No. 687,109. Patented Nov. 19, 1901.

C. M. BAUM, Dec'd.

H. C. BAUM, Administrator.

VERTICAL STEAM SEPARATOR.

(Application filed July 16, 1901.)

(No Model.)

Fig. 1.

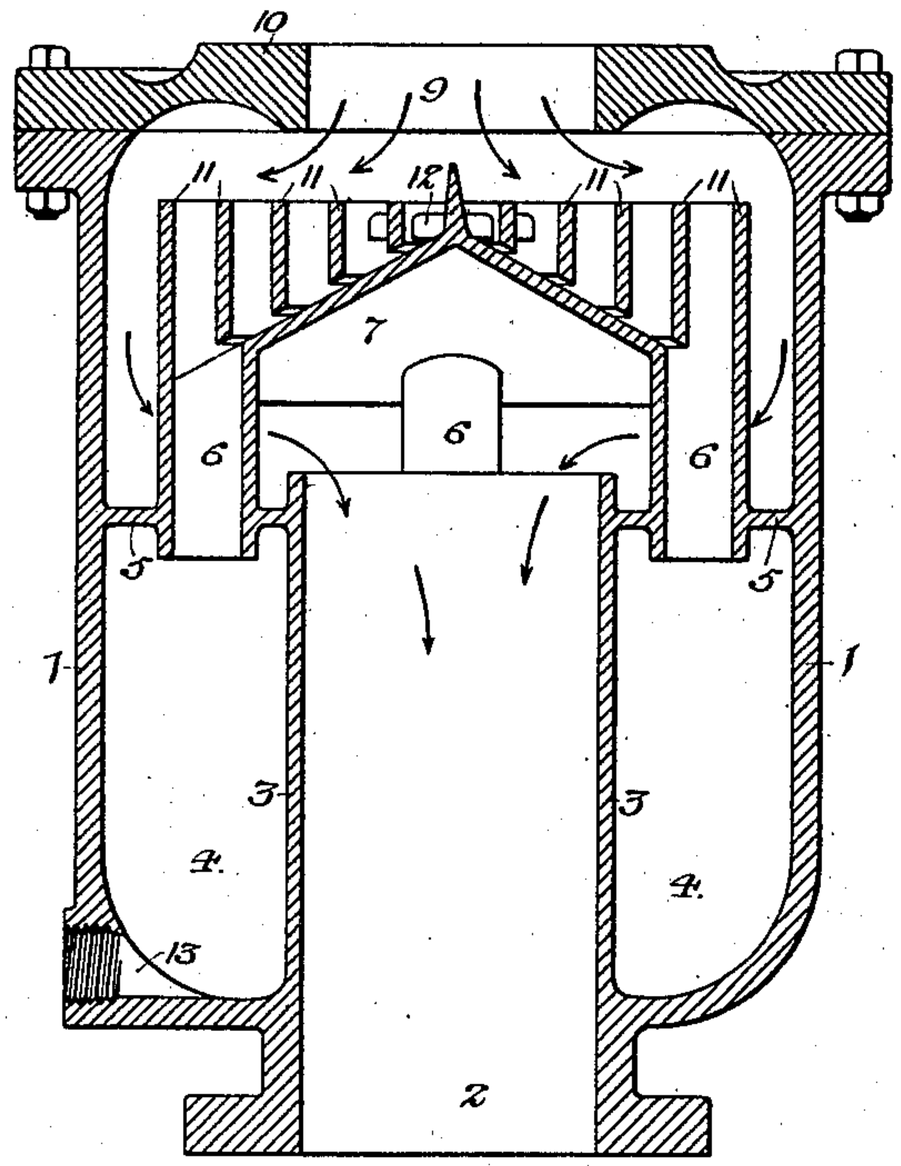
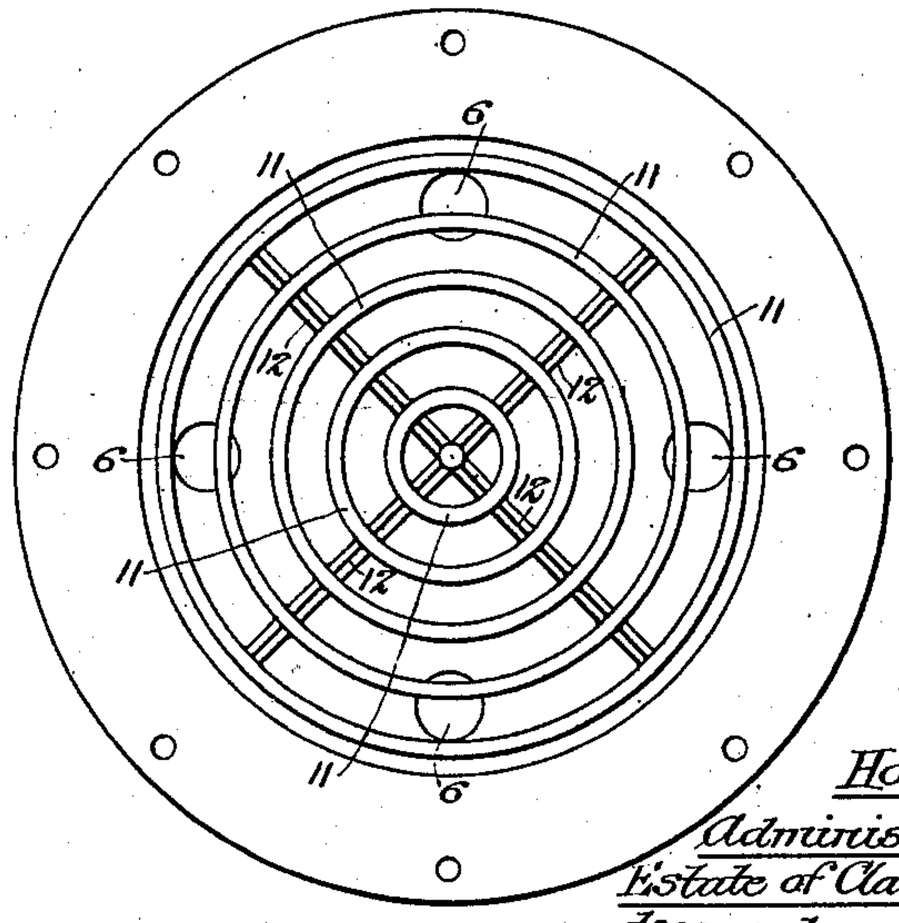


Fig. 2.



Witnesses:-
Frank F. Graham.
Louis W. Whitehead

Inventor.
Howard C. Baum
Administrator of the
Estate of Clarence M. Baum,
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Howson & Howson

UNITED STATES PATENT OFFICE.

HOWARD C. BAUM, OF READING, PENNSYLVANIA, ADMINISTRATOR OF CLARENCE M. BAUM, DECEASED.

VERTICAL STEAM-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 687,109, dated November 19, 1901.

Application filed July 16, 1901. Serial No. 68,554. (No model.)

To all whom it may concern:

Be it known that CLARENCE M. BAUM, formerly a citizen of the United States, and a resident of Philadelphia, Pennsylvania, but now deceased, did during his lifetime invent certain Improvements in Vertical Steam-Separators, of which the following is a specification.

This invention relates to that class of steam-separators in which the flowing volume of steam is divided and caused to flow laterally by means of a deflector having projecting flanges or ribs against which the liquid particles carried by the deflected volumes of steam are caused to impinge, and are thereby directed to a suitable outlet, the steam thus deprived of its liquid particles passing around the deflector and escaping from the chamber in which said deflector is mounted.

The object of the present invention is to construct a deflector of this type through which the steam will pass downwardly.

In the accompanying drawings, Figure 1 is a vertical section of a deflector embodying the invention, and Fig. 2 is a plan view of the same with the cap or cover removed.

The casing 1 of the separator is of cup or bowl shape, having at the bottom an outlet 2 for the steam, which outlet is surrounded by a tube or flange 3, extending upwardly into the casing 1 for any desired distance, so as to form around it in the bottom of the casing a well 4 for the reception of the liquid separated from the steam. The upper portion of this internally-projecting flange 3 is connected to the casing 1 by means of a web 5, which may, if desired, be a continuous web or may simply constitute a series of arms for supporting a series of tubes 6, which in turn support the conical deflector 7, the latter being below and concentric with the receiving-openings 9 for the steam, which opening is formed in the cap or cover 10 of the casing 1.

Projecting above the conical deflector 7 are a series of rings 11, connected together by means of radial ribs or braces 12, each of these rings, except the outermost, being separated from the deflector 7, so that a space intervenes between the upper face of said deflector and the inner edge of the ring for the passage of liquid between the two. The volume of steam entering the separator through the opening 9 in the cap-plate is deflected laterally and the liquid particles carried by the steam are either thrown directly downward onto the conical deflector 7 or, as the steam flows laterally, are thrown against the inner faces of the rings 11, and are thereby deflected downwardly, the steam passing down around the lower edge of the deflector and thence inwardly over the top of the pipe or flange 3 and downwardly through the same to the outlet. The liquid particles pass down along the upper surface of the conical deflector and between the same and the lower edges of the rings 11 to the tubes 6, by which they are directed into the receiving-well 4, which has at the bottom a suitable drainage-outlet 13. The outermost of the rings 11 prevents any escape of liquid over the edge of the conical deflector 7. Hence there are no flowing volumes of liquid through which the steam is compelled to pass in order to find its way to the outlet.

Instead of being wholly disconnected from the upper surface of the deflector 7 the rings 11 may be connected thereto at intervals, in which case the use of the radial connecting bars or braces 12 will be unnecessary; but the construction shown is preferred.

Having thus described the invention of the said CLARENCE M. BAUM, what is claimed is—

1. A vertical steam-separator having a deflector with projecting rings above the same, which rings are so disposed as to provide spaces between the same and the upper surface of the deflector for the flow of liquid, substantially as specified.

2. A vertical steam-separator in which are combined a deflector having conduits for leading liquid downwardly therefrom, and a series of rings above said deflector, all of said rings, except the outermost, being so disposed as to provide spaces between the same and the upper surface of the deflector for the flow of liquid, the outer ring preventing the discharge of liquid over the edge of the deflector and causing it to escape through the conduits leading downwardly from said deflector, substantially as specified.

3. A vertical steam-separator in which are combined a deflector, and a series of rings

projecting upwardly above said deflector, one or more of said rings being connected to the deflector but the others being disconnected therefrom, and radial bars providing for the support of said disconnected rings, substantially as specified.

4. A vertical steam-separator in which are combined a casing having a bottom outlet with vertical pipe or flange surrounding the same, and extending upwardly into the casing, a deflector above the mouth of said pipe, and a series of rings mounted above the deflector and providing spaces between their lower edges and the upper surface of said deflector for the flow of liquid, substantially as specified.

5. A vertical steam-separator in which are combined a casing having a bottom outlet for the steam, a vertical flange or pipe surrounding said outlet and extending up into the casing, a web extending laterally from the upper portion of said pipe to the casing, a deflector located over the mouth of said pipe and having depending drain-pipes carried by said lateral web, and rings located above the deflector, the outermost of said rings being connected to the deflector and preventing any escape of liquid over the edge of the same, and the inner rings providing spaces between their lower edges and the top of the deflector for the flow of liquid to the drain-pipes, substantially as specified.

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

HOWARD C. BAUM,

Administrator of the estate of Clarence M. Baum, deceased.

Witnesses:

HARVEY F. HENITZ,

FOSTER S. BIEHL.