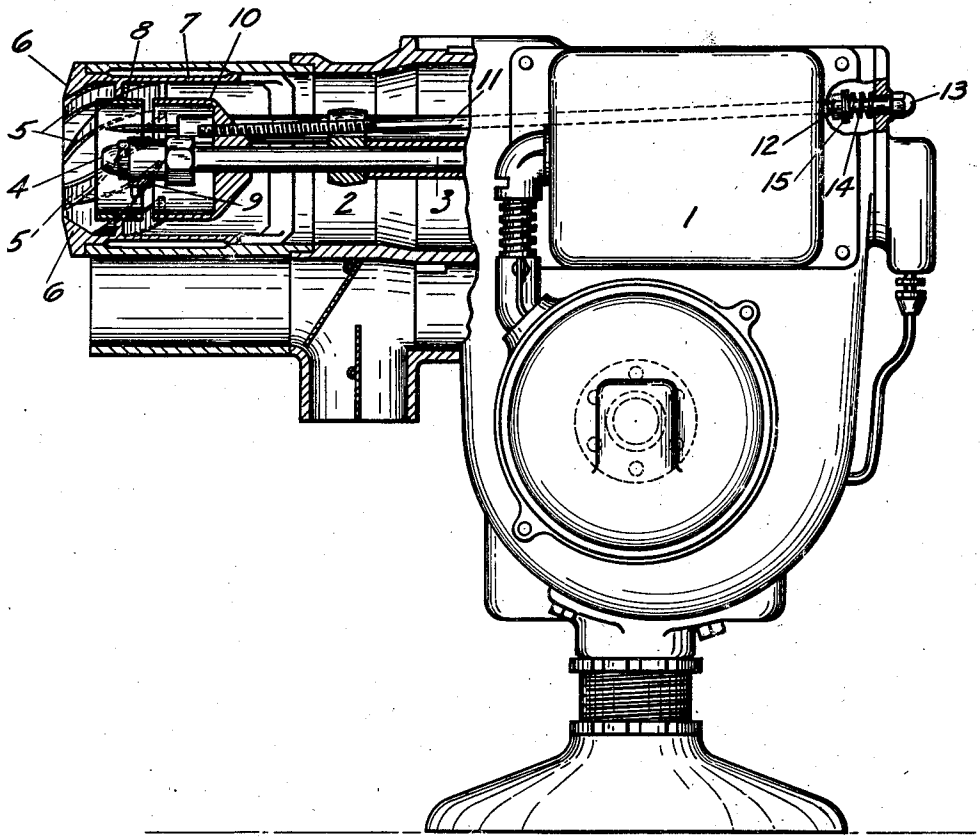
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MEANS FOR ADJUSTING OIL BURNERS FOR LOW CAPACITY BURNING

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MEANS FOR ADJUSTING OIL BURNERS FOR LOW CAPACITY BURNING

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3 Claims. (Cl. 158—76)

The present invention pertains to oil burners and more particularly to the art and apparatus for operating an oil burner at low capacity.

Among the objects of this invention are the provision of means in an oil burner such that the burner can be set to operate so as to burn a small quantity of oil and yet the same will be burned efficiently; to provide means for readily adjusting the amount of air which is permitted to circulate around the oil burner nozzle so that the proper amount of oxygen will be delivered to the oil fed by the burner to produce proper combustion; to provide a novel mode of adjusting the feed of the air around the oil burner nozzle; and such further objects, advantages, and capabilities as will hereafter appear and as are inherent in the construction disclosed herein. My invention further resides in the combination, construction, and arrangement of parts illustrated in the accompanying drawing and, while I have shown therein what is now regarded as the preferred embodiment of this invention, I desire the same to be understood as illustrative only and not to be interpreted in a limiting sense.

The annexed drawing represents, in elevation, an oil burner, partly broken away and in section, embodying my present invention.

Reference will now be made in greater detail to the annexed drawing for a more complete disclosure of this invention. The right hand portion of the figure shows conventionally an oil burner designated in general by the numeral 1. The damper mechanism of this burner is similar to that shown in my Patent No. 2,078,884, issued April 27, 1937. The air-carrying tube is indicated at 2 and the fuel-carrying tube at 3. At the forward end of the fuel tube 3 is located the nozzle 4, as is customary in this art. A plurality of helical vanes 5 is located in the forward end of the air-carrying tube 2, and this tube is provided at its forward end with an inwardly tapering ring 6 which forms a constriction at the forward end of the air tube whereby to produce greater turbulence of the mixture of air and oil so that the mixture will burn more readily. By preference, the vanes 5 and the means 6 for producing the constriction are not formed directly upon the air-carrying tube 2 but constitute parts of an insert 7 in the form of a sleeve which is slipped or screwed into the end section of the tube 2.

The inner edges of the vanes 5 define a cylindrical opening into which is fitted closely a sleeve 8. This sleeve fits closely enough so that it will not readily slide out of place. A ring-like band 9 surrounds the nozzle 4 and is provided with arms which extend outwardly into engagement with the inner surface of the sleeve 8 to position and support the nozzle 4 substantially axially with relation to the outlet of the air tube. A cup-like air-flow regulating member 10 is mounted slidably on the tube 3 and may be adjusted longitudinally of this tube by means of the rod 11 which has screw-threaded connection at one of its ends with member 10 and is held in position in the burner casing, at its opposite end, by means of the nuts 12 and 13 and the spring 14. A washer or washers 15 are interposed between the nut 12 and the spring 14. As the rod 11 is rotated, it turns into or withdraws from the member 10 and, being held fixed at its opposite end, it causes movement of the member 10. By means of this adjustment, the space between the elements 8 and 10 may be adjusted to regulate the amount of air passing between these members so as to adapt it to the amount of fuel passing through the nozzle 4. In this way, the supply of air can be adjusted so that there will be just enough passing through the sleeve 8 and around the nozzle 4 to combine properly with the fuel preparatory to its being mixed with the main air supply passing between the helical vanes 5. Also, varying the spacing between the elements 8 and 10 varies the air-carrying capacity in the vicinity of the forward end of the tube 2 and therefore varies the velocity of the air in the vicinity of the nozzle, thus making it possible to adjust the air discharge in accordance with the amount of oil being consumed. Furthermore, this mechanism makes possible the adjustment desired during the operation of the burner; hence, it is easy to secure the desired adjustment under operating conditions.

It will of course be understood that the specific description of structure set forth above may be departed from without departing from the spirit of this invention as set forth in this specification and the appended claims.

Having now described my invention, I claim:

1. In a low capacity oil burner comprising an air carrying conduit, a fuel tube extending longitudinally inside said conduit, said fuel tube having a fuel nozzle located at its forward end adjacent the air outlet end of said conduit, a cylindrical ring inside and spaced from said air conduit substantially concentric with respect to the axis of said nozzle with the forward end of said nozzle approximately in the plane of the forward edge of said ring, the rear edge of the ring being substantially rearward of the forward

end of said nozzle and being forward of the rear end of said nozzle, and a member slidable along said fuel tube to a position engaging said ring to prevent air from passing through said ring and adjustable to positions spaced from said ring to allow air to pass between said ring and said member.

2. In a low capacity oil burner comprising a structure as defined in claim 1, a plurality of spiral baffles between said ring and said conduit.

3. In a low capacity oil burner comprising a structure as defined in claim 1, means in engagement with said member and extending therefrom to a position outside said conduit for adjusting said member along said fuel tube with the burner in assembled position.

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