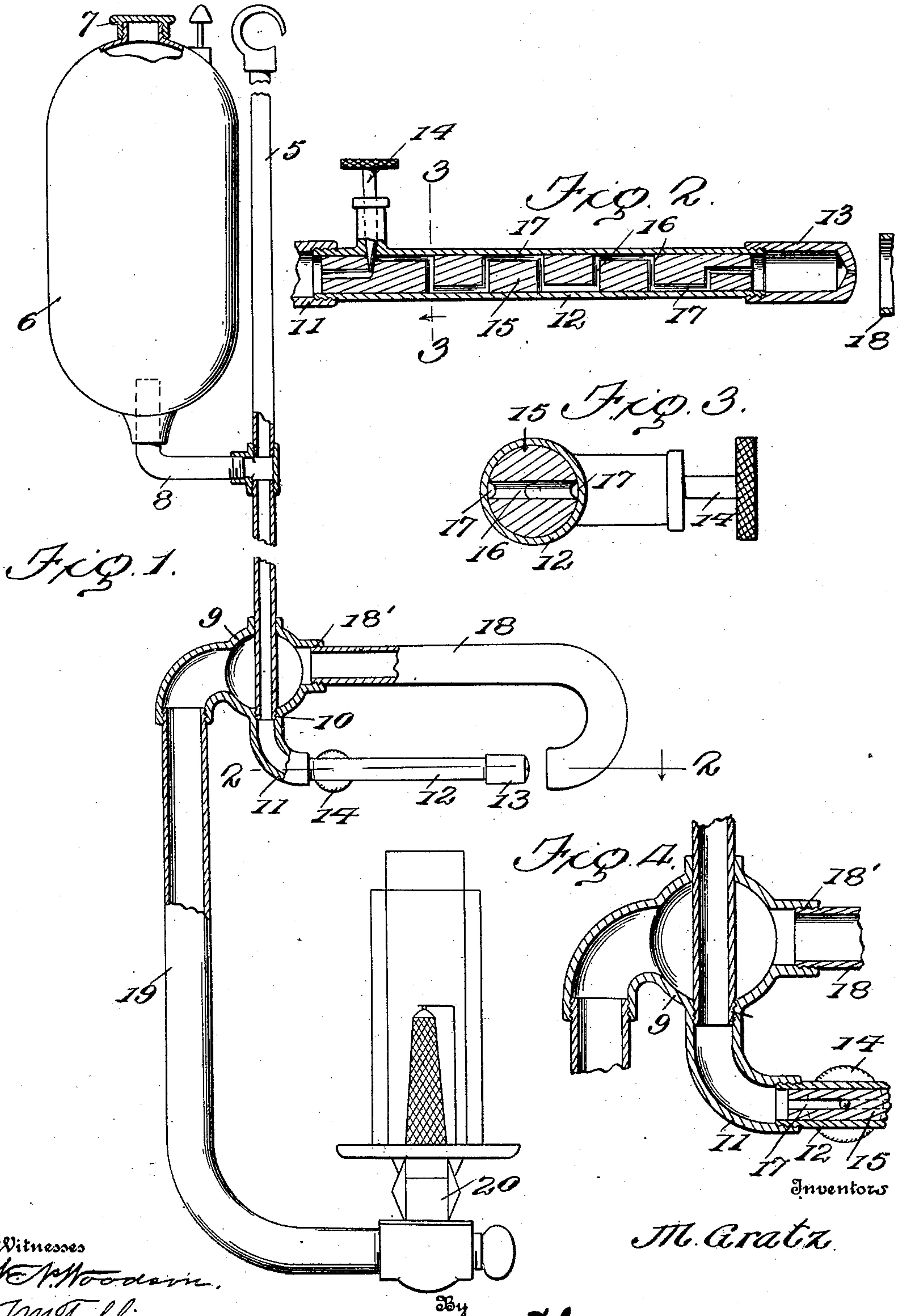


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VAPOR BURNER.  
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# UNITED STATES PATENT OFFICE.

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VAPOR-BURNER.

954,092.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MARTIN GRATZ, citizen of the United States, residing at Prescott, in the county of Yavapai and Territory of Arizona, have invented certain new and useful Improvements in Vapor-Burners, of which the following is a specification.

This invention relates to vapor burners and has for its object to provide a comparatively simple and inexpensive device of this character, the construction of which is such as positively to prevent the gasolene or other hydro-carbon from gaining access to the mixing chamber and causing a red flame at the burner tip.

A further object of the invention is to provide a vapor generating gas fixture so constructed that a relatively long mixing chamber is provided, the air and gas being heated subsequent to their mixture, and while *en route* to the burner, with the result that an intimate and thorough mixture of said elements and consequently the maintenance of a strong steady light are insured.

A further object is to provide a device of the character described including a generator calculated to afford a long travel to the gasolene or other hydro-carbon while the same is exposed to the heat of the burner, thus insuring the production of a very dry and rich gas.

A still further object of this invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions, and minor details of construction may be resorted to within the scope of the appended claims.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a side elevation partly in section, of a vapor generating gas fixture constructed in accordance with my invention. Fig. 2 is a longitudinal sectional view taken on the line 2—2 of Fig. 1. Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2. Fig. 4 is an enlarged vertical sectional view of the coupling member, and its associated parts.

Corresponding and like parts are referred

to in the following description and indicated in all the views of the accompanying drawings, by the same reference characters.

The improved vapor burner forming the subject matter of the present invention, includes a hanger 5, preferably in the form of a tube and designed to be connected to and depend from a ceiling or other suitable support.

Disposed at the upper end of the hanger is a tank 6 adapted to receive a quantity of gasolene or other hydro-carbon, said tank being provided with a removable cap 7 to permit refilling of the tank and provided at its lower end with a pipe section 8 forming a source of communication between the bottom of the tank and the tubular member or hanger 5. The lower end of the tubular member or hanger 5 extends through a coupling 9 and is provided with terminal threads 10 for engagement with the correspondingly threaded walls of an elbow 11 depending from the coupling 9 as shown.

Threaded in the free end of the elbow 11 is a generator 12 the latter being preferably in the form of a tube, one end of which is provided with a tip 13 having a perforation formed therein to permit the escape of the vapor, there being a needle valve 14 disposed in advance of the elbow 11 for controlling the flow of hydro-carbon from the supply tank to the generator.

Arranged within the tubular generator 12 is a cylindrical core 15 having a series of spaced transverse openings 16 formed therein and connected by longitudinally disposed grooves 17, the latter being disposed in staggered relation so as to retard the flow of oil and thus allow the latter to be thoroughly vaporized prior to its admission to the superheater indicated at 18. The superheater 18 is disposed above the generator 12 and is provided at one end with a threaded terminal 18' having engagement with a correspondingly threaded nipple of the coupling 9 and is bent downwardly and inwardly at its opposite end so that the mouth thereof is disposed in substantially horizontal alinement with the generator 12.

Depending from the coupling 9 is a pipe or conductor 19 which forms in effect a mixing chamber, and through which the mixture is conducted to the burner tip 20. The burner 20 is disposed beneath the generator 12 and superheater 18, so that after the hy-



dro-carbon is vaporized in the generator 12, said vapor will be superheated by the flame from the burner 20, thus insuring a rich dry gas for delivery to the burner tip.

5 In using the device, the valve 14 is opened after the generator has been heated by a torch or the like, and when sufficient gas has been generated to support a flame at the burner 20, said burner is lighted. When the  
10 burner 20 is lighted the heat from the latter will heat the generator 12 and the generation of gas and the consumption of the same at said burner will continue so long as the valve 14 is left in open position. Attention is here  
15 called to the fact that the superheater 18, the coupling 9, and vapor conductor 19 together form an air and gas mixing chamber while by reason of the mixing chamber being carried downwardly from its receiving end  
20 adjacent the top of the generator, the entrance of gasolene into the mixing chamber is practically precluded, and liability of any gasolene finding its way to a point below the burner is effectively obviated.

25 It will be noted that by reason of that portion of the mixing chamber constituting the superheater 18 being disposed above the burner the air and gas will be heated *en route* to the burner with the result that intimate and perfect union of the same will  
30 take place and a highly inflammable gas will be produced and delivered to the burner. It will also be noted that the hot air and gas passing through the coupling 9 heats the  
35 tube or hanger 5 and the gasolene therein with the result that the gasolene is partially heated when it reaches the generator.

Having thus described the invention, what I claim as new, is:

40 1. In a vapor burner, a lamp supporting vapor conductor, a coupling secured to said conductor, a superheater carried by the coupling, a supply pipe extending through said coupling, a generator operatively con-  
45 nected to the supply pipe, and means for controlling the admission of oil to the generator.

50 2. In a vapor burner, a lamp supporting vapor conductor, a generator, a superheater disposed above the generator, a coupling

forming a connection between the conductor, generator and superheater respectively, a supply pipe extending toward the coupling and a valve for controlling the flow of oil through the supply pipe, to the generator. 55

3. In a vapor burner, a lamp supporting vapor conductor, a generator, a core disposed within the generator and provided with spaced transverse openings connected by longitudinal grooves, a superheater disposed  
60 above the generator and constituting a mixing chamber, a connection between the generator, superheater and conductor, a supply pipe connected with the interior of the generator, and a valve for controlling the ad- 65 mission of oil through the supply pipe to the openings in the core.

4. In a vapor burner, a lamp supporting vapor conductor, a coupling secured to the conductor, a generator supported by the  
70 coupling, a superheater disposed above the generator and having one end thereof disposed in alinement with the generator and at its opposite end connected with the coupling, a supply pipe extending through the  
75 coupling, a tank, a pipe section forming a source of communication between the supply pipe and tank, and a valve controlling the admission of oil to the generator.

5. In a vapor burner, a lamp supporting  
80 vapor conductor, a coupling secured to one end of the conductor, a generator supported by the coupling, a core disposed within the generator and provided with spaced transverse openings connected by longitudinal  
85 grooves disposed in staggered relation to each other, a superheater disposed above the generator and having one end thereof secured to the coupling, and its opposite end bent downwardly and inwardly and spaced  
90 from the free end of the generator, a pipe communicating with the interior of the generator, and a valve for controlling the admission of oil to the generator.

In testimony whereof I affix my signature 95 in presence of two witnesses.

MARTIN GRATZ. [L. s.]

Witnesses:

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