

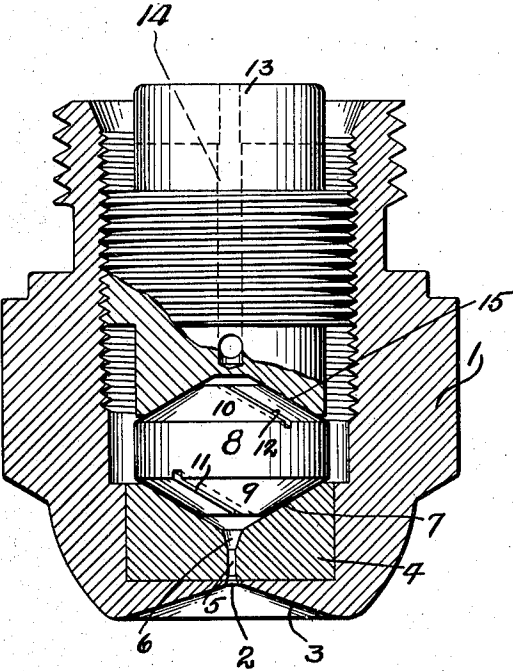
June 16, 1936.

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2,044,696

NOZZLE

Filed Dec. 28, 1935



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UNITED STATES PATENT OFFICE

2,044,696

NOZZLE

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Application December 28, 1935, Serial No. 56,472

3 Claims. (Cl. 299—120)

The present invention is directed to atomizing nozzles or tips and provides a construction which is particularly well adapted for use in oil burners, for example, in which the oil is delivered under high pressure.

One of the objects of my invention is the provision of a nozzle construction embodying a nozzle body containing a member which is equipped with an ejection orifice and a swirl chamber, this member coacting with a distributor head disconnected therefrom, a threaded stem, which is also disconnected from the distributor head, being provided for bringing the distributor head into contact with the member first mentioned for accurate seating, the distributor head being of such construction that by reversing the same in the nozzle the capacity of the nozzle can be changed.

The present invention, therefore, provides a nozzle of improved construction in that accurate seating of the distributor head is assured and the capacity of the nozzle can be varied at practically no expense.

In the drawing accompanying this application I have shown an embodiment of my invention in sectional elevation.

It is to be noted that in devices of this character dimensions are very small and for full efficiency of the device it is necessary that the parts shall be exactly positioned. It must also be borne in mind that if the capacity of the burner nozzle is to be changed in the manner indicated above it is necessary that the construction be such that when the position of the parts is altered for effecting this change in capacity the parts will again align themselves with the necessary exactness and precision.

In burning oil, using nozzles of the type here under consideration, it is essential that the distributor head be precisely seated, inasmuch as otherwise more oil flows along one side of the distributor head than along the other, resulting in a cone of atomized oil which is not uniformly atomized, producing a one-sided and spotty flame.

Referring to the drawing in detail, I designate a nozzle body provided at one end with discharge orifice 2 which, as illustrated, is at the apex of a recess 3 in the forward end of the nozzle body. Set into the bore of the nozzle body is a member 4, this member lying immediately behind the discharge orifice 2 and being provided with ejection orifice 5 and swirl chamber 6. The rear face of the member 4 is recessed or beveled as shown at 7, this bevel or recess extending to

the swirl chamber 6, as will be apparent from the drawing.

Coacting with this recessed or beveled face 7 of the member 4 is a distributor head 8 disconnected from the member 4, opposite ends of this member being beveled as shown at 9 and 10. The taper or bevel of these ends of the distributor head conforms to the shape of the recess or bevel 7 in the rear face of the member 4. The end 9 of the distributor head is provided with tangential slots 11, the end 10 being provided with tangential slots 12 of a different dimension. These slots or grooves conduct and direct oil or other material being atomized to the swirl chamber of the nozzle.

13 designates a threaded stem assembled into the nozzle body 1, the threaded portion of this stem, which is somewhat enlarged in diameter with respect to the main portion of the stem, being provided with a longitudinal and cross bore 14 for the passage of oil or other material being atomized from an outside source of supply. The face of the inner end of this stem is recessed or tapered as shown at 15 to the same angle as the ends of the distributor head 8.

When the stem 13 is screwed into the nozzle body so that the recessed end 15 thereof engages the tapered end 10 of the distributor head 8, the tapered end 9 of the head will be seated in the recessed rear face 7 of the member 4, proper seating of the distributor head being assured by reason of the fact that the distributor head is disconnected from the stem 13 and that both ends of the distributor head are tapered, the tapered end of the stem 13 engaging one end of the distributor head, the other tapered end of the distributor head seating in a correspondingly tapered recess, whereby the distributor head is allowed a slight lateral play in seating thereby to compensate for any small eccentric motion of the stem 13.

This double tapered distributor head also adapts itself to the furtherance of another object of my invention, i. e., changes in nozzle capacity, in that by making the slots 11 and 12 of different dimensions it is merely necessary, when a change in nozzle capacity is desired, to reverse the distributor head in the nozzle body, my construction assuring of course accurate positioning of the distributor head in either position.

What I claim is:—

1. An atomizing nozzle comprising a body having a discharge orifice, a member in said body adjacent said discharge orifice, provided with an ejection orifice and with a swirl chamber com-

communicating with each other and with said discharge orifice, said member being provided with a tapered surface at the rear of said swirl chamber, a distributor head in the said nozzle body the ends of which are tapered to correspond in form to said tapered surface, and a screw stem the forward end of which is provided with a tapered recess corresponding in form to the tapered ends of said distributor head, said distributor head being disconnected from said member and from said stem, whereby as the stem is moved inwardly of the nozzle body the distributor head will be accurately seated on the tapered surface of the first-mentioned member.

2. An atomizing nozzle comprising a body having a discharge orifice, a member in said body adjacent said discharge orifice, provided with an ejection orifice and with a swirl chamber communicating with each other and with said discharge orifice, said member being provided with a tapered surface at the rear of said swirl chamber, a distributor head in the said nozzle body the ends of which are tapered to correspond in form to said tapered surface, said tapered ends being provided with channels for conducting fluid to said swirl chamber, and a screw stem the forward end of which is provided with a tapered recess corresponding in form to the tapered ends

of said distributor head, said distributor head being disconnected from said member and said stem, whereby as the stem is moved inwardly of the nozzle body the distributor head will be seated accurately on the tapered surface of the first-mentioned member.

3. An atomizing nozzle comprising a body having a discharge orifice, a member in said body adjacent said discharge orifice, provided with an ejection orifice and with a swirl chamber communicating with each other and with said discharge orifice, said member being provided with a tapered surface at the rear of said swirl chamber, a distributor head in the said nozzle body the ends of which are tapered to correspond in form to said tapered surface, said tapered ends being provided with channels of different capacity for conducting fluid to said swirl chamber, and a screw stem the forward end of which is provided with a tapered recess corresponding in form to the tapered ends of said distributor head, said distributor head being disconnected from said member and from said stem, whereby as the stem is moved inwardly of the nozzle body the distributor head will be seated on the tapered surface of the first mentioned member.

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