June 16, 1925. 1,542,326

G. SAWYER

OIL BURNER

Filed Dec. 3, 1923

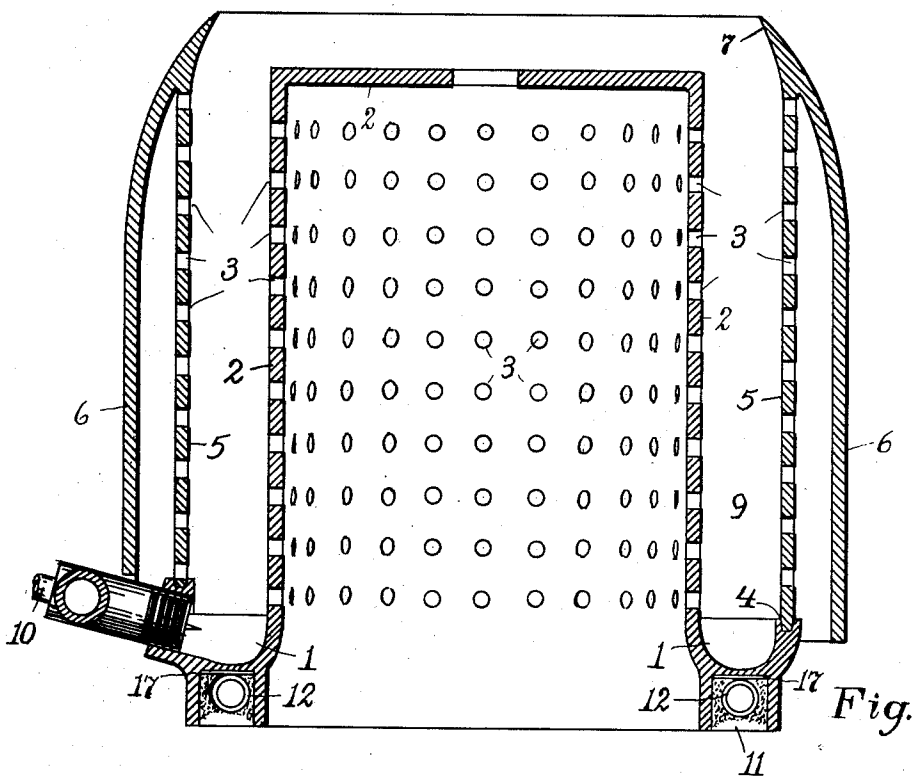


Fig. 1

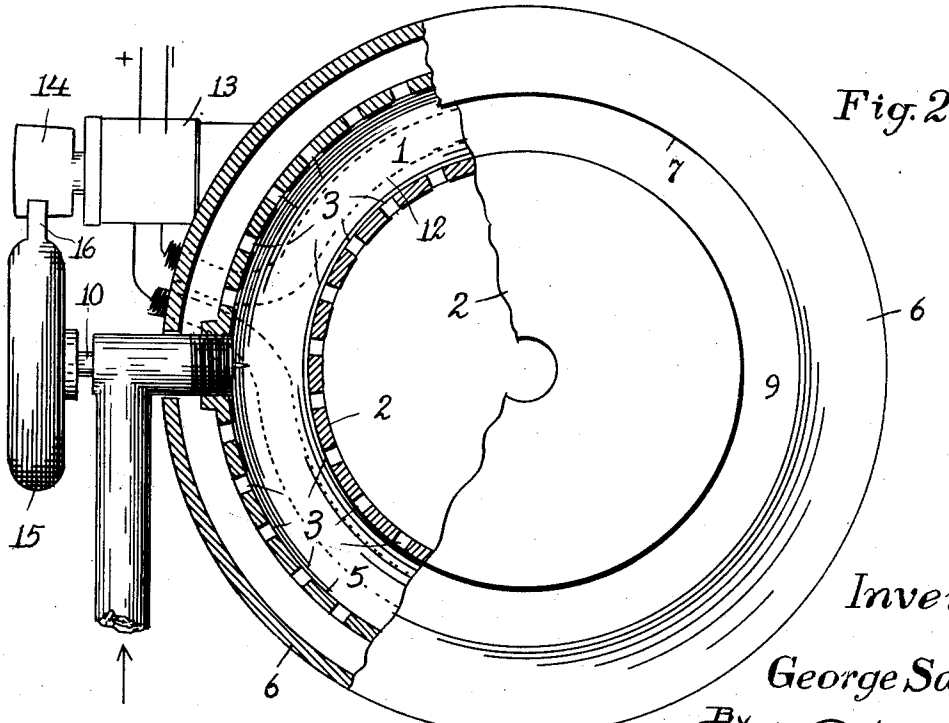


Fig. 2

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UNITED STATES PATENT OFFICE.

GEORGE SAWYER, OF ATLANTIC, MASSACHUSETTS.

OIL BURNER.

Application filed December 3, 1923. Serial No. 678,137.

To all whom it may concern:

Be it known that I, GEORGE SAWYER, a citizen of the United States, and a resident of Atlantic, in the county of Norfolk, Commonwealth of Massachusetts, have invented certain new and useful Improvements in Oil Burners, of which the following is a full and exact specification.

The objects of this invention, are, first, to simplify and render more efficient the burner itself, and, second, to provide means whereby the fuel oil therefor cannot be turned on without a previous heating of the burner.

In the accomplishment of these objects I provide an electric heating means located directly beneath and in close contact with the oil receiving channel, and so arrange the switch therefor that the oil cannot be turned on until after the switch has been made to cut in the heating current.

In the drawings forming part of this specification, Fig. 1 is a central vertical section of a burner embodying my improvements. Fig. 2 is a plan view of the same partly in section.

The burner comprises an annular oil receiving channel 1 at the base of and surrounding an air dome 2. Through the side walls of this dome are numerous perforations 3 for the purpose of admitting air from within the dome to the space above the channel 1. In the outer edge of the channel is an annular groove 4 for receiving the lower edge of a shell 5 also having perforations 3 through it; and integral with this shell is a jacket 6 spaced therefrom and having its lower edge at about the level of that of the shell 5 but open thereat in order to admit air to the perforations in this shell. The upper edge 7 of the jacket 6 is curved inward somewhat in order to concentrate the flame.

Thus constructed, an annular moat 9 with the channel 1 as its bottom, is formed about the dome 2, into which the fuel oil is admitted through a suitable valve, as the needle valve 10.

Beneath the channel 1 is an annular groove 11 designed to contain the electric heater element comprising a resistance helix 12. The ends of this helix are shown in Fig. 2 as emerging from the groove 11 near the needle valve 10, and are connected through a switch 13 with a suitable source of current. This switch is of any well known form, but is preferably one operated by a switch button 14 which is flat. The hand-piece 15 of the valve is provided with a radial lug 16 disposed to come against the flat surface of the button 14 when the latter is in its cut-out position. Hence when the valve is turned the lug 16 will not pass the button 14 until after the latter has been manipulated to cut the current into the helix 12.

I prefer to place a thin ring of mica 17 between the helix 12 and the floor of the channel 1, such floor being made very thin to enable the heat to strike through quickly. The helix being put into contact with the mica, it is secured in place in any suitable way, but preferably by means of silicate of soda.

The operation of this burner is as follows: The switch button 14 having been turned to admit current to the helix 12, the channel floor in a moment or two is rendered red hot; and the hand-piece 15 can be turned to permit a stream of oil to the channel. This oil instantly ignites, and as the flame rises throughout the moat 9, air is drawn in through the perforations 3 both of the dome 2 and of the shell 5, and, by its union with the flaming hydrocarbon, renders the combustion practically perfect, so that not only is a maximum of heat obtained for the oil consumed, but there will be no unpleasant or injurious gases emitted therefrom.

The purpose of the jacket 6 is to supply the air in as heated a condition as possible to the perforations 3 of the shell 5; a like function being performed by having the dome 2 nearly closed at its top.

As soon as the oil is burning satisfactorily, the current is switched off from the helix 12. When through with the burner, the switch button 14 must be turned for a moment to permit the hand-piece 15 to be rotated for closing the valve 10, but as soon as closed the button 14 is to be turned off again.

What I claim as my invention is:

A burner comprising a shallow moat for receiving the fuel to be consumed, said moat having a concave bottom made very thin at its lowermost section, and an electrically heated helix supported close to said thin section but beneath the same and insulated electrically therefrom, whereby the oil fed into said moat is ignited along said concave thin section of the same.

In testimony that I claim the foregoing invention, I have hereunto set my hand this 30th day of November, 1923.

GEORGE SAWYER.