

E. JAHN.
CENTRIFUGAL MACHINE.
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1,032,285.

Patented July 9, 1912.

Fig1.

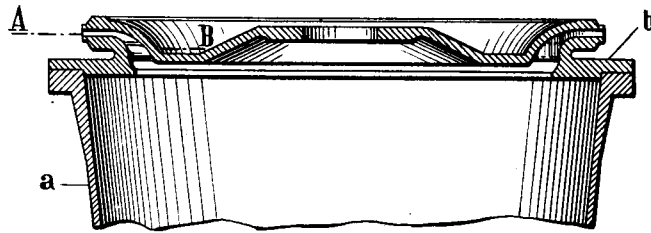
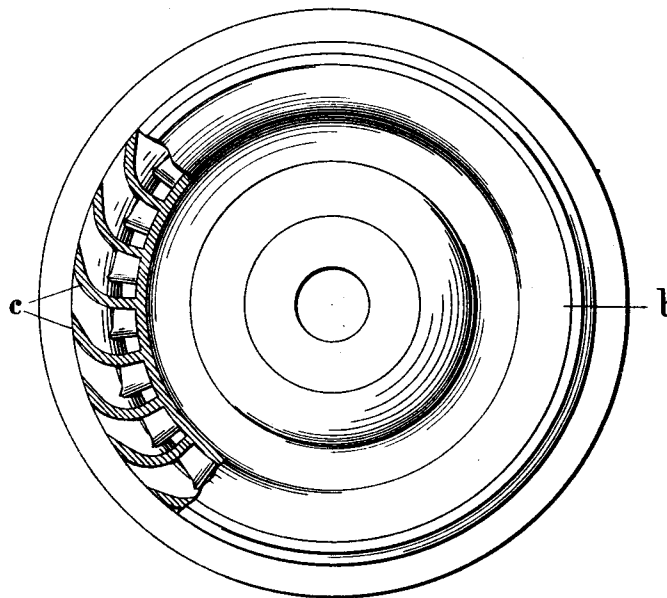


Fig2.



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UNITED STATES PATENT OFFICE.

ERNST JAHN, OF ARNSWALDE, GERMANY.

CENTRIFUGAL MACHINE.

1,032,285.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ERNST JAHN, civil engineer, a subject of the German Emperor, and resident of Bahnhofstrasse 12, Arnswalde, in the Kingdom of Prussia, Germany, have invented a new and useful Centrifugal Machine, of which the following is a specification.

Centrifugal machines and in particular those in which large quantities of liquids are to be separated from each other or from more or less solid constituents, necessitate as is well known a considerable amount of working power. This is due to the fact that a very high speed must be imparted to the masses of liquids which are admitted at a low speed, since the intended separation can be effected only at high speed. The liquids thus separated possess, however, this high speed still after the separation and in leaving the centrifugal machine the energy which has been imparted to the liquids is thus lost without being utilized.

Now according to the present invention, the energy imparted to the liquids is converted into mechanical work by means of turbine-like devices. In the simplest manner this is effected in centrifugal machines which are provided with a rotary casing. A centrifugal machine of this kind is illustrated by way of example in the accompanying drawing, in which—

Figure 1 is a vertical section of the upper part of the rotary machine casing, and Fig. 2 is a plan view partly in section on the line A—B.

The casing *a* of the machine is rotatably journaled about its longitudinal axis and being connected with the driving shaft, may either derive its rotary power from the latter or transmit rotation to the driving shaft. The mode of connecting the casing with the driving shaft, the separating device located within the casing, the conveying mechanism as well as the device for admitting the liquids to be separated, and those for discharging the more or less solid constituents, form no part of the present invention, and have, therefore, been omitted.

Arranged on the rotary casing *a* is a cover *b*, provided on its circumference with blades *c*. These blades are constructed in exactly the same manner as turbine blades so that the cover *b* may be looked upon as

a turbine adapted to drive the casing *a*, provided the pressure medium is discharged from the casing *a* through the blades. In the event of several liquids separated in the centrifugal machine being so discharged, each liquid may be caused to first pass through a turbine device intended for driving purposes.

The shaft of the centrifugal machine may be horizontal, vertical, or may have an oblique position if desired. By preference, however, it is arranged in a horizontal position. The present invention may, moreover, be used in such a manner that not only the liquid but also the solid constituents are caused to pass through the turbine-like arrangement and their energy to be converted into work in the turbine device. This mode of using the invention will be resorted to in all cases where large quantities of solid constituents are obtained and if desired in connection with the utilization of the energy involved in the outgoing liquid, for instance, in the manufacture of sugar. In this case the blades will obviously be arranged on that end at which the solid constituents are separated.

Claim:

In a centrifugal machine, the combination with a rotary drum, of a cover for said drum having inclosed outlets leading therefrom in communication with the interior of the drum, the walls of said outlets being curved in a direction opposite to the direction of rotation of said drum whereby the energy spent in imparting motion to the liquid may be recovered and assist in rotating the centrifugal machine, the roof of said outlets being upwardly and rearwardly curved whereby the liquid may readily enter and discharge therethrough, and a plate inserted at an incline in each of said outlets and adapted to direct the outgoing liquid against the forward walls of the outlets substantially tangentially to the rotation of the machine.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses.

ERNST JAHN

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.