

No. 670,013.

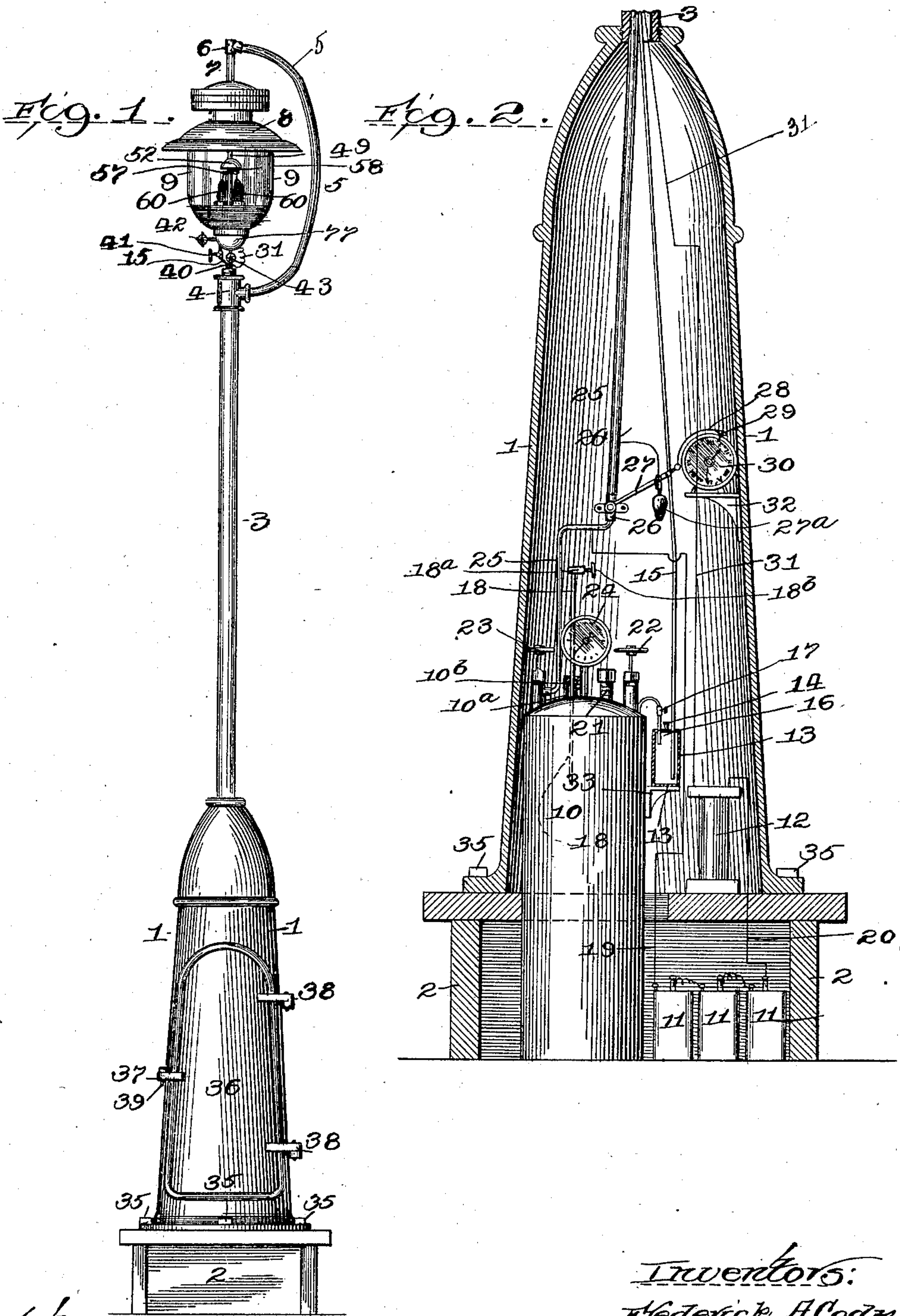
Patented Mar. 19, 1901.

F. A. & R. D. CODY.
HYDROCARBON INCANDESCENT LAMP.

(No Model.)

(Application filed Sept. 21, 1900.)

2 Sheets—Sheet 1.



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Fig. 3.

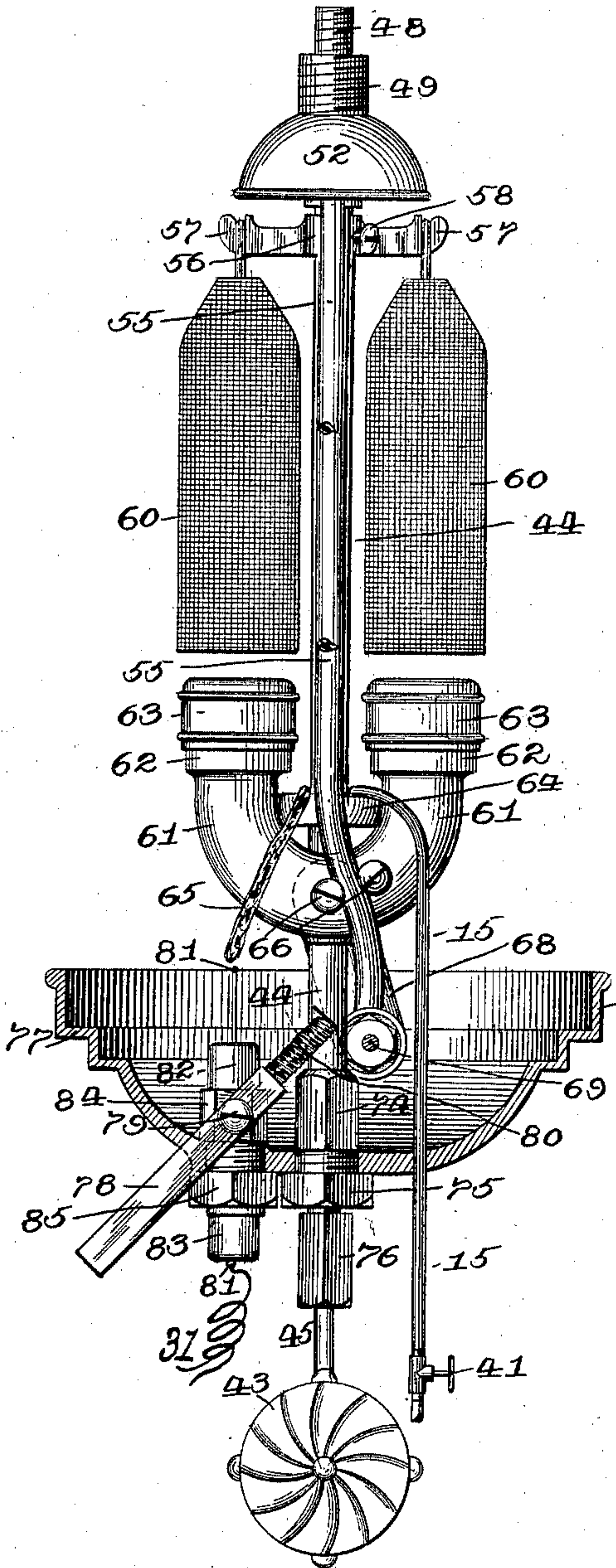
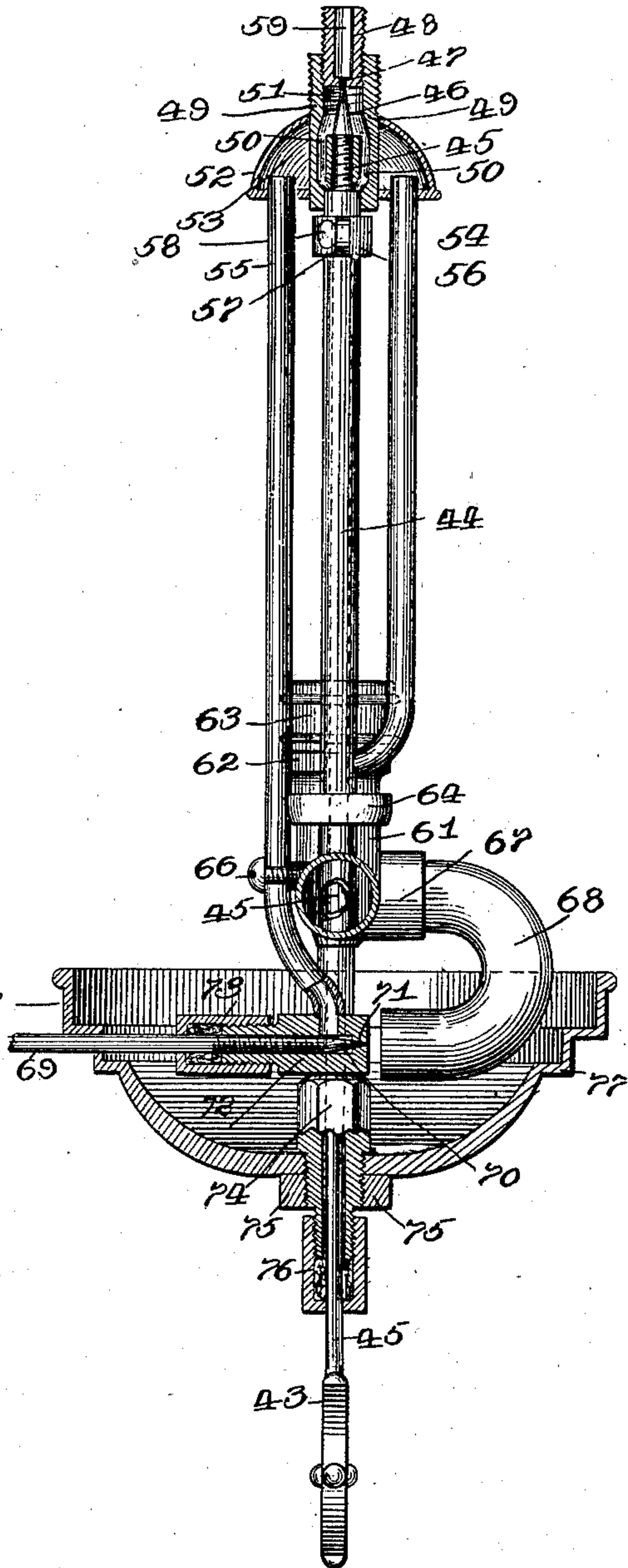


Fig. 4.



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UNITED STATES PATENT OFFICE.

FREDERICK A. CODY AND ROBERT D. CODY, OF CHICAGO, ILLINOIS.

HYDROCARBON INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 670,013, dated March 19, 1901.

Application filed September 21, 1900. Serial No. 30,682. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK A. CODY and ROBERT D. CODY, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Hydrocarbon Incandescent Lamps; and we do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates in general to that class of lamps which are adapted for street and park lighting, and particularly to such as use incandescent burners with hydrocarbon.

The object of the invention is to provide a hydrocarbon-lamp with a reservoir for containing hydrocarbon under pressure, means for conveying the hydrocarbon to the lamp and for vaporizing it in passage, an auxiliary heater for producing such vaporizing before the lamp is lighted, and means for utilizing the pressure which is upon the hydrocarbon for supplying the said heater with fuel at will.

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

Figure 1 represents in side elevation a street-lamp according to our invention. Fig. 2 represents in vertical section, partly in side elevation, the body of the lamp-post and its contents. Fig. 3 is a front view, partly in vertical section, of the lamp; and Fig. 4 is a side view, partly in vertical section, of the same.

Numeral 1 represents the hollow body of the lamp-post, mounted upon a box-shaped base 2 and secured thereon by means of bolts 35.

3 is tubular post rising above the body. It supports the burners and incloses the hydrocarbon-supply pipe 25, the alcohol-supply pipe 15, and the electrical conducting-wire 31.

5 is a hanger-pipe connected with pipe 25 by a coupling 4, which secures it to the post 3, whereby it serves as a hanger for the lamp, with which it is connected by a coupling 6 and pipe 7, leading to the inlet 59 of the body-tube 44, which body passes down centrally between the burners 63 and through the mixing

chamber 61 to the coupling 74, upon which the globe-holder 77 is secured by means of a screw-nut 75.

54 is the ascending gas-pipe communicating between the body-tube 44 and the bell-shaped gas-chamber 52.

55 is the descending gas-pipe communicating between the gas-chamber 52 and the jet 71.

61 is the mixing-chamber for gas and air, having a curved passage 68, whose mouth is open opposite to the jet 71. The burner 63 is removably fitted over the enlarged upper end 62 of the mixing-chamber.

60 represents the mantles which become incandescent by heat and give off light.

57 is the mantle-supporting arm, secured upon the body 44 by a binding-screw 58.

70 is a jet-valve of the needle type having a stem 69 screw-threaded into the body 72 of the jet 71 and provided with a stuffing-box 73 to keep the opening for the valve-stem tight.

45 is the stem of a needle-valve whose tapering plug portion 46 is seated at 47 in the mouth of the nipple 48, through which is the inlet-passage 59 for hydrocarbon. The stem 45 is screw-threaded through a central portion of a plug 49, and through this central portion are passage-ways 50, leading from the valve-chamber 51 to the body-pipe 44, around the loosely-fitting stem 45.

66 represents steadying-screws for the descending pipe 55. The stuffing-box 76 is screw-threaded upon the coupling 74 to prevent escape of hydrocarbon around the stem 45, which projects below and is provided with a handle 43.

10 is the reservoir for holding the hydrocarbon, usually gasolene, which is consumed in service by this lamp. The supply-pipe 25, leading from this reservoir, is provided with a stop-cock 23.

21 represents the coupling through which the gasolene may be poured into the reservoir and by which an air-pump may be attached to put the gasolene under sufficient pressure to raise it to the burner.

22 is a stop-cock for the pipe connected with coupling 21.

24 is a gage to indicate what pressure is in the reservoir.

18 is a gage-tube fitted to slide down into the reservoir through an aperture 10^a, having a stuffing-box 10^b and just long enough to reach the bottom of the reservoir and provided with a discharge-nozzle and stop-cock 18^a.

13 is a reservoir for alcohol, located on a bracket 33 and connected with a cup 64 by a pipe 15, having a stop-cock 41.

14 is the mouth at which the reservoir 13 is to be supplied with alcohol.

16 is a pipe communicating between the tanks 10 and 13, and 17 is a stop-cock for letting compressed air from reservoir 10 to reservoir 13 to press alcohol up into cup 64.

65 is an asbestos wick resting partly in cup 64 and hanging over its side to meet a sparking-wire 81, which is connected by a wire 31 with the sparking-coil 12 of a battery 11. A wire 20 connects one end of the coil 12 with one side of the battery 11 and another wire 19 connects the other side of the battery with the supply-pipe 25.

82 and 83 represent insulating material supporting the sparking-wire 81.

78 is a lever connected with the metallic circuit of the supply-pipe 25, by means of its pivot-screw 79 entering the block 84, that passes through the globe-holder 77 and is bound thereto by screw-nut 85, the globe-holder being in metallic connection with supply-pipe 25.

80 is a spring on one arm of the lever 78 and has a point to rub against the wire 81 when the lever 78 is swung to and fro, thus making and suddenly breaking the circuit, causing sparks to be emitted from the point of wire 81.

26 is a stop-cock in the supply-pipe 25, provided with an arm 27, having a weight 27^a hung on it by a loop 26^a and provided with a wire loop 28, connected with a pin 29, that may be placed in any one of a series of holes on the dial of a clock 30, so that at the hour prescribed the pin will be released by the clockwork, permitting the arm 27 to be pulled down by the weight 27^a, so as to close the stop-cock 26, whereby the supply of gasoline will be stopped and the lamp be extinguished.

36 is a door in the side of the body 1.

38 represents hinges, and 37 39 the door-fastenings.

In operation, the reservoirs 10 and 13 having been duly filled, respectively, with gasoline and alcohol and air forced into the reservoir 10 until the right pressure is indicated by the pressure-gage 24, the cock 17 is to be opened until the air-pressure forces enough alcohol up from the reservoir 13 to fill the cup 64. Now swing the lever 78 and a spark will be emitted from point 81, that will light the alcohol in wick 65, and passing up that the flame will rise from the surface of the cup, heating the three pipes 44, 54, and 55, so that if the stop-cocks 23 and 27 and the needle-valve 45 be opened the gasoline rising by pressure will be expanded into gas in the said

pipes. Then if the needle-valve 71 be opened the gas will be forced into the mouth of tube 68, drawing air with it into the mixing-chamber 61, and rising from the burners 63 it will be lighted by the alcohol-flame and the mantles 60 will be heated, emitting a brilliant light. It often becomes necessary to know how much gasoline remains in the reservoir, and to ascertain this we push the gage-tube 18 down into the reservoir and open the cock 18^a, and when gasoline is discharged it shows that the gasoline in the reservoir is as deep as the projecting length of tube 18. If this operation be dexterously performed, there will be very little pressure of air wasted at each test. This gage-tube might be of a length greater or less than the depth of the tank and still answer the purpose, or it may have gage-marks on it to indicate gallons or any other units of measure.

In operation when the stop-cocks 23 and 27 and the needle-valve 45 are opened the gasoline under pressure in the reservoir 10 rises through pipes 25 and 5 to the pipe 7, through which it descends into the body-tube 44 and thence it rises through pipe 54 to the bell-chamber 52. Thence it descends through pipe 55 to the jet 71, by which it is forced through the open air into the mixing-chamber 68 61, and thence to the burner 63. Alcohol burning in the cup 64, that surrounds the body-tube 44 and is close between the conducting-pipes 54 and 55, heats the hydrocarbon in them into vapor, which discharges through a common wire-cloth burner at 63 and burns as illuminating-gas.

The cup 64 is called an "alcohol-cup," though we are not confined to the use of alcohol as a heater for starting the lamp, as other fluids may serve that purpose. The stop-cock 26 is normally fastened open; but if it is desired to have the light put out at a given hour the pin 29 should be set at the proper hole in the clock-dial. Then when that hour is reached the pin will be set free by the clock mechanism and the weight 27^a will drop with the arm 27 and shut off the supply of gasoline. The electric battery or generator for producing sparks may be of any style known for that purpose. The clock arrangement for freeing the arm 27 to put out the light may also be of any of the styles used in time-locks or for similar purposes, and the lamp-burners may be of any common or preferred form.

Having thus fully described our invention, what we believe to be new, and desire to secure by Letters Patent, is the following:

In hydrocarbon-lamps, a reservoir for containing hydrocarbon under pressure; a lamp and pipes communicating between it and the reservoir; the said pipes being arranged close to the burner of the lamp the heat of which causes vaporization of the hydrocarbon therein; a cup located close to the said pipes and to the burner, for burning alcohol to start vaporization and for communicating flame to

the burner; a reservoir for alcohol located
below the said cup; a pipe communicating
between the reservoir and cup; a pipe com-
municating between the said two reservoirs
5 and a stop-cock in the pipe, whereby air under
pressure in one reservoir may be conducted
to the other, substantially as described.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

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ROBERT D. CODY.

Witnesses:

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I. J. WORK.