F. R. MARKS.

VAPOR GENERATING LAMP.

APPLICATION FILED SEPT. 6, 1912.

1,067,875. Patented July 22, 1913.

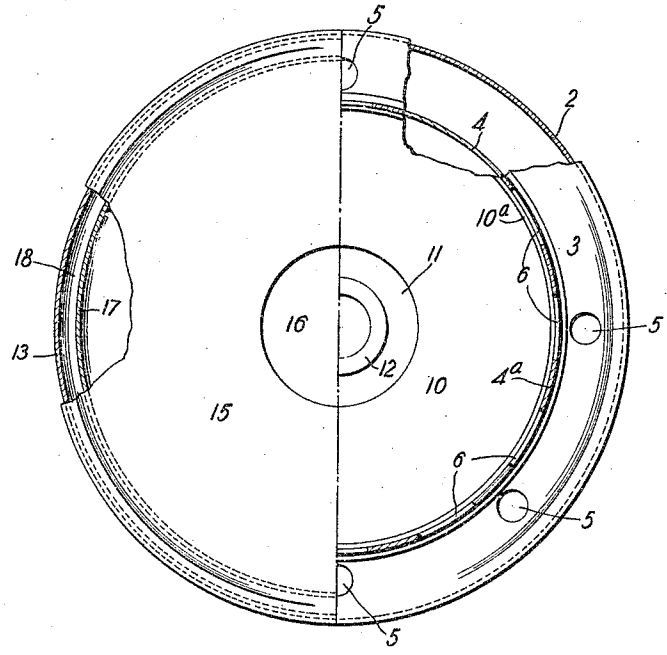


FIG. 2

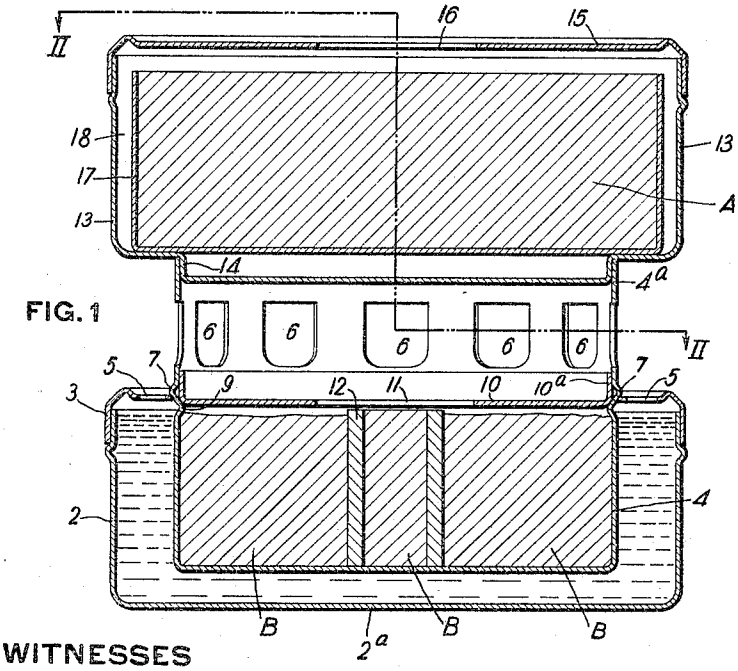


FIG. 1

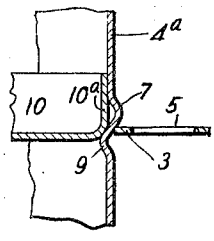


FIG. 3

WITNESSES

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FRANK R. MARKS, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO THE CHAMBERLAIN COMPANY, INCORPORATED, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

VAPOR-GENERATING LAMP.

1,067,875. Specification of Letters Patent. **Patented July 22, 1913.**

Application filed September 6, 1912. Serial No. 719,034.

To all whom it may concern:

Be it known that I, FRANK R. MARKS, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Vapor-Generating Lamp, of which the following is a specification.

My invention relates to apparatus used in vaporizing formaldehyde and similar disinfectants, and more particularly relates to the construction and arrangement of the apparatus comprising the vessel or container for the disinfectant and the lamp by which the heat necessary to vaporize the disinfecting material is generated.

One object of my invention is to provide a vapor generating lamp having novel means whereby charring or incineration of the disinfecting material being vaporized is prevented and overcome.

Another object of the invention is to provide a vapor generating lamp having means whereby ignition and burning of the disinfectant is prevented and rendered practically impossible.

A further object of this invention is to provide a vapor generating lamp having novel means whereby burning of the paraffin or similar fuel in heating and vaporizing the disinfectant is regulated and controlled.

A still further object of my invention is to provide a water jacketed lamp having improved means by which the paraffin or other fuel used in generating the heat for vaporizing is prevented from becoming overheated and having novel means for moistening the dry gases formed by the vaporized disinfectant whereby the effectiveness and efficiency of the disinfectant is very largely increased.

Still further objects of the invention will appear as the invention is more fully described and claimed hereinafter.

Referring to the accompanying drawings forming part of this specification, Figure 1 is a sectional elevation of a vapor generating lamp constructed and arranged in accordance with my invention. Fig. 2 is a plan partly in section on the line II—II of Fig. 1 and partly broken away to show the construction of the double walls of the disinfectant vessel and the arrangement of the water jacket surrounding the lamp chamber. Fig. 3 is a sectional detail on an enlarged scale showing the means employed in positioning and maintaining the lamp chamber within the water jacket and the means by which the safety cover is held in position in the lamp chamber.

In the drawings 2 designates a metal receptacle having an open upper end and forming the water jacket for the lower end of the lamp chamber. The open upper end of the receptacle 2 is provided with a cover or lid 3 having a central opening through which the bottom portion 4 of the lamp chamber projects downwardly into the water jacket 2. The lid or cover 3 is also provided with a series of spaced apart apertures or holes 5 adjacent to the periphery thereof which permit the escape of steam or moisture from the water jacket in a manner and for a purpose to be described hereinafter.

The upper portion 4^a of the lamp chamber projects some distance above the top of the water jacket 2 and a series of openings or holes 6 extend therethrough to permit the entrance of air necessary to support combustion in burning the paraffin or other fuel used in heating and vaporizing the disinfecting material and to permit the escape of the burned gases or products of combustion.

At an intermediate point in the height of the lamp chamber an outwardly turned bead 7 is provided which is of such size as to engage with the marginal edges of the central opening in the lid or cover 3. The bead 7 is positioned to maintain the bottom of the lamp chamber a slight distance above the bottom 2^a of the water jacket 2 so that the bottom, as well as the sides of the lower portion 4 of the lamp chamber is surrounded with water or other liquid. An inwardly turned bead 9 is also provided at an intermediate point in the height of the lamp chamber which secures the safety cover 10 forming part of my improved apparatus within the lamp chamber. The safety cover 10 preferably is provided with a flange 10^a on its outer edge and a centrally located opening or hole 11 is formed in the cover immediately above the tubular paper wick 12 within the lower portion 4 of the lamp chamber.

Supported upon the top edge of the lamp

chamber 4 above the series of openings 6 is a metal jacket or receptacle 13, the bottom of which is provided with a flanged or reduced portion 14 of a diameter such as will fit within the open upper end 4ª of the lamp chamber so as to position and hold the chamber 13 on the lamp, and the open top of the chamber 13 is provided with a cover or lid 15 having a central opening 16 therein of comparatively small size. Within the chamber 13 is a somewhat smaller vessel or container 17 in which the paraformaldehyde or an aqueous solution of formaldehyde or other disinfectant A to be vaporized or gasified is placed.

The vessel 17 is made of such size relative to that of the receptacle 13 that an annular insulating space 18 is provided which prevents loss of heat by radiation from the sides of the container 17, and the space 18, when desired, may be filled with water or other liquid. In some cases a solution of formaldehyde is used which will increase the efficiency of the apparatus in disinfecting with formaldehyde.

In the operation of my improved vapor generating lamp the lower end 4 of the lamp chamber is filled to about the depth indicated in Fig. 1 of the drawings with liquid paraffin or similar material B forming a suitable fuel. After the paraffin B has been placed in the chamber 4 and while it still remains soft enough a tubular wick 12 formed preferably of paper is inserted in the center of the chamber 4 as indicated in the drawings, the paraffin entering the opening in the wick as shown in the drawings. The safety cover 10 is then placed within the chamber 4 with its marginal edge in engagement with the bead 9 or equivalent means by which the safety cover is positioned and held in the lamp chamber 4. The lamp chamber is then placed within the opening in the top cover 3 of the water jacket 2 being positioned as shown in the drawings, and sufficient water or, when desired, a sufficient quantity of a solution of formaldehyde or other disinfectant is placed within the water jacket 2, the level of the liquid being at about the elevation of the top of the paraffin. The paraffin in the opening in the wick 12 is then ignited and the chamber 13 is placed on top of the lamp. The disinfectant A and its container 17 is then placed within the chamber 13 and the cover or lid 15 is put in position on top of the container 13. In a short time the heat generated by burning the paraffin in the lamp 4 will liquefy and begin to vaporize the paraformaldehyde or an aqueous solution of formaldehyde. The heat of the burning paraffin will also heat the body of paraffin B in the bottom 4 of the lamp chamber and will radiate the heat through the walls of the chamber 4 so as to heat and gradually vaporize the water or other fluid contained in the water jacket 2. The opening 11 in the safety lid 10 concentrates the flame of the burning paraffin at the center of the lamp and lessens or prevents the possibility of the flame flashing outwardly through the openings 6 in the sides of the lamp chamber 4. The formaldehyde being inflammable is likewise protected from exposure or contact with the flame of the lamp, should it pass through one or another of the openings 6 by reason of the larger size of the container 17 and vessel 13 relative to the size of the lamp chamber. The lid or cover 15 on top of the chamber 13 also causes the vapor given off by the heated disinfectant to pass upwardly into the room being disinfected through the relatively small opening 16 in the center of the cover.

In constructing my improved apparatus the lamp chamber is proportioned to contain sufficient paraffin to dissipate as vapor the quantity of formaldehyde or other material the container will hold, and the water jacket 2 is proportioned with respect to the depending part 4ª of the lamp chamber within the water jacket so as to contain about the amount of water which will be vaporized by the paraffin while the paraffin is being consumed.

The advantages of my improved apparatus will be apparent to those skilled in the art. By the provision of the water jacket for the lower portion of the lamp the dry gas given off by vaporized paraformaldehyde is moistened and in this way its efficiency is materially increased, while the water jacket also serves to prevent damage by heat to the table or other article on which the vapor generating lamp is placed.

The provision of the safety cover with a central opening therein within the lamp chamber prevents the ignition of entire upper surface of the paraffin and confines the flames to the region adjacent to the central opening in the safety cover.

By providing a surrounding chamber for the vessel or container holding the disinfectant, radiation through the walls of the vessel is lessened and prevented and the efficiency of the heating apparatus is thereby increased. The central opening in the cover for the chamber surrounding the container for the disinfectant effectually prevents possibility of the flame contacting with the vaporized formaldehyde and ignition of the inflammable gas given off in vaporizing the formaldehyde.

Modifications in the construction and arrangement of the parts may be made without departing from my invention. The water jacket on the lamp chamber may be omitted, the safety cover in the clamp chamber may be dispensed with in some cases, and the surrounding chamber for the disin-

fectant vessel may not be used. Means other than the beads shown may be employed to position the lamp chamber within the water jacket and for holding the safety cover in position in the lamp. The projection on the bottom of the surrounding chamber for the disinfectant chamber may be omitted, and other changes may be made within the scope of the appended claim.

I claim:—

A vapor generating lamp comprising in combination a lamp chamber having perforated side walls, a safety lid within said chamber having a restricted centrally located opening therein, a vessel to contain disinfectant supported above said lamp chamber having a cover or lid thereon with a restricted centrally located opening therein, said vessel having double side walls forming an insulating space therebetween, and a water jacket surrounding the lamp chamber, said lamp chamber being suspended within the water jacket to hold the bottom thereof out of engagement with the bottom of the water jacket.

In testimony whereof, I have hereunto set my hand.

FRANK R. MARKS.

Witnesses:
R. D. LETTLE,
MARY E. CAHOON.

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