2 Sheets—Sheet 1.

C. HOLLAND.

Hydrocarbon Gas Apparatus.

No. 201,527. **Patented March 19, 1878.**

FIG. 1.

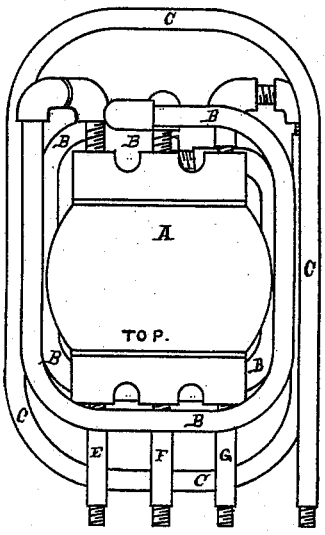


FIG. 2.

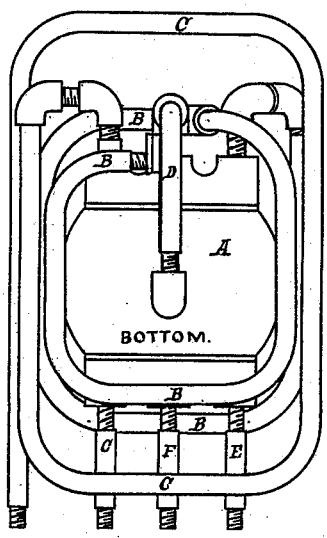
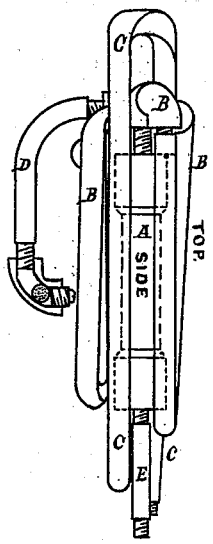


FIG. 3.



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2 Sheets—Sheet 2.

C. HOLLAND.

Hydrocarbon Gas Apparatus.

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FIG. 4.

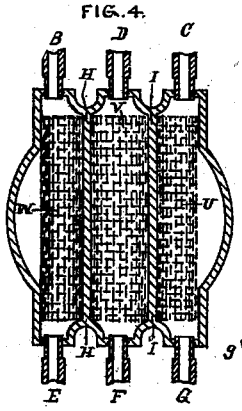


FIG. 9.

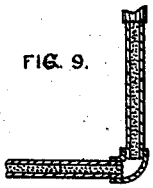


FIG. 8.

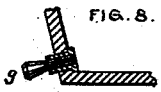


FIG. 5.

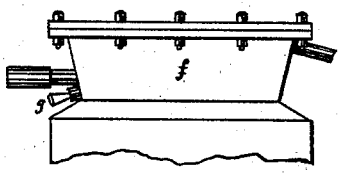


FIG. 6.

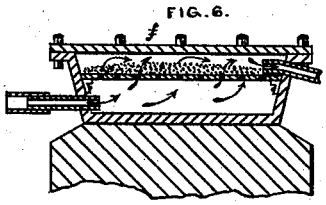
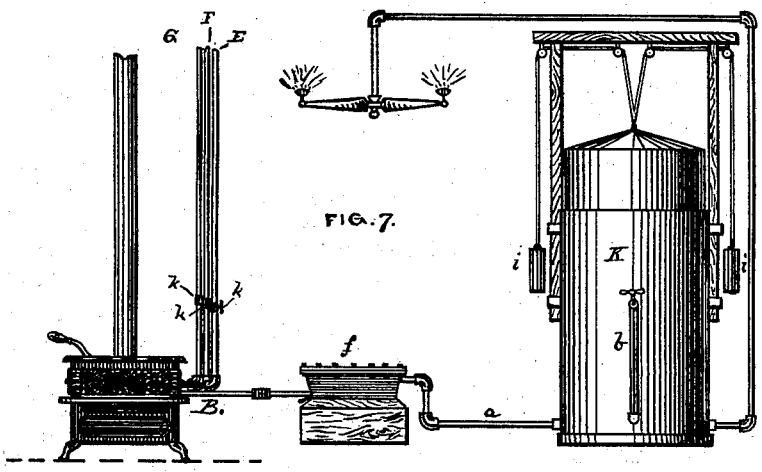


FIG. 7.



Witnesses
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F. B. Townsend

Charles Holland Inventor

By Parker H. Sweet Jr. & G
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES HOLLAND, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN HYDROCARBON-GAS APPARATUS.

Specification forming part of Letters Patent No. **201,527**, dated March 19, 1878; application filed February 6, 1877.

To all whom it may concern:

Be it known that I, CHARLES HOLLAND, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hydrocarbon-Gas Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a top view of the retort and pipes. Fig. 2 is a bottom view, and Fig. 3 is a side view, of the same. Fig. 4 is an interior view or section of the retort. Fig. 5 is an elevation of the gas-strainer or condenser. Fig. 6 is a vertical section of the same. Fig. 7 is a side elevation of the entire machinery. Fig. 8 is a sectional view of the corner of the gas-strainer or condenser with plug. Fig. 9 is a section of the oil and water supply pipes from the valves to the retort.

Similar letters of reference occurring on the several figures indicate like parts.

My invention consists in providing the chambers of the retort with mats of wire-gauze, so as to arrest the flow of fluid which may pass through it, thus enabling the fluid to volatilize more readily.

It also consists in an improved construction of gas-strainer and condenser, all as will be hereinafter more fully described, and pointed out in the claims.

Referring to the drawings, A represents the retort, provided with ribs or partitions H I, which divide the retort into three separate chambers, *u v w*, and in which I arrange wire-gauze mats, as shown in Fig. 4. The pipes E, F, and G lead from the reservoir of oil and water into these chambers, the flow of the fluid being regulated by the stop-cocks or valves *k k k*, as shown in Fig. 7, while the pipe B, leading out of the retort, and around which it is coiled, so as to be well exposed to the flame of the burning carbon, is the water or steam pipe, in which the steam becomes superheated, and, passing around and under the retort, escapes through small perforations in the pipe, and mingles with the blaze of the carbon, for perfecting the combustion and producing an intense heat.

The pipe C, coiled around the retort A, and leading from the chamber *u* of the same, receives the gas from the said chamber. Here the gas is superheated, thereby converting it into a fixed gas, and it is then conducted to the gas-strainer or condenser *f*, as shown in Figs. 5 and 6. This gas-strainer or condenser is composed of a strong box of wrought or cast metal, and is provided with a perforated sheet-iron plate, arranged horizontally at or near the upper part, as shown in Fig. 6, and which is covered with iron shavings or their equivalent. The gas enters the condenser from the pipe C underneath the said horizontally-arranged perforated plate, and, passing upward and through the iron shavings, passes out through the pipe *a* above the same, and is conducted thence to the gas-holder K. The condenser or gas-strainer *f* is provided at the extreme lower end with a plug, *g*, by means of which all condensed matter from the vapor or gas is drawn off as it accumulates in the bottom of the condenser, and is poured back into the oil-reservoir, so that no oil is wasted by condensation, as is usually the case where no special condenser is used.

It will be observed that the pipe which furnishes the gas under the retort, for fuel, is provided in the elbow or bend of the pipe, under the nipple or orifice, with a wire-gauze ball, for regulating the supply of the fuel.

The gas-holder K is constructed of galvanized iron, or its equivalent, and provided with the usual frame and weights, as shown in Fig. 7. An air-pipe, *b*, leads from the inside of the gas-holder, and stands perpendicularly on the outside of the same, where it is provided with a valve at the upper end, so as to admit a suitable quantity of atmospheric air to mingle with the pure gas in the holder, so as to enable the gas to burn freely in ordinary coal-gas burners.

By means of my improvements I am enabled to furnish an improved apparatus for providing a clean, convenient, and economical fire for all ordinary domestic purposes, and at the same time, and with no additional expense of fuel, a superior article of naphtha-gas is manufactured for illuminating purposes at a mere nominal cost to the consumer.

I am aware that the general construction of the retort and the arrangement of the superheating-pipes are not new.

I am also aware that wire-gauze has heretofore been used in retorts; and I do not therefore desire to claim these features separately; but,

Having thus described my invention, what I claim as new and useful is—

1. The retort A, having the chambers *u v w*, provided with the wire-gauze mats, in combination with the condenser or gas-strainer *f*, having the plug *g*, and provided with the perforated plate, and containing iron shavings, substantially as and for the purpose described.

2. The gas-strainer or condenser *f*, provided with the horizontally-arranged perforated plate, and containing iron shavings at the upper part, and with the plug *g* at the bottom of the same, substantially as and for the purpose described.

CHARLES HOLLAND.

Witnesses:
F. B. TOWNSEND,
FORDE R. SMITH.