(No Model.)

A. F. GAIENNIE.

SEPARATOR.

No. 567,895. Patented Sept. 15, 1896.

Fig. 1.

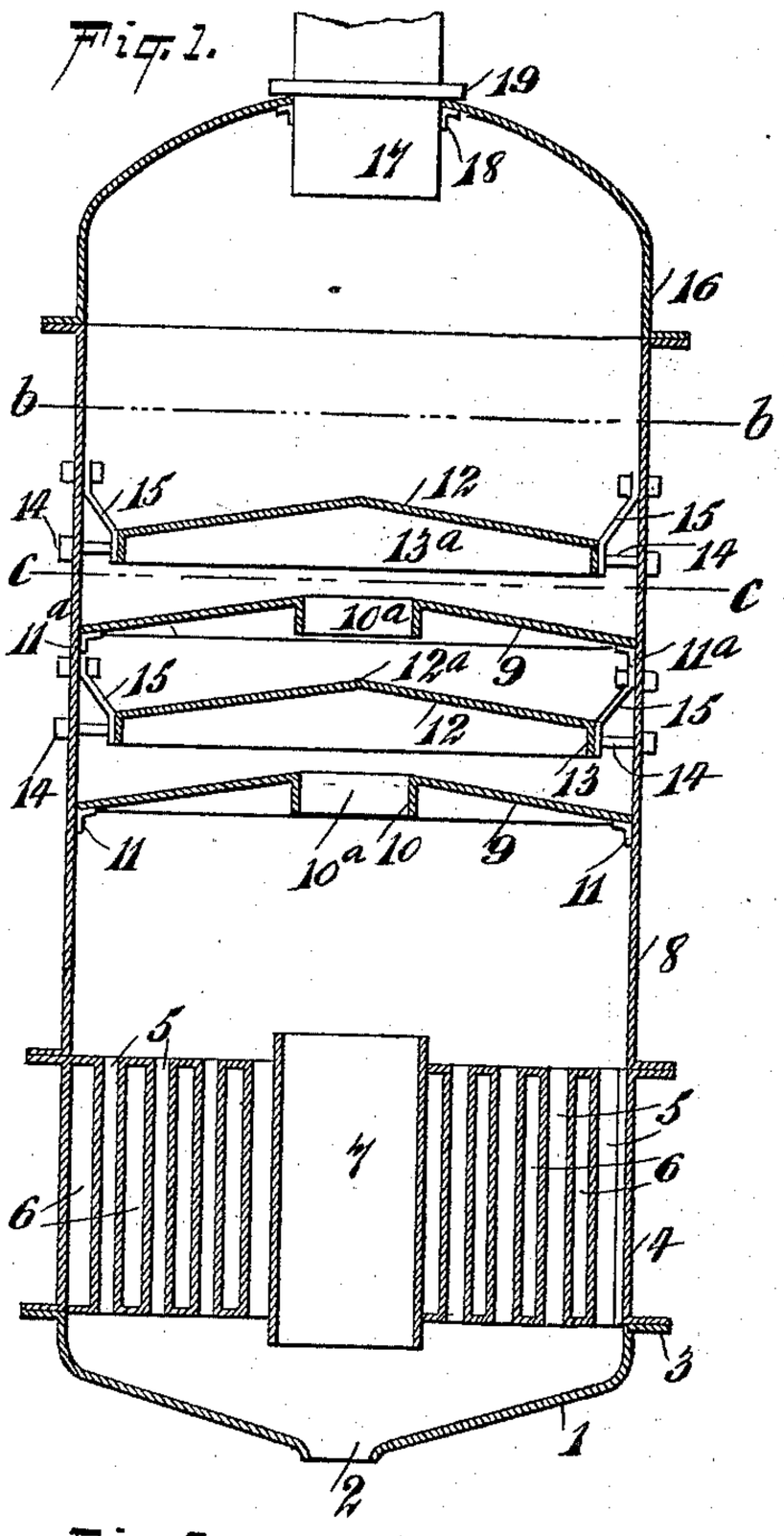


Fig. 4.

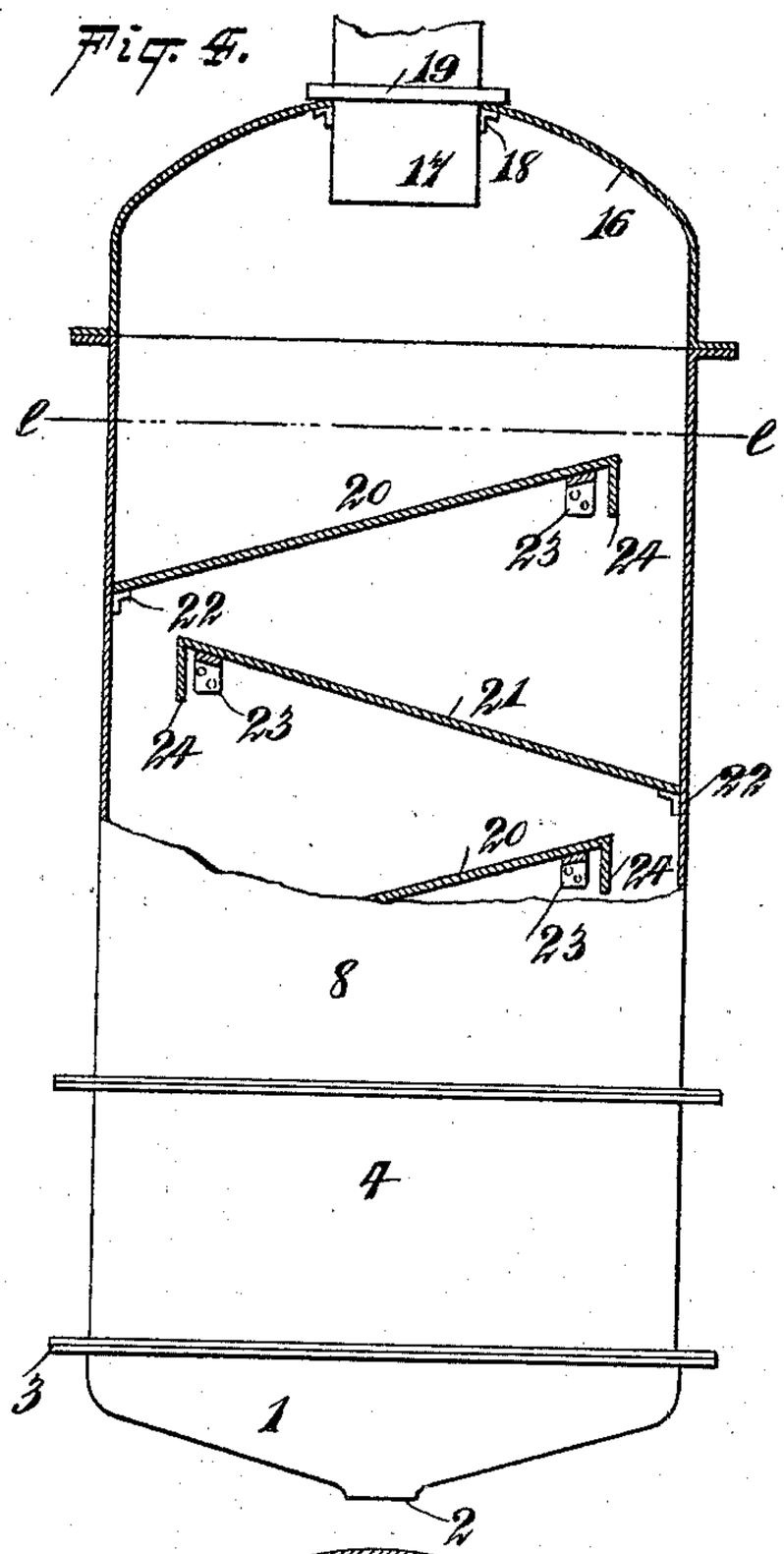


Fig. 2.

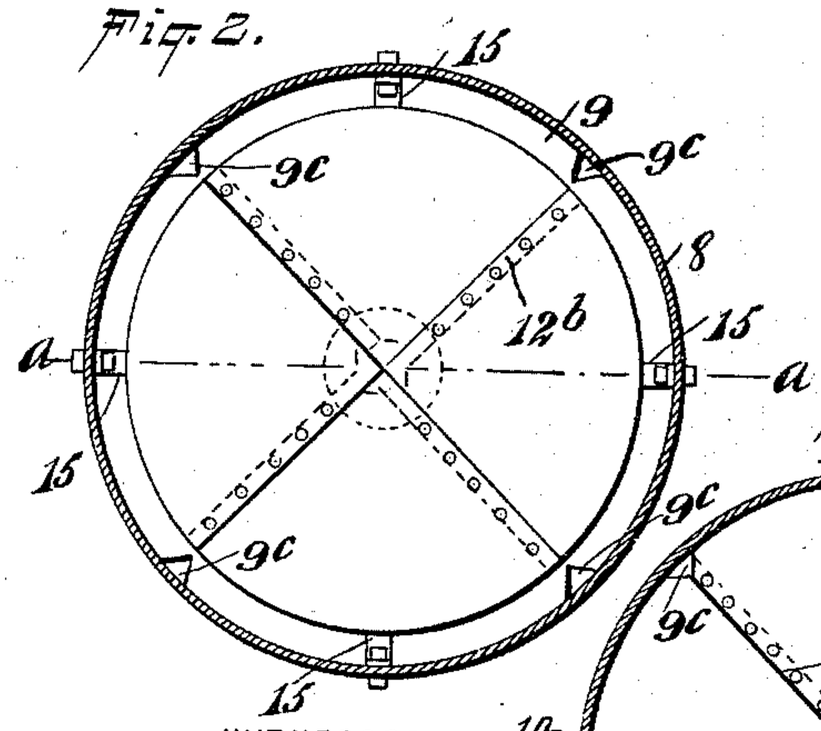


Fig. 3.

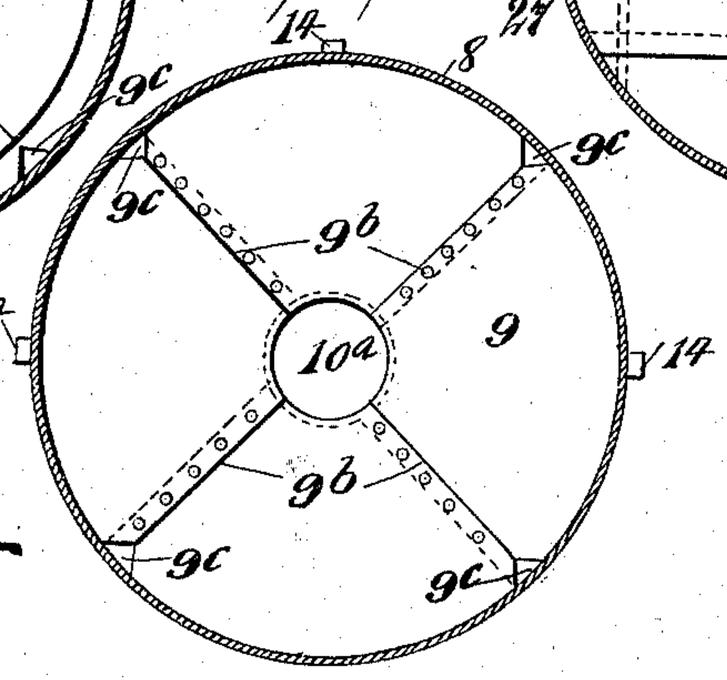
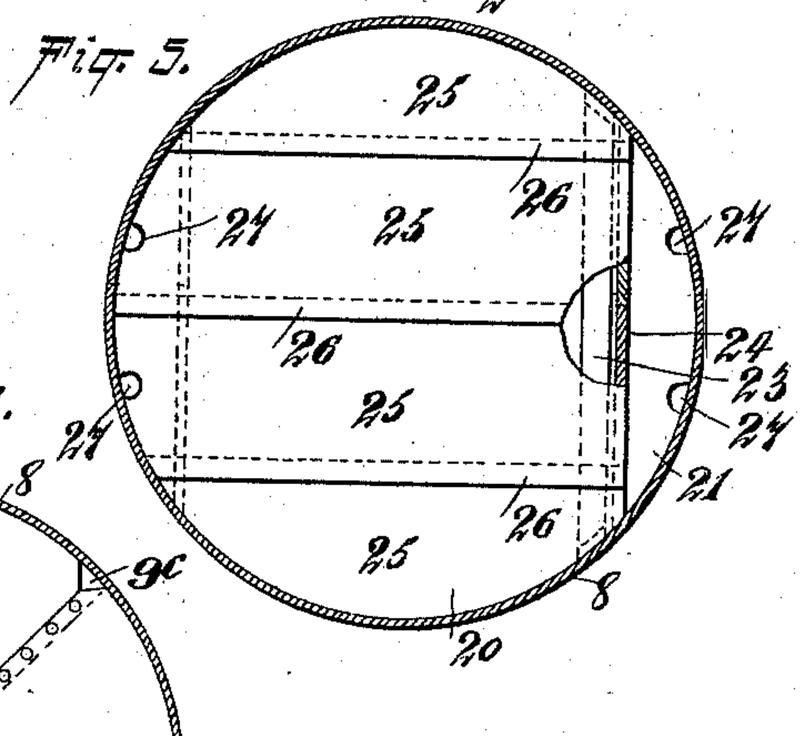


Fig. 5.



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SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 567,895, dated September 15, 1896.

Application filed December 30, 1895. Serial No. 573,790. (No model.)

To all whom it may concern:

Be it known that I, ALPHONSE FLORESTAN GAIENNIE, of La Fourche, in the parish of La Fourche and State of Louisiana, have invented a new and Improved Separator, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in separators, and particularly to that class of separators employed in connection with vacuum-pans and similar evaporating devices for separating and collecting the vapors and minute particles of liquid carried thereby; and the object of the invention is to provide a device of this character of a simple and inexpensive construction, which shall be adapted to effect a substantially perfect separation of the liquid from the vapor, the device being also adapted for separating oil and grease from exhaust-steam.

The invention consists in certain novel features of the construction, combination, and arrangement of the various parts of the improved separator, whereby certain important advantages are attained and the device is made simpler, cheaper, and otherwise better adapted and more convenient for use than prior devices of its class, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a section taken vertically through the axis of a separator constructed in accordance with my invention, the section being in the plane indicated by the line *a a* in Fig. 2. Fig. 2 is a transverse section taken through the separator in the plane indicated by the line *b b* in Fig. 1. Fig. 3 is a section similar to Fig. 2, but taken in the plane indicated by the line *c c* in Fig. 1. Fig. 4 is a view somewhat similar to Fig. 1, but having the lower part of the separator shown in elevation, this view being designed to illustrate a modified form of the invention; and Fig. 5 is a section taken transversely through the separator in the plane indicated by the line *e e* in Fig. 4.

As shown in Figs. 1, 2, and 3, the separator is provided with a cylindrical shell comprising a lower portion 1, having a tapered bottom provided with a central opening 2 for the admission of the vapors to the interior of the shell, and having at its upper edge a projecting annular flange 3, adapted to receive a similar flange on the lower part of the next section 4 of the shell, said section 4 being provided with a series of passages 5, extending through it and adapted to convey the vapors, and having between said passages 5 a chamber 6 to receive water or other cooling medium. The section 4 is provided with a central flue 7 for conveying the vapor up through said section into the upper part of the shell.

On the section 4 rests the body portion 8 of the shell, having in it a series of annular plates 9, formed with central perforations 10^a, the edges of the said plates 9 being formed with depending flanges 10, surrounding said central perforations 10^a, as clearly seen in Fig. 1. The upper faces of the plates 9 are made slightly conical or inclined from the edges of said central perforations 10^a toward the outer edges of the plates, and the said plates are of a diameter substantially equal to the interior diameter of the body portion 8 of the shell and are arranged transversely therein, being secured in place to the walls of the shell at their edges by means of brackets 11 or the like.

The plates 9 are spaced apart from each other, and between them are arranged other plates 12, also inclined on their upper surfaces, as indicated in Fig. 1, wherein said plates 9 and 12 are shown in section, and the plates are provided with annular depending flanges 13 at their edges and are of less diameter than the interior diameter of the body portion 8 of the shell, whereby annular spaces or flues are formed between the edges of the plates and the walls of the shell, as will be readily understood.

The plates 12 are arranged centrally within the body portion 8 of the shell and have their apices 12^a arranged beneath the centers of the perforations 10^a in the plates 9, and said plates 12 are held in place in the shell by means of bolts or rivets 14, set through their

edge flanges 13 and through the walls of the shell, as seen in Fig. 1, and the plates are further braced by depending brackets 15, which may be formed integrally with the brackets which support the edges of the plates 9, as indicated at 11^a in Fig. 1.

The plates 12 are by preference formed of four sections having overlapping edge portions, as indicated at 12^b in Fig. 2, which overlapping portions are riveted together, and the plates 9 are by preference likewise each formed of four sections having overlapping edge portions 9^b, riveted together, as seen in Fig. 3, and having at the edges of the plates cut-out portions forming apertures 9^c at the outer ends of said overlapping portions 9^b, whereby the liquid collecting on the upper inclined faces of the plates 9 and discharged thereupon from the flanges 13 of the plates 12 may escape through said apertures 9^c to the lower part of the shell of the separator.

The separator is provided with an upper section 16, having an outlet-flue 17, provided with a flange 19, which rests on the exterior of the said sections 16 and is held in place by brackets 18, as clearly seen in the drawings.

From the above description it will be seen that the device is of an extremely simple and inexpensive construction and is well adapted for the purposes for which it is intended; and it will be obvious from the description that the invention is susceptible of considerable modification without material departure from its principles and spirit, and for this reason I do not wish to be understood as limiting myself to the exact construction and arrangement of the various parts herein set forth. For example, in some cases it may be desirable to construct the device as shown in Figs. 4 and 5, wherein, in lieu of the plates 9 and 12, inclined in similar directions, plates 20 and 21 are employed, alternating with each other and inclined in opposite directions. In this form of the device the plates 20 and 21 are supported at their lower edges on brackets 22, secured to the sides of the body portion 8 of the shell, while the upper edges of said plates 20 and 21 are spaced away from the opposite sides of the shell and are provided with depending flanges 24 and supported on cross-braces 23, secured at their ends to the sides of the shell, as indicated in Figs. 4 and 5. Each of the plates 20 and 21 is by preference formed of a series of sections 25, having overlapping portions, as indicated at 26 in Fig. 5, and at their lower edges said plates 20 and 21 are formed with openings 27 for the passage of the liquid from their upper sides down into the lower portions of the separator.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a device of the character described, the combination of a shell, a series of inclined plates arranged transversely across the same and having their lower edges arranged adjacent to the walls of the shell, and provided with perforations for the passage of the liquid from the inclined upper surfaces of the plates to the lower portion of the shell, and other plates arranged above the plates of the first-mentioned series, said last-mentioned plates being inclined and having at their edges pendent flanges adapted to deliver the liquid therefrom onto the plates of the first-mentioned series, substantially as set forth.

2. In a device of the character described, the combination of a shell, and two series of plates arranged in the shell and extending transversely across the same, said plates having their upper surfaces inclined, and the lower portions of said upper surfaces arranged adjacent to the walls of the shell and being provided with depending flanges adapted to deliver the liquid condensing on their upper surfaces to the plates below, substantially as set forth.

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