(No Model.) 2 Sheets—Sheet 1.

A. FREITAG.

CENTRIFUGAL MACHINE.

No. 382,966. Patented May 15, 1888.

Fig. 1.

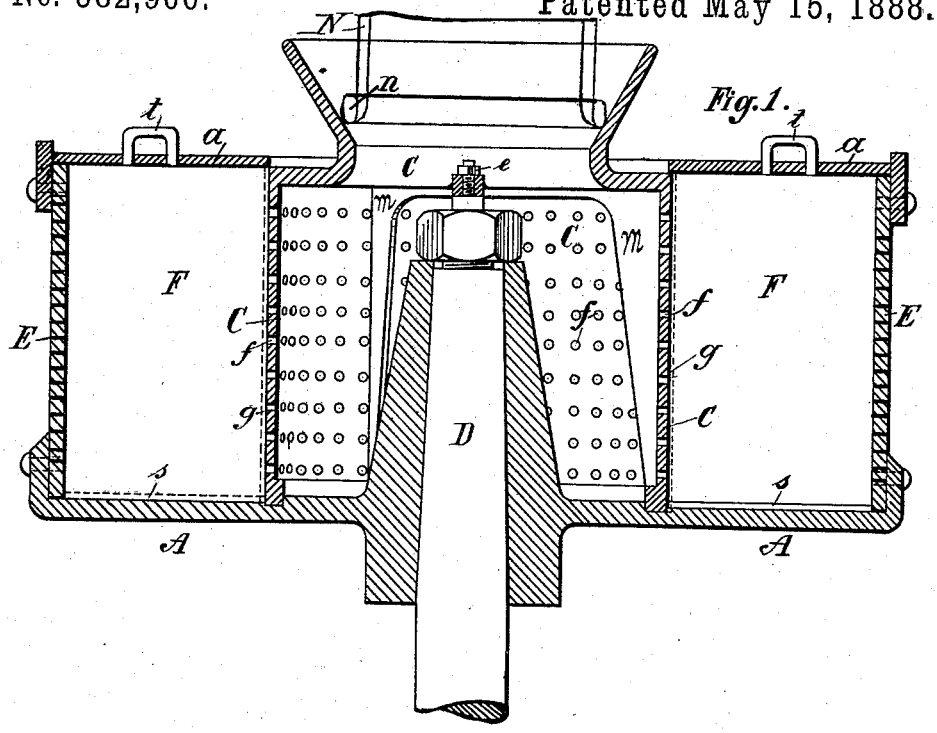
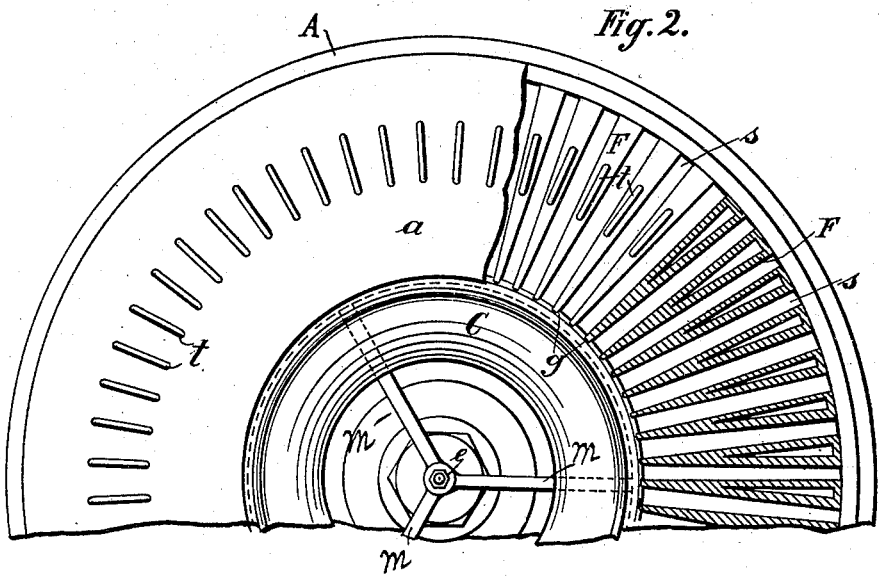


Fig. 2.



Witnesses.
Charles Dr. Perle.
Edw. Luse.

Inventor.
Andreas Freitag.
per Dyer & Duffy
Attys

(No Model.) 2 Sheets—Sheet 2.

A. FREITAG.

CENTRIFUGAL MACHINE.

No. 382,966. Patented May 15, 1888.

Fig. 7.

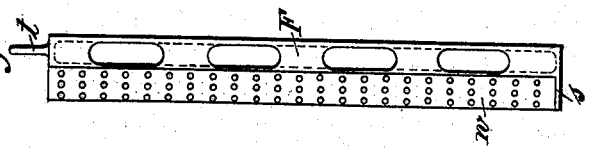


Fig. 6.

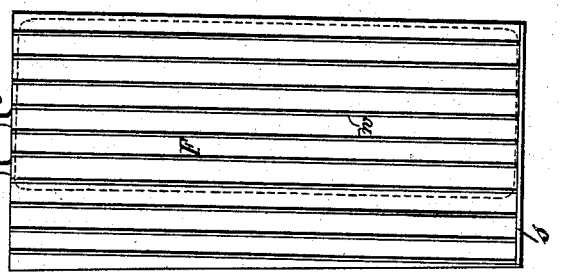


Fig. 8.

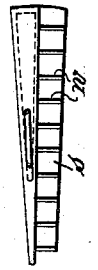


Fig. 4.

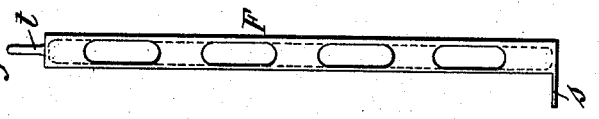


Fig. 3.

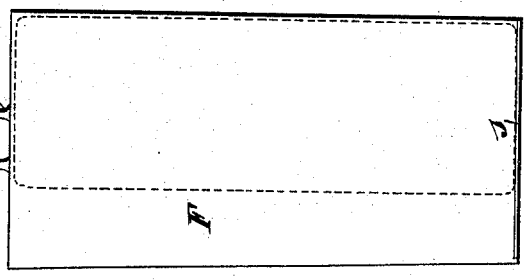
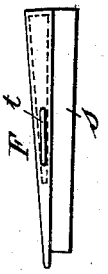


Fig. 5.



Witnesses.
Charles M. Mele.
Edwin Low.

Inventor.
Andreas Freitag.
per O. E. Duffy
Atty.

UNITED STATES PATENT OFFICE.

ANDREAS FREITAG, OF AMSTERDAM, NETHERLANDS, ASSIGNOR TO NAAMLOOZE VENNOOTSCHAP WESTER-SUIKER-RAFFINADERIJ, OF SAME PLACE.

CENTRIFUGAL MACHINE.

SPECIFICATION forming part of Letters Patent No. 382,966, dated May 15, 1888.

Application filed June 25, 1887. Serial No. 242,452. (No model.) Patented in England August 27, 1885, No. 10,172, and March 31, 1886, No. 4,516; in France November 16, 1885, No. 172,315, and in Germany March 25, 1886, No. 38,737.

To all whom it may concern:

Be it known that I, ANDREAS FREITAG, a subject of the King of Prussia, Germany, residing at the city of Amsterdam, in the Kingdom of the Netherlands, have invented certain new and useful Improvements in Centrifugal Machines, (for which I have obtained patents in England, No. 10,172, dated August 27, 1885, and No. 4,516, dated March 31, 1886; in France, No. 172,315, dated November 16, 1885, and in Germany, No. 38,737, dated March 25, 1886,) of which the following is a specification.

My invention relates to an improvement in apparatus for the manufacture of refined sugar, and more particularly to centrifugal machines; and my invention consists in certain novel features of construction and combinations of parts, more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a vertical central section through the centrifugal machine. Fig. 2 is a top plan view of a portion of the apparatus, the top plate or cover being partially broken away to show the partitions, some of the latter being shown in horizontal section. Figs. 3, 4, and 5 show in side elevation, end elevation, and plan, respectively, one of the wedge-shaped partition-walls; and Figs. 6, 7, and 8 show in side elevation, end view, and plan one of the wedge-shaped partition-walls provided with laterally-extending dividing-blades.

The centrifugal machine, as shown in Figs. 1 and 2, is made exceedingly strong to withstand long wear and great strain, and is provided with a removable annular top or cover, *a*, which is adapted to close the open upper side of the drum, and can be detachably secured to the same in any suitable or well known manner. (Not shown.) In the drum is placed a cylindrical cap, C, which fits into an annular groove turned in the bottom of the drum A. The cap C is removably held within the drum A by means of a spider-frame, M, which is provided at its upper portion with a hub adapted to fit over the upper end of the central spindle, D, and be removably held in place upon the same by a nut, *e*, adapted to screw upon the threaded upper end of the spindle and engage the upper side of the hub of the spider-frame. The arms of said frame extend laterally and then downwardly and engage a flange around the bottom edge of the cap, as shown in Fig. 1, which cap also has small perforations *f* in its circumference and grooves *g* on its outer side.

The cap C is formed with a smoothly-turned opening or bell-mouth at its top. E is the usual outer finely-perforated ring-sieve of the drum. F are partition-walls, by preference wedge-shaped and cast hollow, as shown in Fig. 2. These wedges F, Figs. 3, 4, and 5, are made with a lateral rectangular bottom flange, *s*, and provided with a handle, *t*, at the top, or equivalent means, for raising it. The wedges F are inserted in the grooves *g* in the cap C, as shown in Fig. 2. The spaces between them are parallelopipedons, which are to contain the filling mass.

The operation of my apparatus is as follows: The filling mass coming from the cooler is to be brought into the drum A, so that all the compartments between the wedge-pieces F thereof are completely filled. The cover *a* is then put on drum A and fastened on the same in any suitable manner. The centrifugal machine is now set in motion, whereby the crystallizing of the filling mass is produced and the green sirup is thrown off. This done, the necessary claying material is put in through the opening of the cap C and will be very equally distributed, and will penetrate through the holes *f* into the compartments containing the sugar. Then warm air coming from an air-heating apparatus of any construction is guided by means of a hose, N, provided with a soft felt ring, *n*, at its lower end, Fig. 1, into the cap C. The warm air penetrates through the holes *f* and in a short time completely dries the sugar. The machine is now stopped and the cakes of sugar produced between the wedges removed. For this purpose the cover *a* will be removed and the cap C taken out. All that now is required is to draw up the wedges F, taking hold of them by the handles *t*, whereby the cakes of sugar, which rest on their bottom flanges, *s*, are simultaneously raised out of the drum. I may also provide the wedges F on the

side of the bottom flange, *s*, with longitudinal blades *w*, of thin sheet metal, as shown in Figs. 6, 7, and 8, which blades are perforated and riveted on the side of the wedge; or I may insert the blades *w* into grooves provided on the bottom flange side of the wedge, so that the blades are removable. These dividing-blades cause the cakes of sugar to be formed in several long narrow strips, which may be easily separated and broken apart by hand after the cakes have been thoroughly dried and removed from the drum.

It is clearly evident that my invention can be used in connection with centrifugal machines employing fixed bearings, or with those using "buffer-bearings," and it is also evident that numerous slight changes might be resorted to in the form and arrangement of the parts described without departing from the spirit and scope of my invention; hence I do not wish to limit myself strictly to the construction herein set forth, but consider myself entitled to all such slight changes.

Having now particularly described and ascertained the nature of my invention and in what manner the same is to be performed, I declare that what I claim is—

1. The combination, with a rotary drum and a perforated cap centrally located within the same, of partitions removably located within said drum, each provided with a lateral flange or extension upon its lower end and with a handle upon its upper end, said partitions forming compartments between the peripheries of the drum and cap, substantially as described.

2. The combination, with a rotary drum and a perforated cap removably located in the drum and provided with vertical grooves in its outer periphery, of partitions removably located in the drum and held in the grooves of the cap, said partitions being provided with lateral flanges upon their lower edges, and with longitudinal vertical blades projecting from the same sides of the partitions as the lateral flanges, substantially as described.

3. In a centrifugal machine, the combination, with the cylindrical perforated outer drum, of the inner cylindrical perforated drum or cap centrally and removably located in the outer drum and provided with vertical grooves in its outer periphery, the removable radial partitions forming compartments between the outer periphery of the cap and inner periphery of the outer drum, the inner vertical edges of said partitions entering said grooves in the inner cap or drum, and means whereby said partitions can be removed, substantially as described.

4. The combination, with a rotary drum and a perforated inner drum or cap centrally located within the outer drum, of removable partitions forming compartments between the outer drum and the inner drum or cap, and a lateral flange or extension upon the lower end of each partition forming the bottoms of said compartments, for the purpose described.

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

ANDREAS FREITAG.

Witnesses:
B. ROI,
AUGUST MÜHLE.