

No. 650,145.

Patented May 22, 1900.

F. A. CODY.
HYDROCARBON INCANDESCENT BURNER.

(Application filed Feb. 21, 1900.)

(No Model.)

2 Sheets—Sheet I.

Fig. I.

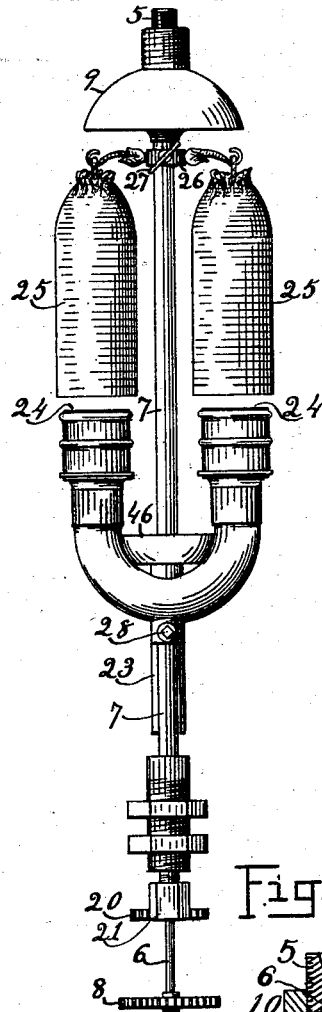


Fig. II.

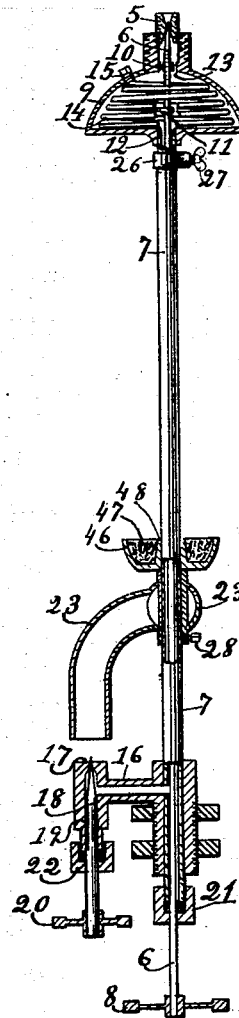
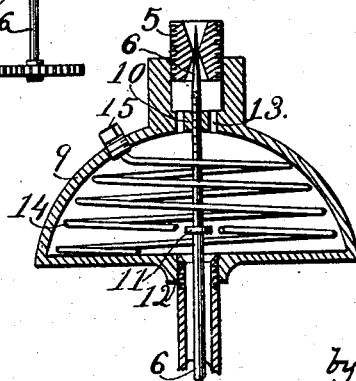


Fig. V.



WITNESSES,
O. K. Stevens.
G. W. Stevens.

INVENTOR,
Frederick A. Cody.
by W. K. Stevens, ATT'Y.

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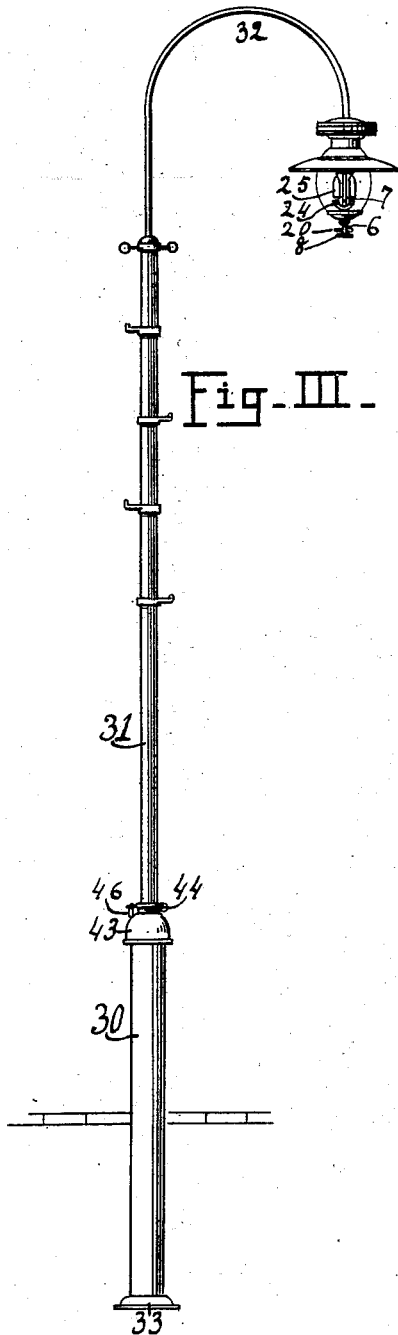


Fig. III.

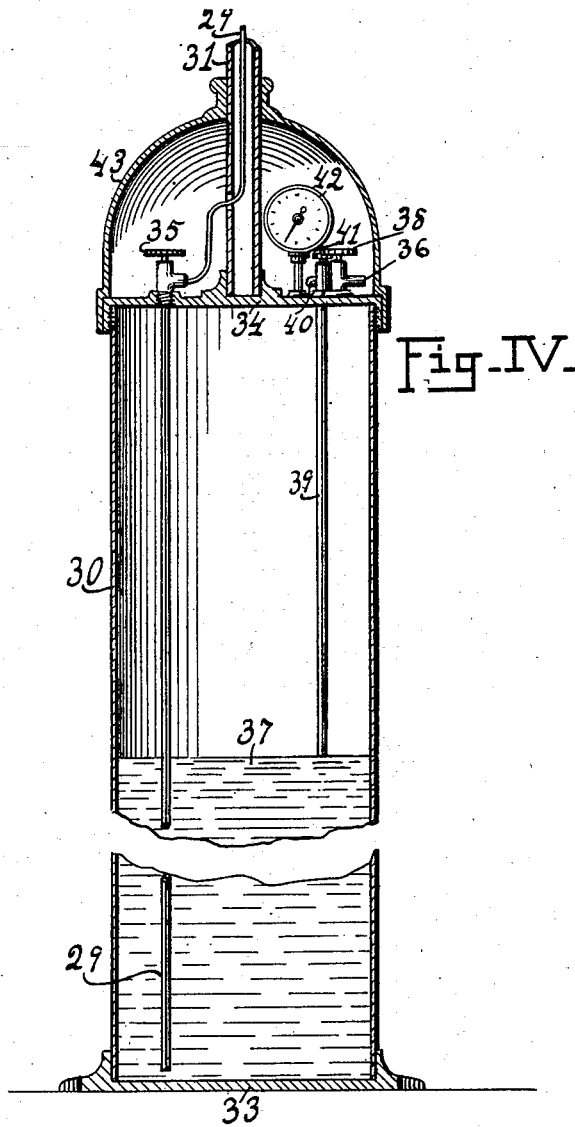


Fig. IV.

WITNESSES,
C. W. Stevens.
C. W. Stevens.

INVENTOR.
Frederick A. Cody.
by W. K. Stevens, ATTORNEY.

UNITED STATES PATENT OFFICE.

FREDERICK A. CODY, OF MIDLAND, MICHIGAN.

HYDROCARBON INCANDESCENT BURNER.

SPECIFICATION forming part of Letters Patent No. 650,145, dated May 22, 1900.

Application filed February 21, 1900. Serial No. 6,104. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK A. CODY, a citizen of the United States, residing at Midland, in the county of Midland and State of Michigan, have invented a new and useful Improvement in Hydrocarbon Incandescent Burners; and I do hereby declare the following to be a full, clear, and exact description of the same.

10 This invention relates to that class of lighting devices which are particularly adapted for lighting streets, buildings, and grounds by burning hydrocarbon; and its object is to convert the hydrocarbon into gas at a high degree
15 of heat and to provide means for cleaning from the conducting-pipe the soot that accumulates in and clogs it.

To this end my invention consists in the construction and combination of parts forming a hydrocarbon incandescent burner, hereinafter more fully described, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure I represents in front view the burner
25 portion of a hydrocarbon incandescent burner according to my invention. Fig. II represents the same in transverse vertical section, partly in side elevation. Fig. III represents the same on a much smaller scale, in connection with a supporting-post suitable for street-lighting. Fig. IV represents the hydrocarbon-supply tank as a portion of the street-lamp post. Fig. V represents in vertical section the spraying-chamber on a larger scale.

35 5 represents a nipple fitted to be engaged at one end with a hydrocarbon-supply pipe and at the other end shaped as a seat for the needle-valve 6, the rod of which extends entirely through the length of the vapor-tube 7
40 and is provided with a handle 8.

9 is the spraying-chamber, secured to the nipple 5 and tube 7 and communicating with both. The valve 6 is screw-threaded through a partition 10, that crosses the inlet of the spraying-chamber and is provided with a collar 11, which is of a size to fit freely within the tube 7, to be run to and fro through the body to scrape soot therefrom and clean it. The upper end of the tube 7 is bell-mouthed
50 at 12 to direct the scraper 11 into it.

13 represents small perforations through the partition 10 to admit the hydrocarbon.

14 is the sprayer, consisting of a bell-shaped coil of wire attached to a screw 15, that closes the hole in the chamber 9, through which the sprayer may be inserted by worming it spirally through the hole. The wire is sufficiently fine and elastic to restore itself to the bell form when fully inserted. The bore of the vapor-tube 7 is large enough to permit the hydrocarbon gas to pass down it around the stem of the valve 6 to a branch 16, that communicates with the delivery-nozzle 17.

18 is a needle-valve screw-threaded at 19 into the nozzle 17 and provided with a handle 20.

The valves 6 and 18 are provided with stuffing-boxes 21 and 22, respectively, to make close joints.

23 is the mixing-chamber, in which air and gas combine and are led to the burner 24.

25 represents the usual mantles, hung upon the arms of a bracket 26, that is fitted to slide up and down the body 7 and is provided with a binding-screw 27, by which it may be secured to hold the mantles at the height desired above the burners. The burners and mixing-chamber are also fitted for vertical adjustment on the tube 7 and provided with a binding-screw 28, whereby the position of the mixing-chamber may be at any time adjusted relatively to the gas-delivery nozzle 17, so as to draw in more or less of the surrounding air.

29 is the supply-pipe, connecting the nipple 5 with the tank 30 through the post 31 and bent pipe-arm 32. The tank is the base of the post and is provided with a closed bottom 33 and top 34. The supply-pipe 29 passes through the top and nearly to the bottom within the tank and is provided with a stop-cock 35.

36 is a nozzle by which a pump may be temporarily connected with the tank to supply it with hydrocarbon 37 and with compressed air, and 38 is a stop-cock for the nozzle.

39 is a pipe located within the tank and having its lower end at the proper height for the hydrocarbon to come when first filled, and its mouth 40 is above the tank.

41 is a stop-cock for pipe 39.

42 represents a pressure-gage.

43 is a cap to cover the works on top of the tank and is fitted to slide upon the post 31.

44 is a pin that passes through the neck of

the cap 43 and through the post 31 at one side of the supply-pipe 29, and 45 is a padlock to secure the pin in place and prevent unwarranted removal of the cap 43.

- 5 46 is a cup surrounding the vapor-tube 7 and supplied with a loose packing 47, of asbestos or other suitable material, to serve as an indestructible wick, to be filled with alcohol, gasolene, or other hydrocarbon to burn as a starter. The burner portion of which
10 this cup is a member being vertically adjustable on the tube 7, this cup is provided with an interior side 48 to prevent the starting fluid from running down on the vapor-tube, so that
15 the starting-cup is annular.

- In operation hydrocarbon is pumped into the tank until it reaches the pipe 39, whose mouth 40 being open the air above the hydrocarbon will force it to rise in the pipe and
20 flow out of the mouth, thus showing the operator that the tank is charged with hydrocarbon. Then the valve 41 is to be closed and the pump is used to force air into the tank until the desired pressure—usually from
25 sixty to eighty pounds—is indicated on the gage 42. Now if the valves 35 and 6 be opened the pressure in the tank will immediately force the hydrocarbon through pipe 29 into the sprayer 14, and in order that the spray
30 may be expanded into gas the vapor-tube 7 and the sprayer 14 are to be heated by setting fire to the contents of the wick 47. The gas thus generated is forced by the heat down the vapor-tube 7 to the delivery 17, which may
35 now be opened by turning the valve 20, when the jet of the gas being forced up into the mixing-chamber 23 draws in enough of the surrounding air to form an illuminating-gas of high candle-power, and that being lighted
40 at the burners 24 heats the mantles 25 to an intense incandescent glow, which gives off a great volume of diffused white light. This is more full and complete when after a minute or so of burning the spraying-chamber 9 becomes hot, the vapor-tube 7 and the sprayer
45 14 usually being red-hot in service. This causes a portion of the hydrocarbon to become charred, forming soot that very soon clogs the tube 7. After shutting the stop-cock
50 35 and unscrewing the stuffing-box 21 the vapor-tube 7 may be cleaned by drawing the scraper 11 with the valve-rod 6 through it.

- Having thus fully described my invention, what I believe to be new, and desire to secure
55 by Letters Patent, is the following:

1. A pair of lighting-burners; a vapor-tube located between the burners and communicating therewith from below; a spraying-

chamber communicating with the top of the vapor-tube and having an inlet with a perforated partition across it, the chamber spreading over the burners; and an inlet-valve for the chamber located in line of the vapor-tube, the valve-rod passing freely through the vapor-tube longitudinally and screw-threaded
60 through the said partition in the inlet and provided with a handle at its lower end, substantially as shown and described.

2. A pair of lighting-burners; a vapor-tube serving as a supply-pipe for the burners; an inlet-valve-seat in line of the vapor-tube; a valve to engage the said valve-seat provided with a rod extending longitudinally through the vapor-tube, and a scraper fixed as a collar upon the valve-rod, substantially as described.
75

3. A pair of lighting-burners; a vapor-tube serving as a supply-pipe therefor, a spraying-chamber connected with the said vapor-tube; an inlet-valve seat in line of the vapor-tube; a valve to engage the said seat and having a rod extending longitudinally through the vapor-tube; a scraper-collar upon the said rod and located normally beyond the end of the said vapor-tube, and this tube provided with
80 a bell-shaped mouth to receive the said collar, substantially as described.

4. A pair of lighting-burners having a supply-pipe; a spraying-chamber located over them and communicating with the said pipe; a sprayer of coiled wire adapted to be wormed into the said chamber and provided with a screw to close its entering-hole, substantially as described.
90

5. A vertical vapor-tube serving as a supply-pipe for hydrocarbon-burners; a pair of burners adjustably secured upon the vapor-tube, and an annular starting-cup located between the burners and around the said vapor-tube, substantially as described.
100

6. In hydrocarbon-burners, a vapor-tube serving as a supply-pipe to the burners; a gas-delivery nozzle connected with the lower portion of the vapor-tube and pointing in a direction parallel with the vapor-tube; and
105 burners supported by the vapor-tube and having their inlet opposite to the said nozzle, the said burners being adjustable along the vapor-tube to and from the said nozzle, substantially as described.
110

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

FREDERICK A. CODY.

Witnesses:

FLOYD E. DAVIS,
M. E. WOOD.