

A. FESCA.
Centrifugal-Machines.

No.157,595.

Patented Dec. 8, 1874.

Fig:2.

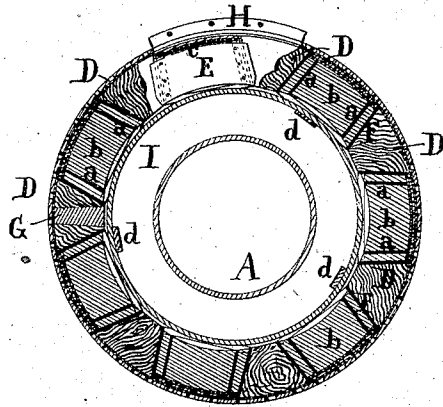


Fig:1.

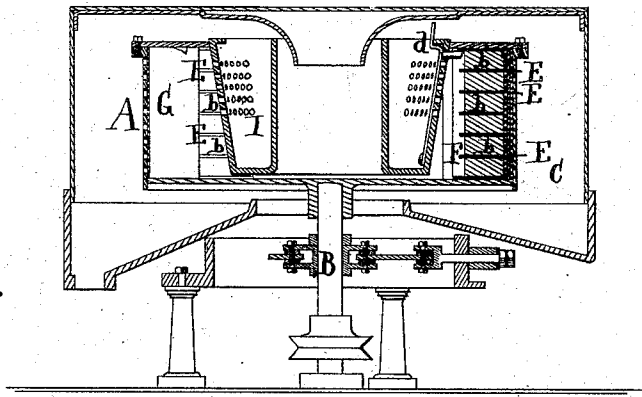
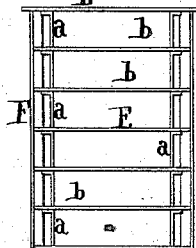


Fig:3.



Witnesses:

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UNITED STATES PATENT OFFICE.

ALBERT FESCA, OF BERLIN, GERMANY.

IMPROVEMENT IN CENTRIFUGAL MACHINES.

Specification forming part of Letters Patent No. **157,595**, dated December 8, 1874; application filed September 11, 1874.

To all whom it may concern:

Be it known that I, ALBERT FESCA, of Berlin, in the Empire of Germany, have invented a new and Improved Centrifugal Machine for Draining Sugar, of which the following is a specification:

This invention relates to an improvement in that class of machines for which Letters Patent were granted to me April 21, 1874, No. 150,012.

My improvement consists in combining with the drum and its radial partitions a series of horizontal plates or partitions, by means of which the sugar is divided into a large number of cakes or lumps of convenient and uniform size in the operation of draining. It consists, further, in combining with the drum an annular perforated vessel for receiving a clarifying-liquid, which, when a revolving motion is imparted to the drum, is expelled from the vessel by centrifugal force in such a manner as to penetrate all the cakes and clarify the sugar.

This invention is illustrated in the accompanying drawing, in which Figure 1 is a vertical central section. Fig. 2 is a horizontal section. Fig. 3 is a front view of a casing detached.

Similar letters indicate corresponding parts.

The letter A designates the drum, which is mounted and revolves on a vertical shaft, B, and is placed within an outer drum or cylinder, C, which serves to catch and lead off the liquid portion of the crystallized sugar expelled from the drum in the operation of draining. The side of the drum is perforated, and lined with a fine gauze, in the usual manner. Against the inner side of the drum are placed a series of partitions, D, which occupy a radial and vertical position, and are wedge-shaped in transverse section. Between these radial partitions are located the horizontal plates or partitions E, which are arranged one above each other in casings F, being provided with side flanges a, by means of which they are kept apart, so as to form cells or compartments b between them. The casings F are fitted snugly between the radial partitions D and the side of the drum, and have each three sides, the front one, which is next to the side of the drum, being perforated and lined with gauze, through which the liquid saccharine matter is permitted

to escape. The casings F are preferably made of a single piece of metal, suitably bent, so that two of its three sides are elastic, and can be fitted very snugly and tightly in place. The fourth side of the casing is left off, to expose the cells b to the sugar in the operation of draining. The topmost of the horizontal plates E, which constitutes the lid of the casings, is provided with a flange, c, in addition to its side flanges a, which flange c is fitted and adjusted to the perforated side of the casings. The casings, with their horizontal plates or partitions and the radial partitions, are tightened in the drum by means of a wedge, G, which is driven in between one of the radial partitions, made sectional for this purpose. The said parts last named are held down in the drum by means of a plate or ring, H, which is secured to the flanged top edge of the drum by means of screws or rivets, or in any other suitable manner.

If the casings, plates, and partitions are thus secured in place, the crystallized saccharine matter is filled into the drum, and the latter is put in motion, whereby the whole mass of saccharine matter is thrown outward against and into the cells b, which are filled up with the crystals, so as to form cakes or lumps of sugar, while the molasses or liquid portion of the saccharine matter is centrifugally expelled through the perforated side of the casings and of the drum. By this means I obtain a great number of cakes or lumps of uniform size, and which are smaller, and for many purposes more convenient, than if formed simply between the radial partitions, as in my former patent; besides, by the arrangement of the casings and plates between the radial partitions, the whole is rendered exceedingly stiff and strong.

When all the cells b have been filled up with the sugar-crystals, it remains to clarify and cleanse the cakes of coloring matter, which is accomplished by means of a clarifying-liquid, such as a concentrated solution of sugar, &c., having previously been treated with steam, as described in my patent hereinbefore mentioned. The clarifying-liquid is contained in a vessel or pan, I, which is of an annular shape horizontally, and of such a diameter that, when it is placed concentrically in the drum, its outline is within the edge of the partitions. The

vessel is placed concentrically in the drum, being steadied by means of the top plate or ring G, against which the top edge of the liquid-vessel rests, and beneath which it is held by means of snap-springs d, which are secured in the vessel and catch under the edge of the top plate, as shown. The upper portion or half of the liquid-vessel is perforated, while its lower portion is solid.

In filling the clarifying-liquid into the vessel, the drum is brought to a stop, and a sufficient quantity of liquid having been filled in a slow revolving motion is again imparted to the drum, of which the liquid-vessel partakes, so as to throw the clarifying-liquid outward against its side by centrifugal force, in the same manner as the saccharine matter is thrown against the side of the drum in the operation of draining, whereby the liquid is expelled through the perforations of the vessel I, and directed against the cakes or lumps, which it penetrates, and through the pores of which it percolates, in such a manner as to free the same of molasses or any other coloring matter. The liquid-vessel I is conical, its upper or perforated portion being largest, so that the liquid readily finds its way out, and consequently the drum need be but slowly revolved, which is of advantage over a rapid revolution, inasmuch as the liquid is thereby more equally and uniformly distributed over the whole mass of sugar, while its pores are gradually and more uniformly penetrated. The liquid also remains in the pores of the sugar a greater length of time. By the same means also the sugar-crystals are more firmly cement-

ed together, and the cakes or lumps become more compact. When the cakes have attained the required degree of whiteness, I open the drum while it is still in motion, and thereby produce and expose the cakes to a current of air, whereby they become uniformly hardened.

In order to remove the cakes, I first remove the liquid-vessel I, which is released by pulling back the springs d, and proceed to loosen the top plate or ring G, which being done I remove the wedge H by the blow of a hammer or any other instrument, and all the partitions and casings are laid bare, and can easily be taken out of the drum.

The cakes or lumps adhere but little to the sides of the casings, and will readily loosen by reason of the elasticity of the said sides, which are not joined to the bottom and have a tendency to spring outward. The single cakes or lumps can be torn or loosened from the horizontal plates or partitions with little trouble, and without marring their shape.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the drum A, having radial partitions D, of the removable horizontal partitions E, substantially as described.

2. The combination, with the drum A, of the tapering or conical liquid-vessel I, perforated at its upper portion for the passage of the liquid, as and for the purpose described.

ALBERT FESCA.

Witnesses:

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