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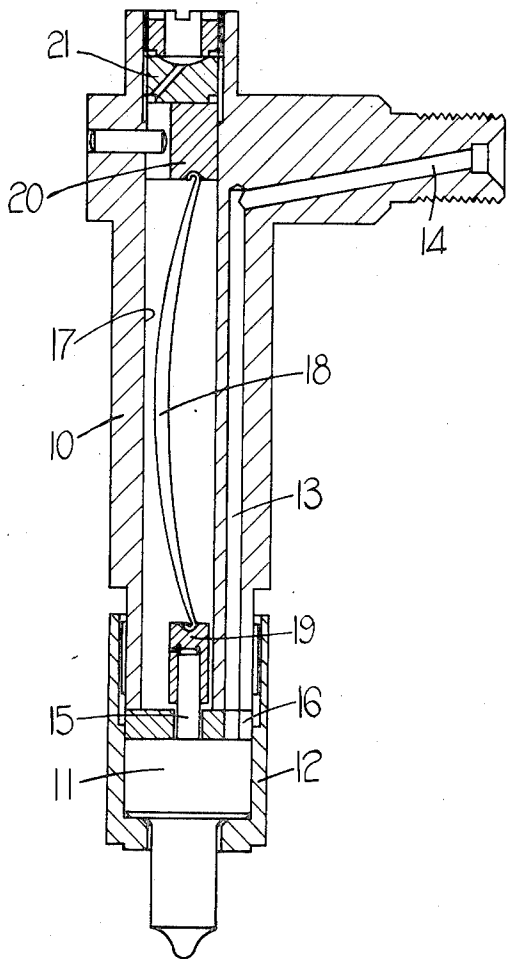
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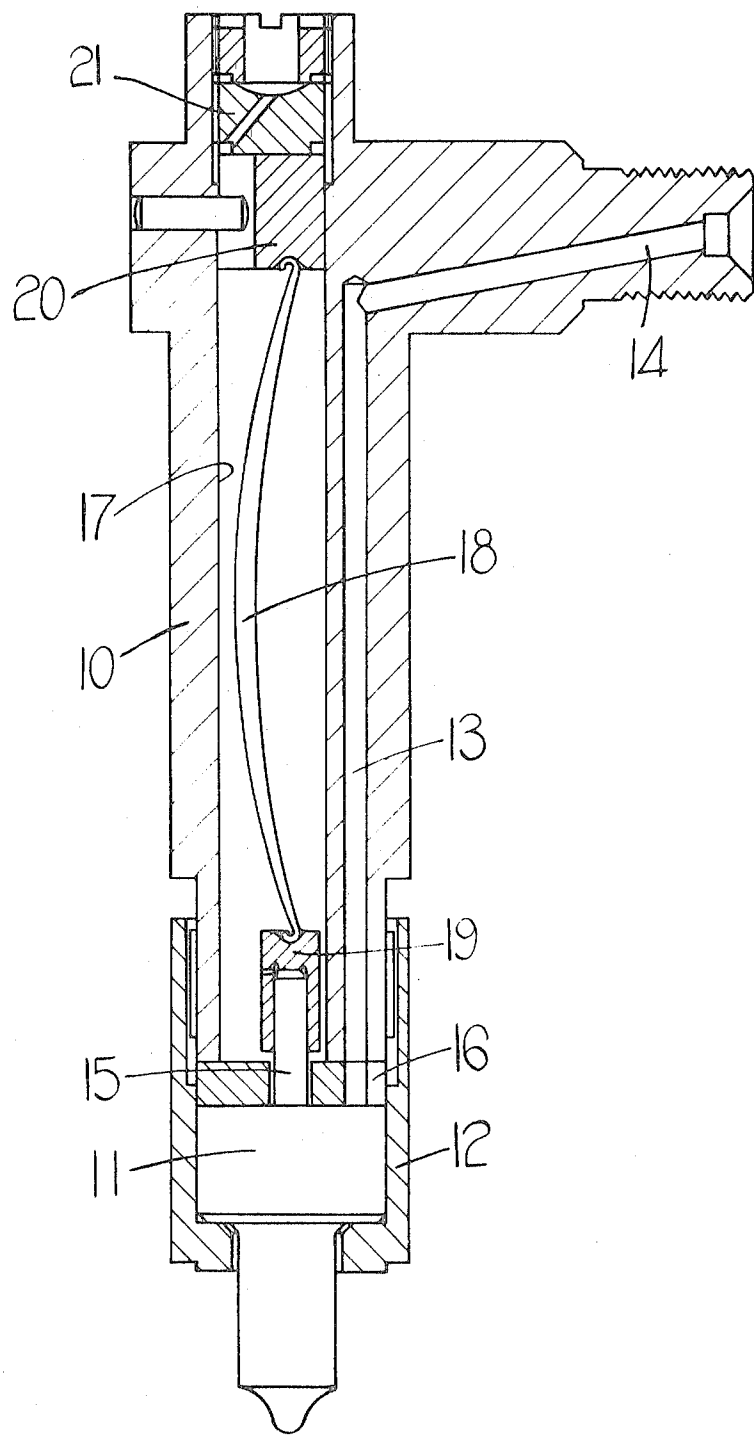
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[54] **LIQUID FUEL INJECTION NOZZLE UNITS**
1 Claim, 1 Drawing Flg.

[52] U.S. Cl. **239/533,**
137/535, 251/322, 267/182
[51] Int. Cl. **B05b 1/30**
[50] Field of Search. **239/459,**
533; 251/321, 322, 323; 137/535; 267/158, 182

ABSTRACT: A liquid fuel injection nozzle unit including an elongated body part to which at one end, is secured a nozzle head which incorporates a valve member movable by the pressure of fuel supplied through an inlet, the valve member moving against the action of a resilient means. The resilient means takes the form of a bowed leaf spring which is accommodated within a chamber formed in the body part of the nozzle unit.





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LIQUID FUEL INJECTION NOZZLE UNITS

This invention relates to liquid fuel injection nozzle units of the kind comprising in combination, an elongated body part, a nozzle head mounted at or formed integrally with one end of the body part, the nozzle head defining an orifice through which liquid fuel can flow from an inlet disposed in the body part and a resiliently loaded valve member for controlling the flow of fuel through said orifice.

The object of the invention is to provide such a nozzle unit in a simple and convenient form.

According to the invention in a nozzle unit of the kind specified the valve member is loaded by a leaf spring disposed within an elongated chamber defined in the body part.

In one example of an injection nozzle unit in accordance with the invention and as shown in part sectional side elevation in the attached drawing, there is provided a generally cylindrical body part 10 which at one end is provided with a peripheral screw thread. At this end of the body part there is located a nozzle head 11 of stepped cylindrical form and the nozzle head is retained relative to the body part by means of a cap nut 12 which is screw thread engagement with the body part. The narrower portion of the nozzle head extends through an aperture formed in the base of the cap nut 12 and at the extremity of this portion of the nozzle head there is provided an orifice through which can flow liquid fuel.

The aforesaid orifice communicates by way of passages 13 formed in the nozzle head and the body part, with a fuel inlet 14 formed in a laterally extending projection of the body part and for controlling the flow of fuel through the orifice there is provided a valve member in the nozzle head which is axially movable against the action of resilient means. In use, fuel under pressure is supplied to the inlet and will effect movement of the valve member against the action of its resilient loading to permit flow of fuel through the orifice.

In order to limit the extent of movement of the valve member against the action of its resilient loading, a projection 15 on the valve member at its end remote from the orifice, extends through an aperture formed in a stop plate 16 positioned intermediate the end of the body part and the nozzle head. The stop plate limits the movement of the valve member by

the abutment of the main portion of the latter therewith.

Formed in the body part is an elongated chamber 17 the longitudinal axis of which is off set relative to the longitudinal axis of the valve member. Moreover, mounted within the chamber is a bowed leaf spring 18 having one blade only. The spring tapers towards its ends and at its ends is curled. At its end adjacent the valve member, the spring is engaged within a recess formed in a cap 19 which is located over the projection 15 and at its other end the spring is located within a similar recess formed within an abutment 20 which is slidable in an axial direction within the elongated chamber. In the present example the chamber is cylindrical and a peg and slot connection is provided between the abutment 20 and the body part to prevent angular movement of the abutment while at the same time permitting axial movement to take place. The abutment bears upon an adjustable stop member 21 whereby the force exerted by the bowed spring can be adjusted.

In the particular example the spring is bowed to such an extent that while the axis of the valve member, passes through the ends of the spring, the axis is laterally displaced from the whole of the body portion of the spring at the midpoint of the spring. It will be appreciated that the spring may be formed and used without curvature and that more than one blade may be provided if so desired.

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

1. A liquid fuel injection nozzle unit comprising in combination, an elongated body part, a nozzle head located at one end of the body part, an orifice defined in the nozzle head and through which liquid fuel can flow from an inlet disposed in the body part, a valve member located in the nozzle head for controlling flow of fuel through said orifice, an elongated chamber defined in the body part, an adjustable abutment mounted at the end of said chamber remote from the nozzle head, a cap mounted upon a projection on the valve member, recesses defined in the abutment and cap respectively, a leaf spring in the form of a single bowed blade tapering towards its ends, said ends of the spring being curled and located in said recesses.

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