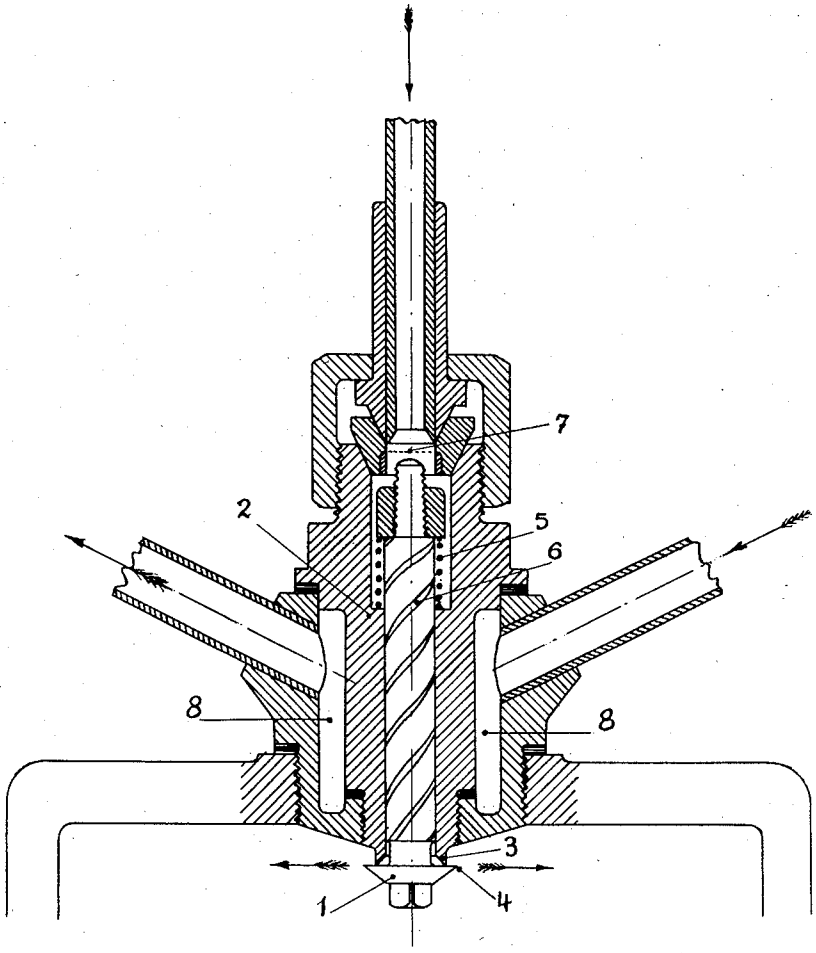
E. H. TARTRAIS.

ATOMIZER FOR LIQUID FUEL ENGINES.

APPLICATION FILED NOV. 21, 1918.

1,327,744. Patented Jan. 13, 1920.



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EUGÈNE HENRI TARTRAIS, OF MAISONS-LAFFITTE, FRANCE.

ATOMIZER FOR LIQUID-FUEL ENGINES.

1,327,744. Specification of Letters Patent. Patented Jan. 13, 1920.

Application filed November 21, 1918. Serial No. 263,581.

To all whom it may concern:

Be it known that I, EUGÈNE HENRI TARTRAIS, citizen of the Republic of France, residing at 3 Rue de Mexico, Maisons-Laffitte, Seine and Oise, in the Republic of France, have invented new and useful Improvements in Atomizers for Liquid-Fuel Engines, of which the following is a specification.

In liquid fuel engines working according to the Diesel system or analogous systems and in which injection of liquid fuel takes place the atomization of the fuel was heretofore effected by means of a jet of compressed air. If the compressed air be produced by a special air pump, considerable mechanical complication results. If, on the contrary, the air is taken into the cylinder itself, it generates in the atomizing nozzles a great quantity of heat which, acting upon the fuel, causes the formation of carbonaceous deposits and rapid clogging.

It thus becomes desirable to dispense with compressed air, and this result may be secured by means of the atomizer forming the subject matter of the invention and a form of construction of which is shown in section in the accompanying drawing.

Said atomizer comprises a valve 1 the rod of which fits without play into the body 2 having the knife shaped seat 3. The valve itself has a flat bearing terminating in a sharp edge 4. The spring 5 holds said valve on its seat and the valve rod is provided with grooves such as 6. At 7, is provided a fine filter. Around the body of the apparatus a cooling circulation, 8 is set up. The body 2 and the valve 1 are made of hard practically non oxidizable metal, such as rapid hardened steel.

The operation is as follows:

At the selected moment of the cycle, a fuel pump of any known type, or preferably of the type described in my application for Letters Patent filed November 21, 1918, Serial Number 263,580, forces or delivers a certain quantity of liquid which must, after having passed through the filter 7, raise the valve 1 from its seat in order to enter the cylinder. It will be understood that the liquid injected by the pump, prior to entering the cylinder, passes along the groove 6 formed in the face of the valve rod. The strength of the spring, to which will be added the pressure of the gases into the cylinder, causes the valve to rise very slightly. The liquid escapes as a very thin sheet. The sharp edge 4 prevents the liquid from sticking. Said liquid spreads uniformly and is atomized by its impact with the surrounding air. The knife shape of the seat prevents impurities from interfering with the complete closing of the valve. The filter 7 answers the same purpose.

It will be noticed that, in order to allow the atomizer to work exactly at the selected moment of the cycle, it will be necessary to prevent formation of gases beyond the pump, that is to say in the piping or in the atomizer itself. To this end the atomizer is surrounded by a cooling circulation as active as possible and also the spring 5 must be sufficiently strong to always maintain adequate pressure on the liquid to prevent giving off of troublesome gases.

It will be apparent that the above described atomizer may be used for injecting water or any other liquid.

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

1. A liquid atomizer for engines working under injection of liquid fuel comprising, in combination: a valve body to be secured onto the engine,—a knife shaped valve seat formed by the inner end of the valve body, a valve with a flat bearing face having a sharpened edge, a valve rod fitting without play into the valve body, passages provided on said rod in order to allow the liquid to pass along the same, a return spring tending to hold the valve against its seat and a joint connecting the outer end of the valve to the passage or pipe carrying the injected liquid,—substantially as described and for the purpose specified.

2. A liquid atomizer for engines working under injection of liquid fuel comprising, in combination: a valve body to be secured onto the engine,—a knife shaped valve seat formed by the inner end of the valve body, a valve with a flat bearing face having a sharpened edge, a valve rod fitting without play into the valve body, passages provided on said rod in order to allow the liquid to pass along the same, a return spring tending to hold the valve against its seat and a joint connecting the outer end of the valve to the passage or pipe carrying the injected liquid,—and means for providing a cooling circulation around the valve body,—substantially as described and for the purpose specified.

3. A liquid atomizer for engines working under injection of liquid fuel comprising, in combination, a primary member provided with an annular flat surfaced portion having a sharpened edge, a secondary member provided with a knife shaped annular projection which is adapted to bear upon the said flat surfaced portion, a passage being provided for admitting a liquid fuel at the inside of the line of contact of both members, one of said members being stationary and the other member being movable and yielding means for returning the movable member into contact with the stationary member.

In testimony whereof I have signed my name to this specification.

EUGÈNE HENRI TARTRAIS.