

H. WINTER.
CENTRIFUGAL MACHINE.
APPLICATION FILED MAR. 28, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

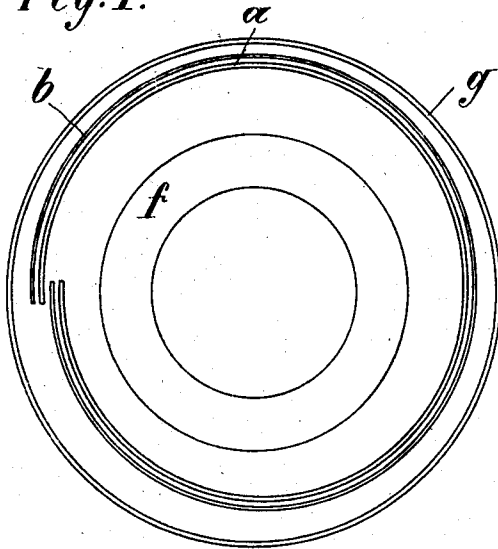


Fig. 3.

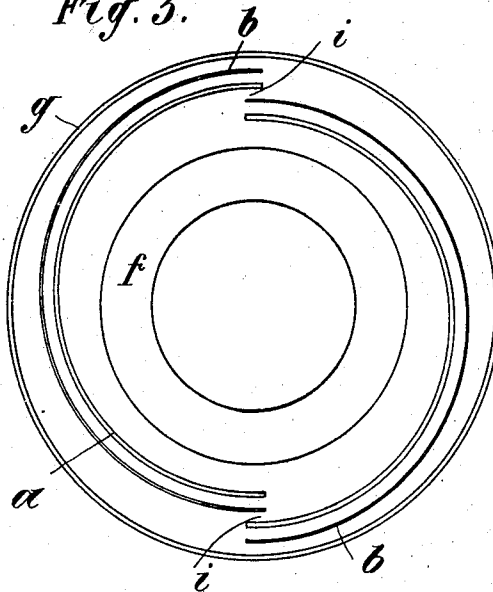


Fig. 2.

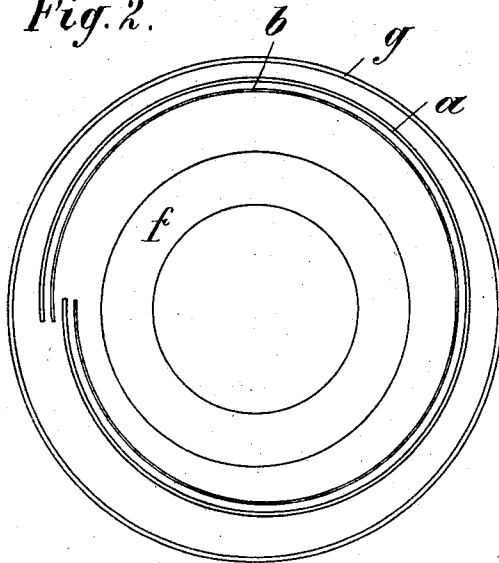
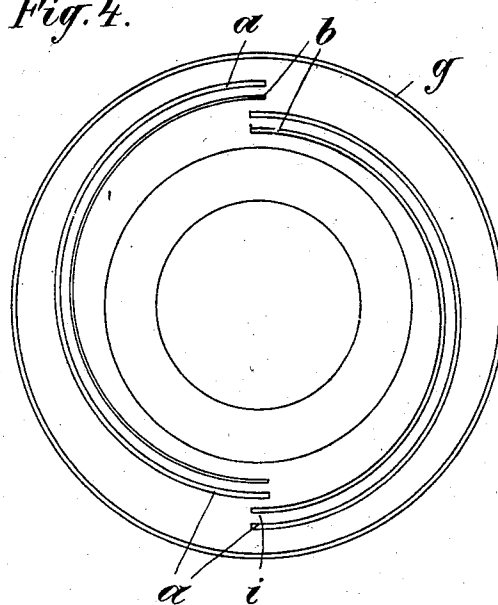


Fig. 4.



WITNESSES:

Henry J. Suhrtier
Frederick Starke.

INVENTOR

Heinrich Winter
BY Gouwer Niles
ATTORNEYS.

H. WINTER.
CENTRIFUGAL MACHINE.
APPLICATION FILED MAR. 26, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 5.

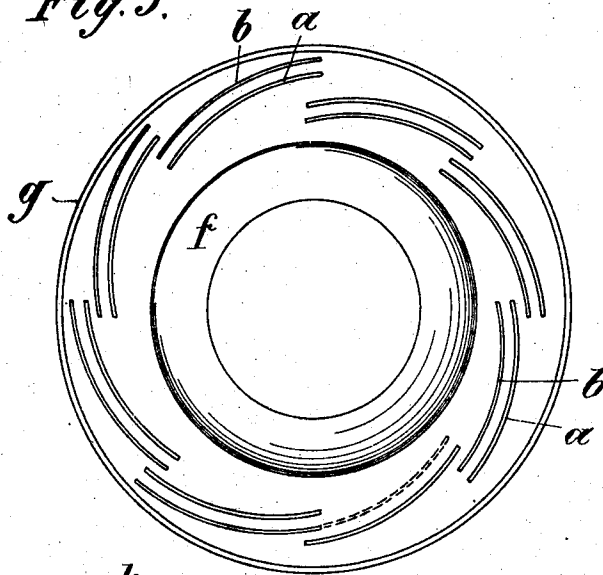
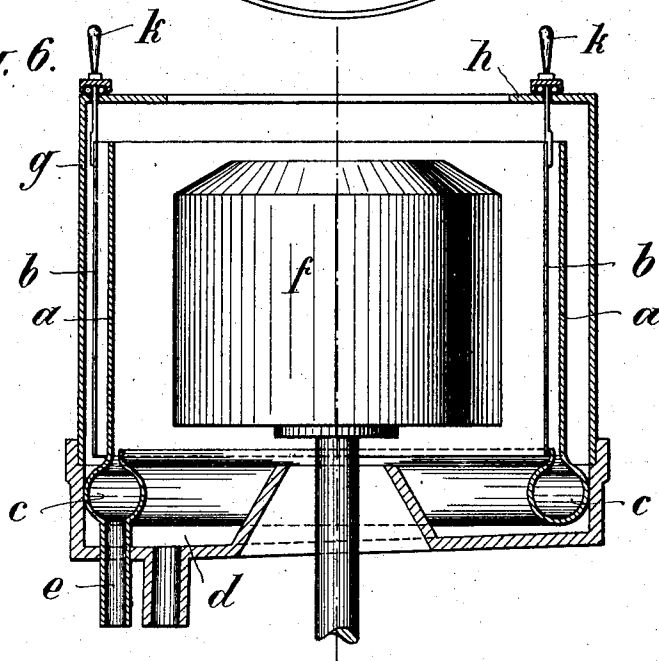


Fig. 6.



WITNESSES:

Henry J. Suhrbier.
Frederick Starke.

INVENTOR

Henrich Winter
BY *Gouss Niles*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

HEINRICH WINTER, OF CHARLOTTENBURG, GERMANY.

CENTRIFUGAL MACHINE.

SPECIFICATION forming part of Letters Patent No. 739,247, dated September 15, 1903.

Application filed March 26, 1903. Serial No. 149,702. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH WINTER, a citizen of the German Empire, and a resident of 150^a Kantstrasse, Charlottenburg, Germany, have invented certain new and useful Improvements in Centrifugal Machines, of which the following is a specification.

This invention relates to improvements in devices for distinctly separating the different "runnings" discharged in succession from the drum of a centrifugal machine during the process of separating the liquid portions of a sugar-containing mass—massé-cuite or the like—from the crystals and during the cleansing or whitening of the sugar.

The object of the invention is to effect this separating of the runnings from the very moment they leave the rotary drum—in other words, before they are arrested by the outer shell or casing of the centrifugal and not, as has been done before, on the bottom or on the collecting-plate of the apparatus only. In the devices for carrying out this last-named method a great portion of the different runnings become mixed on the vertical part of the casing, and as they are mostly viscous one kind of liquid has not run off yet when another kind is discharged by the drum.

The present invention provides a special inside mantle for each kind of running between the drum and the ordinary shell of the centrifugal, so that a mixing on the latter is impossible, while a mixing at the bottom is prevented by special means.

In Figures 1 and 2 of the subjoined drawings, wherein similar letters refer to similar parts throughout the several views, such an apparatus is represented in a horizontal section. Inside of the same there is secured one stationary and one movable mantle. The figures show the inside mantles in their different positions. In Figs. 3 and 4 the same sections are shown; but here each inside mantle is composed of two blades *aabb*, of which one pair is stationary and the other movable. Fig. 5 shows also such a horizontal section; but here each of the two inner mantles is composed of eight wings or blades. On the left half of the figure the movable blades are behind the stationary ones, on the right in front of the same. Fig. 6 is a vertical section through the centrifugal machine, showing the

auxiliary discharge-channels for the reception of the runnings.

The most simple form of construction of the present invention, according to Figs. 1 and 2, would have only two auxiliary mantles of thin sheet metal, of which one is arranged in a fixed position in the shape of a spiral *a* between the drum *f* and the shell *g* of the centrifugal, while through the opening *i* of the spiral a second auxiliary mantle *b* of the same shape, movably suspended from the upper edge of the centrifugal, can be moved in front of or behind the former, so that one kind of running only meets the stationary mantle *a*, the second only the movable mantle *b* in case the latter is placed in front of the former. At the bottom *d* of the centrifugal there are two spiral grooves (not shown in the drawings) following exactly the path of the stationary and of the movable auxiliary mantle, and therefore collecting the runnings separately and conveying them farther. Of course both inner mantles may be made movable. In that case if they are simultaneously moved the distance the moving device has to make is only half as long as in the other case. It will further be seen that in addition to one stationary several movable inner mantles may be provided in order to separate more than two qualities of runnings. As a rule either of the inner mantles will not be made of one piece, but be composed, as shown in Figs. 3 to 5, of two or several blades arranged like wings and sliding in front of or behind each other, so that when moved simultaneously the distance they have to travel is reduced.

The adjusting of the movable mantle-blades can be effected by simple handles *k*, passing through the upper border *h* of the outer mantle *b* of the centrifugal, or by any other suitable device known.

The form of the simple blades will as a general rule be rectangular; but they may also be differently shaped.

In addition to a stationary inner mantle *a*, composed of single blades, of course several movable mantles *b* may be arranged to separate the runnings into more than two qualities. In special cases all mantle-blades may be movable.

If more than two inner mantles composed

of one piece are arranged within one centrifugal apparatus or if the inside mantles are composed of more than two blades, the separation of the liquid runnings by simple collecting-channels at the bottom is difficult. In this case it is advisable to arrange at the lower edge of the stationary blades auxiliary channels *c*, Fig. 6, closed at the ends, which catch the running before it gets to the bottom of the centrifugal and lead same off through sockets *e* or similar devices. These auxiliary discharge-channels are preferably of a bottle shape or any similar cross-section, narrow at the top, so that nothing can drop into them from the movable blades *b*, and yet their holding capacity may be considerable. The movable blades *b* let then their runnings drop directly to the bottom or the collecting-plate *d*. If more than two inner mantles have been provided, the movable blades *b* may also have auxiliary channels *c*, the outlet-sockets of which move over special collecting-channels at the bottom. (Not shown in the drawings.) The auxiliary channels *c* are then placed at different heights, so that they can pass the channel *c* of the neighboring blades without the necessity of placing the blades at too great a distance from each other.

The new arrangement compared with others serving the same purpose has the advantage that it can be driven by a very small power and that the working and the attendance the classifying apparatus requires are in no wise interfered with by the driving mechanism. Finally, it can be adapted to all kinds of centrifugal apparatus in use at present.

Having now described my invention, I claim as new and desire to secure by Letters Patent—

1. A centrifugal machine, comprising a shell, a drum, and a plurality of blades between the shell and drum forming inner mantles movable one before the other, for alternately receiving the discharge from the drum, substantially as set forth.

2. A centrifugal machine, comprising a shell, a drum, and a plurality of blades between the shell and drum forming inner mantles, each of which is composed of several parts forming a separate series, said series being movable one before the other for alternately receiving the discharge from the drum, substantially as set forth.

3. A centrifugal machine, comprising a shell, a drum, and a plurality of blades between the shell and drum forming two inner mantles, one of which is stationary, while the other is movable before and behind the stationary mantle, for either receiving the discharge from the drum or for being protected from the same, substantially as set forth.

4. A centrifugal machine, comprising a shell, a drum, and a plurality of blades between the shell and drum forming inner mantles, one of which is stationary, while the others are movable before and behind the stationary mantle for receiving the discharge

from the drum or for being protected from the discharge by another mantle, substantially as set forth.

5. A centrifugal machine, comprising a shell, a drum, and a plurality of blades between the shell and drum, forming two inner mantles, each of which is composed of several parts forming a separate series, of which one is stationary while the other is movable before and behind the same, substantially as set forth.

6. A centrifugal machine, comprising a shell, a drum, and a plurality of blades between the shell and drum forming inner mantles, each of which is composed of several parts forming a separate series, of which one is stationary while the others are movable before and behind the same, substantially as set forth.

7. A centrifugal machine, comprising a shell, a drum, a plurality of blades between the shell and drum forming inner mantles, and auxiliary discharge-channels at the lower parts of the mantles, substantially as set forth.

8. A centrifugal machine, comprising a shell, a drum, a plurality of blades between the shell and drum forming inner mantles, and discharge-channels of approximate bottle-shaped cross-section at the lower parts of the mantles, substantially as set forth.

9. A centrifugal machine, comprising a shell, a drum, a plurality of blades between the shell and drum forming inner mantles, of which one is stationary, while the others are movable, and an auxiliary discharge-channel of approximate bottle-shaped cross-section at the lower end of the stationary mantles, substantially as set forth.

10. A centrifugal machine, comprising a shell, a drum, a plurality of blades between the shell and drum forming inner mantles, each of which is composed of several parts forming a separate series, of which one is stationary while the others are movable, and an auxiliary discharge-channel of approximate bottle-shaped cross-section at the lower end of the stationary series, substantially as set forth.

11. A centrifugal machine, comprising a shell, a drum, a plurality of blades between the shell and drum, forming inner mantles one of which is stationary while the others are movable, and auxiliary discharge-channels of approximate bottle-shaped cross-section mounted at different heights on the lower ends of the mantles, substantially as set forth.

12. A centrifugal machine, comprising a shell, a drum, a plurality of blades between the shell and drum forming inner mantles each of which is composed of several parts forming a separate series, of which one is stationary while the others are movable, and auxiliary discharge-channels of approximate bottle-shaped cross-section mounted at different heights on the lower parts of each series, substantially as set forth.

13. A centrifugal machine, comprising a shell, a drum, a plurality of blades between the shell and drum forming inner mantles, each of which is composed of several parts forming a separate series, of which one is stationary while the others are movable, and auxiliary discharge-channels of approximate bottle-shaped cross-section mounted on the movable series at different heights, substantially as set forth. 15
In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses. 20

HEINRICH WINTER.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.

14. A centrifugal machine, comprising a shell, a drum, a plurality of inner blades between the shell and drum forming inner mantles, each of which is composed of several