

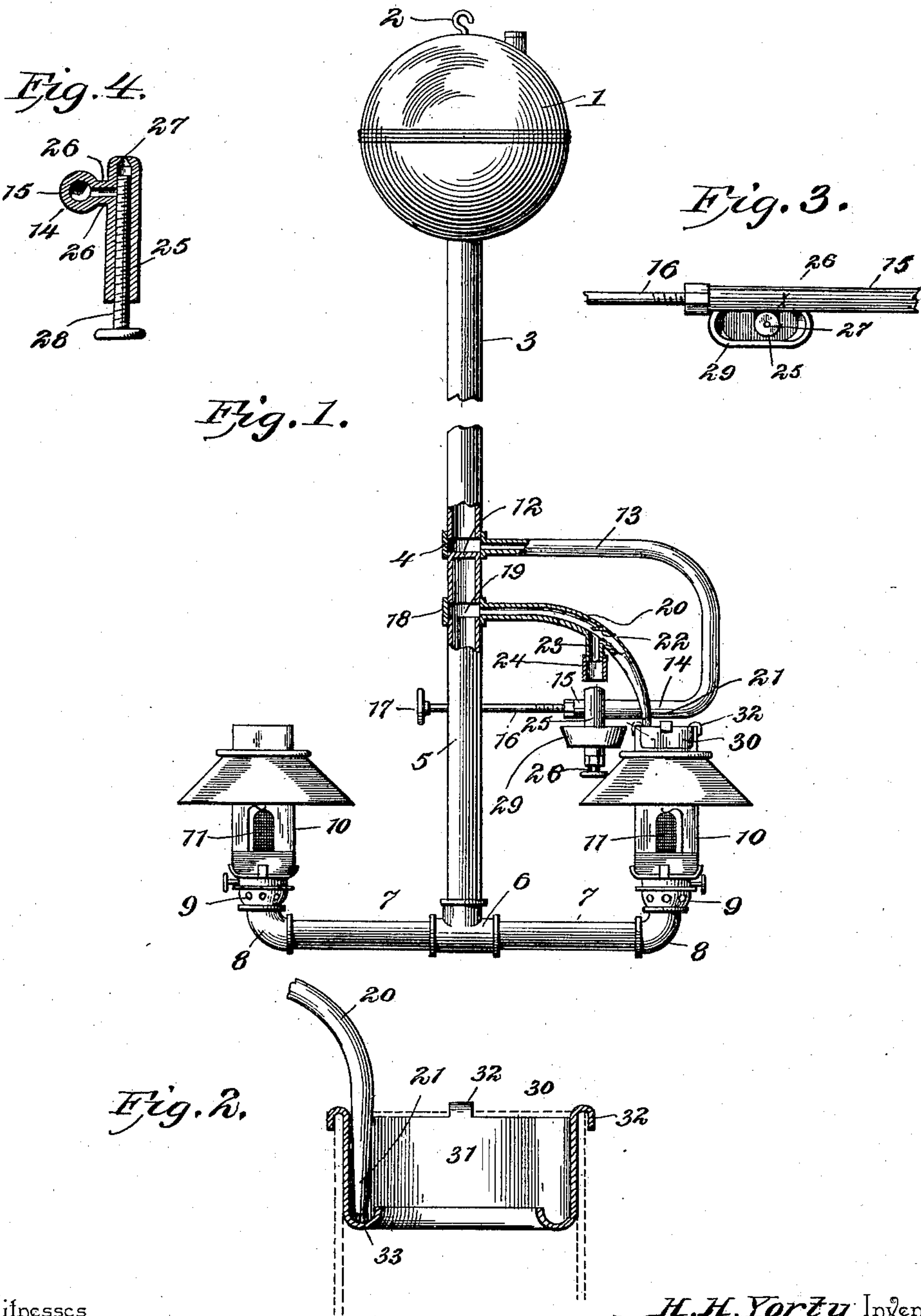
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Patented June 26, 1900.

H. H. YORTY & J. S. PURDY.
INCANDESCENT HYDROCARBON LAMP.

(Application filed Sept. 20, 1899.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

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INCANDESCENT HYDROCARBON-LAMP.

SPECIFICATION forming part of Letters Patent No. 652,308, dated June 26, 1900.

Application filed September 20, 1899. Serial No. 731,122. (No model.)

To all whom it may concern:

Be it known that we, HENRY HARRISON YORTY and JOHN S. PURDY, citizens of the United States, residing at Houston, in the county of Harris and State of Texas, have invented a new and useful Incandescent Hydrocarbon-Lamp, of which the following is a specification.

This invention relates to hydrocarbon-burners, and particularly to an incandescent hydrocarbon-lamp employing an easily-evaporated oil for fuel, which is transformed into gas before burning; and the objects in view are to provide a simple, compact, and efficient construction and arrangement of parts having means for initially starting evaporation of the fuel in a generator by igniting a small quantity of the oil fed by the apparatus to a point above the lamp-burner and subsequently at a short interval by the same means ignite the burner and set up a regular formation of the gas in the generator, and, furthermore, to provide gas-generating means in connection with one burner for supplying an additional burner or burners within a cluster or number of lamps supported by the same pendant.

Further objects and advantages will be hereinafter disclosed in the description and the novelty expressed in the claims, and an embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of an apparatus embodying the invention and showing two burners. Fig. 2 is a detail sectional view of the initial vaporizing device. Fig. 3 is a top plan view of a part of the generator and valved feeding attachment therefor. Fig. 4 is a detail sectional view of one of the valves. Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a reservoir, which may be of the form shown or of any other ornamental character, and has connected to the upper part thereof a suspending device, such as a hook 2. Depending from the lower portion of the reservoir is a pipe or tube 3, which serves as a conveyer for the oil from the reservoir and also as a means of supporting the devices below, and by means of an intermediate collar 4 a lower gas pipe or tube 5 is

held on the pipe or tube 3 and connected at its lower terminal, through the medium of a T-coupling 6, with laterally-extending horizontal branch pipes or tubes 7. The outer terminals of the pipes or tubes 7 have elbows 8 connected thereto, and on their upturned ends burners 9 are secured and supplied with chimneys 10 and mantles 11 of any preferred form, but preferably of the Welsbach character. Two burners 9 are shown in the drawings, together with the necessary equipments therefor; but it will be understood that it is the intention of the invention to use any number of burners within a cluster or group and have the gas-generating apparatus for all disposed over and controlled by one of the burners only. The gas-feeding pipe or tube 5 has its upper end 12 closed, so as to form a partition between it and the oil-feeding pipe or tube 3 for obvious reasons.

Communicating with the collar 4 is the upper end of a generator 13, consisting of a pipe or tube of suitable dimensions and extended outwardly and downwardly by regular bends to a lower horizontal leg or member 14, which stands closely over the upper terminal of the chimney 10 of one of the burners, as shown, and from thence is extended to form a valve-seat extremity 15, in which is adjustably mounted a valve 16 of the form of a screw and having a turn head or wheel 17 attached thereto for adjusting purposes. A collar 18 is fitted over an opening 19 in the upper part of the pipe or tube 5, below the upper closed end 12, and communicating with said collar 18 is the upper end of a combined mixing and starting tube 20, having its opposite end extended downwardly and reduced, as at 21. Within the tube 20, at a predetermined distance from its opposite terminals, is an inclined deflector 22, from which the mixing-tube may be curved downwardly in such manner that the gasolene or fluid used in the lamp will be effectively conducted to the reduced end of the said tube. Connected to said tube below the deflector and at a suitable angle is a nipple 23, having a sleeve 24 adjustably mounted thereon. Below the nipple 23 and sleeve 24 is an injector 25, connected to the valve-seat 15 of the generator 13 by an intermediate branch 26, as shown by Fig. 3. The injector 25 is to be

disposed relatively to the valve-seat extremity of the generator, so that the injection will take place in a direction centrally of the said nipple in a longitudinal line.

5 As will be understood the injecting-orifice 27 is very small and its dimension is controlled by a valve 28, adjustably mounted in the injector and also of the screw type. The said ejector also has attached thereto a drip-
10 pan 29, into which a small quantity of the oil may be run by partially opening the valve 16 for the purpose of heating the generator 14 and valve 16 to generate gas in case it is not desirable to use mixing-tube 20 and re-
15 ceiver, hereinafter set forth, for that purpose. This obviates the application of alcohol for similar purpose in ordinary devices and which is required to be held up by a contain-
20 ing device adjacent the parts, which will be effected in the present instance by the ignited oil in the pan 29.

Over the burner 9 and within or at the top of the chimney 10 is a receiver 30, of any suitable material indestructible by fire, preferably sheet metal. This receiver comprises
25 a surrounding wall 31 to protect the chimney and has hooks or analogous devices 32 on its upper portion. The lower inner portion of the receiver is in the form of a gutter, angular
30 trough, or cup of any shape and adapted to hold a small quantity of the ignitable fluid, asbestos, or other unflammable material that will absorb the fluid and which may be separate and apart from the receiver 30 and at-
35 tached to the mixing-tube 20, generator 13, or any other part of the lamp burner or receiver 30 that will support it under said generator and above burner and of any suitable material. The lower reduced end 21 of
40 the mixing pipe or tube 20 is extended into the said trough and the wall 31 shields and protects the upper part of the chimney 10.

In the operation of the device the oil from the reservoir 1 flows down through the pipe
45 or tube 3 into the generator 13, and the valves 16 and 28 are regulated to permit a small quantity of the oil to be injected into the nipple 23 and by the deflector 22 in the mixing-tube 20 is directed down the tapered outer extrem-
50 ity of said tube to the reduced end 21 and from the latter into the trough 33 at the lower end of the receptacle 30 within the chimney 10. The oil that is deposited in the said
55 trough 33 is ignited and allowed to burn under generator-leg 14 and valve-seat 15 to rapidly heat and vaporize the oil which flows down through generator 13 and cause the gas to be thrown by the injector into the tube 20
60 and to the left, as the parts are positioned, to the gas-feeding pipe or tube 5, and then to the burners 9. The gas from the injector will be drawn or sucked by the blaze within the gutter or trough 33 and will also be prevented
65 from passing down through the tapered extremity of the mixing-tube 20 by the quantity of oil that will still remain in the latter, and the oil within the trough 33, being ignited

at this time, will also cause an ignition of the gas that has reached the burner 9. It will be seen, therefore, that almost simultaneously
70 with the initial heating for starting vaporization the one burner will be ignited and successfully carry on the formation of gas in the generator without loss of time or requiring
75 an extended continuation of initial heating or starting means for inducing vaporization. The remaining burners must be lighted in the ordinary manner, and the combustion taking
80 place at the burner will set up a suction which draws the gas as formed rapidly through the pipe or tube 5.

As will be understood, the feeding end of the injector 25 will be at a distance from the terminal of the nipple 23 in order to draw in
85 air and set up the necessary mixture of gas and air within the tube 20 and which is regulable in accordance with surrounding drafts or currents by the sleeve 24, adjustable on the said nipple. It might also be supposed
90 that the gas injected into the tube 20 would escape through the tapered extremity of said tube instead of flowing into the pipe or tube 5; but the suction of combustion in the sev-
95 eral burners will be so great as to overcome this tendency completely, and, furthermore, what little gas may flow into the said tapered extremity will immediately become super-
100 heated and exceptionally light and will take the direction of escape which offers the least obstruction and which will be through the upper terminal of the said tube 20 into the
105 pipe or tube 5.

The quantity of gas flowing through the injector 25 will be regulated by the valve
110 28, and the amount of gas passing from the valve-seat extremity 15 of the generator to the injector 25 will be controlled by the valve 16, and it will be observed that there is no valve controlling the flow of oil. The oil is
115 permitted to have unobstructed feed into the generator 13, and the gas being formed only at one point or by means of but one apparatus must feed rapidly and in large quantities to supply the several burners with a sufficient
120 amount for practical illuminating purposes. Consequently the flow of oil into the generator must be constant and the feed of the latter in said generator to take the place of that vaporized must be rapid. While the
125 process of vaporization will take place mainly in the leg or member 14 of the generator, in view of the proximity of such part to the burner of the lamp the whole generator will become heated to a greater or less extent and
130 prepare the oil for rapid vaporization before it reaches the said leg or member 14. In the initial heating of the lamp the oil for starting purposes will be injected into the tube 20 with considerable force, in view of the eleva-
135 tion of the source of supply above the injector 25, and after ignition of the oil in the trough 33 of the receptacle 30 the oil that may remain in the generator between the leg or member 14 and the valve-seat extremity 15

will become rapidly vaporized and will almost immediately pass out in the form of gas.

In using the improved apparatus in connection with clusters or groups of lamps of large capacity or of normal capacity and large numbers it may be necessary to materially increase the dimensions of all the parts and also change the location. This variation will be made, and also changes in the proportions and form as well as minor details of construction will be resorted to within the scope of the invention and without sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed is—

1. In a lamp of the character set forth, the combination with a number of independent burners, of a gas-forming apparatus for the burners arranged completely above all the latter and wherein the gas is generated exclusively by one of the burners which is also used for illuminating purposes, a portion of the said gas-forming apparatus extending adjacent to the generating-burner and adapted to contribute to the automatic ignition of the latter.

2. In a lamp of the character set forth, the combination of a burner, an oil or fuel supply, a generator, a mixing-tube, and a receptacle supported above the burner, to which a portion of the said mixing-tube directly leads and adapted to be supplied with a quantity of oil.

3. In a lamp of the character set forth, the combination with a generator and mixing-tube, of a burner, and an oil-receptacle above the burner into which a portion of the mixing-tube extends and adapted to have its contents ignited to initially operate the apparatus and automatically ignite said burner.

4. In a lamp of the character set forth, the combination of an oil-supply, a burner, a generator having an obstructed communication with the oil-supply and a part thereof in proximity to the burner, a valve in the generator for controlling the flow of gas, an injector connected to the generator, an oil-receptacle above the burner adapted to have its contents

ignited to initially operate the apparatus and a mixing-tube in operative relation to the injector and communicating with the feed of the burner, a portion of said mixing-tube also extending into the oil-receptacle.

5. A lamp, of the character set forth, comprising a generator in unobstructed communication with an oil-supply, an oil-receptacle to provide an initially-operating device, a mixing-tube having a portion thereof extended into the oil-receptacle to primarily feed a quantity of oil thereto, and an injector connected to the generator and cooperating with the mixing-tube, the initially-operating device being adjacent a part of the generator.

6. In a lamp of the character set forth, the combination of an oil-supply, a generator having unobstructed communication therewith and supplied with a gas-flow-controlling valve, a mixing-tube having a tapered extremity and reduced terminal and provided with an interior deflector, a burner, means for connecting the burner and mixing-tube, and an oil-receptacle supported above the burner into which the reduced terminal of the mixing-tube is directed, a feeding device being arranged between the generator and the mixing-tube.

7. In a lamp of the character set forth, the combination of an oil-supply, a gas-forming apparatus connected to said supply, a burner provided with a transparent inclosure and in communication also with the gas-forming apparatus, an oil-receptacle supported on the upper part of the transparent inclosure and having a portion of the gas-forming apparatus leading thereto, a part of said apparatus being adjacent the receptacle, and means for controlling the flow of gas.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

HENRY HARRISON YORTY.
JOHN S. PURDY.

Witnesses:

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CHAS. E. JOHNSON.