

(No Model.)

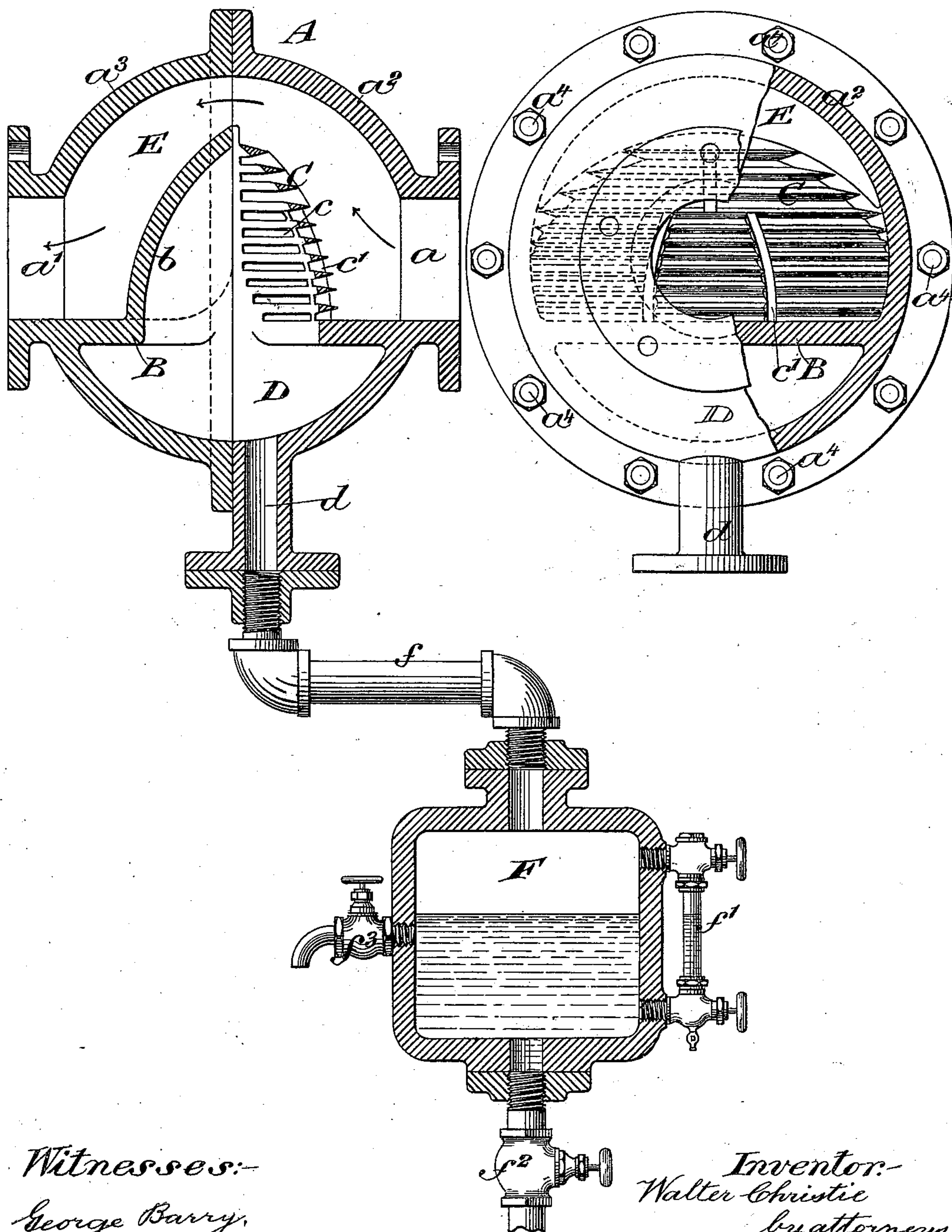
W. CHRISTIE.
STEAM SEPARATOR.

No. 547,911.

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Fig. 1.

Fig. 2.



Witnesses:-
George Barry,
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UNITED STATES PATENT OFFICE.

WALTER CHRISTIE, OF NEW YORK, N. Y.

STEAM-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 547,911, dated October 15, 1895.

Application filed March 8, 1895. Serial No. 540,961. (No model.)

To all whom it may concern:

Be it known that I, WALTER CHRISTIE, of the city and county of New York, in the State of New York, have invented a new and useful
5 Improvement in Steam-Separators, of which the following is a specification.

My invention relates to an improvement in steam-separators, the object being to provide a device which will effectually separate
10 from steam the entrained water, grease, oil, grit, sediment, &c., which may be carried along by the steam, and to provide a device in which the body of steam will not be divided into two or more parts while the foreign matter is being separated therefrom.

A further object is to provide a horizontal or straight-line separator, the purpose being to enable the foreign matter to be separated from the steam without first turning the steam
20 bodily from its direct course, which turning of the steam has a tendency to churn the contents, thereby rendering it very difficult to separate and purify.

A practical embodiment of my invention
25 is represented in the accompanying drawings, in which—

Figure 1 is a view in vertical central section through the separator and reservoir connected therewith, the course of the body of steam being indicated by arrows within the separator-casing; and Fig. 2 is an end view of the separator, part of the casing being broken away to show the interior thereof.

The separator-casing is denoted by A, and it
35 is provided with suitable steam inlet and outlet portions a a' . This casing is preferably formed of two sections a^2 a^3 , which are secured together by suitable bolts a^4 . To the inlet and outlet portions of the casing may be secured
40 the steam-pipes, as is usual. Within the separator-casing I provide a suitable horizontal partition B, which is provided with an upwardly-extending portion b . The front of the upwardly-extending portion b of the partition B is provided with a curved baffle-plate
45 C, which is provided with suitable openings c therethrough, through which the entrained water and foreign matter are thrown while the steam is passing through the separator-casing. This baffle-plate, together with the upwardly-extending portion b of the partition

B, extend up to within a short distance of the top of the casing and converge from their bases, preferably in a curved line, to their tops. The partition B, upwardly-extending
55 portion b , and baffle-plate C, together with the lower portion of the separator-casing A, form a discharge-chamber D, which is provided with a conduit d extending therefrom, to which is connected the reservoir herein-
60 after to be described.

The steam-chamber or space E is formed by the upper wall of the separator-casing A and the partition B, upwardly-extending portion b , and baffle-plate C. Because of the baffle-
65 plate and upwardly-extending portion b being extended upwardly toward the top of the casing A the steam which enters the separator through the inlet a is caused to be turned upward, so as to pass over the top of the
70 baffle-plate and then downward and out through the outlet a' . This upward turning of the steam causes the entrained water and foreign matter to be thrown by centrifugal force through the openings in the baffle-plate
75 C into the discharge-chamber D. It will thus be seen that the steam is effectually purified without causing the body of the steam to be divided into two or more parts, which division of steam always diminishes its force and
80 tends further to condense the same than if it is kept in a single body.

The baffle-plate C, which I have shown as being integral with the casing A, may be, of course, made separate and secured in place
85 and the openings therein may be made vertical instead of horizontal, as shown. In the present instance the baffle-plate is shown as being strengthened by suitable upwardly-extending webs c' .
90

For drawing the water of condensation and the foreign matter out of the separator-casing and to prevent the siphoning action of the steam, I provide a suitable reservoir F, which reservoir is connected to the conduit d
95 of the discharge-chamber D by a suitable pipe f . This reservoir F may be located in any desired position below the plane of the separator-casing, and it is provided with a suitable gage f' , whereby the height of the liquid
100 which has been discharged or separated from the steam may be seen, so that the said liquid

may be drawn off before it "backs up" into the separator-chamber. The reservoir is provided with a suitable outlet-cock f^2 for the purpose of drawing off the matter which has
5 been separated from the steam. The reservoir is further provided with a surface-cock f^3 , which is used for drawing off the oil which is separated from the steam when the separator is used more particularly as an oil-sepa-
10 rator. This cock may be located at any desired point above the bottom of the reservoir.

By constructing the separator as a straight-line or horizontal separator the body of steam does not have to be turned as a whole before
15 it reaches the separator, and therefore the foreign matter may be more easily thrown by velocity or centrifugal action, as the steam is caused to turn upward when it reaches the baffle-plate C.

20 It is obvious that slight changes might be resorted to in the form and arrangement of the several parts without departing from the spirit and scope of my invention. Hence I do

not wish to limit myself strictly to the structure herein set forth, but

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What I claim is—

A steam separator, comprising a casing, a partition within the casing for dividing it into a steam chamber and a discharge chamber, the said partition being provided with an up-
30 wardly extending portion toward the outlet side of the casing and a baffle plate extending upwardly on the inlet side of the casing, the said upwardly extending portion and baffle plate being extended to within a short
35 distance of the top of the casing, whereby the steam is caused to turn bodily upward and over the top of the baffle plate for throwing the contained foreign substances through the baffle plate into the discharge chamber, sub-
40 stantially as set forth.

WALTER CHRISTIE.

Witnesses:

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