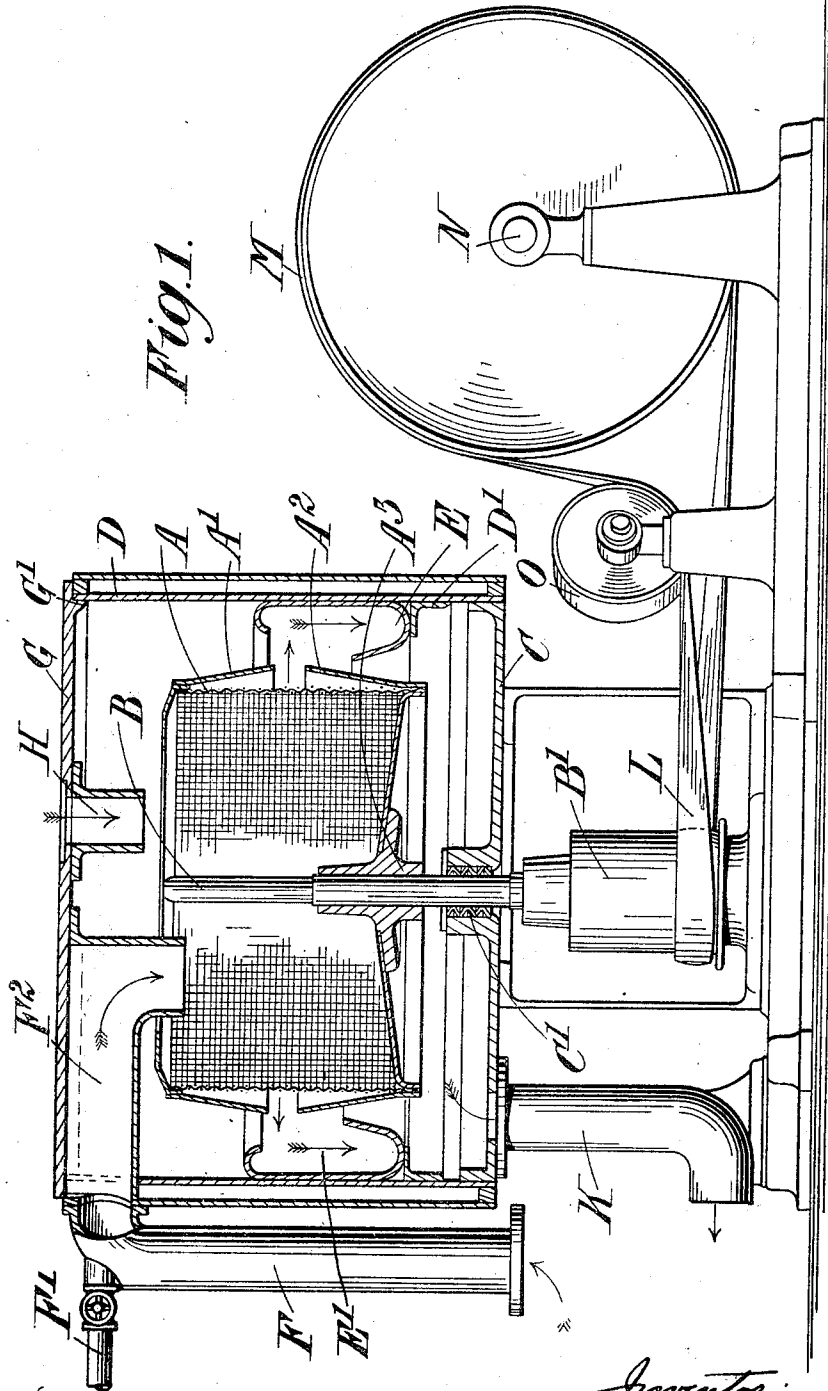


W. A. FREYMUTH.
CENTRIFUGAL SEPARATOR.
APPLICATION FILED APR. 4, 1910.

1,033,884.

Patented July 30, 1912.

2 SHEETS—SHEET 1.



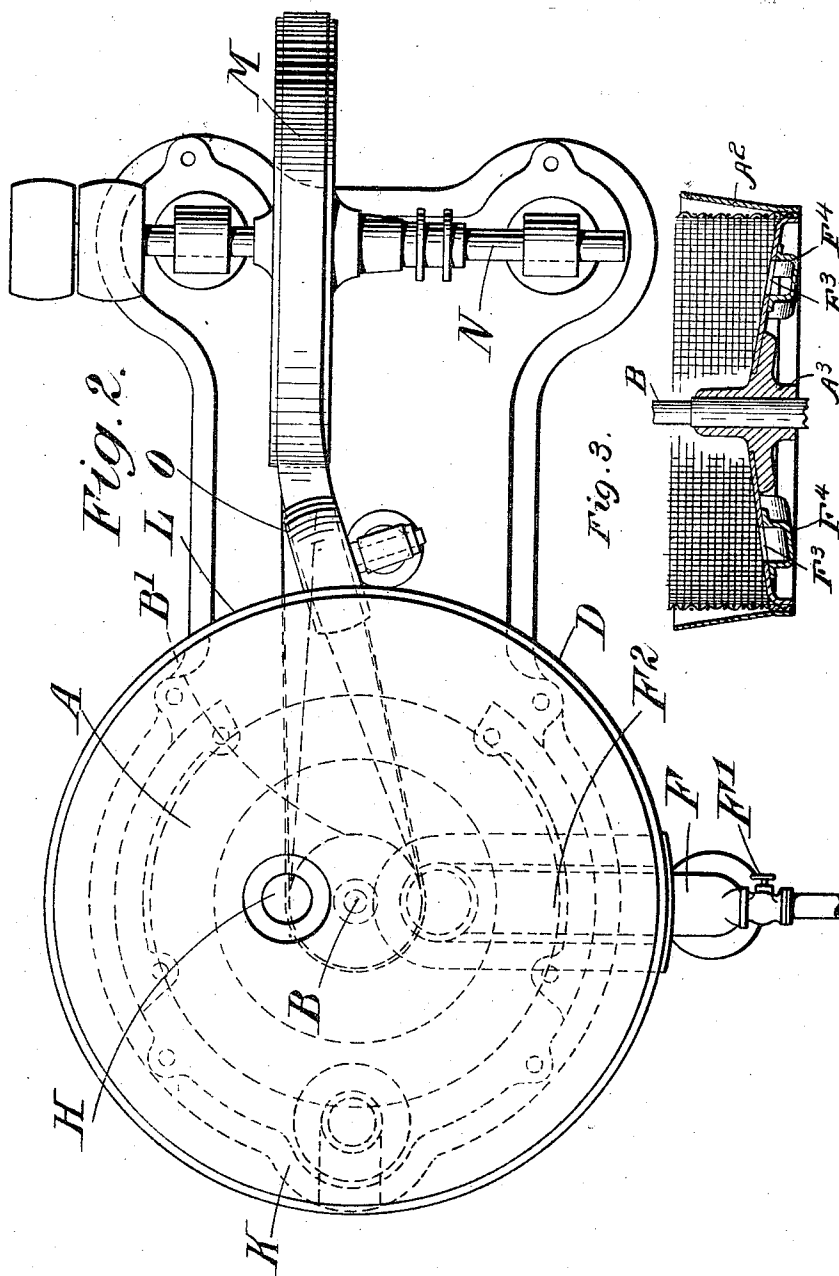
Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM ADOLF FREYMUTH, OF LONDON, ENGLAND.

CENTRIFUGAL SEPARATOR.

1,033,884.

Specification of Letters Patent.

Patented July 30, 1912.

Application filed April 4, 1910. Serial No. 553,317.

To all whom it may concern:

Be it known that I, WILLIAM ADOLF FREYMUTH, A. I. M. and M., a subject of the King of England, residing at London, England, have invented certain new and useful Improvements in Centrifugal Separators, of which the following is a specification.

This invention relates to centrifugal separators for use in the filtration and refining of lac or substances containing lac.

According to this invention a centrifugal separator comprises the combination with a removable annular trough secured to the inner walls of an inclosing housing and so disposed as to receive the fluid expelled from the centrifugal basket and means for heating the material undergoing the treatment with or without guides to control the direction of discharge of the expelled fluid.

According to one modification a porous basket may be employed in which case annular guide flanges will be secured to its outer periphery to control the direction of discharge of the expelled fluid.

Further features of the invention will be apparent from the following description which is taken in conjunction with the accompanying drawings, in which—

Figure 1 is an elevation partly in section of the centrifugal separator and driving mechanism therefor. The conduits F, F² and K and the charging inlet H are shown in this figure diagrammatically for the sake of clearness, but are illustrated in their correct position in Fig. 2 which is a plan view of Fig. 1. Fig. 3 is a sectional view illustrating a slight modification.

A basket A carried by a shaft B has annular guide flanges A¹, A² secured to the top and bottom of the basket respectively. The basket may be made perforated, in which case it would be provided with a filtering cloth. Preferably, however, it is constructed from a 60 mesh sieve material, which, while freely allowing the liquid purified lac to pass through will retain the impurities on its inner surface. The spindle B is keyed to a sleeve A³ secured to the basket and is mounted in bearings C secured to the base C of the surrounding casing D. The housing D which is secured to a flange on the base C is formed in two portions, the space between the two portions forming an air jacket which assists in preventing radiation of heat from the machine.

This space may, if desired, be filled with insulating material. An annular flange D¹ is secured to the inner surface of the casing D and supports an annular trough E. The upper portion of the trough E is curved or bent over and a space E¹ is left between the lower edge of the turned over portion and the wall of the trough. The space E¹ registers with the gap between the flanges A¹ and A² secured to the basket A so that material discharged from the basket is guided by the flanges A¹ A² into the trough E. An inlet conduit F for hot air or other gas is secured near the top of the casing D in any convenient manner and has at its upper end a valve controlled inlet F¹ for the admission of water vapor.

A cover G fits closely over the housing D making a good joint therewith by means of an internal projecting flange G¹. Secured to the cover G is a conduit F² which when the cover is in position communicates at one end with the conduit F forming with it a close joint. The other end of the conduit F² is formed at right angles with the main portion thereof so as to conduct gases from the conduit F to the interior of the basket A. A charging inlet H for the admission of the substances to be treated is also provided in the cover G. An outlet conduit K for the hot air or other gases is provided in the base C of the machine. Secured to the spindle B is a pulley B¹ which is driven by means of a belt L from a driving wheel M. The driving wheel M is driven from a shaft N, the latter in its turn being driven by any suitable source of power. A jockey pulley O serves to maintain the belt in its correct position relatively to the driving wheel M and the pulley B¹.

The operation of the apparatus is as follows:—The lac is treated as described in my previous British patent specification No. 22218 of 1909 or is otherwise cleaned preparatory to its insertion in a centrifugal separator. It is then fed through the charging inlet H of the separator into the basket A, and it may be added either in a cold or molten condition. The machine has beforehand been heated while running by means of a hot air supply through the inlet F together with a small percentage of water vapor admitted through the valve controlled inlet F¹. The temperature to which the machine is raised is preferably between 90° and 135° C., but must be raised according

to the age and the variety of the lac to be treated. The hot air is admitted through the inlet F² into the interior of the basket, the latter being rapidly rotated by means of the gearing above described. The lac is molten under the action of the hot air and the pure lac filters through the basket A and passes from thence into the trough E.

In a modified construction instead of admitting hot air through the conduit F² the bottom of the basket may have holes F³ formed therein each hole being provided with a wind-scoop F⁴ so that hot air is sucked into the basket. After the charge has been completely treated the cover G is removed and the trough E is then drawn out of the housing D. The contents of the trough can then be treated in any convenient manner, for example as described in the previous patent application No. 22218 of 1909. By means of the inlet conduit F² it is found that the hot air circulates with the lac in the basket and passes out through the perforations together with the lac. This intimate contact of the hot air containing water vapour with the lac is found to have a beneficial effect.

It is obvious that various modifications may be made in carrying this invention into effect, and although one particular construction has been described in detail the invention is not limited to such construction. For example, in place of the gearing described for driving the centrifugal basket any convenient gearing may be employed either with under or over drive. Also in place of hot air and water vapor any suitable gas heated to a required temperature may be employed. It will also be possible to arrange an annular receiver for use with a solid basket. The molten clear lac being thrown over the top edge of the basket and the impurities remaining packed against the inside walls of the basket.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a centrifugal separator for the treatment of lac or substances containing lac, the combination of a housing, a revoluble basket within the housing, a removable annular trough positioned to receive and retain liquid expelled from the basket, and means for heating the material undergoing treatment.

2. In a centrifugal separator for the treatment of lac or substances containing lac the combination with a porous basket having guide flanges on its outer periphery to control the direction of discharge of the expelled liquid, of a removable annular trough secured to the inner walls of the inclosing housing and so disposed as to receive and retain the liquid expelled from the basket, and means for heating the material undergoing treatment.

3. In a centrifugal separator for the purpose described, the combination of a housing provided with suitable inlet and outlet openings for a heating medium, and having a removable cover in which is formed an inlet for the material to be treated, a revoluble basket adapted to receive material through said feed opening, and a receptacle surrounding the basket, to receive and retain liquid expelled therefrom, and removable from the housing.

4. In a centrifugal separator for the purpose described, the combination of a housing provided with suitable inlet and outlet openings for a heating medium, and having a removable cover in which is formed an inlet for the material to be treated, a revoluble basket adapted to receive material through said feed opening, a receptacle surrounding the basket and having an annular opening in its side wall adjacent the basket below the upper edge of said wall, and means on the basket for directing liquid expelled therefrom into said opening.

5. In a centrifugal separator for the purpose described, the combination of a housing provided with suitable inlet and outlet openings for a heating medium, and having a removable cover in which is formed an inlet for the material to be treated, a revoluble basket adapted to receive material through said feed opening, a receptacle surrounding the basket and having an annular opening in its side wall adjacent the basket below the upper edge of said wall, and outwardly flaring flanges about the upper and lower ends of the basket, the space separating the free edges of said flanges being in alinement with the opening in said receptacle.

6. In a centrifugal separator, the combination of a suitable casing, having inlet and outlet openings for a heating medium, a revoluble basket within said casing, and a cover for an aperture in the top of the casing having an opening for supplying material to be treated to the basket and a conduit adapted to communicate with the inlet for the heating medium in the casing and with the basket.

7. In a centrifugal separator, the combination of a casing open at the top and provided with inlet and outlet openings for a heating medium, a revoluble basket within the casing, and a cover for closing the opening in the top of the casing and having on its under surface a radially extending conduit adapted to communicate at its outer end with the inlet opening for the heating medium, and having its inner end deflected downwardly to enter the basket.

8. In a centrifugal separator, the combination of a casing open at the top and provided with inlet and outlet openings for a heating medium, a revoluble basket within

the casing, a receptacle surrounding the basket and removable through the opening in the top of the casing, and a cover for closing the upper end of the casing having
5 connected therewith means for connecting the inlet opening for the heating medium with the interior of the basket.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM ADOLF FREYMUTH.

Witnesses:

H. C. COXE,

JOHN J. BAKER.