

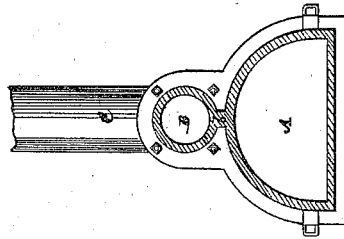
*J. Davison,*

*Gas Retort.*

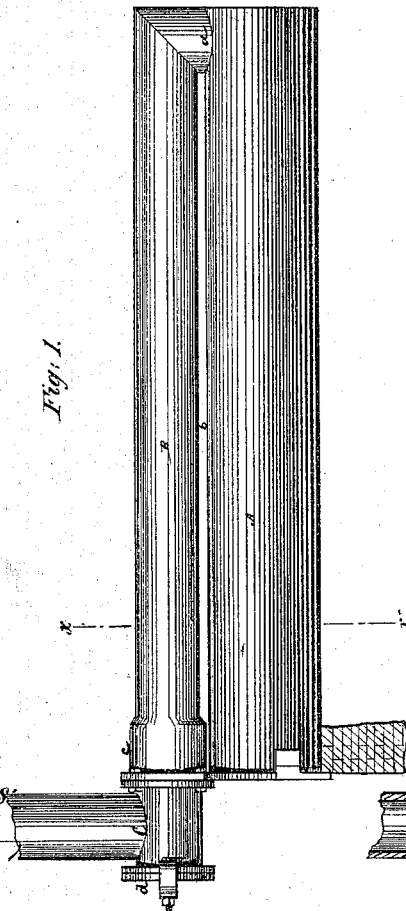
*No. 108009.*

*Patented Oct. 4. 1870.*

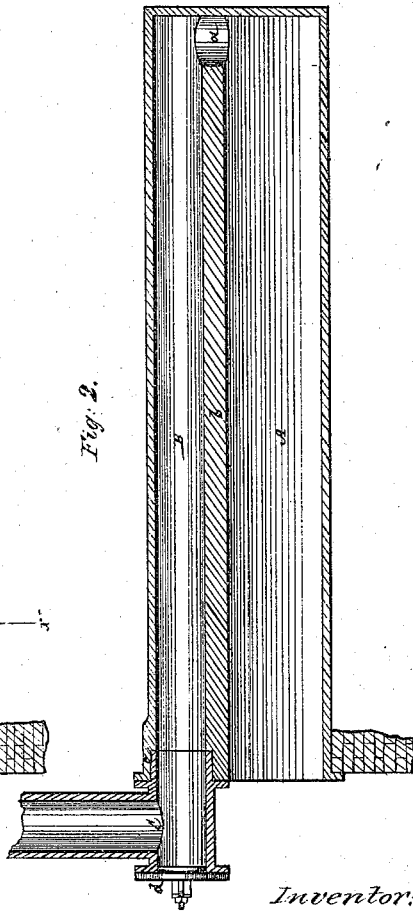
*Fig. 3.*



*Fig. 1.*



*Fig. 2.*



*Witnesses:*  
*Fred. Haynes*  
*R. H. Babcock*

*Inventor:*

*Jarvis Davison*

# UNITED STATES PATENT OFFICE.

DARIUS DAVISON, OF NEW YORK, N. Y.

## IMPROVEMENT IN GAS-RETORTS.

Specification forming part of Letters Patent No. 108,009, dated October 4, 1870.

*To all whom it may concern:*

Be it known that I, DARIUS DAVISON, of the city, county, and State of New York, have invented a new and useful Improvement in Gas-Retorts, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents a longitudinal outside elevation of a gas-retort constructed in accordance with my invention; Fig. 2, a longitudinal section of the same; and Fig. 3, a transverse section thereof, taken as indicated by the line *x x* in Fig. 1.

Similar letters of reference indicate corresponding parts.

My improvement relates to gas-retorts for making gas from coal and other substances, such retorts being made either of metal or clay, as desired.

Said improvement consists in a novel construction of the retort or arrangement of parts, including a lower main retort and upper return one, with the escape-pipe at the forward end of the latter, and whereby the mouth end of the retort, which contains the charge, is protected from outside exposure by projection beyond the brick-work, and a more economical and perfect production of the gas obtained; also, other advantages relating to construction secured.

For the purpose of illustrating the improvement, it will suffice here to describe it as used for the manufacture of gas by the destructive distillation of coal.

In such manufacture it has heretofore been customary to provide for the escape of the gas from or near the mouth of the retort, which is not only objectionable, as making it necessary to have the feed end of the retort project beyond the brick-work in order to provide for the escape-pipe, and that exposes a portion of the retort containing the charge to the cooling effects of the outside atmosphere, but which is furthermore objectionable by causing much vapor and imperfectly-formed gas, rising from or produced by the coal at the mouth or charging end of the retort, to pass off and be crowded up the escape-pipe by the gas traveling from the rear end of the retort and throughout its length to said escape-pipe, thereby causing much gaseous product to be wasted by its remaining in the shape of coal-tar and other residuum.

This I obviate by building the charging end of the main retort A flush with the brick-work, and providing at or near its rear end a branch or outlet, *a*, for the gas to an upper retort or pipe, B, which is heated in common with the lower retort, and which forms a return flue or passage for the gas to the escape-pipe C, that is arranged over or beyond the front end of the lower retort, and as regards the outside exposure of which it is immaterial, inasmuch as all available vapor has been converted into gas before reaching it.

By this means or combination of retorts under a return system or arrangement, as regards the passage of the gas to the escape-pipe, all vapor rising from the coal at the mouth end of the retort A is compelled to travel the full length of said retort and back along the upper retort, B, before it passes off to the escape-pipe. This insures a proper or full conversion of said vapor into gas, and a more perfect and economical production generally of the gas before it escapes by the pipe C.

The upper retort, B, is connected with the lower retort, A, by a web, *b*, which serves materially to strengthen the main retort A, and to prevent that sagging of it at its crown which is so common.

The escape-pipe C, too, is constructed so that it not only is secured by a flange to the front end of the upper retort, B, but has a socket-bearing therein, as at *c*, which contributes to support it and to relieve its holding-bolts from strain. Said escape-pipe C also is provided with a forward branch, in line with the upper retort, and fitted with a lid or cover, *d*, which affords facility for cleaning.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The cylindrical return-pipe B, combined with the retort A by means of the web *b* and pipe *a*, substantially as and for the purpose set forth.

2. The adaptation of the stand-pipe C to the return-pipe B by means of a socket-connection, *c*, provided with a cover, *d*, arranged substantially as and for the purpose specified.

DARIUS DAVISON.

Witnesses:

FRED. HAYNES,  
HENRY PALMER.