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CENTRIFUGAL MACHINE.

APPLICATION FILED JULY 19, 1912.

1,057,856.

Patented Apr. 1, 1913.

2 SHEETS-SHEET 1.

Fig. 1.

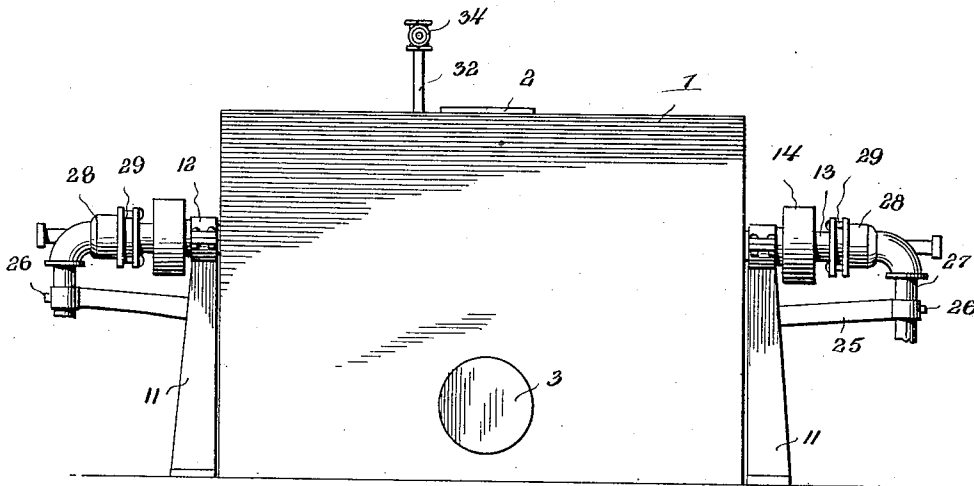


Fig. 3.

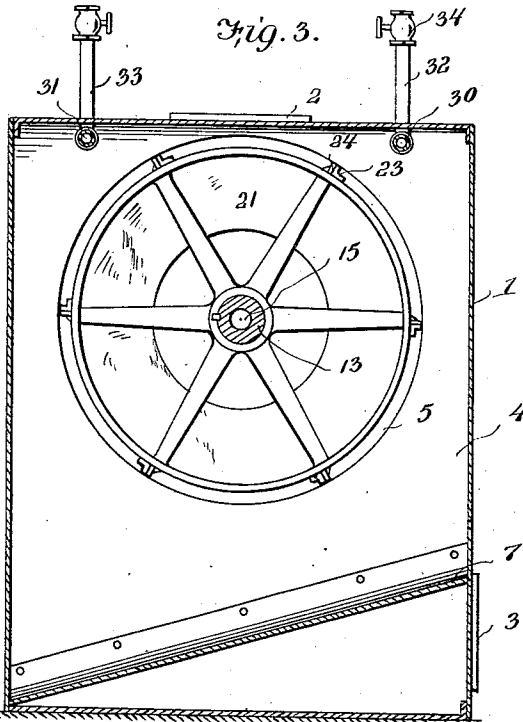


Fig. 4.

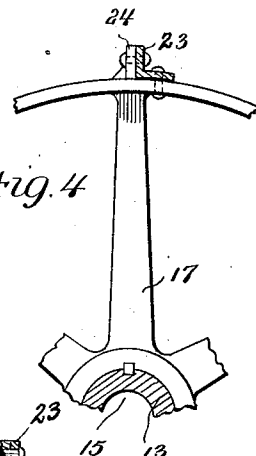
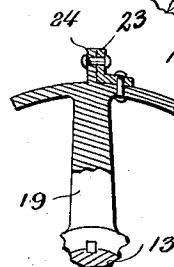


Fig. 5.



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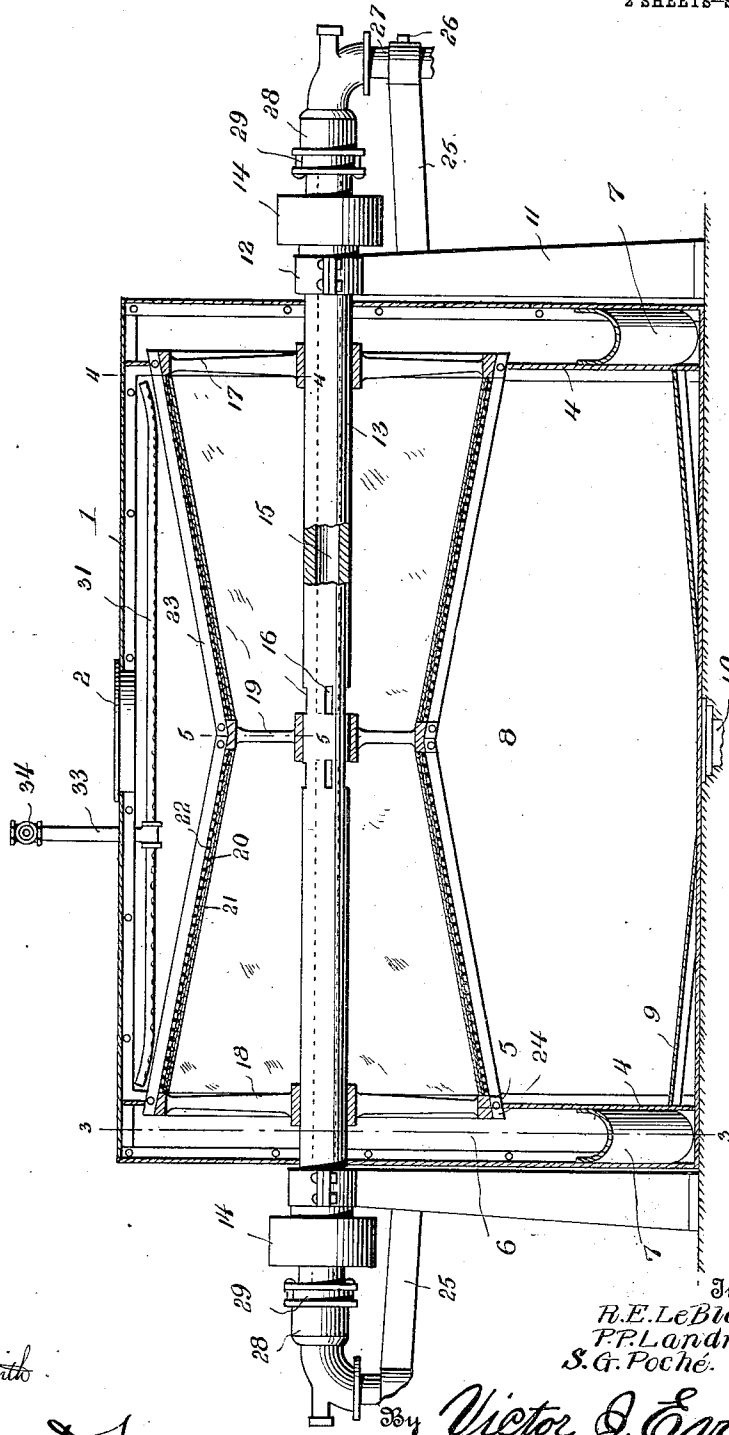
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Fig. 2.



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CENTRIFUGAL MACHINE.

1,057,856.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ROBERT E. LE BLANC, PIERRE P. LANDRY, and SAMUEL GEORGE POCHÉ, citizens of the United States, residing at Paincourtville, in the parish of Assumption and State of Louisiana, have invented new and useful Improvements in Centrifugal Machines, of which the following is a specification.

10 This invention relates to centrifugal machines and one of the principal objects of the invention is to provide a simple and efficient device of this character for filtering or clarifying liquids of different densities, such as cane juice, molasses, and like substances. It is a well known fact that devices of this type have heretofore been devised to filter such liquids as cane juice, molasses, etc., but up to the present time, it is not known that these machines have attained the proper amount of efficiency to place them into general use. It is believed that this results from the fact that heretofore, as far as is generally known, these centrifugal machines have been constructed with one cone supplied with filtering fabric. It has been found in practice that this type of machine cannot be made to attain the proper speed without destroying the same, owing to the fact that it is unevenly balanced.

It is the object of this invention to avoid these difficulties and, broadly speaking, consists in producing a double cone centrifugal, whose walls diverge from the center thereof and in which the feed of liquid is from the center of both cones outwardly.

A further object of the invention is the provision of means for readily cleansing the filter and further means for effectively separating the impurities or residue from the filtered liquid.

Further objects of this invention will appear as the following specific description is read in connection with the accompanying drawings, which form a part of this application, and in which:—

Figure 1 is a side elevation. Fig. 2 is a longitudinal sectional view. Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 2. Fig. 4 is a sectional view on the line 4—4 of Fig. 2. Fig. 5 is a detail sectional view on the line 5—5 of Fig. 2.

Referring more particularly to the drawings, 1 represents a suitable casing which is

provided with cap man holes 2 and 3, by which access may be had to the interior of the casing for cleansing pipes. Extending across the casing are partitions 4 arranged adjacent each end and eccentrically apertured, as shown at 5, to receive the centrifugal cones, as will be hereinafter described. These partitions form spaces 6 at each end of the casing in which are located troughs 7 arranged on an incline to discharge the residue received from the cones. The space between the partitions indicated at 8 is adapted to receive the juice from the cones and the casing is provided with an inclined bottom 9 which directs the fluid which has been filtered to the discharge opening 10 in the bottom.

Arranged upon a suitable support at opposite ends of the casing are standards 11 carrying bearings 12 at their upper end in which a shaft 13 is journaled. This shaft has secured to its opposite end suitable driving pulleys 14 and is provided with a central bore 15 which extends throughout its length and opens into the casing by means of the slots 16. Mounted upon the shaft within the casing are suitable spiders 17, 18 and 19, the latter being arranged in the middle of the shaft between the slots 16 and being of smaller circumference than the spiders 17 and 18. Secured to all of these spiders is a double cone-shaped screen 20 to which is attached a filtering fabric 21. This screen is held in place by a double cone plate 22 provided with perforations throughout its length and this plate is secured to a brace by angle irons 23 which are connected to lugs 24 formed on the spiders 17, 18 and 19.

Extending outwardly from the uprights 11 are arms 25 which have adjustably secured in their outer ends by means of set screws 26 the inlet pipes 27 which carry the coupling 28. These couplings are of L-form and have suitable packing glands 29 to tightly surround the shaft and prevent leakage.

It will be seen that as the liquid is fed from opposite directions that it is distributed equally upon opposite sides of the spider 19, thereby insuring an equal amount of work by each cone and, therefore, a balanced structure.

In order to thoroughly clean the filter and

the interior of the casing, we mount therein adjacent the top suitable perforated pipes 30 and 31 which are supplied with steam through the pipes 32 and 33 having valves 5 34 to control the supply.

In the operation of the device, the liquor is fed into the bore 15 and discharged through the slots 16 against the walls of the cones, the shaft and cones being rotated at a high rate 10 of speed to force the liquor through the fabric and screens by centrifugal action. All the impurities are carried out through the large end of the cone into the spaces 6 and down the troughs to a suitable outlet. The 15 liquor which is forced through the filtering fabric is thrown up against the casing and runs down upon the same to the discharge opening 10.

In the appended claims, we shall probably 20 make use of the term "double cone cylinder" which refers in its entirety to the two cones consisting of the screen fabric and the perforated plates, together with their connection to the shaft 13.

In practice, we preferably make the end 25 plates of the casing removable so that the shaft and its attached filtering cylinder may be readily removed from the casing for any purpose.

30 What is claimed is:—

1. In combination, a casing, a hollow shaft eccentrically mounted therein, and a double cone filtering cylinder carried by and 35 rotating with the shaft.

2. In combination, a casing, a hollow shaft eccentrically mounted therein, a double cone filtering cylinder mounted on the

shaft, and means to feed liquid to the center of said cylinder.

3. In combination, a casing, a hollow 40 shaft mounted therein, means for rotating the shaft, a double cone filtering cylinder carried by the shaft, the walls of which diverge from the center, and means for feeding liquid from the center of said cylinder. 45

4. A centrifugal filtering machine comprising a hollow shaft, a cylinder mounted upon the shaft and consisting of two cones joined together at their small ends, said shaft having slots arranged adjacent the 50 juncture of the cones, and means for driving the shaft.

5. In a centrifugal filtering machine, a casing, partitions in the casing having eccentrically arranged apertures, a shaft journaled in the casing and extending through 55 said apertures, said shaft having a longitudinal bore and centrally arranged slots communicating with the bore, a double cone filtering cylinder secured to the shaft and having 60 its large end lying in the apertures, means for driving the shaft in the cone, and means lying in the spaces between the ends of the casing and the partitions for conducting the residue from the cones to a discharge 65 opening in the casing.

In testimony whereof we affix our signatures in presence of two witnesses.

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