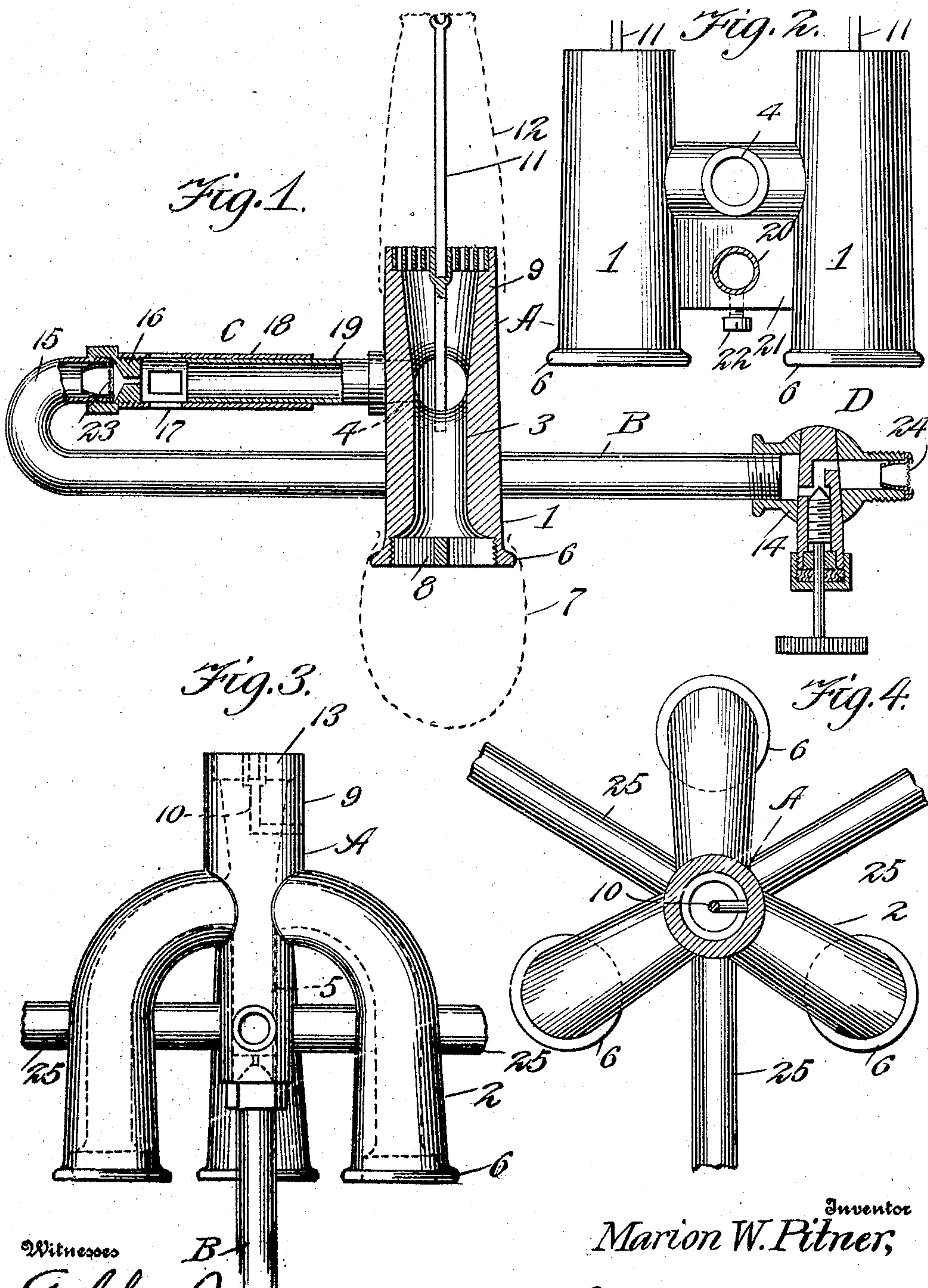


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 COMBINED UPRIGHT AND PENDENT MANTLE GAS BURNER.  
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919,945.

Patented Apr. 27, 1909.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## COMBINED UPRIGHT AND PENDENT MANTLE GAS-BURNER.

No. 919,945.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed June 11, 1907. Serial No. 378,404.

*To all whom it may concern:*

Be it known that I, MARION W. PITNER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in a Combined Upright and Pendent Mantle Gas-Burner, of which the following is a specification.

This invention relates to burners and has for its principal object to provide a burner designed to emit direct rays in every direction, and whereby increased brilliancy is obtained, the burner being adapted for use with ordinary illuminating gas or a vapor mixture produced from liquid hydro-carbon.

A further object of the invention is the provision of a burner having a plurality of upwardly and downwardly extending gas conducting passages at the end of each of which is a mantle for receiving gas therefrom.

Another object is to provide a burner body of the character referred to adapted for use in connection with a generator so arranged as to be heated by the hot gases from certain of the mantles, thereby adapting the lamp for burning a liquid hydro-carbon.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention, Figure 1 is a sectional view of one form of burner. Fig. 2 is an end view of the burner body partly in section. Fig. 3 is a side view of a modified form of burner body. Fig. 4 is a plan view thereof.

Similar reference characters are employed to designate corresponding parts throughout the several views.

In the present instance, I have elected to illustrate a light burner designed more especially for the burning of a liquid hydro-carbon, which is vaporized in a suitable generator included in the burner, but it is to be understood that the invention is not necessarily limited to liquid fuel burning systems, since it possesses features that readily adapt the burner for use with ordinary illuminating gas.

Referring to the drawing, A designates the burner body; B, the vaporizer; C, the mixing device; and D, the controlling valve. The

burner body A is preferably, although not necessarily, a metal casting having any number of downwardly extending legs, as for instance, two legs 1, as in Figs. 1 and 2, and three legs 2, as in Figs. 3 and 4, each of which is cored out to provide a gas-conducting passage 3. The upper or inner ends of these passages communicates with a common inlet 4 that extends from one side of the body A, as in Fig. 1, or from the bottom of the body, as shown in Fig. 3, there being preferably a boss 5 at the said inlet. The lower extremities of the legs 1 and 2 are provided with beads 6 over which can be secured bag or sack-like mantles 7, there being inserted in the outlet ends of the passages of the legs, suitable screens 8. When the burner body is used in a lamp intended to burn ordinary illuminating gas, the service pipe can be attached directly to the injector by screwing into the inlet opening thereof.

The burner body A is formed with an upwardly extending neck 9 that is open throughout its length and communicates with the inlet opening so that gas can pass freely thereto. One of such tubular extensions is shown in Fig. 3, and two in Fig. 2. In each extension is a socketed support 10 for the reception of the lower end of a mantle supporting rod 11, whereby an upright mantle 12 can be held over the hollow extension with the lower end of the mantle surrounding the latter, as shown in Fig. 1. In each extension 9 is arranged a suitable screen 13 through which the mantle supporting rod 11 extends to engage in the socket of the supporting bracket 10. While it is preferable to supply both sets of mantles from a single inlet, it is to be understood that more than one inlet may be provided if desired.

The vaporizer B, according to the construction shown in Fig. 1, comprises a horizontal tube that is threaded at its inlet end into the casing 14 of the controlling valve D, and the opposite end of the vaporizer tube is provided with a return bend or connection 15 which is united with the mixer C, there being interposed between the mixer and vaporizer an injector 16 for discharging the vapor into the mixer and thereby draw air into the latter through the inlet opening 17. The mixer C is composed of telescoping tubular sections 18 and 19, which latter has a threaded engagement in the inlet opening 4, as shown in Fig. 1. The legs 1 of the burner body extend over the vaporizer B and the latter extends



through an opening 20 in the web 21 formed between the legs, there being a set screw 22 for holding the burner body in fixed position. By adjusting the burner body back and forth, the section 19 moves therewith so that the opening 17 can be reduced or enlarged to vary the amount of air drawn into the mixer. The heat rising from the bottom set of mantles 7 serves to maintain the vaporizer B at a suitable temperature to effectively vaporize the liquid hydro-carbon supplied to the vaporizer. In order to insure against the passage of particles or sediment to the burner, a screen 23 is arranged at the discharge end of the vaporizer and a screen 24 at the inlet of the valve D.

In the form shown in Fig. 3, the generator B is arranged vertically between the mantles on the legs 2 and the upper or discharge end connected with the hollow extension 5 of the burner body, and the air for producing the combustible mixture is supplied through a plurality of radial pipes 25 connected to and communicating with the hollow of the extension 5 so as to thereby supply air to mix with the vapor, the location of the pipes 25 being such that the air becomes more or less heated before commingling with the vapor.

From the foregoing description taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative and that such changes may be made when desired, as are within the scope of the claims.

Having thus described the invention, what I claim is:—

1. A burner comprising a body having upwardly and downwardly extending passages, a screen threaded in the discharge end of the downwardly-extending passage, a bead on the lower end of the body, a mantle secured to the body by the bead, a support rising from the body, a mantle on the said support, a vaporizer on which the body is mounted for longitudinal movement, and a mixing device connected with the vaporizer and body and arranged to prevent the latter from turning on the vaporizer.

2. The combination of a burner body having upwardly and downwardly discharging passages and a common inlet communicating with the inner ends of the passages, upright and pendent mantles secured over the discharge ends of the respective passages, screens set into the passages, a tube secured to the body and communicating with the inlet opening thereof, a second tube arranged in telescopic relation to the first and having air inlet ports adapted to be varied in size by the relative adjustment of the tubes, a vaporizer having a return at one end to which the second tube is rigidly connected, means for adjustably securing the body to the vaporizer at a point intermediate its ends and cooperating with the telescopically-connected tubes for holding the body from turning on the vaporizer, and a valve connected to the end of the vaporizer opposite from the return.

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

MARION W. PITNER.

Witnesses:

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