No. 692,597. Patented Feb. 4, 1902.

C. M. BAUM, Dec'd.

H. C. BAUM, Administrator.

STEAM SEPARATOR.

(Application filed July 16, 1901.)

(No Model.)

Fig. 1.

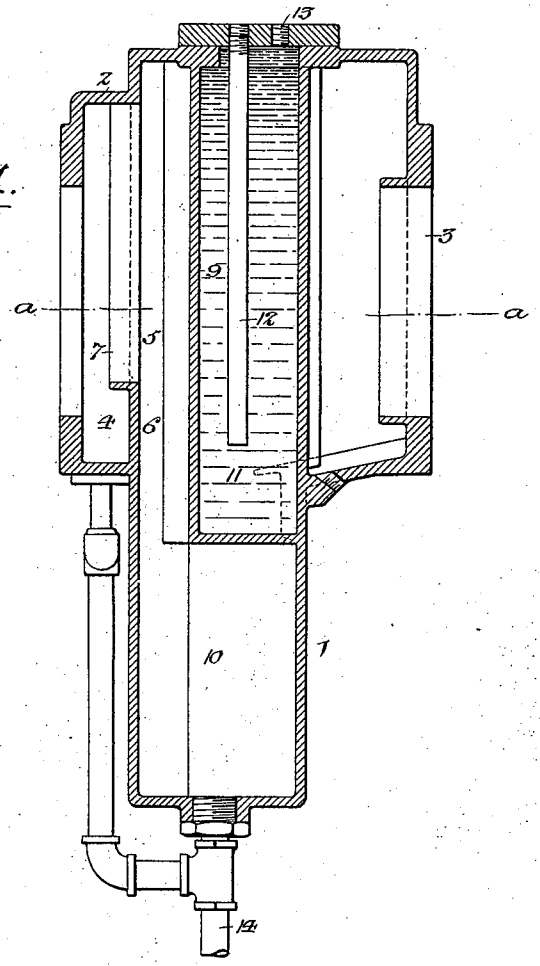
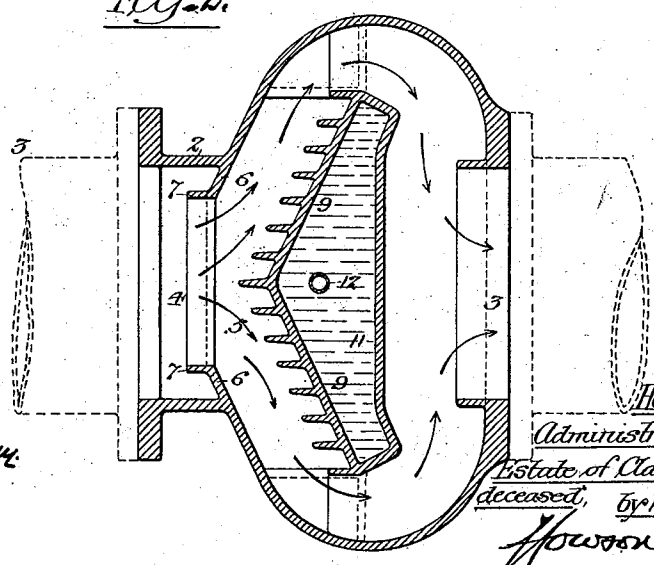


Fig. 2.



Witnesses:-

Frank P. Graham.

Louis H. Whitehead

Inventor:

Howard C. Baum

Administrator of the

Estate of Clarence M. Baum,

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Howson & Howson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

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

STEAM-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 692,597, dated February 4, 1902.

Application filed July 16, 1901. Serial No. 68,555. (No model.)

To all whom it may concern:

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

This invention relates to that class of steam-separators in which the onflowing volume of steam strikes a deflector and is thereby caused to change its course, so that the liquid particles of water or oil carried by said volume of steam will be projected against the deflector and will be thereby directed to a well or reservoir, while the dry steam passes around the deflector and escapes at the outlet.

The object of the invention is to increase the efficiency of such a separator, and this object is attained, first, by providing a preliminary receiving well or chamber in advance of the deflector, and, secondly, by chilling said deflector by circulating a cooling agent through it, so that its deflecting-surface will at all times be coated with a liquid film.

In the accompanying drawings, Figure 1 is a longitudinal section of the separator; and Fig. 2 is a sectional plan view on the line *a a*, Fig. 1.

The casing 1 of the separator has a projecting inlet-branch 2 at one side and at the opposite side an outlet 3, these portions of the casing being connected to suitable steam supply and discharge pipes in the usual manner and as shown by dotted lines in Fig. 2.

The chamber 4 within the projecting receiving branch or neck of the casing is separated from the chamber 5 within the body of the casing by means of a partition 6, which extends some distance upwardly above the bottom of said chamber 4, as shown in Fig. 1, and some distance inwardly beyond the side walls of said chamber, as shown in Fig. 2, and has around its inner edge a forwardly-projecting flange 7. In consequence of this construction any liquid, such as oil or water of condensation, which may be at the bottom of the supply-pipe will be caught in the chamber 4 and will not be permitted to enter the main chamber 5 of the separator or come in contact with the deflector 9, which is contained in said main chamber, while any oil or water of condensation which may be thrown against either side of the supply-pipe by reason of any curvature of the same adjacent to the separator will likewise be caught in the chamber 4 and prevented from coming into contact with the deflector. The said deflector is of the type shown in Patent No. 579,377, dated March 23, 1897, and consists of a diverging wall with forwardly-projecting ribs thereon, so that as the volume of steam is divided by the flaring deflector and is directed to right and left in the casing 1 the liquid particles will strike these projecting ribs and will be retained thereby and directed into the well or receptacle 10, which is formed in the casing 1 below the chamber 5.

It has been found in practice that the separation of the liquid particles from the steam is best effected if the entire surface of the deflector is kept constantly covered with liquid film, as the particles of liquid in the steam will be caught and held better by such liquid film than by a metallic surface. Therefore the deflector is provided with a chamber 11, through which water or other cooling agent can be circulated, so as to chill the deflector and its projecting ribs and maintain it in such chilled condition, whereby sufficient of the steam will be condensed to maintain a film of water of condensation constantly upon the deflecting-surfaces. The inlet-pipe 12 for the water or other cooling agent preferably extends to the lower portion of the chamber 11, whereby the cool water will enter the lower portion of said chamber and the warmer water will escape through a suitable outlet 13 at the top of the casing 1.

The well or chamber 10 has a drain-pipe 14, which may communicate with any suitable drainage-tank, in which a partial vacuum is maintained, this drain-pipe having a branch communicating with the preliminary drainage chamber or well 4, as shown in Fig. 1.

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

1. A steam-separator having a casing with deflector therein, and having, in advance of said deflector, a supplementary receiving-chamber separated from the deflecting-cham-

ber by a partition which extends above the bottom of the pipe for supplying steam to the separator, substantially as specified.

2. A steam-separator having a casing with deflector therein, and having, in advance of said deflector, a supplementary receiving-chamber separated from the deflecting-chamber by a partition which extends upwardly above the bottom and inwardly beyond the sides of the pipe for supplying steam to said separator, substantially as specified.

3. A steam-separator having a casing with deflector therein, and having, in advance of said deflector, a supplementary receiving-chamber separated from the deflecting-chamber by a partition which extends inwardly beyond the walls of the pipe for supplying steam to the separator, and has, around its inner edge, a forwardly-projecting flange, substantially as specified.

4. A steam-separator having a hollow deflector for the steam and means for circulating water or other cooling agent through said deflector, 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:
HAURY F. HEINLY,
FOSTER S. BIEHL.