Feb. 12, 1952 W. R. FRANK 2,585,106

VAPORIZER

Filed Jan. 13, 1949 2 SHEETS—SHEET 1

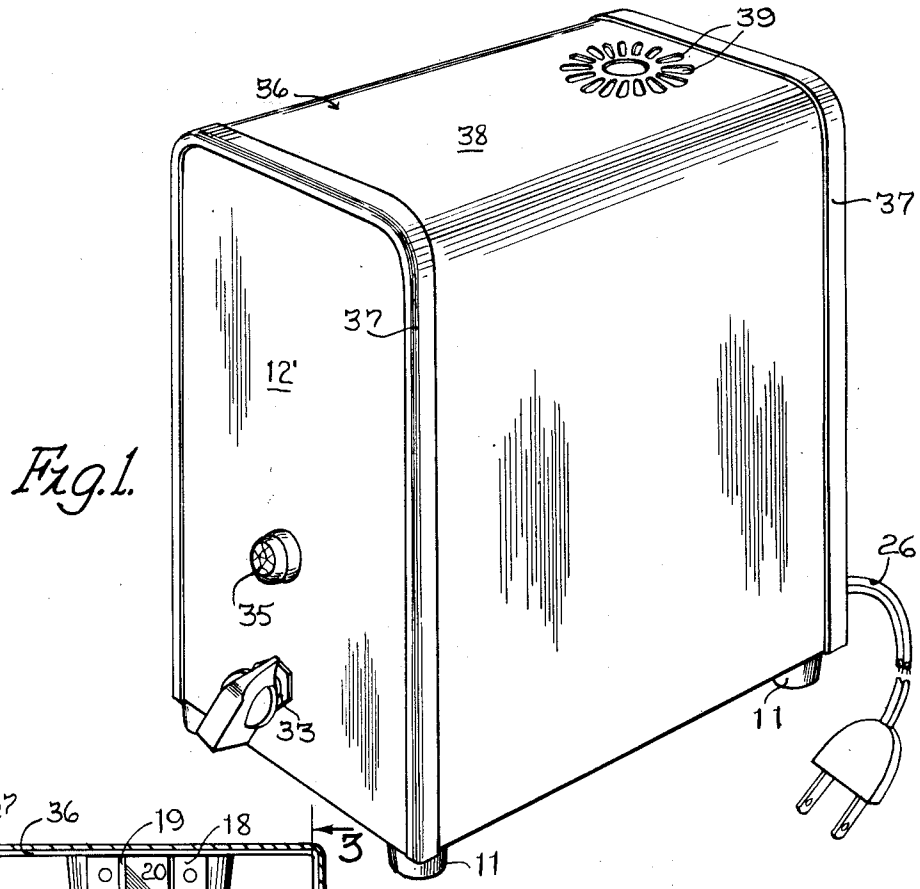


Fig. 1.

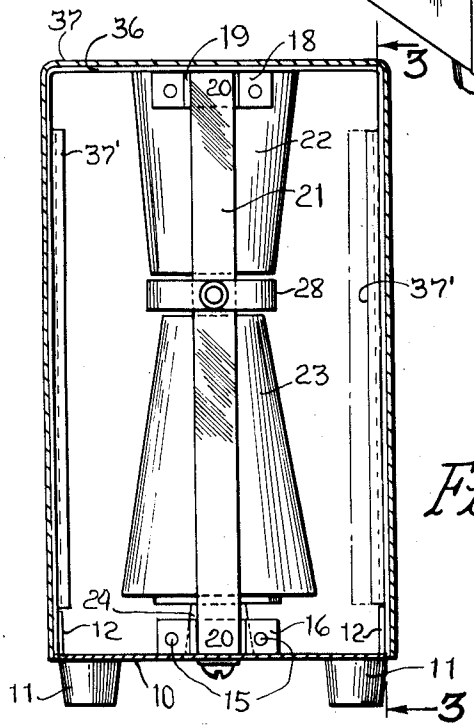


Fig. 2.

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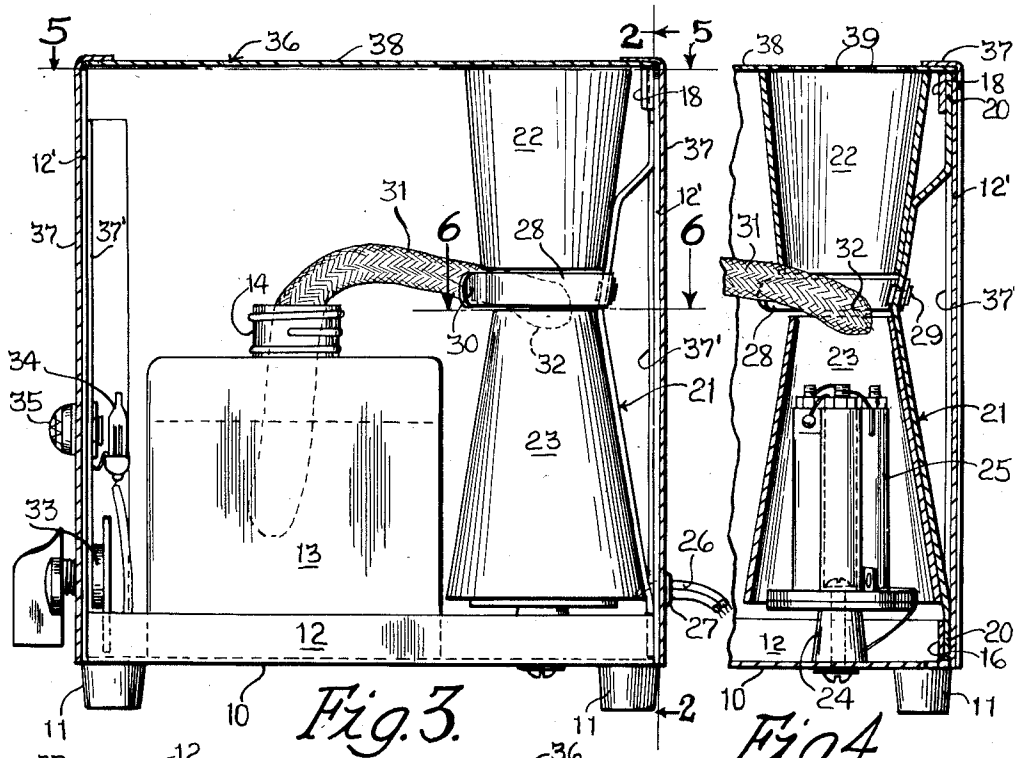


Fig. 3.

Fig. 4.

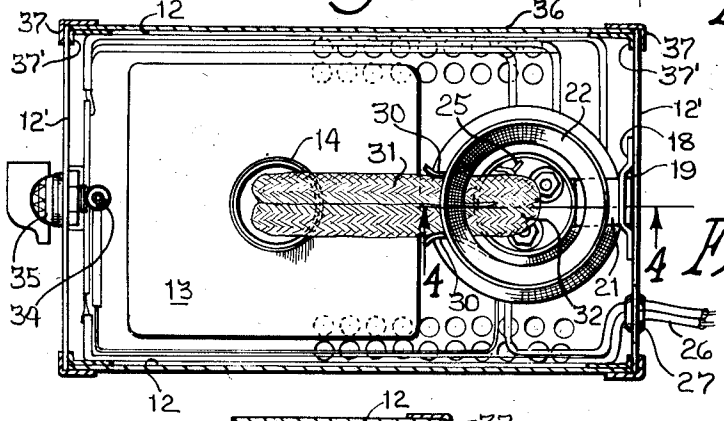


Fig. 5.

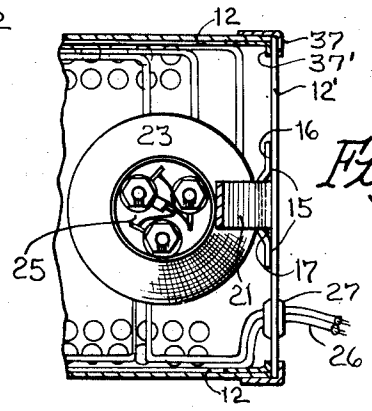


Fig. 6.

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UNITED STATES PATENT OFFICE

2,585,106

VAPORIZER

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Application January 13, 1949, Serial No. 70,681

1 Claim. (Cl. 21—118)

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This invention relates to certain new and useful improvements in vaporizers especially designed for vaporizing a germicidal agent for circulation and commingling with the air in one or more rooms to destroy bacteria and viruses contained in the air.

As such, an important object of the invention is to provide a combination which will be inexpensive, economical in manufacture, and effective for the intended purpose.

Devices have heretofore been provided for vaporizing a fluid or liquid. In converting glycol into a vapor for circulation in and about a room, such devices have proven highly ineffective for the reason that the vapor flow is slow and consequently has a tendency to condense upon the vaporizer, thereby reducing the effectiveness of the device as a vaporizer.

It is an object of my invention to provide a device which provides a fast and steady and uninterrupted flow of vapor, utilizing a thermo-draft to direct and force the vapor from the vaporizer and to speed its dispersion about the room.

A characteristic of my invention resides in the fact that the device is safe, in that the glycol is heated to a degree which is lower than the flash point, without interfering with the vapor emitted from the device.

Another object of the invention is to provide a device which is compact and one which can be placed upon a table or desk or other supporting element where it will occupy a minimum of space.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a perspective view of my invention;

Fig. 2 is a longitudinal vertical sectional detail view of the same;

Fig. 3 is a sectional detail view taken substantially on line 3—3 of Fig. 2;

Fig. 4 is a fragmentary sectional detail view taken substantially on line 4—4 of Fig. 5;

Fig. 5 is a sectional detail view taken substantially on line 5—5 of Fig. 3;

Fig. 6 is a fragmentary sectional detail view taken substantially on line 6—6 of Fig. 3.

The drawings illustrate the preferred form of construction by which the several objects of my invention are accomplished.

In this connection I provide a base plate 10.

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At the corners of this base plate 10 are connected in any suitable manner feet 11 preferably formed of rubber or such material as will not scratch or mar a surface on which the base plate 10 is mounted. This base plate 10 comprises upwardly extending side walls 12 and end walls 12', the end walls extending substantially above the side walls 12. On this base plate 10 is adapted to be supported a container 13 having a neck or nipple 14 on which is adapted to be threaded a closure cap (not shown) prior to the installation of the container 13 upon the base plate 10.

At the lower end portion of one of the end walls 12' is secured as at 15 a strap 16. This strap 16 provides a socket 17. Secured to the upper end portion of this end wall 12' is a similar strap 18, likewise providing a socket 19.

Frictionally positioned in the sockets 17 and 19 are the end portions 20 of a mounting arm 21. Secured to this arm 21 by any suitable means, such as spot welding or the like, are chimney sections 22 and 23, each of which is substantially frusto-conical in shape, with the apexes thereof arranged in confronting relation with respect to each other and spaced apart to provide what is known in the art as a Venturi chimney.

Mounted on plate 10 is a non-conductive supporting structure 24. This structure 24 supports a heating element 25 adapted to be connected in circuit with a suitable source of electric energy by means of conductor wires 26 extending through a non-conductive bushing 27 carried by the adjacent end wall 12'.

Located in the plane of the area of the space between the chimney sections 22 and 23 is a suitable clamp 28. The clamp 28 is secured as at 29 to the arm 21. It provides oppositely disposed spring fingers 30 between which is adapted to be frictionally gripped a wick 31. This wick 31, with its end portion disposed between the spring fingers 30, extends into the chimney provided by the sections 22 and 23, with its end portion 32 disposed above and in spaced relation with respect to the heating unit 25. The opposite end portion of this wick extends through the neck 14 into the container 13. This wick may be formed of any approved material such as will effect capillary flow of the fluid in the container 13 to the end portion 32 of the wick.

In the circuit to the unit 25 is arranged a rheostat switch 33 of any approved construction. In this circuit is also arranged a pilot light 34 disposed to the rear of a sight window 35, whereby the illumination of this light 34 will indicate that the heating unit is in operation.

To complete the invention, I provide a cover **36**. The opposite longitudinal edge portions of this cover **36** provide flanges **37** and **37'** which are substantially angular in cross section whereby to frictionally dispose therebetween the end walls **12'** when the cover **36** is in covering position with respect to the base **10**.

The top wall **38** of this cover **36** provides a plurality of perforations or slots **39** for the exit of the vaporized glycol through the chimney provided by the sections **22** and **23**.

The heating unit **25** may be of any approved construction and may be mounted within the chimney section **23** in any convenient manner.

The container **13** may be formed of any approved material.

In use, this container **13** is mounted upon the base plate **10**. A wick is extended from within the container **13** to a position between the chimney sections **23** and **22** and is retained in such position by the clamp **28**.

The circuit to the heating unit is completed through the rheostat switch **33**. The heat thus created in the chimney creates a draft and forces the vaporized glycol upwardly through the perforated section of the top wall **38** of the cover **36** for circulation within the room where the vaporizer is placed.

By employing the feature of the Venturi chimney, the emission of the vaporized glycol will be steady and fast, with the consequence that it is not given an opportunity to settle upon adjacent parts to become condensed. This is an important feature of my invention and is advantageous from the standpoint that in using my device, the maximum amount of vaporized glycol is produced and circulated quickly and steadily in the room in which the device is used.

The enclosure of my device may be of an attractive design and may be of such shape as is desirable and most convenient in manufacture.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such

variations and modifications as come within the scope of the appended claim.

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

A device for vaporizing a germicidal agent comprising an enclosure having a bottom wall providing a mounting plate and a top wall having an area thereof perforated, a chimney arranged in the enclosure and supported by a supporting bracket with its open top in registration with the perforated area of the top wall and its lower portion in spaced relation with respect to the mounting plate, said chimney comprising sections arranged in alignment with respect to each other with confronting end portions in spaced relation, said confronting end portions being of lesser diameter than the top and lower portions of said chimney, a heater carried by the mounting plate within the lower section of said chimney, a container having fluid to be vaporized mounted on said mounting plate adjacent said chimney and having a wick extending therefrom with its end portion arranged between confronting end portions of the chimney sections and above said heater, and means for releasably holding said end portion of said wick between said confronting end portions of the chimney sections and above said heater said wick holding means comprising a spring clamp embracing the said end portion of said wick, said spring clamp being an integral part of said chimney supporting bracket.

WALTER R. FRANK.

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