

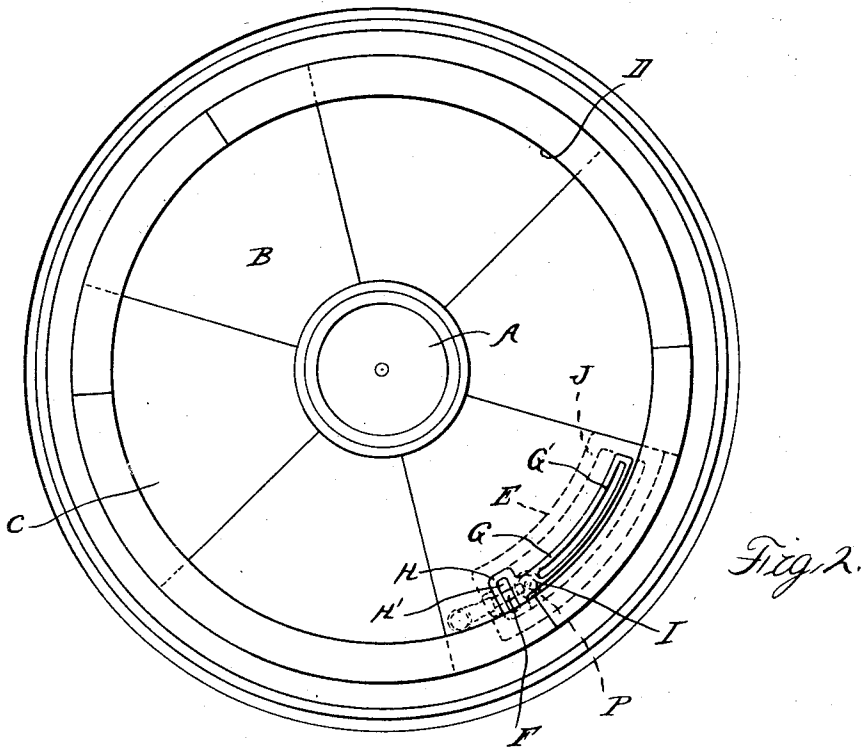
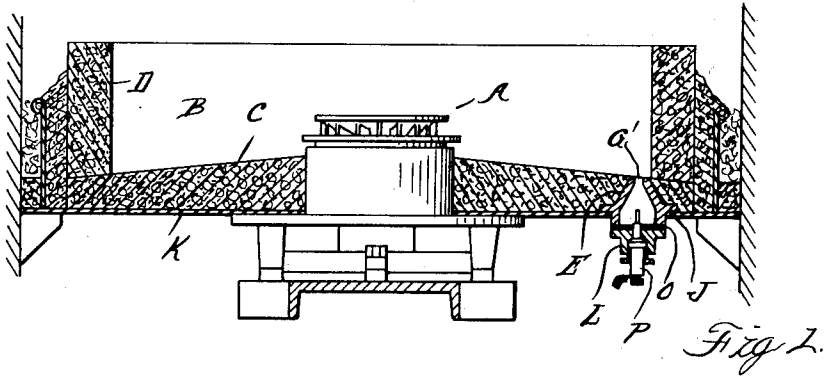
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C. F. WARRICK
IGNITER FOR OIL BURNERS

Filed Oct. 18, 1926

2 Sheets-Sheet 1



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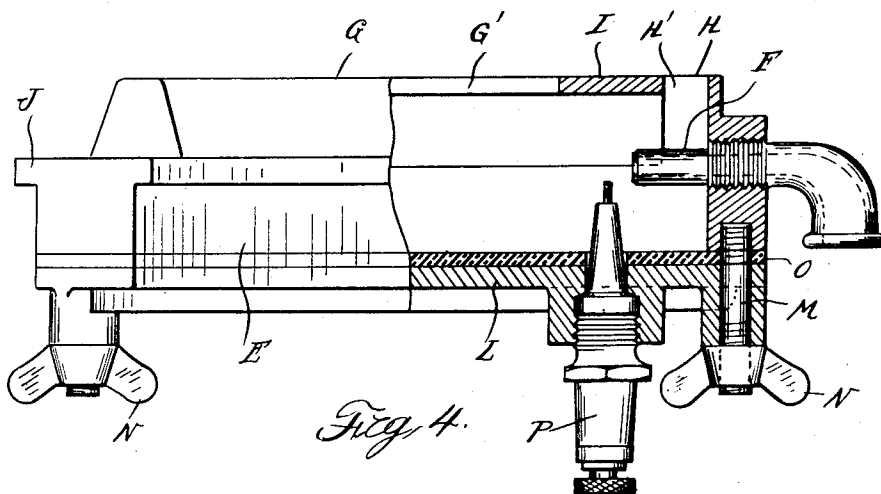
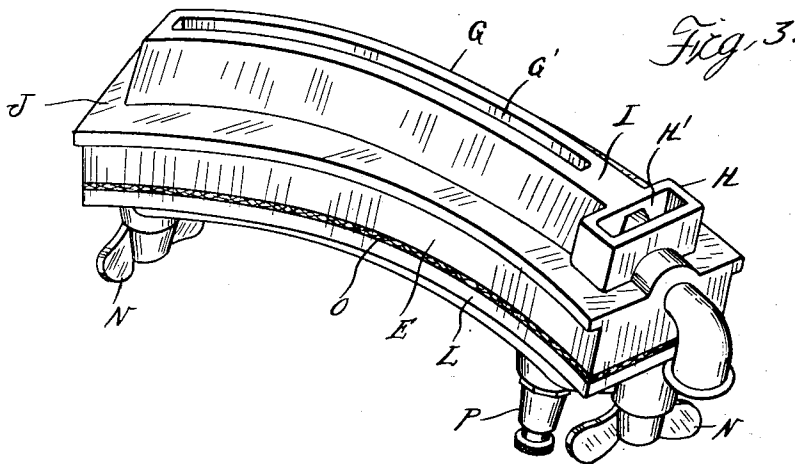
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UNITED STATES PATENT OFFICE

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IGNITER FOR OIL BURNERS.

Application filed October 18, 1926. Serial No. 142,485.

The invention relates to oil burners of that type in which liquid fuel is sprayed radially outward from a rotary burner and is simultaneously commingled with a current of air. With such burners it is difficult to ignite the mixture without preheating of the apparatus and it is therefore customary to provide a gas burner for starting. It is also desirable to provide means for igniting the gas such as an electric spark plug. However, neither the gas burner nor the spark plug should be so arranged as to interfere with the operation of the oil burner and they must also be protected from scale or carbon deposits which might interfere with proper functioning.

My improved construction of igniter avoids on one hand any obstruction in the fire-pot to the operation of the oil burner and on the other hand is itself protected from injury. Also the construction is such as to provide easy access for cleaning or for removal or adjustment of the spark plug.

In the drawings;

Figure 1 is a vertical central section through a fire-pot of an oil burner to which my igniter is applied.

Figure 2 is a plan view thereof.

Figure 3 is a perspective view of the igniter detached.

Figure 4 is a sectional side elevation thereof.

A is a rotary oil burner which is surrounded by a fire-pot B having a bottom portion C and a peripheral upwardly extending wall D. My improved igniter comprises a segmental casing E which is imbedded in the bottom C of the fire-pot and has its discharge nozzle extending a slight distance above said bottom. The body of the casing E forms a mixing chamber for gas and air, the gas being introduced by a jet tube F entering one end thereof. The upper portion is of a conical form in cross section terminating in a comparatively narrow segmental nozzle G having the segmental slot G' therein. At the end at which the jet tube F is located the nozzle is enlarged in width as indicated at H and is provided with a transverse slot H' separated from the slot G' by an imperforate portion I. The slot H' forms an air inlet into the chamber in the body of the casing at a point where the air will be commingled with the gas from the jet.

The body of the casing just described is of sufficient depth to extend completely through the bottom C of the fire-pot and is preferably

provided with a laterally extending flange J which rests upon the metallic plate K supporting the fire box bottom. Thus the chamber within the body of the casing is always accessible from beneath the fire-pot. L is a cap or bottom closure for the casing which is clamped thereto by means of threaded studs M and wing nuts N. A gasket O of asbestos or other heat insulating material is placed between this bottom closure and the body of the casing to lessen the conduction of heat. P is the spark plug which is mounted in the bottom closure L and which projects upward in the chamber at the point protected at the top by the imperforate portion I.

With the construction as described, in operation, to ignite the burner the gas supply is first turned on either manually or by automatic control means not shown, so that gas is introduced through the jet F into the chamber in the casing E. At the same time the current is applied to the spark plug so that the gas is ignited and will burn with a blue flame projected upward through the narrow segmental slot G'. Air for supplying the necessary oxygen to the flame is drawn downward through the slot H' and is commingled with the gas as it leaves the jet tube. Thus sufficient heat is developed to start the burning of the oil after which the gas is turned off and combustion maintained by oil and air only.

As will be noted, the narrow segmental nozzle G projects but slightly above the bottom wall of the fire-pot but even this slight projection will prevent dust on said bottom wall from entering the slot, also on account of the narrow width of the slot as compared with the size of the chamber beneath, there is little danger of clogging. Should it be necessary at any time to clean the burner, all that is required is to remove the wing nuts N which permits of detaching the bottom closure L. The asbestos gasket limits the heat conduction downward into the bottom closure and thus facilitates its easy removal. The spark plug is also protected first by the imperforate portion of the casing directly thereabove and second it may at any time be cleaned or adjusted by removing the closure L.

What I claim as my invention is:

1. The combination with an oil burner and a fire-pot in which said burner is placed, of an igniter comprising a casing embedded in the bottom wall of the said fire-pot, said casing

being provided with a narrow slotted nozzle opening upward into the pot and having a bottom closure removable from beneath said pot.

5 2. The combination with an oil burner and a fire-pot in which said burner is located, of an igniter comprising a casing embedded in the bottom of said fire-pot, said casing being provided with a narrow segmental slot opening upward into the pot, and a closure for said casing removable therefrom from beneath the pot, said casing being provided with communicating openings for the admission of gas and air thereinto.

15 3. The combination with an oil burner and a fire-pot in which said burner is located, of an igniter comprising a casing embedded in the bottom of said fire-pot and having a narrow slotted nozzle opening upward into the pot, means for introducing gas into said casing and means for admitting air through the top of said casing into the chamber therein for commingling with said gas.

20 4. The combination with an oil burner and a fire-pot in which said burner is located, of an igniter comprising a casing embedded in the bottom of said fire-pot and having a narrow slotted nozzle opening upward into the pot, a slot for admitting air through the top of said nozzle into said casing, means for introducing gas into said casing to commingle with

the air and a spark plug within said casing for igniting the commingled gas and air.

5. The combination with an oil burner and a fire-pot in which said burner is located, of an igniter comprising a casing embedded in the bottom of said fire-pot and being of an upwardly tapering cross-section, said casing having its upper end provided with a narrow slot opening into the fire-pot, a bottom closure for said casing, and means for detachably securing said bottom closure to said casing, said casing being provided with communicating openings for the introduction of gas and air thereinto.

6. The combination with an oil burner and a fire-pot in which said burner is located, of an igniter comprising a segmental casing embedded in the bottom of said fire-pot and having a narrow segmental slotted nozzle projecting upward into said pot, a gas jet entering one end of said casing, said casing being provided with a transversely extending slot for admitting air from said fire-pot into said casing to commingle with the gas, a detachable bottom closure for said casing removable from beneath the fire-pot and a spark plug mounted on said closure normally projecting upward into said casing adjacent the gas jet.

In testimony whereof I affix my signature.

CHAS. F. WARRICK.