2 Sheets—Sheet 1.

C. HOLLAND.

Hydrocarbon Vapor-Generator and Burner.

No. 203,831. Patented May 21, 1878.

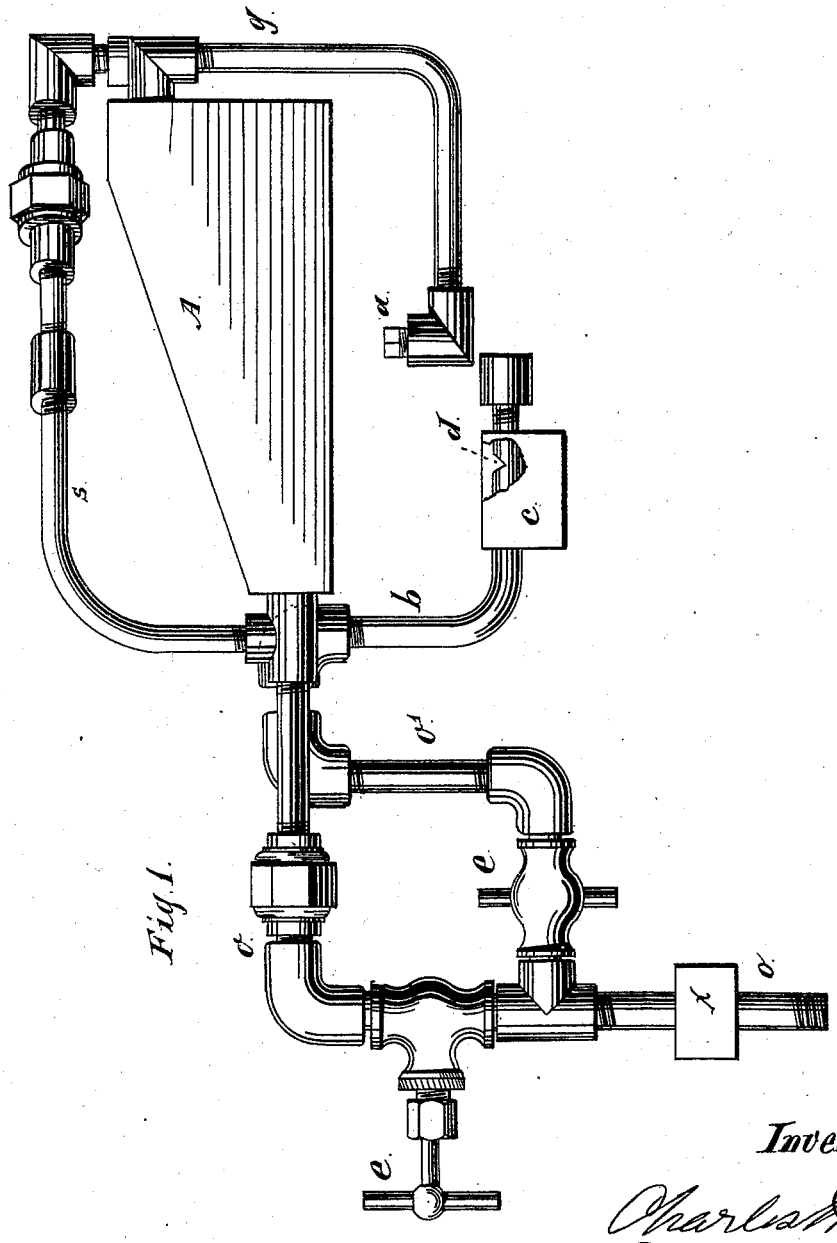

Fig. 1.

Inventor:

Charles Holland

Witnesses:

L. L. Boyd

O. W. Boyd

2 Sheets—Sheet 2.

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Hydrocarbon Vapor-Generator and Burner.

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Fig. 2.

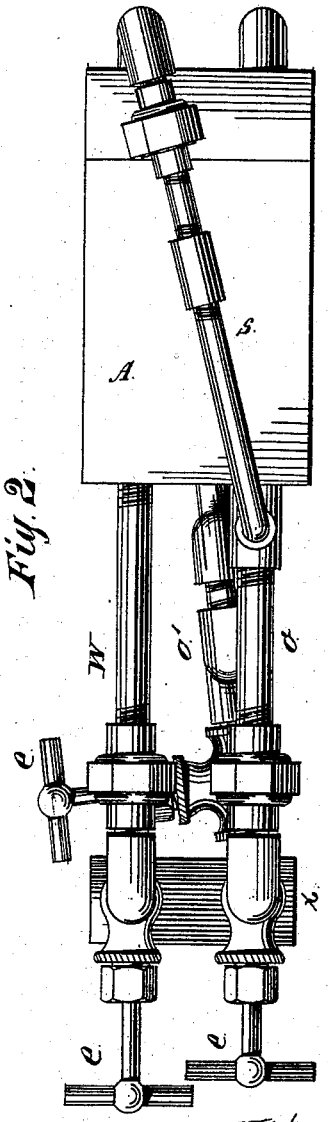
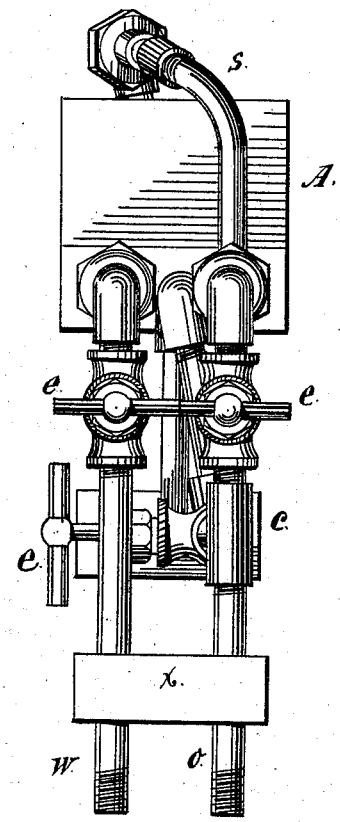


Fig. 3.



Witnesses:

L. L. Bond

Inventor:

Charles Holland

UNITED STATES PATENT OFFICE.

CHARLES HOLLAND, OF CHICAGO, ILLINOIS, ASSIGNOR TO PARK HOLLAND, OF SAME PLACE.

IMPROVEMENT IN HYDROCARBON-VAPOR GENERATOR AND BURNER.

Specification forming part of Letters Patent No. **203,831**, dated May 21, 1878; application filed April 3, 1878.

To all whom it may concern:

Be it known that I, CHARLES HOLLAND, of the city of Chicago, Cook county, State of Illinois, have invented new and useful Improvements in Hydrocarbon-Vapor Generator and Burner, of which the following is a full description, reference being had to the accompanying drawing, in which—

Figure 1 is a side elevation; Fig. 2, a top or plan view; and Fig. 3, an end view.

The object of this invention is to improve the construction and operation of hydrocarbon or oxyhydrocarbon burners, by which the gases of combustion are generated as rapidly as they are consumed; and its nature consists in providing the device with a starter, and in bringing the water-gas around into the oil-gas compartment, to be there mingled, and to assist in expelling the oil-gases from the retort.

In the drawings, A represents the retort, which may be made in the form shown, or in any other suitable form. It is made of cast-iron or other suitable metal, and has two interior longitudinal chambers or compartments.

a, the burner or jet; *b*, a section of oil-pipe, upon which the lighter is placed; *c*, the lighter; *d*, a notch or opening in pipe *b* for the outflow of oil into the lighter or starter; *e*, cut-off valves or stop-cocks; *g*, oil-gas pipe; *s*, steam-pipe; *o o'*, oil-pipes; and *w*, water-pipe. *x* represents a section of any floor, hearth, or other support for the pipes when the connecting oil and water pipes are brought up from below, as shown.

The oil and water pipes have here a sufficient portion of the connecting-pipes shown to represent the cut-off valves or stop-cocks for regulating or shutting off the supply. They are still further extended to connect with suitable oil and water tanks or reservoirs. The water-pipe may be connected with a water-supply pipe where such pipes exist. The oil-pipe is branched, the branch *o'* having a separate cut-off. This branch or pipe is brought up to the level of the other supply-pipes, and is curved or brought down at *b* and under the retort, so as to support the starter or lighter in its proper position. Its extreme end is cupped over, and a hole, *d*, is made near the cup or plug for the outflow of oil into the starter *c*, through which it runs, as shown at Fig. 1. The starter *c* is made in the form of a rectangular cup, or of other suitable form, to hold a sufficient quantity of oil to start the retort into operation; or the oil may be left to flow into the starter as long as may be desired; but it will not be necessary to continue its operation after a flame has started at the jet *a*. When so started, or when started, the flow of oil is cut off, so that no further care is necessary, as it will cease burning as soon as the oil is burned out. To start the retort properly it should be as long, or nearly as long, as the retort is wide, as shown at Fig. 3. The pipe *s* is brought around from the steam-compartment into the oil-pipe *q*, behind the oil-gas compartment of the retort, into which it passes, so that the oil-gases and steam are retorted together, and the steam assists in expelling the gases from this compartment of the retort. The combined or mingled gases pass from the retort to the burner *a* through the single pipe *g*. The oil and water pipes *o w* are filled, or partly filled, next to the retort with wire-cloth, rolled into cylindrical form, to partly regulate the flow and to prevent any undue flow of material into the retort.

This device is more especially designed for burning crude petroleum, but may be used for any of the carbon oils. By bringing the steam-pipe *s* around and discharging it into the oil or petroleum pipe behind the retort, the material is driven into the retort, and clogging at the entrance is prevented and the exit of the gases facilitated. The pipe *o'* is carried up to the line of the supply-pipes for convenience of placing the device in a stove or shell; but in many cases it may be straight, or have a different curve or bend.

What I claim as new, and desire to secure by Letters Patent, is—

The combination of the retort A and pipes *w s* with the pipes *o g* and burner *a*, substantially as specified.

CHARLES HOLLAND.

Witnesses:

L. L. BOND,

O. W. BOND.