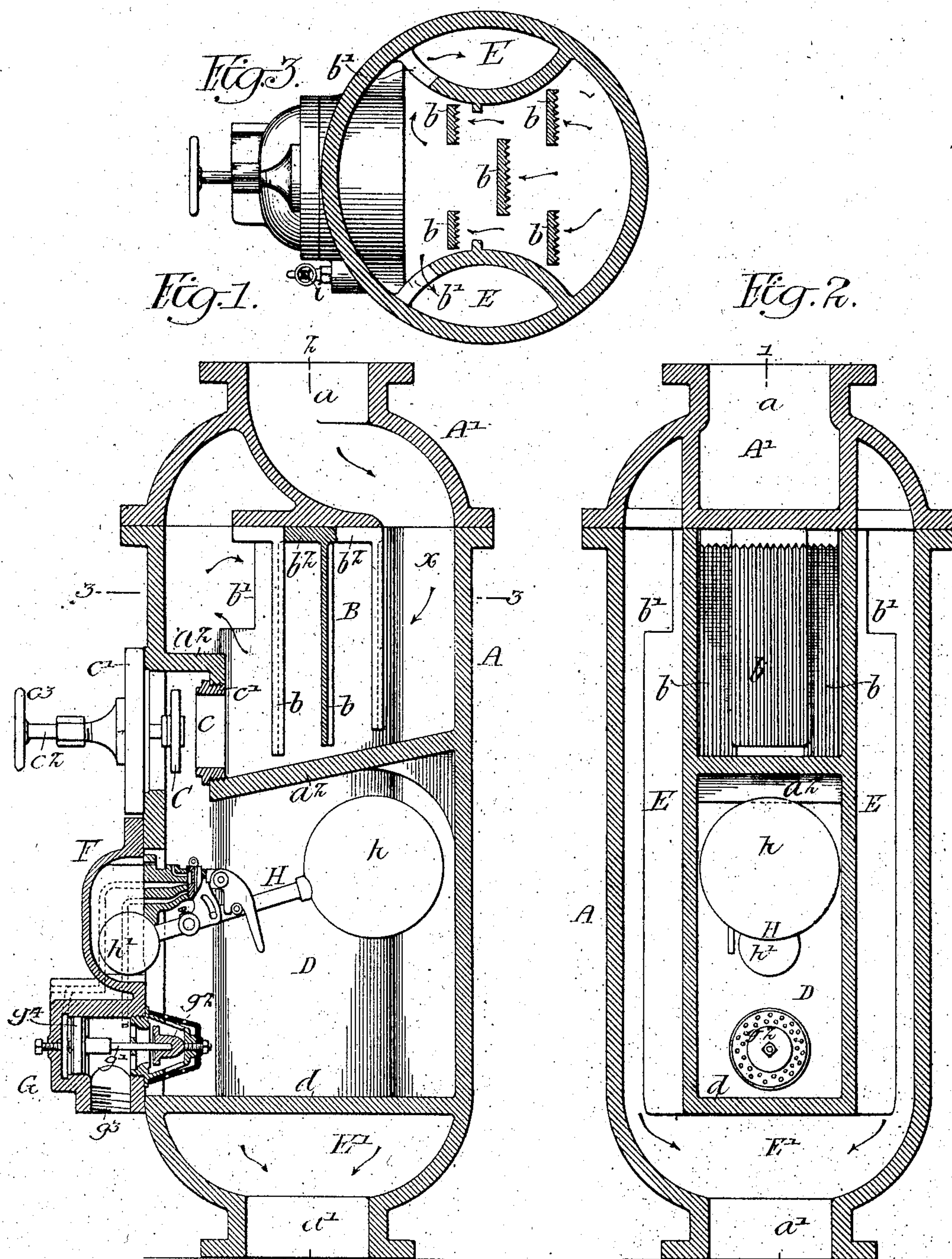


No. 796,231.

PATENTED AUG. 1, 1905.

W. LLOYD.  
STEAM ELIMINATOR.  
APPLICATION FILED MAY 12, 1904.



Witnesses:  
Titus H. Jones.  
Frank L. Graham.

Inventor:  
William Lloyd  
by his Attorneys,  
Horton & Horton.



# UNITED STATES PATENT OFFICE.

WILLIAM LLOYD, OF WILKESBARRE, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD TO JOHN LLOYD AND ONE-THIRD TO THE FIRM OF W. H. NICHOLSON & CO., BOTH OF WILKESBARRE, PENNSYLVANIA.

## STEAM-ELIMINATOR.

No. 796,231.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed May 12, 1904. Serial No. 207,653.

*To all whom it may concern:*

Be it known that I, WILLIAM LLOYD, a citizen of the United States, and a resident of Wilkesbarre, Pennsylvania, have invented certain Improvements in Steam-Eliminators, of which the following is a specification.

My invention relates to certain improvements in steam-eliminators for which Letters Patent were granted to J. and W. Lloyd and R. O. Jones on July 2, 1901, No. 677,458.

The eliminator of the patent is of the horizontal type; and the object of my invention is to make a compact steam-eliminator of the vertical type and provide means for cutting off the baffle-chamber from the collecting-chamber, so that the cover of the collecting-chamber can be removed to examine or repair the parts without shutting down the steam-line.

In the accompanying drawings, Figure 1 is a vertical sectional view of my improved steam-eliminator on the line 1 1, Fig. 2. Fig. 2 is a longitudinal sectional view on the line 2 2, Fig. 1. Fig. 3 is a sectional plan view on the line 3 3, Fig. 1.

A is the casing of the eliminator having an outlet-passage  $a'$  at one end for the steam and provided with a head-section  $A'$ , having an inlet  $a$  for the steam. In the present instance the sections  $A$   $A'$  are flanged and can be coupled by bolts or other fastenings passing through the flanges. Both ends of the eliminator are flanged, so that they may be coupled to steam-pipes in the usual manner.

The casing A is divided into two parts by a central partition  $a^2$ . The upper chamber B is the baffle-chamber, having baffle-plates  $b$  therein, while the other chamber D is the collecting-chamber for collecting water of condensation, grease, oil, or other impurities separated from the steam. The partition  $a^2$  is shaped as clearly shown in Fig. 1, having an inclined portion and a vertical portion, and in the vertical portion in the present instance is an opening  $c$ , which allows the water separated from the steam in the baffle-section to pass into the collecting-chamber. The main portion of the partition  $a^2$  is inclined toward the outlet, as illustrated.

In order to cut off the baffle-chamber from the collecting-chamber, I provide a valve C, which closes against a seat  $c'$ , in the present instance screwed into the partition  $a^2$ . The valve C is carried by a stem  $c^3$ , having a hand-

wheel  $c^3$ . In the present instance the valve-stem passes through a cap  $C'$ , secured to the casing A. The valve is normally open; but when it is desired to examine the mechanism in the collecting-chamber or remove the mechanism for repairs the valve is closed, so that access can be had to the collecting-chamber without interrupting the flow of steam. There is a drip-opening at the base of the chamber B, provided with a valve  $i$  for draining the chamber when the valve C is closed.

The baffle-plates  $b$  are staggered, as shown in Fig. 3, having their ribbed portions facing the inlet, so that when the steam passes through the inlet  $a$  into the part  $x$  of the baffle-chamber its course will be interrupted by the baffle-plates, the steam will strike against the ribbed surfaces of the plates, and the entrained moisture, grease, oil, or other impurities will be separated from the steam and will flow down the inclined partition  $a^2$  through the outlet  $c$  into the collecting-chamber D, while the steam will pass through openings  $b'$  in the side walls of the eliminator into vertical channels E E, formed in the body section, and pass down to a chamber  $E'$  in the base of the casing A through a steam-outlet  $a'$ . This chamber  $E'$  is separated from the collecting-chamber by a partition  $d$ . Thus it will be seen that the flow of the steam is interrupted by the baffle-plates and the impurities are separated from the steam by the ribbed baffle-plates and the steam passes vertically through the eliminator.

The valve mechanism for automatically relieving the collecting-chamber of water and impurities is carried by a cap F, secured to the casing A, and is similar to that illustrated and claimed in the Patent No. 677,458, mentioned above. Therefore I will not enter into details in describing the construction of this mechanism.

The cap F has a chambered portion G, formed as a valve-casing, and in this casing is a valve-stem  $g'$ , carrying a valve  $g^2$ .

$g^3$  is an outlet for the escape of water or impurities collected from the steam.

On the valve-stem is a piston  $g^4$ . The opening and closing of the valve is controlled by a float-lever H, having a ball  $h$  at one end and a weight  $h'$  at the opposite end. The ball-lever actuates the mechanism for opening or closing steam-passages leading from the in-



terior of the collecting-chamber to points on each side of the piston  $g^1$ , so as to automatically open or close the valve  $g^2$ , making the discharge from the collecting-chamber automatic.

While I have shown the baffle-chamber and collecting-chamber formed within a single casing, it will be understood that the casing may be made in two or more parts without departing from the main feature of my invention; but I prefer where practicable to make the casing in a single piece.

I have shown the baffle-plates  $b$  made detachable, having base-sections  $b^2$ , which are secured by bolts or other fastenings to the cap-section  $A'$ , and while I have shown two vertical passages  $E$ , one on each side of the eliminator, one passage may be used in some instances. I have shown the casing cylindrical in form; but it will be understood that it may be of any shape desired.

I claim as my invention—

1. The combination in a steam-eliminator, of a casing divided by a transverse partition into two chambers, baffle-plates in the upper chamber, automatic means in the lower chamber for relieving it of water, a passage in said partition, a valve arranged to close the passage, and steam inlet and outlet passages, substantially as described.

2. The combination in a steam-eliminator, of a casing, a baffle-chamber, baffle-plates therein, a collecting-chamber under the baffle-chamber, a central passage connecting the two chambers, a vertical passage in each side of the casing by-passing the collecting-chamber and communicating with the baffle-chamber, substantially as described.

3. The combination in a steam-eliminator, of a casing having a baffle-chamber, a collecting-chamber and a steam-outlet chamber under the collecting-chamber, side passages by-passing the collecting-chamber and forming communication between the baffle-chamber and the steam-outlet chamber, a steam-inlet communicating with the baffle-chamber, and a passage forming a communication between the lower portion of the baffle-chamber and the upper portion of the collecting-chamber, substantially as described.

4. The combination in a steam-eliminator, of a casing having a baffle-chamber, a collecting-chamber, and an outlet-chamber normally in communication with each other, the collecting-chamber being mounted between the other two chambers, means whereby said collecting-chamber may be cut off at will from the other chambers, a steam-inlet communicating with the baffle-chamber, vertically-arranged baffle-plates in said chamber, and means for automatically relieving the collecting-chamber of water and impurities, substantially as described.

5. The combination in a vertically-arranged casing having in the upper end a baffle-cham-

ber, baffle-plates therein, a cap-section mounted on the upper end of the casing and having an inlet-passage therein communicating with the baffle-chamber, a collecting-chamber below the baffle-chamber and separated therefrom by a partition, an opening in the partition forming a communication between the two chambers, a valve arranged to close said opening, an outlet for the steam in the base of the casing, and vertical side passages connecting the outlet with the baffle-chamber, substantially as described.

6. The combination in a steam-eliminator, of a casing, a partition dividing the casing into two parts, the upper part being a baffle-chamber having vertically-arranged baffle-plates detachably secured therein, said baffle-plates having one surface ribbed, a collecting-chamber below the said partition, means in said chamber for automatically relieving the collecting-chamber of water or other impurities, said partition having a passage forming a communication between the two chambers, and a vertical passage communicating with the outlet for the steam, said passage by-passing the collecting-chamber, substantially as described.

7. The combination of a casing having a baffle-chamber at the upper end and a collecting-chamber at the lower end, a partition separating the two chambers and provided with an opening for the passage of separated water or impurities from the baffle-chamber to the collecting-chamber, a steam-inlet and an outlet communicating with the baffle-chamber, a valve arranged to close the opening in the partition and operative from the outside of the casing, the connections of the inlet and outlet to the chambers being made to permit closing of the valve without interfering with the flow of steam, substantially as described.

8. The combination in a steam-eliminator, of a casing having a baffle-chamber and a collecting-chamber, a cap-section secured to the casing and having a steam-inlet passage formed therein and having vertically-arranged baffle-plates attached thereto or formed integral therewith, said baffle-plates extending into the baffle-chamber, substantially as described.

9. The combination in a steam-eliminator, of a casing having a baffle-chamber and a collecting-chamber provided with a passage between them, a valve arranged to open and close the passage, and a drainage-outlet for the baffle-chamber independent of said passage, substantially as described.

10. The combination in a steam-eliminator, of a cylindrical casing, an inclined partition separating the casing into two parts, the upper part being the baffle-chamber, vertically-arranged baffle-plates therein, the lower part being a collecting-chamber, with mechanism therein for automatically relieving the chamber of water or other impurities, a partition separating the said collecting-chamber from



an outlet-chamber in the base of the eliminator, a cap-section secured to the upper end of the casing and having an inlet-passage therein for the steam which communicates with the baffle-chamber, vertical passages at each side of the eliminator forming communication between the baffle-chamber and the steam-outlet chamber, said partition separating the baffle-chamber from the collecting-chamber having an inclined portion and a vertical portion, an opening in the vertical portion, a valve

arranged to close said opening when it is desired to cut off the collecting-chamber from the baffle-chamber, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses:

WILLIAM LLOYD.

Witnesses:

J. S. PETTIBONE,  
PAUL STERLING.