No. 630,365. Patented Aug. 8, 1899.

U. LAPLACE.

FILTER ATTACHMENT FOR CENTRIFUGAL MACHINES.

(Application filed Jan. 5, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

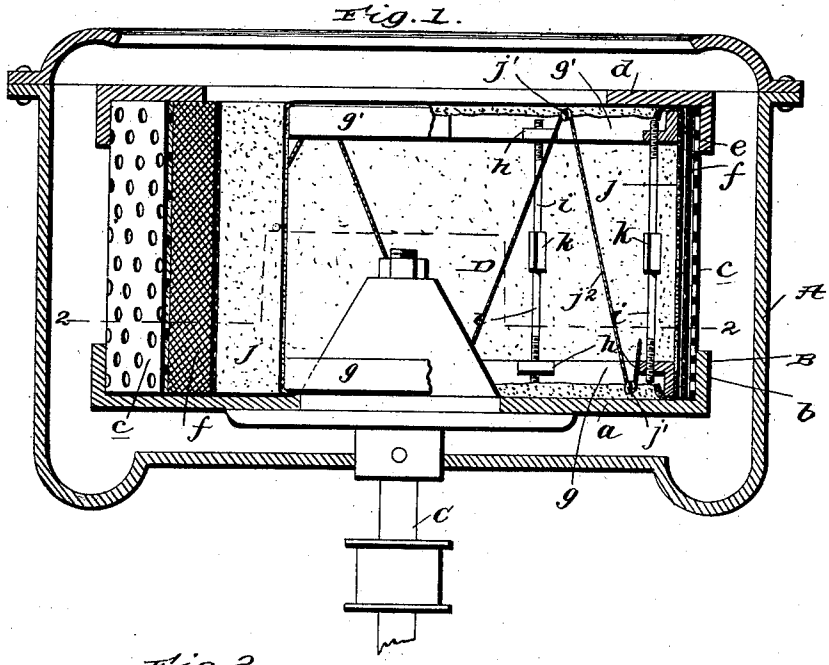


Fig. 2.

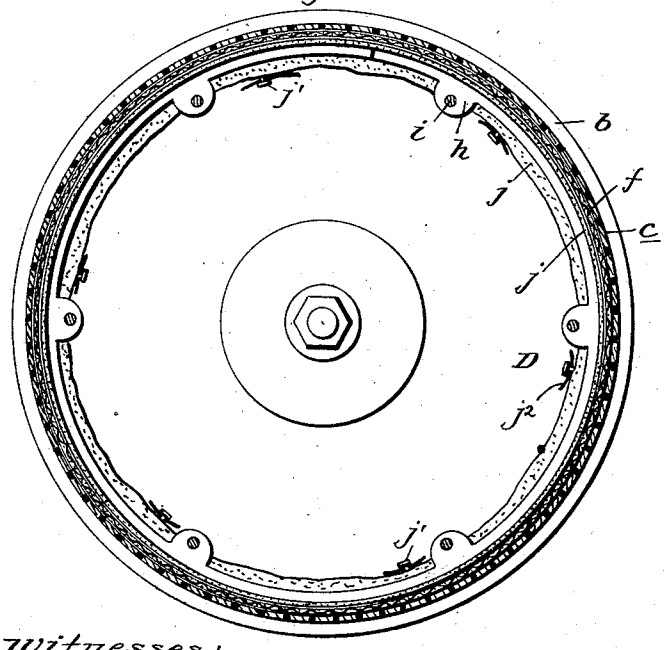
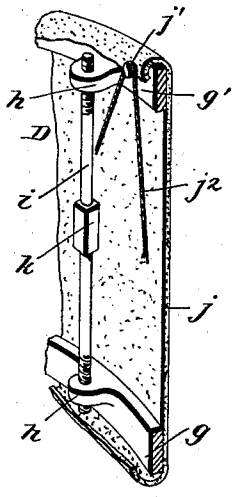


Fig. 3.



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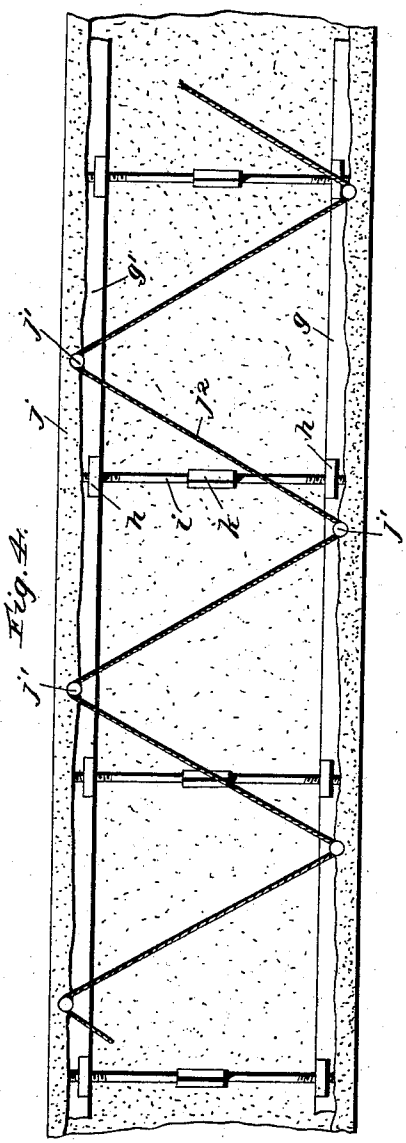


Fig. 2.

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UNITED STATES PATENT OFFICE.

ULYSSE LAPLACE, OF NEW ORLEANS, LOUISIANA.

FILTER ATTACHMENT FOR CENTRIFUGAL MACHINES.

SPECIFICATION forming part of Letters Patent No. 630,365, dated August 8, 1899.

Application filed January 5, 1899. Serial No. 701,261. (No model.)

To all whom it may concern:

Be it known that I, ULYSSE LAPLACE, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Centrifugal Machines, of which the following is a specification.

My invention relates to centrifugal machines and the application thereto of the principle of filtration of fluids by centrifugal force.

It consists of a filter attachment to a centrifugal machine, the said attachment being adapted to be placed in and removed from the rotary basket of an ordinary centrifugal machine and having for its purpose to remove all or almost all solid matter from fluids.

With the foregoing ends in view the invention will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which—

Figure 1 is a diametrical section of a centrifugal machine provided with my filter attachment. Fig. 2 is a section of the basket, taken in the plane indicated by the line 2 2 of Fig. 1. Fig. 3 is a sectional perspective view of a portion of my improved attachment. Fig. 4 is an elevation of my improved attachment in the position it assumes when removed from the basket of the centrifugal machine.

In the said drawings similar letters designate corresponding parts in all of the several views, referring to which—

A is the casing of an ordinary centrifugal machine, and B is a rotary basket arranged in the casing and fixed on a central shaft C, journaled in the bottom thereof. The basket may be of the ordinary or any other suitable construction and is shown as comprising a bottom wall *a*, having a marginal flange *b*, a circular foraminated side wall *c*, arranged within and connected to the flange *b* of the bottom wall, an annular top wall *d*, having a depending marginal flange *e* surrounding and connected to the upper portion of the side wall *c*, and an inner circular wall *f*, of wire-gauze, arranged within the wall *c* and suitably connected to the bottom wall *a* and top wall *d*.

D is my improved filter attachment. This attachment in the preferred embodiment of the invention comprises lower and upper resilient strips *g g'*, of steel or other suitable material, which have inwardly-directed apertured lugs *h* at suitable intervals, upright rods *i*, interposed between and connecting the lower and upper spring-strips, a filter-cloth *j*, arranged at one side of the frame formed by the resilient strips and connecting-rods and having its edge portions lapped over the resilient strips and provided with buttons *j'*, and a lace j^2, which is arranged at the opposite side of the frame with respect to the cloth *j* and is carried to and fro between the upper and lower buttons *j'* after the manner shown in Fig. 4, so as to hold the cloth on the frame. The resiliency of the strips *g g'* causes the filter attachment to assume the straight position shown in Fig. 4, when the attachment is removed from the basket of the centrifugal machine. Such resiliency of the strips also permits of the attachment being readily curved and placed in and removed from the basket and when the attachment is in the basket causes the same to hug the wall of the basket.

As before stated, the lower and upper portions of the cloth *j* are lapped over the lower and upper strips *g g'*, and hence it will be seen that when the attachment is placed in the basket B and said strips are spread apart or moved toward the bottom wall *a* and top wall *d* the cloth will be clamped between them and said bottom and top walls in such manner as to preclude the passage of juice between the cloth and walls. The pressing of the strips *g g'* against the bottom and top walls of the basket B also serves to fix the attachment in its circular position within the basket. When said strips are moved away from the walls of the basket, the attachment will be released and may then be readily removed from said basket for the purpose of cleansing the filter-cloth or for any other purpose.

In order that the strips *g g'* may be readily moved toward and away from each other for the purposes described, I provide the apertures in the lugs *h* of one strip with threads disposed in one direction and the apertures in the lugs *h* of the other strip with threads disposed in the opposite direction. I also provide the connecting-rods *i* with oppositely-

disposed threads at their ends to engage the threaded apertures of the strips and with angular enlargements *k* at an intermediate point of their length. By reason of this construction it will be seen that the rods *i* may be readily turned in either direction and that when they are turned in one direction the strips *g g'* will be moved toward the bottom wall *a* and top wall *d* of the basket, respectively, while when they are turned in the opposite direction the strips will be moved away from the top and bottom walls. It follows from this that the operator is enabled through the medium of the rods *i* to readily secure the filter attachment in position in the basket and as readily release said attachment when it is to be removed.

My improved attachment is designed to filter by centrifugal action incident to the rapid rotation of the basket B, and its cloth *j* is calculated to remove all or almost all solid materials from fluid, so that the same will be delivered to the casing A of the machine in a perfectly pure state.

It will be understood from the foregoing that my improved filter attachment may be readily placed and secured and used to advantage in the baskets of centrifugal machines such as at present in use and may as readily be removed when desired. It will also be appreciated that the attachment, while very cheap and simple, is calculated to greatly increase the efficiency of the machine to which it is applied, and when used to filter boiling cane-juice it effects a thorough separation of all gummy substance and other impurities from the juice and permits only the pure juice to leave the basket.

Having thus described my invention, what I claim is—

1. A filter attachment for centrifugal machines, comprising a resilient frame, and a filter-cloth secured on the frame, whereby said attachment may be compressed as by coiling to place it in the basket of a centrifugal machine, and when so placed to expand as by uncoiling and hug the wall of the basket, substantially as specified.

2. A filter attachment for centrifugal machines comprising upper and lower normally straight resilient strips, a suitable adjustable connection between said strips, and a filter-cloth suitably secured on the frame formed by the resilient strips and the connection between the same, substantially as specified.

3. A filter attachment for centrifugal machines comprising upper and lower resilient strips, a suitable adjustable connection between said strips, a filter-cloth arranged at one side of the frame formed by the strips and connection and having its edge portions lapped over the said strips, and a lace arranged at the opposite side of the frame with respect to the cloth and carried to and fro between the edge portions of the cloth, substantially as specified.

4. A filter attachment for centrifugal machines comprising upper and lower resilient strips having lugs provided with threaded apertures; the threads of the apertures of one strip being disposed opposite to the threads of the apertures of the other strip, connecting-rods interposed between the strips and having oppositely-threaded ends arranged in the apertures of said strips and also having intermediate angular portions, a filter-cloth arranged at one side of the frame formed by the strips and connecting-rods and having its edge portions lapped over the strips, and a lace connecting said edge portions of the cloth and securing the same on the frame, substantially as specified.

5. In a centrifugal machine, the combination with a basket having upper and lower walls and a foraminated side wall; of a filter attachment arranged in the basket between the upper and lower walls and adjacent to the side wall thereof and comprising upper and lower strips, a rigid, adjustable connection between the strips, and a filter-cloth arranged at one side of the frame formed by the strips and connection and having its edge portions interposed between the strips and the top and bottom walls of the basket, substantially as specified.

6. A filter attachment for centrifugal machines comprising a frame, a filter-cloth arranged at one side of the frame and having its edge portions lapped over the edges of the frame, and a lace arranged at the opposite side of the frame with respect to the cloth and carried to and fro between the edge portions of the cloth, substantially as specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ULYSSE LAPLACE.

Witnesses:
LOUIS EBERT,
W. P. KILLELEA.