

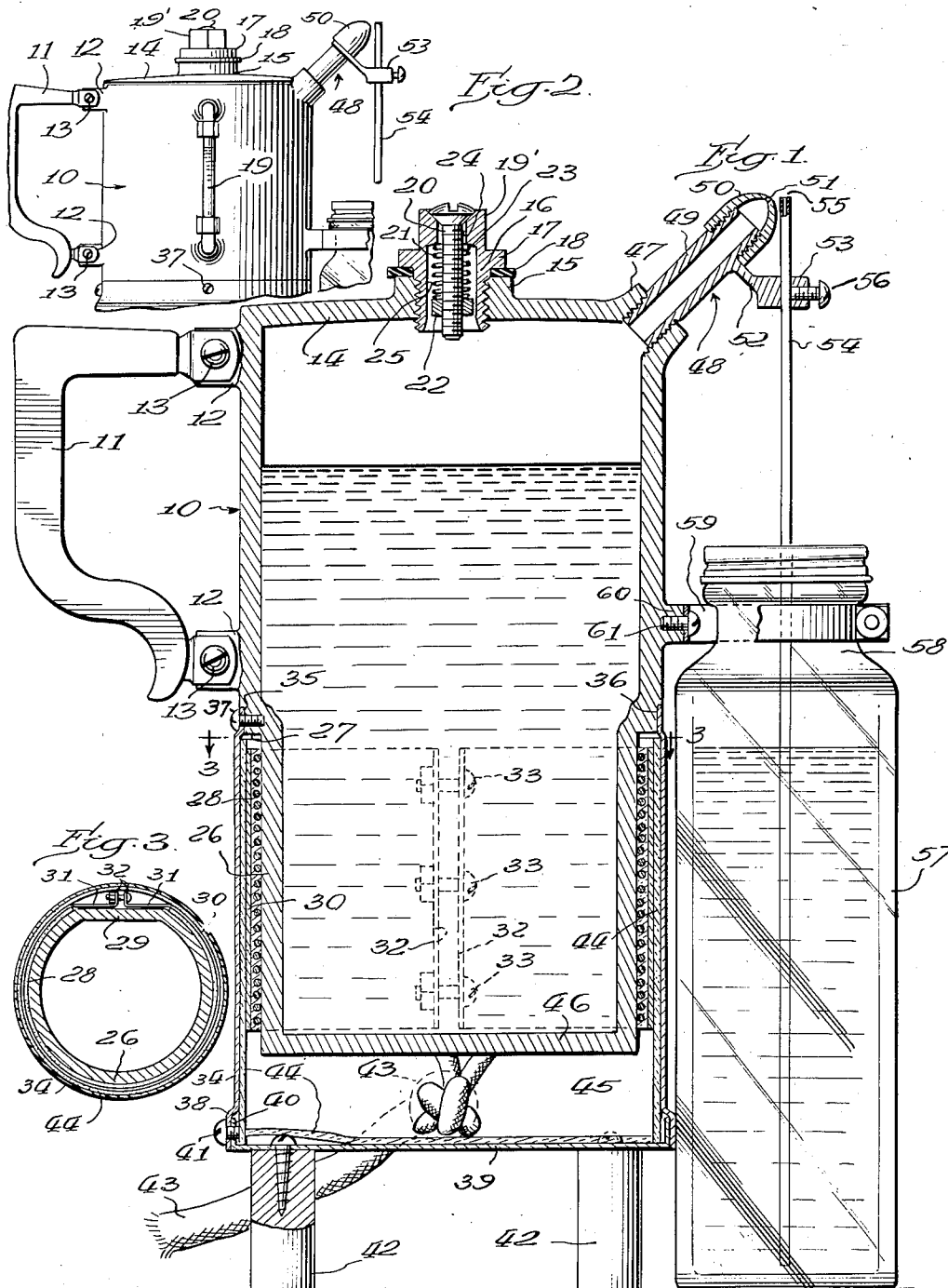
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VAPORIZER

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VAPORIZER

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1 Claim. (Cl. 219—38)

This invention relates generally to vaporizers and more particularly to a device adapted for the vaporizing of chemicals used in fumigating, exterminating or deodorizing.

The primary object of the invention is to provide a device of the character described which will be extremely economical and rugged in construction and which will comprise a minimum of parts.

A further object of the present invention is to provide a new and improved construction for the vertical boiler of a vaporizer of the character described whereby the water in the boiler will be heated quickly and efficiently.

A still further object of the invention lies in the provision of a new and improved construction for a vaporizer having a vertically arranged cylindrical boiler which includes novel heating means for the boiler.

A still further object of this invention is to provide a construction for a vaporizer whereby same may be easily and readily dissembled and re-assembled.

A still further object of the invention is to provide a novel device of the character described including a novel vaporizing nozzle and siphoning device.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel features of construction, arrangement and combination of parts hereinafter fully described, illustrated in the accompanying drawing, and particularly pointed out in the appended claim, it being understood that various changes in the form, proportion, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

For the purpose of facilitating an understanding of my invention, I have illustrated in the accompanying drawing a preferred embodiment thereof, from an inspection of which, when considered in connection with the following description, my invention, its mode of construction, assembly and operation, and many of its advantages should be readily understood and appreciated.

Referring to the drawing in which the same characters of reference are employed to indicate corresponding or similar parts throughout the several figures of the drawing:

Fig. 1 is a sectional view taken through a vaporizer showing my invention.

Fig. 2 is a fragmentary size elevational view of the vaporizer.

Fig. 3 is a cross-sectional view taken through the vaporizer along the line 3—3 of Fig. 1.

Referring now to the specific details of the device, the reference character 10 designates generally the boiler of the device. The boiler is cylindrical in shape and is vertically arranged as shown. The upper portion of the boiler 10 is provided at the side thereof with a handle 11 attached to bosses 12, cast integrally with the body of the boiler 10, by means of screws 13 or the like, whereby the vaporizer may be carried from place to place. The handle 11 is, of course, made from wood or some other heat insulating material.

The upper wall 14 of the boiler is provided with a boss 15 which is tapped for the reception of a screw threaded plug member 16 having shoulder 17 adapted to rest on the face of the boss 15. A waterproof gasket 18 is interposed between the shoulder 17 and the boss 15. The plug has a hexagonal portion 19' whereby same may be easily removed from or screwed into the boss 15. The primary purpose of the plug 16 is to permit the introduction of water into the boiler 10. The water level is read by means of a water gage 19 installed at the side of the boiler.

The plug 16 is hollow and is provided with a simple blow-off mechanism comprising a headed screw 20 which is urged downward into the core of the plug member 16 by means of the coil spring 21 surrounding said screw 20 and held in position by the nut 22 urging same against the shoulder 23 provided in the interior of the plug member. The head of the screw 20 fits into a countersunk end of the hollow passageway 24 in the plug 16 and the spring 21 and nut 22 are accommodated in the passageway 25 which is of larger diameter than the passageway 24.

When the steam pressure in the interior of the boiler 10 becomes prohibitive, the head of the screw 20 will be forced outward against the compression of the spring 22 thereby relieving the pressure. By screwing the nut 22 up or down on the screw 20, the tension of the spring 21 may be varied.

Approximately the bottom half of the boiler 10 is of reduced outer diameter as shown at 26. By reason of the reduction in diameter, a shoulder 27 is provided on the outer wall of the boiler.

Over the reduced diameter portion I have provided a rectangular heating unit 28 which is curled to a sleeve-like formation which substantially encircles the reduced diameter portion.

One side of the boiler 10 is flattened or cut away to produce the portion 29. The edges of the heating unit 28 come up to the edges of the flattened portion 29. The heating unit 28 is held in place upon the reduced diameter portion 26 by means of a large metal clamping member 30 which has its free ends 31 disposed upon the flattened portion 29 and provided with the usual ears 32 adapted to be drawn together by the screw means 33 in clamping engagement.

The boiler may be cast from any suitable metal, but I prefer aluminum because of its light weight and its heat conducting properties. The heating unit 28, as has been explained above, practically completely surrounds the lower half of the boiler and is in a position to supply maximum heat thereto readily and evenly on all sides.

A skirt member 34 is provided surrounding the heating unit and concealing same and enhancing the outer appearance of the vaporizer thereby. The skirt member 34 consists of a metal sleeve having its upper end spun inward as shown at 35 and adapted to be seated in the recess 36 and held therein by the screws 37 so that the end 35 is flush with the outer diameter of the upper portion of the boiler 10. The bottom edge of the sleeve 34 is spun outward at 38 to accommodate the insert 39 which closes off the bottom of the sleeve 34. The insert is provided with a flange 40 which is held to the edge 38 interiorly thereof by means of screws 41 or the like.

The insert 39 has a plurality of feet 42 attached thereto to permit standing the vaporizer in an upright position. It is desirable that the feet be made of heat insulating material.

The sleeve 34 is provided at one side thereof with an opening through which the leads from the heater unit 28 may pass and said opening is provided with an insert of insulating material in the usual manner. The broken line outline of the insert may be seen at 43 in Fig. 1.

The interior of the sleeve 34 is preferably lined with some heat insulating material, such as asbestos, as shown at 44 to prevent outward transfer of heat. It will be noted that a chamber 45 is formed between the bottom 46 of the boiler 10 and the insert 39. This chamber may accommodate switches, thermostats, pilot lights, and the like which are not shown for the sake of clarity.

The upper portion of the boiler is provided with a boss 47 along an edge of the upper wall 14 of the boiler adapted to receive therein the screw threaded end of a vaporizing nozzle 48. The nozzle comprises a tube 49 inserted into the boss at an angle of approximately 45° and provided at its outer end with a cap 50 having a restricted opening 51. An L-shaped bracket 52 is brazed or in other manner attached to the tube 49 and is provided on its free leg with an enlarged portion 53 adapted to mount the siphon tube 54. The siphon tube projects through a vertically arranged perforation pro-

vided therefor in the enlarged portion 53 and said tube 54 can be slidably moved up or down for adjusting the distance between its opening 55 and the opening 51 of the nozzle 48. A set screw 56 is provided for fixing the tube 54 in any desired position.

The bottom of the tube is adapted to dip into a vessel 57 containing some fumigating or deodorizing liquid which it is desired to vaporize. I have shown a bottle 57 of such liquid, the neck 58 of which is held by the clamp member 59 which is fixedly attached to the side of the boiler 10. For this attachment I provide a boss 60 integrally cast with the boiler and adapted to have the attaching screws 61 fastened thereto. The construction of the clamp member 59 is simple and well known.

In operation the boiler heats water contained therein by reason of the heater 28 being associated therewith, and causes the formation of steam therein above the water. The steam is extravasated through the restricted opening of the nozzle 48 under great pressure and the passage of steam across the opening 55 siphons the liquid up through the tube 54 and causes same to join the extravasated steam. The liquid is, of course, atomized and because of the high temperature of the steam it is also volatilized causing a vapor of steam and liquid to fill the atmosphere.

The vaporizer is intended to be used for the fumigating of rooms, the extermination of insects, and the deodorizing of clothes, furs, and the like, but it is equally adaptable to any kind of process or the like, where vaporization of a volatile or semi-volatile substance is desired.

It is believed that my invention, its mode of construction and assembly, and many of its advantages should be readily understood from the foregoing without further description, and it should also be manifest that while a preferred embodiment of the invention has been shown and described for illustrative purposes, the structural details are nevertheless capable of wide variation within the purview of my invention as defined in the appended claim.

What I claim and desire to secure by Letters Patent of the United States is:

Heating means for a vertical cylindrical boiler vaporizer comprising a relatively thin rectangular removable electrical heating element curled about the bottom of the boiler, the ends of said element being spaced one from the other, that portion of the boiler between said ends being flattened, a clamp member overlying said heating element holding same tightly to the surface of the boiler and having the fastening means thereof disposed at the flattened portion of the boiler whereby a cylindrical sleeve member may be disposed over said element and clamp member without presenting any protuberances upon the surface of the vaporizer.

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