

United States Patent

[11] 3,630,454

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[21] Appl. No. 27,246

[22] Filed Apr. 10, 1970

[45] Patented Dec. 28, 1971

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[32] Priority Apr. 24, 1969

[33] Great Britain

[31] 21,010/69

[54] LIQUID FUEL INJECTION NOZZLES
1 Claim, 1 Drawing Fig.

[52] U.S. Cl. 239/533

[51] Int. Cl. B05b 1/30

[50] Field of Search 239/533

[56]

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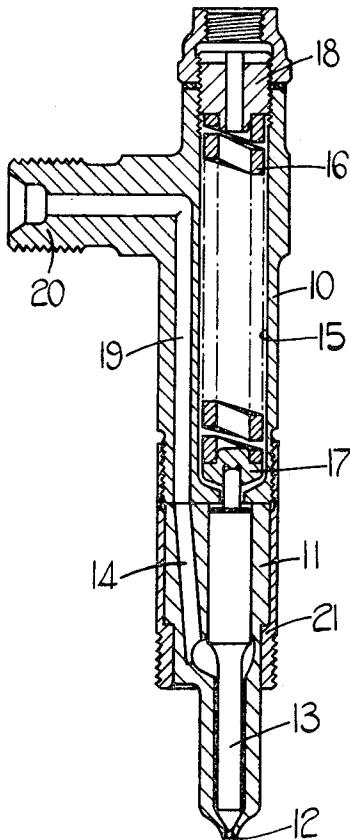
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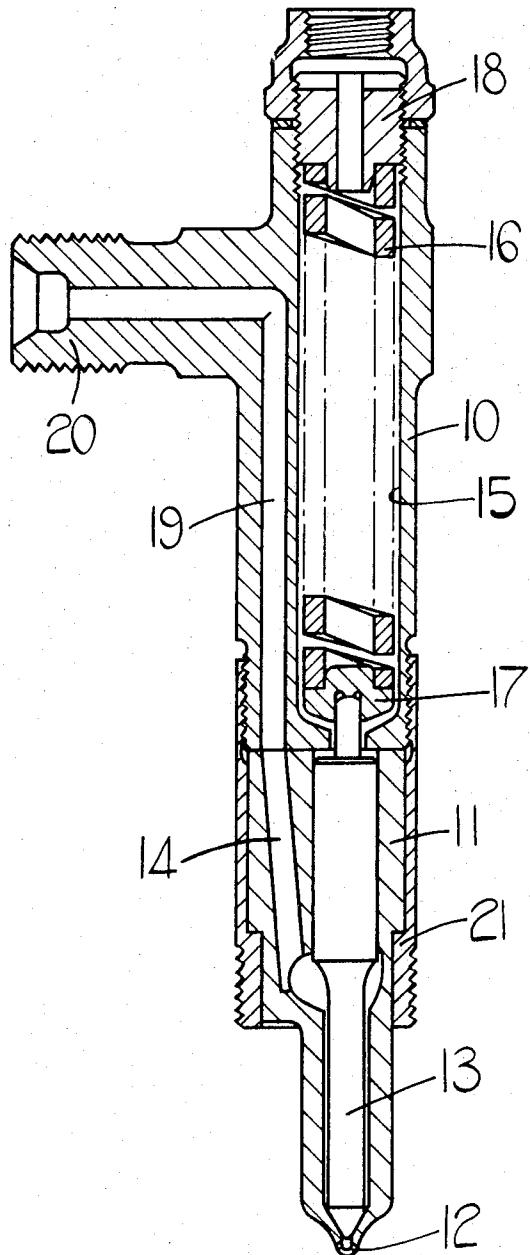
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ABSTRACT: A liquid fuel injection nozzle having a cylindrical body and to which is secured a nozzle head, the nozzle head containing a valve member and being spring loaded by means of a spring disposed within a bore formed in the nozzle body and further including a drilling through which liquid fuel can flow through the body to the nozzle head. In order to provide the maximum wall thickness for the drilling the axis of the bore is offset relative to the axis of the body.



Patented Dec. 28, 1971

3,630,454



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LIQUID FUEL INJECTION NOZZLES

This invention relates to liquid fuel injection nozzles of the kind comprising a cylindrical nozzle body to which at one end, is mounted a nozzle head including a slidable valve member which controls fuel flow through an orifice, the nozzle body including a bore which accommodates a spring acting upon the valve member, the nozzle body also having a drilling through which liquid fuel at high pressure can flow from an inlet to the orifice.

In the past it has been the practice to form the bore so that it is coaxial with the body however, it has always been necessary to ensure that the wall of the drilling has sufficient strength to withstand the high pressure of fuel and the nozzle body has therefore had a minimum diameter, below which the wall thickness of the drilling for a given diameter of the bore would be too thin. It is desired however that the diameter of the nozzle body should be as small as possible and the object of the invention is to provide a nozzle in which this desideratum is achieved in a simple and convenient form.

According to the invention in a nozzle of the kind specified the axis of the bore is displaced from the axis of the body.

One example of the liquid fuel injection nozzle in accordance with the invention is shown in sectional side elevation in the accompanying drawing and with reference to the drawing there is provided a cylindrical nozzle body 10 at one end of which is attached a nozzle head 11 also of cylindrical form. The nozzle head is provided with an orifice 12 at its end remote from the body and slidable within the nozzle head is the valve member 13 which controls the flow of fuel through the orifice from a feed passage 14 disposed in the nozzle head.

Formed in the nozzle body is a bore 15 which accommodates a coiled compression spring 16 which at one end bears against a spring abutment 17 mounted upon the valve member 17. The other end of the spring is supported by an adjustable member 18 located within the bore 15. The axis of the

bore 15 is displaced from the axis of the nozzle body 10 and the axis of the valve member 13 is aligned with that of the bore 15.

Formed in the nozzle body is a drilling 19 which at one end is in communication with an inlet union 20 and which at its other end registers with the aforesaid feed passage 14. The drilling 19 is positioned in the nozzle body so that it lies on a diameter of the nozzle body and which extends through the axis of the bore. In this manner the wall thickness of the 10 drilling is as large as possible and for a given wall thickness and diameter of bore, the diameter of the nozzle body can be made as small as possible.

The nozzle head 11 is secured to the body 10 by means of a capnut 21. The head is of stepped form the axis of the narrower portion of which is offset relative to the axis of the wider portion thereof. A locating peg or pegs (not shown) is provided to locate the body and head accurately relative to each other prior to and during the assembly of the nozzle.

Having thus described my invention what I claim as new and 20 desire to secure by Letters Patent is:

1. A liquid fuel injection nozzle comprising a cylindrical nozzle body, a nozzle head attached at one end of the body, a slidable valve member located in the nozzle head for controlling fuel flow through an orifice formed in the nozzle head, 25 a bore formed in the nozzle body, a spring located in said bore, a spring abutment mounted upon the valve member, a drilling formed in the nozzle body and through which liquid fuel at high pressure can flow from an inlet in the nozzle body to the orifice characterized in that the axis of the bore and the axis of 30 movement of the valve member are offset by an equal amount from the axis of the nozzle body and in that the nozzle head is of stepped form the narrower portion of the head being offset from the axis of the nozzle body by an amount equal to the amount by which the axis of movement of the valve member is 35 offset from the axis of the nozzle body.

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