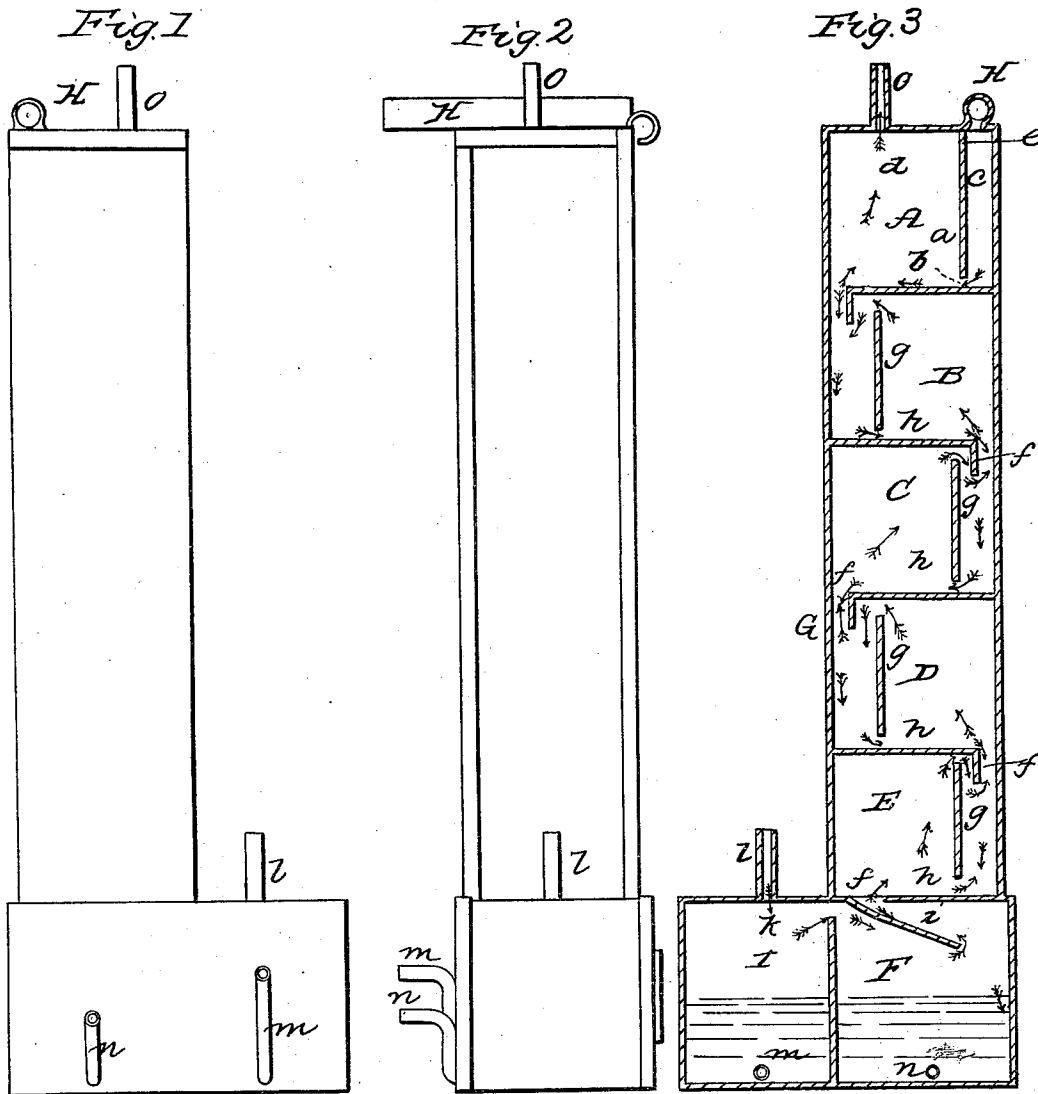


A. WALKER.
Gas Purifier.

No. 22,391.

Patented Dec. 21, 1858.



UNITED STATES PATENT OFFICE.

ANDREW WALKER, OF CLAREMONT, NEW HAMPSHIRE.

APPARATUS FOR PURIFYING GAS.

Specification of Letters Patent No. 22,391, dated December 21, 1858.

To all whom it may concern:

Be it known that I, ANDREW WALKER, of Claremont, in the county of Sullivan and State of New Hampshire, have invented an Improved Apparatus or Means of Purifying Gas for Illumination; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1, is a rear elevation, Fig. 2, a side view, and Fig. 3, a vertical section of the said apparatus.

The nature of my invention consists in a combination and arrangement of separate chambers opening into each other in such manner that a current of water or fluid, may be made to flow through each chamber of the series in a thin fall or sheet, and a current of gas be made to pass in an opposite direction, successively, through the said chambers and through and against the sheets or falls, the chambers being disposed one over the other in a column and made to open into one another substantially in manner and for the movement and purification of illuminating gas as hereinafter specified.

In Fig. 3, of the drawings A, B, C, D, E, F, are a series of chambers placed one over the other in one column G. In the first or upper chamber (A,) is a partition *a*, which passes down from the top nearly to the bottom of such chamber, leaving a narrow passage *b*, under the partition and separating the chamber or vessel A, into two compartments *c*, *d*, the former of which has a water conduit or pipe H, placed on top of it and made to open into it by a slit or passage *e*, extending the entire width of the chamber A.

The chamber A, opens into the chamber B, directly beneath it, by a narrow passage *f*, extending from side to side of such chamber and formed by a bend of the bottom of the chamber A, as shown in the drawings. Each chamber of the series is made to communicate with that next beneath it, by such a passage *f*; they (the passages) being arranged with reference to one another as shown in the drawings. Furthermore a partition *g*, is disposed in each chamber and with respect to the passage *f*, leading into it, as shown Fig. 3; there being a narrow passage *h*, directly underneath the said partition and between it and the bottom of the chamber.

Underneath the lowermost passage *f*, or

that which forms a communication between the two lower chambers E, F, of the column G, is an inclined chute *i*, which should extend from side to side of the chamber and have underneath it a passage *k*, leading into another or receiving chamber I, formed by the side of the chamber F, and having an induction pipe *l*, which should lead from the "hydraulic main" of the gas making retort or retorts. Each of the chambers I, F, should be furnished with a pipe *m*, or *n*, for the withdrawal of water and tarry matters from it.

In the operations of this apparatus a stream of water is to flow from the pipe H, through the opening *e*, and into the compartment *c*. Striking on and flowing over the bottom of the vessel A, it will run into the vessel B, in a thin sheet or waterfall. From the vessel B, it will pass in the same manner into the vessel C; passing from one vessel to the other of the series in one thin sheet and going underneath the partition *g*, of each chamber and finally running down the chute *i*, and into the chamber F; from which it will escape through the pipe *n*, which has a bend upward outside of the chamber as shown in the drawings. While the water is thus coursing through the apparatus the gas enters it through the pipe *l*, and directly into the tar chamber I, where it will deposit more or less of its tar. From this vessel I, it will pass through the opening *k*, enter the chamber F, and will flow directly through the sheet of water which may be falling over the edge of the chute *i*, thence it will course upward in contact with the stream and again pass through it before passing through the opening *f*. Coursing through the said opening *f*, the gas will rise in the chamber E, and from thence it will pass over the top of the partition *g*, thereof, and through the sheet of water which may be falling from the chamber D, into the chamber E. In this way it will continue to pass through each chamber of the series until it escapes through the pipe *o*, leading out of the top of the upper one of the series. Besides going through each sheet of water the gas will be more or less carried in contact with the streams which may be flowing over the bottom of the chamber from which the water may be descending. In this way by surface action and by breaking up the column of gas into minute bubbles, as it will be when caused to pass through the sheet of water,

it will be purified far better and cheaper than it can be by any process of purification, by the use of lime or a solution thereof. The impurities will be carried off by the current
5 of water.

In my United States Patent (No. 21095) I have, in connection with the subject of such patent, exhibited an apparatus for purifying gas which is analogous to that
10 hereinbefore described. It is there shown as erected on a horizontal washer, operating differently and being capable of being used separately from such horizontal washer. I have preferred to make it the subject of a
15 separate patent.

I do not claim the purification of illuminating gas by means of water when applied in a shower of drops or of finely divided streams, but

20 I claim—

The combination and arrangement of

separate chambers opening into each other in such manner that a current of water or fluid may be made to flow through the series in thin falls or sheets, or from one chamber
25 to the next in a thin fall or sheet, substantially as described, and a current of gas be made to pass upward and through the several chambers and successively through and against the several falls or sheets of
30 fluid essentially as explained, the chamber being disposed one over the other in column, and the whole being to effect the purification of gas for illumination as described.

In testimony whereof I have hereunto set
35 my signature this 12th day of August A. D. 1858.

ANDREW WALKER.

Witnesses:

R. H. EDDY,
F. R. HALE, Jr.