No. 817,715. PATENTED APR. 10, 1906.

H. H. HUMPHREY.

STEAM SEPARATOR.

APPLICATION FILED SEPT. 16, 1905.

Fig. 2.

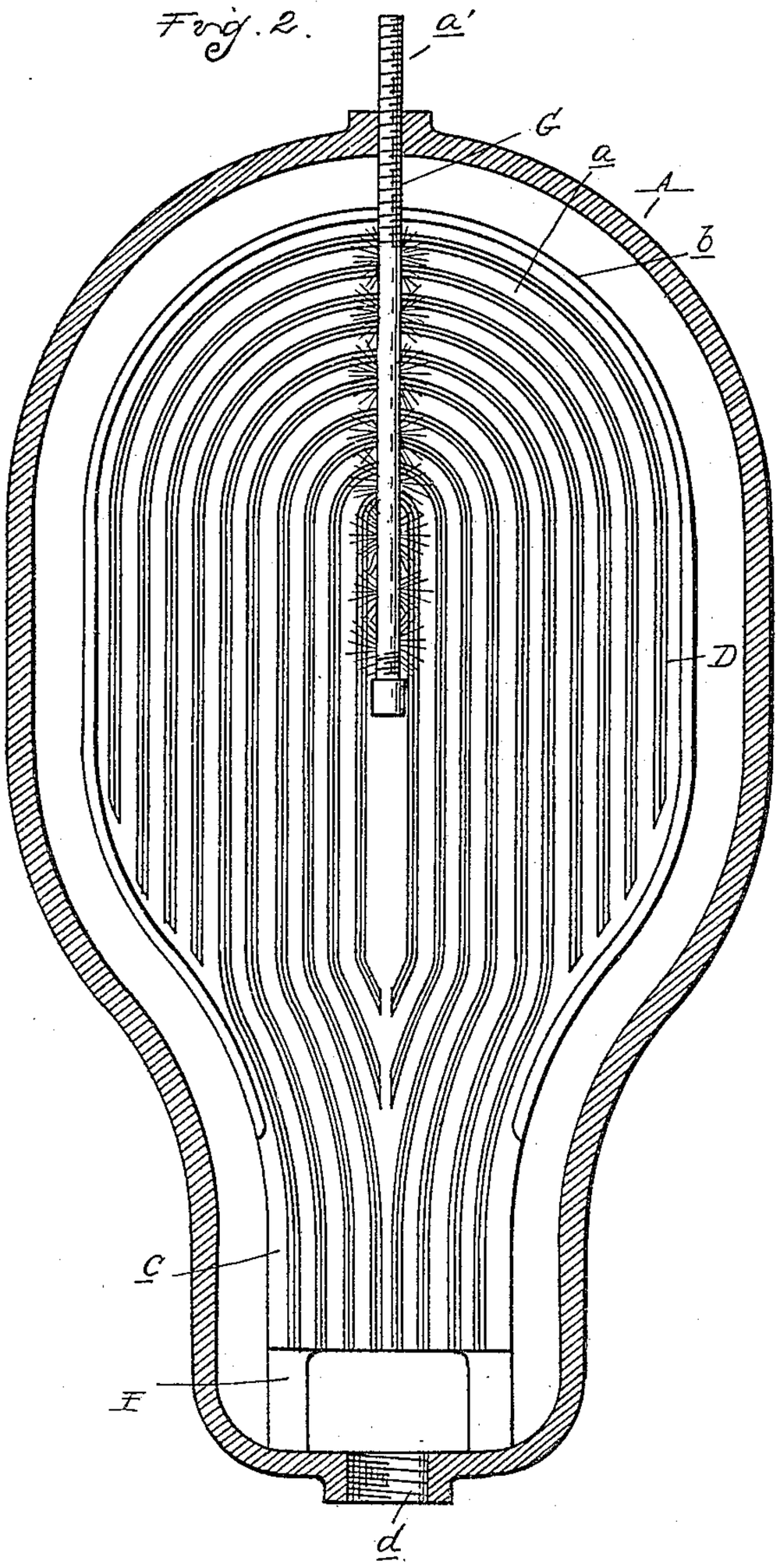
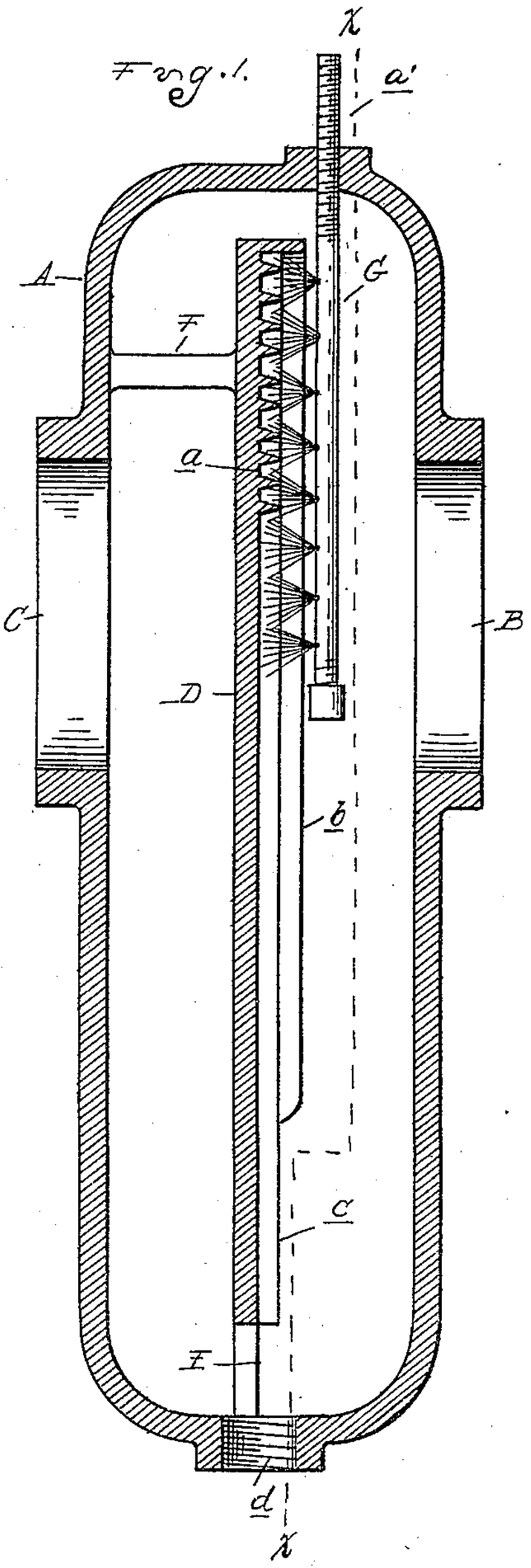


Fig. 1.



Witnesses
James B. Barry.
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UNITED STATES PATENT OFFICE.

HENRY H. HUMPHREY, OF DETROIT, MICHIGAN, ASSIGNOR TO AUSTIN SEPARATOR COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

STEAM-SEPARATOR.

No. 817,715. Specification of Letters Patent. Patented April 10, 1906.

Application filed September 16, 1905. Serial No. 278,711.

To all whom it may concern:

Be it known that I, HENRY H. HUMPHREY, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Steam-Separators, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates particularly to a separator for freeing steam from oil and other extraneous matter; and it consists in the novel construction thereof and in the peculiar arrangement and combination of its parts, as more fully hereinafter set forth.

In the drawings illustrating my invention, Figure 1 is a vertical central cross-sectional view of the separator; and Fig. 2 is a vertical section taken on line *x x*, Fig. 1.

A represents the separator-casing provided with an inlet-port B and an outlet or discharge opening C, the ports being formed centrally within the walls of the separator and oppositely disposed, as shown. Preferably the casing is cast in a single piece, and within and formed preferably integral with the casing is a baffle-plate D, arranged opposite the casing-ports and spaced from the walls of the casing, permitting the steam after striking the plate to pass therefrom over the marginal portions without obstruction. In this particular instance the baffle-plate is provided with circular corrugations *a* and marginal guide-flanges *b* for conveying the impurities deposited upon the plate downwardly along the leg *c* to the bottom of the casing, where they are discharged through a port *d*. This port may be valve-controlled where the separator is on a low-pressure steam system and connected to vaccum-forming means of any approved type (not herein shown) when the separator is used on a vacuum system where there is a high velocity of steam.

The baffle-plate described is supported upon the base-section of the casing by integral portions E, constituting supporting-legs, and is spaced from the casing sides centrally within the casing, as previously set forth, by an integral post F, arranged between the back of the separator and the rear face of the baffle wall or plate. As thus constructed, the front or receiving face of the baffle is entirely unobstructed, so that the steam may strike and pass from the plate over its edges without hindrance.

Separators of the type described will operate efficiently only when their baffle-walls are wet and thus in a condition to retain the impurities. On systems other than vacuum systems, where the steam is saturated and its velocity relatively low, no difficulty is ordinarily experienced in keeping the baffles wet. When the steam is dry, however, as on vacuum systems, it is incapable of wetting the baffles and would be ineffective even if saturated, owing to its high velocity, unless overcharged, when the separator would be flooded and the water and impurities pass therethrough with the steam.

To adapt the separator described for the latter type of steam systems, I have provided auxiliary means for spraying the baffle, using a relatively small discharge of water that will not overcharge the steam and arranging the spraying devices in immediate proximity to the plate, as in practice it has been found that if the water is delivered at a distance from the baffle it is absorbed by the steam, which being merely supersaturated is ineffective for the reasons previously set forth.

The spraying means preferably employed is in the form of a pipe G, extending through an opening in the casing-top and downwardly along the front of the baffle in immediate proximity thereto, as shown in Fig. 1. The side of the pipe adjacent to the plate is provided with a plurality of apertures extending, preferably, at an angle to the plate-face and preferably having apertures directed toward both sides of the face, so that the water-jets delivered therefrom will pass over the entire baffle, producing the wetting effect desired. The portion of the pipe projecting beyond the casing-top (indicated by the letter *a'*) is connected to any suitable source of supply.

What I claim as my invention is—

1. In a steam-separator, the combination with an inclosing casing having opposed inlet and outlet ports, of a baffle-plate inclosed by and spaced from the walls of said casing, and a spray-pipe within said casing and extending substantially half the length of said baffle-plate, for the purpose described.

2. In a steam-separator the combination with an inclosing casing having inlet and outlet ports, of a baffle-plate between said ports,

and a vertical spray-pipe within said casing in immediate proximity to and extending substantially half the length of said baffle-plate, for the purpose described.

3. In a steam-separator the combination with an inclosing casing having inlet and outlet ports, of a baffle-plate inclosed by and spaced from the walls of said casing, and a vertical water-pipe within said casing in proximity to the baffle having jet-openings arranged at angles on opposite sides to spray the entire surface of said baffle-plate, for the purpose described.

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

HENRY H. HUMPHREY.

Witnesses:
JAMES P. BARRY,
EDWARD D. AULT.