S. BEAN.

CARBURETERS.

No. 183,363. Patented Oct. 17, 1876.

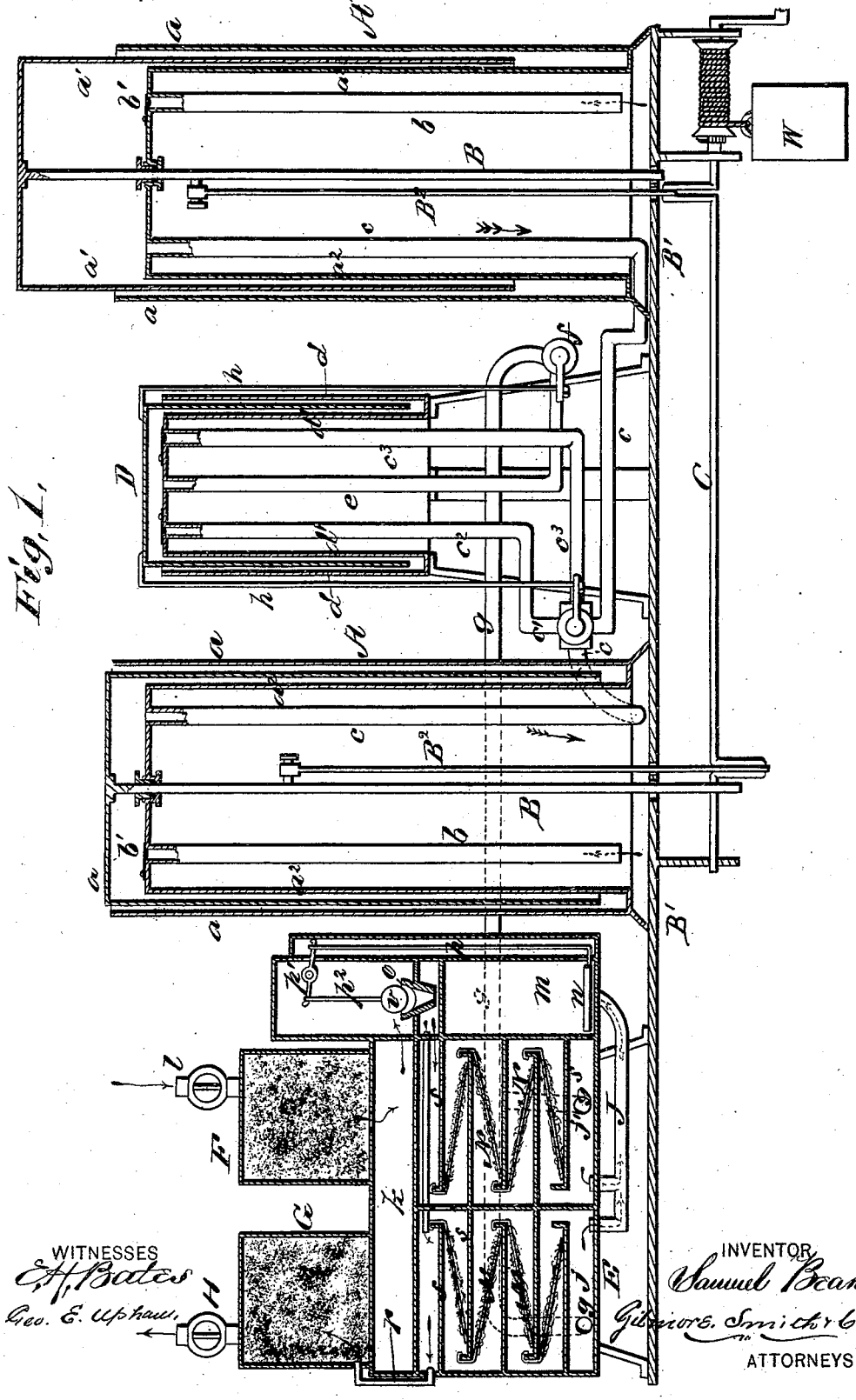

Fig. 1.

WITNESSES

E. H. Bates

Geo. E. Upham.

INVENTOR

Samuel Bean,

Gifford Smith & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

SAMUEL BEAN, OF CINCINNATI, OHIO.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **183,363**, dated October 17, 1876; application filed March 4, 1876.

To all whom it may concern:

Be it known that I, SAMUEL BEAN, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and valuable Improvement in Carbureters; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a longitudinal vertical section of my gas-refiner.

This invention has relation to apparatus for carbureting air for illuminating purposes, as will be hereinafter more fully set forth.

In the annexed drawings, A A′ designate air-engines or blowers, each one of which is composed of three cylinders, *a* a^1 a^2, and inlet and outlet pipes for air, the intermediate cylinder a^1 dipping down into a fluid between the two cylinders *a* a^2. B is a guide-rod, which passes air-tight through the head of the cylinder a^2, and also through a base, B^1, and to this rod B a pitman-rod, B^2, is attached, which is connected to a crank on the shaft C. The two cylinders a^1 a^1 of both engines are made to rise and fall alternately by giving rotation to the shaft C, which can be done by a weight or other convenient means.

I will here remark that the two engines A A′ are constructed exactly alike, similar letters indicating like parts in both engines.

When the cylinder a^1 of engine A is raised, air will be drawn into it through a pipe, *b*, which is provided with a check-valve, *b′*, at its upper end, and when the cylinder a^1 of engine A is depressed the air which was drawn into it will be forced out through a pipe, *c*, through a valve, c^1, through a pipe, c^2, and into a vertically-movable inverted cup, D, which dips into a fluid contained between two cylinders, *d d′*. A pipe, *c*, leads from a pipe which is arranged in the engine A′, and communicates with the valve c^1, which communicates with the inverted cup D by means of a pipe, c^3. Pipes c^2 c^3 are provided with valves at their upper ends, which allow air to be forced from engines A A′ into the cup D, but which prevent air in cup D returning through said pipes when said cup descends, and the air which is collected in the cup D is forced out of it as it descends through a pipe, *e*, through a valve, *f*, through a pipe, *g*, to the carbureter. The upper end of the cup D is connected, by rods *h*, to the stems or lever-handles of valves c^1 *f*, so that as cup D rises and descends it will automatically regulate the entrance of air into it from the engines A A′, and the escape of air from it into the carbureter.

The apparatus of which the movable cup D constitutes a part serves as a regulator or governor for the two air-engines A A′, and regulates the supply of air through the pipe *g* to the carbureter.

E represents a rectangular box, which is subdivided into three compartments, *j j′ k*. On top of this box are two chests, F G. The chest F has a feed-tube, *l*, provided with a suitable cut-off valve, and this chest contains any suitable substance which will filter the fluid hydrocarbon on its way to the compartment *k*, from which latter the fluid hydrocarbon passes through an opening, *o*, which, at times, is closed by a valve, *v*, and escapes into the carbureting-chambers *j j′*, flowing in thin sheets over shelves *s*, arranged in a zigzag manner, as shown in Fig. 1. The two compartments *j j′* communicate with each other by a pipe, (not shown in the drawings,) which allows air from pipe *g* to circulate through both of them. The excess of fluid hydrocarbon escapes through a pipe, J, into a chamber, *m*, beneath a float, *n*, which is connected, by a rod, *p*, lever p^1, and rod p^2, to the valve *v*. When float *n* rises it shuts valve *v*, and prevents the flow of fluid into the carbureting-chambers.

From ledge to ledge of the evaporating-shelves *s* in the carbureting-chambers wires N are arranged, which are thickly covered with sponge or any other suitable absorbing material. This will take up the fluid from the shelves by capillary attraction, and expose a large amount of vaporizing-surface to the air which is forced through the carbureting-chambers. The carbureted air, which is now an illuminating-gas, passes through a pipe, *r*, into the chest G, which contains an absorbent saturated with a perfume, from which the gas escapes through a pipe, H, to be burned.

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

1. The air-engines or blowers A A′, having a guide-rod, B, passing air-tight through the head of the cylinder a^2, and through base B^1, in combination with pitman-rod B^2 and crank-shaft C, substantially as and for the purpose set forth.

2. The combination, substantially as hereinbefore described, of the air-engines or blowers A A′, having inlet and outlet pipes *b* and *c*, with suitable valves, the movable inverted cup D, exit-pipe *e*, automatic valve *f*, pipe *g*, and carbureter, for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

SAMUEL BEAN.

Witnesses:

D. HOPEWELL,

JACKSON SETTLES.