F. O. MATTHIESSEN & A. A. GOUBERT.

DEVICES FOR COLLECTING THE SUGAR LIQUOR WHICH BOILS OVER FROM VACUUM PANS.

No. 191,538. Patented June 5, 1877.

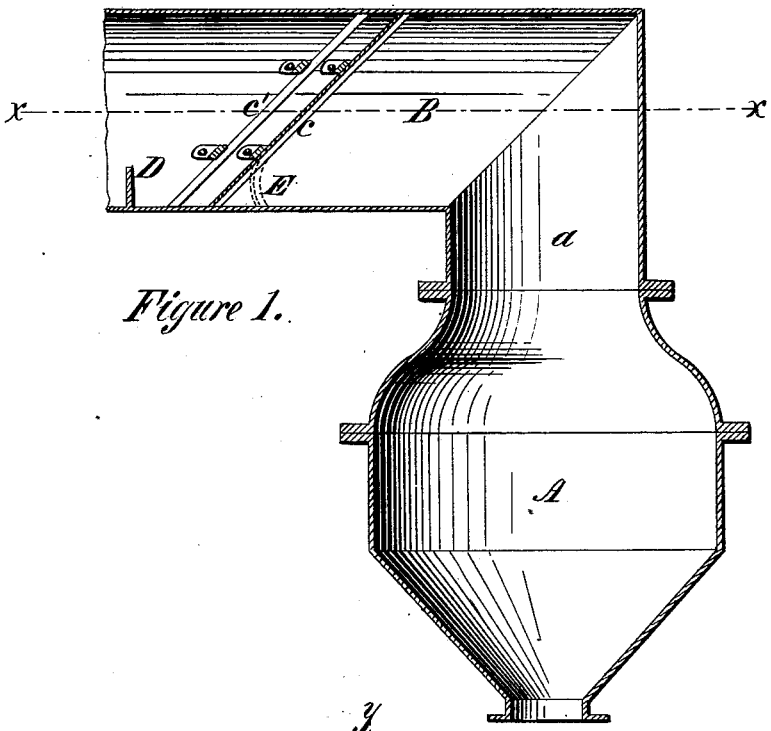


Figure 1.

Figure 2.

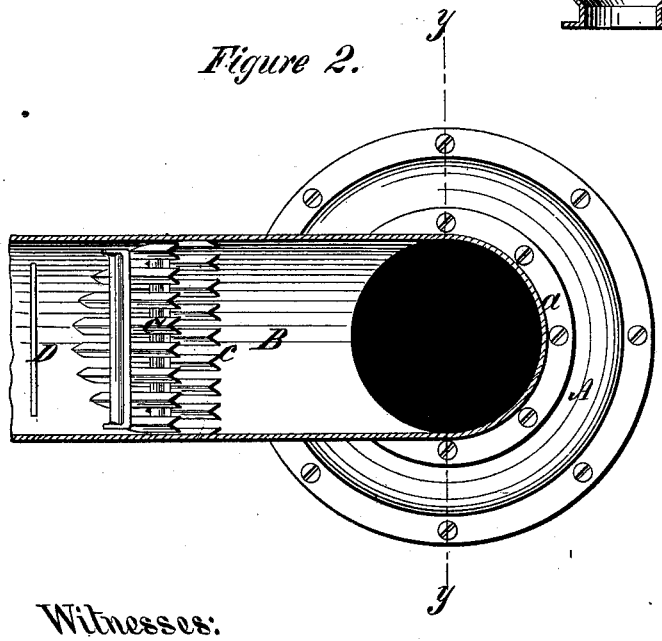
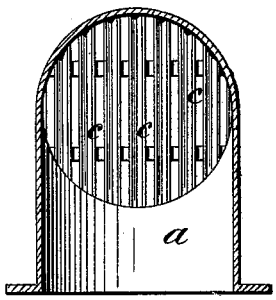


Figure 3.



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UNITED STATES PATENT OFFICE.

FRANZ O. MATTHIESSEN, OF IRVINGTON, AND AUGUSTE A. GOUBERT, OF NEW YORK, N. Y., ASSIGNORS TO SAID MATTHIESSEN.

IMPROVEMENT IN DEVICES FOR COLLECTING THE SUGAR-LIQUOR WHICH BOILS OVER FROM VACUUM-PANS.

Specification forming part of Letters Patent No. **191,538**, dated June 5, 1877; application filed March 15, 1877.

To all whom it may concern:

Be it known that we, FRANZ O. MATTHIESSEN, of Irvington, New York, and AUGUSTE A. GOUBERT, of the city and State of New York, have invented an Improvement in Devices for Collecting the Sugar-Liquor which Boils over from Vacuum-Pans, of which the following is a specification:

Our improvement relates to the use of deflectors in the goose-neck of vacuum-pans, for the purpose of separating fine particles or drops of sugar-liquor from the steam discharged from the vacuum-pan in which the sugar-liquor is boiling; and our invention consists in arranging deflectors in the goose-neck in inclined planes, the upper ends of the deflectors being inclined toward the neck of the vacuum-pan.

By this mode of construction a portion of the momentum of the drops of sugar-liquor is utilized for the purpose of diverting the drops from the path pursued by the current of steam, and directing them toward the bottom of the goose-neck, where they collect, and from which they run back into the body of sugar-liquor in the vacuum-pan.

The accompanying drawings are as follows:

Figure 1 is a central vertical section of a vacuum-pan, and a portion of the goose-neck or lateral chamber extending from the neck of the vacuum-pan to the condenser. Fig. 2 is a horizontal section through the line *x x* on Fig. 1. Fig. 3 is a vertical section of the neck of a vacuum-pan, through the line *y y* on Fig. 2, exhibiting a front view of the deflectors.

The drawings represent a vacuum-pan, A, of ordinary form, with its neck *a* joined to a lateral chamber or goose-neck, B. Arranged in parallel inclined planes across the goose-neck are two series of V-shaped deflectors, *c* and *c'*. The second series of deflectors *c'* are placed behind the spaces between the front series of deflectors *c*.

In another specification of even date herewith we have described deflectors arranged in vertical planes across the goose-neck. In the present case, owing to the fact that the upper ends of the deflectors are inclined toward the neck of the vacuum-pan, drops of sugar-liquor thrown out of the vacuum-pan and projected against the surfaces of the deflectors are turned downward, and thus a portion of their own momentum is utilized for separating them from the steam in which they are carried, and conducting them to the bottom of the goose-neck.

Behind the deflectors is the vertical wall D, extending transversely across the lower part of the goose-neck.

The deflectors are made of wood, sheet metal, or any suitable material, preferably V-shaped in cross-section, as shown in Fig. 2. The deflectors need not necessarily be straight. They may be curved longitudinally, or they may terminate at the lower end in a curve toward the neck of the vacuum-pan, as illustrated in Fig. 1, wherein the curved lower end E of the deflector is shown in dotted lines.

In operation, the steam from the vacuum-pan makes its way onward through the spaces between the deflectors. Drops of sugar-liquor carried along in the current of steam are projected against the under side of the inclined deflectors, and, owing to their adhesiveness, do not rebound therefrom. Under the combined effects of their gravity and of their deflection downward, which preserves a portion of their momentum, the drops of sugar-liquor are forced downward and conducted by the deflectors to the shell of the goose-neck.

When the deflectors are made with the curved lower ends E, portions of steam deflected downward by the inclined surfaces of the deflectors are turned backward toward the vacuum-pan, and are thus made to acquire a whirling motion. On the contrary, drops of liquor carried along in these whirling currents of steam, owing to their greater inertia, and under the effect of centrifugal action, remain adherent to the curved part of the deflector, and are conducted thereby to the shell of the goose-neck, where the curved part of the deflector terminates.

In this application we do not claim vertical deflectors, nor do we claim deflectors in combination with the transverse wall D; but

What we do claim as our invention, and desire to secure by Letters Patent of the United States, is—

1. In combination with the goose-neck of a vacuum-pan, a series of deflectors, substantially such as shown and described, erected within the goose-neck, and having their upper ends inclined toward the neck of the vacuum-pan.

2. A series of deflectors, substantially such as described, erected within the goose-neck of a vacuum-pan, and having their lower portions curved toward the neck of the vacuum-pan, substantially as described, and for the purpose set forth.

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