

R. J. ROLFSON.  
CARBURETOR.

No. 509,828.

Patented Nov. 28, 1893.

Fig. 1.

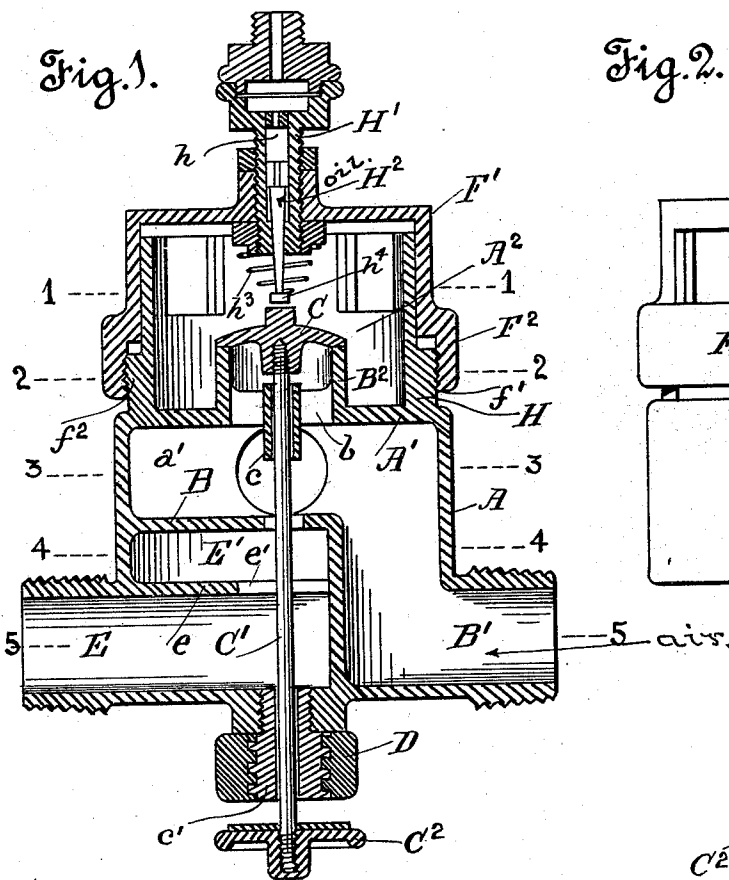


Fig. 2.

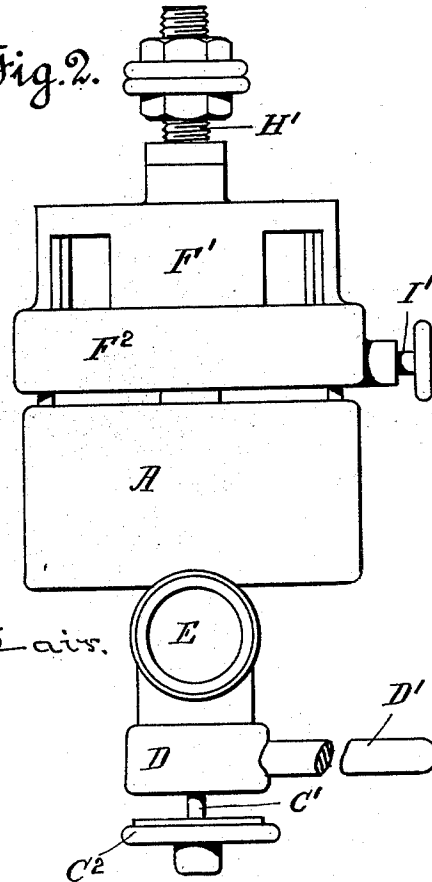


Fig. 3.

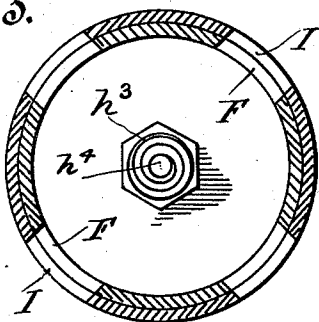
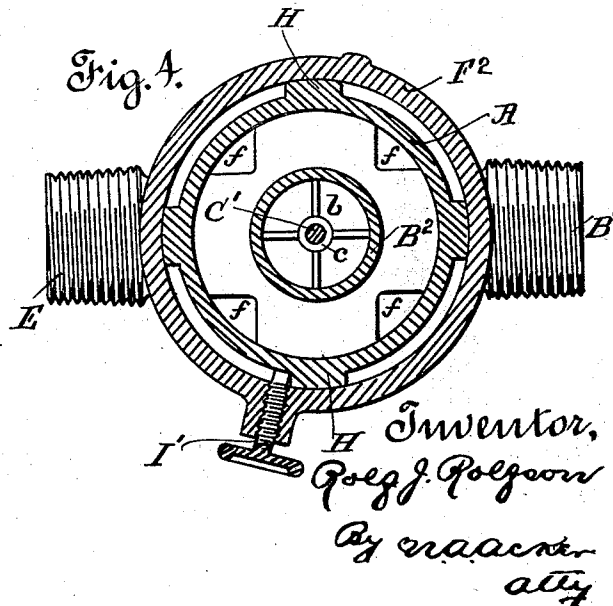


Fig. 4.



Witnesses.

*J. H. Montevideo*  
*M. G. Loeffler*

Inventor,  
*Rog. J. Rolfsen*  
By *W. A. Acker*  
*att'y*

(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

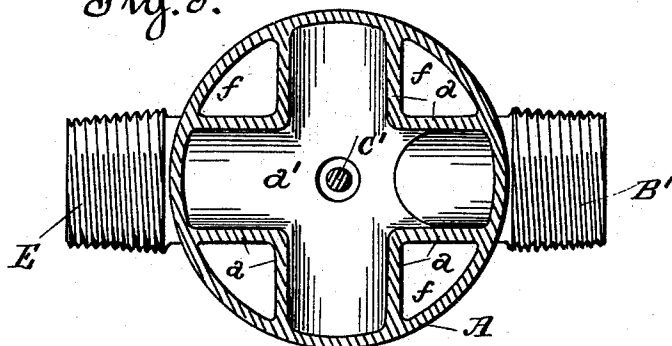


Fig. 6.

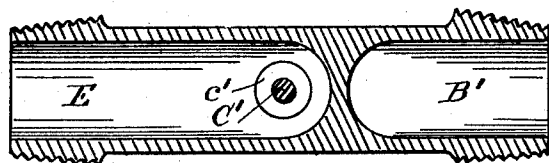
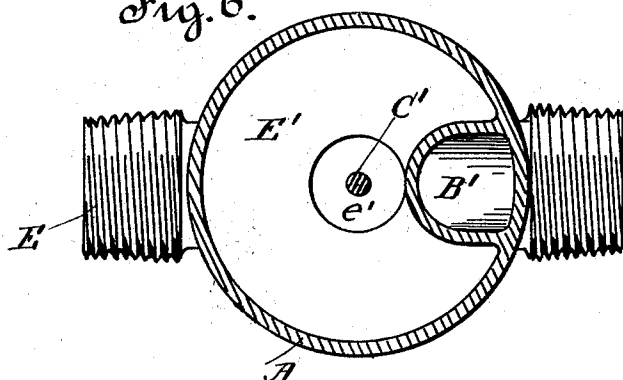


Fig. 7.

Witnesses.

*H. Houtenrode.*  
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*att'y*

# UNITED STATES PATENT OFFICE.

ROLF J. ROLFSON, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE  
UNION GAS ENGINE COMPANY, OF SAME PLACE.

## CARBURETOR.

SPECIFICATION forming part of Letters Patent No. 509,828, dated November 28, 1893.

Application filed April 22, 1893. Serial No. 471,422. (No model.)

*To all whom it may concern:*

Be it known that I, ROLF J. ROLFSON, 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 Carburetors; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

This invention relates to certain new and useful improvements in carburetors for gas engines, which consist in the arrangement of parts and details of construction as will be hereinafter more fully set forth in the drawings, described and pointed out in the specification.

My present invention relates more especially to certain improvements upon the apparatus fully set forth in Letters Patent No. 498,447, granted to me on May 30, 1893, to which reference is hereto made for a full understanding of the working of this invention.

In the aforesaid patent, the outer casing or shell of the device is described as being constructed of glass, the purpose of which was to enable the operator to see therein in order to regulate or adjust the oil feed valve relative to the air inlet valve, and at the same time to watch the working thereof. This form of construction I find to be quite expensive, inasmuch as it necessitates the making of the carburetor in many parts. Consequently the object of the present invention is to make the entire carburetor of metal, thus allowing it to be manufactured in one casting, and at the same time permit inspection of the vaporizing or carbureting chamber in order to adjust the oil feed valves, in this manner greatly reducing the cost of manufacture.

In order to more fully understand my invention, reference must be had to the accompanying drawings, wherein similar letters of reference are used to denote corresponding parts throughout the entire specification and several views.

Figure 1, is a vertical sectional view of the carburetor showing the arrangement of the different parts; Fig. 2, a side elevation of the entire device. Fig. 3, is a cross sectional bot-

tom plan taken on line 1—1—, Fig. 1. Fig. 4, is a cross sectional top plan view taken on line 2—2— Fig. 1; Fig. 5, a similar view through line 3—3— Fig. 1; Fig. 6, cross sectional top plan on line 4—4— Fig. 1; and Fig. 7, is a similar view taken on line 5—5— Fig. 1.

The letter A is used to indicate the stationary shell or casing of my device, which by preference, I cast cylindrical in shape. This casing is divided by the partition plate or platform A', which provides a vaporizing or carbureting chamber A<sup>2</sup>. Below the plate A', is located another plate B, the two being connected by the walls a'. Into this chamber extends the hot air inlet pipe B', which leads from the engine heater, as fully described in my above mentioned patent. From the plate A', extends the annular wall or flange B<sup>2</sup>, which projects within the carbureting chamber A<sup>2</sup>. This annular wall or flange forms an outlet passage b, through which the hot air flows from chamber a', into carbureting chamber A<sup>2</sup>. The flow of air through said passage-way is controlled by the dome-shaped valve C, fitting thereover, which valve is raised or lowered through the medium of the valve stem C', which passes through valve stem guide c, and plate B, and guide c', as shown. The lift of said stem and valve is regulated by the end plate C<sup>2</sup>, contacting with the worm collar D, which is raised or lowered by the action of the engine governor through the medium of the operating handle D'. The manner of operating these parts is fully set forth in my aforesaid Patent No. 498,447 and a specific description thereof is unnecessary at this time.

The outlet passage for the carbureted gas, which leads to the engine cylinder in the usual manner, is represented by the letter E, the wall e, of said outlet passage having an opening e', cut therethrough, which communicates with chamber E'.

It will be observed that plates A' and B are cast in the form of a Greek cross, thus forming passage-ways f, which connect the carbureting chamber A<sup>2</sup>, and chamber E', and through which the carbureted gas passes. So much of the device as has been described, excepting the dome-shaped valve and its operating mechanism, is formed in one casting.

Through the upper portion of the casting or shell A, is cut, or cast, the openings F, as shown, which permit the interior of the carbureting or vaporizing chamber to be inspected in order to observe the working of the valve mechanism located therein, as herein-after described.

The upper end of the carburetor is closed by means of the cap F', which fits thereover, the lower end of which cap is provided with an outwardly and downwardly extending flange F<sup>2</sup>, the interior wall of which flange has female screw-threads f', cut therein. This flanged portion of the cap works upon the lugs H, which project from the casing A, as shown in Figs. 1 and 4. These lugs have male threads f<sup>2</sup>, cut thereon, which register with female threads f', cut in flange F<sup>2</sup>. In this manner I make the cap F' rotatable, thus permitting the same to be raised or lowered. Through the top of the cap F', extends the plug H', which is provided with an oil passage h, the lower portion of which is tapered. Within this plug fits and works the tapering feed valve H<sup>2</sup>, the lower end of which extends beyond this plug and projects within the carbureting chamber and is raised or lowered, in order to control the supply of gasoline, &c., by the action of the dome-shaped valve. The construction, arrangement and operation of this valve are fully set forth in my prior patent hereinbefore mentioned to which reference is made.

When my carburetor is used in connection with a single cylinder engine, it suffices to permit the downward action or movement of the oil feed valve to take place by gravity, but when used in connection with a double cylinder gas engine, the movement thereof must be accelerated and for this purpose I surround the same with the spring h<sup>3</sup>, the upper end of which is secured to projecting end of hollow plug H', and the lower end to collar h<sup>4</sup>, secured to end of tapering oil feed valve H<sup>2</sup>, as shown. This spring serves to increase the downward movement of the valve.

When the carburetor is connected to the gas engine, the oil feed valve must be regulated to the dome-shaped valve for the purpose of permitting of a certain flow of gasoline, &c., to a given quantity of hot air. Consequently the distance between the two valves must be increased or decreased in accordance therewith. In order to so regulate the movement of the oil feed valve it is necessary to examine the interior of the carbureting chamber while the engine is working, and for this purpose the upper portion of the casing or shell A, is provided with the port openings F, and the rotatable cap is also provided with opening or ports I, which register with the

port openings F, when the cap is turned the proper distance. After the valve has been properly adjusted, the cap is turned to such a position as to permit the solid portion thereof to close the port openings F, and is secured in place by means of hand screw or bolt I', which passes through the wall thereof, as shown in Fig. 4.

By raising or lowering the rotatable cap upon the carburetor, the oil feed valve is likewise raised or lowered as required, but the cap cannot be rotated so as to raise or lower without first unscrewing the bolt or screw I'. Thus it will be seen that the bolt or screw serves to limit the rotation of the cap.

The admission of hot air and gasoline to the carbureting chamber is controlled through the medium of the worm collar, before described, but the arrangement of the valves is such that the proportion of air and gasoline always remain the same whether the dome-shaped valve is allowed a full or limited stroke.

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

1. In a carburetor, the combination of the outer casing having a vaporizing chamber and provided with an air inlet and a gas outlet, and a rotatable cap mounted upon and fitting over the casing and provided with a valved oil inlet.

2. In a carburetor, the combination of the outer casing having a vaporizing chamber and provided with an air inlet and a gas outlet communicating with said chamber, a valve controlling the air inlet, a rotatable cap fitting over and mounted upon the casing and provided with an oil inlet, and a spring-actuated valve controlling the flow through the oil inlet.

3. In a carburetor, the combination of the casing having a series of threaded lugs on its outer side and provided with a series of openings in its upper edge, and a threaded cap engaging said lugs and having a series of openings in its side adapted to register with the openings in the casing, said cap carrying an oil-feed valve.

4. In a carburetor, the combination of the casing having integral walls and partitions forming a vaporizing chamber, an air inlet and a gas outlet, a valve controlling the air inlet, and a rotatable cap mounted on and fitting over the casing and provided with a valved oil inlet.

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

ROLF J. ROLFSON.

Witnesses:

N. A. ACKER,  
M. G. LOEFLEER.