

J. RUTHVEN.
Carbureting Apparatus.
No. 234,108. Patented Nov. 2, 1880.

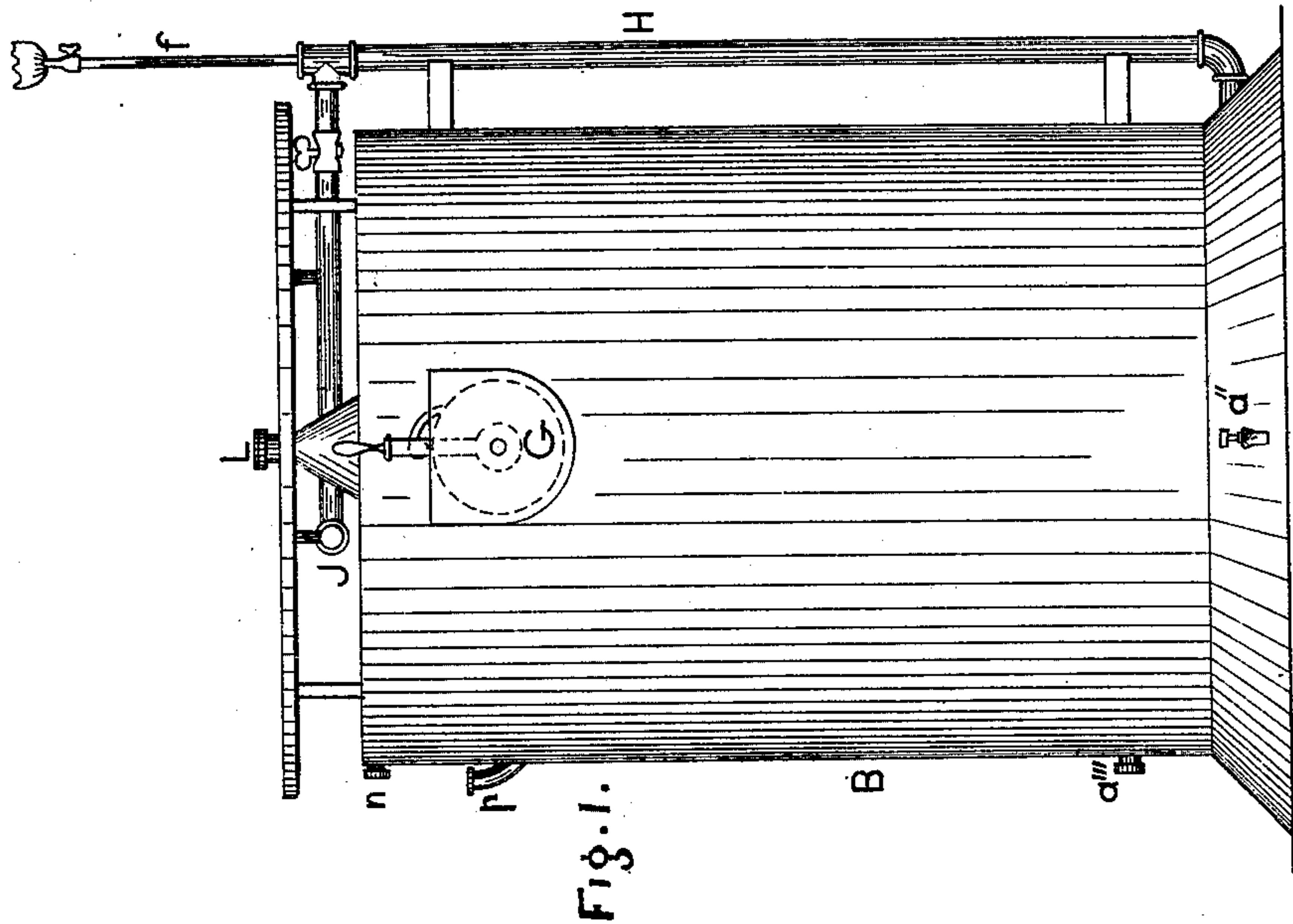
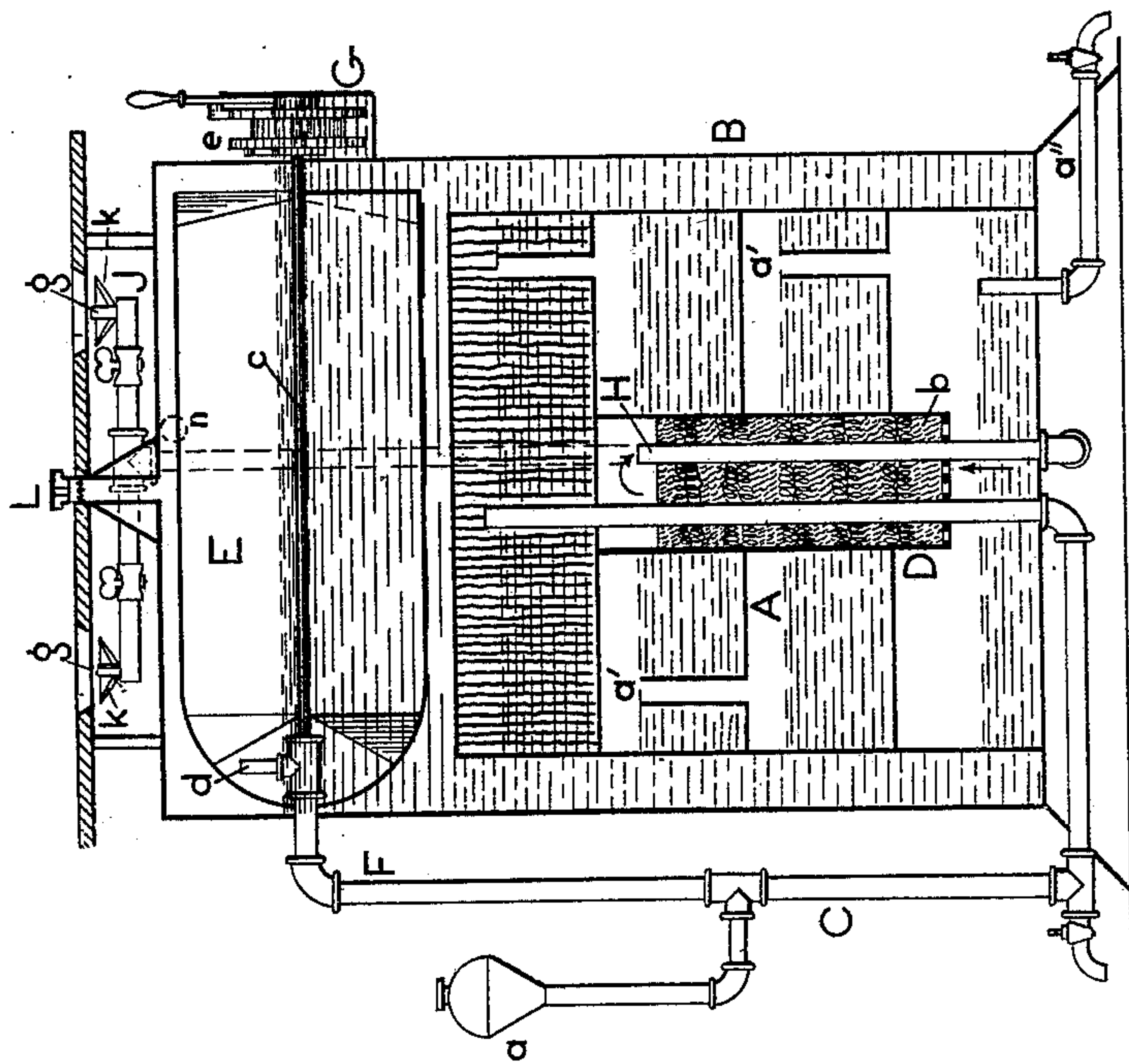


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN RUTHVEN, OF ST. LOUIS, MISSOURI.

CARBURETING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 234,108, dated November 2, 1880.

Application filed October 14, 1879.

To all whom it may concern:

Be it known that I, JOHN RUTHVEN, of the city and county of St. Louis, and State of Missouri, have invented a new and useful Improvement in Carbureting Apparatus, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 represents a side elevation of the apparatus embodying my invention, and Fig. 2 represents a vertical section thereof.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to that class of carbureters in which air is forced through a series of chambers arranged in stories above one another and containing hydrocarbon.

It consists in the peculiar construction and combination of the parts which constitute the carbureting apparatus and the devices inclosing the same, as hereinafter more particularly set forth and claimed.

A designates the carbureting-chamber, and B the inclosing water-case completely surrounding said chamber.

C designates the inlet-pipe for the hydrocarbon fluid, which fluid flows from the fountain *a*. Said pipe is bent so as to pass below the bottom of chamber A, and then up through said bottom and packing-chamber D to the uppermost compartment of said carbureting-chamber A. The packing chamber or cylinder D is nearly filled with absorbent material, *b*, and supported by the horizontal inner partitions of carbureting-chamber A, so as to occupy a central position with respect to said carbureting-chamber. The bottom of cylinder D is perforated, so as to allow the passage of air in an upward direction, while retaining the packing within said cylinder or packing-chamber.

The vertical passages or short tubes *a'* allow liquid and air to pass downward from one compartment of carbureting-chamber A.

In the upper part of the space inclosed by water-case B is a rotary fan or blower, E, consisting of suitable blades carried by a spindle, *c*, which has one of its bearings in the wall of the case and the other in the end of an air-pipe, F, which has an inlet-branch *d*. Said pipe F discharges into pipe C, so that the air

and the hydrocarbon fluid enter the carbureting-chamber through the same pipe.

The train of spring-driven gearing *e*, which operates blower E, is inclosed in a water-casing, G, attached to case B. The water within said casing G keeps said gearing submerged to a plane above the line of axis *c*, thereby sealing and lubricating the bearing of the latter, and thus dispensing with the ordinary need for packing and stuffing boxes.

After the carbureting-chamber is charged with hydrocarbon fluid from fountain *a* the rotation of said blower E causes a current of air to enter inlet *d*, and pass thence through pipes F C to the upper part of carbureting-chamber A. Leaving pipe C at this point the air passes successively through each of the compartments of said chamber, following a downward course, and becoming enriched by hydrocarbon vapor in its passage. It then rises through absorbent packing *b*, which acts as a filter, until it reaches the upper end of packing-chamber D. It then enters outlet-pipe H, which conducts it to the point where it is to be utilized.

Casing B is supplied with water, which surrounds carbureting-chamber A, and partly submerges blower E. The height of the water is regulated by a water-gage, *p*. The water, besides sealing the bearing of spindle or shaft *c*, protects the carbureting-chamber A against fire. It may be drawn off through an opening, *a'''*, near the bottom of case B, and its temperature may be raised by admitting heated air through pipe L, or lowered by admitting cool air through opening *n*. Said inlets are provided with detachable caps.

In winter the raising of the temperature is often very essential to the operation of the machine. To effect this conveniently and automatically I extend the outlet-pipe H upward to a point near inlet L, and cause it to discharge partly or wholly into a cross-pipe, J, which has burners and reflectors *g k* on each side of said inlet L. By igniting the gas at these burners the air surrounding inlet L can be kept heated, and in consequence the water surrounding the carbureting-chamber will be heated also. The machine is thus its own safeguard against freezing.

The above devices may also be applied to

other uses, and the gas may be shut off from said burners when not needed.

I am aware that it is not new to cause the air and hydrocarbon fluid to enter a carbureter through the same pipe, or to cause the carbureted air to pass through packing before leaving the apparatus, or to immerse the operative gearing in water, which seals the bearing of the blower, or to arrange the compartments of a carbureting-chamber in stories above one another, or to place a cylindrical chamber in the middle of said carbureting-chambers. I do not claim, broadly, any part of the foregoing.

What I do claim is—

1. In combination with a carbureting-chamber and a rotary fan exterior thereto, a pipe conducting air from said fan to said chamber, and an exterior casing inclosing said chamber

and fan, and affording an annular water-space around said chamber, and an upper water-space to partly submerge said fan.

2. In combination with carbureting-chamber A, divided into successive stories or apartments by horizontal partitions, pipes *a' a'*, extending up through said partitions, inlet-pipe C, supplying air to the uppermost apartment, central chamber, D, containing packing, supported in the middle of chamber A by said partitions and having a perforated bottom, and outlet-tube H, extending from the upper part of chamber D down through the carbureter, substantially as set forth.

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Witnesses:

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