July 14, 1936. F. R. HART ET AL 2,047,470

STEAM APPLICATOR EMPLOYING ULTRAVIOLET LIGHT

Filed Oct. 19, 1932

Fig. 1.

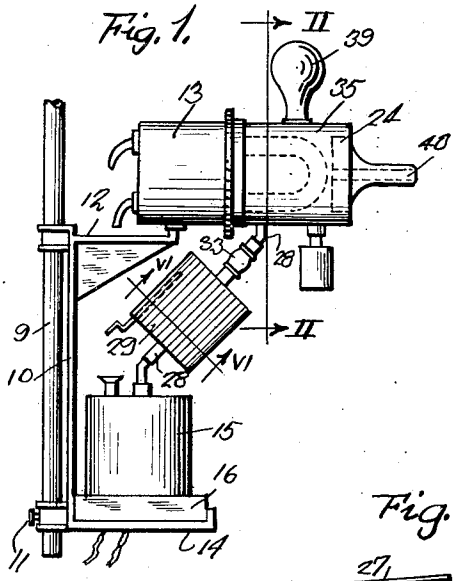


Fig. 3.

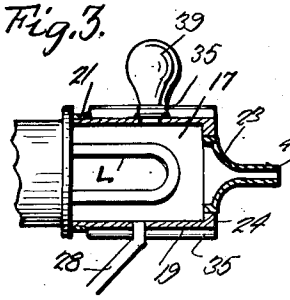


Fig. 2.

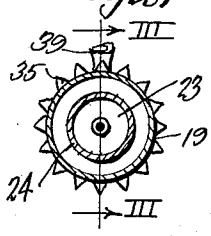


Fig. 5.

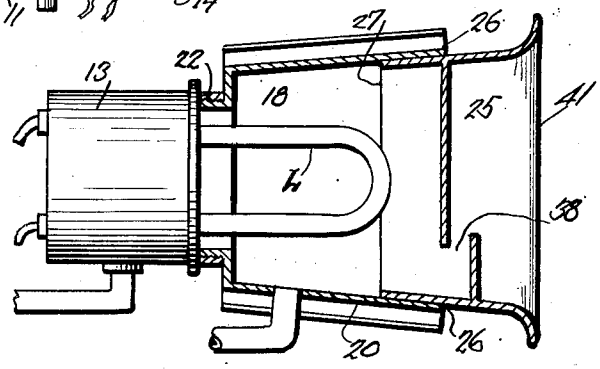


Fig. 4.

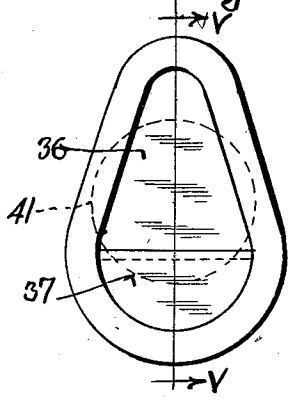


Fig. 6.

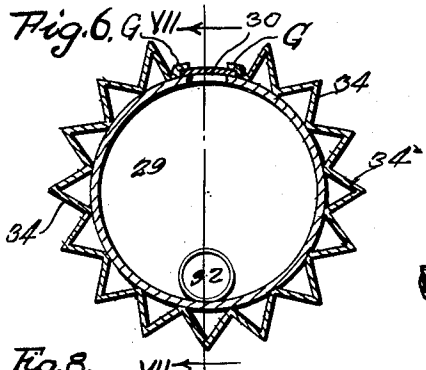


Fig. 7.

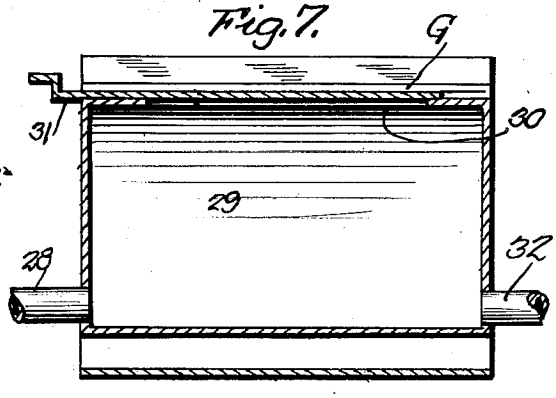
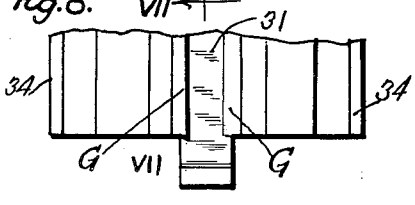


Fig. 8.



INVENTORS
Frank R. Hart and
BY Sally W. Lasher
Francis H. Davis.
ATTORNEY.

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STEAM APPLICATOR EMPLOYING ULTRAVIOLET LIGHT

Frank R. Hart and Sally W. Lasher,
Pacific Grove, Calif.

Application October 19, 1932, Serial No. 638,640

1 Claim. (Cl. 128—172.2)

This invention relates to steam applicator employing ultraviolet light.

In our former inventions germane to this art, we have been using ultraviolet light elements disposed extraneously to the applicator, whereas, in this disclosure we deal with the ultraviolet light element as being disposed within the applicator; by so doing we attain a more intense play of light upon the steam, and at a point nearer to the patient which is a great advantage. Furthermore this disposition of the light element eliminates certain expensive quartz lenses and other apparatus at present required, such as double-walled applicators to cool the steam.

A principal object of our invention is to dispose the ultraviolet light element, per se within the applicator, whereby the light is applied to the steam with the least loss of energy, and at the nearest possible point to the patient.

Another object is to provide improved means for cooling the steam, by providing a novel steam receiver under regulable control and furnished with radiator members adapted to carry off the heat.

A further object is to provide the adapter with radiator members.

An additional object is generally to improve applicators of this type, to facilitate their operation, to provide security for the patient, and cheapen the cost of production; together, with other objects and advantages which may appear as the specification unfolds, be particularly pointed out in the claim and illustrated in the accompanying drawing attached hereto and made part hereof, in which,—

Figure 1 is a general elevational view of one embodiment of our invention.

Figure 2 is a section taken on the line II—II of Figure 1.

Figure 3 is a section taken on the line III—III of Figure 2.

Figure 4 is a front elevational view of the inhaler, another embodiment of our invention.

Figure 5 is a section taken on the line V—V of Figure 4.

Figure 6 is a section taken on the line VI—VI of Figure 1.

Figure 7 is a section taken on the line VII—VII of Figure 6.

Figure 8 is a fragmentary top-plan view of the intake end of the steam receiver.

Similar reference indicia refer to similar parts throughout the several views.

In carrying out our invention we provide the stand 9, preferably portable on wheels unnecessary to show as forming no part of the present invention.

The bracket 10, adjustable for height by the hand-screw 11, is provided with the laterally-extending arm 12, which carries the ultraviolet ray lamp structure 13, provided with the light element per se L, which may well be of the cold quartz type.

The lateral arm 14 carries the steam kettle 15 mounted on the conventional heater unit 16.

It will be noted in Figures 3 and 5 that the light L is disposed within the respective chambers 17 and 18 of the respective applicator bodies 19 and 20 which are attachable to said lamp structure by screw threads as 21 and 22, or in other suitable manner. The applicator 23 preferably engages with the body 19 by screw-threads as 24, and is adapted for use with non-respiratory organs; whereas, the applicator 25 is for respiratory use, both may be removed for sterilization, as by boiling.

The applicator 25 is of novel construction and adapted to engage the mouth 26 of the body 20 by a taper fit whereby the inner end 27 of said applicator slips into the complementary tapered mouth 26 thus attaining secure demountable connection, however, we do not wish to be restricted to this exact construction for demountably-attaching said applicator to the body 20 as it may be done in various ways.

The kettle 15 is arranged to supply steam to either of said applicators through the pipe 28 which enters the receiver 29 at the lowest point thereof, an arrangement which allows the heated steam to expand upwardly toward the vent 30, controlled by the valve 31 slidable between the respective longitudinally-disposed guides G—G and the adjacent surface of said receiver.

The outlet pipe 32 is alined with the pipe 28 and is provided with the check valve 33 arranged to control the course of the steam from said kettle to either of the applicators.

The question of maintaining a correct and uniform degree of heat within said applicators has been a vexing problem in our practice, until our discovery of the present triple method of heat control, comprising; first, the valve 31; second, the heat-radiating elements 34 carried by the receiver; and, third by the heat-radiating elements 35 carried by said applicators, which said means, when properly adjusted, maintain the steam at the proper degree of temperature for use without further attention.

Said radiating elements may well be formed of a suitably crimped band of thin-gage metal

slipped over said applicators and secured as by soldering. Each said crimp, in combination with the adjacent surface of the applicator forms a substantially equilateral triangular area, open at both ends.

A difficulty encountered in our practice arose from the erythemal effect caused by the direct rays of violet light playing on the patient, an effect which we had to counteract by smearing the exposed parts with suitable unguents.

In the present invention we provide the applicator **25** with the respective over-lapping baffle members **36** and **37** which exclude the light from the patient and yet admit the flow of steam through the passage **38**; the member **37** also prevents condensed steam dribbling on the patient.

When treating such parts as the rectum, the urethra or the vagina an applicator substantially as **23** is used, and the rayized steam is forced into the cavity by manipulation of the bulb **39** which co-operates with the check valve **33** alternately to admit steam into said adapter and expel it through the mouth **40** of said adapter into said cavity.

When using the inhaler applicator **25** said check is not required; the use of said applicator is obvious, the patient places the nose and mouth close against the flanged mouthpiece **41** and inhales and exhales the steam immediately after its rayization by passing through the closely-adjacent ultraviolet light.

It is believed that our invention and the advantages to be gained by the use thereof are fully explained. In reducing our invention to practice, certain minor features in construction, combination and of parts may necessitate alteration, to which the patentees are entitled, providing such alteration is comprehended in the scope of what is claimed.

What we claim is:—

In a device of the kind described, an applicator to receive and dispense irradiated vapor, an ultraviolet light element in the applicator to be enveloped by the vapor, a source of steam, a receiver interposed between the source of steam and applicator and including a receptacle with inlet and outlet connections for steam adjacent the bottom thereof and a regulable air inlet at the upper end of the receptacle, acting to produce a circulation of steam in the receptacle and mixture with air for reducing the steam to vapor before passage to the applicator.

FRANK R. HART.
SALLY W. LASHER.