(No Model.)

S. J. HAYES.

APPARATUS FOR CARBURETING AND ODORIZING NATURAL GAS.

No. 316,033. Patented Apr. 21, 1885.

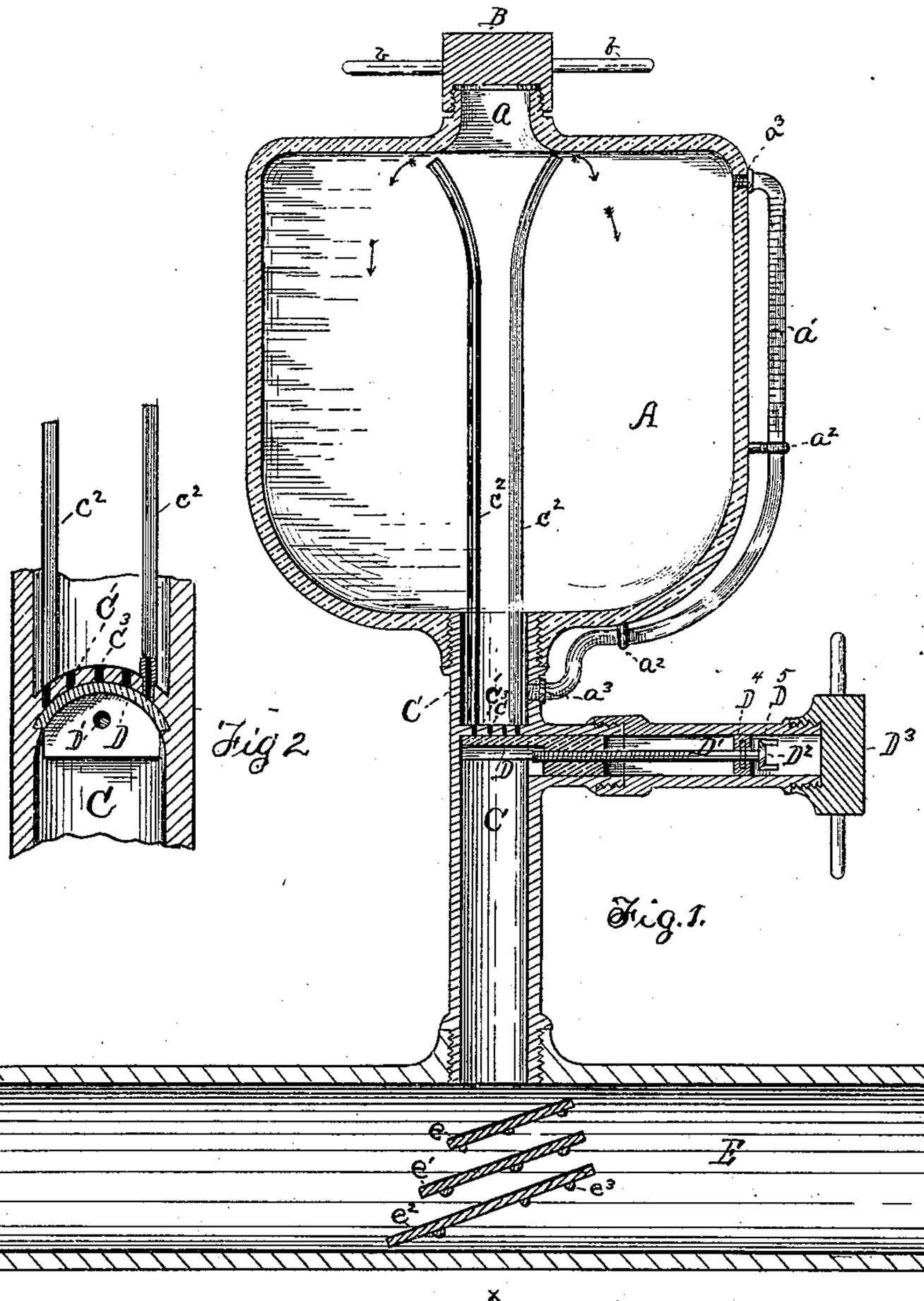

Fig. 1.

Fig. 2.

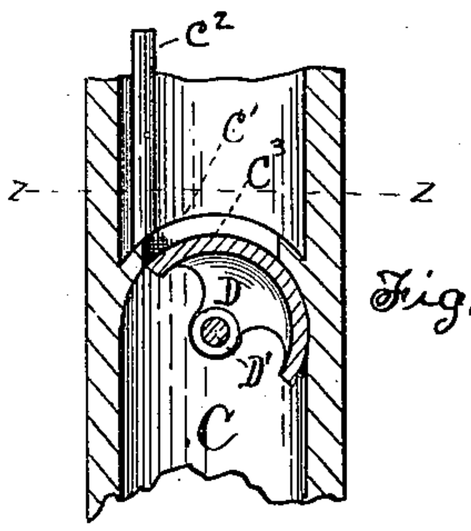

Fig. 3.

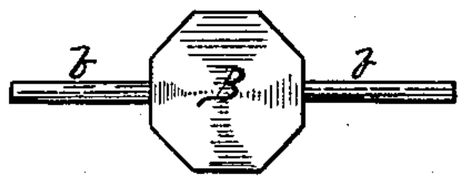

Fig. 5.

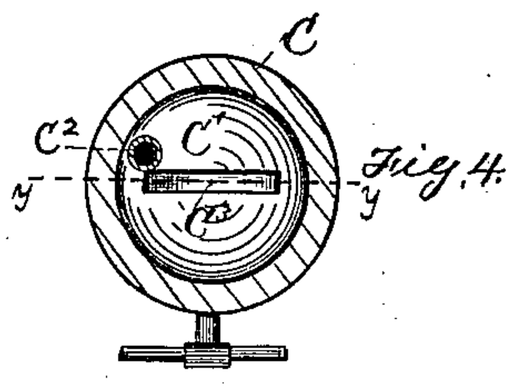

Fig. 4.

Witnesses-

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APPARATUS FOR CARBURETING AND ODORIZING NATURAL GAS.

SPECIFICATION forming part of Letters Patent No. 316,033, dated April 21, 1885.

Application filed January 14, 1885. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. HAYES, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Apparatus for Carbureting and Odorizing Natural Gas; and I do hereby declare the following to be a full, clear, and exact description thereof.

Heretofore the presence of natural gas unconfined in any room or apartment could not be readily recognized by any of the senses until ignited, there being an absence of a sufficiently distinct and perceptible odor, and consequently many accidents, explosions, and deaths have resulted from the use of this gas, and so far as I am aware I am the first to devise and invent a process of odorating the natural gas preparatory to its use.

My process of odorating natural gas consists in evaporating naphtha, benzine, or any other odorizing material by placing the naphtha or other suitable substance into a pipe or receiver in such a manner as to be properly and fully exposed to a current or currents of the natural gas, and at the same time or simultaneously causing the gas to pass forcibly upon and over the same as it passes *en route* to the consumer, and in such a manner as will best evaporate and odorize the gas. For this purpose there must be a gradual and continuous supply of the odorating material. Therefore I have invented the following-described apparatus and appliances to render this process effective and to produce these desired results, reference being had to the accompanying drawings, in which—

Figure 1 represents an elevation in section of my improved apparatus for odorating natural gas. Fig. 2 is a longitudinal and vertical section of my improved cut-off valve. Fig. 3 is a like section showing my modification of valve. Fig. 4 is a section on the line *z z*, Fig. 3. Fig. 5 represents my screw-cap with handles *b b* attached.

In the several figures letters of reference denote the same parts.

E is the pipe through which the gas is made to pass.

C is the drop-pipe, fastened into the pipe E, as indicated.

A is the receiving-vessel for the naphtha or other material, and is screwed onto the vessel or pipe C, as indicated in Fig. 1.

a' is a glass tube inserted in A at a^3 a^3, for the purpose of determining the quantity of the odorizing material in the vessel A.

a^2 a^2 are eyelets or clasps on the vessel A, to receive and support the glass tube a'.

a is the opening at the top of A to receive the odorizing substance.

C^2 represents a tube through which the gas passes into the vessel A.

C′ and C^3 are holes or slots through which the odorizing material passes when the slide D is withdrawn.

e e′ e^2 represent sheets, made of cotton or other suitable fabric, secured to the pipe E by means of coiled (and other) wire attachments, and adjusted, as indicated, to receive and disburse the odorating substance. There may be three (more or less) of these evaporating-sheets.

D^2 represents the horizontal adjusting-pipe; D^3, the screw-cap; D^5, the crank to the screw D′; D^4, the anchor for the screw, and D the slide part of the valve.

Having thus described my apparatus and appliances, I now desire to show the working of this new and useful process of odorating the natural gas for use as fuel and light.

The entire apparatus, as shown in Fig. 1, being placed in position with the horizontal adjusting-pipe D^2 and its accompanying valve-slide D, the screw-cap D^3 is removed, and the slide D is moved in position to cover the gas-tube C′ and the slot or slots C^3 by the turning of the crank D^5. Then the screw-cap B is removed, and the vessel A is filled with naphtha or other odorizing substance, when the cap B is replaced and the slide D is gradually withdrawn, or so regulated as to allow the required amount of the odorating substance to drop through the pipe C onto the depositing-sheets *e e′* e^2, while simultaneously the gas is made to pass through the pipe E, and thus the strength of any given odor may be regulated by the gradation in the supply of the odorating material. The screw-cap D^3 is then replaced, and the gas is continuously odorated as it passes to the consumer.

The modification of this valve as shown in Figs. 3 and 4 opens or closes the gas-tube C^2

and the slot or slots C^3 by the turning of the handle or crank shown in Fig. 4. When the modification of this valve or a tap and faucet is used, the slide D, with its attending adjusting device D^2, is dispensed with.

The office of the pipes C^2 is to afford gaseous pressure on the contents of reservoir A to insure the outflow thereof.

Now, having described my process of odorating natural gas and my improved apparatus for the same, what I desire and claim in Letters Patent is—

1. The combination of the gas-pipe E and the folds *e* of absorbent material arranged therein with pipe C, above said material, the reservoir A, and the pipe or pipes C^2, extending into the upper part of said reservoir to afford gaseous pressure on the contents of the latter, substantially as set forth.

2. The combination of the pipes E C and absorbent *e* with reservoir A, the pipes C^2, the perforated partition C′, and the cut-off slide D, substantially as set forth.

In testimony whereof I have hereunto set my hand this 2d day of January, A. D. 1885.

SAMUEL J. HAYES.

Witnesses:
JOHN S. KENNEDY,
TH. WHITE.