

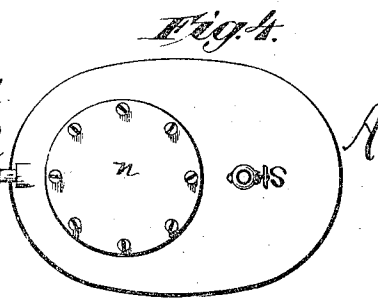
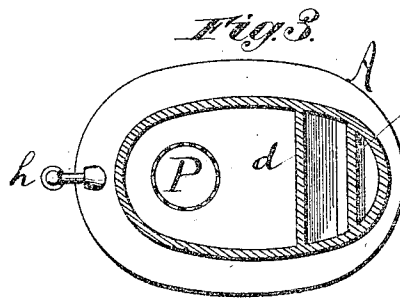
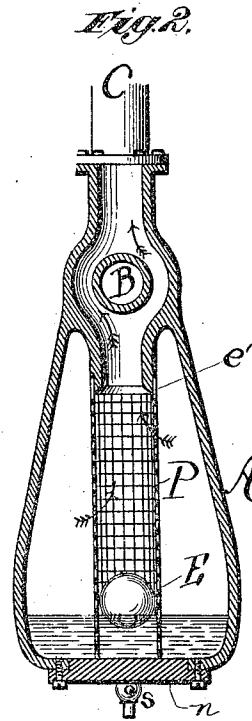
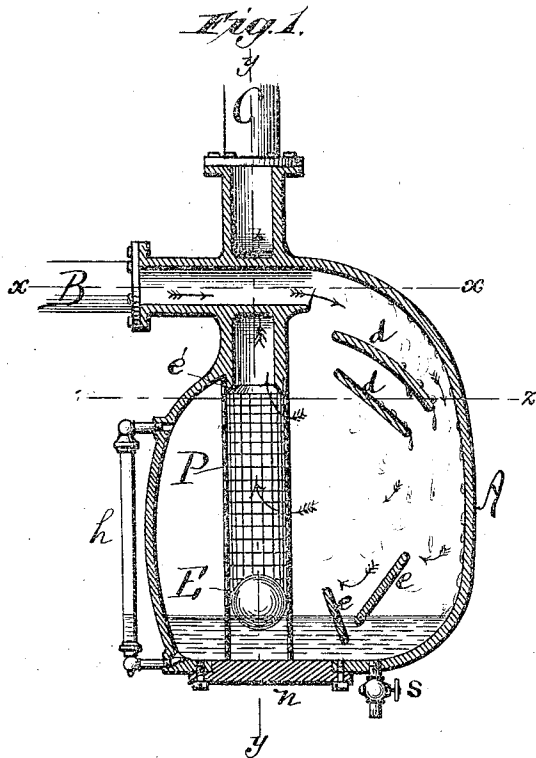
(No Model.)

H. C. WHITE.

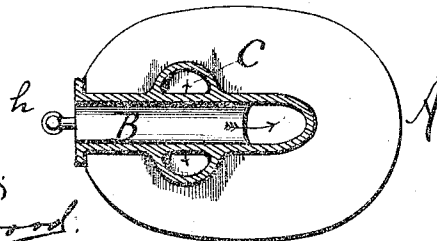
SEPARATOR.

No. 386,173.

Patented July 17, 1888.



*Fig. 5.*



Witnesses.

K. R. Cooper,

G. Hollingwood.

Henry C. White.

Inventor:

By Wm. Raines Baird

His Atty.

# UNITED STATES PATENT OFFICE.

HENRY C. WHITE, OF NEW YORK, N. Y.

## SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 386,173, dated July 17, 1888.

Application filed January 13, 1888. Serial No. 260,020. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY C. WHITE, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Steam-Separators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures marked thereon, which form a part of this specification.

My invention relates to steam-separators, and the novelty consists in the arrangement and adaptation of the parts, as will be more fully hereinafter explained.

The object of the invention is to provide a cheap and efficient means whereby the entrained and suspended water may be removed from steam in its passage from the generator to the point of its use, so as to prevent its introduction into the steam circulation, to the injury of the mechanism in which it is to be employed.

In the drawings, Figure 1 is a vertical longitudinal section of my device with the perforated chamber in elevation. Fig. 2 is a similar section on the plane of the line  $yy$  of Fig. 1. Fig. 3 is a horizontal section on the plane of the line  $zz$  of Fig. 1. Fig. 4 is a bottom plan view, and Fig. 5 is a horizontal section on the plane of the line  $zz$  of Fig. 1.

Referring to the drawings, in which the same letters refer to the same parts in all the figures, A is a chamber of metal provided with suitable openings to receive the inlet-pipe B and the outlet-pipe C. It is also provided with two or more sets of baffle-plates, as  $d d$  and  $e e$ , preferably made integral with the chamber A, one set being near the point of discharge of the inlet-pipe and the other set being near to the bottom of the chamber A. The outlet-pipe C is divided into two parts in passing around the inlet-pipe B, and at its lower end it is provided with a valve-seat,  $e'$ , against which the ball E forms a joint when in contact with the same. Depending from the bottom of the outlet-pipe C and extending to or near the bottom of the chamber A is a pipe or cylinder, P, made of wire-gauze

or perforated metal and inclosing loosely the ball E. This ball E is made hollow or light, so as to readily float upon the surface of the water. The chamber A is likewise provided with a glass water-gage,  $h$ , for showing the height of the water in the chamber, and the discharge-cock S or other suitable means for drawing off the water as occasion may require. Access is afforded to the interior of the chamber through a man-hole closed by the cover  $n$ , securely fastened to the bottom of the chamber by bolts or other suitable means.

The action of the apparatus is as follows: The saturated steam entering the chamber A through the inlet-pipe B impinges by its own velocity against the inner surface of the chamber. The entrained water of the entering steam adheres to the sides of the chamber and trickles down the same toward the bottom. This action is multiplied by the presence of the baffle-plates  $d d$ , which serve to attract more of the water. The steam thus deprived of the greater part of the entrained water is deflected downward and laterally, and, entering the perforations of the pipe P, passes on through the outlet-pipe C to the engine. The chamber P serves a double purpose, it acts as a means whereby the water is further extracted from the steam, and it serves as a guide for the floating ball E. The use of the latter is important. If there is a sudden influx of water from any cause, the ball E is carried upward with the water against the valve-seat  $e'$  and closes the outlet-pipe C, thus cutting off the steam and stopping the engine and preventing any further outward flow of the water. The baffle-plates  $ee$  at the bottom of the chamber serve to check any violent agitation of the collected water.

I may modify the relative positions of the outlet and inlet pipes in any approved manner, so that they readily pass each other, and I may similarly change the position of the baffle-plates and otherwise vary the details of construction within wide limits without departing from the essential features of my invention.

What I claim as new is—

1. In a steam-separator, as described, the combination, with the outlet-pipe C, provided with a valve-seat,  $e'$ , of a floating ball, E, pro-

vided with suitable means, as P, for guiding the said ball against the said valve-seat.

2. A steam-separator consisting of a chamber, A, provided with suitable outlet and inlet pipes, baffle-plates, as *d d* and *e e*, and the perforated chamber P, as and for the purposes described.

3. A steam-separator placed intermediate the generator and the engine, consisting of a chamber, A, provided with suitable outlet and

inlet pipes, the latter having a valve-seat and containing baffle-plates, as *d d* and *e e*, the perforated chamber P, and the floating ball E.

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

HENRY C. WHITE.

Witnesses:

L. M. DOSCHER,

WM. J. BAIRD.