

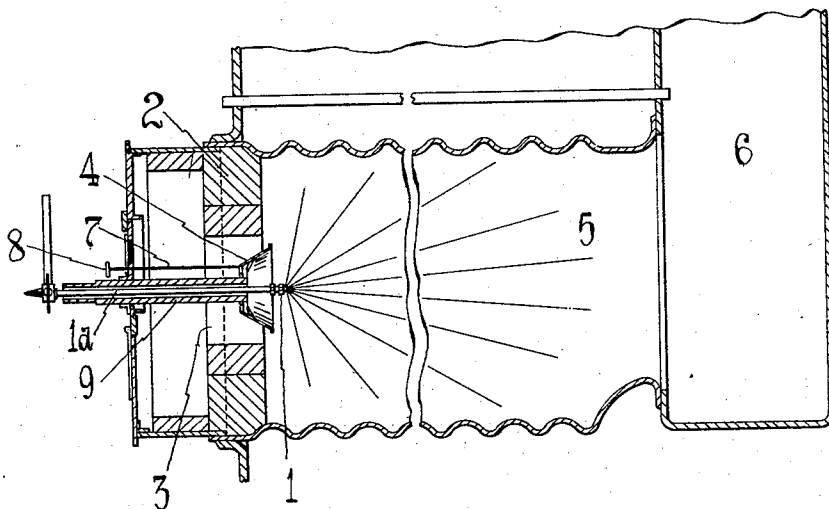
May 10, 1932.

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1,857,697

OIL BURNING APPARATUS FOR STEAM BOILERS

Filed July 10, 1929



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OIL BURNING APPARATUS FOR STEAM BOILERS

Application filed July 10, 1929, Serial No. 377,280, and in New Zealand August 3, 1928.

This invention relates to boilers wherein crude oil is used as the fuel for raising steam, and more particularly it relates to the apparatus for controlling the admission of air for supporting combustion, to the distribution of the air in the furnace, and to the arrangement of the burner in the furnace.

Prior to the present invention, discs or cones have been used for regulating the supply of air to the furnace of a boiler, and no claim is made to the use of such discs or cones, broadly.

It is desirable to spray the oil and to obtain combustion thereof in a furnace.

In order that the oil be delivered under pressure to the burners, it should be heated before it reaches the latter, and it should acquire a rotary motion within the tip of the burner in order to issue from the same as a finely divided spray.

All the above factors are known practice in the utilization of crude oil as a fuel.

The object of the invention, where all of the above factors are present, is to provide for the more efficient utilization of the flame produced, by causing the latter to be extended to a maximum diameter as closely as possible to the front of the furnace, in order that an increased area of the furnace will be played on by the flame or be in closer proximity to same, than where known practices of air regulation and control are resorted to.

The invention therefor consists in providing for the regulation and control of the air necessary to support combustion in a furnace, immediately inside the front of the latter, and in order to develop the flame to a maximum diameter as close to the furnace front as possible, provision being made at the same time for enabling the air admission to be regulated outside the furnace front, to facilitate the starting of the burner.

In the accompanying drawing in conjunction with which the invention and the means employed in carrying same out, will be more particularly described, there is represented in longitudinal sectional elevation, a furnace to which the improvements have been applied, 1 being an ordinary oil burner, 2 the brickwork front of the furnace 5, containing the aperture

3 for the admission of air to the furnace, and also for the passage of the disc or cone 4 which surrounds the burner stem, into and from the furnace.

It is known that the flame from the burner 1 will follow the direction of a stream of air, through the furnace, and with the disc or cone 4 located with its periphery just inside the furnace front 2, the air passing in via the aperture 3, and through the furnace 5 to the flue 6, is given a hollow expanding formation, which has the effect of developing the flame to a maximum diameter close to the front 2, instead of driving said flame through the furnace in a stream of comparatively small diameter as occurs when the periphery of the disc or cone 4 is located adjacent the outer edge of the aperture 3.

By distributing the air around the interior of the furnace 5, immediately inside the furnace front 2, so as to extend or develop the flame from the burner 1 to a maximum diameter as near the front 2 of the furnace 5 as possible, increased heat is given directly to a greater area of the furnace walls, besides which the maximum amount of air admitted is utilized, and the intensity of the flame playing on the stay nuts and other parts at the back of the combustion chamber is reduced. Also by distributing the heat around the furnace as described, loss of heat in the smoke stack is avoided as concentration of the heat at the back of the furnace does not occur.

In lighting the burner 1, it is essential that the stream of air shall be concentrated where it passes the burner, and this concentration is obtained, by withdrawing the disc or cone 4 to outside the front 2.

With the burner 1 located in the furnace 5 and the disc or cone 4 advanced into the furnace 5, thorough burning of the oil in the heating area of the furnace is ensured.

The apparatus burns the oil practically without noise, which is proof that the heat is not confined to a limited space in the furnace with consequent loss of heated area of the furnace, but is being utilized to the best advantage. When a cone is employed it may or may not be perforated.

For convenience in adjusting the disc or cone 4, a rod 7 with a handle 8 at its outer end, is attached to said disc or cone which is made slidable on the tube 9 through which
5 the burner stem 1^a passes.

I claim:

An oil burning apparatus comprising a combustion chamber having an opening, an ante-chamber, an oil tube projecting through
10 said opening into said chamber, means for regulating the flow of oil through said tube, a second fixed tube supported by a wall of said ante-chamber surrounding said oil tube,
15 a frusto-conically shaped air deflector sliding on said second tube and manual means secured to said deflector for sliding said deflector within said chamber or entirely out of the same into said ante-chamber.

In testimony whereof I have signed my
20 name to this specification.

HERBERT CAMPBELL SCOTT.

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