

H. B. GARMAN.
DISK FOR TURBINE CREAM SEPARATORS.
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984,807.

Patented Feb. 21, 1911.

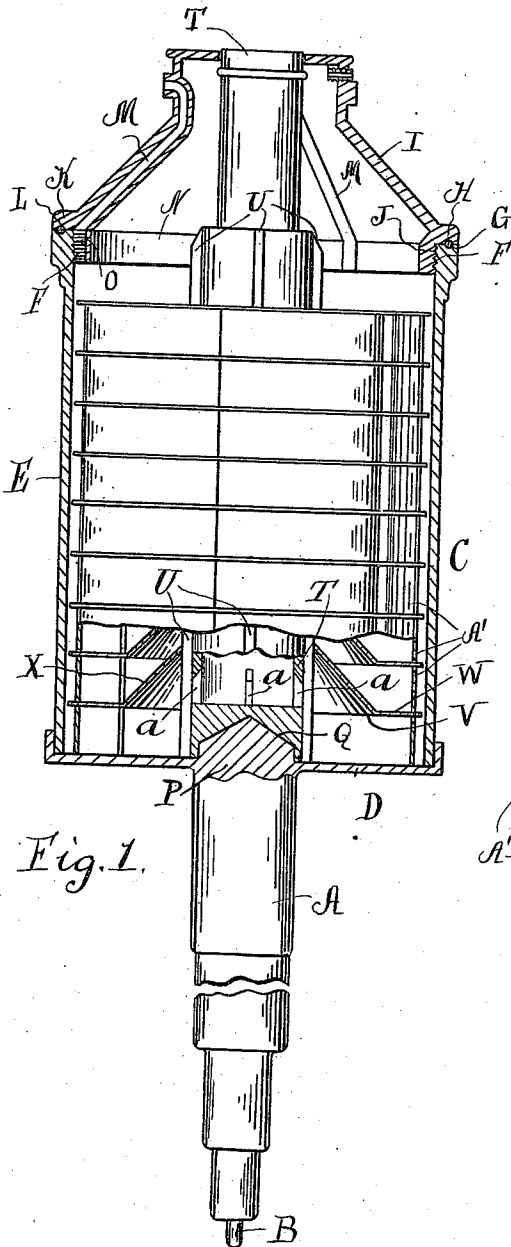


Fig. 1.

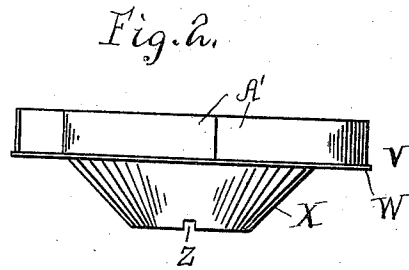


Fig. 2.

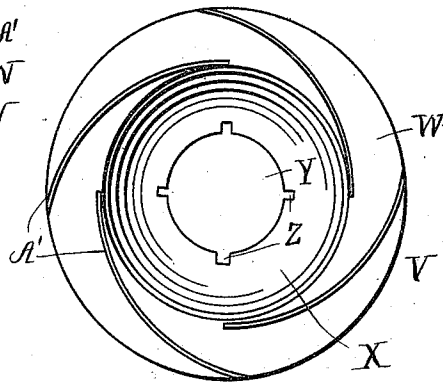


Fig. 3.

WITNESSES

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DISK FOR TURBINE CREAM-SEPARATORS.

984,807.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY B. GARMAN, a citizen of the United States, residing at Ottawa, in the county of Lasalle and State of Illinois, have invented a certain new and useful Improvement in Disks for Turbine Cream-Separators, of which the following is a specification.

My invention relates to a new and useful improvement in disks for turbine cream separators, and has for its object to provide an exceedingly simple and effective device of this character for combining the principles of the flat turbine disk and the full cone disk, so that after the cream has been separated it may be readily flushed from the bowl. With the ordinary disk cream cannot be flushed from the bowl when thick, but when using my improved disk the cone portion thereof will readily and quickly flush same from the bowl.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by letter to the accompanying drawing forming a part of this specification, in which—

Figure 1, is a longitudinal sectional view of a separator bowl and top, portions of the inside mechanism being shown in section and other portions in elevation. Fig. 2, a side elevation of one of the disks, and Fig. 3, a plan or bottom view thereof.

In carrying out my invention as here embodied, A represents the central shaft supported in any suitable frame work and rotated in the usual manner. B is a hardened pin placed in the end of said shaft, which rests in a suitable bearing in the frame work. This shaft supports the bowl C composed of a bottom D and side walls E having internal threads F formed in the upper end thereof. In the upper edge of the side walls is formed an annular groove G, in which is placed a rubber or other suitable flexible ring H.

I represents the top, a portion of which is conical in shape, the lower edge being provided with threads J, which register with the threads F in the side walls of the bowl. This top has a flange K in which is formed

an annular groove L, in which a portion of the ring H will rest when the top is in position. Said top is provided with a number of passage-ways M, which lead from the lower edge thereof to the outer surface in proximity to the upper end of said top, a portion of the rim N being cut away, as indicated at O to form an inlet to said passage-way.

With the bottom D is formed a cylindrical bearing P, the upper portion of which is conical, as at Q, and this bearing has a key-way R formed in one side, with which registers the key S, formed with the hollow center stem T, said stem having a plurality of slots *a* in proximity to its lower end, leading from the center of said stem to the bowl below the lowermost disk, thus providing for the passage of the full milk to the bowl through the stem. The center stem is also provided with vertical ribs U, one of which is thicker than the rest, for a purpose to be hereinafter described.

V denotes the disks, each of which is provided with a flat portion W and a conical center X, having a center opening Y adapted to fit over the center stem T. In the side walls of this conical portion are formed the notches Z, one of which is wider than the rest. These notches register with the vertical ribs U, the larger notches registering with the larger rib so that the disks must be placed upon the center stem T in the same position each time. On the flat portion of the disks are mounted the uprights A' which extend from the inner edge part way around said flat portion to the outer edge thereof, thus forming turbine blades.

The operation of the device is as follows:—Milk is placed in the bowl in the ordinary manner, and as the device is revolved the skim milk being heavier will be driven to the outside, and in passing to the outside it passes along the concave side of the uprights, and as the cream leaves the skim milk it is driven over the convex side of the upright by displacement and forced toward the center along said convex side as it accumulates. As the separation continues the skim milk will be forced upward and out through the passage-ways M, while the cream passes up the central shaft and out of the bowl in the ordinary manner.

Of course I do not wish to be limited to the exact details of construction here shown as these may be varied within the limits of

the appended claims without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful, is—

- 5 1. In a disk for cream separators, a flat portion, a conical portion having a central opening, and uprights mounted on said flat portion.
2. In a device of the character described,
10 a disk composed of a flat portion and a conical portion, having a central opening and provided with notches, one of which is larger than the rest, and uprights mounted on the flat portion.
- 15 3. In a disk for cream separators, a flat portion, a conical portion extending from the inner edge of the flat portion, said conical portion having a central opening and provided with notches, one of which is
20 larger than the rest, and uprights mounted on the flat portion.
4. In a disk for cream separators, a flat portion, a conical portion extending from the inner edge of the flat portion, said conical
25 portion having a central opening and provided with notches, one of which is larger than the rest, and uprights mounted on the flat portion, extending from the inner edge

thereof part way around the same to its outer edge.

30 5. In combination, a central shaft having a bowl mounted thereon, said bowl being provided with a cylindrical bearing, the upper portion being conical in shape, said bearing having a key-way formed therein,
35 a center stem having vertical ribs, one of which is thicker than the others, and provided with a key placed upon the cylindrical bearing so that the key registers with the key-way, disks having a flat portion and
40 a conical portion, provided with a central opening, and notches, one of which is larger than the others, said notches adapted to register with the vertical ribs on the center
45 stem, uprights mounted on the flat portion of the disks, a top provided with passageways mounted on the upper end of the bowl, and a packing ring placed between the top and the upper edge of the bowl, as specified.

50 In testimony whereof, I have hereunto affixed my signature in the presence of two subscribing witnesses.

HARRY B. GARMAN.

Witnesses:

AXEL NEIBERG,
ENOCH YENTZER, Jr.