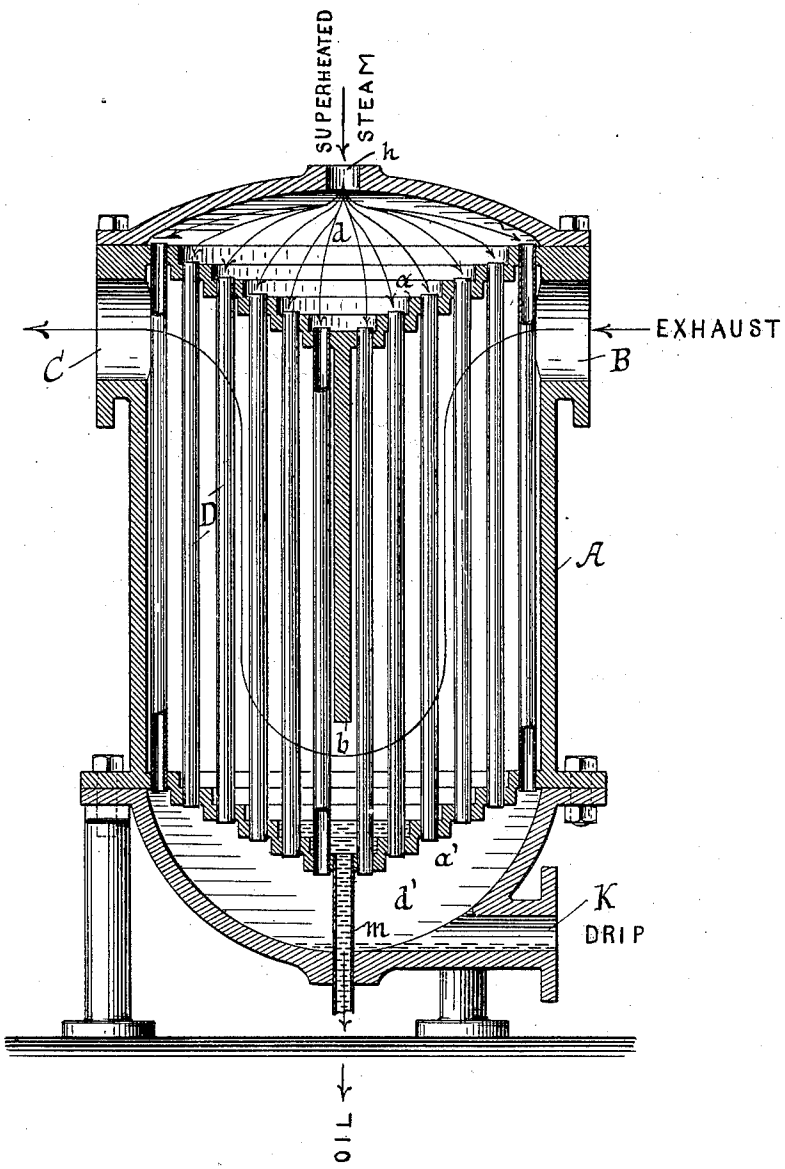
No. 686,996. Patented Nov. 19, 1901.

H. WEBSTER.

METHOD OF SEPARATING OIL FROM EXHAUST STEAM.

(Application filed Mar. 15, 1901.)

(No Model.)



Witnesses
Charles Hanimann
John Smith Jr.

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UNITED STATES PATENT OFFICE.

HOSEA WEBSTER, OF MONTCLAIR, NEW JERSEY.

METHOD OF SEPARATING OIL FROM EXHAUST-STEAM.

SPECIFICATION forming part of Letters Patent No. 686,996, dated November 19, 1901.

Application filed March 15, 1901. Serial No. 51,325. (No model.)

To all whom it may concern:

Be it known that I, HOSEA WEBSTER, a citizen of the United States, residing at No. 100 Elm street, Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Methods of Separating Oil from Exhaust-Steam, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a novel method of separating the oil from the exhaust of a steam-motor; and the invention consists, broadly, in superheating the exhaust-steam after leaving the motor, whereby all the entrained vapor will be evaporated and the oil carried therein separated. Heretofore the separation of the entrained oil has been effected in a measure by mechanical means, such as baffle-plates, located in the line of the current of steam to change its direction and interrupt or arrest the oil which is traveling in the current in a way that the oil particles will be detained and fall by gravity into a well, from which they are drained away.

The apparatus which I have shown in the accompanying drawing, forming a part of this specification, is designed to carry out my invention and will be readily distinguished from the kind now in use and above referred to in the substitution of heating-tubes for the baffle-plates in a manner to utilize superheated steam or other heating medium to effectually evaporate all the entrained vapor contained in the exhaust-steam, and thereby completely separate the oil therefrom.

I wish it to be understood that the particular apparatus shown is merely for the purpose of enabling others to practice my invention and that I do not confine the invention to the specific purpose mentioned nor to any construction or design of apparatus with which the method of operation may be carried out—as, for example, by passing the exhaust-steam through a nest of tubes exposed to any external source or kind of heat, or by mixing the exhaust-steam directly with a necessary quantity of highly-superheated steam to evaporate all water in entrainment, nor to the adaptation of the invention to steam used in other apparatus for other purposes.

The method of operation will be readily understood by an inspection of the apparatus shown in the drawing, the construction consisting of a shell or casing A, provided with an inlet B for the exhaust-steam from the motor, and outlet C, connected with a condenser or other receptacle. The interior is provided with a cluster or nest of tubes D, fixed in tube-sheets a a' of preferably the form shown, and a central baffle-plate b depends from the upper tube-sheets. Above and beneath the respective tube-sheets are chambers d d', the upper chamber d connecting with the heating medium which enters at the opening h and is distributed through the tubes D to the lower chamber or well and passes away through the opening K. The course of the exhaust-steam among the tubes D is indicated by the arrow, the entrained moisture and oil being subjected to the higher temperature of the tube-surfaces. The former is evaporated and the latter thereby separated and falls to the basin formed by the lower tube-sheet a', from which it is drawn off through the pipe m.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

The method of separating entrained oil from steam consisting in superheating the same to convert it into dry steam and thereby separate the entrained oil, as set forth.

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

HOSEA WEBSTER.

Witnesses:
K. A. VAN VALKENBURG,
EUGENE P. TERRY.