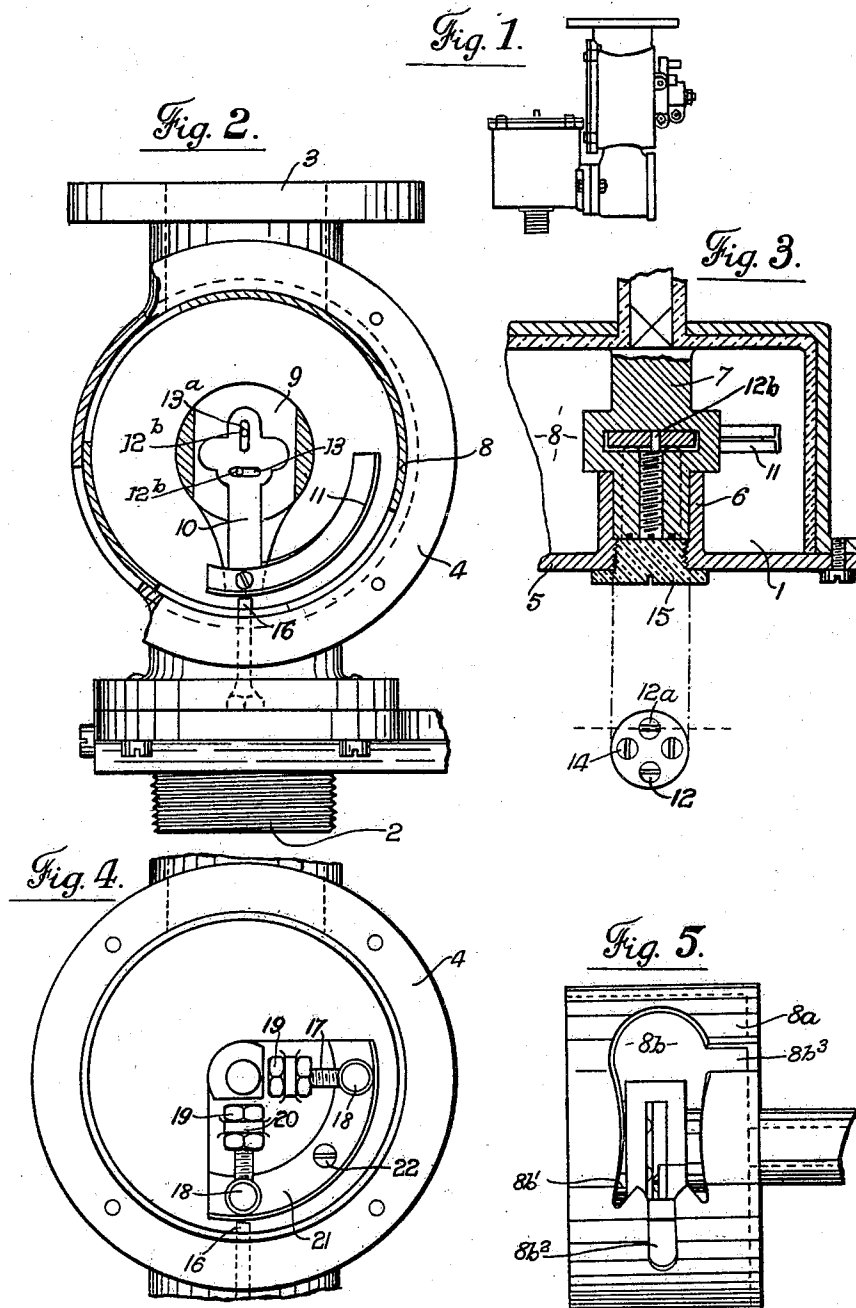


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 CARBURETER FOR PETROL MOTORS.  
 APPLICATION FILED DEC. 16, 1911.

1,052,397.

Patented Feb. 4, 1913.



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WALTER WINGFIELD, OF EALING, ENGLAND.

CARBURETER FOR PETROL-MOTORS.

1,052,397.

Specification of Letters Patent.

Patented Feb. 4, 1913.

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*To all whom it may concern:*

Be it known that I, WALTER WINGFIELD, a subject of the King of Great Britain, residing at 60 Devonshire road, Ealing, in the county of Middlesex, in England, have invented new and useful Improvements in Carbureters for Petrol-Motors, of which the following is a specification.

This invention has for its object to provide a carbureter that gives a constant mixture of gas that varies in volume whatever position the throttle valve may occupy, and relates to that class of carbureter in which a quadrant attached to the body of a circular inner shell valve is adapted to be at a greater or less distance from the petrol jet disposed beneath.

The method of adjusting the petrol jet by disposing a quadrant over its orifice and varying its distance therefrom is not new *per se*. Hitherto this quadrant has been formed with a fixed support at one end and an adjustable one at the other, so that the spring of the metal blade has been relied upon to give a gradually increasing or decreasing distance from the petrol jet. When it is known that one thousandth of an inch makes considerable difference in the richness or otherwise of the mixture by increasing or restricting the flow of the petrol it will be recognized that the bending of the metal blade is but a poor and unmechanical method of adjusting the distance between the respective parts.

This invention provides, *inter alia* for so constructing the quadrant that it is adjustable at either its rear or forward end or at both, and that its surface is always true, no strain being put upon the metal by the adjustment.

To more fully illustrate this invention reference is made to the accompanying drawings in which:—

Figure 1, is an elevation of my improved carbureter on a small scale. Fig. 2, is a front elevation of the valve and casing with cover removed showing the jet, and quadrant and method of pivoting and fixing same. Fig. 3, is a section through the valve center. Fig. 4, shows detail of a modification. Fig. 5, shows detail of valve.

In the drawing 1 is the valve casing having an inlet port 2, communicating with the hot air pipe and induction port 3 leading to the induction trunk of the engine. The valve casing is circular and is open at one

side or both; in the example shown the casing is provided with a flange 4 on the front side and has a detachable cover 5. Journaled in a stub bush or socket 6, forming part of cover 5 is a shaft 7. This shaft carries the circular valve 8 fast thereon, said valve closely fitting within the case 1 which is turned to receive it. The valve body or shell 8<sup>a</sup> is ported as at 8<sup>b</sup> to correspond with the induction and air ports of the casing 1. The shaft 7 has a slot cut in its width as seen in Figs. 2, and 3, and within this is mounted the radius arm 10 of the quadrant 11. The quadrant 11 may be in one piece with the arm 10, or be screwed thereto as shown in Fig. 2. The quadrant 11 is of T section as shown and is adapted to lie above the jet as hereinafter more fully described.

The radius arm 10 is held within the slot by means of two pins 12<sup>b</sup> placed eccentrically on the set screws 12 and 12<sup>a</sup> (see Fig. 3,) said pins being passed through elongated slots 13 and 13<sup>a</sup> respectively. The pin on screw 12 owing to its engagement within the transverse slot 13 is, on rotation of the screw 12, capable of moving the arm 10 up and down, the said arm being alined during this operation by the pin of screw 12<sup>a</sup> engaging the vertical slot 13<sup>a</sup>. On the other hand pin or set screw 12<sup>a</sup> can move the arm 10 angularly by reason of its engagement with vertical slot 13<sup>a</sup>. During this operation the pin of screw 12 acts as a pivot within slot 13, allowing arm 10 to move radially. Hence by this means the position of the quadrant 11 with regard to the jet can be adjusted to a nicety. In order to lock the arm in its adjusted position set screws 14 are employed, and so as to leave these adjustment and set screws in an accessible position a detachable flanged plug 15 is screwed into the socket 6. The jet 16 is fitted into the cored petrol pipe in a central position over the hot air intake. The valve shell 8<sup>a</sup> has a hot air port 8<sup>b</sup>, the form of the port being preferably as shown in Fig. 5, the part 8<sup>b</sup> being merely a pilot opening for slow running and arranged to come coincident with the hot air port when the quadrant is at its position nearest to the surface of the jet as shown in Fig. 2. As the valve opens the quadrant moves farther from the jet until the valve is full open and the quadrant is at its farthest position.

An extra cold air port 8<sup>b2</sup> is provided and adapted to become coincident with a slot

cut in the metal of the casing 1, for the supply of extra air to the mixing chamber when the valve is open past the zero position or under full load, the shape of the port 8<sup>b</sup> is arranged to suit the requirements of the engine and in accord with the petrol supply as determined by the position of the quadrant 11. The slot 8<sup>b</sup> admits of the valve body and spindle 7 being withdrawn over the petrol jet, without disturbing the latter when the cover 5 is removed.

Suitable stops are provided to limit the travel of the valve within its range of movement, and the usual connections are made externally for control of the valve by disposing a lever on the spindle 7 or similar means.

In Fig. 4, is shown an alternative arrangement in which adjustment of the quadrant 11 is made by means of eyed adjustment screws 17 fitted over studs 18 and locked by nuts 19 on either side of lug or bracket 20, said lug being a projection from the radius sector 21, which latter corresponds to the arm 10 of Fig. 2. The screw 22 is screwed into the sector 21, and a slot is formed in the metal of the quadrant to allow of radial movement.

In operation as the spindle is moved from zero the distance between the quadrant face in relation to the jet becomes greater, allowing more petrol to issue and thereby keeping the mixture constant whatever the de-

mand of the engine may be. If the carbureter requires adjustment to obtain better results it is only necessary to unscrew the plug 15 and alter the position of the screws 12 and 12<sup>a</sup>.

I claim:—

1. In combination in a carbureter, a hollow ported valve body disposed within an outer casing, a spindle supporting said valve body, a quadrant having a radius arm, a slot formed in said spindle and adapted to receive the radius arm, and means for adjustably pivoting said arm in said slot, whereby the position of said quadrant in relation to the petrol jet may be regulated, and a petrol jet, substantially as described.

2. In a carbureter, means for adjusting the position of a choking quadrant over a petrol jet consisting of slots disposed on the radius arm and of eccentrically mounted pivoting pins adapted to enter said slots with set screws adapted to bear against said radius arm and retain same in its adjusted position, a petrol jet, a quadrant attached to the body of a circular inner shell valve adapted to be at a greater or less distance from the petrol jet disposed beneath, substantially as described.

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Witnesses:

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