

June 3, 1969

H. PLACE ET AL

3,447,757

SPRAY NOZZLES

Filed Feb. 28, 1967

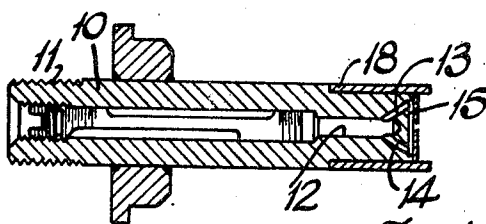


Fig. 1.

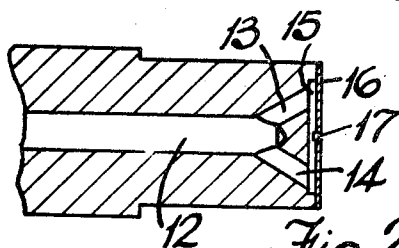


Fig. 2.

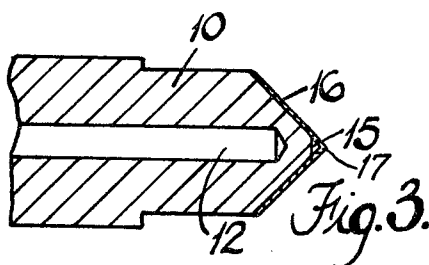
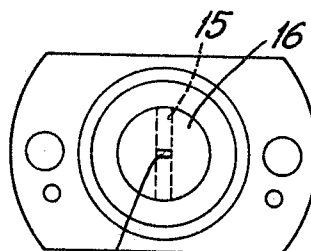


Fig. 3.



17 Fig. 5.

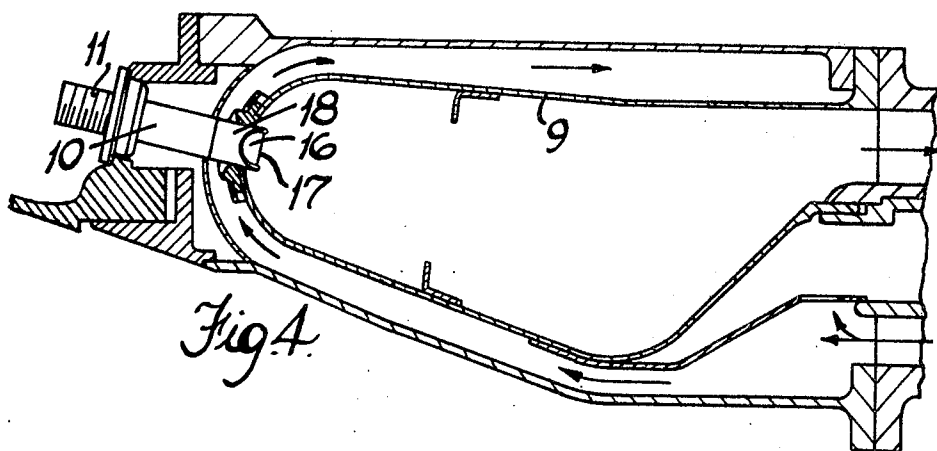


Fig. 4.

1

3,447,757

SPRAY NOZZLES

Harold Place, Accrington, and Maurice Swift Roberts,
Liverpool, England, assignors to Joseph Lucas (In-
dustries) Limited, Birmingham, England

Filed Feb. 28, 1967, Ser. No. 619,437

Int. Cl. B05b 1/26

U.S. Cl. 239—597

2 Claims

ABSTRACT OF THE DISCLOSURE

A spray nozzle has an end face of its body provided with a cover to define a pair of passages meeting at a region at which an elongated opening is provided in the cover, so that supply of liquid along both passages simultaneously impinge upon one another and are emitted through the opening in a flat fan shaped spray pattern.

This invention relates to spray nozzles for liquids of the kind whereby a substantially flat fan-shaped spray pattern can be obtained.

The object of this invention is to provide a spray nozzle of this kind in a convenient form.

In accordance with the present invention a spray nozzle comprises a body, an end face of which, together with a cover, define between them a pair of passages which meet in a region at which an elongated opening is defined in the cover, the arrangement being such that streams of liquid under pressure supplied through the body to respective opposite ends of the passages simultaneously, impinge upon one another and are emitted through said opening in a substantially flat fan-shaped spray pattern.

An example of the invention will now be described with reference to the accompanying drawings in which:

FIGURE 1 is a cross-sectional view of a nozzle assembly incorporating the present invention, and

FIGURES 2, 3 and 5 are respective enlarged side elevation, plan and end elevation views of end portions of the body of the spray nozzle shown in FIGURE 1,

FIGURE 4 is a nozzle shown assembled in an engine.

Referring to FIGURE 1, the spray nozzle comprises a tubular body 10 having at one end an external screw-threaded portion 11 for reception of a connector to a source of liquid to be supplied, which in this example is liquid fuel for supplying through the nozzle to combustion apparatus of a gas turbine engine as shown at 9 in FIGURE 4 of the drawings, though it is to be understood that the invention applies to other forms of apparatus for spraying liquids. At the other end of the body 10 the interior passage 12 is divided to form two branches 13, 14 which communicate respectively with opposite ends of a groove 15 in the end face of the body 10, this being clearly shown in FIGURES 2 and 3, and from the latter

2

view it will be seen that the groove is formed by removing the otherwise sharpened front edge of the V-shaped formation at the front of the body 10.

Surrounding the V-shaped front of the body 10 so as to define itself and the groove 15 a passage extending transversely of the length of the body 10, is a cover 16 of sheet metal which is secured in place as seen in FIGURE 3 as by induction brazing. In the mid-region of the passage defined between the body 10 and the cover 16, that is equi-distant between the ends of the groove 15 is a slot 17 cut in the cover 16 and extending transversely of the length of the passage between the cover 16 and the body 10.

In use, liquid fuel is supplied through the bore 12 and reaches opposite ends of the passage. The liquid passes along the passage in opposite directions so that the streams impinge upon one another in the mid region, at which the slot 17 is provided, whereby the liquid is emitted in a substantially flat fan-shaped spray pattern through the slot 17.

The inclined internal surfaces of the cover 16 are substantially smooth and as shown in FIGURE 1, the body 10 has a shroud 18 which partially encloses the end of the body at which the cover is provided.

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

1. A spray nozzle comprising an elongated body, one end of which is of V-shape, passage means in the body communicating with opposite ends respectively of a groove extending lengthwise of the apex of the V, and a cover secured over the V-shaped end of the body to define between it and the groove in the body, a passage extending transversely of the length of the body, the cover having an elongated opening in the mid-region of said passage, the opening extending in a direction transverse to the length of said passage.

2. A spray nozzle as claimed in claim 1 in which the passage means in the body comprises a single inlet for liquid to be sprayed, divided within the body into two passages providing respective supplies of liquid to the opposite ends of the passage simultaneously.

References Cited

UNITED STATES PATENTS

596,577 1/1898 Dolan ----- 239—597 XR
2,422,214 6/1947 Meyer et al. ----- 60—39.74

FOREIGN PATENTS

258,501 4/1963 Australia.

JULIUS E. WEST, Primary Examiner.

U.S. Cl. X.R.

60—39.74; 239—596, 601