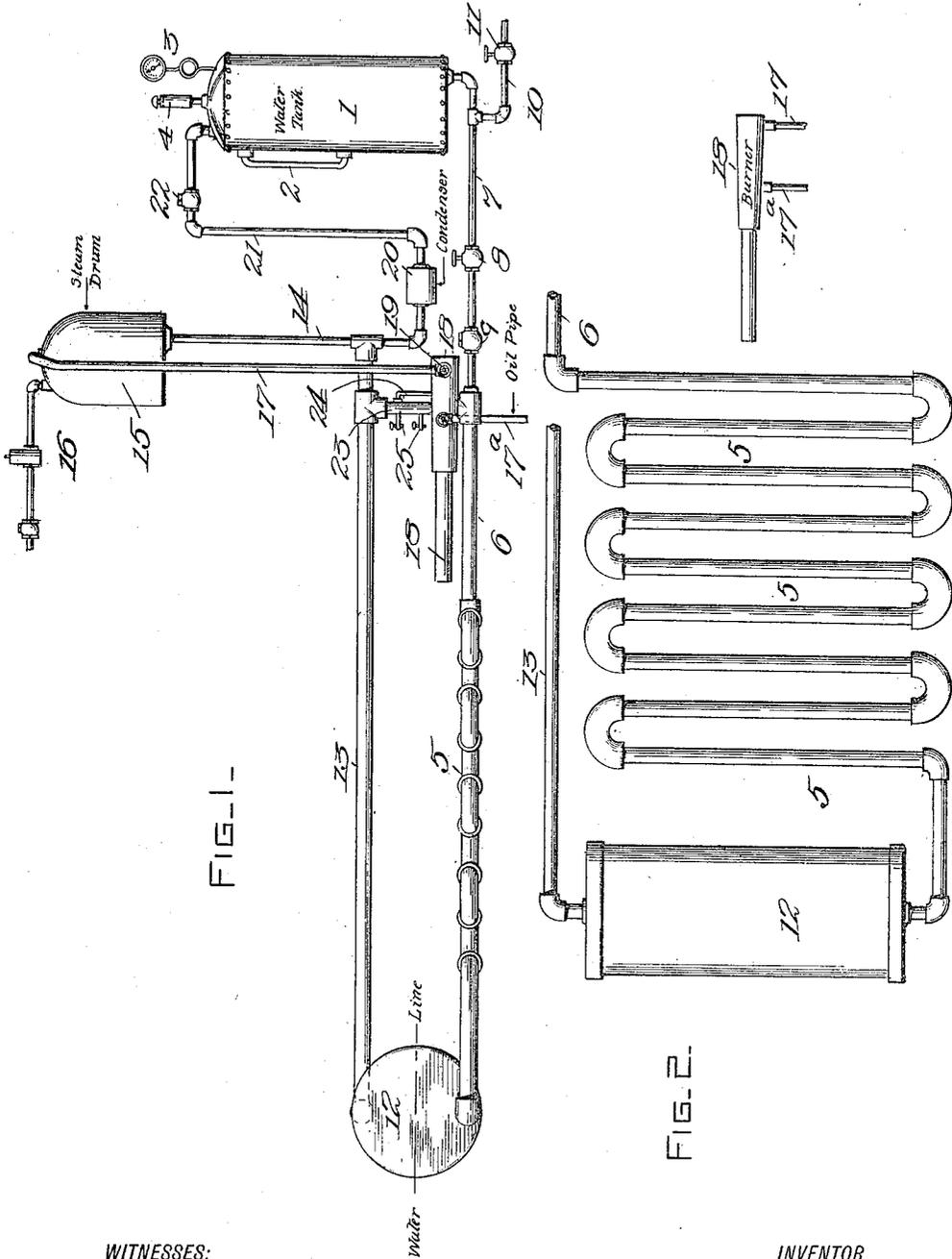


A. D. MARCOTTE.  
 COMBINED OIL BURNER AND STEAM GENERATOR.  
 APPLICATION FILED JAN. 20, 1915.

1,144,221.

Patented June 22, 1915.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

ARTHUR DUNBAR MARCOTTE, OF EUNICE, LOUISIANA.

COMBINED OIL-BURNER AND STEAM-GENERATOR.

1,144,221.

Specification of Letters Patent. Patented June 22, 1915.

Application filed January 20, 1915. Serial No. 3,257.

*To all whom it may concern:*

Be it known that I, ARTHUR D. MARCOTTE, a citizen of the United States, and a resident of Eunice, in the parish of St. Landry and State of Louisiana, have made an Improvement in Combined Oil-Burners and Steam-Generators, of which the following is a specification.

My present invention is an improvement upon the oil-burner for which I have received Letters Patent No. 1,105,357, dated July 28, 1914.

I employ a steam-generating coil which is in practice preferably located upon the grate of any boiler furnace, in which crude oil is used as the fuel. One leg of such coil is connected with a water-supply tank, and the other end with a steam receiver which is in turn connected with a crude-oil burner adapted to atomize and feed oil to the coil. These and other features distinguishing the improved apparatus are hereinafter described, and illustrated in the accompanying drawing, in which,

Figure 1 is a side view of the apparatus. Fig. 2 is a plan view of a portion of the same.

In Fig. 1, the numeral 1 indicates a vertical water tank or holder having a water-gage 2, pressure-gage 3, and a relief, or safety, valve 4.

The numeral 5 indicates a pipe coil arranged in the boiler fire-box (not shown) and over the grate of the same (also not shown). This coil is connected by pipes 6 and 7 with bottom of tank 1 and the pipe 7 is provided with a stop-cock 8 and check valve 9, the latter serving to prevent reflow of water from coil to tank. A water feed-pipe 10 having a stop-valve 11, is connected with said pipe 7 at a point between the tank 1 and valve 8. The outer leg of coil 5 connects with a horizontal drum 12, the connection of same with coil proper 5 being at the bottom and one end of drum, while the opposite end and upper side of the drum are connected by horizontal pipe 13 and vertical pipe 14 with an elevated, conical steam receiver or drum 15. The latter is provided with a valved steam pipe 16, which, in practice, leads to a steam-operated pump (not shown), which is used to resupply the tank or reservoir 1 with water. The pipe 17 leads from the top of the steam receiver 15 to the burner 18, the same being provided with a stop-cock 19, as indicated in Fig. 1.

The burner 18—which may be made as illustrated and described in my aforesaid patent—is arranged above the plane of the coil 5, and hence the flame is discharged therefrom over and upon the coil, as will be readily understood. The vertical pipe 14 is connected at the lower end with a condenser 20, and the latter is in turn connected with top of tank 1, by a pipe 21, the latter being provided with a check-valve 22 to prevent reflow from the tank. The diameter of the condenser is in practice four times greater than that of the pipes connected with it.

An oil-pipe 17<sup>a</sup> connects with the burner, as shown by Figs. 1 and 2. Practically, the two legs of the coil are connected by a pipe 23 which is provided with a glass water gage 24 and a series of water-gage cocks 25, which combination of parts equalizes the distribution of water in the coil and connected parts, and enables the height of water in drum 12 to be readily ascertained at all times.

The general operation of the apparatus may now be understood as follows: The valve 8 is opened so that water from tank 1 flows into the coil 5, and the flow continues until water fills the horizontal water-drum 12 to its middle line, which will be indicated by the glass gage 24 of the vertical pipe, whereupon valve 8 is closed and the apparatus is ready to operate. A fire is started in the furnace in the usual way, and in a few minutes the circulation begins, steam being generated in the coil and drum and passing through the pipes 13 and 14 into the drum or receiver 15, the steam of lowest temperature and water of condensation flowing down through pipe 14, to the condenser 20, and thence to pipe 21 and reentering the tank 1. As soon as the steam pressure is sufficient the steam pipe 17, from top of drum 15 to burner 18, is opened by manipulating the stop-cock 19 and the oil of feed pipe 17<sup>a</sup> is also simultaneously opened by manipulating its valve so that oil and steam are admitted simultaneously to the burner. The oil is atomized by the steam, and the flame heats the coil 5, which operation continues automatically so long as the water-supply suffices. When water is required the valve 11 is opened in feed line 10, which has a check valve therein and connects with the boiler feed pump is kept in motion all the time so as to keep the water at a given height in the

boiler and by the manipulation of the valve 11 the height of the water in tank 1 is kept at a certain height. Putting water in tank 1 does not affect the valve 8 as this is manipulated so as to furnish just the amount of water that the coils consume and keep the water at a certain level at all times.

In practice, the steam receiver or drum 15 is covered with asbestos to prevent radiation of heat.

It will be understood that the steam pipe 16 attached to the drum 15 is also connected with the boiler (not shown), and the relief valve with which it is provided is set at a lower pressure than the safety valve 4 on the boiler, so that, when more steam is generated than is required, it enters the boiler. The check-valve in the pipe 16 obviously prevents back-pressure on the coil. It is to be understood that while the coil is preferably arranged upon its grate it may be located below the same.

What I claim is:—

1. An improved oil burner and steam generator comprising a water-supply pipe, a horizontal pipe-coil adapted to be used in

the fire-box, and pipes connecting its opposite ends with the bottom and top of aforesaid tank, an elevated steam-receiver and the pipes connecting it with said coil and top of water tank, an oil-burner, and pipes connecting it with said steam-receiver, as described.

2. The improved apparatus for the purpose specified consisting of a water tank, an oil burner, a steam generating coil, a water drum adapted to be used in the fire-box of a furnace, a water pipe connecting the bottom of the water tank with the lower leg of the coil and provided with check and stop valves, and a steam-receiver 15, steam pipes 13 and 14 connecting such receiver with the upper leg of coil, and the pipe 23 connecting the steam pipe with the water feed, the pipe 21 connecting the steam pipe 14 with the top of the water-tank, and a pipe 17 connecting the said steam-receiver with the burner, as described.

ARTHUR DUNBAR MARCOTTE.

Witnesses:

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THEODORE GUIDRY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."