T. CURLEY.

APPARATUS FOR THE MANUFACTURE OF COAL GAS.

No. 183,540. Patented Oct. 24, 1876.

Fig. 1

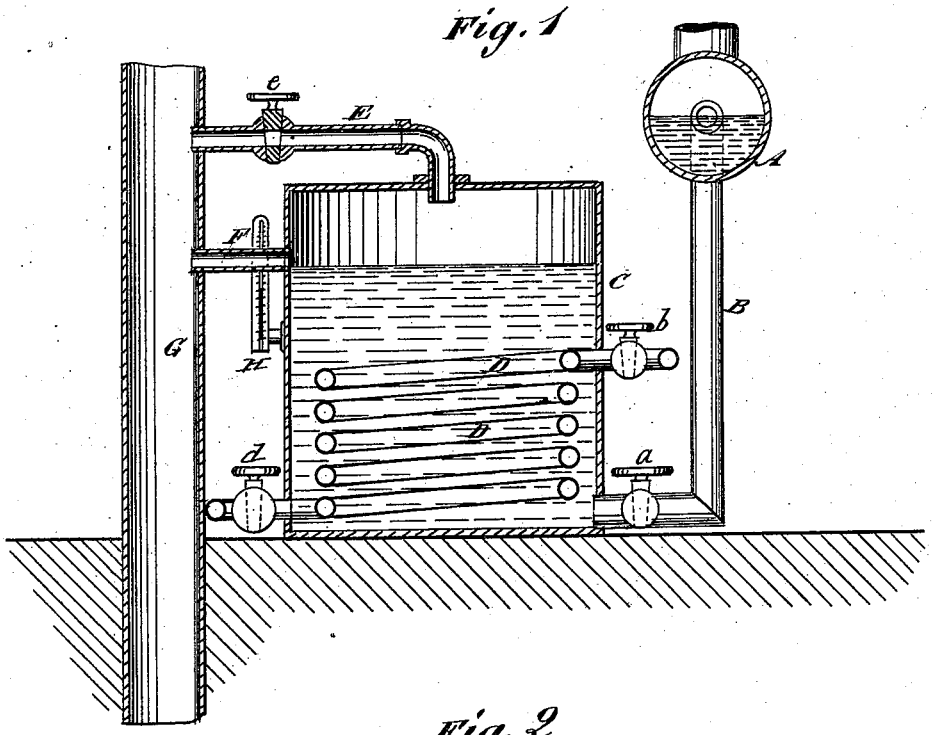
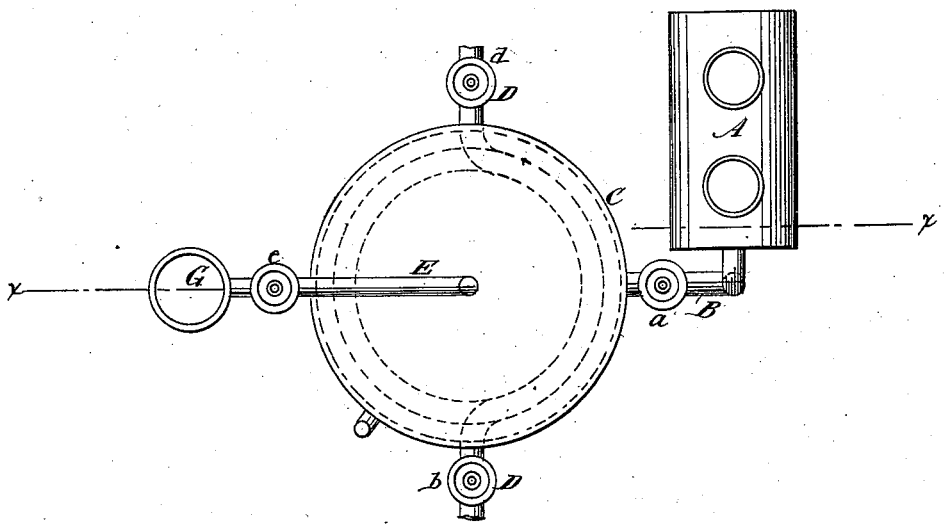


Fig. 2



WITNESSES:

C. Neveux

John Goethals

INVENTOR:

T. Curley

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS CURLEY, OF WILMINGTON, DELAWARE.

IMPROVEMENT IN APPARATUS FOR THE MANUFACTURE OF COAL-GAS.

Specification forming part of Letters Patent No. **183,540**, dated October 24, 1876; application filed April 4, 1876.

To all whom it may concern:

Be it known that I, THOMAS CURLEY, of Wilmington, in the county of New Castle and State of Delaware, have invented a new and useful Improvement in the Apparatus for the Manufacture of Coal-Gas, of which the following is a specification:

Up to the present time one of the principal drawbacks to the full and proper working of gas-works has been the crystallization of naphthaline in the main pipes about gas-works, particularly those leading from the purifiers to the holders; also the street service-pipes and lamp-posts. Gas engineers and scientists have given the matter much consideration, but the result so far is unimportant, and, without any practical, simple, and economical remedy, the crystals still form, fill up the mains, and entail expense for their removal.

As there is nothing known to either science or practice at the present day by which the gas manufacturer can prevent the elimination of naphthaline during the destructive distillation of coal at a high temperature, and as the naphtha and benzole series of hydrocarbons are solvents for these crystals, I propose to utilize the benzole and naphtha contained in the coal-tar for the purpose of dissolving them, or rather to prevent their deposition upon the gas-pipes, by means of the apparatus hereinafter described.

Figure 1 is a vertical sectional elevation of a device embodying the elements of the invention, on the lines *x x*, Fig. 2. Fig. 2 is a top or plan view of the apparatus.

In the accompanying drawings, A represents the hydraulic main, in which the coal-tar accumulates by condensation, and from which the pipe B leads downward, as shown, to conduct the coal-tar to the vessel C, and is provided with a cock, *a*, to regulate the flow of the tar. In the vessel C there is provided the steam-coil D, which is heated by steam or any other suitable agent, the coil being provided with the cock *b* to regulate the admission of the steam, and also with the cock *d* to afford a vent for its escape. At the top of the vessel C is provided the pipe E, for conveying the vapor of the coal-tar to the main G, the pipe E being provided with a regulating-cock, *e*, to control the flow of the vapor. The pipe F is an overflow-pipe leading to the main G, the lower part of which serves as a tar-well. A gage, H, properly connected with the vessel C, may be provided to determine the quantity of the tar therein.

The operation of the above apparatus is as follows: The coal being in the process of distillation in the retort, the gas flows to the hydraulic main A, whence it is led to the main G by any suitable means. The hydrocarbonaceous matter in the main A is deposited therein in the form of coal-tar, which flows from the main through the pipe B to the vessel C, in which it is heated by the steam-coil D to a point not over 175° Fahrenheit, so as to evolve the vapors of naphtha and benzole, but not the heavier or denser vapors, which contain matter apt to crystallize when condensed in the pipes. The vapors of naphtha and benzole thus evolved are led through the pipes E to the gas-main G, where they are mingled with the gas and form a composition which, as it flows through the pipes, prevents the deposit of naphthaline therein.

It is obvious that by the use of the said apparatus a continuity of process is secured, and that no foreign matter is added to the material from which the gas is produced in the retorts.

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

A hydraulic main, A, connected by suitable means with the main G, in combination with the pipe B, vessel C, steam-coil D, and pipe E, forming an apparatus whereby, by a single continuous operation, the products of the distillation in the retorts, to wit, the gas and the vapors of naphtha and benzole, are combined, producing a gaseous compound for illuminating purposes, and which will also prevent the deposit of naphthaline in the pipes through which it flows, substantially as specified.

THOMAS CURLEY.

Witnesses:

GEO. RICHARDSON,

JOS. TATNALL, Jr.