2 Sheets—Sheet 1.

C. HOLLAND.

Hydrocarbon Generator and Burner and Gas-Generator.

No. 203,828. **Patented May 21, 1878.**

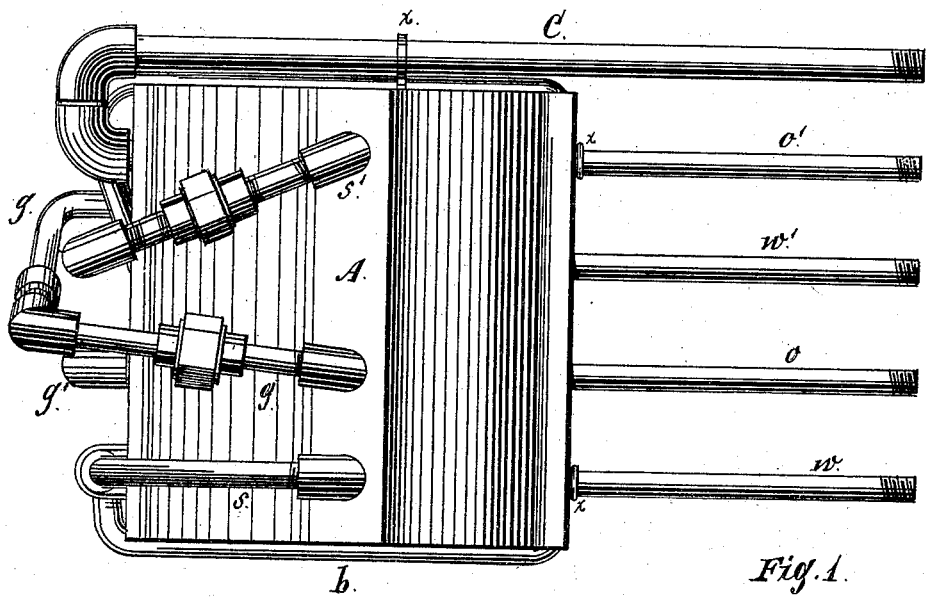

Fig. 1.

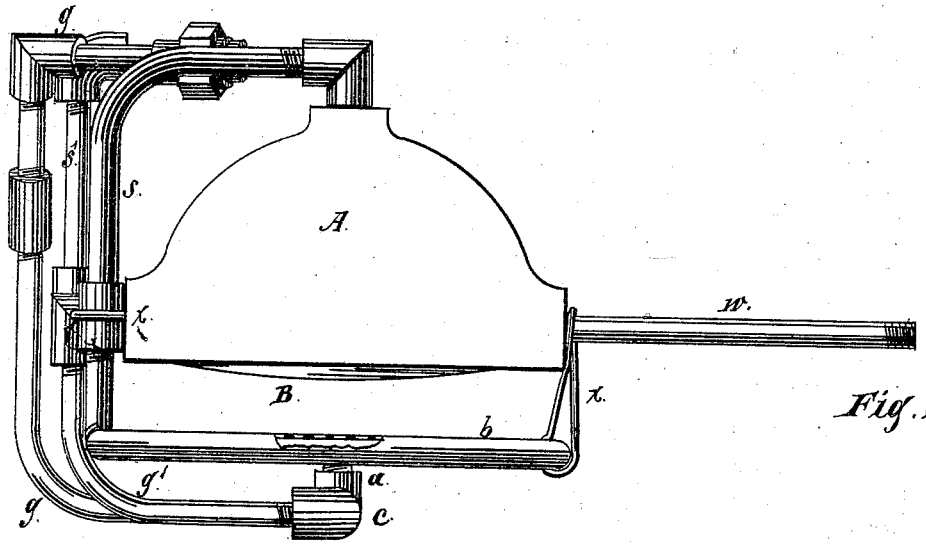

Fig. 2.

Witnesses:

L. L. Bond

A. W. Bond

Inventor:

Charles Holland

2 Sheets—Sheet 2.

C. HOLLAND.

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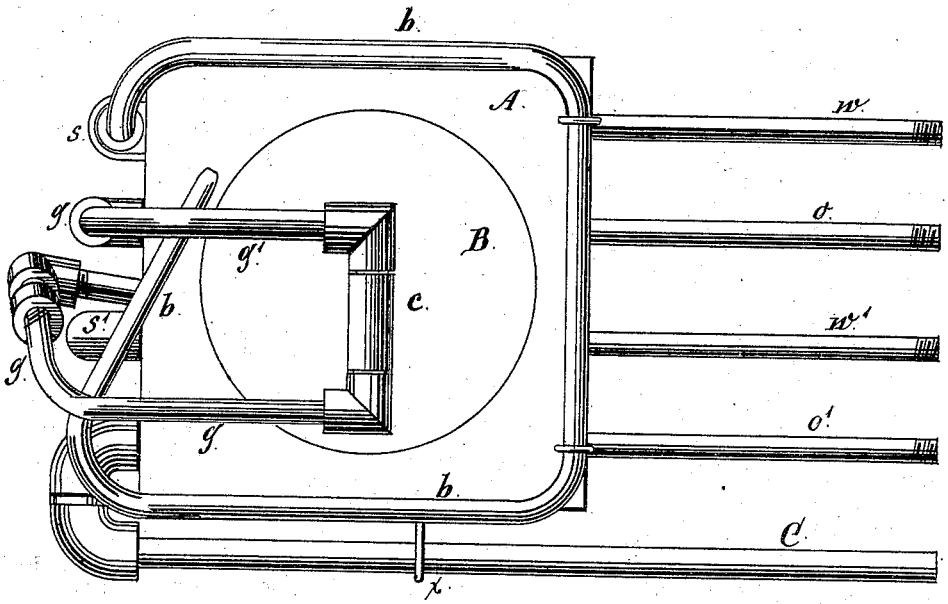

Fig. 3.

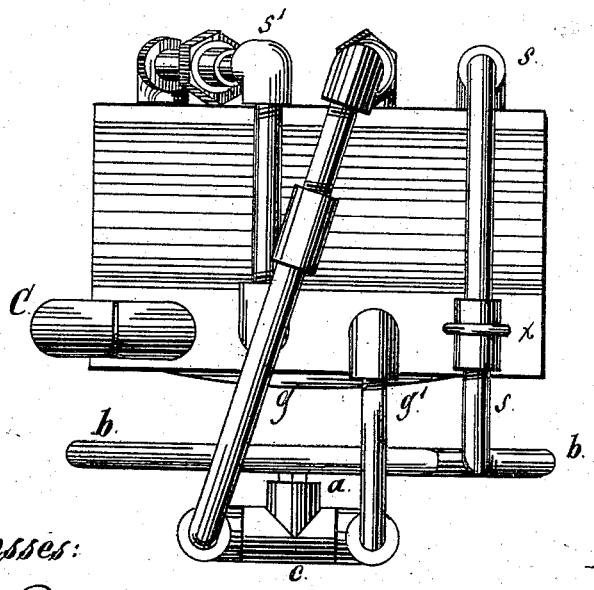

Fig. 4.

Witnesses:

L. L. Bond

A. W. Bond

Inventor:

Charles Holland

UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN HYDROCARBON GENERATOR AND BURNER AND GAS-GENERATOR.

Specification forming part of Letters Patent No. **203,828**, 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 Generator and Burner and Gas-Generator, of which the following is a full description, reference being had to the accompanying drawing, in which—

Figure 1 is a top or plan view; Fig. 2, a side elevation; Fig. 3, a bottom view, and Fig. 4 an end view.

The object of this invention is to improve the operation and construction of hydrocarbon or oxyhydrocarbon gas burners and generators; and its nature consists in the construction and combination of devices for bringing two streams of gas from the same compartment to a single burner to prevent any stoppage of the flow of gas by choking or clogging by residuum in the retort, and in combining the heating and illuminating gas, steam, and supply pipes, as hereinafter more fully described.

In the drawings, A represents the retort; B, the convex portion thereof; C, the gas-pipe leading from the retort to a gasometer or gas-holder; *a*, the jet or burner; *b*, a perforated and bent or coiled pipe for discharging superheated steam; *c*, a coupling or union connecting the gas-pipes and burner; *g*, gas-pipe leading from the top of the retort to the burner; *g'*, gas-pipe leading from the base of the retort to the burner; *o o'*, oil-pipes; *s*, steam-pipe leading to the discharge or exit pipe *b*; *s'*, steam-pipe leading from a water-compartment of the retort to the top of an oil-compartment; *w w'*, water-pipes; and *x*, supports shown, that will be omitted when the device is to be placed in working position.

The retort A is made of cast-iron or other suitable metal, and its interior is divided into four longitudinal vertical compartments, into which the pipes *o*, *o'*, *w*, and *w'* discharge. The pipes *o o'* are extended back by suitable pipes, and connected with an oil tank or reservoir, and the pipes *w w'* with a water tank or reservoir, or with a water-service pipe, and such pipe or extension is provided at some point with a valve or cut-off to regulate or stop the flow. The sections next to the retort are filled, or partly filled, with wire cloth or gauze, rolled into a suitable form for insertion therein.

The pipe *s* leads out of the top of a steam-compartment, and extends downward and connects with the pipe *b*, which is a part thereof.

The pipe *b* is carried around under the retort about on a line with its border, as shown at Fig. 3, and is perforated along its upper side with an uniform row or series of fine holes for the discharge of the superheated steam or water gas into the oil-flume.

The pipe *g* leads from the top of the retort around under to one side of the burner, and the pipe *g'* leads from the base of the retort (and out of the same oil-gas compartment as the pipe *g*) to the other side of the burner, as shown, thus giving the burner two streams of gas for its supply.

The union or coupling *c*, which connects the pipes *g g'* and supports the burner *a*, may be made of the angular form shown; or it may be of a V or double-curved form, or a segment of a circle.

The retort-compartments connected with the pipes *o w* and the pipes *s g g' c* and burner *a* constitute the portion of the device that is used for generating the gases and maintaining the heating combustion. The pipes *o'* and *w'* supply the compartments used for generating the gas to be stored.

The pipe *s'* leads from the steam-compartment into the top of an oil-gas compartment, and aids in the more rapid discharge of the oil-gas from the retort, and the introduction of superheated steam therein prevents carbonization or the filling up of the oil-gas compartment with carbon or sediment—a difficulty which is liable to occur when the flow of gas therefrom is impeded by a long pipe or the action of a gasometer or gas-holder.

While the introduction of steam into a gas-generating compartment or retort has these beneficial effects, it does not change the quality of the gas, as any steam not roasted into a permanent form will condense in the gasometer.

This apparatus is designed to be mainly used for generating gas to be stored for future use; but it may be used as a combined generator and heater.

The convex portion of the bottom of the retort spreads the oil-gas flame evenly in all directions, thus giving a steadier and more uniform flame when in operation.

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

1. The gas-pipes *g g'*, leading from the same compartment to opposite sides of the burner *a*, and in combination therewith, substantially as specified.

2. In combination with the retort-chambers for producing heating-gas and their supply-pipes *o w*, the chambers for producing illuminating-gas and their supply-pipes *o' w'*, the steam-pipe *s'*, and the gas-eduction pipe C, substantially as and for the purpose set forth.

CHARLES HOLLAND.

Witnesses:
L. L. BOND,
O. W. BOND.