J. N. S. WILLIAMS.

ATTACHMENT FOR CENTRIFUGAL MACHINES.

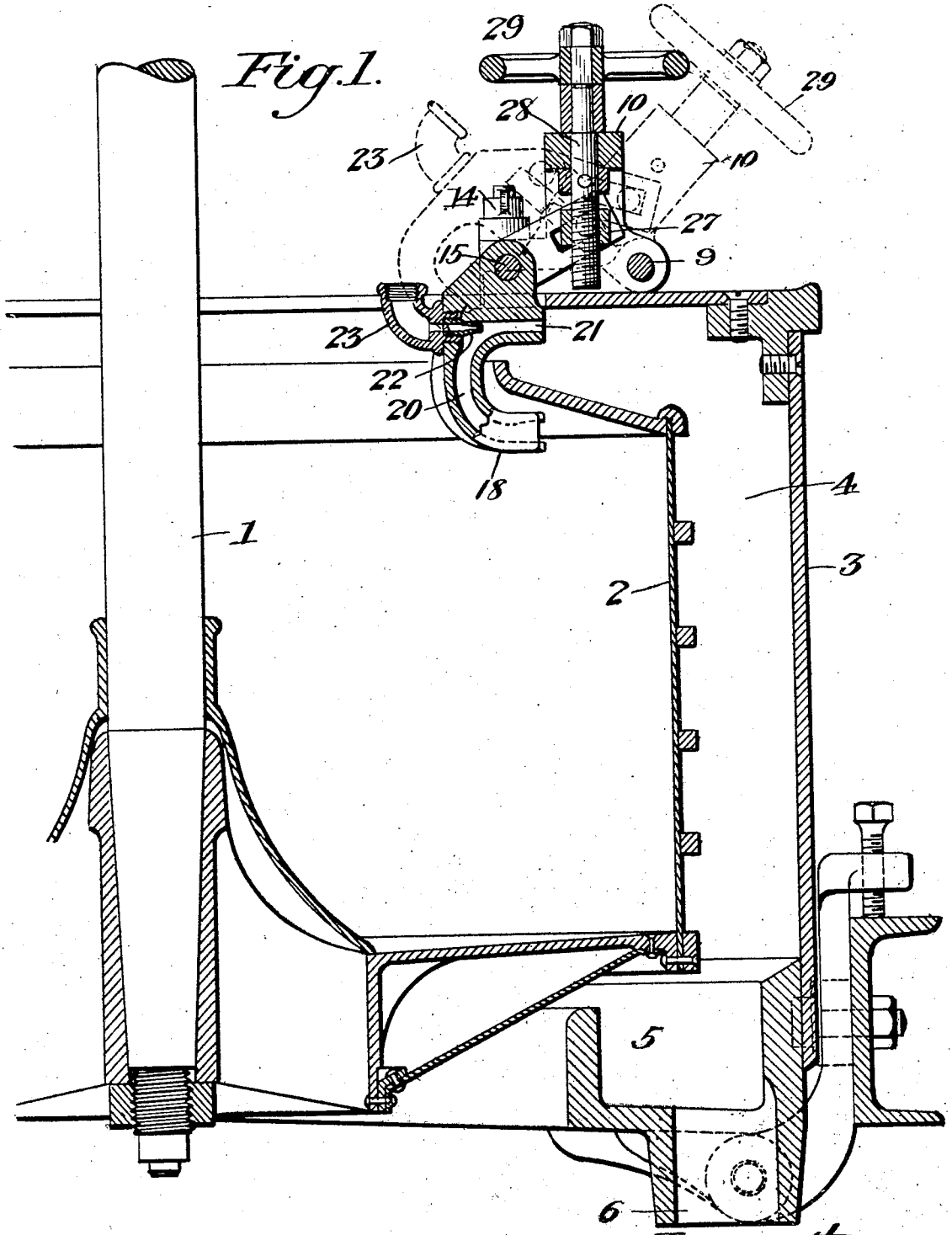
APPLICATION FILED DEC. 6, 1917.

1,304,840.

Patented May 27, 1919.

3 SHEETS—SHEET 1.

Fig. 1.



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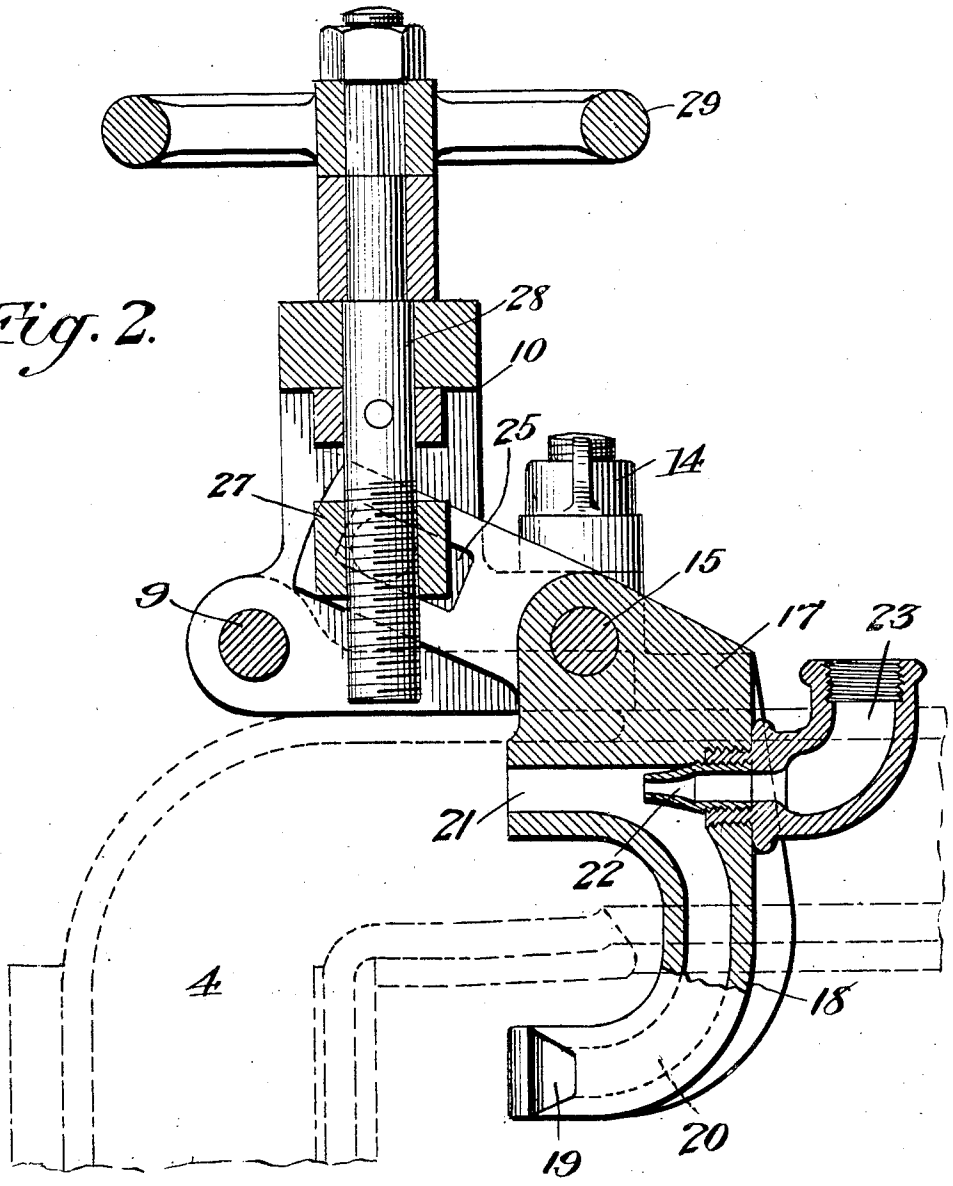
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 4.

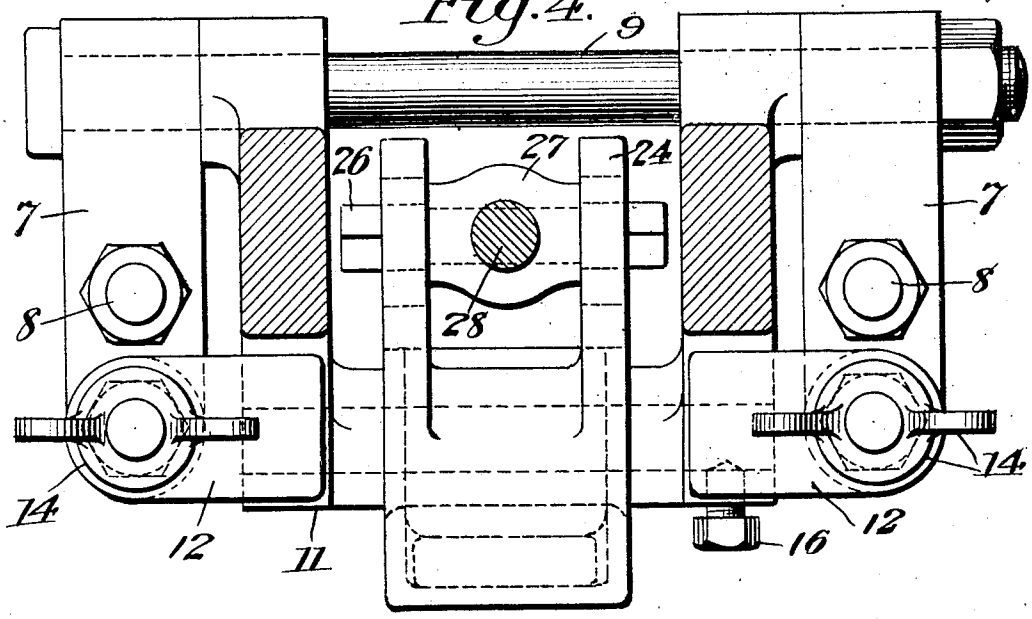
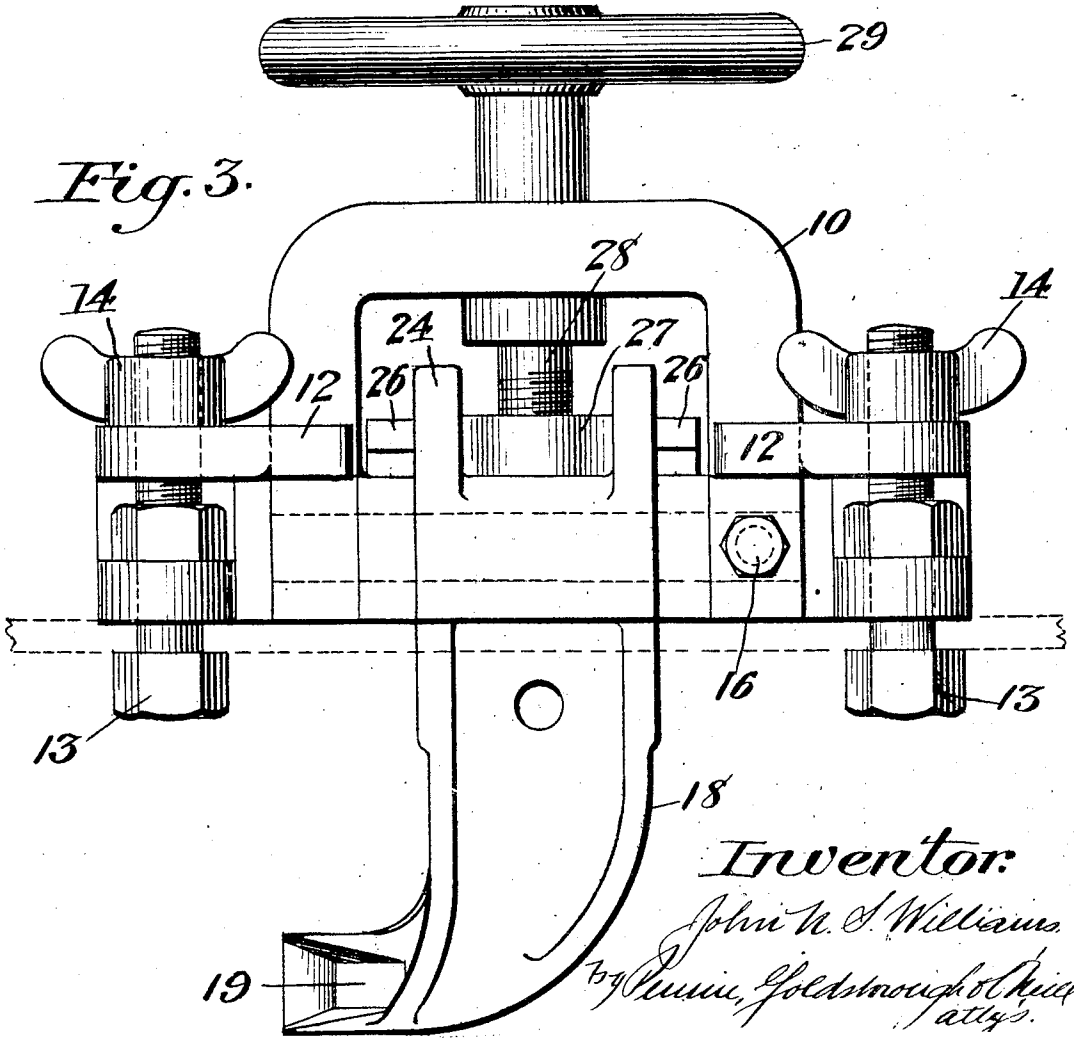


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN N. S. WILLIAMS, OF HONOLULU, TERRITORY OF HAWAII.

ATTACHMENT FOR CENTRIFUGAL MACHINES.

1,304,840. Specification of Letters Patent. Patented May 27, 1919.

Application filed December 6, 1917. Serial No. 205,823.

To all whom it may concern:

Be it known that I, JOHN N. S. WILLIAMS, a citizen of the United States, and a resident of Honolulu, Territory of Hawaii, (whose post-office address is P. O. Box 532, Honolulu, T. H.,) have invented certain new and useful Improvements in Attachments for Centrifugal Machines; 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.

This invention relates to improvements in centrifugal machines, by means of which the materials of various specific gravities may be gathered from the revolving basket during the period when the basket is in motion.

It is an object of the invention to provide an attachment which may be mounted on centrifugal machines of already existing types, so that the gathering element of the attachment may be swung into and out of operative position with relation to the revolving basket.

In the drawings, I have illustrated my invention as incorporated in a centrifugal machine used in separating crystallized sugar from the mixture of such crystals and the molasses in which said crystals were formed, but it is to be understood that the invention is not limited to use in sugar separating machines, as it is conceivable and contemplated that it may be used in various other connections.

In the drawings:—

Figure 1 is a sectional view of a sugar separating machine with my invention incorporated therein, the dotted lines indicating the inoperative position of the attachment.

Fig. 2 is an enlarged sectional view of the attachment.

Fig. 3 is an elevational view, and

Fig. 4 is a horizontal sectional view.

The drawing illustrates the vertical spindle 1 of the usual type of centrifugal machine, on which spindle is mounted an imperforate revolving basket 2, which is adapted to receive the materials to be separated, which basket has the usual discharge opening for the removal of the valuable constituents of the mixture. This basket 2 operates in an outer stationary casing 3, being of lesser diameter than the casing and thus providing an annular space 4 between the casing and the wall of the basket, at the lower end of which space a gutter 5 is located. This gutter is provided with a discharge orifice 6, through which the material collected by the attachment, which will later be described, is discharged.

A pair of brackets 7 are secured to the top of the casing by suitable means, such as bolts 8, and extending between the corresponding ends of these brackets is a bolt 9, on which a bridge member 10 is pivotally mounted. This bridge member is provided with a pair of horizontally extending arms 11, which are arranged to swing between the brackets 7. On the opposite ends of the brackets 7, clips 12 are mounted on bolts 13, the latter serving also to secure the brackets to the casing. These clips are arranged to swing over the arms 11 so as to prevent the upward movement of the arms and the consequent swinging movement of the bridge member 10. These clips are maintained in their operative positions by winged-nuts 14,-which are adjustably mounted on the bolts 13. When these nuts are loosened, however, the clips will be permitted to swing out of the path of movement of the arms 11, and consequently permit the movement of the bridge member.

A journal 15 extends between the arms 11 and is held stationary by a tap-bolt 16, on which journal a gathering and discharging element 17 is mounted for swinging movement. This element 17 includes a channel member 18, which extends downwardly and toward the peripheral wall of the basket and also curves in a direction substantially concentric with the basket and in a direction opposite to that of the rotation of the basket. The end of this channel member is provided with an opening or mouth 19 into which the material to be gathered is forced during the movement of the basket. A channel 20 extends upwardly from this mouth 19 and opens at 21 into the annular space 4 between the wall of the basket and the adjacent wall of the casing 3, so that

the material passing through the channel will be discharged into the gutter 5 and will subsequently pass from the orifice 6.

The passage of the glutinous or waste material through the channel 20 is greatly enhanced because of the presence of the ejector 22, which projects into the channel 20 in alinement with the opening 21. This ejector is provided with supply means 23, by which steam is supplied to the ejector. The passage of the steam through the channel 20 not only dilutes the glutinous material so that it will flow more easily, but also forces the material from the opening 21.

In order that the mouth 19 may be swung so as to be located a greater or lesser distance from the imperforate wall of the bracket 2, I have extended from the element 17 a pair of arms 24 in which elongated openings or slots 25 are formed. Trunnions 26, extending from the ends of a yoke-member 27, are located within these openings, as clearly illustrated in Figs. 2 and 4 of the drawing. A vertical spindle 28 extends through and has screw-threaded engagement with the yoke 27 and is mounted in suitable bearings carried by the bridge member 10. The upper end of this spindle is provided with a hand-wheel 29, so that the spindle may be rotated and during the rotation will either raise or lower the yoke 27, and consequently swing the element 17 about its pivot and cause the mouth 19 to move with relation to the wall of the revolving basket.

It will be clear from the above description that when the winged-nuts 14 are loosened and the clips 12 are swung out of the path of movement of the arms 11, the entire device may be swung about the bolt 9 as a pivot into such a position as illustrated in dotted lines in Fig. 1, where the element 17 will be withdrawn from the separating basket. Furthermore, upon the adjustment of the hand-wheel 29, the mouth 19 of the journal 20 may be swung to collect material from the basket irrespective of the distance of the material from the wall of the basket.

In operation, when the revolving basket is set in motion, the materials to be separated will, of course, arrange themselves in the order of their specific gravities, the material of the greatest specific gravity being adjacent to the wall of the basket 2, and where sugar crystals are being separated from the remaining noncrystallized material, the latter material will be the innermost layer of material. After the basket has revolved for a sufficient length of time to permit the materials to properly arrange themselves, the element 17 is swung into the basket so that the mouth 19 of the channel 20 will project into the material which is to be gathered and discharged. As the separating basket revolves at a comparatively high rate of speed, the material is forced into the mouth 19 and upwardly through the channel 20. The jet of steam passing through the upper end of this passage-way dilutes the glutinous material, when the machine is used for the separation of sugar, and also forces the material from the passage-way and into the space 4.

After all the glutinous material has been gathered and discharged, the device may be swung about the bolt 9 as a pivot to permit the collection of the valuable sugar crystals from the separating basket.

What I claim is:—

1. In a centrifugal machine for separating sugar crystals from noncrystallized material, a revolving imperforate basket, means for gathering the material and conveying the same from the basket, and means for diluting the material and for forcibly discharging the same.

2. In a centrifugal machine, a revolving basket for arranging the materials according to their specific gravities, means for separating the material of one specific gravity from the remaining materials and for conveying it from the basket, and means for accelerating the passage of said material from said basket.

3. In a centrifugal machine, a revolving basket for arranging the materials according to their specific gravities, means for separating the material of one specific gravity from the remaining materials and for conveying it from the basket, and a steam jet discharging into said means.

4. In a centrifugal machine, the combination with a basket, of a pivoted channel member extending into the basket and having the mouth of the channel opening in the direction opposite to that in which the basket revolves, and means for adjusting the member about its pivot to vary the distance between the mouth of the channel and the peripheral wall of the basket.

5. In a centrifugal machine, the combination with a basket, of a pivoted channel member extending into the basket and having the mouth of the channel opening in the direction opposite to that in which the basket revolves, means for adjusting the member about its pivot to vary the distance between the mouth of the channel and the peripheral wall of the basket, and means for diluting the material as it passes through the channel and for forcing the material from the channel.

6. In a centrifugal machine, the combination with a casing, of a basket revolubly mounted therein, a bridge member pivotally mounted on the casing, a channel member pivotally mounted on the bridge member and extending into the basket, said channel member being constructed and arranged to collect material from the basket, and means for pivotally adjusting said member.

7. In a centrifugal machine, the combination with a casing, of a basket revolubly mounted therein, a bridge member mounted on the casing on a horizontal pivot, means for securing the bridge member against pivotal movement, a channel member pivotally mounted on the bridge member and extending into the basket, and an adjusting screw carried by the bridge member and engaging the channel member for moving the latter about its pivot.

In testimony whereof I affix my signature.

JOHN N. S. WILLIAMS.