J. A. GUERIN.

OIL BURNER.

APPLICATION FILED AUG. 28, 1916.

1,225,242. Patented May 8, 1917.

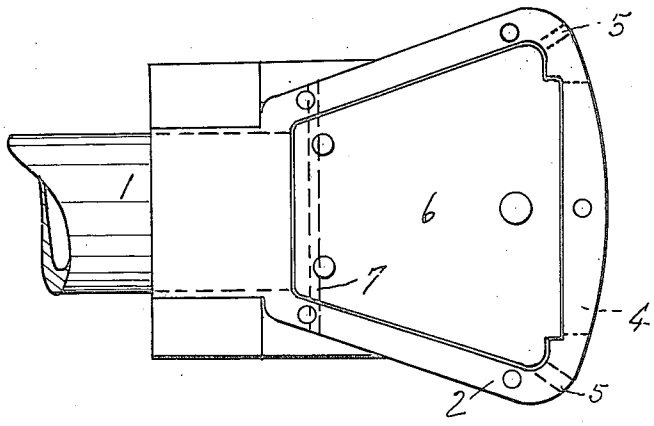


Fig. 1.

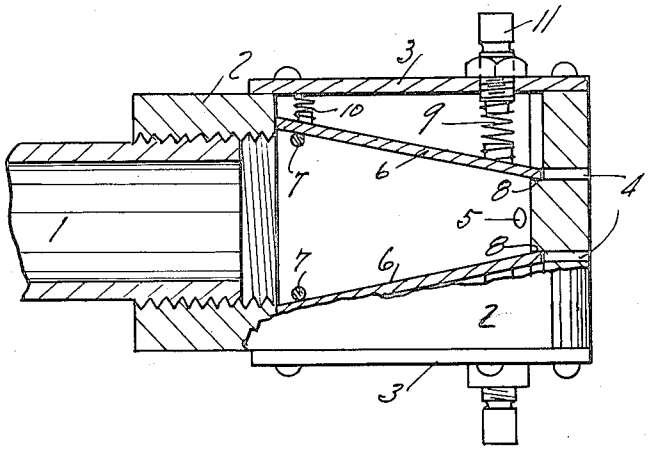


Fig. 2.

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OIL-BURNER.

1,225,242. Specification of Letters Patent. Patented May 8, 1917.

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To all whom it may concern:

Be it known that I, JOSEPH A. GUERIN, a citizen of the United States, and a resident of Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Oil-Burners, of which the following is a full, true, and exact specification.

My invention relates to oil burners and more particularly to burner heads and has for its principal object; to provide an improved and novel burner head which automatically adjusts the spray openings in proportion to the amount or pressure of the oil mixture. In oil burning systems it is common practice to force a mixture of oil and air or oil and steam under pressure through a burner head or nozzle before reaching the combustion chamber. It is also common practice in such systems that the feeding of oil and steam automatically controls so that when a certain pressure of steam is reached the supply of oil mixture is greatly reduced. When the supply of oil mixture is reduced the pressure is materially reduced also, with the result that the small amount of oil flowing instead of being sprayed from the head is allowed to run from the head and is therefore not broken up as it should be for combustion purposes. The burning of oil which has not been properly atomized results in the formation of much smoke and the carrying over of unconsumed carbon which is deposited in the tubes of the boiler or other apparatus beneath which the oil burner is operated and further materially increases the smoke nuisance. My device is designed with means for closing most of the outlet ports when the oil supply is reduced with the result that the available port opening is in proportion to the amount of oil flow so that instead of flowing sluggishly from the ports it is sprayed from a reduced port. This results in the small amount of oil being as perfectly atomized as the greater amount and thereby obviates the imperfect combustion of the oil.

Other objects will appear as my invention is more fully explained in the following specification, illustrated in the accompanying drawings and pointed out in the appended claims.

In the drawings Figure 1 is a plan view of my device with the cover removed. Fig. 2 is a side cross sectional elevation of same with the cover in place.

Referring more particularly to the drawings, numeral 1 indicates an oil mixture supply pipe to the end of which is secured a burner head casting 2. The head casting is chambered from side to side so as to form a hollow head. Cover plates 3 close the chambered head on either side. The front of the head casting which is preferably arc shaped, is provided with one or more parallel slotted ports 4 through which the oil mixture is normally sprayed. Auxiliary oil ports 5 are provided intermediate the said slotted ports 4. Flap valves 6 are set in the chambered ports of head casting 2 and have their rear ends supported on pins 7 while the front ends normally rest against ledges 8 which are on line with the inner edge of ports 4. The valves 6 normally are convergently placed with respect to each other and are of such thickness as to completely close the ports 4. Springs 9 and 10 retain the valves 6 in closed position normally. A permissible amount of operating of the valve 6 may be controlled by adjusting the tension of springs 9. When the flow of oil mixture enters the head beyond the valve 6 the pressure of the mixture will be sufficient to open the valves with respect to the ports 4 and allow the mixture to spray through the said ports. Oil will also be sprayed through the ports 5 under this condition. When the supply and pressure of oil mixture is materially reduced, the springs 9 will be sufficient to close the valves 6 with respect to the ports 4, thereby leaving only auxiliary ports 5 uncovered. The size of ports 5 is sufficient to allow the reduced amount of oil mixture to spray through them with sufficient pressure to atomize the oil.

While I have shown a particular form of embodiment of my invention, I am aware that many minor changes therein will readily suggest themselves to others skilled in the art without departing from the spirit and scope of the invention, and I therefore desire to avoid being limited to the exact form shown and described.

Having described my invention, what I claim as new and desire to protect by Letters Patent, is—

1. In an oil burner head which includes a chambered and ported head casting, the combination of automatic pressure actuated port closing flap valves pivotally mounted within said head, whereby when the supply and pressure of oil mixture is reduced the ports

are automatically closed, and auxiliary ports in said head which are independent of said valves.

2. In a device of the class described, the combination of a ported and chambered burner head, port closing flap valves mounted within said head and normally closing the said ports, adjustable spring means for retaining said valves in a closed position, whereby the pressure necessary to open said valves may be regulated, and auxiliary ports cut in said head, whereby when the pressure and quantity of fuel mixture is reduced to such an extent that the said valves are in a closed position, the reduced amount of fuel mixture will pass through the auxiliary ports with sufficient pressure to atomize the fuel.

3. An automatic pressure regulated oil burner head comprising a cored casting open at either side, cover plates for said openings, slotted ports in the front of said head, flap valves loosely pivoted adjacent the back of said head chamber and normally closing said ports and dividing the said chamber into three separate compartments, auxiliary ports in said head intermediate of said flap valves, and adjustable spring means for normally holding said valves in normal position.

JOSEPH A. GUERIN.