

(No Model.)

2 Sheets—Sheet 1

O. ANDERSON.
CENTRIFUGAL CREAMER.

No. 553,223.

Patented Jan. 21, 1896.

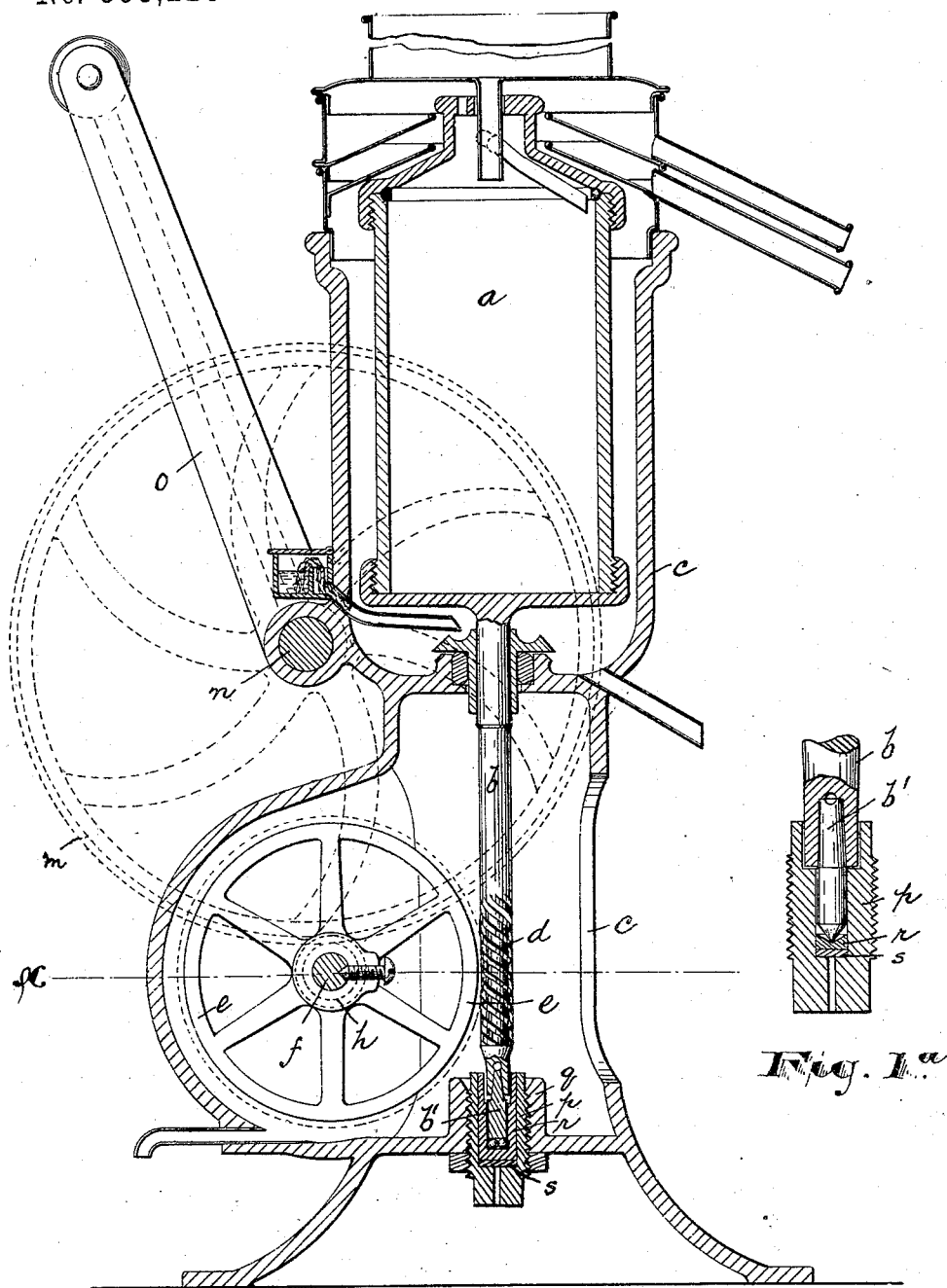


Fig. 1.

WITNESSES:

INVENTOR:

Robert Tollberger
Beatrice Charles

Oscar Anderson,

BY *Drave & Co.* ATTY'S.

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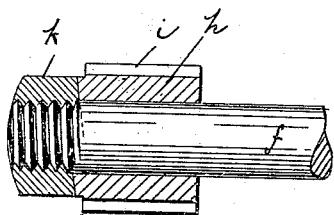


Fig. 2.

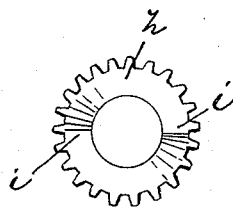


Fig. 3.

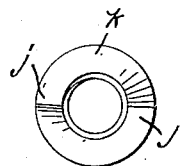


Fig. 4.

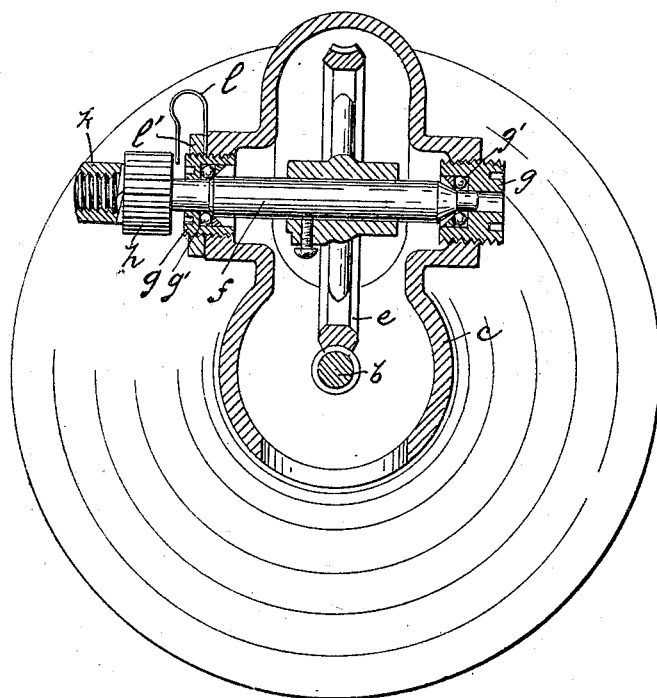


Fig. 5.

Witnesses

Robert Sollberger
Beatrice Charles

Inventor

Oscar Anderson,
By Drake & Co's.

UNITED STATES PATENT OFFICE.

OSCAR ANDERSON, OF NEWARK, NEW JERSEY.

CENTRIFUGAL CREAMER.

SPECIFICATION forming part of Letters Patent No. 553,223, dated January 21, 1896.

Application filed May 6, 1895. Serial No. 548,188. (No model.)

To all whom it may concern:

Be it known that I, OSCAR ANDERSON, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Centrifugal Creamers and Motive Devices Therefor; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The objects of this invention are to provide, at a reduced cost of construction, an effective and durable motive mechanism for centrifugal separating-machines, capable of admitting of an independent action of the bowl should the said motive mechanism be stopped in its operations by the garments of the operator catching in the gearing, or from any other cause; to furnish a motive device of greater simplicity, and to secure other advantages and results, some of which will be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved motive mechanism for centrifugal creamers, &c., and in the arrangements and combinations of parts, all substantially as will be hereinafter set forth and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters indicate corresponding parts in each of the several views, Figure 1 is a central vertical section of a motive device in operative relation to a centrifugal creaming-bowl. Fig. 1^a is a detail section showing a modification in the construction of a seat for the vertical bowl-carrying shaft. Figs. 2, 3, and 4 are detail views illustrating, on an enlarged scale, a clutching mechanism by means of which power is transmitted from the crank-wheel to the bowl-carrying shaft, and which admits independent movement of said shaft should the said crank be prevented from turning; and Fig. 5 is a transverse section taken at line *x*, Fig. 1.

In said drawings, *a* indicates a centrifugal creaming-bowl of any suitable construction. *b* is a vertical shaft carrying the same, said

shaft being held in bearings of a frame or case *c*, formed to inclose the bowl and parts of the gearing transmitting motion to the same, to protect said parts and prevent interference therewith. Said shaft is provided with screw-threads *d* which mesh with corresponding threads of a worm-wheel *e*, also arranged in the frame or case *c*, and carried by a horizontal shaft *f* rotating in adjustable roller-bearing boxes having balls or rollers *g* of any suitable construction.

Outside of the frame or casing *c* the shaft *f* is provided with a loose or sliding cog-wheel or pinion *h*, Figs. 3 and 5, one side of which is provided with clutching-teeth *i*, Figs. 2 and 3, having catching-faces at one side and inclined surfaces on the other adapted to engage corresponding teeth *j* on a clutch-nut *k*, screwed or otherwise fastened upon the shaft *f* adjacent to said loose cog-wheel or pinion.

A spring *l*, Fig. 5, serves to hold the toothed clutching parts *h k* normally in operative engagement to occasion a transmission of power from the large speeding-wheel *m*. The said wheel *m* is provided with cogs which mesh with those of the wheel *h* having clutch-teeth. Said wheel *m* is arranged on a suitable shaft *n* with the hand-crank *o*, or other means for turning said shaft by hand or other power.

Power transmitted through the crank *o*, shaft *n*, and wheels *m h* normally when the clutching-teeth are in engagement, held so by the spring *l*, is communicated to the clutch-nut *k* and then to the shaft *f*, worm-wheel *e*, vertical and threaded shaft *b*, and bowl *a*, the last rotating with great velocity to produce the desired centrifugal separation.

I prefer to give a bow shape to the spring *l* and to removably fasten it in place by means of a nut *l'*, arranged on the threaded periphery of the roller-bearing box *g* and pressing one arm of the bowed spring rigidly against the case *c*, as shown in Fig. 5. The other arm of said spring presses outward against the clutching cog-wheel, or, to prevent constant friction when the machine is in operation, said arm is so disposed as that it will throw the wheel *h* toward the nut *k* and effect an engagement of clutching-teeth. The clutching-teeth are undercut, as shown in Fig. 5, and thus, after the first engagement due to the pressure of the spring, the pressure of the

undercut inclines of the teeth on one another draws the wheel toward the nut *k* and away from the spring-arm, and thus said spring-arm will have no wearing-contact during the ordinary operations; but should there be an interference with the movement of the exposed parts the outer inclines of the clutching-teeth will be caused to slide on one another and the cog-wheel thrown back against the spring, thus allowing independent action of the parts next in train with the bowl and a quick stopping of the parts next in train with the crank, all as will be understood.

To provide a simple, elastic, and readily-repairable bottom gearing for the vertical bowl-carrying shaft *b*, I have provided the construction shown, preferably, in Fig. 1^a, where *p* indicates an adjustable seat peripherally threaded so as to be screwed within a threaded bearing *q* at the bottom of the case or frame *c*. Said adjustable seat *p* is cup-shaped, and within the same is a hardened metal bearing-piece *r*, resting upon an elastic cushion *s* at the bottom of the chamber within said seat *p*. Said cushion may be of rubber, and serves to produce a more regular and easy motion of the bowl.

The end of the shaft *b* is provided with a hardened metal bearing-piece *b'*, which may rest on balls, as in Fig. 1, but which, preferably, is conical at the lower end and rests in a shallow conically-recessed aperture in the bearing-piece *r*. The parts *b'* *r* being each separable from the parts *b* *p*, respectively, they may be easily and quickly renewed when worn. The cup-shaped part is preferably countersunk or stepped, so as to receive the upper part *b* or body portion of the shaft and provide a lateral stay for the same and also to provide a lateral stay for the smaller supplemental part *b'*, thus preventing irregular movement should the joint between the parts *b* *b'* be loose, and preventing danger should there be a break at said joint.

Having thus described the invention, what I claim as new is—

1. The combination with the centrifugal bowl *a*, threaded shaft *b*, worm wheel *e*, shaft *f*, and nut *k*, provided with clutch teeth, of the clutching cog-wheel *h*, spring *l*, speeding wheel *m*, and means for turning the same, all said parts being arranged and combined, substantially as set forth.

2. The combination with the centrifugal bowl *a*, bowl carrying shaft *b*, shaft *f*, and train of means for transmitting power from one of said shafts to the other, of the clutch part *h*, fixed to said shaft *f*, and having teeth, a sliding cog-wheel *h*, having cooperating teeth, a spring, a speeding wheel *m*, and

means for transmitting power thereto, all substantially as set forth.

3. The combination with the centrifugal bowl *a*, shaft *b*, shaft *f*, and train of means for transmitting power from one shaft to the other, of the clutch part *h*, fixed to said shaft *f*, and having under cut teeth, a sliding cog-wheel having correspondingly under cut teeth, a spring, a speeding wheel and means for transmitting power thereto, all substantially as set forth.

4. The combination with the centrifugal bowl and shaft carrying the same, a shaft *f*, and means for transmitting power from one shaft to the other, of the clutch part *h*, having undercut inclined teeth, a sliding cog-wheel having correspondingly undercut inclined teeth, a bowed spring adapted to throw said teeth into engagement and to stand away from the said wheel when the latter is in operation, and means for transmitting power to said cog-wheel, substantially as set forth.

5. The combination with the case, a centrifugal bowl and shaft carrying the same, and having screw threads, a worm wheel *e*, shaft *f*, carrying said wheel *e*, and having a threaded extremity, outside of said case, a nut having clutching teeth arranged on said shaft *f*, and movable into and from clutching relation to said nut and a bowed spring fastened to said case and having one arm arranged to press said cog-wheel into engagement with the nut, speeding wheel *m*, shaft *n*, and crank *o*, all arranged and combined, substantially as set forth.

6. The combination with the case *c*, centrifugal bowl *a*, bowl carrying shaft *b*, and means for rotating said shaft, of a hardened and separable piece *b'*, with a conical end, supplementing said shaft, of a cup-shaped piece adjustably fastened to the case, an elastic piece *s*, and hardened steel bearing *r*, receiving the conical end of said supplemental piece *b'*, substantially as set forth.

7. The combination with the case *c*, centrifugal bowl *a*, bowl carrying shaft *b*, and means for rotating said shaft, of a supplemental piece *b'*, a cup-shaped, adjustable chair or seat *p*, stepped interiorly as described, and a hardened and cushioned piece within said cup-shaped seat serving as a bearing for said supplemental piece, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of April, 1895.

OSCAR ANDERSON.

Witnesses:

CHARLES H. PELL,
BEATRICE CHARLES.