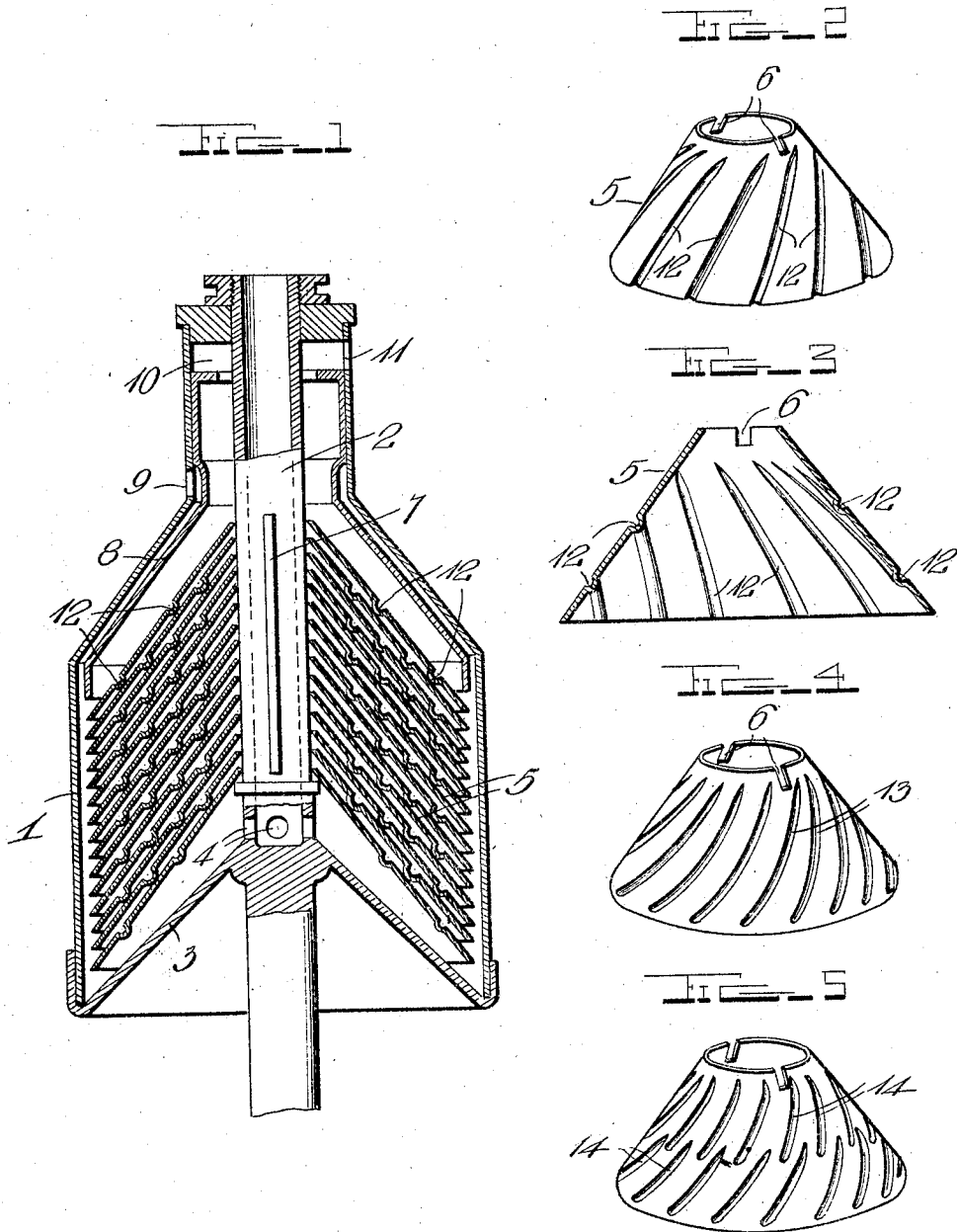


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CENTRIFUGAL SEPARATOR.
APPLICATION FILED AUG. 25, 1910.

1,006,622.

Patented Oct. 24, 1911.
2 SHEETS—SHEET 1.



Witnesses
O. B. Hopkins

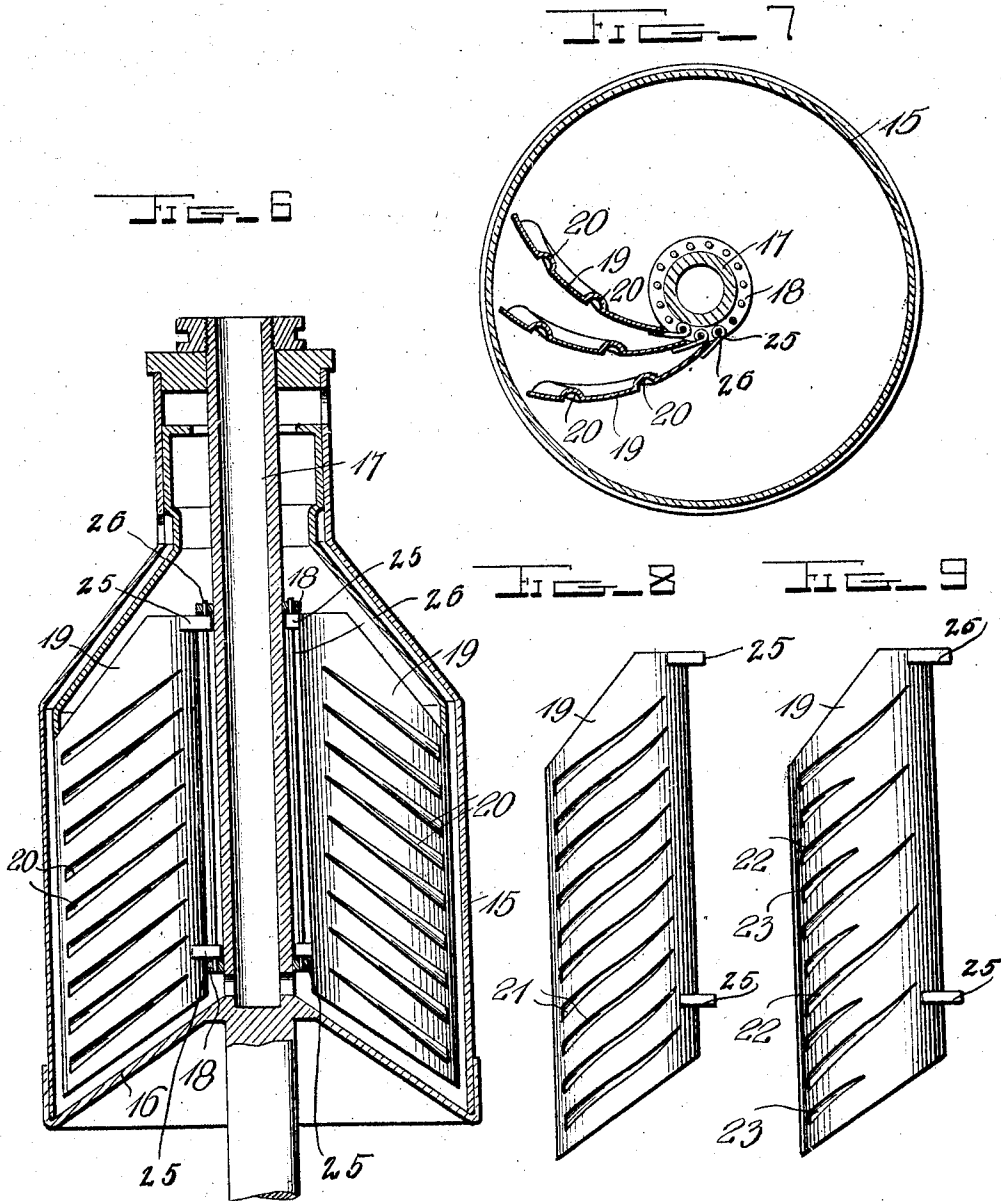
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UNITED STATES PATENT OFFICE.

EDGERLY R. BAILEY, OF CLARINDA, IOWA.

CENTRIFUGAL SEPARATOR.

1,006,622.

Specification of Letters Patent. Patented Oct. 24, 1911.

Application filed August 25, 1910. Serial No. 578,934.

To all whom it may concern:

Be it known that I, EDGERLY R. BAILEY, a citizen of the United States, residing at Clarinda, in the county of Page and State of Iowa, have invented certain new and useful Improvements in Centrifugal Separators; and I do 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 separators and particularly to centrifugal cream separators.

The invention consists in the construction and arrangement of parts as will be hereinafter described and particularly pointed out in the claim.

In the accompanying drawings: Figure 1 is a vertical sectional view through a separator showing my improved separating disks arranged therein; Fig. 2 is a perspective view of one of the disks; Fig. 3 is a sectional view of the same; Fig. 4 is a perspective view of another form of the disk; Fig. 5 is a similar view of still another form of disk; Fig. 6 is a vertical sectional view of a modified form of separator wherein the separating devices are in the form of hinged blades or wings; Fig. 7 is a horizontal sectional view of the same with part of the wings or blades removed; Fig. 8 is a side view of one of the separating blades or wings; Fig. 9 is a similar view of another form of the blades.

Referring more particularly to the first five figures of the drawings, 1 denotes the separator bowl in which is arranged the usual liquid supplying tube 2. The tube 2 is open at its upper end to receive the liquid which is fed thereto from any suitable form of hopper. The bottom 3 of the bowl 1 is of conical form and in the tube 2 adjacent to the central upper portion of the bottom is formed a liquid discharging passage 4 through which the liquid is discharged and falls onto the bottom 3 and is conducted thereby to the lower portion of the sides of the bowl 1, up which the liquid is caused to travel by the centrifugal force derived from the rapidly revolving bowl.

Arranged on the tube 2 within the bowl 1 are my improved liquid separating cone shaped disks 5 which are spaced apart and arranged one above the other as shown. The disks 5 have formed in their upper ends

notches 6 which are engaged with radial vertically disposed bars 7 arranged on the tube 2 whereby said disks are secured in proper relative position on the tube. In the upper portion of the bowl 1 above the series of separating disks is arranged a skimming cone 8 which may be of the usual or any suitable construction whereby the heavier parts of the liquid which are forced up the inner sides of the bowl by the centrifugal motion thereof are caught and directed to a suitable discharging passage 9 formed in one side of the upper portion or neck of the bowl as shown. The lighter parts of the liquid which are caught by the separating disks 5 are carried thereby against the centrifugal force of the machine to the upper inner ends of the disks and are forced up the outer surface of the tube 2 into a discharge chamber 10 arranged over the upper end of the skimming cone 8 and from said chamber is discharged through a suitable passage 11 formed in one side of the neck of the bowl as shown.

My improved separating disks as shown in the first five figures of the drawings are of frusto-conical shape and on the sides of the same are arranged liquid directing ribs. These ribs may be formed separate from the disks and secured thereto in any suitable manner or as shown in the drawings the ribs may be pressed or struck into the metal of the disk 6 forming corrugations. In Figs. 2 and 3 of the drawings are shown straight diagonally arranged ribs 12 which are struck or pressed into the metal from the outer side and are arranged in parallel relation around the disks. The ribs when thus formed project below the inner wall of the disks to a sufficient extent for spacing the disks apart the proper distance for forming liquid conducting passages between the disks. In Fig. 4 of the drawings are shown ribs 13 which are constructed in the same manner as the ribs 12 shown in Figs. 2 and 3, said ribs 13, however, being formed in spiral curves around the disks as shown. In Fig. 5 of the drawings the disk is shown as being provided with ribs 14 formed in upper and lower rows, the ribs in said rows being arranged in staggered relation. The variously arranged ribs as above described are preferably tapered or diminish in width toward their upper ends as shown. The ribs may be continued through the lower edges of the disks as shown in Figs. 2 and 3 or said ribs

may terminate a short distance above the lower edges of the disks as shown in Figs. 4 and 5.

In assembling the disks in the bowl of the separator they are so arranged that the corrugations or ribs of one disk will come between the ribs of the next adjacent disk so that said ribs will not nest together, but will engage the surface of the under disk between the ribs, said ribs thus forming supports by which the disks are spaced the proper distance apart. In thus arranging the disks and ribs the cream or lighter part of the liquid being separated will, when caught by the disks be carried or directed upwardly and inwardly toward the center of the disk and against the centrifugal force of the rapidly revolving bowl, said ribs thus greatly facilitating and expediting the separation of the lighter parts of the liquid from the heavier parts which are thrown outwardly against the outer sides of the bowl and are carried up the same in the manner described.

In Figs. 7, 8 and 9 of the drawings is shown a modified form of separator comprising a bowl 15 having a conically shaped bottom 16 and a centrally disposed feed tube 17 similar to the bowl and tube shown in the first figure of the drawing. Secured to the feed tube 17 and spaced a suitable distance apart are upper and lower blade supporting rings 18 to which are pivotally connected the inner edges of a series of curved wings or blades 19 of which there may be any desired number, said blades being arranged substantially as shown in Fig. 7 of the drawing. In each of the blades 19 is formed a series of upwardly and inwardly inclined ribs or corrugations which are preferably struck into the material forming the wings. In Fig. 6 of the drawings the wings or blades are shown as being provided with straight inclined ribs or corrugations 20 while in Fig. 8, the blade is shown as being provided with curved ribs 21. In Fig. 9 the wing is shown as being provided with long ribs 22 between which at the outer edges of the wings is ar-

ranged the short ribs 23. The long ribs 22 are preferably formed on a curve as shown. The ribs or deflecting elements are formed by indenting the separating device from the upper side thereby facilitating cleaning, and as they taper toward their inner ends, the escape of the particles taken up thereby is hastened while the spaces between them are reduced at their outer ends where there is greatest need for a large number of elements to act on the liquid and separate the component parts thereof. The construction employed furnishes a positive means for preventing the lagging of the liquid in the bowl without adding to the weight of the lining or increasing the number of the parts and also effectually separates the disks in their spaced relation.

I wish it to be understood that the wings shown in Figs. 6, 7, 8 and 9 are provided on their inner faces with perforated bearings 25 and that rods 26, are inserted through the perforations of the rings and those of the bearings so as to pivot the wings in position on the tube.

Having thus described my invention, what I claim is:

A centrifugal separator comprising the bowl with a liquid supplying tube having perforated rings thereon, blades having ribs of different lengths struck outwardly therefrom, the shorter ribs being arranged between the longer ones, said ribs being constructed tapering throughout their lengths, said wings having bearings on their upper and lower inner faces, and rods inserted through the perforations of the rings and those of the bearings to pivot the wings to the tube.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EDGERLY R. BAILEY.

Witnesses:

J. W. BERRY,
GRACE HULLMAN.