B. B. MONG.

VALVE FOR THE FUEL NOZZLES OF INTERNAL COMBUSTION ENGINES.

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1,208,616. Patented Dec. 12, 1916.

Fig. 1.

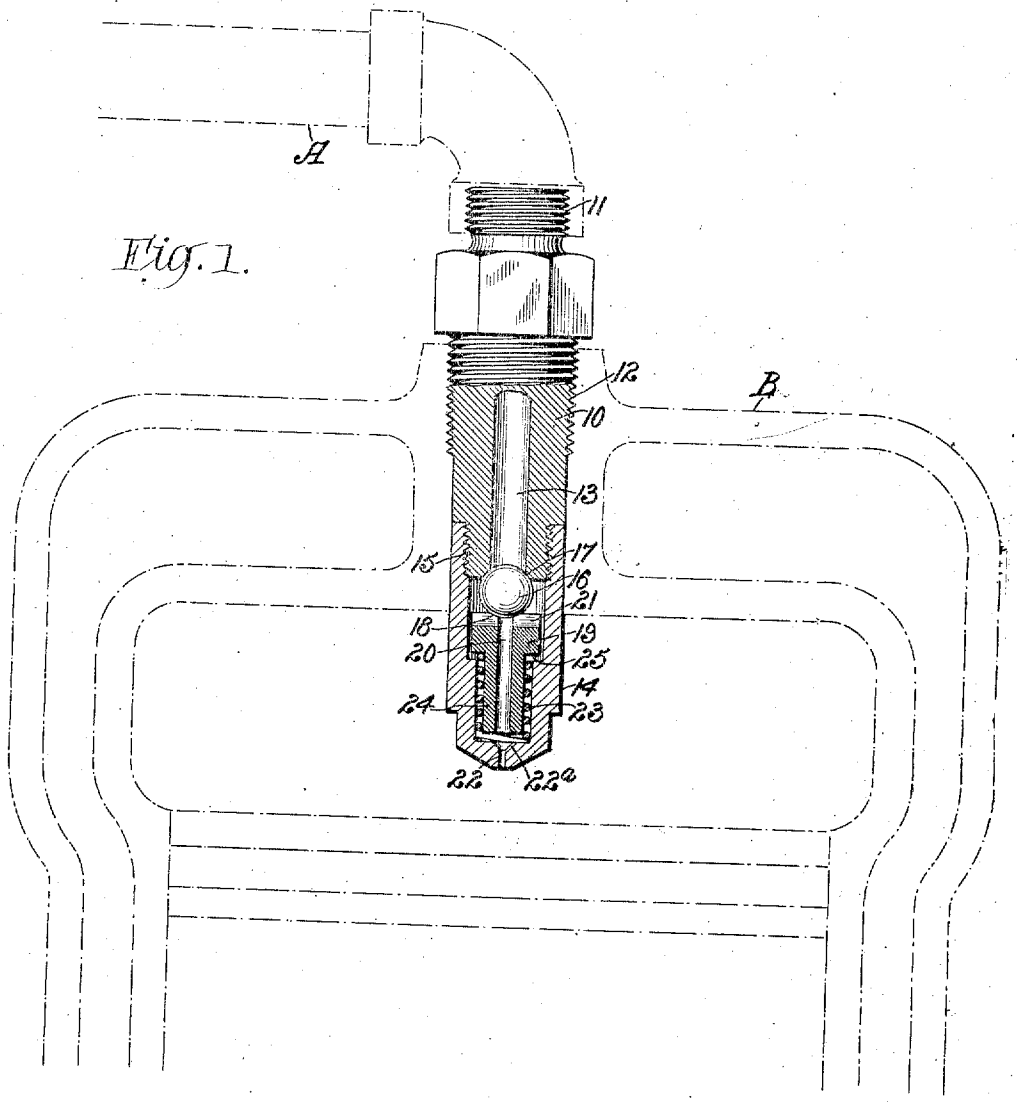
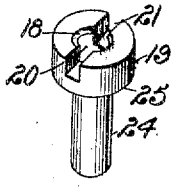


Fig. 2.



WITNESSES

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VALVE FOR THE FUEL-NOZZLES OF INTERNAL-COMBUSTION ENGINES.

1,208,616. Specification of Letters Patent. Patented Dec. 12, 1916.

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To all whom it may concern:

Be it known that I, BERT B. MONG, a citizen of the United States, and a resident of Muncie, in the county of Delaware and State of Indiana, have invented a new and Improved Valve for the Fuel-Nozzles of Internal-Combustion Engines, of which the following is a full, clear, and exact description.

My invention relates to the nozzle of internal combustion engines, through which nozzle a liquid fuel is delivered with each stroke of the pump.

The prime object of my invention is to provide a nozzle of the indicated class having valve means controlling the fuel feed whereby to insure the admission to the cylinder of a predetermined amount of fuel and the prompt and unfailing closure of the valve absolutely tight after the admission of the predetermined charge, whereby to obtain a more regular operation of the engine than is usual with the nozzles ordinarily employed.

A more specific object of the invention is to provide a valve of the class referred to of simple form, and so constructed and arranged as to permit of the nozzle and valve being maintained in perfect working condition.

The invention will be particularly explained in the more specific description following.

Reference is to be had to the accompanying drawings forming a part of this specification in which similar reference characters indicate corresponding parts in all the views.

Figure 1 is a vertical section of a nozzle embodying my invention; Fig. 2 is a perspective view of one of the valve elements.

In carrying out my invention in accordance with the illustrated example, a nozzle body 10 is provided having, at its upper end, external threads 11 for connection with the fuel supply pipe A, indicated by dotted lines, Fig. 1, said pipe in practice being connected with a pump, (not shown), in any approved manner to deliver a charge of fuel with each stroke of the pump. External threads 12 are formed on the body 10 to take into the cylinder B, and an axial bore 13 is formed through the body for the passage of the fuel. A cap 14 is detachably secured to the forward end of the body 10 as by threads 15. The cap 14 forms a valve chamber in which valve means is provided, responsive to the pump pressure to admit the fuel charge and to close as hereinafter explained.

In the preferred form a ball valve 16 is adapted to close upwardly against a seat 17 on the body 10 at the lower end of the fuel passage 13 to control said passage. At the under side the ball valve 16 seats, as at 18, on a tubular element 19. The said element 19 has an axial bore 20, and at the upper end thereof a transverse fluid passage 21 is formed in communication with the interior or valve chamber of the cap 14 and with an axial bore 20 in said element 19.

The lower end of the cap 14 has a jet orifice 22 formed axially therein, the upper end of which preferably flares as at 22^a. Surrounding the shank 24 of the element 19 is a compression spring 23 which bears at its lower end against the cap 14 at the interior adjacent to the jet orifice 22, and abuts at its upper end against a shoulder 25 formed at the base of the shank 24.

With the described construction, at each feed stroke of the pump fuel will be forced through the passage 13 of the body 10 and the pressure will unseat the valve 16, thereby admitting the fuel around the said ball valve and permitting the same to pass through the passage 21 and axial bore 20 and outward through the jet orifice 22. The movement of the valve is limited by an engagement of the forward end of the shank 24 with the front end of the cap 14. The valve promptly closes after the delivery of a charge and the explosion thereof, the closure of the valve being effected by the spring 23. Closure is in any case insured by the pressure of the exploded charge which is effective both on the ball valve 16 and on the element 19.

In the practical operation of the above described nozzle, the predetermined quantity of fuel is unfailingly delivered and the valve instantly closed so that the regulation of the valve is insured with respect to both its capacity and the period of its operation.

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

1. A fuel nozzle for internal combustion engines, including a body having a fuel passage therethrough and provided with means

smelted ferro-tungsten, which consists in comminuting the smelted mass, then volatilizing the sulfur in the form of hydrogen sulfid by treatment with an acid which will not combine with the metallic tungsten alloy, and finally washing and drying the comminuted product.

4. The process of removing sulfur, phosphorus and carbon from smelted ferro-tungsten, which consists in grinding the smelted mass, then treating it with muriatic acid of approximately 20° Baumé, and finally washing and drying the comminuted product.

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