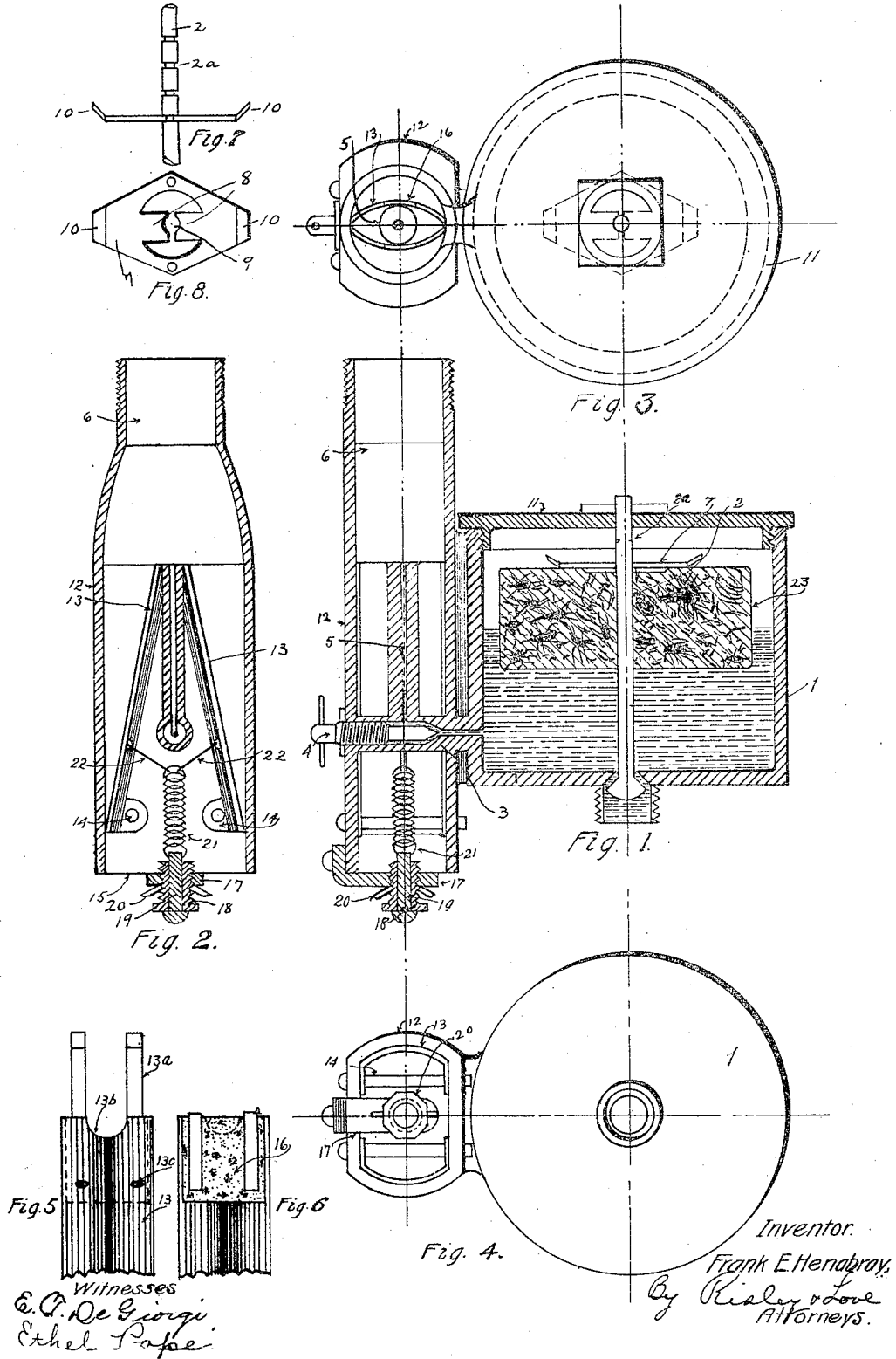


No. 855,574.

PATENTED JUNE 4, 1907.

F. E. HENABRAY.
CARBURETER.

APPLICATION FILED SEPT. 10, 1906.



UNITED STATES PATENT OFFICE.

FRANK E. HENABRAY, OF UTICA, NEW YORK.

CARBURETER.

No. 855,574.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed September 10, 1906. Serial No. 333,917.

To all whom it may concern:

Be it known that I, FRANK E. HENABRAY, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Carbureters, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to an improved carbureter, and I declare that the following is a full, clear, concise and exact description thereof sufficient to enable one skilled in the art to make and use the same, reference being had to the accompanying drawings in which like letters and numerals refer to like parts throughout.

The invention relates to a carbureter or vaporizer which is commonly used on combustion engines and one of the principal features is the provision of lips pivotally mounted under tension which is adjustable to control the amount of air admitted to the mixing chamber, and the form of which lips is such as to insure perfect mixture of the air with the oil.

The specification and drawings disclose one form of the invention which includes minor details.

In the drawings Figure 1 is a cross-section view of the device showing the oil reservoir and the mixer with the air tube. Fig. 2 is a cross-section view of the mixing chamber and air tube taken from the side of the device. Fig. 3 is a top plan view of the device and Fig. 4 is a bottom view. Figs. 5 and 6 are detail views of the upper ends of the lips. Figs. 7 and 8 are detail views of a catch which supports the float in the oil chamber.

Referring to the figures more in detail, 1 represents the oil chamber which it will be understood is provided with a suitable inlet. In the bottom is mounted a spindle 2 on which is supported the float or cork 23. The chamber 1 is provided with a tube 3 which carries the oil to a needle valve 4 through which it passes to the tube 5 which carries it to the mixing chamber 6.

The spindle 2 is notched as at 2^a in a series of places so that the cork may be secured in different positions on the spindle. On top of the cork 1 mount clip 7, Fig. 8 which is cut away internally to present the tongues 8 which are notched as at 9 to engage the spindle 2, and which tongues are made to have

resiliency. The outer tips of the clips are turned up as at 10 to provide convenient means to grasp the tips. When the cork is slipped onto the spindle the tongues 8 spring upward permitting the cork to be slipped down to its proper position when the tongues engage in one of the notches 2^a. The cork may be raised to permit readjustment of the same by lifting at the ears 10. The surface of the cork under the clip may be slightly hollowed out if necessary, as shown by slanting lines in Fig. 1. It will be understood that the oil receptacle has a suitable top 11.

Observing Figs. 2 and 4 it will be seen that the tube 12, in the upper end of which is the mixing chamber, is not cylindrical but laterally enlarged below a point about opposite the top of the tube 5. In these lateral recesses are pivotally mounted two lips 13 mounted at 14 which are hollowed longitudinally, being, roughly speaking, longitudinal sections of a pipe and these are hingedly mounted as stated so as to swing each from the center outwardly into the enlarged portion of the pipe 12. This part 12, it is seen, is, in plan view, a horizontally elongated chamber with opposite walls parallel, along which the edges of the lips slide in more or less closeness of contact, as the lips open and close and it is therefore unnecessary to have side-walls on the lips to meet, for instance, on the medial vertical line of the chamber 12 when the lips are closed since the only outward air-passage is between the extremities of the lips. Again, the chamber being laterally enlarged and the lips being of the form shown, (plane from end to end) they are entirely out of the air-passage at the period of maximum air current and form no obstruction whatever to the air currents. The air enters the chamber through opening 15 and passes up the inner concave faces of the lips whereby the regularity of the air currents are disturbed and the mixing of the air and vapor in the chamber 6 is insured. The upper ends of these lips come against the upper end of pipe 5, as shown in Fig. 3, there being by reason of the form of the lips an opening between them even when in normal position, so that a minimum amount of air is admitted but always in a current which is more or less agitated.

The lips are, as shown, longitudinal sections of pipe and at the upper end terminate by the cutting of the pipe transversely and

not by upsetting or flanging it (as has been done), so that the present construction provides absolute freedom for the passage of air along the transversely-concaved surface of each lip and out at the end, these faces deflecting and breaking up the air-currents by their impinging against the faces since they are generally oblique to the normal line of current, and not obstructing or backing up the air as it passes from the lips but discharging the current from each lip against that from the other. The fuel or vapor pipe is between the lips lying in the same general direction as the air currents and the lips and at about the center of the chamber 12. The air and the vapor at about the end of the lips are discharged in the same general direction in the pipe but in obliquely crossing lines so that they maintain their general direction without the obstruction or hindrance of opposing currents, but each air current strikes against the other. At the point of discharge the air currents also impinge against the fuel current, the air and vapor being thus mixed and more completely commingled by their impinging against the sloping walls of the chamber 12 where it reduces to the pipe 6.

The lips 13 are cut out with their tips in the form shown in Fig. 5 with two strips extending therefrom shown as 13^a and a hollow, 13^b, therebetween which extends below the transverse edge of the tip. Across the end of the tip I place a leather shield 16, bending the tips 13^a over it and passing the opposite ends of the tips through the holes 13^c provided in the lips, so that the leather is secured in place and forms a fend for the lips when bearing against the tube 5 and permits them to make a smaller opening when closed.

The lower end of the tube 12 has a voke 17 bored to receive bored-screw 18 through which is inserted a headed-pin 19; and a thumb-nut 20 is provided for locating the screw 18 in place. A spring 21 is provided, one end of which connects with the headed-pin 19 and the other end of which is provided with loops 22 engaging the lips 13, one on each side. By means of these parts the tension of the spring 21 is adjustable to control the play of the lips 13 to admit air in greater or less quantity according to the varying conditions as will be readily appreciated by those familiar with such devices, the purpose being to permit the admission of a greater or less quantity of air relative to the amount of oil admitted to the vaporizer, so that the former may keep pace with the latter to or be limited according as the discharge of oil is limited. Nevertheless, under all conditions a thorough mixing of the air and oil is insured by virtue of the peculiar form given to the lips. A further feature of utility is found in the formation of the tube 12 where its walls pass from the size shown at 6 into the side enlargements, the formation being such

as to assist in the thorough mixing of the air and oil vapor.

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

1. In a carbureter, a mixing chamber having a portion thereof formed with opposite side enlargements and lips curved from edge to edge and of a given length and width mounted in the said enlarged portions to swing in and out of the chamber, substantially as described.

2. In a carbureter, a mixing chamber having one section thereof laterally enlarged and lips curved from edge to edge hingedly mounted in said enlarged portions, and a fuel inlet axially mounted in the chamber and between the lips discharging in the direction of the air currents through the chamber, substantially as shown.

3. In a carbureter, a mixing chamber having its upper end circular in cross-section and the portion therebelow of elongated form in cross-section, lips mounted in said latter portion and against the farthest opposite walls, the said lips consisting of segments of pipe and having means connected therewith normally maintaining and holding the free ends together, and a fuel feed lengthwise of the chamber, the said lips being hingedly mounted each to deflect the air current against the fuel discharge and against the current on the opposite walls of the chamber and the other lip, substantially as described.

4. In a carbureter, a mixing chamber of oblong shape in cross section and having its walls converged at about the outlet into circular form, the combination of a fuel pipe longitudinal of the chamber and lips hingedly mounted at the farther walls of the oblong portion, the said members being constructed and positioned so that the air and the fuel currents are of the same general direction, and the lips are adapted to regulate the amount of air and deflect the currents thereof against the fuel current, substantially as described.

5. In a carbureter, a mixing chamber having lateral enlargements on opposite sides, and a fuel pipe lengthwise of such portion, and lips open at each end, one in each enlargement and having their edges adjacent the side walls hingedly mounted and means normally holding their free ends against the fuel pipe, the said pipe and lips and chamber walls being so positioned relatively that the currents of air and fuel are impinged against each other and against the lips and walls of the chamber, substantially as described.

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

FRANK E. HENABRAY.

Witnesses:

E. T. DE GIORGI,
HENRY M. LOVE.