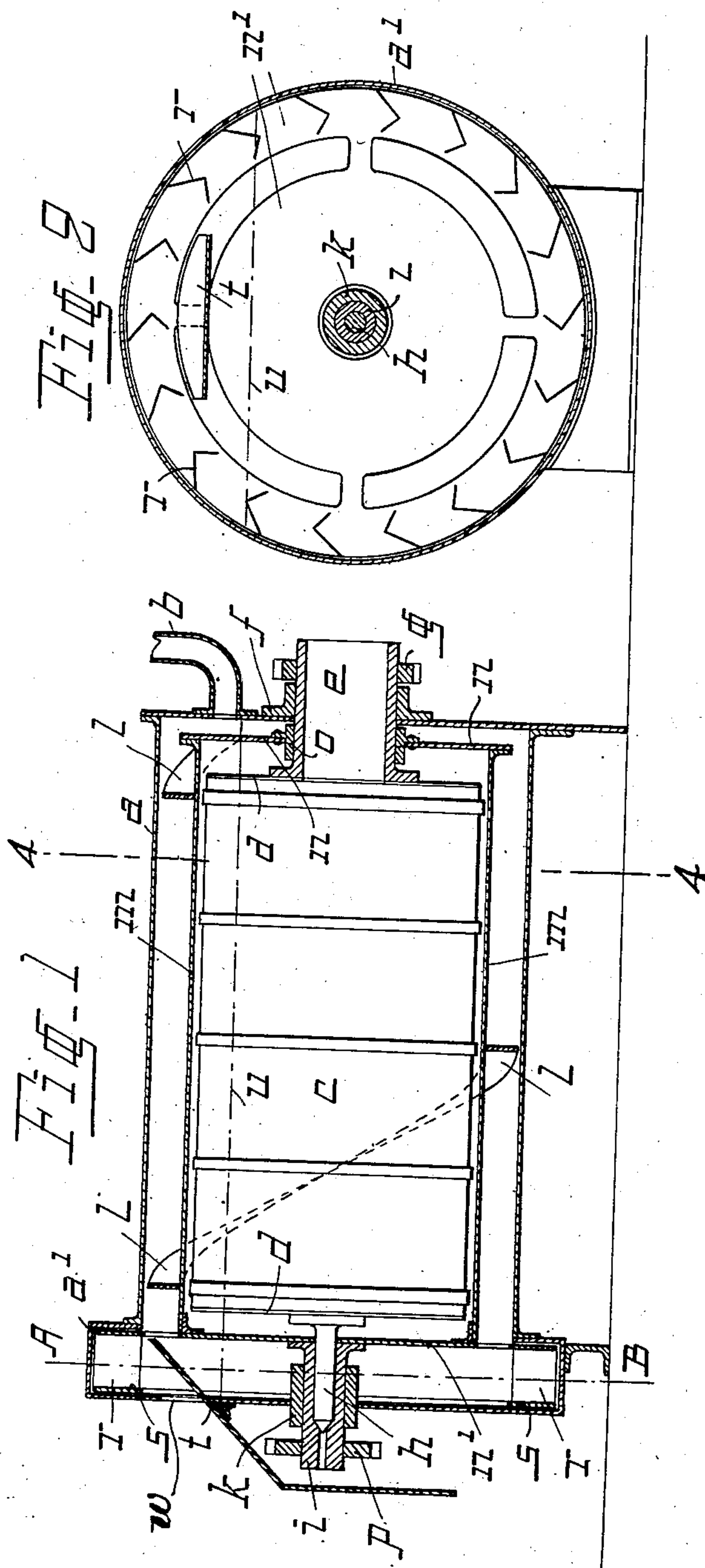


A. J. ERICSSON.
CONTINUOUS CENTRIFUGAL STRAINING APPARATUS.
APPLICATION FILED JULY 24, 1908.

939,993.

Patented Nov. 16, 1909.

2 SHEETS—SHEET 1.



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FIG. 3.

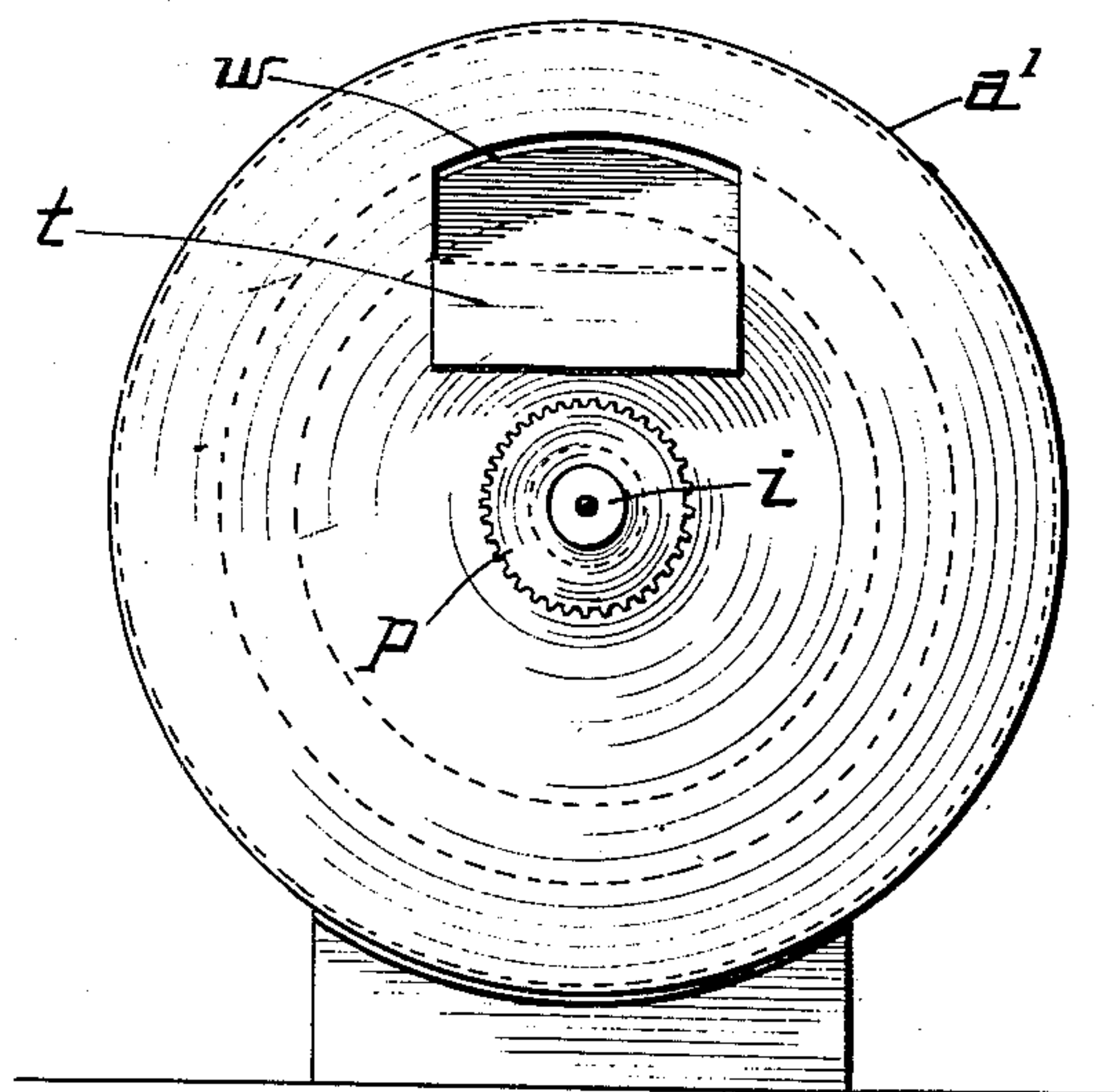
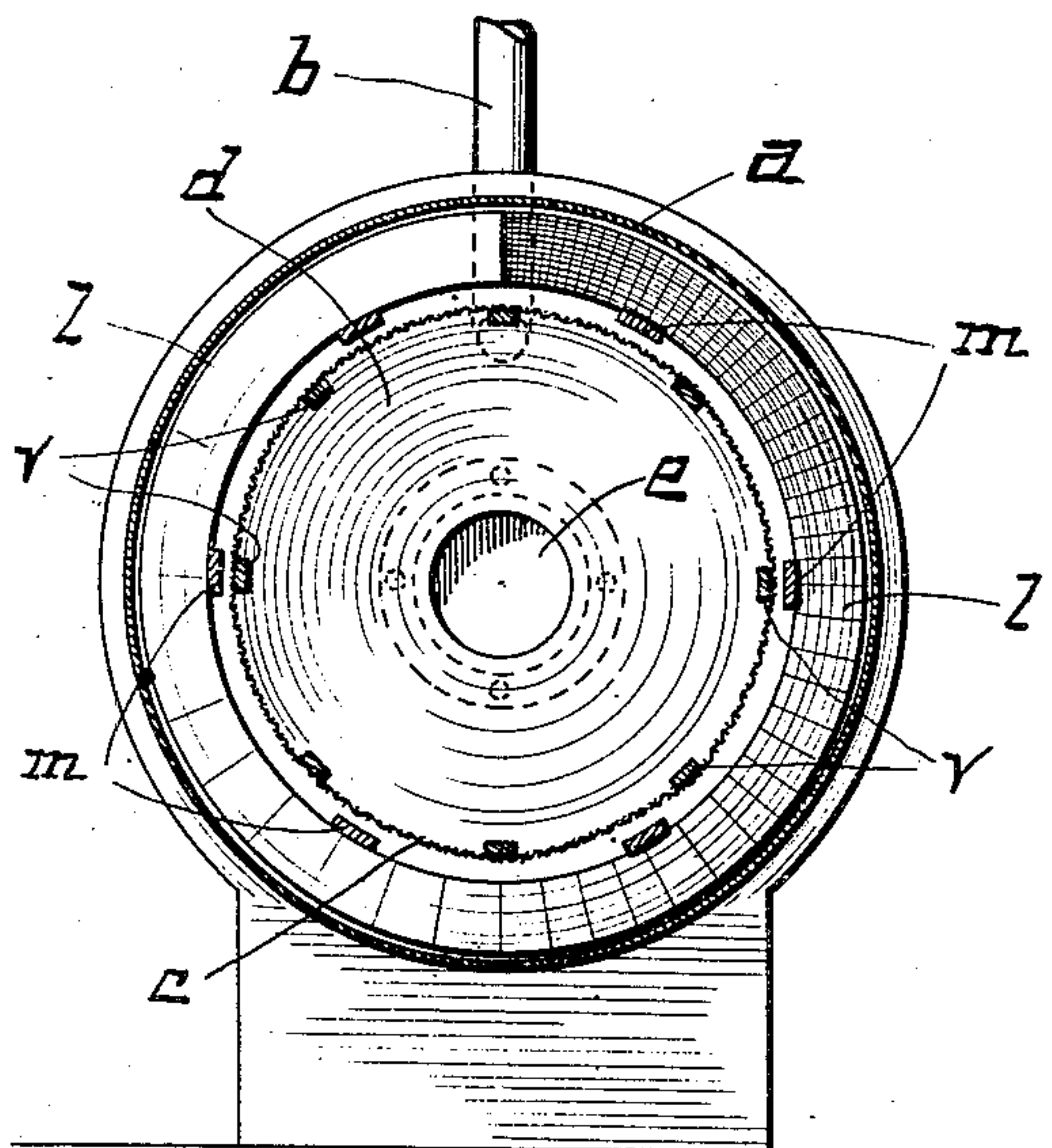


FIG. 4.



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CONTINUOUS CENTRIFUGAL STRAINING APPARATUS.

939,993.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed July 24, 1908. Serial No. 445,173.

To all whom it may concern:

Be it known that I, ANDERS JOHAN ERICSSON, a subject of the King of Sweden, residing at Stocksund, Stockholm, Sweden, civil engineer, have invented certain new and useful Improvements in Continuously-Working Straining Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to centrifugal apparatus for the continuous separation of liquids from solids suspended in liquids, such for instance, as salts or sugar crystals in water.

Speaking generally, with respect to my invention, I provide a central perforated drum surrounded by a stationary cylindrical vessel. Between the cylindrical vessel and the perforated drum is a scraper or conveyer which is secured to a frame, which is rotated at a speed different from the rotation of the perforated drum. The liquid is fed into the vessel and into the interior of the drum through the perforations. This prevents the solid materials from passing into the interior of the perforated drum. The rotation of the perforated drum throws off from its periphery any solid materials attached thereto, which are carried by the conveyer along the cylindrical vessel to one end thereof, where, by means of shovels, they are carried to an elevated point from which they pass through an opening into a chute, thus being delivered from the machine. The liquid passes out through an appropriate pipe from the interior of the perforated drum.

My invention is illustrated in the annexed drawings, in which:

Figure 1 is a longitudinal section of an apparatus embodying my invention. Fig. 2 is a cross section on line A—B Fig. 1. Fig. 3 is an end view (left hand end Fig. 1) of apparatus. Fig. 4 is a section on line 4—4 Fig. 1.

a is a cylindrical vessel having a solid periphery and provided at one end with the inlet pipe b , through which the liquid to be purified enters the apparatus. In this ves-

sel is mounted a drum c consisting of two heads d connected by longitudinal strips v . Connected to these strips is a metallic cloth, thus producing a perforated periphery for the drum throughout its length.

At one end of the drum is an outlet pipe e through which the liquid from the interior of the perforated drum escapes. This pipe e is supported by a bearing f attached to one end of the cylindrical casing u . Secured to the tube e is a gear wheel g which is rotated by appropriate means, not shown. The rotation of this gear imparts a rotary movement to the perforated drum. On the other end of the perforated drum is a trunnion h , which is supported in the hub i . In the space between the perforated drum c and the surrounding vessel a oblique scrapers or screw-conveyer l are placed. These oblique scrapers or screw-conveyer are preferably fixed to the skeleton frame m extending from end to end of the machine. This frame-work is rotatably mounted at one end upon the outlet pipe e , and on the other end upon the hub i . On the hub i is fixed a gear wheel p which may be rotated by appropriate means, not shown, and by its rotation imparting to the frame m a rotary movement independent of that imparted to the drum.

The end of the apparatus corresponding to the hub i is enlarged radially to contain the shovel wheel comprising the head n' and the ring s , between which head n' and the ring s , are the shovels r secured to said parts. The head n' forms one end of the frame-work which carries the scrapers or screw conveyer. At w is an opening from the chamber in which the shovel wheel rotates, communicating with the inclined chute t , through which opening and into which chute the solid particles fall from the shovels and are carried by the incline of the chute out of the apparatus.

The operation is as follows: The liquid to be treated enters by the pipe b and fills the vessel, for instance, up to the level marked u . Whatever liquid there is within the interior of the perforated drum, in passing through the perforations, loses its solid material. When the parts are rotated, as before described, any solid particles which are attached to the periphery of the perforated drum are thrown off therefrom, and also in the passage of the liquid to the perforated

drum solid particles are thrown off toward the outer casing. Here they are caught by the scrapers or conveyer, which are rotated at a different speed from that of the drum, and carried to the enlarged end of the apparatus, where they are caught by the shovel-wheel *r* and conveyed to the highest point, from which they pass through the opening *w* onto the chute *t* passing along the chute out of the apparatus. The liquid in the interior of the drum escapes through the outlet pipe *e* at the opposite end.

What I claim is:

1. In a continuously working centrifugal straining apparatus, in combination a perforated rotating drum, a stationary cylindrical vessel surrounding said drum, there being an inlet to said vessel for the liquid to be treated, and means to convey to the outside of the apparatus the solid particles thrown off from the perforated drum and centrifugally deposited on the inner wall of the surrounding vessel.

2. In a continuously working centrifugal straining apparatus, in combination a perforated rotating drum, a stationary cylindrical vessel surrounding said drum, there being an inlet to said vessel and an outlet from the interior of the drum for the fluid, passing through the perforations and means to convey the solid particles thrown off from the perforated drum and centrifugally deposited on the inner wall of the surrounding vessel to the outside of the apparatus.

3. In a continuously working centrifugal straining apparatus, in combination a perforated, rotating drum, a stationary cylindrical vessel surrounding said drum, there being an inlet to said vessel, and an outlet from the interior of the perforated drum and rotating scrapers in the space between the drum and the vessel for conveying the

solid particles centrifugally deposited on the inner wall of the surrounding vessel to the outside of the apparatus.

4. In a continuously working centrifugal straining apparatus, in combination a perforated rotating drum, a stationary cylindrical vessel surrounding said drum, there being an inlet to said vessel, and an outlet from the interior of the drum for the separated fluid, and rotating oblique scrapers in the space between the drum and the vessel entirely surrounding the drum for conveying the solid particles to the outside of the apparatus.

5. In a continuously working centrifugal straining apparatus in combination a perforated rotating drum, a stationary cylindrical vessel surrounding said drum, there being an inlet to said vessel, and an outlet from the interior of the drum, and rotating screw-formed scrapers in the space between the drum and the vessel entirely surrounding the drum for conveying the solid particles to the outside of the apparatus.

6. In a continuously working centrifugal straining apparatus in combination a perforated rotating drum, a stationary cylindrical vessel surrounding said drum, an inlet to said vessel, an outlet from the interior of the drum, rotating scrapers in the space between the drum and the vessel for conveying the solid particles to the end of the vessel, and a shovel-wheel at said end of the apparatus catching up the particles and delivering the same to the outside of the apparatus.

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

ANDERS JOHAN ERICSSON.

Witnesses:

HARRY ALBIHY,

HJALMAR ZETTERSTROM.