No. 832,547. PATENTED OCT. 2, 1906

W. H. HOOPER.

CARBURETER.

APPLICATION FILED APR. 28, 1905.

FIG 1

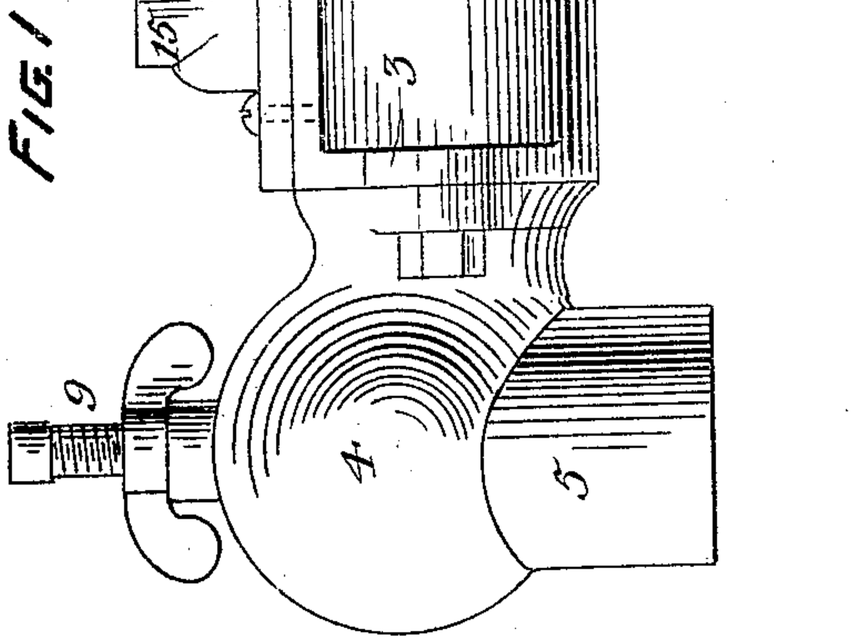


FIG 2

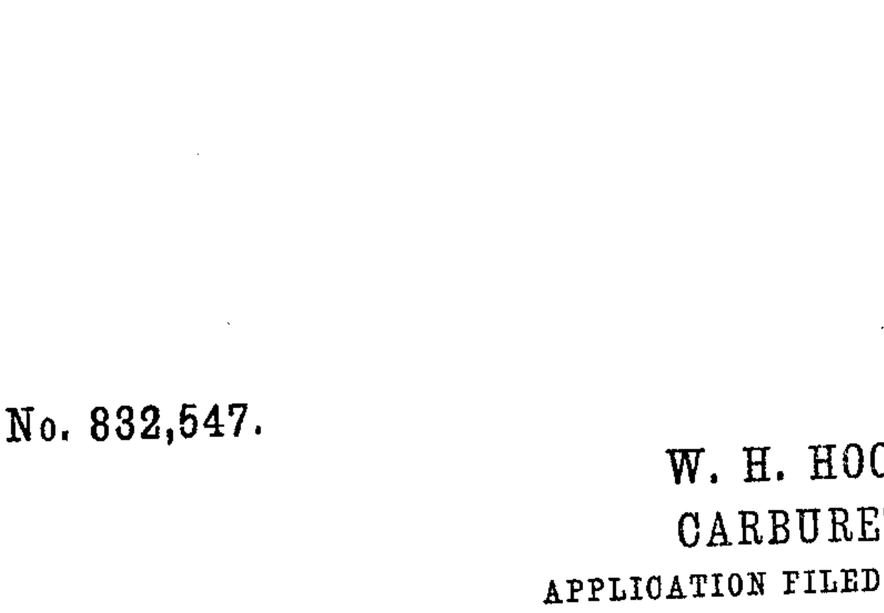


FIG 3

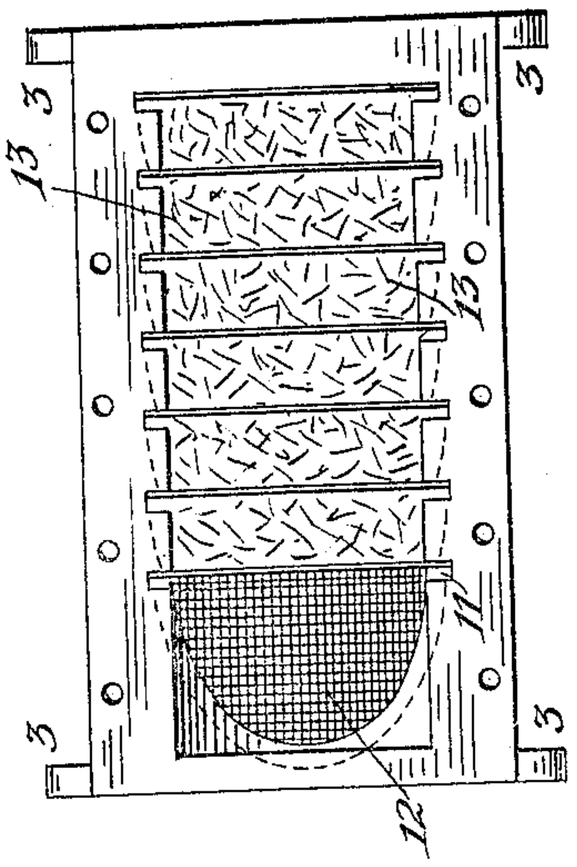
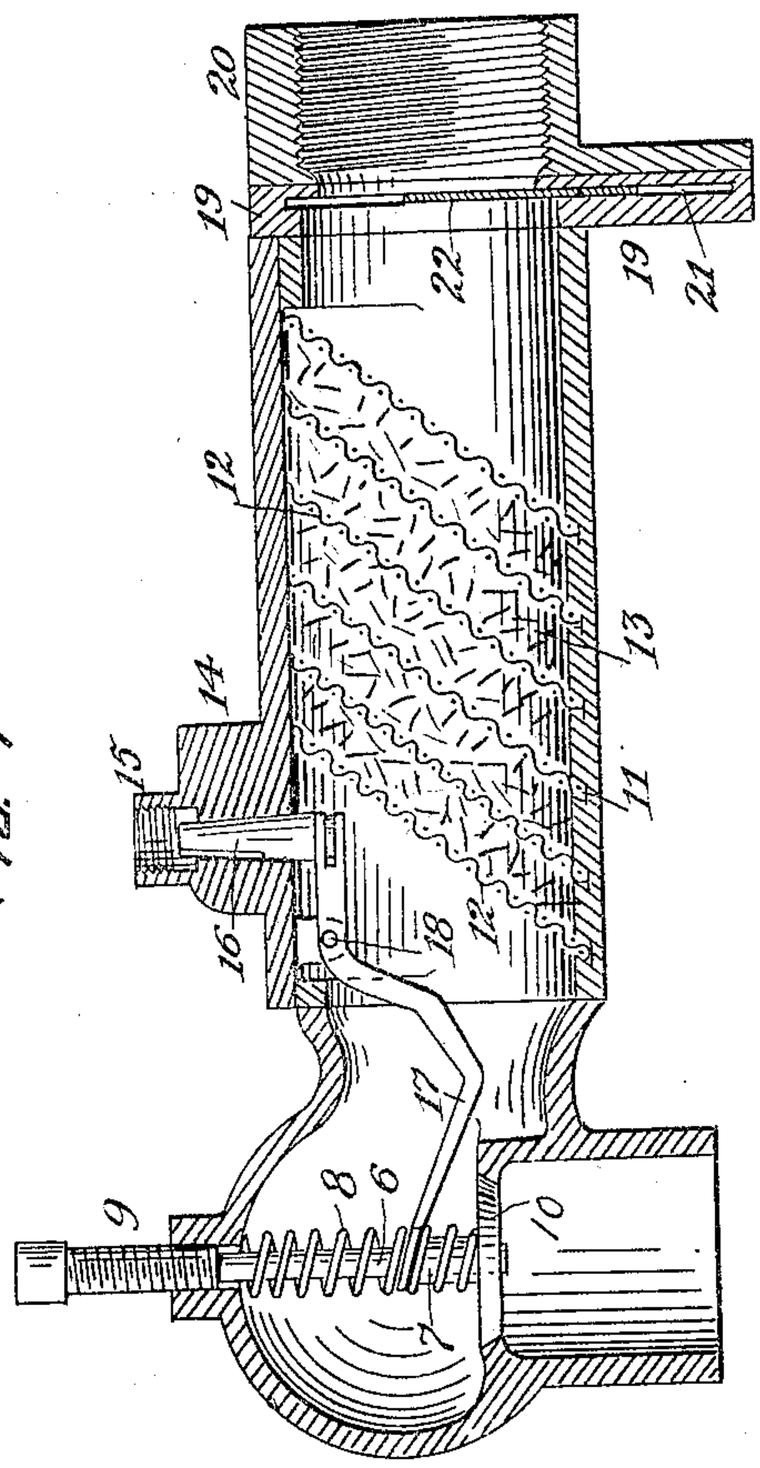


FIG 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM H. HOOPER, OF SAN FRANCISCO, CALIFORNIA.

CARBURETER.

No. 832,547. Specification of Letters Patent. Patented Oct. 2, 1906.

Application filed April 28, 1905. Serial No. 257,887.

To all whom it may concern:

Be it known that I, WILLIAM H. HOOPER, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

My invention relates to carbureters in which air is impregnated with a combustible substance, such as gasolene, in order to supply an explosive mixture for operating gas-engines and for any other purposes for which such a combustible mixture is adapted to be used.

It relates more particularly to means for insuring a thorough and complete mixture of air and gasolene, to means for automatically regulating the supply of gasolene in proportion to the required consumption of explosive gas, to means for causing the current of air to operate the gasolene-supply valve, and to special improvements in construction and arrangement, all tending to the production of a simple, inexpensive, and efficient carbureting apparatus.

An embodiment of my invention is fully hereinafter described and is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of the carbureter with the air-inlet-valve casing and a means for coupling to an engine attached. Fig. 2 is an end elevation looking toward the coupling. Fig. 3 is a plan view of the carbureter with its cover, screens, and packing removed. Fig. 4 is a longitudinal section.

The carbureter proper is composed of a chamber 1, having, preferably, a rounded bottom and a flat open top, which is closed by the cover 2, secured by screws, as shown, or in any suitable manner. The chamber is formed at both ends with projecting ears 3. To the ears at one end is bolted the valve-chamber 4, having the air-inlet 5 and provided with the lift-valve 10. The air-valve chamber communicates, of course, with the interior of the carbureter. The valve 10 is loose on the stem 6, its hub or sleeve 7 being guided by such stem. On the stem and between the valve and the wall of the valve-chamber is a coil-spring 8, which tends to keep the valve seated. A screw 9 bears upon the end of the stem 6.

The side walls and bottom of the chamber 1 are formed with a series of parallel inclined grooves 11, in which are set the inclined removable screens 12, made of fine wire-gauze, and the spaces between these screens are packed with any suitable material, as shown at 13, which will be easily permeated by the combustible fluid. I have found ordinary excelsior to be well adapted for use as such a packing. The series of screens extends substantially from the rear to the front of the chamber, and any number can be employed, according to the size and capacity of the apparatus.

The cover 2 is formed with an upward extension 14, which has an upwardly-tapering bore communicating with the interior of chamber 1 and with an internally-threaded boss 15, to which the gasolene-supply pipe is to be connected. A tapered valve 16 fits the seat formed by the tapered bore and when lowered admits gasolene in a quantity regulated by tho extent of its movement. To the lower end of the valve 16 is loosely connected a lever 17, pivoted at 18, and whose long arm is forked or otherwise formed so as to embrace the valve-stem 6 just above the sleeve of the valve.

As the gasolene-inlet is directly above the first of the series of screens in the chamber 1, such gasolene falls upon the screen and, owing to the incline of the latter, is somewhat obstructed as it flows downwardly, so that it is compelled to penetrate the screen throughout its extent and to penetrate the adjacent packing instead of falling directly to the bottom. As the screen lies directly across the incoming air-current and the gasolene is distributed over its surface and throughout the packing and the successive packings as the supply continues, the mixture of air and gasolene is quickly and uniformly made, with the most effective results as to the production of an explosive or combustible gas or vapor.

At the forward end of the carbureter is bolted a plate 19 or two associated plates, with which is formed or to which is secured an internally-threaded hollow coupling 20, adapted to be connected to the air-inlet of the engine. A deep slot or recess is formed within this plate, as indicated at 21 in Fig. 4. The plate has an opening which communicates with the exit-opening at the forward end of chamber 1. Within the slot in the plate 19 is the air-controlling gate 22, which

forms a part of a sleeve 23, mounted on a pin 24, secured in plate 19. The sleeve has a handle 25, and its motion and that of the gate are limited by the projection 26, which strikes the coupling 20 at one limit of movement, and by an adjustable screw-stop 27, which meets the handle at the limit of the opposite movement. The interior of the coupling 20 instead of being completely round throughout has webs 28 arranged in angular relation, so that the gate can be adjusted with great nicety relatively to the apex of the angle in case a very small supply of gas is required.

In the operation of the carbureter and supposing it to be attached to an engine the initial turns of the engine-shaft will commence drawing in air. The suction raises the air-inlet valve, and its motion causes the lever 17 to communicate a proportionate movement to the gasolene-valve, unseating the same and admitting gasolene, which mingles with the air and forms the explosive mixture which is carried into the engine. The extent to which and the frequency with which the valve will be unseated, and hence the quantity of gasolene supplied, depends upon the quantity and rate of the gas-supply required by the engine, higher speeds producing a proportionate increased supply of gasolene and lower speeds a proportionately-diminished supply, and variations in the supply of gas to the engines are instantly responded to by relative variations in the gasolene-supply, the gasolene-valve being entirely automatic in operation and controlled by the action of the engine as it affects the supply of air.

I use the term "gasolene" in this application as illustrative of all liquids which can be used in mixture with air for forming a combustible gas or vapor.

I do not limit myself to the specific details of construction and arrangement herein described and shown in the accompanying drawings, as I desire to avail myself of all modifications and equivalents as fall properly within the spirit of my invention.

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

1. In a carbureter, a chamber having an air-inlet and a gasolene-inlet, a series of inclined screens in said chamber placed in line with the air-inlet, and a packing between adjacent screens.

2. In a carbureter, a chamber having an air-inlet and a gasolene-inlet, and a series of inclined grooves, in combination with removable screens in said grooves.

3. In a carbureter, a chamber having an air-inlet, a series of screens inclined upwardly and forwardly within said chamber, and a gasolene-inlet in the rear of and in proximity to the top of the first screen of the series.

4. In a carbureter having an air-inlet valve a series of screens inclined upwardly and forwardly within the carbureter, a gas-outlet, and a gasolene-inlet in proximity to the top of the first screen of the series and a gasolene-valve connected to and controlled by the air-inlet valve.

5. In a carbureter, a carbureting-chamber having an air-inlet and a gas-outlet\and an air-inlet valve, a gasolene-valve chamber, a passage from said valve-chamber to the carbureting-chamber behind the gas-outlet, inclined screens below said passage, and a sliding valve in said chamber adapted to be opened by the admission of air.

6. In a carbureter, a carbureting-chamber, inclined screens therein, means for causing air and gasolene to pass to and through said screens, and packings of excelsior between the screens of the series.

7. In a carbureter, a carbureting-chamber, inclined screens therein, and a gasolene-inlet behind and directly above the first of said screens.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 15th day of April, 1905.

WILLIAM H. HOOPER.

Witnesses:
L. W. SEELY,
CELESTE ANSELL.