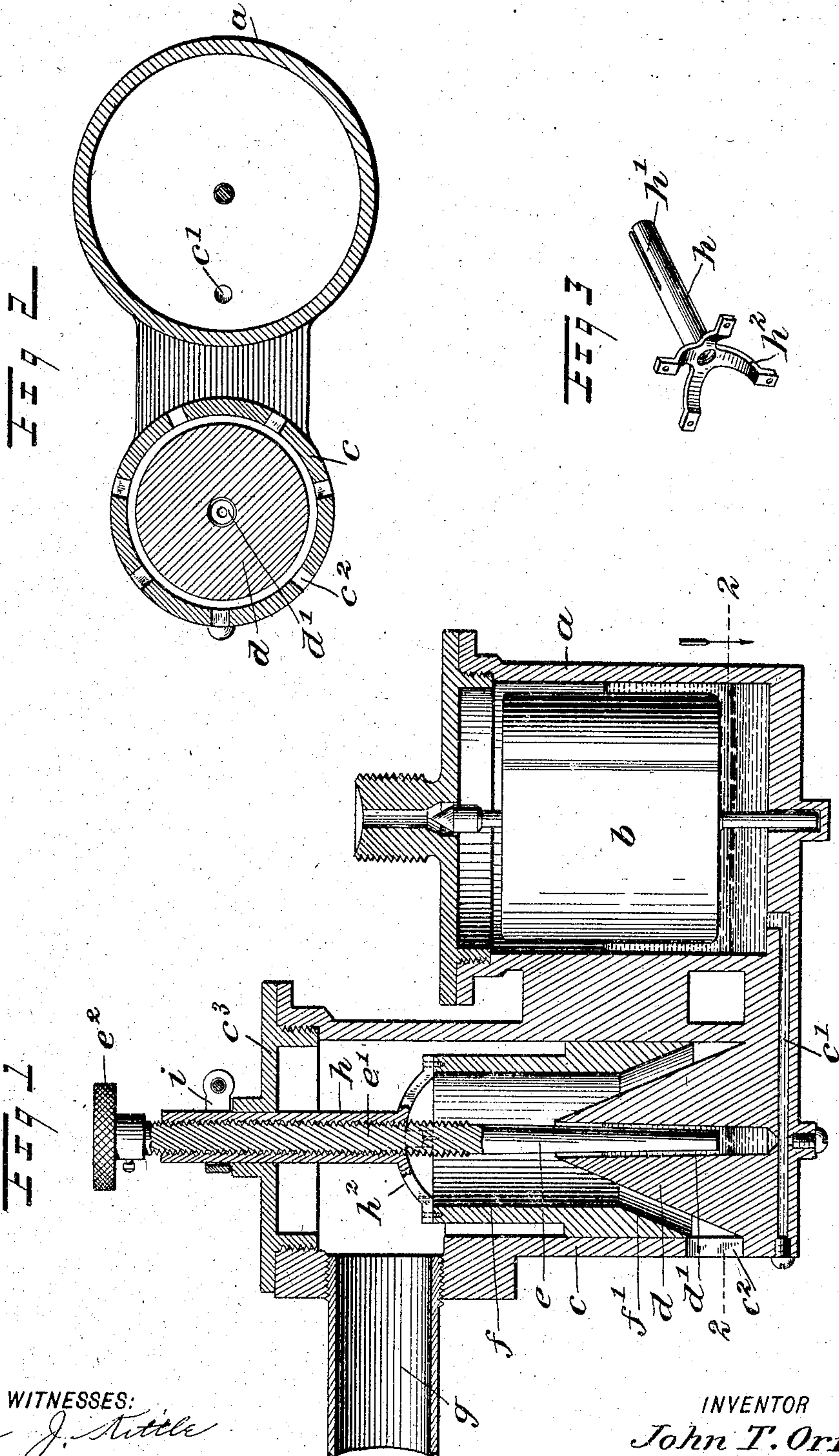


No. 791,810.

PATENTED JUNE 6, 1905.

J. T. ORR.  
CARBURETER.

APPLICATION FILED APR. 22, 1904.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN T. ORR, OF DILLON, MONTANA.

## CARBURETER.

SPECIFICATION forming part of Letters Patent No. 791,810, dated June 6, 1905.

Application filed April 22, 1904. Serial No. 204,392.

*To all whom it may concern:*

Be it known that I, JOHN T. ORR, a citizen of the United States, and a resident of Dillon, in the county of Beaverhead and State of Montana, have invented a new and Improved Carbureter, of which the following is a full, clear, and exact description.

This invention relates to a mechanism for carbureting volatile hydrocarbon oils, which is adapted particularly for use in connection with internal-combustion engines, but which is useful in various other arts.

The prime objects of the invention are to secure an absolutely-intimate association between the sprayed hydrocarbon and the air and to provide devices facilitating the absolute control of the device, so that the volume of air and fuel admitted to the engine may be regulated at will without varying the proportions of the mixture. According to the form of the invention here illustrated I attain these objects by providing means constituting an oil-passage and an air-passage, these passages running into each other and being associated with certain peculiar devices for regulating the area of the passages proportionately to each other, so that by proper adjustment the amount of fuel utilized may be regulated instantly without in any way varying the proportion or detracting from the thoroughness of the mixture of fuel and air.

The invention resides in certain special features of structure and organization, which will be hereinafter fully set forth, and defined in the claims.

Reference is had to the accompanying drawings, forming a part of this specification, in which like characters of reference indicate like parts, and in which—

Figure 1 is a vertical sectional view of the device. Fig. 2 is a sectional plan on the line 2 2 of Fig. 1, and Fig. 3 is a detail perspective view showing the tubular rod for sustaining and adjusting the sleeve which regulates the area of the air-passage.

*a* indicates the float-chamber, and *b* the float, both of which may be of any desired form. As here shown, the float-chamber is joined directly to the carbureter-chamber *c*, which is

cylindrical and is formed at its bottom with a cone *d*, extending upward into the carbureter-casing and having a central passage *d'* communicating by a passage *c'* with the float-chamber *a*. Operating in the oil-passage *d'* is a pin-valve *e*. Said passage is tapered toward its lower end, and the pin-valve *e* is correspondingly formed, so that opposing surfaces of the valve and the passage are always parallel, and by longitudinally adjusting the valve in the passage the area of the oil-passage may be regulated through a wide degree.

Fitted and vertically movable within the carbureter shell or casing *c* is a tubular sleeve *f*, the lower part of which is enlarged snugly to fit within the casing and provided interiorly with a tapered surface *f'*, the pitch of which corresponds precisely to the angle of the outer surface of the cone *d*. At the base of the carbureter-shell *c* air-openings *c<sup>2</sup>* are formed, and these openings lead the air to the passage formed by the outer surface of the cone *d* and the wall *f'* of the sleeve *f*. The sleeve *f*, being vertically adjustable, may be operated to regulate the area of the air-passage by excessive adjustment to close the same completely and by adjustment in the other direction to open the air-passage to any degree desired.

Now it will be observed that the suction effort of the engine exercised through the passage *g*, which communicates with the upper part of the carbureter-shell *c*, will draw simultaneously currents of air through the openings *c<sup>2</sup>* and into and through the passage formed between the sleeve *f* and cone *d* and a current of oil from the passage *d'* of the cone *d*. It will also be seen that by proper regulation of the elements *e* and *f* these currents of air and oil may be given any desired relative proportion and that when this adjustment has once been attained the proportion will be constant. It will further be observed that, owing to the air-passage extending along the tapered outer walls of the cone *d* and the oil-passage extending axially through the cone, the intruding effort of the air will cause it to be thrown into the very center of the carbureted oil, thus bringing



about an intimate admixture of the air and oil. Any desired devices may be provided for facilitating this adjustment of the parts *e* and *f*. I prefer the arrangement shown in the drawings, in which a hollow rod *h* is threaded on the stem *e'* of the pin-valve *e*, these parts *h* and *f* passing through the cover *c*<sup>3</sup> of the carbureter-shell, and the upper portion of the hollow rod *h* being split, as shown at *h'* in Fig. 3, so that by the application of a clamp *i* the parts *e* and *h* may be locked together.

*e*<sup>2</sup> indicates a thumb-nut attached to the upper part of the stem *e'*, so as to facilitate the adjustment of the valve *e* relatively to the sleeve *f*.

The tubular rod *h* has a spider *h*<sup>2</sup> at its lower end, which spider is joined to the upper end of the sleeve *f*. The said tubular rod may be held friction-tight in the cover *c*<sup>3</sup> of the carbureter-shell, or it may be adjustably mounted therein in any other manner. It therefore will be seen that the device here illustrated provides, first, for the independent adjustment of the valve *e* and sleeve *f* to attain the proper proportion of the air and oil, and, second, for the simultaneous adjustment of these parts *e* and *f* to attain a regulation of the volume of the air and oil passing to the engine-cylinder.

The invention may be used with great advantage in connection with the governor for automatically controlling the fuel-supply, and in this case the controlling of the oil will be incident to a similar control of the air, as has been already explained. When used with a governor, the governor connection will be attached to the tubular rod *h*.

I desire it understood that the foregoing description is of but the preferred embodiment of my invention and that various departures may be made therefrom in matters of detail

without departing in any way from the spirit of my invention as set forth in the claims.

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

1. A carbureter comprising a chamber having an air-inlet at one end and a mixture-outlet at the other end, a cone located in the air-inlet end of the chamber, having a fuel-passage therein discharging at the apex of the cone, a sleeve located in the chamber and open throughout its length, one end of the sleeve encircling the cone, the sleeve being movable toward and from the cone to increase or diminish the air-passage around the same, a valve extending through the sleeve and coacting with the cone to control the fuel-supply, and a tubular rod attached to the sleeve and adjustably fitted in a wall of the chamber, the stem of the said valve being adjustably fitted in the tubular rod for the purpose specified.

2. A carbureter comprising a chamber having an air-inlet at one end and a mixture-outlet at the other end, a cone located in the air-inlet end of the chamber and having a fuel-passage therein discharging at the apex of the cone, a sleeve located in the chamber and open throughout its length, one end of the sleeve encircling the cone, a tubular rod having a spider at one end secured to the sleeve, the rod being adjustably mounted in a wall of the chamber for the purpose specified, and a valve coacting with the fuel-passage and having its stem adjustably fitted in said tubular rod.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN T. ORR.

Witnesses:

JOS. B. POINDEXTER,  
W. C. ORR.