automatically injecting into said wardrobe a requisite quantity of chemical, vermin-destroying agent upon the closing of the door, the quantity injected being independent of the extent of opening or closing of the door.

9. The combination of a wardrobe, a receptacle arranged therein for containing a liquid, means for spraying a quantity of said liquid, a vaporizing pad for receiving said liquid when sprayed, and means for locking the door of the wardrobe and simultaneously operating said spraying means.

10. The combination of a wardrobe, a receptacle arranged therein for containing a liquid, means for spraying a quantity of said liquid, a vaporizing pad for receiving said liquid when sprayed, means for locking the door of the wardrobe and simultaneously operating said spraying means, means for effecting the removal of the vapor from the wardrobe, and means for normally locking said wardrobe, said means being arranged to unlock upon the completion of the operation of said vapor-removing means.

11. A fumigating chamber with a door adapted to close the same, and means within the chamber operated by the closing of said door and adapted to supply an approximately constant quantity of a volatile fumigating liquid to the interior of the chamber at each operation.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

CLYDE J. COLEMAN.

Witnesses:
CHARLES G. COPE,
C. L. HOPKINS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."