

No. 682,853.

Patented Sept. 17, 1901.

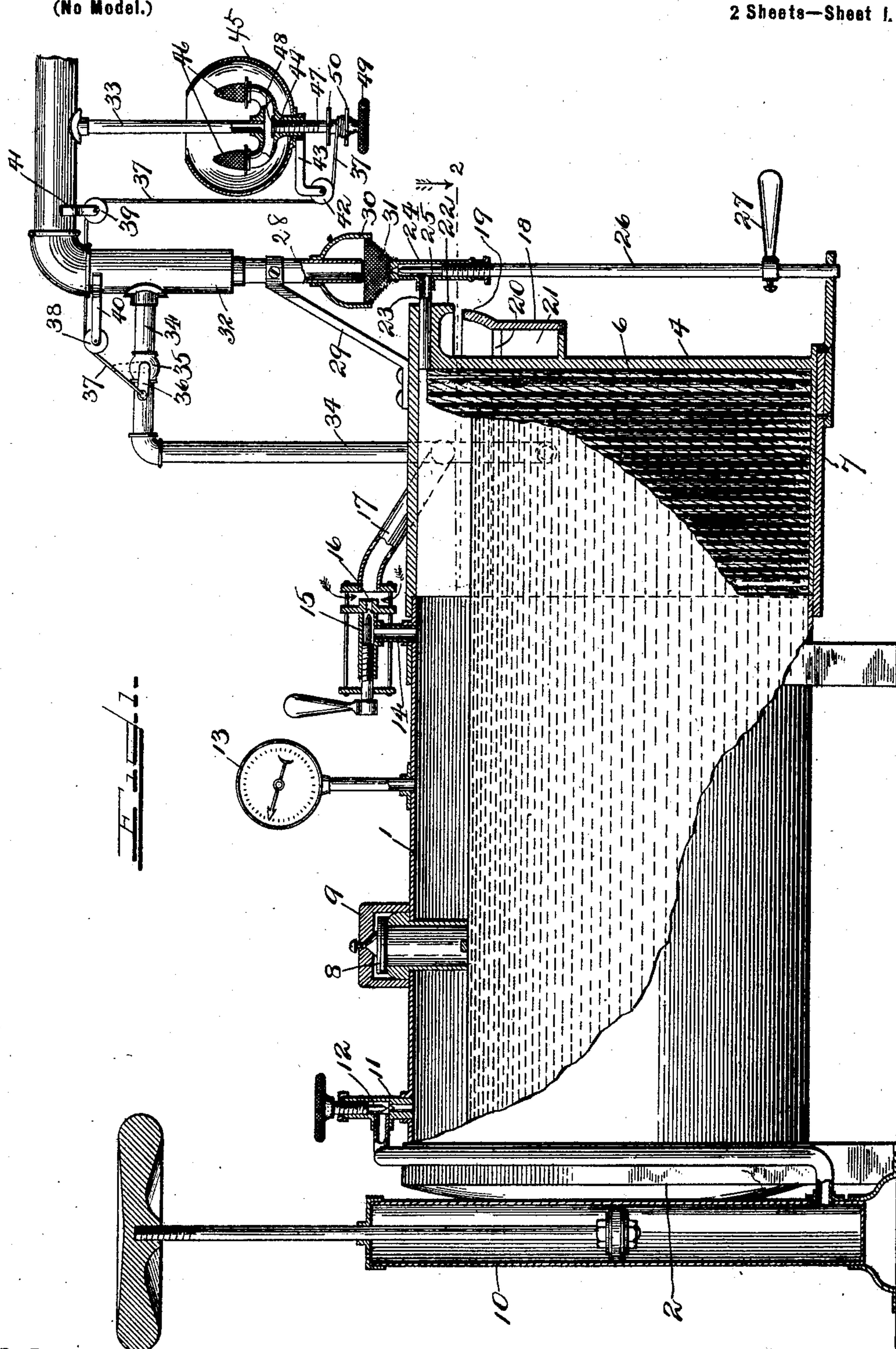
J. W. KITTEN.

CARBURETER.

(Application filed Jan. 10, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
J. D. Perry
W. K. Keil

Inventor
Joseph W. Kitten
By David H. Fletcher, Atty.

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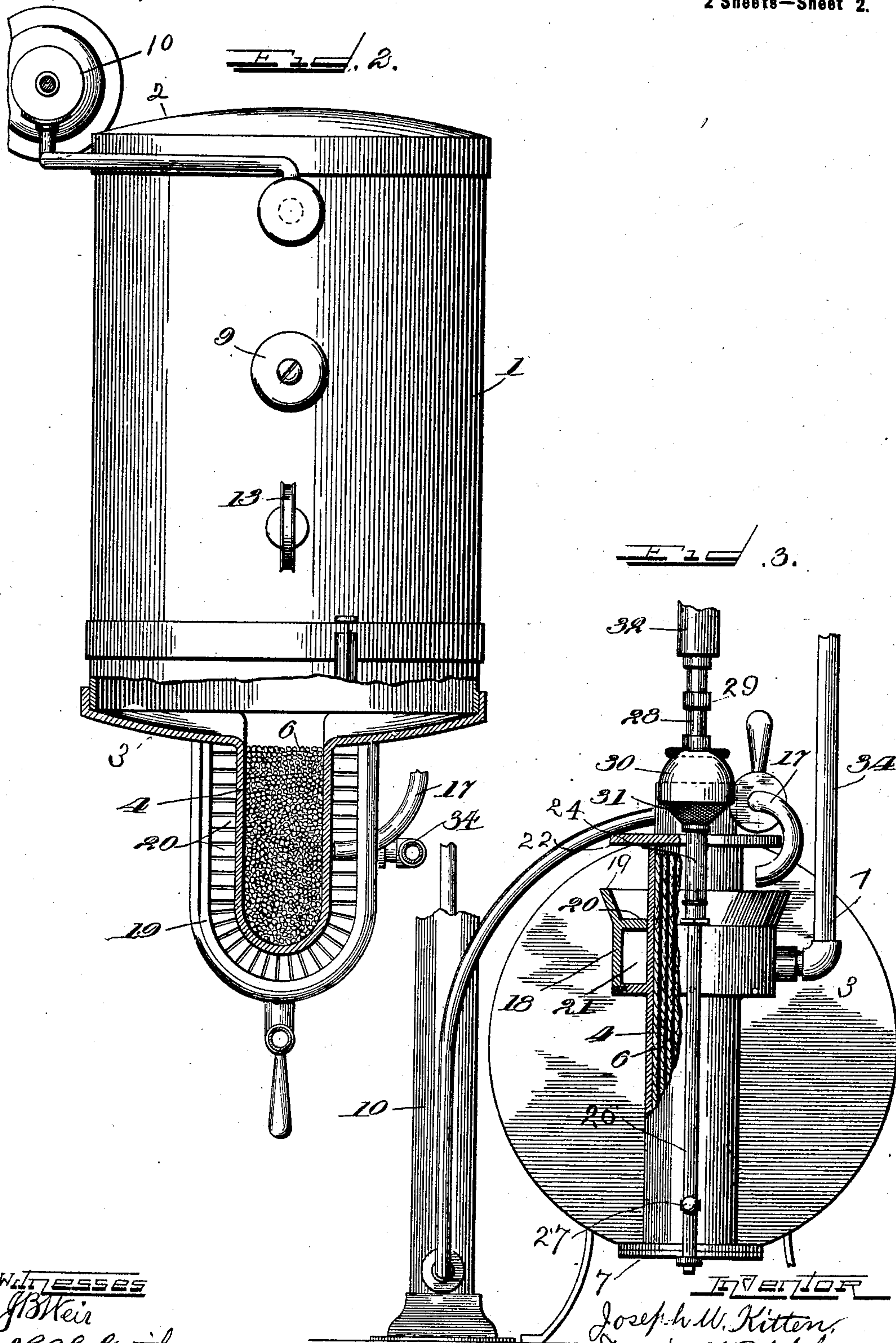
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Witnesses

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H. S. Gauthier

Inventor

Joseph W. Kitten.

David H. Fletcher

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UNITED STATES PATENT OFFICE.

JOSEPH W. KITTEN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
FRANK HINKAMP, OF SAME PLACE.

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 682,853, dated September 17, 1901.

Application filed January 10, 1901. Serial No. 42,798. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. KITTEN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Carbureters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

10 Figure 1 is a side elevation, partly in section, of an apparatus embodying the features of my invention. Fig. 2 is a plan view of said apparatus, a portion thereof being shown in section upon the line 2-2, Fig. 1; and Fig. 3
15 is a front elevation thereof, in which the distributing-pipe is broken away.

The primary object of my invention is to provide a generating apparatus for generating gas from hydrocarbon oil for lighting and
20 heating purposes which shall be so constructed that the generator proper may form a part of the liquid-containing tank, thereby enabling me to dispense with the usual costly and objectionable connections common to
25 generating apparatus in which the tank and generator are separate from each other.

A further object is to provide a safety appliance in connection with the burners for controlling the flame at the generator, so that
30 in the event that the light from all the burners is turned off the generation of gas shall cease.

To these ends my invention consists in the combination of elements hereinafter more particularly described and claimed.

35 Referring to the drawings, 1 represents the main body of a reservoir or tank constructed of sheet metal, having an end piece 2 preferably integral therewith. Upon the opposite end, secured in any well-known way, is a
40 cast-metal end piece 3, Fig. 2. Upon said end piece and integral therewith is formed a reduced portion or extension 4, the height of which is the same as that of the main body of the tank; but the measurement in cross-
45 section is much less, the side walls of said extension being preferably vertical and parallel to each other. Within the extension 4 I place wicking 6, of any suitable fibrous or absorbent material, which extends from the
50 bottom of the extension 4 to a level at or near the top, said wicking being packed therein,

preferably in the manner shown, with sufficient firmness to cause it to support itself in position by pressing the outer layers against the side walls. A removable plate 7 is bolted
55 or otherwise detachably secured to the bottom of the extension 4, said plate being accurately fitted to prevent the escape of gas or liquid. In the top of the tank is an opening for supplying liquid thereto, which opening is se-
60 curely closed by means of a cap 8 and clamp 9. A pump 10, of any well-known construction, is connected by means of a tube, as shown, to a fitting 11, the opening in which is controlled by means of the usual needle-
65 valve 12. A pressure-gage 13 is connected with the top of the tank, as shown. Tapped into the top of said tank, as shown in Fig. 1, is a tube 14, which communicates with a
70 valve 15, having an eduction-opening 16, which is opposite to an open-mouthed tube 17, the opposite end of which is likewise open and arranged in close proximity to and projected toward the part 4 for the purpose herein-
75 after stated. Near the top of the extension 4 and formed upon the sides and end thereof is a burner consisting of a casing 18, which is closed at the bottom and provided with an outwardly-flaring flange 19 at the top. Be-
80 low said flange is arranged a grating 20, having a series of parallel openings therein, as shown, beneath which is formed a gas-chamber 21. A hood 22 overhangs said casing somewhat above the flange 19, so as to leave
85 a space between the two, the whole forming a burner for heating the part 4 for generating gas, as hereinafter described. Communicating with top of the extension 4 above the burner is a tube 23, which communicates
90 with a fitting 24, having a valve-chamber therein adapted to be regulated by means of a needle-valve 25, as shown, upon the end of a vertical rod 26, adapted to be actuated by means of an arm 27.

A pipe 28, open at its lower end, is sup-
95 ported by means of a bracket 29, attached to the tank. A bell-shaped hood 30, open at the bottom, is formed around the lower end of the pipe 28, the bottom of which is inclosed by means of wire-gauze 31 to prevent the
100 passage of flame while permitting an inflow of air. The upper end of the pipe 28 is con-

nected with a distributing-pipe 32 of larger diameter, with which an indefinite number of branch pipes is connected in the usual way, one of which is shown at 33. Connected with
 5 the distributing-pipe 32 at some point between its lower end and that of the first branch pipe is a smaller pipe 34, which leads downwardly, as shown, and is in turn connected with the chamber 21 of the burner.
 10 Interposed in the pipe 34 is a valve 35, to the stem of which is connected a crank-arm 36, having a flexible wire or cord 37 attached to its outer end. Said cord is trained over pulleys 38 39, which are supported by means of
 15 brackets 40 41, rigidly attached to the distributing-pipe and beneath a pulley 42, supported by means of a bracket 43, secured to the lower part of a burner-fitting 44, attached to the pipe 33. The burner-fitting 44 is
 20 tapped upon the lower end of the pipe 33 and is preferably provided with a globe 45 to protect the usual mantles 46, which constitute a part of the burner. Tapped into the burner-fitting is a threaded valve-stem 47,
 25 having a disk 48 upon its upper end, which constitutes the valve proper. Upon the lower end of the valve-stem is the usual thumb-wheel 49, above which are placed two disks 50, the space upon the valve-stem between
 30 which forms a spool for the reception of the cord 37, the end of which is permanently attached thereto.

The operation of my improved device is as follows: The reservoir being filled with a volatile hydrocarbon oil preferably of a specific gravity of about 74° Baumé to a level substantially as indicated in Fig. 1 of the drawings, the valve 12 is temporarily opened and the pump 10 operated until the desired pressure is indicated upon the gage 13. The valve
 35 12 is then closed and the valve 15 opened, thereby admitting a jet of carbureted air through the valve-opening 16 to the tube 17. A supply of atmospheric air is also drawn
 40 into said tube by means of said jet. Then the inflammable mixture is lighted at the opposite end of the tube and being projected against the side of the extension 4 serves to heat the walls thereof and cause the generation of gas within the reservoir. The parts
 50 15, 16, and 17 are used only in starting the apparatus. As soon as the gas begins to generate in a sufficient quantity the valve 15 is closed and the valve 25 is opened, thereby
 55 causing a flow of gas and air into the lower end of the pipe 28 and thence into the distributing-pipe 32. Assuming the valve 35 to be open, the pressure in the distributing-pipes causes a backflow of gas through the
 60 pipe 34 to the generating-burner. The gas being ignited at said burner, the walls of the extension 4 are heated thereby, thus causing a sufficient generation of gas within the receiver to supply the several burners connected
 65 with the distributing-pipes. The valve 15 is then closed, when the apparatus continues to generate the necessary supply of gas. The

wicking 6 in the reduced portion 4 not only serves by capillary attraction to supply the naphtha to the upper part of the receptacle
 70 adjacent to the walls of the burner until the entire supply is exhausted from the tank, but to retain the same in contact therewith until fully vaporized.

A number of important advantages are secured by making the gas-generator proper a part of the supply-tank. The apparatus is rendered more compact, a cheaper and safer construction is secured, inasmuch as a large
 75 number of superfluous connections are dispensed with, while the making of many joints, and the consequent tendency to leakage therefrom, is avoided. As a result of the direct connection described the fuel required is less.
 80 Moreover, the tendency toward condensation is prevented and a full working pressure is maintained within the tank at all times. A further advantage is that the liquid-level is maintained and that the oil cannot overflow in case the valves are inadvertently left open.
 85 Serious objections have heretofore been found in apparatus of this class in that when the burners are turned off the backflow of gas may cause a large and dangerous flame both at the generator-burner and at the bottom of
 90 the intake-pipe leading to the distributing-main. This danger is fully overcome by means of my improved device for shutting off the gas to the subflame. The cord 37, it will
 95 be observed, is connected with the first of the series of branch distributing-pipes, and hence cannot be turned off without closing the valve 35 through the action of the cord 37, and thereby shutting off the supply of gas to the subflame-burner. Apparatus of this kind is
 100 more especially designed and intended for use in stores and business houses, and it is obvious that when the lights are turned out at night the generator-flame is necessarily extinguished also, thereby avoiding danger of
 105 fire, which otherwise might occur.

While I have shown my improved apparatus as applied to a lighting system, it is obvious that one or more of the distributing-pipes may be carried to a furnace or stove
 115 and utilized for heating purposes.

I do not confine myself to placing the reduced portion or generating feature upon one end of the tank, as it is obvious that the relative position thereof is immaterial so long as
 120 the conditions above described exist and the generating portion forms a part of the tank proper and is in direct and unrestricted communication therewith.

Having thus described my invention, I
 125 claim—

1. In a device of the class described a combined tank and generator, the latter constituting a part of the tank and being in open and unobstructed communication therewith,
 130 whereby the pressure in the two may be uniform and condensation prevented, substantially as described.

2. In a device of the class described, a com-

bined tank and generator the latter constituting a part of the tank and being in open communication therewith, said generator portion being filled with an absorbent material, substantially as described.

3. In a device of the class described, a combined tank and generator in open communication with each other, the latter having a smaller cross-sectional area than the former, substantially as described.

4. In a device of the class described, a combined tank and generator consisting of a single receptacle one portion of which forms the tank proper, while the other constitutes the generator, the latter being filled with an absorbent material and having a lesser area than the former, substantially as described.

5. In an apparatus of the class described, an oil-reservoir having a portion thereof of lesser area in cross-section than that of the main body of said reservoir, said portion being provided with a generator-burner adjacent to its walls and a filling of absorbent material, in combination with an eduction-valve, a distributing-pipe and a pipe connecting said distributing-pipe with said generator-burner, substantially as described.

6. In an apparatus of the class described, a combined tank and generator, the latter constituting a part of the tank and being in open and unobstructed communication therewith, in combination with an eduction-valve, a distributing-pipe, a pipe connecting said distributing-pipe with the burner of said generator, a valve in said latter pipe and means for connecting the same with a burner-valve connected with one of the distributing or branch pipes, substantially as described.

7. In an apparatus of the class described, the combination of a tank or reservoir the body of which is arranged horizontally, said tank having an offset or extension leading from the main body thereof, an absorbent filling in said extension extending from the bottom to a level at or near the top, a burner in operative proximity to said extension, a valve-controlled eduction-pipe, a distributing-pipe, means for inducing a flow of air therein, burners communicating with said distributing-pipe, a pipe connecting said distributing-pipe with the generator-burner, a valve interposed in said pipe, said valve being in operative connection with the burner-valve of the first burner of the series; whereby the closing of said burner-valve may serve to shut off the backflow of gas to the generator-burner, substantially as described.

8. In an apparatus of the class described, a combined tank and generator, the latter constituting a part of the tank and being in open communication therewith, in combination with an eduction-valve, a distributing-pipe, a pipe connecting the distributing-pipe with the burner of said generator, a valve in said last-named pipe and a flexible connection, such as a cord or wire, connected with an arm upon the stem of said valve and with a spool upon the stem of one of the distributing-pipe valves, substantially as described.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 8th day of January, 1901.

JOSEPH W. KITTEN.

Witnesses:

D. H. FLETCHER,
CHARLES L. HINE.