

978,787.

Patented Dec. 13, 1910.

2 SHEETS—SHEET 1.

Fig. 3.

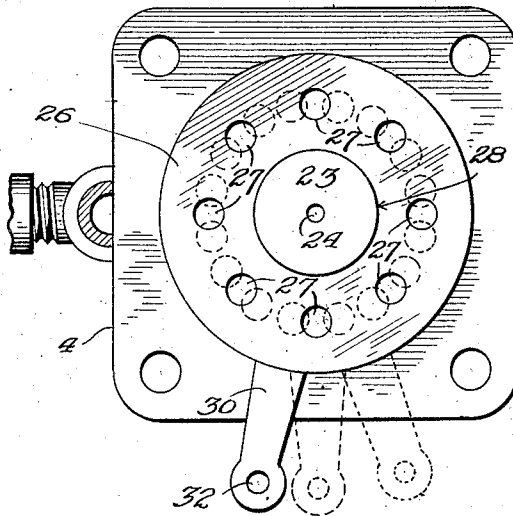
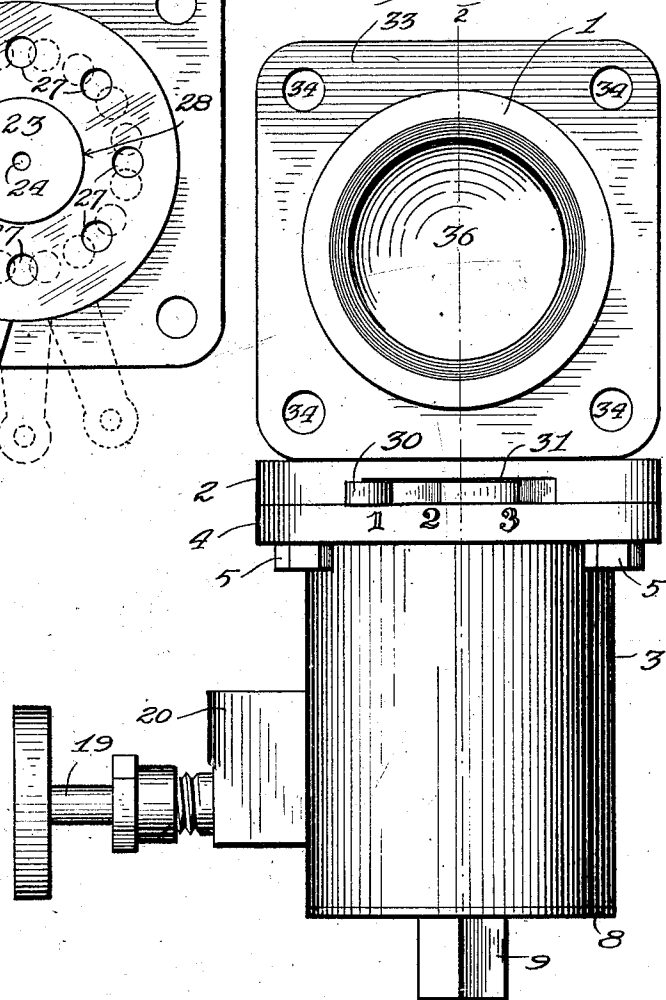


Fig. 1.



Witnesses

Everett Lancaster
H. J. Anderson

Bernard O. Smith,
 Inventor

E. O. Vrooman,
 Attorney.

B. O. SMITH.
CARBURETER.
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2 SHEETS-SHEET 2.

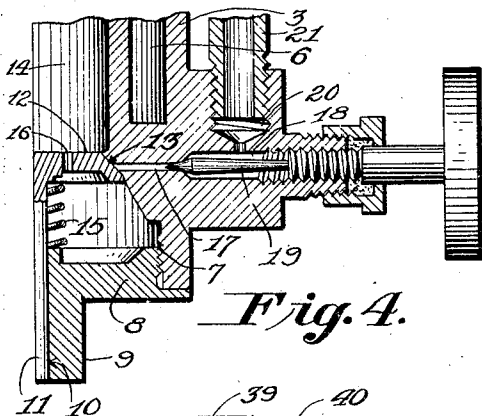
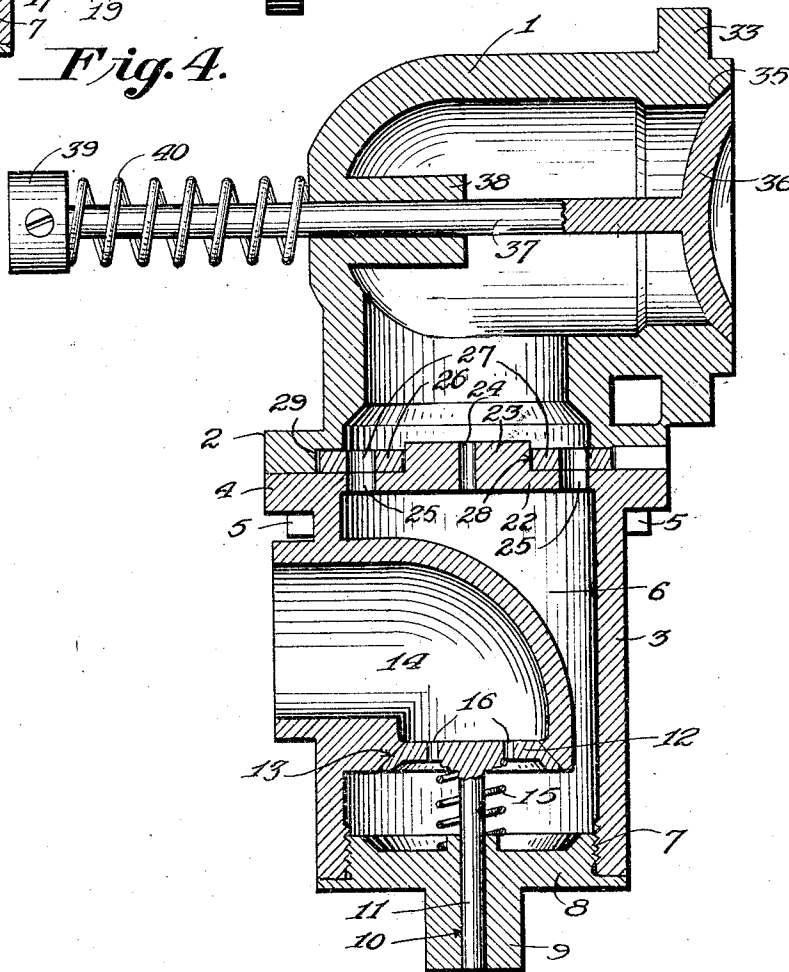


Fig. 4.

Fig. 2.



Witnesses

C. Everett Lancaster,
H. J. Goussard.

Inventor

Bernard O. Smith,

By E. O. Crooman,
his Attorney,

UNITED STATES PATENT OFFICE.

BERNARD O. SMITH, OF STANLEY, IOWA, ASSIGNOR OF ONE-HALF TO S. C. IRVINE,
OF STANLEY, IOWA.

CARBURETER.

978,787.

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To all whom it may concern:

Be it known that I, BERNARD O. SMITH, a citizen of the United States of America, residing at Stanley, in the county of Buchanan and State of Iowa, have invented certain new and useful Improvements in Carbureters, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to carbureters and the principal object of the same is to provide a carbureter that will thoroughly mix the fuel and which is composed of few parts, all of which may be readily taken apart to permit cleaning or repairing of the same. In connection with the foregoing, it is contemplated providing a simple but effective throttling device for controlling the feed of the carbureter so that the speed of the engine may be uniform.

In carrying out the objects of the invention generally stated above, it will be understood, of course, that the essential features thereof are necessarily susceptible of changes in details and structural arrangements, one preferred and practical embodiment of which is shown in the accompanying drawings, wherein:—

Figure 1 is a view in front elevation of the improved carbureter. Fig. 2 is a vertical sectional view thereof taken on the line 2—2, Fig. 1. Fig. 3 is a top plan view of the lower casing of the carbureter showing the throttle valve in position thereon. Fig. 4 is a fragmentary detail view of the lower casing showing the fuel supply thereof.

Referring to said drawings by numerals, it will be observed that the improved carbureter is composed, primarily of an upper casing 1 having an outstanding base flange 2, and a lower casing 3 having a similar upper flange 4, said flanges being rigidly, but detachably held in contact by the bolts 5.

The lower casing 3 provides a mixing chamber 6 having an open bottom that is provided with threads 7 for the reception of a closure plug 8 that has a pendent centrally located nut shaped lug 9 so that it may be readily grasped by a turning tool to remove said plug from engagement with the base of casing 3 when necessary or desirable. Said lug 9 has a central guide opening 10 formed through it that also extends through the plug 8 and in which a valve stem 11 is slidable. Said stem 11 carries a valve 12

that is normally held to its seat 13 at the inner end of an air supply tube 14, by means of a spring 15 coiled about stem 11 and having one end bearing against valve 12 and its other end bearing against plug 8. Said valve is provided with a plurality of small openings 16 so that sufficient air may be passed through the same when the valve is seated to prevent a vacuum being created in chamber 6. The air supply tube projects beyond the interior of casing 3 and is open to the atmosphere as is usual.

A fuel supply passage 17 has one end communicating with valve seat 13 so that it will be sealed when the valve is seated, the other end of said passage communicating with a valve chamber 18 in which a needle valve 19 is mounted for controlling the outlet therefrom. Said chamber communicates with a threaded inlet opening 20 with which a fuel feeding pipe 21 is in threaded engagement.

A plate 22 extends across the top of casing 3 and is provided with a thickened up-standing central lug 23 through which an opening 24 is formed that affords communication between casings 1 and 3, so that the air that flows through the openings of valve 12 may have access to casing 1. The lug 23 of plate 22 is surrounded by openings 25. An annular throttle valve 26 provided with openings 27 has an open center 28 that is fitted over said lug 23. The periphery of said valve 26 extends into a guide opening 29 formed in the base of casing 1, and said valve is provided with an operating lever 30 that projects through a slot 31 in flange 2 and has an eye 32 formed in its outer end so that it may be connected to a governor, not shown. The openings 27 of valve 26 correspond in number and arrangement with the openings 25 of plate 22, so that when lever 30 is manipulated the flow of fuel through said openings 25 and 27 may be regulated to vary the speed of the engine. Indicating marks such as "1," "2" and "3" may be formed on flange 4 of casing 3 beneath lever 30 to indicate the relative positions of openings 25—27 when the lever is either to the right or the left of slot 31.

The upper portion of casing 1 has an open end that is surrounded by a flat flange 33 having bolt openings 34 formed through it so that it may be fastened over the usual feed opening of an engine cylinder, not

shown. Said open end is also provided with a valve seat 35 for an outwardly opening valve 36 whose stem 37 projects through a gland 38 that projects inwardly from the rear end of the upper portion of the casing 1. Said stem projects well beyond said rear end of the casing 1 and has an adjustable head 39 that forms an abutment for one end of a spring 40 coiled about the outer portion of the stem and whose other end bears against the end of casing 1, the tension of said spring being sufficient to normally retain valve 36 to its seat.

In operation, the parts being in the position shown in Fig. 1, it will be seen that the pulsations of the engine will unseat valve 36 against the tension of spring 40 and create a suction in mixing chamber 6 that will unseat valve 12 against the tension of spring 15 and thereby draws the fuel and air through mixing chamber 6 and openings 25-27 through casing 1 to the engine. Obviously valves 12 and 36 will automatically return to their seats when the suction ceases.

It will be understood that lever 30 may be manually manipulated to control the supply of fuel if desired, or in the event of a governor not being employed.

It will be seen from the foregoing that the upper casing may be readily removed from the engine to permit access to be had to valve 36, and that the two casings may be readily separated so that the upper casing may be thoroughly cleaned and also to give access to throttle valve 26. Also that the fuel pipe may be removed from casing 3 as well as the bottom closure, thereby permitting a thorough cleaning of said casing 3 and all its adjuncts to be made.

What I claim as my invention is:—

1. A carbureter comprising a lower fuel mixing casing, an upper casing detachably fastened thereto and provided with a dis-

charge outlet, means for controlling the supply of fuel from the lower casing to the upper casing, a guiding gland projecting into said upper casing, a valve stem slidable through said gland and projecting beyond the casing and provided with a head on the outer portion, a valve on said stem for sealing the discharge outlet of said upper casing, and a spring coiled about said stem and bearing against the exterior of the upper casing and said head to yieldably hold said outlet valve in a closed position.

2. A carbureter comprising a lower casing, a detachable bottom closure therefor, an air supply tube communicating with the atmosphere and having its inner end arranged above said closure and provided with a valve seat, a valve stem slidable through said closure, a valve carried thereby, a spring coiled about said stem for yieldably holding said valve to said seat, means for feeding fuel to said lower casing, an upper casing connected to said lower casing, and means for controlling the communication between said lower casing and said upper casing.

3. A carbureter comprising a mixing chamber, a bottom plug therefor, an air supply tube entering said casing and overhanging said plug, a valve slidably supported by said plug, means for normally holding said valve in sealing engagement with the overhanging ends of said tube, a discharge casing in communication with the mixing casing, means for controlling the communication between said casing, and means for controlling the outlet of said discharge casing.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

BERNARD O. SMITH.

Witnesses:

GEO. J. HILL,
F. D. JENNEY