

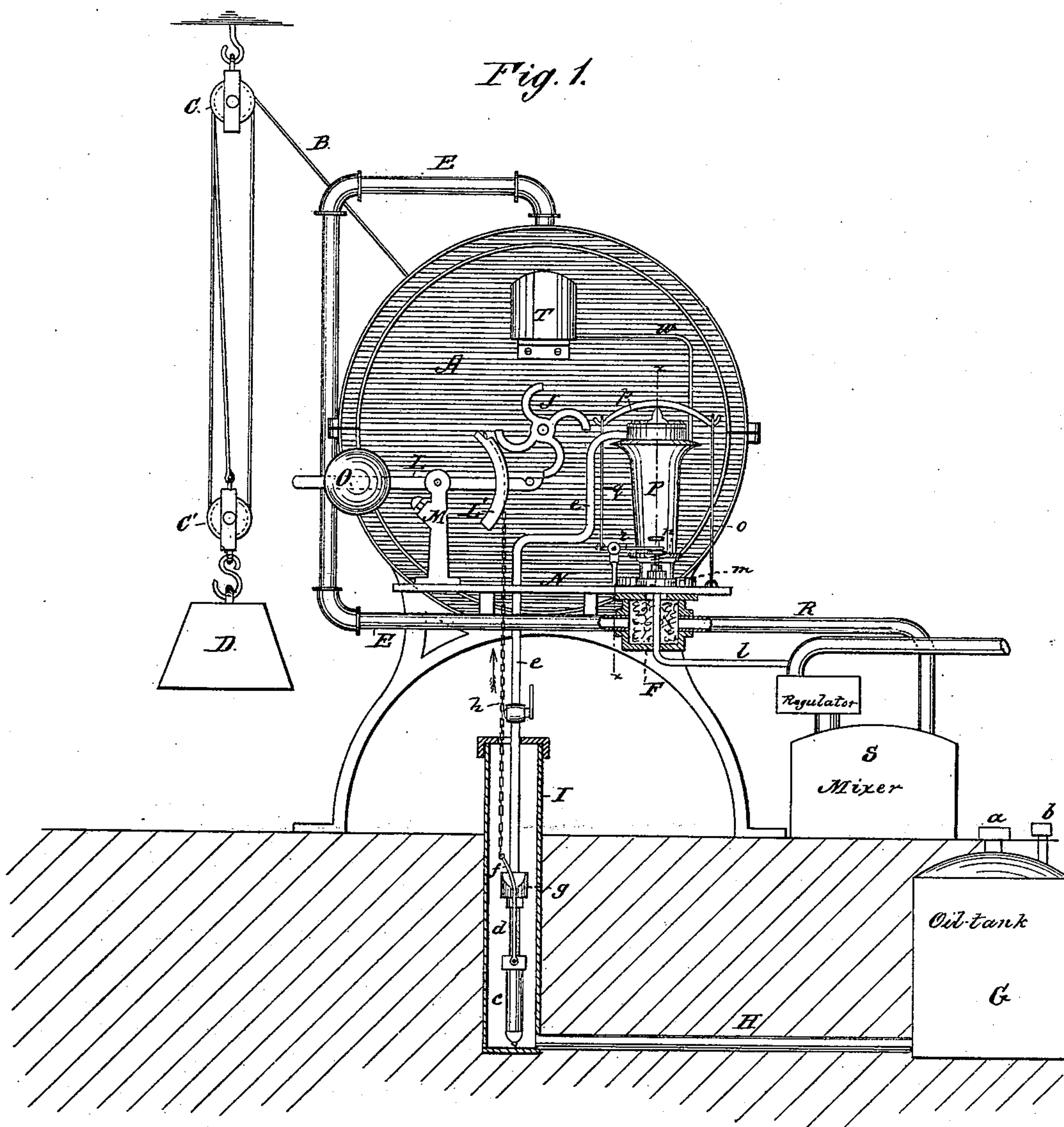
(No Model.)

2 Sheets—Sheet 1.

A. HENNING.
Carbureting Apparatus.

No. 236,586.

Patented Jan. 11, 1881.



WITNESSES:

W. W. Hollingsworth
Edw. W. Byrnes

INVENTOR:

Abel Henning
BY *Russell L.*
ATTORNEYS.

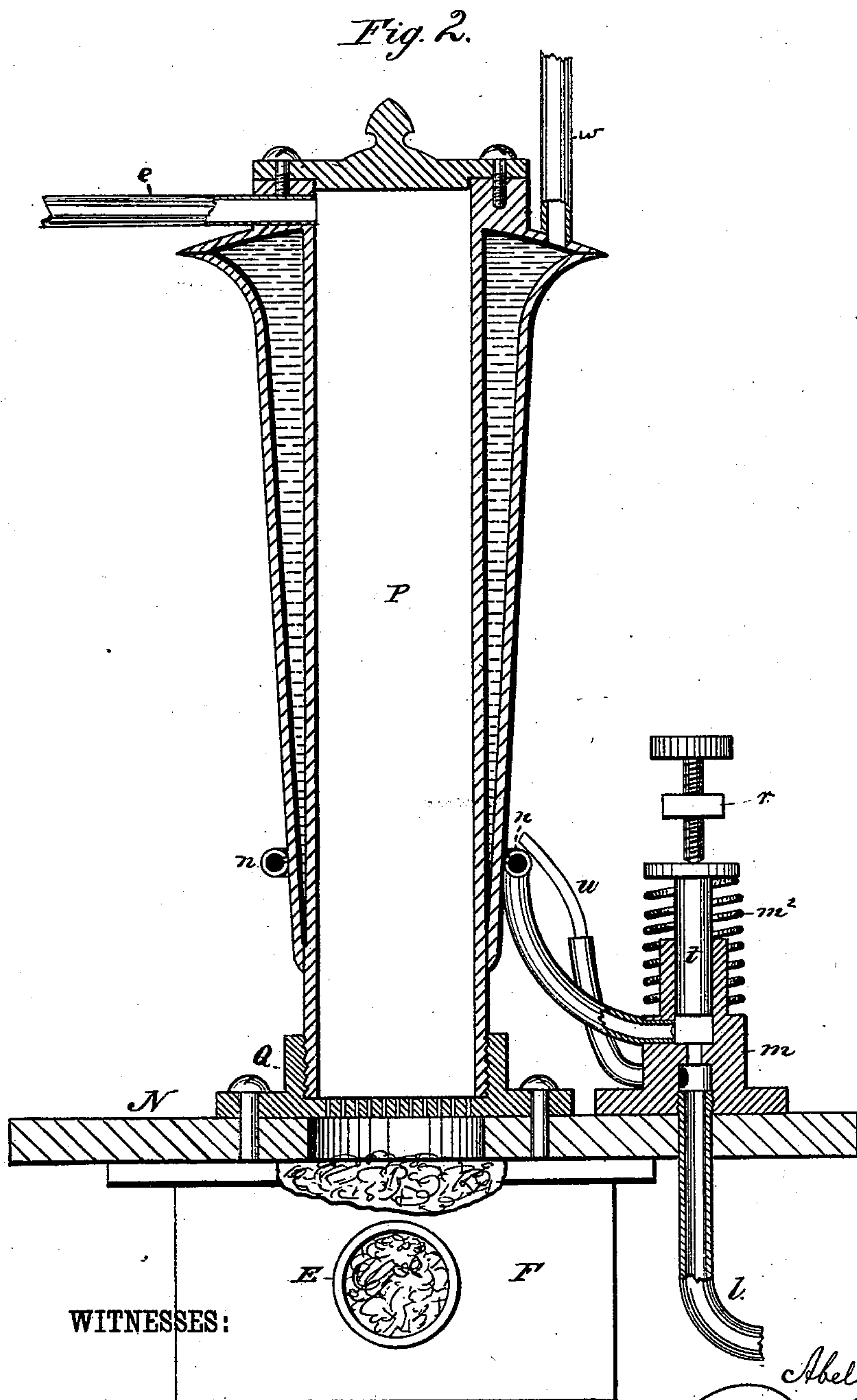
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UNITED STATES PATENT OFFICE.

ABEL HENNING, OF EASTON, MARYLAND.

CARBURETING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 236,586, dated January 11, 1881.

Application filed June 2, 1880. (No model.)

To all whom it may concern:

Be it known that I, ABEL HENNING, of Easton, in the county of Talbot and State of Maryland, have invented a new and Improved Carbureting Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of the entire apparatus, with the box F and the oil-well in section. Fig. 2 is an enlarged view of the generator and its attachments, taken in section through the line *x x* of Fig. 1.

My invention relates to certain improvements in carbureters of that class in which a means for creating a blast of air is combined with a mixing-chamber, a heated generator for volatilizing the hydrocarbon, and a pump for feeding the hydrocarbon to the generator, an example of which is shown in my prior patent, granted October 29, 1878.

The improvements consist in the peculiar arrangement of parts whereby the pump which feeds the oil to the generator is operated by the same driving-power which actuates the air-blower; also, in the peculiar construction and arrangement of the devices for volatilizing the oil and mixing the vapors of the same with the air, as hereinafter more fully described.

In the drawings, A represents the end of the cylindrical case of a rotary air-blower, the rotary shaft of which blower is provided with a drum at the other end, but not shown, around which is wound a wire rope, B, which passes around pulleys C C', and has a heavy weight, D, attached, whose gravity causes the rope to be unwound from the blower-shaft and furnishes the power necessary to rotate the latter. This blower, which is of the usual form, takes in air from the bottom and discharges it through the pipe E, leading to the box F.

G is the oil-tank, containing the hydrocarbon. This tank is buried in the ground for safety, and has an inlet-pipe, *a*, through which the oil is inserted, and also an air-inlet, *b*, to allow air to pass in as the oil is drawn off. This tank connects, through a pipe, H, with a well, I, in which operates a pump composed of a vertically-sliding cylinder, *c*, having an inwardly-opening valve in its lower end and a

stationary tubular piston, *d*, communicating with an upwardly-extending pipe, *e*, through an outwardly-opening valve. For this pump, however, a double-acting or other suitable form of pump may be used.

To impart reciprocating movement to the cylinder *c* a bail, *f*, is attached to the same, and passes up through guides in the enlarged part *g*, forming the upper valve-box, and is attached to a chain or other flexible connection, *h*. This pump I cause to be operated by the same power which drives the rotary blower, and for this purpose the end of the blower-shaft is extended beyond the case and is provided with a wiper-wheel, J, which is made to act upon the end of the lever L, which end of said lever is slightly upturned and provided with a friction-roller. To this lever is attached an arc-shaped head, L', to which the chain *g* is attached, and which serves always to cause the chain to move in a true vertical line. This lever is fulcrumed upon a standard, M, supported upon the offsetting-table N, and is provided upon the opposite side of its fulcrum from the wiper-wheel with an adjustable weight, O, which, when one of the wiper-sections of the wheel leaves the end of the lever, causes the said end of the lever to rise with a rapid movement and bring up the chain and the cylinder of the pump to effect the injection of oil into the generator. P is this generator, with which the oil-pipe *e* communicates either at the top, as shown, or at the bottom, as may be found most convenient. This generator is composed of a central cast cylinder, having sheet metal about the same, forming a chamber for a water-jacket. This generator is screwed into a perforated base, Q, which base is bolted to the table N, directly over a hole therein, and the said generator communicates, through the perforations in the base, with the box F. This box is bolted to the under side of the table, and communicates on one side with the pipe E (see Fig. 1) from the blower, and upon the other side with the pipe R, leading to the mixer S.

Now, the rotary blower being put in motion by the gravity of the weight, and the generator being properly heated, air is forced into the box F and oil pumped into the generator, which I prefer to fill partially with metal clippings to facilitate volatilizing. Then, as the

gas or volatilized hydrocarbon passes out at the bottom of the generator it enters the box F, which box is filled with sponge or other porous material, and here the oil-vapors mingle with the air and pass thence to the mixer, where they become a fixed and permanent gas.

To heat the generator, gas is taken from the mixer through the pipe *l* and led to a valve-chamber, *m*, placed above the table, beside the generator, in which valve-chamber is arranged a vertically-sliding rod, *t*, which is held up by a spiral spring, *m*², and which rod, when forced down against the tension of the spring, acts as a valve, and shuts off the flow of gas from pipe *l* to the burner *n*, which latter is made in the form of a circular perforated pipe encompassing the generator.

To control the valve automatically a link or cord, *o*, is fastened to the table at one end, and at the upper end is attached to the lever *p*, the other end of which lever is connected with another link or cord, *q*, and the middle of which lever is stepped upon a point on the top plate of the generator. The lower end of the link or cord *q* is attached to the short end of lever *r*, fulcrumed upon a post on the table, and whose long end is provided with a set-screw that bears upon the top of the valve-rod *t*. Now, when the heat becomes too great the expansion of the generator causes it to rise and lift the lever *p*, and this produces a strain on the lower lever, *r*, which causes its end bearing the set-screw to depress the valve-rod and wholly or partially cut off the supply of gas from the burner. In case the gas should be wholly cut off, a torch, *u*, is arranged to communicate with the gas-pipe below the valve-chamber, which is not affected by the variations of the valve, and which, by being constantly lighted, serves to relight the annular

burner whenever it may have become entirely extinguished.

The water-jacket about the generator is supplied by a half-round tank, *T*, supported upon a bracket upon the end of the blower-case, and from which the water passes down to the annular space about the generator, through the pipe *w*. This water-jacket serves to render the heat imparted to the generator more nearly uniform.

Having thus described my invention, what I claim as new is—

1. The carbureter consisting of a rotary blower having its shaft extended beyond its case, a pump, and intervening mechanism, substantially as described, connecting it with the blower-shaft, a generator, *P*, the feed-pipe from the pump communicating with the generator, a box, *F*, also communicating with the generator, and the air-pipe *E*, connecting the blower and box *F*, all combined as shown and described.

2. The blower-shaft extended beyond its case and provided with a wiper-wheel, in combination with the lever *L*, having arc-shaped head *L'* and weight *O*, the flexible connection *h*, and the pump, as shown and described.

3. The combination, with the table *N*, of the generator *P*, arranged above it, and the box *F*, arranged beneath it, and having communication with each other through the said table, and provided, respectively, with oil and air pipes, as set forth.

The above specification of my invention signed by me this 1st day of June, 1880.

ABEL HENNING.

Witnesses:

EDWD. W. BYRN,
CHAS. A. PETTIT.