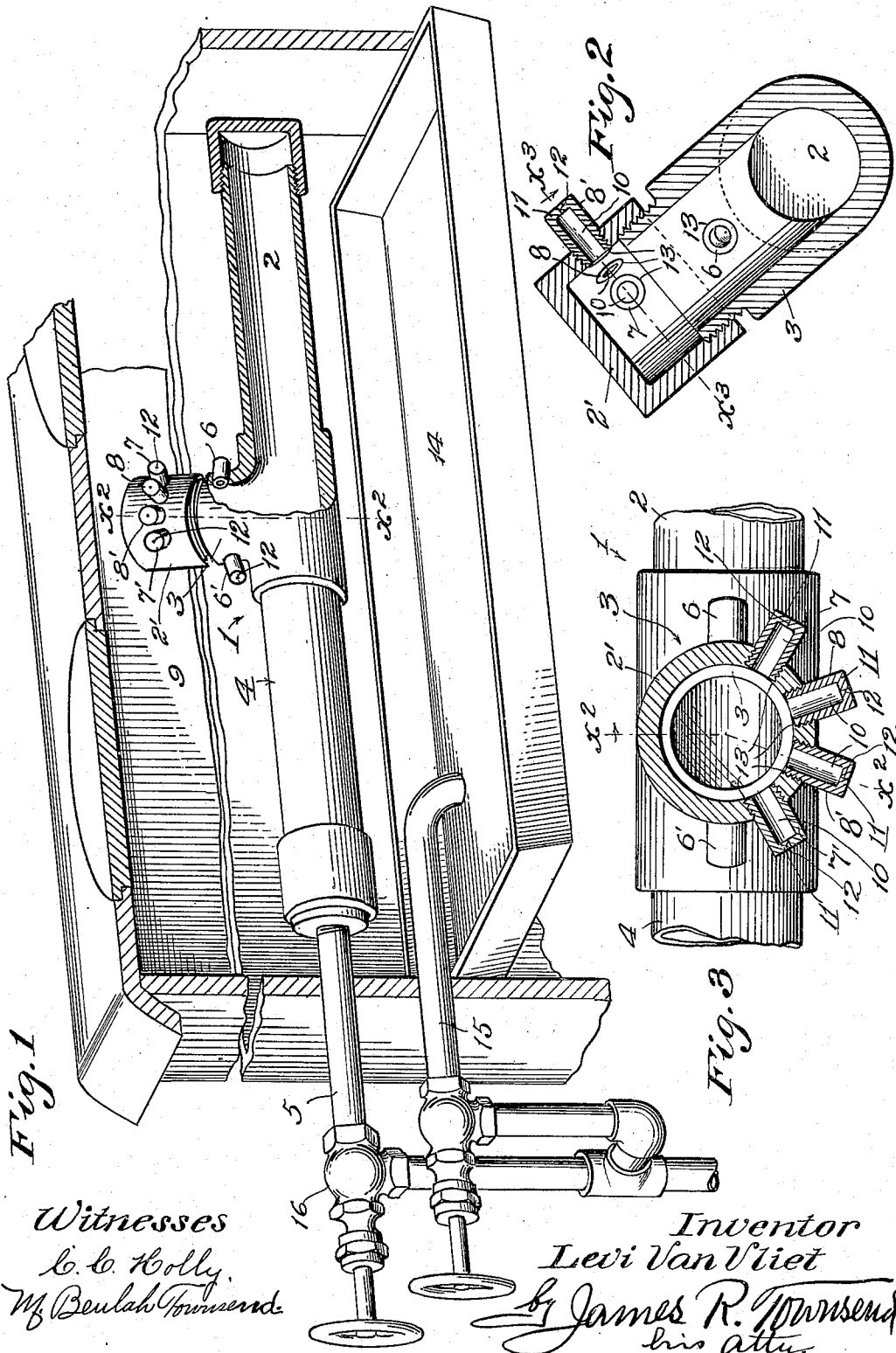


L. VAN VLIET.
GAS GENERATOR.
APPLICATION FILED JULY 1, 1908.

937,341.

Patented Oct. 19, 1909.



Witnesses
L. C. Holly.
W. Beulah Townsend.

Inventor
Levi Van Vliet
By James R. Townsend
his atty.

UNITED STATES PATENT OFFICE.

LEVI VAN VLIET, OF POMONA, CALIFORNIA.

GAS-GENERATOR.

937,341.

Specification of Letters Patent.

Patented Oct. 19, 1909.

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To all whom it may concern:

Be it known that I, LEVI VAN VLIET, a citizen of the United States, residing at Pomona, in the county of Los Angeles and State of California, have invented a new and useful Gas-Generator, of which the following is a specification.

An object of this invention is to provide a cheap, simple, economical, effective and satisfactory means for producing gas from distillates and other oils for immediate use as fuel in furnaces and fire-boxes of different kinds, among which may be mentioned the fire-boxes of ordinary cooking and heating stoves, ranges and the like.

The accompanying drawings illustrate the invention.

Figure 1 is a view of the invention taken from the rear and looking downwardly, the generator being shown in the fire-box of a cooking-stove, which fire-box is shown in section. The direction of sight is toward the front of the stove. Portions of the apparatus are shown in section. Fig. 2 is a sectional elevation from line x^2 , Fig. 1, looking toward the right. Fig. 3 is an enlarged fragmental plan section on line x^3 , Fig. 2.

1 is an inverted T-shaped retort provided with three hollow limbs 2, 3, 4, two of which are closed at their ends and the third of which is provided with a reduced valved inlet pipe 5 through which oil is admitted to the retort. Two of the limbs 2 and 4, are coaxial with each other to form a barrel, and the third limb 3 is a projection from one side of the barrel to form a dome. Preferably the closed end of the dome is formed of a screw cap 2' so that the interior of the retort may be readily cleaned out, in case cleansing be required.

The dome 3 is arranged to receive gas generated in the other two limbs 2 and 4 of the retort, and is provided with jet tubes for the emission of the generated gas. Said jet tubes may be variously constructed and variously arranged. In the drawings I have shown that form and arrangement which I at present deem most desirable.

6, 6' designate two generating nipples or jet tubes arranged to direct jets toward the coaxial limbs 2 and 4 of the retort. 7, 7', and 8, 8' designate divergent nipples or jet tubes arranged nearer the top of the dome and designed to supply gas to produce the

fire for heating the fire-box 9 and the top of the stove when the burner is used in a cooking-stove or range.

For the purpose of projecting the jets in such manner as to thoroughly mix the gas with the air admitted to the fire-box 9, said jet tubes are preferably formed with an inner axial bore 10 of a determined diameter, extending nearly to the outside end of the jet-tube. The capped end of the tube outside of said inner bore is of slight thickness to form a flat thin diaphragm 11 through which a minute perforation 12 is made to emit the gas.

The generator may be constructed of various dimensions without departing from the spirit of the invention. A satisfactory construction for use in an ordinary cooking-stove or range may be effected by making the jet-tubes of rods one-half inch long and one-fourth of an inch in diameter, externally screw-threaded at one end and centrally bored from such end toward the other end, with a bore of about $\frac{1}{16}$ or $\frac{1}{32}$ of an inch diameter and extending to about $\frac{1}{16}$ of an inch from the outer end of the tube; and the perforation 12 through the diaphragm 11 thus left at the outer end of the tube may be merely a fine needle hole.

The dome 3 is provided with screw-threaded openings 13 into which the jet-tubes may be screwed. Preferably said openings diverge from each other to spread the jets apart as they are directed away from the dome.

The retort 1 is rotatable on the pipe 5 so that the dome may be turned at such an angle as may be deemed advisable to direct the jets where required in the fire-box. The dome may be inclined upwardly and forwardly toward the front of the stove 9 so that the jet-tubes will be inclined upwardly and rearwardly toward the top and the draft-flue, not shown, of the stove.

14 is a generating pan for starting the generator into operation.

15 is a valved pipe to supply the pan 14 with oil for heating the generator at the outset.

16 is a needle-valve for controlling the delivery of oil to the retort.

In practical use, the operator will open the valved supply-pipe for a limited time to allow a small amount of oil to flow into

the generating-pan 14 and will then close the valve and ignite the oil in the pan, thus to heat the retort. When the retort has become sufficiently hot, he will open the 5 valve 16 to supply oil to the retort. The oil thus flowing into the retort becomes vaporized, and flowing up into the dome, issues from the various jet-tubes in the various directions of said tubes. The two jet tubes 10 6, 6' being directed each toward one horizontal end of the tee, the jets issuing through said tubes ignite and impinge upon the co-axial limbs 2 and 4 of the barrel and keep the same hot. The gas from the jet-tubes 15 7, 7', and 8, 8', is directed upwardly and rearwardly to heat the stove. The fire from the jets 6, 6', also serves to heat the fire-box.

The fire may be regulated by turning the supply-valve 16 to increase or decrease the 20 flow of oil into the retort. The construction of the nipples or jet-tubes shown, is such that the minute portion of the outlet is of a very short length, thus insuring against any great liability of clogging, and also producing 25 a spreading effect upon the jet of gas as it issues from the end of the jet-tube.

The retort may be rotated on the supply-pipe so as to bring the jet-tubes 7, 7', and 8, 8', into position to direct the jets aslant or in 30 a generally horizontal or vertical direction, as may be demanded by requirements of the various fire-boxes or furnaces in which the generator may be installed.

The jet-tubes 6, 6' are arranged to direct 35 jets downward to supply fire to heat the barrel, and the contents of the barrel below the level of the dome are thus highly heated, thereby supplying the dome with a constant supply of gas so long as the supply of oil 40 to the barrel is maintained and the fire not extinguished.

It is to be understood that one or more outlets may be used to project jets from the

dome upon one or more parts of the retort. The form shown is preferable. 45

The outlets at the top of the dome are preferably on one side of the dome between the sides from which the retort heating outlets are, so as to direct the gas away from the dome in one general direction, as rear- 50 wardly, or upwardly as may be required.

I claim:—

1. A gas generator comprising a tee the alined ends of the tee being elongated, caps closing the three ends of the tee, a reduced 55 valved inlet pipe connected to one of the caps, the side opening of the tee projecting upwardly to form a dome, and jet tubes communicating with said dome, two of said jet tubes being directed each toward one hori- 60 zontal end of the tee.

2. In an oil burner, a tee-shaped retort having three hollow limbs, the two alined limbs being elongated and the side limb projecting upwardly and forming a dome; caps 65 closing the ends of the retort, a reduced valved inlet pipe connected to the cap of one of the horizontal ends of the retort, jet tubes communicating with the dome, two of said jet tubes being directed each against 70 a horizontal portion of the retort, and said jet tubes having inner bores of comparatively large diameter extending nearly to the outside end faces and minute perforations extending from said inner bores through 75 said ends, a generating pan mounted under the retort, and a valved supply-pipe discharging into the generating pan.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 80 24th day of June, 1908.

LEVI VAN VLIET.

In presence of—

JAMES R. TOWNSEND,
L. BELLE RICE.