Feb. 8, 1938. J. H. DAVIS 2,107,601

NOZZLE

Filed July 15, 1937

Fig. 1.

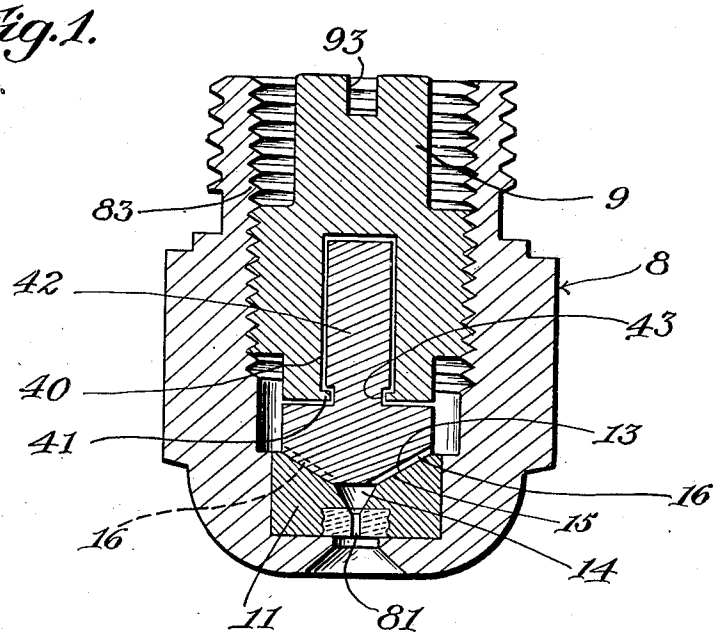


Fig. 2.

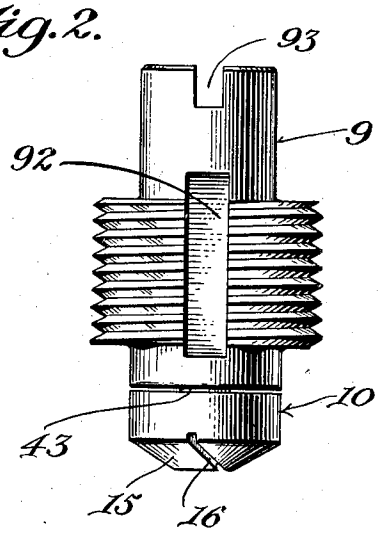
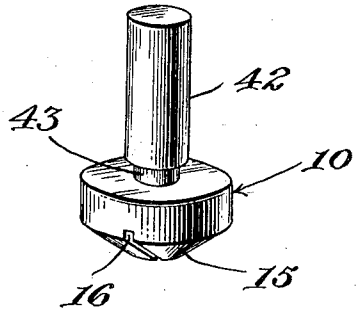


Fig. 3.



Inventor

John H. Davis

By Geo. E. Dew

Geo. A. Dew

Attorneys

Patented Feb. 8, 1938

2,107,601

UNITED STATES PATENT OFFICE

2,107,601

NOZZLE

John H. Davis, Ridgewood, N. J., assignor to Balloffet Dies & Nozzle Co., Inc., Guttenberg, N. J.

Application July 15, 1937, Serial No. 153,860

4 Claims. (Cl. 299—120)

This invention relates to burner tips or nozzles of the atomizer type, and is particularly but not exclusively applicable to nozzles for oil burners in which the oil is delivered to the atomizer under high pressure.

The nozzle is intended as an improvement on the nozzle shown in the United States Patent to Huss No. 1,940,171. This patent discloses a distributor or distributor head in the nozzle of what is known as the "floating" type, in which the distributing head or member has some lateral movement whereby its conical face will seat closely against a seating or jet member which is fixed in the body of the nozzle.

The present invention retains the advantages of the floating distributor, but is designed to provide an improvement in which it is impossible, without special effort, for the distributor head to become separated from the screw stem. When such separation is readily possible the distributor head sometimes becomes lost, or service men will put it in the wrong way, with resulting trouble and inoperativeness. The parts are quite small, and the desirability of providing some means for preventing loss or misplacement of any of the parts is obvious.

One form of the invention is illustrated in the accompanying drawing in which:—

Fig. 1 is a longitudinal section of the improved nozzle.

Fig. 2 is a side elevation of the screw stem and distributor head assembled.

Fig. 3 is a perspective view of the distributor head detached.

In its construction the nozzle may follow the main parts as shown in the said Huss patent. That is it has a body 8 in which may set a jet member 11 with its orifice 81. This jet member has a conical seating surface 13 leading to a swirling chamber 14 in which the oil forced through under high pressure has a swirling action to produce an atomizing jet at the jet hole 81.

Altho illustrated in connection with a seating member which is separate from the body of the nozzle, it may be made integral therewith and provided with a jet hole. But the seating member is considered preferable since it may be made of hard metal or other material which will stand the erosion.

The screw stem is indicated at 9 and screws into threads 83 formed in the body. It has grooves 92 to permit the flow of oil from the pipe line or supply into which the nozzle is set. The stem 9 has a kerf 93 at its rear end to receive a screw driver for its adjustment. The inner end of the screw stem has a central longitudinal bore or a socket 40 formed therein, and at the outer end of said bore it is provided with a small lip or flange 41. The floating distributor 10 has a stud or plunger 42 fitting at a loose fit within the socket 40, and adjacent the distributor head this plug is reduced to form a neck 43 into which the fin or flange 41 is pressed or bent. The fit of the plug 42 in the socket 40 is somewhat loose, and the neck 43 is loose within the fin or flange 41. Thereby the distributor is free to have sufficient lateral motion or play to accommodate itself to the conical surface 13 against which it is pressed by the stem 9 when the latter is screwed in. As in said patent the face 15 of the distributor is properly conical to fit the seat, and it has tangential grooves 16 to give the swirling effect.

By means of the construction shown it will be seen that when the distributor head is assembled with the screw stem by "beading in" the fin 41 the parts are locked together without danger of the distributor head becoming lost or separated from the stem. When the stem is withdrawn the head will come with it, and altho the connection is loose to permit the head to float or play laterally the parts will remain attached to each other, altho they may be separated by applying sufficient force, as by a blade inserted between the head and the stem, to straighten the fin 41 and allow the plug 42 to come out of the socket.

The invention therefore corrects the defects referred to above while retaining the advantages of the floating type of distributor.

I claim:

1. An atomizing nozzle comprising a body having an ejection orifice, a distributor in the body behind the orifice, a screw stem behind the distributor, the latter having lateral play with respect to the former, and means between the stem and the distributor to prevent accidental separation of the stem and distributor, said means comprising a loosely interfitting axial plug and socket on said stem and distributor respectively.

2. An atomizing nozzle comprising a body having an ejection orifice, a distributor in the body behind the orifice, a screw stem behind the distributor, the latter having lateral play with respect to the former, and means between the stem and the distributor to prevent accidental separation of the stem and distributor, said means comprising a socket in the stem, and a plug on the distributor fitting in said socket.

3. An atomizing nozzle comprising a body having an ejection orifice a distributor in the body

behind the orifice, a screw stem behind the distributor, the latter having lateral play with respect to the former, and means between the stem and the distributor to prevent accidental separation of the stem and distributor, said means comprising a socket in the end of the stem, and a plug on the back of the distributor, fitting in said socket, the plug having a reduced neck forming a recess, and the socket having a projection at the edge thereof, engaging said recess.

4. An atomizing nozzle comprising a body having an ejection orifice, a distributor in the body behind the orifice, a screw stem behind the distributor, the latter having lateral play with respect to the former, and means between the stem and the distributor to prevent accidental separation of the stem and distributor, said means comprising a socket in the end of the stem, with an inwardly projecting fin at the edge of the socket, and the plug having a reduced neck forming a groove into which said fin engages.

JOHN H. DAVIS.