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2,589,559

FUEL NOZZLE

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FIG. 1

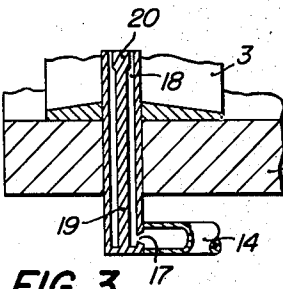
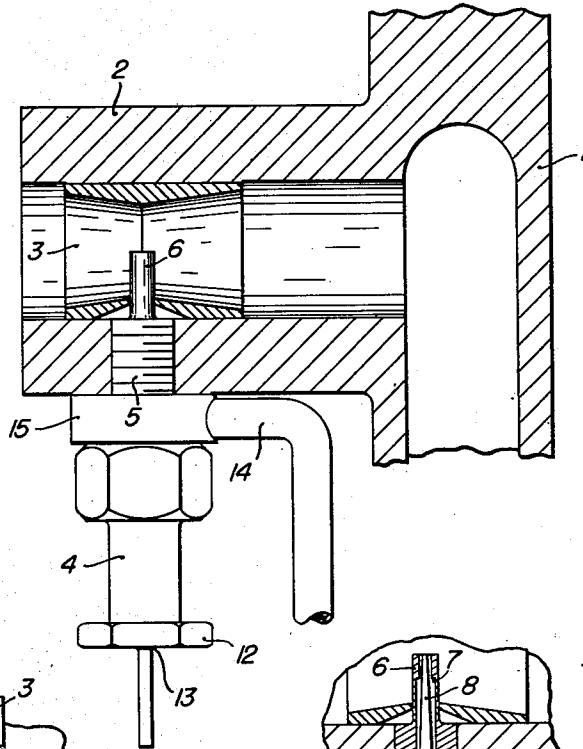


FIG. 3

FIG. 2

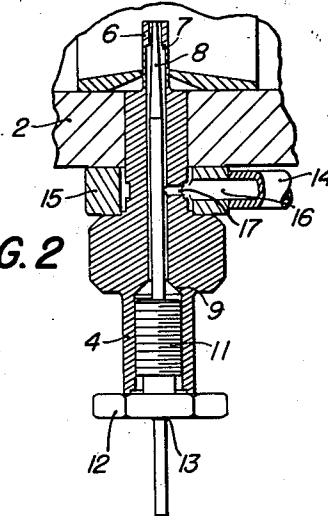
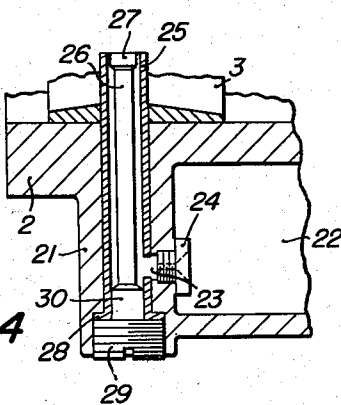


FIG. 4



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FUEL NOZZLE

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2 Claims. (Cl. 261—78)

1

My present invention relates to the art of carburetors and more particularly to light weight carburetors for use in light weight engines. Among the objects of this invention are the provision of an efficient carburetor of the class indicated; the provision of a carburetor of the type indicated which is so constructed that the fuel will be broken up into minute particles and there will be no tendency for sizeable drops to accumulate at the nozzle and be injected into the air stream; and such further objects, advantages, and capabilities as will hereafter appear and as are inherent in the construction disclosed herein. My invention further resides in the combination, construction, and arrangement of parts illustrated in the attached drawings in which

Fig. 1 shows in longitudinal section a carburetor in which the fuel nozzle of the present invention is incorporated, the nozzle being shown in side elevation.

Fig. 2 shows a longitudinal section of the nozzle of Fig. 1 with cooperating parts shown fragmentarily;

Fig. 3 is a view, similar to Fig. 2, of a modified form of the nozzle; and

Fig. 4 is a similar view of another modification.

Reference will now be made in greater detail to the annexed drawings for a more complete description of this invention. The body of the engine is indicated at 1. This has an air inlet in which is located a venturi 3. The fuel feeding body 4 is threaded at its upper end portion, as shown at 5, and is screwed into the wall of the air inlet, said upper end being provided with a nozzle 6 which extends through the wall of the venturi, terminating at approximately the axial line of the venturi.

As shown in Fig. 2, the body 4 has a longitudinal axial opening 7 for the reception of the needle or pin 8. This opening decreases in size near its fuel-delivery end, and the needle extends into this smaller channel, terminating substantially at the end of the nozzle 6. At its upper end, the needle tapers so that the size of the fuel-delivery opening can be adjusted by moving the needle in or out.

The carburetor screw plug 11, provided with a head 12, is turned in all the way, until the head 12 on the screw plug 11 seats against the body 4. When this has been done, the needle 8 is shoved in against the shoulder 7 adjacent the upper end of the injector. The needle 8 is then soldered to the head 12 by a drop of solder applied at 13. The head 12 can then be turned slightly to back the needle away from its seat and permit

2

functioning of the carburetor. However, it will be impossible to jam the needle 8 against its seat. A fuel pipe 14 is secured to a ring 15 which has a fuel-admission opening 16, not necessarily in alignment with the opening 17 in the feeding body 4, since there is a groove around the feeding body 4, which avoids the necessity for alignment of openings 16 and 17 and also furnishes extra fuel capacity. Hence, fuel is fed through the pipe 14 and into the chamber 9 from which it goes to the nozzle.

In Fig. 3, the opening 18 and the main body of the needle 19 are of uniform diameter. The head 20 determines the flow of gasoline into the venturi.

In Fig. 4, the body of the air inlet tube 2 has an enlargement 21 cast thereon and in this is a fuel chamber 22 from which leads an opening 23 which serves as a fuel feed. In this opening 23 is a fuel metering plug 24 provided with an opening indicated by dotted lines. In this enlargement 21 is an opening in which is closely fitted the tube 25 which passes through the wall of the venturi. Inside of the tube 25 is the needle 26 provided with the head 27 which regulates the amount of fuel and confines it to a thin film, resulting in good carburetion with no drops injected into the air stream. This is true of all these forms of this invention.

The tube or sleeve 25 is flanged at its lower end, as is shown at 28, and a plug 29 is screwed in against the flange and holds the sleeve in place. The enlargement 30 at the lower end of the needle 26 fits closely in the sleeve and the needle is therefore held in properly centered position. If desired, the needle may be attached to the plug 29 but this is not necessary if the enlargement 30 fits closely enough in the sleeve 25.

It will be understood by one skilled in the art that the fuel fed into the opening 7 or 18 is sucked up past the head, through the nozzle and into the venturi where it is mixed with the air and becomes the carburetted mixture which keeps the engine running.

It is of course understood that the specific description of structure set forth above may be departed from without departing from the spirit of this invention as disclosed in this specification and as defined in the appended claims.

Having now described my invention, I claim:

1. In a fuel feeding means for feeding fuel to such devices as model airplane motors, in which the motors are operated at substantially a constant speed, a nozzle construction comprising a

3

tube extending at its inner end into the mixing chamber of the fuel feeding means at a right angle to the direction of flow of air through the mixing chamber, which tube ends substantially centrally of the mixing chamber, means at the outer end of said tube forming an enlarged threaded portion, a screw plug having a head and adapted to be screwed into said threaded portion until the head thereof is stopped by the outer end of said threaded portion, an elongated pin extending longitudinally through said tube and having a conical inner end cooperating with the inner end of said tube to form therewith a restricted fuel passage, and means for positioning the outer end of said pin in said screw plug in such position therein that, when the head of the plug engages the outer end of said threaded portion, said conical end of the pin lies in the desired position relative to the inner end of said tube and it becomes impossible to jam the inner end of said pin against the inner end of the tube.

2. In a fuel feeding means for feeding fuel to such devices as model airplane motors, in which the motors are operated at substantially a constant speed, a nozzle construction comprising a tube extending at substantially a right angle to the direction of the length of said mixing chamber at its inner end into the mixing chamber of said fuel feeding means and having its fuel delivery end substantially centrally located in said mixing chamber, the inner end of said tube having an annular portion forming a restricted outlet for said tube, means at the outer end of said tube connected therewith and forming an en-

4

larged threaded portion, a screw plug having a head diametrically larger than the enlarged portion at the outer end of said tube, said plug having a central aperture, in axial alignment with the restricted opening at the inner end of said tube and adapted to be screwed into the said threaded portion until the enlarged head thereof engages the outer end of said threaded portion, an elongated pin positioned in the opening in said plug and extending coaxially of said tube to the inner end thereof, said pin having a conical portion cooperating with said annular portion of the tube to form a fuel passage therebetween, and means fixedly securing the outer end of said pin to the outer portion of said screw plug in such relative position that, when the conical end of said pin merely touches the annular portion at the inner end of said tube, the enlarged head of said screw plug engages the outer end of said threaded portion, thereby preventing the inner end of said pin from being jammed against the restricted inner end of said tube.

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