

Dec. 11, 1951

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2,577,901

DELIVERY NOZZLE FOR LIQUID FUELS OR OTHER LIQUIDS

Filed Dec. 6, 1948

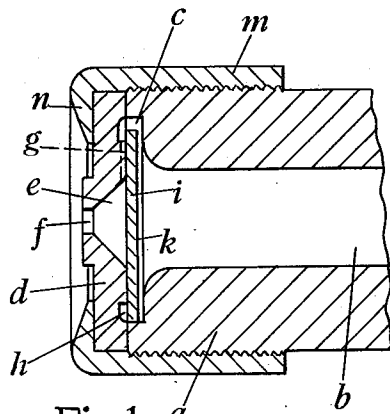


Fig.1

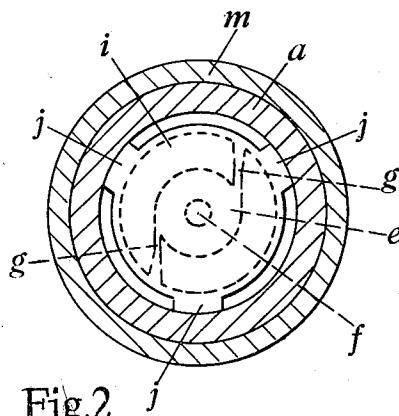


Fig.2

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UNITED STATES PATENT OFFICE

2,577,901

DELIVERY NOZZLE FOR LIQUID FUELS OR
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Application December 6, 1948, Serial No. 63,828
In Great Britain December 9, 1947

1 Claim. (Cl. 299—120)

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This invention has for its object to provide an improved delivery nozzle of the swirl type for liquid fuels and other liquids.

The invention comprises the combination of a body part and an end part adapted to form between them a shallow chamber communicating with a supply passage or passages, the said end part having formed in it the swirl cavity and discharge orifice and a groove or grooves adapted to convey the liquid tangentially to the swirl cavity from the peripheral part of the said chamber, and a disc loosely placed in the chamber and adapted to be pressed by pressure of the liquid into close contact with the inner surface of the said end part.

In the accompanying drawings:

Figure 1 is a sectional side elevation and Figure 2 a cross section of a liquid fuel delivery nozzle constructed in accordance with the invention.

Referring to the drawings, I employ a cylindrical body part *a* having an axial bore *b*. At the forward end of this part is formed a shallow recess *c*. Alternatively the recess may be formed by means of a separate ring mounted on the front flat end of the body part. The recess is closed by a separate end part *d* which, with the body part (or body part and ring) forms a shallow chamber.

At the centre of the inner face of the end part *d* is formed a conical swirl cavity *e* and at the apex of this cavity is formed the discharge orifice *f*. Also on the inner face is or are formed a groove or grooves *g* arranged tangentially with the larger end of the swirl cavity, and communicating with an annular groove *h* formed in the said face adjacent to the periphery of the above mentioned chamber.

Within the chamber is placed a loosely fitting flat disc *i* of slightly smaller diameter than the chamber, the disc being provided with peripheral projections *j* which serve to centralise the disc in the chamber. Also the disc is made only a little less in thickness than the depth of the chamber so as to provide only a narrow clearance *k* between its rear side and the base of the chamber. But in any case the disc is such that under the action of the pressure of the liquid supplied to the nozzle through the bore *b* its front face can be pressed into close contact with the adjacent face of the end piece *d* and so confine to the groove or grooves *g* the flow of liquid between the annular groove *h* and the swirl cavity *e*.

The above mentioned parts are held together in any convenient manner, and conveniently by an internally screw threaded ring *m* which can be screwed on to the body part and which is formed with a flange *n* for abutting against the outer face of the end part *d*.

By this invention a nozzle of the type specified can be constructed in a very simple and con-

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venient manner. Further by arranging for only a small clearance *k* between the rear side of the disc *i* and the base of the chamber containing the disc, particles of grit carried by the liquid and which might otherwise block the discharge orifice *e* can be intercepted at the rear of the disc.

Whilst the invention is intended more especially for liquid fuel nozzles, it may be used for other liquids required to be discharged in spray form. Further subordinate details of design may be modified to suit different requirements, thus for example, instead of forming a single central bore *b* in the body part, two or more passages parallel with each other may be provided, these terminating in the chamber *c*.

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

A liquid delivery nozzle comprising in combination a cylindrical body part having formed therein at least one longitudinally arranged liquid supply passage, and having at one end a shallow annular chamber open to said supply passage, a member secured to said end of said body part and formed with a centrally arranged swirl cavity having a discharge orifice leading therefrom, the side of said member adjacent to said body part being formed with an annular groove open to said chamber, and with at least one tangential groove connecting said swirl chamber to said annular groove, and a disc loosely mounted in and capable of axial movement relatively to said chamber so that said disc can be pressed by liquid pressure into close contact with the adjacent surface of said member, said disc being formed with peripheral projections which serve to centralise it in said chamber, and being slightly less in thickness than the depth of said chamber to provide a narrow clearance between said disc and the supply passage end of said chamber when said disc is in contact with the adjacent surface of said member.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
516,931	Hood	Mar. 20, 1894
1,250,600	Light	Dec. 18, 1917
1,415,452	Kahler	May 9, 1922
1,628,823	Chester	May 17, 1927
1,960,736	Franks	May 29, 1934
2,052,560	French	Sept. 1, 1936