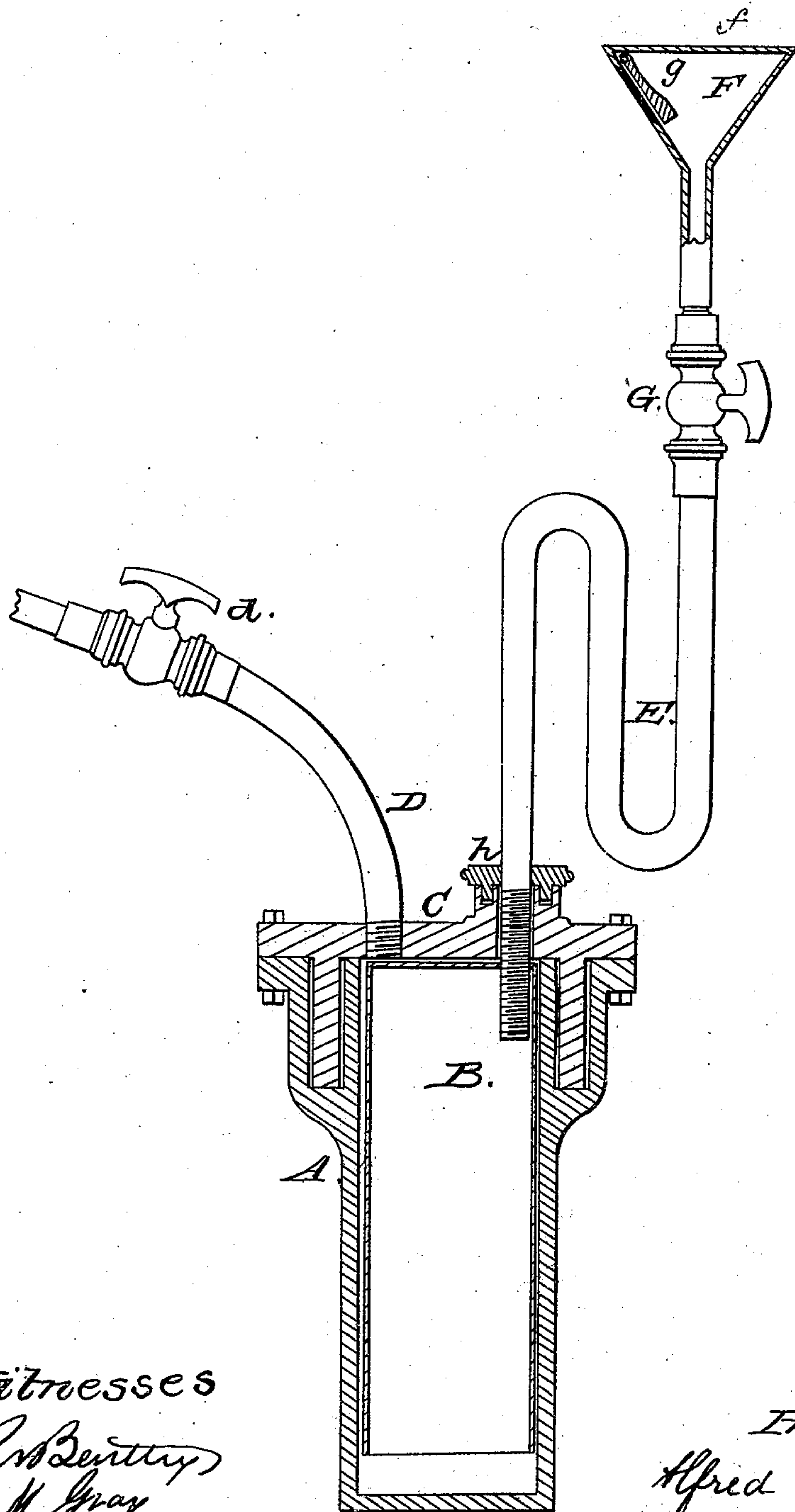


A. MARSH.

Gas Retort.

No. 24,038.

Patented May 17, 1859.



Witnesses
E. R. Bentley
R. M. Gray

Inventor
Alfred Marsh.

UNITED STATES PATENT OFFICE.

ALFRED MARSH, OF DETROIT, MICHIGAN.

GAS-RETORT.

Specification of Letters Patent No. 24,038, dated May 17, 1859.

To all whom it may concern:

Be it known that I, ALFRED MARSH, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Gas Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

The drawing represents a sectional elevation of a gas retort and generator, in part, having my improvement applied to it.

The improvement here referred to is more particularly or exclusively applicable to the manufacture of gas for illuminating purposes, from oil or resinous liquid or fatty matter of various kinds reduced to a liquid; the same being made to assume a vaporous state and brought into contact with suitably heated surfaces, to effect their decomposition. Apparatus for the manufacture of such gas being well known, both as adapted to domestic or private supply and as adapted to manufacture on a large scale for public purposes, I shall not here describe in detail much that belongs to a complete apparatus, as such is not necessary to the proper understanding of my improvement, which, in its application, relates exclusively to the feeding and cleansing of the retort and not to the means for generating the gas therein or thereby.

The nature of my invention consists in providing the feed pipe at or toward its lower end with a secondary and smaller cover to the retort in fusible metal in the main cover and serving, in its connection with the feed pipe, many advantageous uses as hereinafter specified.

To enable others skilled in the art, to make and use my invention, I will proceed to describe its construction and operation.

A, is the retort which may be constructed in any suitable manner, but which I have preferred to show as occupying a vertical position, and which may be provided with an inner chamber B, in which the oil as it passes from above may be made to worm or circulate by any suitable means and the vapor generated therein conducted to the red-hot surface at the bottom of the retort and from thence caused to flow, in a decomposed or

gaseous state, up around the inner chamber B, to be passed off by any suitable outlet from the retort, through the condenser, to the gasometer.

C, is the top cover or lid of the retort, suitably packed and secured.

D, is an escape pipe connecting with the smoke pipe of the apparatus and provided with a cock *d*. This escape pipe is for the purpose of passing off the fumes when burning out the residuum or carbonaceous matter formed in the process of decomposition and left in deposit at the bottom of the retort.

E, is the feed pipe for supply, to the inner chamber of the retort, of the oil from which the gas is made. This feed pipe, it will be seen is of ordinary siphon form, but provided with an oil cup F, at top and stop cock G, arranged below the oil cup and between it and the siphon attachment or bend to the feed pipe. The oil cup F, is of a closed construction, with a supply aperture *f*, that may be connected by pipe with the oil tank, or otherwise serve to enter the oil. Arranged in the side of the cup, is a hinged flap or door *g*, opening inwardly and weighted at the bottom so as to be self closing. Thus provided, the cup F, not only performs its ordinary function as a supplying device and being of a closed construction, excludes obnoxious fumes from passing into the apartment also prevents any spilling over of the grease by pressure from the retort; but, by means of the door *g*, arranged and acting substantially as specified, the rate of feed to the retort is at any time readily determined and, said door being self closing from the inside, no carelessness on the part of the attendant is allowed to interfere with the closed construction of the cup in its general working.

Below the oil cup, is the stop cock G. This stop cock is altogether independent of the stop cock to the oil tank for regulating the supply, though it may be used as an additional regulator, but its main object is to avoid the removing of the oil remaining in the siphon bend of the feed pipe below it, at any time when the feeding apparatus is taken from its place, by shutting said cock so as to remove atmospheric pressure and cause the oil to remain in the siphon. The siphon itself not only serves to conduct

the fluid but also to resist pressure from the retort as already well known and understood.

5 The feed pipe E, is not passed directly through the main lid C, of the retort, but is fitted through and connected with a secondary lid *h*, of one eighth the diameter, more or less, of the main lid, in which latter the secondary lid is set by fusible alloy to facilitate removal. Such secondary lid *h*, is used for what is called "entering" the retort, and it not only does away with the frequent displacement of the main lid, but facilitates the removal of the feeding apparatus without that objectionable escape of obnoxious fumes into the room which takes place when removing the main lid, and it also serves, when the feeding apparatus is removed, as a window or sight aperture to ascertain the heated condition of the retort, and likewise serves as a vent to admit atmospheric air for the oxygen contained therein to unite with the unconsumed carbon of the residuum in burning or clearing out the retort; and for these several purposes, it will be seen, the relative arrangement and connection of the secondary lid with the feed pipe—which projects down

into the inner case of the retort and has a screw thread on its end to guide it therein— is most advantageous, not merely as regards securing the right position for the vent and sight aperture to the retort; but, the one operation of removing the feed pipe establishes the vent or sight opening, one or other of which is generally necessary at such times, and on returning the feed pipe to its place, the closing of the vent and sight aperture is secured likewise the removal of the feed when burning or cleaning out the retort is insured.

While not claiming the mere use of an auxiliary lid in the main cover to the retort, nor yet the setting or packing of lid by fusible alloy, I do claim—

The employment of the secondary lid *h*, for the purposes set forth, when the same is arranged and connected with the feed pipe, substantially as shown and described.

The above specification of my improvement in gas apparatus signed by me this 20th day of August 1858.

ALFRED MARSH.

Witnesses:

R. M. GRAY,
E. R. BENTLEY.