

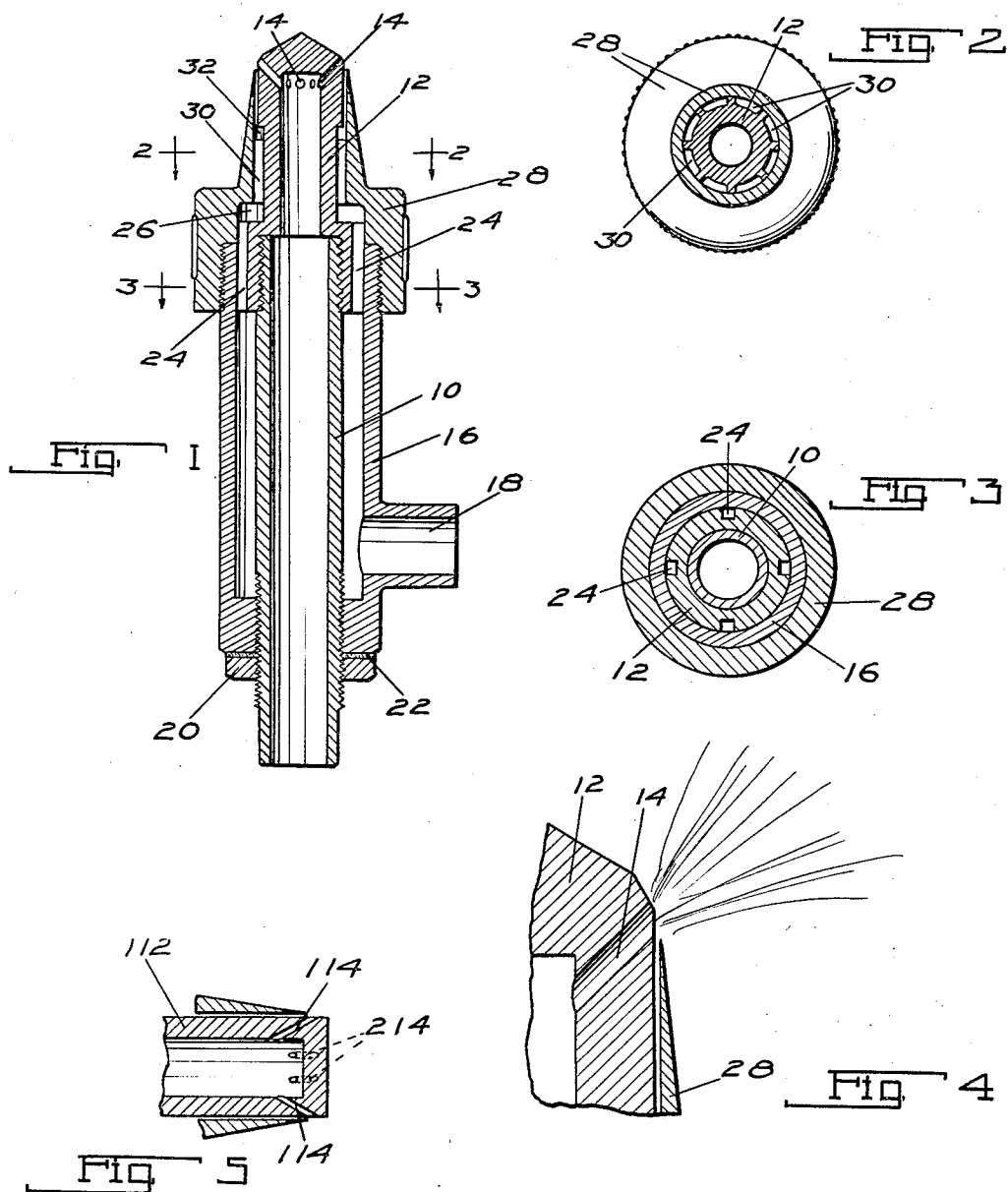
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BURNER NOZZLE

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BURNER NOZZLE

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6 Claims. (Cl. 299—142)

This invention relates to oil burners and other forms of apparatus requiring fluid-mixing nozzles or the like, and is illustrated as embodied in a nozzle constructed to provide a carbureted fuel-air mixture for an oil burner.

An object of the invention is to provide a simple and effective carbureting device including a nozzle from which the fuel is aspirated by air under pressure with which it is mixed. In one arrangement, a current of air under pressure is directed conically, as for example in a plurality of divergent streams, past the mouth of a nozzle from which the fuel is sucked by the aspirating action of the air.

Preferably the fuel nozzle is mounted on, as is shown as being coaxial with respect to, the air conduit, and some of the structural features of the invention relate to this mounting, and especially to the cooperative arrangement by which the mouth of the fuel nozzle closely surrounds the fuel conduit to form a narrow annular mouth from which the air current aspirates the fuel.

The above and other objects and features of the invention, including various novel combinations of parts and desirable particular constructions, will be apparent from the following description of the illustrative embodiment shown in the accompanying drawing, in which:

Figure 1 is a section longitudinally and axially of one form of burner nozzle;

Figure 2 is a section transversely therethrough on the line 2—2 of Figure 1;

Figure 3 is a section transversely therethrough on the line 3—3 of Figure 1;

Figure 4 is a partial section, corresponding to the upper right-hand part of Figure 1 but on a larger scale; and

Figure 5 is a partial section showing the end of the burner nozzle when arranged horizontally.

The novel burner nozzle illustrated comprises a conduit 10 for a current of air under pressure, on the end of which is threaded or otherwise mounted a fitting 12 drilled at its end to form a series of divergent air passages 14 which deliver what is in effect a conical sheet of air.

A cup-shaped annular fuel-containing box 16, formed with an inlet 18 adapted to be attached to a fuel conduit, is shown with its base threaded on the air conduit 10, where it is held by a locknut 20 and sealing washer or gasket 22.

Either the lower end of the fitting 12, or the upper end of the member 16, is grooved (or both may be grooved) to form fuel passages 24 leading to an annular chamber 26 between a shoulder

on the fitting 12 and a corresponding internal shoulder on a knurled fuel nozzle or cap 28 threaded or otherwise mounted on the end of the member 16. Either the fuel nozzle 28 or the fitting 12 is grooved (or both may be grooved) to form passages 30 delivering fuel to a second annular chamber 32.

As appears most clearly in Figure 4, the end of the fuel nozzle 28 tapers down to form a delivery portion closely encircling the fitting 12 just below the opening therethrough of the passages 14. This forms a narrow annular mouth, through which the fuel is sucked or aspirated by the conical air stream.

The end of the fuel nozzle 28 is adjusted below the passages 14 just far enough so that the right amount of fuel will flow upwardly along the wall of the fitting 12 into the conical air stream. By adjusting the fuel nozzle 28 upwardly, the amount of fuel relatively to the amount of air is increased; by adjusting it downwardly the relative amount of fuel is decreased.

The fuel may be kept standing at or immediately below the level of the mouth of the fuel nozzle 28 by any suitable constant-level feeding means, as for example by the usual float chamber (not shown).

When the above-described burner nozzle is used in a horizontal position, as in Figure 5, I prefer to form a horizontally-disposed flattened fan-shaped flame, by drilling in the fitting 12 (corresponding to the fitting 12) upper and lower passages 114 which diverge a great deal less than the side and more nearly horizontal passages 214.

While particular structures have been described in detail, it is not my intention to limit the scope of the invention by that description, or otherwise than by the terms of the appended claims.

I claim:

1. A nozzle for an oil burner or the like comprising means for directing a current of air in a generally conical stream, and means for supplying an annular column of fuel adjacent the outer face of said air current to be aspirated thereby from the supplying means and mixed with the air from the exterior of the conical stream.

2. A nozzle for an oil burner or the like comprising means for directing a current of air in a divergent stream, and means for supplying fuel adjacent the outer face of said air current to be aspirated thereby from the supplying means and mixed with the air from the exterior of the divergent stream.

3. A nozzle for an oil burner or the like comprising an air conduit having at its end divergent air passages, and fuel-supply means including an annular fuel container coaxially mounted on said conduit and having a narrow annular mouth immediately adjacent said passages, whereby the air issuing from the passages aspirates the fuel from said mouth.

4. A nozzle for an oil burner or the like comprising an air conduit having at its end divergent air passages, and fuel-supply means having a narrow mouth immediately adjacent said passages, whereby the air issuing from the passages aspirates the fuel from said mouth.

5. A nozzle for an oil burner or the like comprising a horizontal air conduit having at its end divergent air passages, the passages at the sides being at wide angles and those at the top and

bottom at lesser angles, thereby giving a generally horizontal divergent fan-shaped air blast, and means for supplying fuel adjacent said passages to be aspirated from said means into the air blast.

6. A nozzle for an oil burner or the like comprising a horizontal air conduit having at its end divergent air passages, the passages at the sides being at wide angles and those at the top and bottom at lesser angles, thereby giving a generally horizontal divergent fan-shaped air blast, and means for supplying fuel adjacent said passage to be aspirated from said means into the air blast, said means including a fuel nozzle having its mouth closely encircling the air conduit just in front of said air passages.

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