

Earseman & Gray.

Carburettling Coal-Gas.

N^o 72825

Patented Dec. 31, 1886.

Fig. 1.

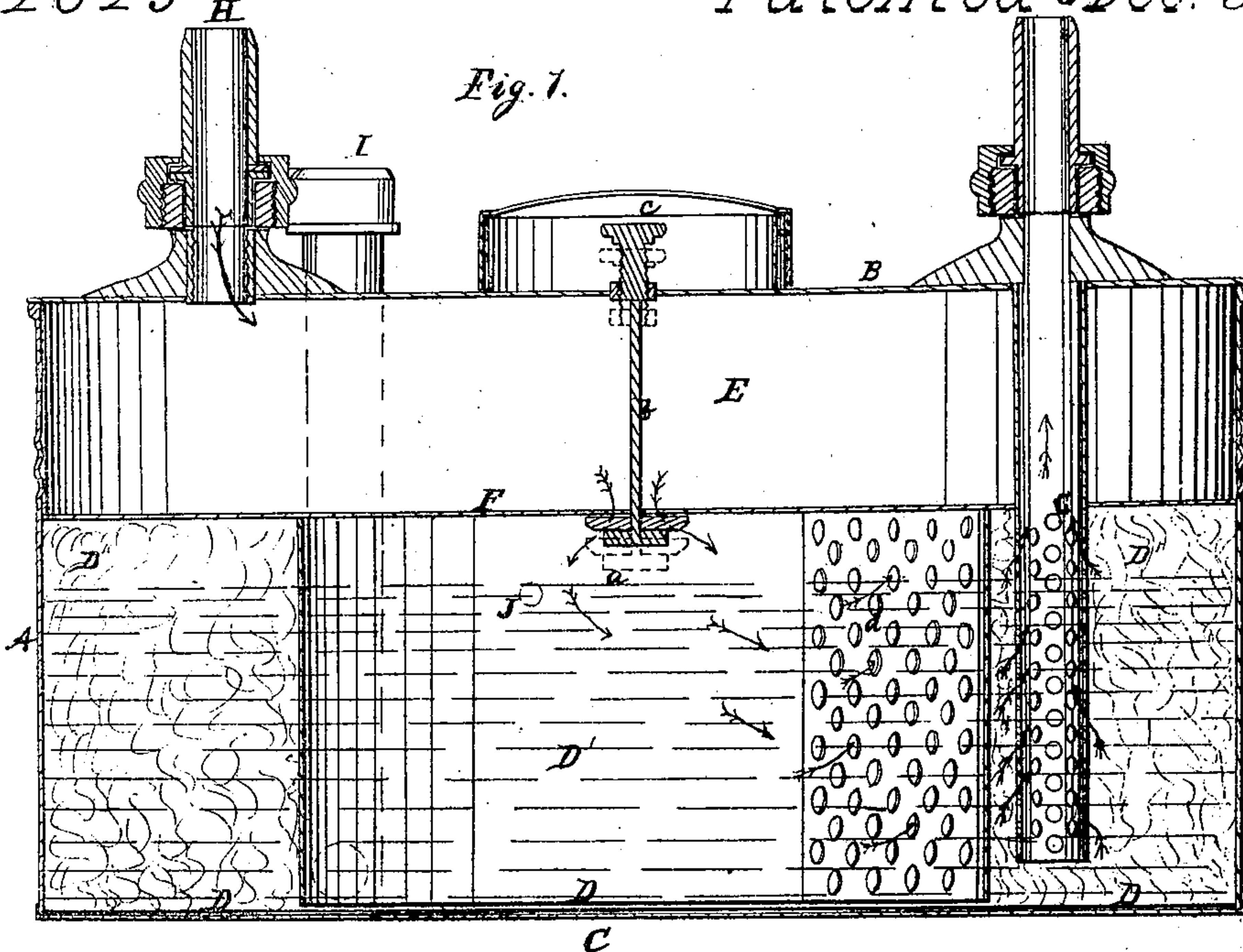


Fig. 4.



Fig. 5.

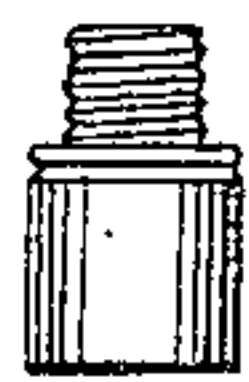


Fig. 2.

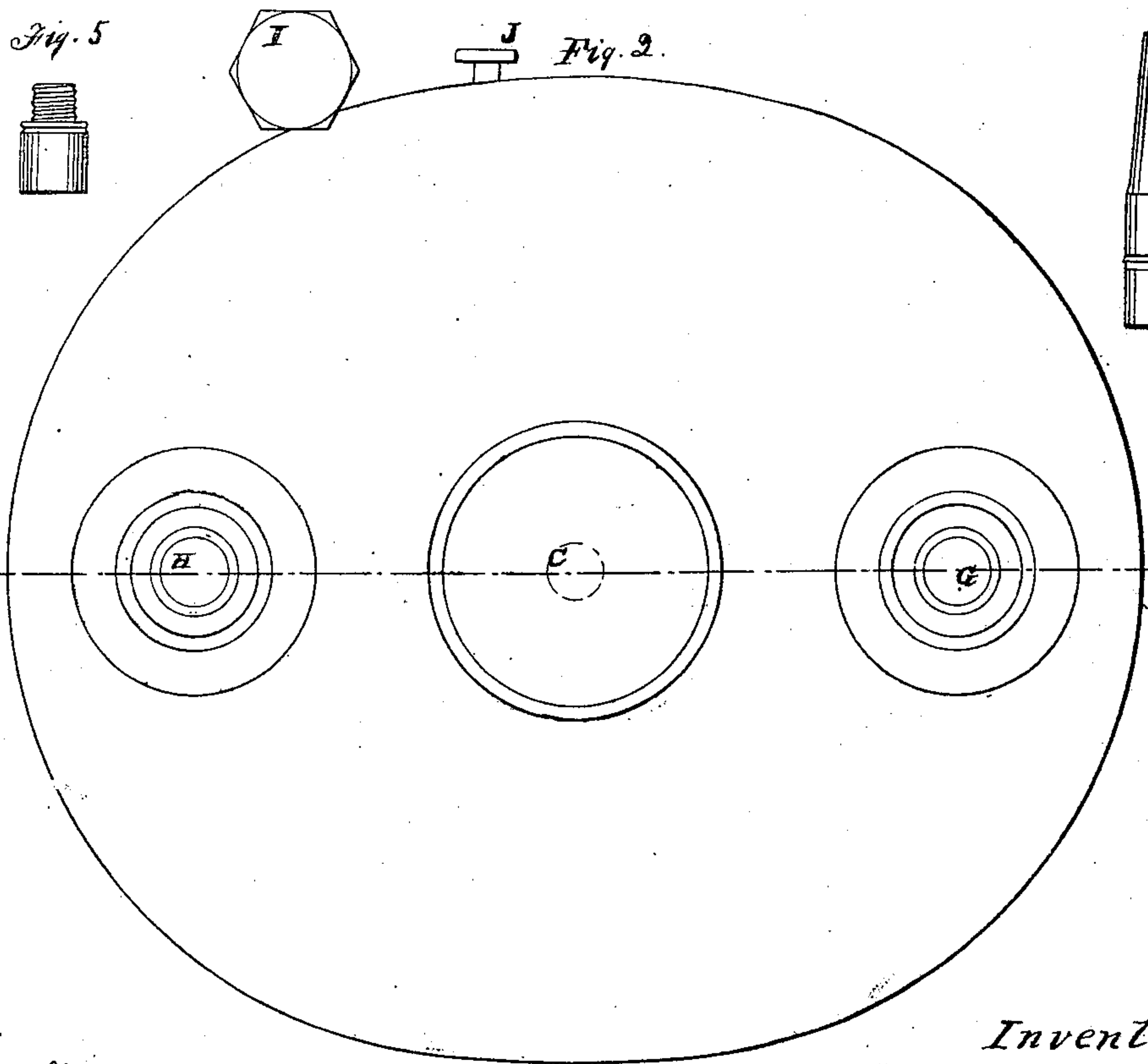


Fig. 3.



Witnesses.

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WILLIAM A. EARSEMAN AND ROBERT W. GRAY, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 72,825, dated December 31, 1867.

IMPROVEMENT IN APPARATUS FOR CARBURETTING COAL-GAS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, WILLIAM A. EARSEMAN and ROBERT W. GRAY, of Pittsburg, in the county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Carbonizing Coal-Gas for illuminating purposes; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a vertical section through the apparatus.

Figure 2, a horizontal section of the same.

Figures 3, 4, and 5, views of the burner used in connection with the apparatus.

Similar letters of reference, where they occur in the separate figures, denote like parts.

Our invention consists in interposing between the gas-receiving chamber and the carbonizing-chamber, a valve, which is regulated from the exterior of the apparatus, so as to regulate the inflow of gas positively by that which is burned, in connection with an improved burner, hereafter more particularly described, by which means we economize much in expense, and produce a far better light than is usually obtained by any known process now in use.

To enable others skilled in the art to make and use our invention, we will proceed to describe the same with reference to the drawings.

A represents an external case, of any suitable form, having tight heads B C therein. The interior of this vessel or apparatus is divided into two chambers, viz, a larger one, D, and a smaller one, E, by means of a closed diaphragm, F, so that the only communication between the two chambers shall be by an opening covered by a button-valve, *a*, that is operated by a shaft, *b*, and a set-screw, *c*, on the exterior; the shaft *b*, to which the screw *c* is attached, extending through the upper head B, so as to be operated from the outside of the case. The under chamber D is divided into two circumferential chambers, D' D'', the latter not extending clear around the interior, but leaving a space where there is a perforated wall or plate, *d*, through which gas may freely pass into the chamber D'', said chamber being filled to a greater or less extent with finely-carded wool that will absorb the hydrocarbons, or mixture of hydrocarbons, by the vapor of which the coal-gas is to be saturated. The coal-gas passing through the perforated diaphragm *d*, passes around through and in contact with this saturated finely-carded wool, and clear through the chamber D'', at the farther end of which there is a perforated tube or pipe, G, into which the gas passes, and from thence taken to the burner. The gas enters through a pipe or tube, H, passes into the chamber E, thence through the valve-covered opening, thence into the chamber D', and thence through the finely-carded wool in the chamber D'', in the lower part of which is placed the carbonizing-fluid, thence into the tube G and to the burner. The fluid used may fill one-third or more of the under chamber D, and its subdivision-chamber D'. The upper chamber E is a closed chamber, separated from the lower, or chamber D, by a diaphragm, F, having an opening in said diaphragm for the passage of the shaft *b*. The outlet-pipe G passes through this chamber to the diaphragm F, made perfectly tight from its insertion in the diaphragm down to the bottom. This outlet-pipe G is made foraminous in order to receive the gas after its passage through the finely-carded wool and fluid in D''. The pipe I is a closed tube through which the fluid is poured into the chamber D and its subdivisions, by means of the opening in the side of the chamber, at or near the bottom thereof. J is a set-screw, inserted in the side of case A, exteriorly, just below the diaphragm, and near the pipe I, and is used as a fluid-line, to denote when the supply of fluid is sufficient. *a* is a button-valve, situated on the lower side of diaphragm, connected by a shaft passing through the diaphragm and upper chamber, on the outside of which is placed a set-screw, *c*. The operation of this set-screw *c* is such that, taken in connection with the burner, used in combination with the whole apparatus, the amount of flow of gas can always be accurately fixed at the burner, without the usual fluctuations experienced, as greater or less pressure is used by gas companies, thereby constantly producing a steady light, and at much less expense.

The burner used in connection with our carburetted-gas apparatus is represented in the drawings by figs. 3, 4, and 5. Fig. 3 is a view of the whole burner ready to apply. Figs. 4 and 5 represent the two parts composing the burner and check proper.

It will be seen by what has been previously stated, that the object of our button-valve is to fix definitely

the amount of flow of gas at the burner, but it is often found necessary to regulate the flame by the use of different-sized burners, so that by the use of the check-burner, as described in connection with our apparatus, we gain the advantage of a double check constantly and unitedly regulating the flame, as the wants of the various consumers may require. These burners and checks we manufacture of iron, brass, or any other suitable material, and may be made of varied sizes or capacities, to suit the wants of the public.

From experience we have discovered that finely-carded wool as the fibrous substance to be used for carburizing purposes, is the best substance for the purpose. It is more durable than cotton or any other fibrous material. Cotton and other vegetable fibres are liable to be killed by the action of gases and the vapors of hydrocarbons, besides being liable to become clogged up by foreign matters, thus requiring a constant renewal of the substance. These difficulties we obviate entirely by the employment of finely-carded wool as the interposing fibrous substance.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. An improved apparatus for carbonizing and saving gas for illuminating purposes, constructed as described, and operated in connection with a burner and check, in the manner and for the purpose set forth.
2. An upper chamber, E, in combination with the pipe I, button-valve *a*, shaft *b*, and set-screw *c*, all constructed and operated as set forth.
3. The perforated partition *d*, perforated pipe G, in combination with the chamber D and its subdivisions D' D'', constructed and operated substantially as described.
4. The fluid-line J, in conjunction with the pipe I and chambers E and D' D' D'', constructed and operated as set forth.
5. The employment of finely-carded wool as the interposing fibrous material, in the manner and for the purpose set forth.

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Witnesses:

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