May 31, 1927. W. STEVENSON 1,630,410

FUEL ATOMIZER

Filed Jan. 30, 1925

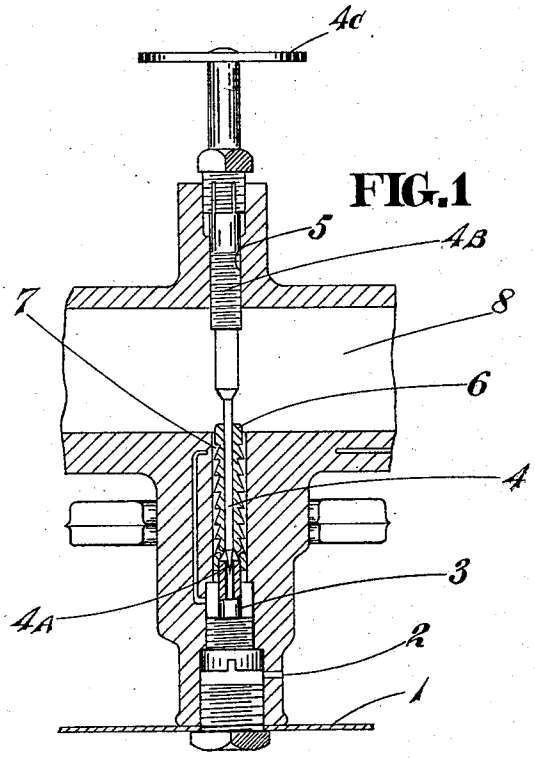


FIG. 1

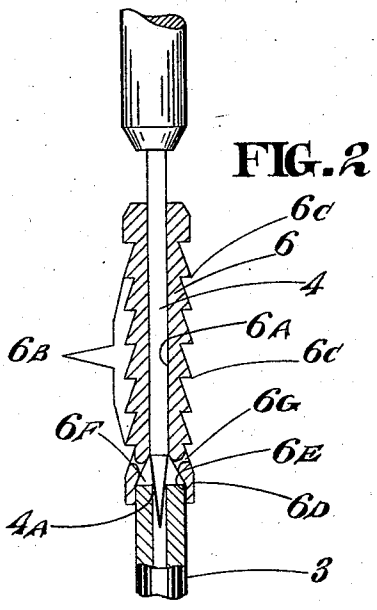


FIG. 2

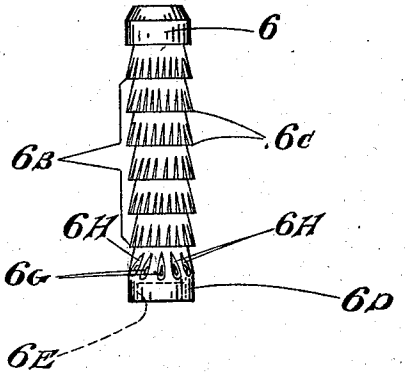


FIG. 3

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WILLIAM STEVENSON, OF DUNEDIN OTAGO, NEW ZEALAND.

FUEL ATOMIZER.

Application filed January 30, 1925. Serial No. 5,833.

This invention relates to motor accessories designed for the purpose of endeavouring to enter the fuel into the mixing chamber in more or less a spray form, and is particularly adapted for use in combination with needle valves of the types used in what are known as the Holly or Kingston carburettors.

The object of the invention is to cause the fuel issuing from the nozzle of the carburettor to spray, and in a certain measure enter the carburettor in a much finer form than has hitherto been done in carburettors of the class above mentioned.

According to my invention, the atomizer is attached to the top of the carburettor nozzle and secured thereto by suitable means, such as soldering or brazing, or where circumstances permit, by cutting an external thread on the point of the nozzle and an internal thread in the atomizer, so that the two parts might be connected.

The atomizer is tubular, having its bore provided with a smooth surface and of a diameter equal to the diameter of the stem of the needle valve, so as not to interfere with the functioning thereof. The outside of the said atomizer has a ridged surface which is tapered, decreasing in diameter from the lower end of the ridge leaving the edge in a measure sharp. There is a bell like extension at the lower end, and it is at this point that the atomizer is connected with the nozzle.

When permitted by the adjustment of the needle valve, the fuel supply through the nozzle is induced through perforations in the bell like extension, and during the passage of the fuel from the nozzle to the mixing chamber in the carburettor, a breaking up or separating process of the fuel takes place. The mixture thus formed passes to the cylinder, and being susceptible to ignition, renders the starting of the engine much easier and more flexible.

Referring to the accompanying drawings,

Figure 1 is a part sectional elevation of the Holly carburettor, showing the application of my invention.

Figure 2 is an enlarged view of portion of Figure 1, showing the atomizer in section, and a portion of the nozzle and needle valve.

Figure 3 is an elevation of the atomizer.

Referring to Figure 1, a portion of the float chamber is indicated at 1, the fuel inlet is shown at 2, nozzle at 3, and the stem 4 of the needle valve 4^A. The said valve is adapted to be adjusted to engage with the nozzle to increase, reduce or close the nozzle altogether. For this purpose there is a screw threaded portion 4^B, which coincides with the threaded portion 5 in the body part of the carburettor, and is provided with a head 4^C adapted to engage with a connecting rod (not shown in the drawings) extending from the dash, or in close proximity to the driver.

According to my invention I supply an atomizer 6, which consists of a tubular member having its bore 6^A provided with a smooth surface to coincide with the diameter of the stem 4 of the needle valve 4^A; the said stem is slidable therein for adjustment, so that its point may engage with the nozzle 3. The outer surface of the atomizer is roughened, preferably in the form indicated in the drawings, which consists of a series of ridges 6^B; these ridges are characterized by being bevelled or tapered. This construction forms in measure sharp edges as indicated at 6^C; the diameter at the point 6^C is the largest diameter part of the atomizer 6, the said diameter being governed by the diameter of the channel 7 in which the atomizer 6 is housed at an appreciable easy fit. The lower part 6^D of the said atomizer 6 is peculiarly fashioned, and is preferably of the form indicated in the drawings. The internal diameter 6^E coincides with the diameter of the nozzle 3, so that it can be suitably fixed either permanently by soldering or some such like means, or both parts be threaded, so that they may be detachably fixed.

There is an annular space 6^F and a series of perforations 6^G forming communication through the medium of the space 6^F with the nozzle 3. The atomizer is fixed to the nozzle and is inserted in the carburettor as indicated in Figure 1, the said atomizer almost filling up the channel 7 between the said nozzle and the mixing chamber 8, leaving only a fine annular space between the larger diameter part of the ridges and the inner peripheral surface of the channel 7; the lower member 6 being perforated as at 6^G, and the fuel entering the nozzle in the float chamber through the inlet 3 is induced, when the needle valve is adjusted to permit it, through the said perforations 6^G, issuing therefrom in a much finer jet along vanishing grooves 6^H and directed against the edge 6^C, and playing upon each successive edge until the fuel reaches the mixing chamber 8.

What I claim as new and desire to secure by Letters Patent is:—

1. In a device of the character described, in combination, a mixing chamber, a channel leading to the mixing chamber, a nozzle projecting into the lower end of the channel, a needle valve projecting downwardly into the channel and coacting with the nozzle, a tubular atomizer arranged through the channel and engageable about the nozzle and having a bore wherethrough the needle valve operates and having its lower portion adjacent its point of connection with the nozzle provided with openings and also having a series of superposed annular ridges formed on its outer surface for cooperating with the surrounding wall of the channel to break up and atomize the fuel as it passes through the channel prior to entering the mixing chamber.

2. An arrangement as claimed in claim 1, wherein the ridges in the tubular atomizer are provided with lower flat faces while the outer surfaces taper inwardly, and the lower edges being arranged in closely spaced relation to the surrounding wall of the channel, substantially as and for the purposes set forth.

In testimony whereof I affix my signature.

WILLIAM STEVENSON.