

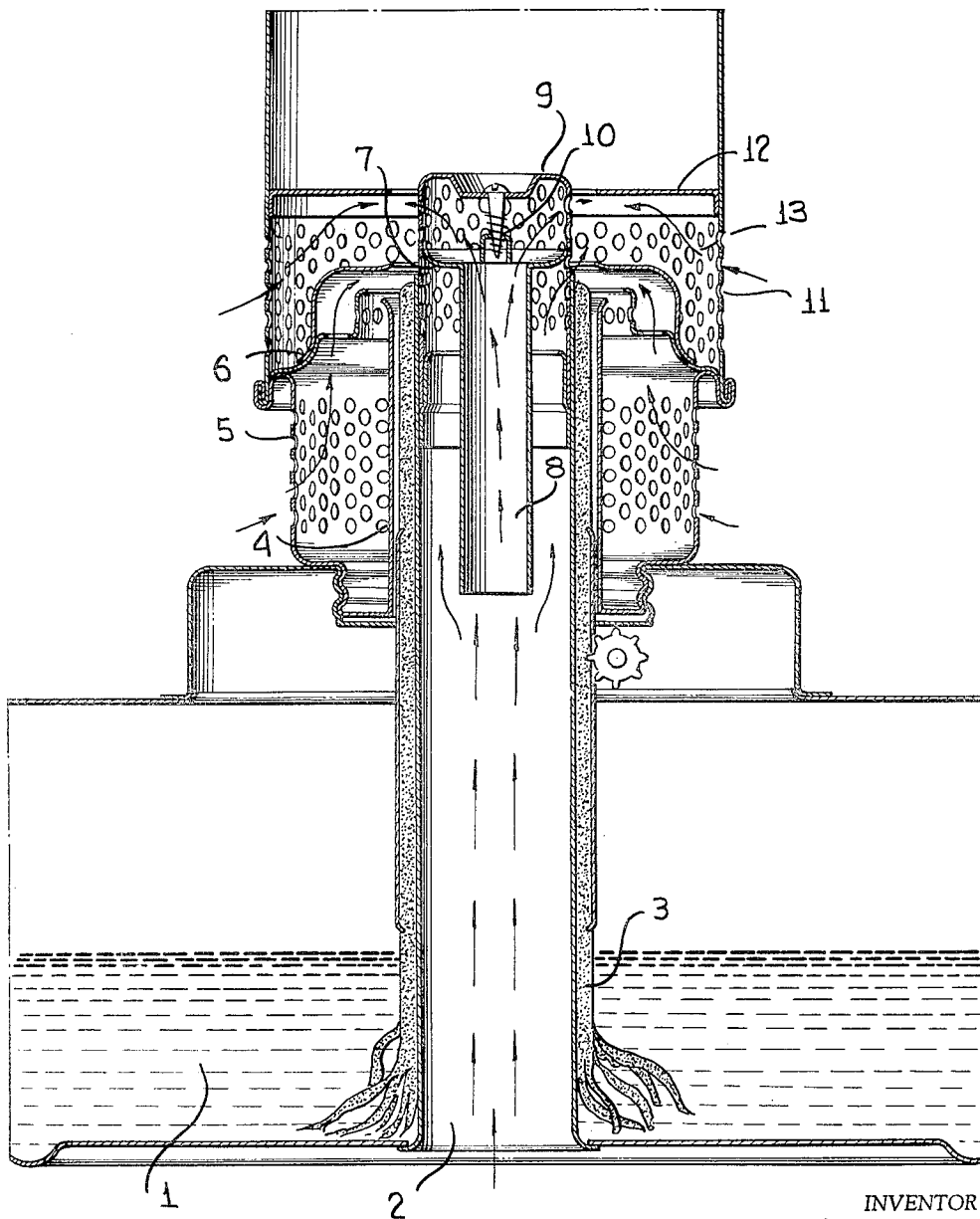
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LIQUID FUEL BURNER OR STOVE

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LIQUID FUEL BURNER OR STOVE

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1 Claim. (Cl. 158—94)

This invention relates to a liquid fuel burner or stove and has for its object the provision of a burner having a higher combustion efficiency than existing forms of burners and which results in a more stable and complete combustion of the liquid fuel, preferably paraffin.

Another object of the invention is to provide a burner in which combustion can be increased to bring about a quicker heating of rooms and the like.

A still further object of the invention is the provision of a burner which reduces the risk of explosion of the liquid fuel by bringing about a cooling of the combustion means and which automatically gives an audible warning when the combustion capacity has been increased too much.

According to the present invention there is provided a liquid fuel burner or stove of the type comprising a fuel tank provided with an air channel for the supply of primary air for combustion, the wall of said channel on its outer side being partially enclosed by an axially displaceable cylindrical wick, the lower end of which is in contact with the liquid fuel and the upper end of which encloses partially a sleeve provided at the upper end of the channel, and through which primary air is conveyed through said sleeve to the upper end of the wick, said sleeve being enclosed by a cap for receiving a supply of additional primary air which is fed thereto through a perforated air inlet member, and which is characterised in that said burner is formed or fitted with a central, open ended tube extending into said air channel, and that an additional sleeve to which secondary air is conveyed through the open-ended tube is rigidly or detachably provided above said first mentioned sleeve, said upper sleeve and said cap being surrounded by a perforated outer jacket for supplying additional secondary air to said upper sleeve, whereby a subsequent chamber is formed between said outer jacket and said upper sleeve in order to promote a high combustion capacity and a complete combustion of the fuel gases produced.

A preferred embodiment of the invention will now be described by way of example with reference to the accompanying drawing, in which the single view illustrates the burner in vertical section.

Referring to the drawing, the numeral 1 designates the fuel tank through which an air channel 2 for the supply of primary air extends. The air channel 2, consisting of a tube, extends above the upper surface of the fuel tank 1 and is encircled by a cylindrical and axially displaceable wick 3, which is in turn encircled by a wick sleeve 4 provided at the upper side of the tank. The wick sleeve 4 is partly accommodated in a perforated air chamber 5, which surrounds the sleeve 4 and to which a cap 6 can be fastened. A foraminous sleeve 7 is detachably mounted at the upper end of the extended air channel 2. The sleeve 7 is provided with a central, open-ended tube 8 extending into the air channel 2. An upper foraminous member 9, which is mounted on the upper side of sleeve 7, is fastened by means of a screw or the like to a carrier 10, which is fixed on the sleeve 7 above the tube 8, so that the upper foraminous member 9 is centrally guided relative to the sleeve 7. Outside the cap 6 is a cylindrical, perforated outer jacket 11 provided on its inside with a fixed sheet metal air-deflecting ring 12,

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which is located horizontally and approximately on a level with the upper foraminous member 9, so that a subsequent or second fuel burning chamber 13 is formed between the upper member 9 and the outer jacket 11. The air channel 2 need not pass completely through the fuel tank 1, as primary air can be let into the channel 2 through separate channels or air intakes.

The burner or stove functions as follows:

Liquid fuel passes to the upper rim of the wick 3 and is gasified under influence of primary air from the channel 2, and the gases formed are ignited and receive an additional supply of primary air through the air chamber 5.

The upper member 9 in combination with the outer jacket 11, forms a second and subsequent burning chamber 13, in which a vacuum is produced by the heat from the flame. This vacuum causes a powerful suction of secondary air through the upper member 9 and additional secondary air through the outer jacket 11. The flame is, as a consequence, sucked into the chamber 13, where it receives a large supply of oxygen, and this brings about an efficient and complete combustion. The burner or stove causes a considerable increase of the combustion capacity, and so also of the fuel consumption, but the more complete and stable combustion obtained results in a reduction of the fuel consumption in relation to the heat generated as compared with known stoves.

The apparatus involves the two burners 7 and 9 being arranged one above the other, the lower burner 7 being substantially used for the production of unburnt gases, while the upper burner 9 contributes in burning these gases in the combustion chamber.

If the combustion in the combustion chamber 13 exceeds the allowed maximum combustion during ignition, a buzzing sound is produced, the strength of which depends on how much the maximum is exceeded. This sound thus serves as an audible warning signal, and the combustion can be reduced to the allowed maximum by turning the wick 3 down, whereupon the sound stops.

Due to the large throughflow of primary air, and secondary air as well, the parts of the burner or stove and the fuel are cooled, so that the risk of overheating is eliminated and thus also the risk of explosion.

Due to the stable consumption caused by the burner an approximately immeasurable CO is obtained even when the wick 3 is badly cleaned, since the main consumption takes place in the combustion chamber 13, into which the wick 3 does not reach.

The burner or stove according to the invention also has the advantage that the flame is extinguished automatically if the wick 3 is turned up too far. In known arrangements the combustion is not complete when the wick stands too high and this causes an ample development of uncombusted gases containing large quantities of CO.

If the wick in the burner according to this invention stands too high, the flame is extinguished automatically because the wick in a too high position cuts off the air currents to the lower sleeve 7, so that the secondary air is concentrated to the upper sleeve. In consequence of this the air draught becomes so strong that it blows out the flame.

Thus, the wick 3 cannot cause any development of smoke whatever position it assumes.

What I claim is:

A liquid fuel burner or stove comprising, a fuel tank provided with an air channel for the supply of primary air for combustion, said channel having a wall provided on its outer surface with an axially-adjustable cylindrical wick, the lower end of said wick being in contact with liquid fuel contained in the tank, a foraminous sleeve provided at the upper end of the channel and par-

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tially enclosed thereby, primary air being conveyed through said sleeve to the upper end of the wick, a cap encircling the sleeve to feed additional primary air under the cap to the upper end of the wick, a perforated air chamber located between the tank and the cap and supporting the cap and through which said additional primary air is fed, a central, open-ended tube extending downwardly within the air channel, an additional foraminous sleeve mounted over the first-mentioned foraminous sleeve and constituting an upward extension thereof, the first foraminous sleeve containing a cross piece, the second foraminous sleeve having a closed top and a fastening element extending through the top to engage the cross piece, said second foraminous tube being in communication with the central open-ended tube to feed secondary air over the cap, said second foraminous sleeve and the cap being surrounded by a perforated jack-

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et having an internal, horizontally-arranged air-deflecting ring for supplying and directing additional secondary air over the cap whereby a subsequent burning chamber is formed between said jacket and the second foraminous sleeve in order to promote a high combustion capacity and a complete combustion of the produced fuel gases.

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