3 Sheets—Sheet 1

C. HOLLAND.

Hydrocarbon Generator, Burner and Lighter.

No. 203,832. Patented May 21, 1878.

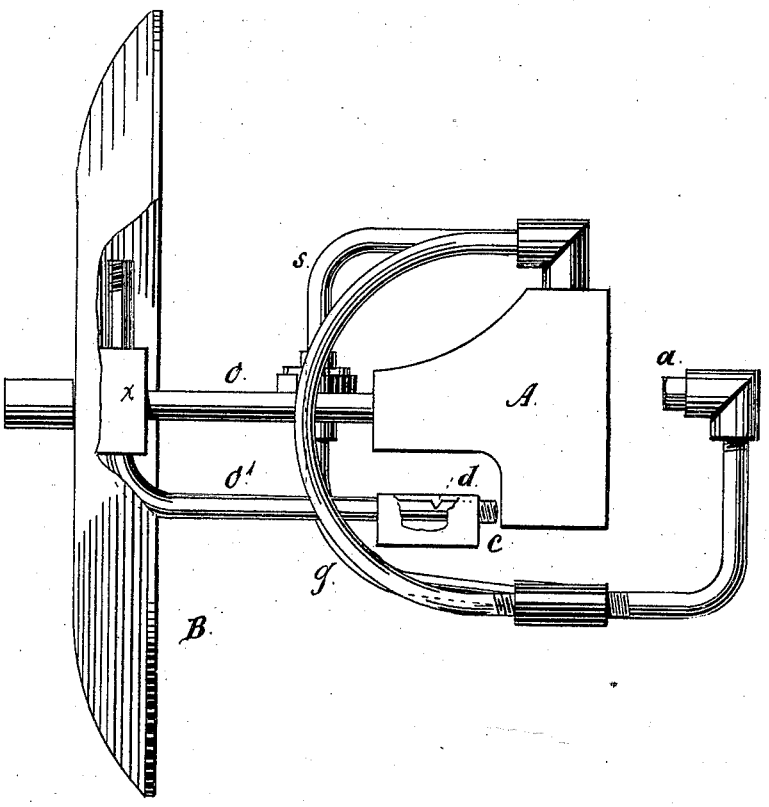

Fig. 1.

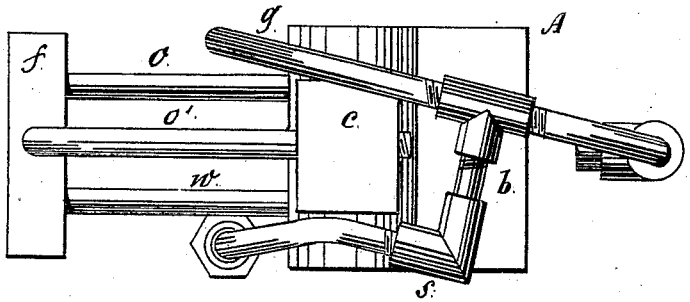

Fig. 2.

Witnesses:

L. L. Bond

O. W. Bond.

Inventor:

Charles Holland

C. HOLLAND.

Hydrocarbon Generator, Burner and Lighter.

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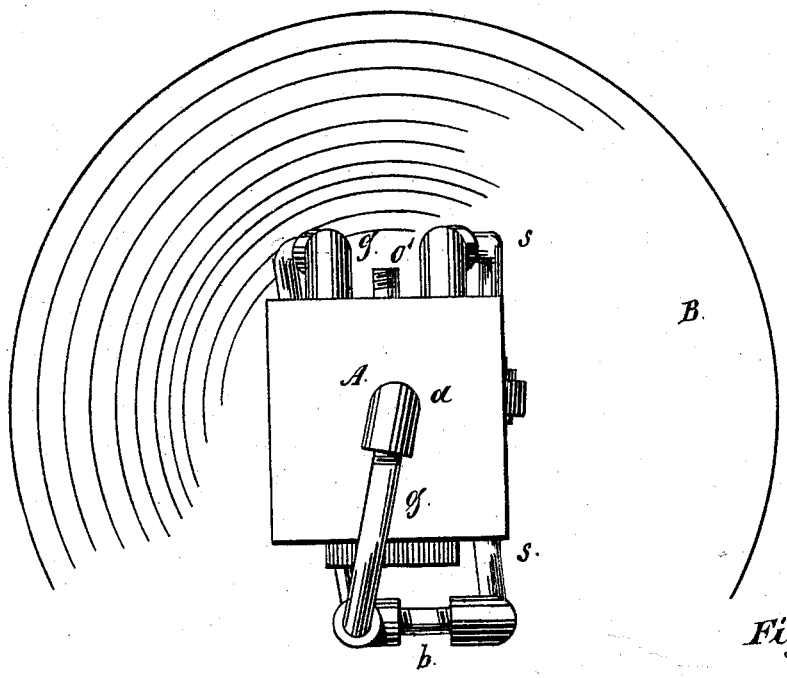


Fig. 3.

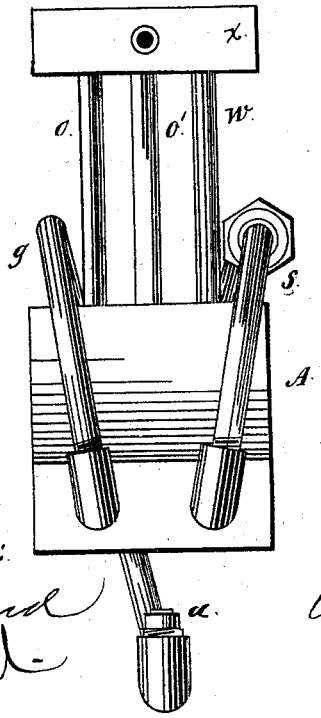


Fig. 4.

Witnesses:
L. L. Bond
A. W. Bond

Inventor:
Charles Holland

3 Sheets—Sheet 3.

C. HOLLAND.

Hydrocarbon Generator, Burner and Lighter.

No. 203,832. Patented May 21, 1878.

Fig. 5.

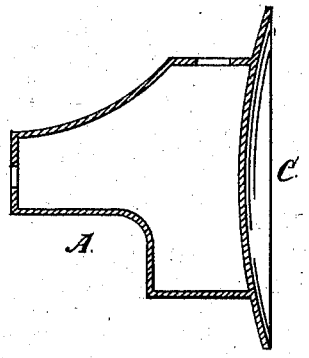
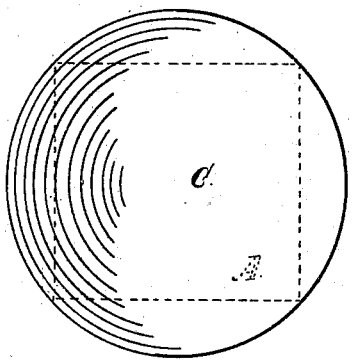


Fig. 6.



Witnesses:

L. L. Bond

O. 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, BURNER, AND LIGHTER.

Specification forming part of Letters Patent No. **203,832**, 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, Burner, and Lighter, 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 bottom view, Fig. 3 an end view, Fig. 4 a top or plan view, Fig. 5 a vertical section, of a retort having a concave fall; and Fig. 6, an end view of the concave retort.

The object of this invention is to construct a hydrocarbon-burner of the class that generates its gases as consumed for lighting purposes or for use where a strong or large light may be desired, as for street-lights, station-lights, signal-lights, theaters, halls, factories, &c.; and its nature consists in arranging the burner to operate upon or against a vertical face of a retort; in combining the device with a reflector supported by or upon the supply-pipes; in providing a retort with a concave vertical face, and in the combinations hereinafter more fully described and claimed as new.

In the drawings, A represents the retort; B, the light-reflector; C, a circular concave face; *a*, the jet or burner; *b*, the union or coupling; *c*, the starter; *d*, a hole or opening in the starter-pipe for filling the starter with oil; *g*, the gas-pipe; *o*, oil-pipe; *o'*, oil pipe for the starter; *s*, steam-pipe; *w*, water-pipe; and *x*, a block, (shown as supporting the supply-pipes,) which will be omitted in actual use, as the regular supporting devices will render its use unnecessary.

The retort A is made of cast-iron or other suitable material, in the form shown in Figs. 1 to 4, or with a circular concave end, as shown in Figs. 5 and 6.

The first form will give a good light, but as the flame streams off at the corners when angular, a circular end, where it comes in contact with the flame, will give the light or flame a more complete circle, which is especially desirable when the device has to be housed or incased, as for out-of-door uses, or where a symmetrical light is desired, as for theaters; and by making the acting or heat-receiving face concave when vertical, the heat has a better or more intense action on the retort. The interior of the retort is divided into two compartments for the oil and water.

The supply-pipes *o w* are extended in any desired direction, and provided with cut-off valves to regulate or stop the flow through them, and they are filled or partly filled, near the retort, with wire-cloth rolled into form for proper insertion. The pipe *o*, in its extension, is connected with any suitable tank or oil-reservoir, and the pipe *w* with any suitable tank, reservoir, or water-service pipe.

The pipe *o'* is a short branch from the pipe *o*, and when connected therewith it is to be provided with a separate valve to cut off the supply as soon as the starter *c* is filled. The starter *c* is a rectangular cup suspended on the pipe *o'*. As shown, it is partly broken away to show the hole or opening *d* of the pipe.

The pipes *g s* are brought around, behind, and under the retort, so as not to obscure the light, and they are brought together before reaching the burner by the union or coupling *b*, which coupling may be of the angular form shown or of the V form.

The burner *a* should be about an inch away from the face of the retort for the best results.

The reflector B is supported upon and by the supply-pipes, and may be used to form a partial support for them. It is of a considerable size, and concaved, in order to partly overcome the obscuration of the retort and pipes.

I am aware that reflectors have heretofore been applied to lamps and lights in many ways and forms, and I do not therefore claim its application, broadly; but

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

In combination with a burner, *a*, the centrally and horizontally set retort A, having a vertical circular and concave face, by which combination the heat of the flame is concentrated and the flame is also retained in compact form, thus increasing the light, substantially as described.

CHARLES HOLLAND.

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