

No. 673,123.

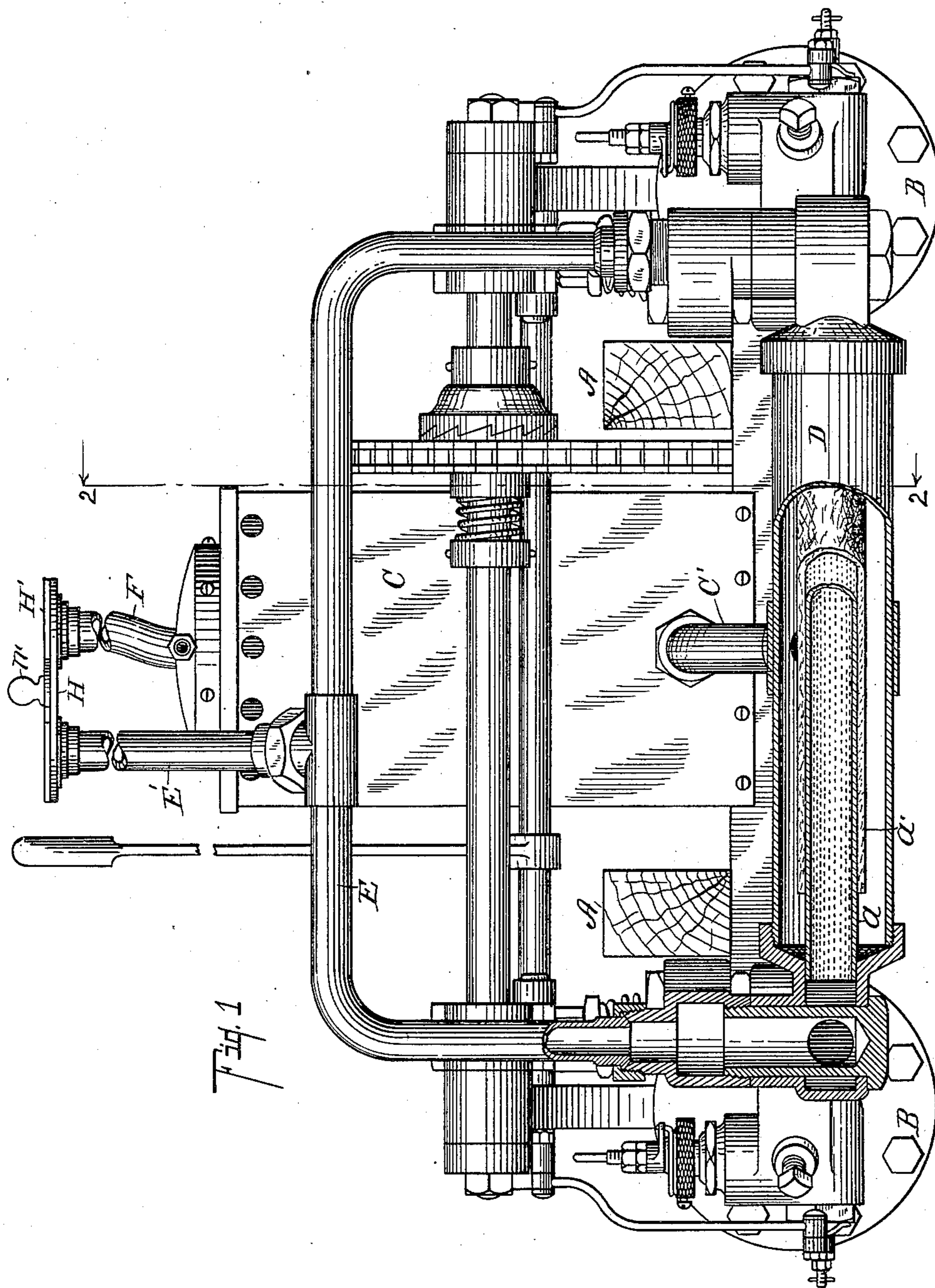
Patented Apr. 30, 1901.

J. HENDERSON.  
CARBURETER.

(Application filed Sept. 11, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

Bessie M. Scherer  
Otis A. Carl

Inventor,

James Henderson  
By Fred L. Cappell  
Att'y.

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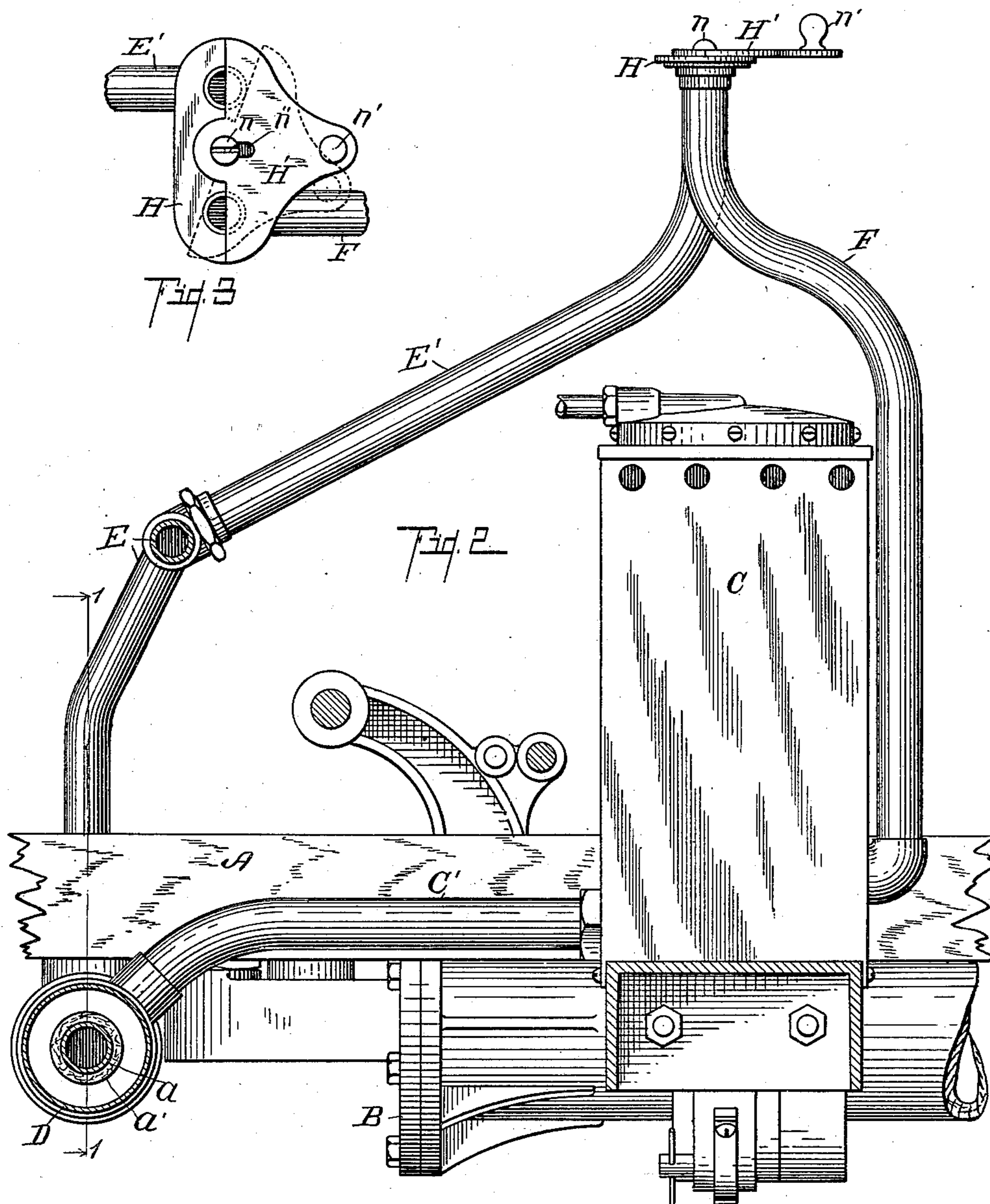
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(No Model.)

2 Sheets—Sheet 2.



Witnesses:

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# UNITED STATES PATENT OFFICE.

JAMES HENDERSON, OF THREE RIVERS, MICHIGAN, ASSIGNOR TO THE  
SHEFFIELD CAR COMPANY, OF SAME PLACE.

## CARBURETER.

SPECIFICATION forming part of Letters Patent No. 673,123, dated April 30, 1901.

Application filed September 11, 1900. Serial No. 29,722. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES HENDERSON, a citizen of the United States, residing at the city of Three Rivers, in the county of St. Joseph and State of Michigan, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

This invention relates to improvements in carbureters.

The improvement relates particularly to the means of controlling the supply and quality of the gas.

The invention is designed for use in connection with motors for hand-cars, and is especially designed for use in the structure described in my application for Letters Patent filed June 16, 1899, Serial No. 720,777, although it is available for use in other structures and relations where a carbureter may be needed.

The objects of the invention are, first, to provide a carbureter in which the volume and strength of the mixture are under complete control; second, to provide a carbureter in which complete evaporation is secured, and, third, to provide an improved construction of carbureter especially designed for use with locomotive-engines.

Further objects will definitely appear in the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in this specification.

The invention is clearly defined and pointed out in the claims.

The invention is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an enlarged detail elevation, partly in section, showing improvements in the carbureting means. Fig. 2 is a detail sectional elevation taken on line 2 2 of Fig. 1. Fig. 3 is a detail plan view of the means for regulating the supply and quality of the explosive to the cylinders.

In the drawings all of the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and

similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A A are the supporting-beams or framework of the engine in which the carbureter is used.

B B represent the cylinders of the engine or motor.

C is the carbureter proper, which is preferably the same as that described in United States Letters Patent No. 620,586, issued to me on the 7th day of March, 1899.

D is a transverse tube or chamber formed below and in front of the carbureter, and to the center of this is connected the pipe C', which delivers the explosive mixture from the carbureter. This opens toward the upper side of the tube or chamber D. Within and extending from end to end of the chamber D is a perforated tube *a*, which accurately fits the openings at each end of the chamber or tube D. On the central portion of this tube is supported a wick *a'*, against which any liquid coming from the carbureter is discharged and is absorbed thereby. The mixture is drawn from the carbureter by the action of the engine and is of course thoroughly evaporated from the wicking. A portion of the tube *a'* at each end is left bare to insure a free passage of the mixture from the carbureter. A pipe F extends upwardly and supplies the air to the carbureter. The liquid hydrocarbon is supplied to the carbureter from a suitable tank. (Not shown herein.)

The details of the carbureter C proper are the same as those described in my patent before mentioned, the same being only slightly modified in form.

A pure-air pipe E' extends down for a short distance parallel with the pipe F, which leads to the carbureter, then branches off in front of the carbureter, and connects to a cross-pipe E, which delivers pure air into the casings at the heads of the engine-cylinders just beyond the ends of the tube or chamber D. The upper ends of the pipes F and E' are controlled by gate H', distinctly appearing in Fig. 3. This is pivoted at *n* in the slot-

shaped opening  $n''$  and is controlled by means of a small knob  $n'$ . The pivot  $n$  is between the mouths of the two pipes, which are connected to a plate  $H$ , and when the knob  $n'$  is in its central position one-half the mouth of each pipe  $F$  and  $E'$  is exposed. By swinging this gate on the pivot, as indicated by dotted lines in Fig. 3, a portion of the air-supply pipe  $F$  to the carbureter is closed and a larger portion of the pure-air pipe  $E'$  is exposed, which of course decreases the action of the carbureter. If the mixture finally delivered to the engine is too rich, the gate is turned in the opposite direction, and less air goes to the carbureter and more fresh air to the engines to dilute the mixture at that point, so that the strength of the explosive mixture passing into the engine-cylinders is completely under control and entirely independent of the carbureter or the grade of hydrocarbon or explosive used in the connection. Both passages can be closed at the same time by simply sliding the gate  $H'$  over them.

25 Having thus described my invention in detail in the form which I believe best adapted to all purposes, I desire to remark that I am aware that it can be greatly varied in detail without departing from my invention. Such modifications and variations will be apparent to those skilled in the art to which my invention relates.

35 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an engine of the class described the combination of a carbureter; a chamber  $D$  between the said carbureter and the engine; a perforated tube in said chamber connecting with the outlet thereof; a wick on said perforated tube opposite the inlet from the carbureter to collect any liquid discharged there-

from, so that it may be evaporated before passing to the engine, for the purpose specified.

2. In an engine of the class described, the combination of the carbureter; a chamber between said carbureter and the engine-cylinder; a perforated tube in the chamber; a wick on the perforated tube opposite the inlet from the carbureter and covering a portion only of the same, for the purpose specified.

3. In an engine of the class described, a chamber in the fuel-passage to the engine containing a perforated tube connected to the outlet of said chamber which leads to the engine-cylinder; a wick on the perforated tube to assist in the evaporation of any liquid residue in the fuel, as specified.

4. In an engine of the class described, the combination of the carbureter; the pipe leading thereto; an independent air-supply pipe both of which pipes are connected to a plate containing an opening; a gate  $H'$  pivoted at a point between said openings and adapted when in the central position to cover a portion of each opening; means of swinging the gate from side to side, to control the relative size of the openings, for the purpose specified.

5. In an engine of the class described, the combination of an air-supply pipe or passage; a fuel-supply pipe or passage connected to a suitable plate; a pivoted gate for the same which at its central position covers a portion of each opening; a means of swinging the same to regulate the relative size of the openings, for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

JAMES HENDERSON. [L. S.]

Witnesses:

M. J. HUSS,

W. J. PREDMORE.