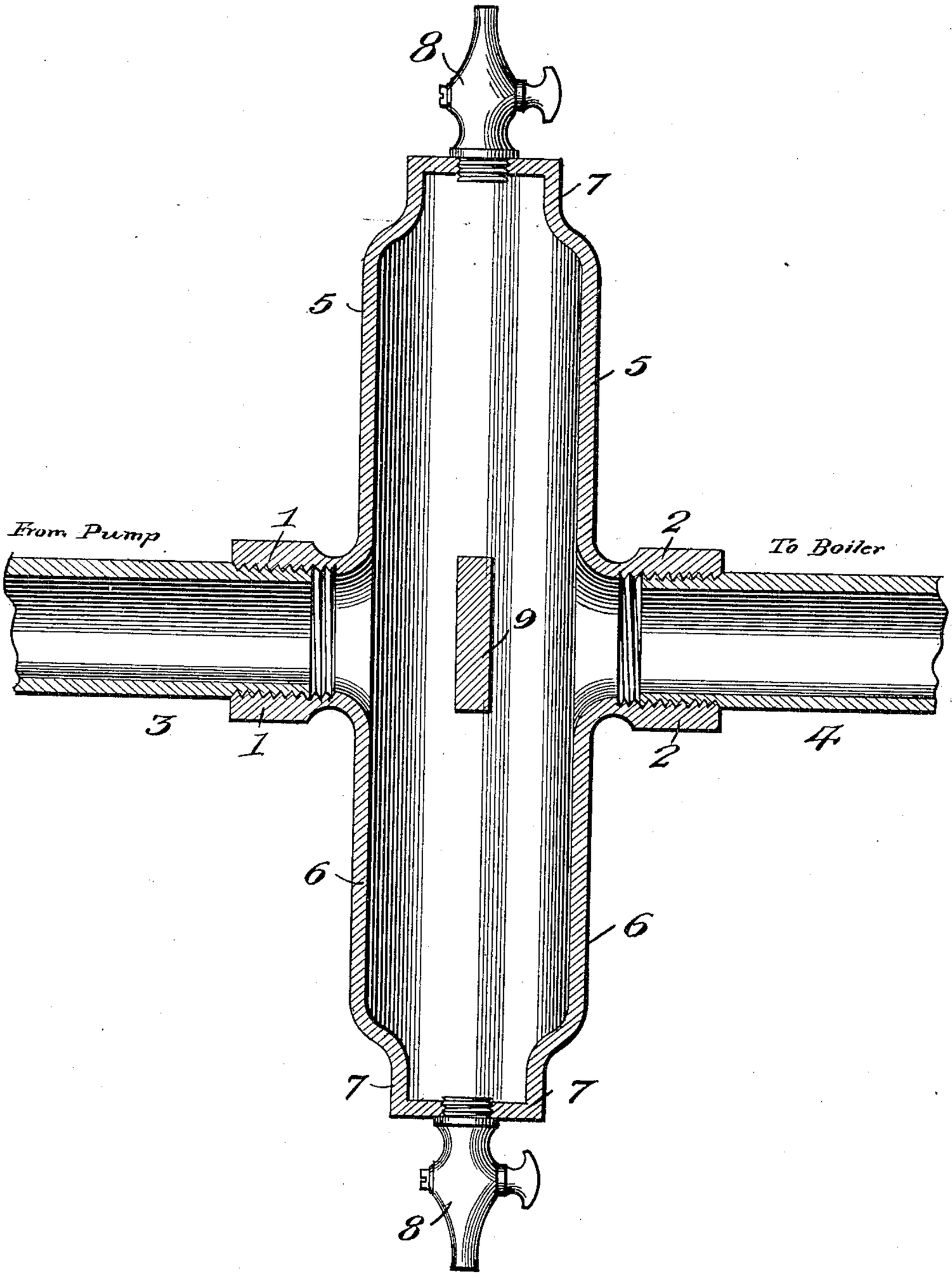
No. 825,807. PATENTED JULY 10, 1906.

E. J. CLARKE.

OIL TRAP.

APPLICATION FILED JAN. 15, 1906.



Witnesses

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OIL-TRAP.

No. 825,807. Specification of Letters Patent. Patented July 10, 1906.

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To all whom it may concern:

Be it known that I, EDWARD J. CLARKE, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented new and useful Improvements in Oil-Traps, of which the following is a specification.

This invention relates to oil-traps for steam-boilers and the like, the object of the invention being to provide a simple and effective device for separating the oil from the feed-water in the feed-line between the pump and boiler.

It is well understood that oil is carried to a greater or less extent along with the steam where the exhaust is used for heating and drying purposes, also where an open exhaust-heater is in use, and if the condensation which represents good hot feed-water is returned to the boiler, as is the common practice, more or less trouble is experienced by such oil coating the surfaces of the boiler with which it comes in contact with a liability of causing overheating of the same.

It has been found in practice that an oil-separator located in the exhaust-line is ineffective, due to the fact that the temperature is too high. A comparatively low temperature must be taken advantage of in order to effect a practical separation of the oil from the water.

The aim of the present invention is to overcome the difficulties above stated; and to this end the invention consists in an oil trap or separator embodying the novel construction, combination, and arrangement hereinafter fully described, illustrated, and claimed.

In the accompanying drawing I have illustrated a central sectional view of an oil-trap embodying the present invention.

The oil-trap contemplated in this invention is in the nature of a cross-fitting associated with the feed-water pipe and located therein between the pump and boiler. The body of the trap is for the sake of convenience and economy of manufacture made in the form of a hollow cylinder or a section of tubing provided about centrally with diametrically opposite inlet and outlet nozzles 1 and 2, the nozzle 1 receiving the section 3 of the pipe coming from the pump and the nozzle 2 receiving the section 4 of the same pipe leading to the boiler. By said arrangement of inlet and outlet nozzles the trap extends to opposite sides of the line of the pipe 3 4, and may thus be said to comprise upper and lower legs 5 and 6, respectively. These legs are identical, and each has a constricted outer end 7, which is closed with the exception of a threaded opening into which a petcock 8 is fitted.

Directly in line with the nozzles 1 and 2 and arranged centrally of the trap is a baffle 9 of a width equal to or greater than the internal diameter of the feed-water pipe, so as to arrest the current of feed-water and oil in its passage through the trap.

It will be understood that the trap is located in a horizontal section of the feed-water pipe, and by test it has been found that the internal diameter of the legs of the trap should be larger or greater than the internal diameter of the feed-water pipe in about the proportion of ten and six and of a length equal to about four times the diameter of the feed-water pipe. Oil being lighter than water and but slightly soluble in the same will ordinarily occupy a certain level in the water during transmission to the boiler. If no impurities have become mixed with the oil, the latter will float to the top and enter the first higher opening reached, being only displaced therefrom when there is sufficient current to carry it along. Should the oil have picked up sufficient impurities to increase its weight, it will follow along the bottom of the current and enter the first lower opening reached. In the trap hereinabove described the lighter and pure oil passes into the upper leg and the heavier and impure oil passes into the lower leg, the baffle 9 serving to arrest the current of water and oil and in the manner above described entrap such oil in the upper and lower legs thereof, from which it may be blown off by operating the petcocks 8.

Having thus described the invention, what I claim is—

1. The combination with a feed-water pipe, of a reversible oil-trap located in a horizontal section of said pipe between the feed-pump and boiler and comprising a plurality of legs extending on opposite sides of said pipe, and a baffle-plate with unobstructed edges located in the trap at the junction of the legs and disposed flatwise between the inlet and outlet for the feed-water pipe.

2. The combination with a feed-water pipe, of an oil-trap located in a horizontal section of said pipe and comprising legs which extend in different directions therefrom, said legs having an internal diameter in excess of the internal diameter of the feed-water pipe

and also having constricted ends, petcocks in the constricted ends of said legs, and a baffle arranged at the junction of the legs and interposed between the inlet and outlet for the feed-water pipe, the area of said baffle being in excess of the diameter of the feed-water pipe.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD J. CLARKE.

Witnesses:
WM. W. SCHANK,
GEO. W. BUCKNAM.