No. 729,596. PATENTED JUNE 2, 1903.

M. JOHNSRUD.

MECHANISM FOR OPERATING CREAM SEPARATOR CYLINDERS.

APPLICATION FILED JAN. 5, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.

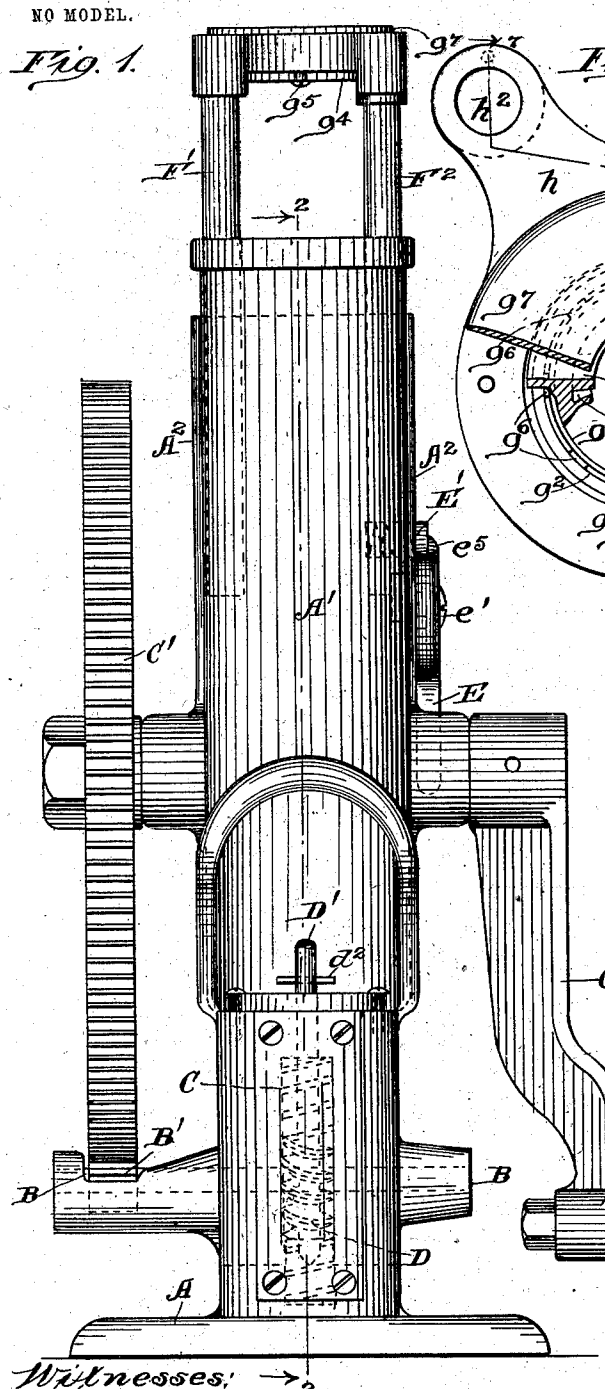


Fig. 6

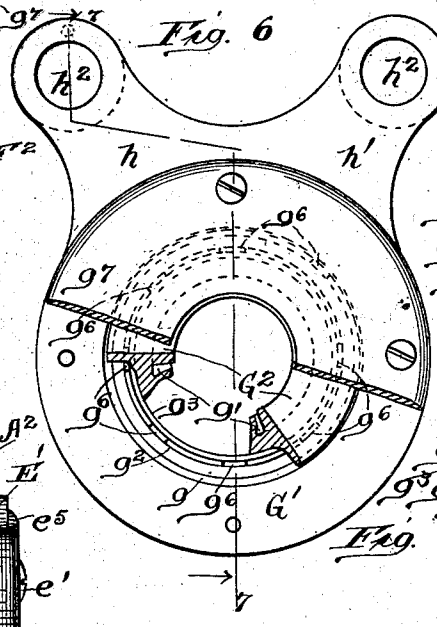


Fig. 7

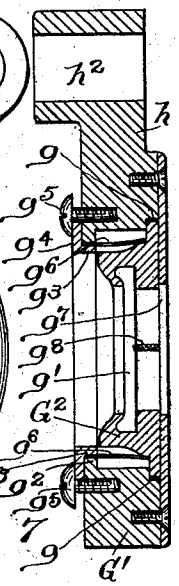
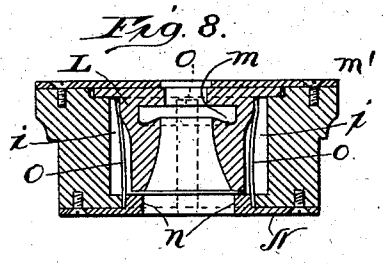


Fig. 8.



Witnesses:

Chas. E. Gorton

A. Gustafson

Inventor:

Martin Johnsrud

By. Chas. C. Tillman

Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 729,596. PATENTED JUNE 2, 1903.

M. JOHNSRUD.

MECHANISM FOR OPERATING CREAM SEPARATOR CYLINDERS.

APPLICATION FILED JAN. 5, 1903.

NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.

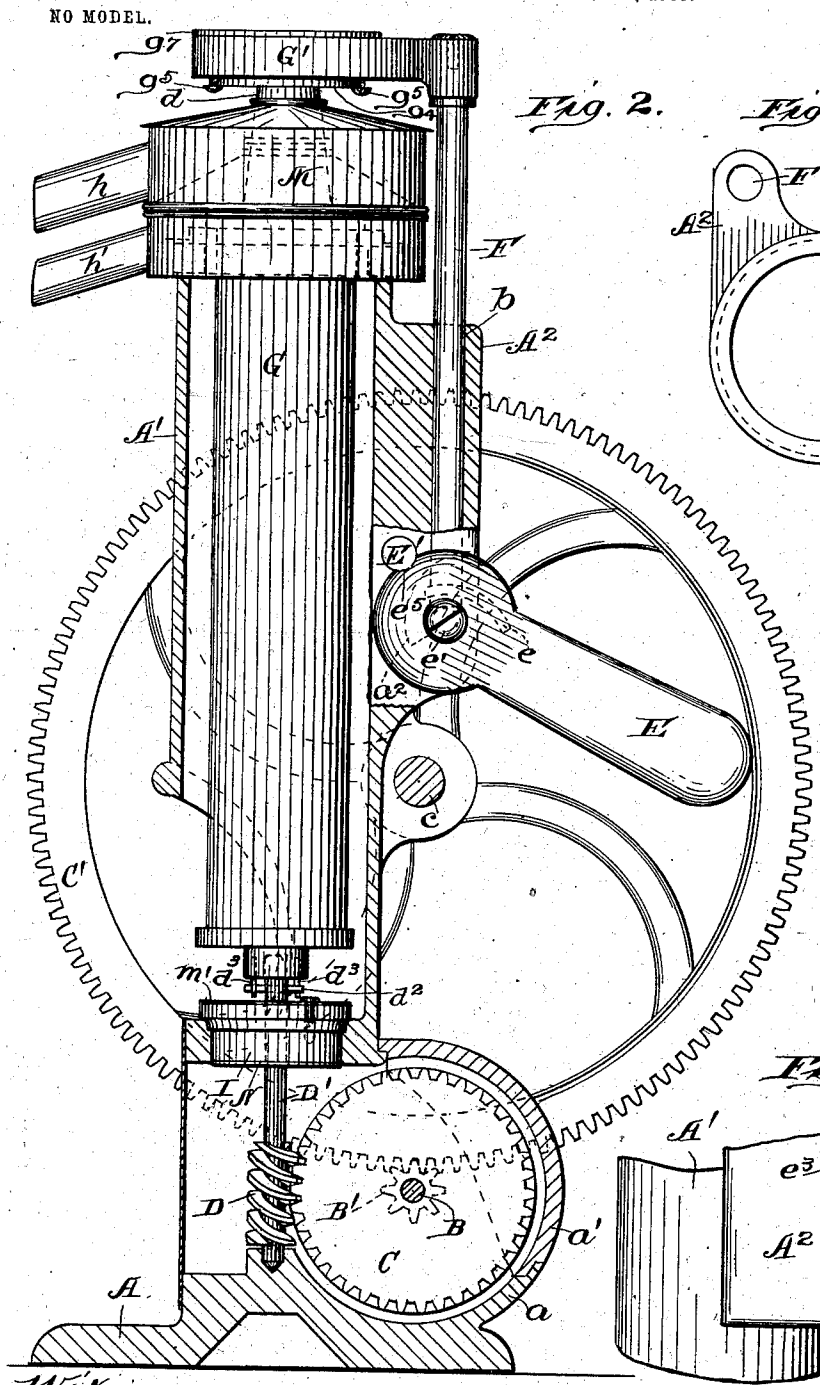


Fig. 5.

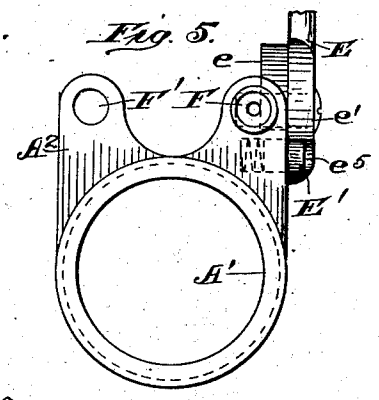


Fig. 4.

Witnesses:

Chas. E. Gorton.

A. Gustafson

Inventor:

Martin Johnsrud.

By. Chas. C. Tillman

Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 729,596. PATENTED JUNE 2, 1903.

M. JOHNSRUD.

MECHANISM FOR OPERATING CREAM SEPARATOR CYLINDERS.

APPLICATION FILED JAN. 5, 1903.

NO MODEL. 3 SHEETS—SHEET 3.

Fig. 3.

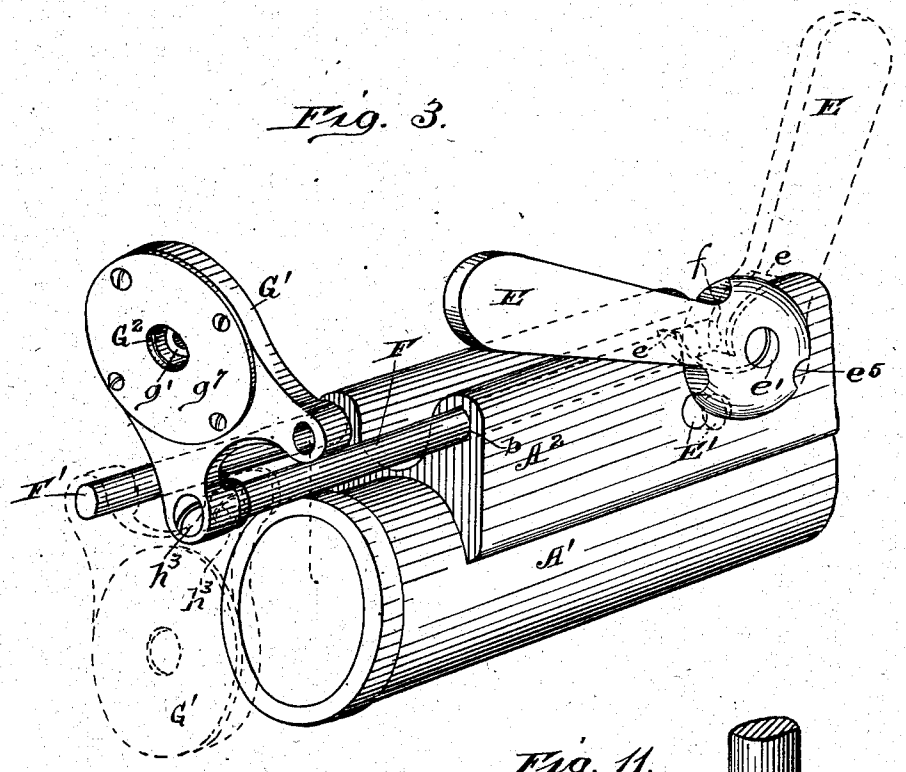


Fig. 11.

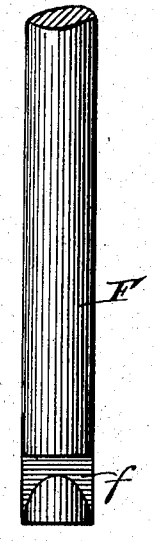


Fig. 9.

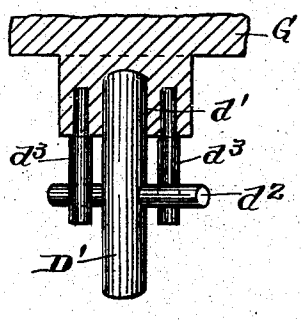
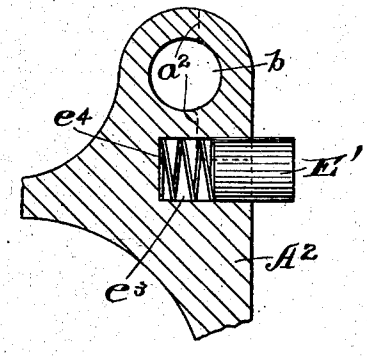


Fig. 10.



Witnesses:

Chas. E. Gorton.

A. Gustafson

Inventor:

Martin Johnsrud

By Chas. A. Tillman Atty.

THE NATIONAL PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 729,596. Patented June 2, 1903.

UNITED STATES PATENT OFFICE.

MARTIN JOHNSRUD, OF CHICAGO, ILLINOIS.

MECHANISM FOR OPERATING CREAM-SEPARATOR CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 729,596, dated June 2, 1903.

Application filed January 5, 1903. Serial No. 137,758. (No model.)

To all whom it may concern:

Be it known that I, MARTIN JOHNSRUD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mechanism for Operating Cream-Separator Cylinders, of which the following is a specification.

This invention relates to improvements in a mechanism to be used for supporting and operating cylinders or skimming-bowls of cream-separators; and it consists in the novel features of the construction, combination, and arrangement of the various parts thereof, all of which will be hereinafter fully described, and pointed out in the appended claims.

Experience and practice in the art to which my invention pertains have shown that in order to attain the best results the separator-cylinders should be made quite long and narrow, and heretofore they have been made and provided with a shaft extending from their lower ends to engage the operating mechanism. As the cylinders are quite long, it is apparent that a slight springing or deviation of said shaft from an axial line through the cylinder will throw it out of alinement or plumb, thus causing a great deal of friction in the rotation of the cylinder or rendering the mechanism inoperative.

It is therefore the principal object of my invention to provide a mechanism for supporting and operating cream-separator cylinders which shall be so constructed as to have bearings for both ends of the cylinder and so made that the shaft ordinarily used on the lower end of the cylinder may be dispensed with, thereby affording a smooth and accurately running mechanism in which there are no parts to be sprung or to get out of order.

Another object of the invention is to so construct the device that the cylinder may easily be placed in position and securely retained, yet readily removed when desired.

A further object is to so construct the bearings for the ends of the cylinder as to prevent vibration, thus causing it to run perfectly smooth.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

Referring to the accompanying drawings, Figure 1 represents a front view in elevation of an apparatus embodying my invention, showing the separator-cylinder removed. Fig. 2 is a view, partly in section and partly in elevation, taken on line 2 2 of Fig. 1, looking in the direction indicated by the arrows, but showing the separator-cylinder and its cap in position. Fig. 3 is a perspective view of the upper portion of the device, showing by dotted lines the positions the parts will assume when the cylinder is in place and by continuous lines the positions they will assume when it is desired to remove the cylinder. Fig. 4 is a view in elevation of a portion of the main frame, showing the construction of the portion thereof to which the releasing-lever is fulcrumed. Fig. 5 is a plan view of the main frame, showing a portion of the releasing-lever. Fig. 6 is a sectional plan view of the upper bearing or journal-box for the cylinder. Fig. 7 is a sectional view thereof, taken on line 7 7 of Fig. 6, looking in the direction indicated by the arrows. Fig. 8 is a sectional view of the lower bearing or journal-box. Fig. 9 is a sectional view of the lower part of the upper portion of the worm-shaft. Fig. 10 is a similar view of a portion of the main frame, showing the spring-actuated press-button; and Fig. 11 is a view of a portion of one of the supporting-rods for the upper journal-box.

Similar letters refer to like parts throughout the different views of the drawings.

The main frame consists of a base portion A and an upright tubular portion A′, having an enlargement A^2, on which the supporting-rods for the upper bearing or journal-box are mounted. The base portion of the main frame is formed with a hollow extension *a*, which may be closed by a curved and detachable door *a*′, as is clearly shown in Fig. 2 of the drawings.

Transversely journaled in the sides of the extension *a* of the base is a shaft B, on which is mounted between said sides a gear C, which meshes with a worm D on the worm-shaft D′, which is vertically journaled in the base por-

tion of the frame and extends upwardly therethrough.

Mounted on the shaft B near one of its ends is a pinion B', with which the main or driving gear C' meshes, which gear is mounted on one end of the shaft *c*, horizontally journaled on the tubular portion A' of the main frame, near the lower end of the enlargement A^2 thereof. On the opposite end of the shaft *c* from that on which the gear C' is mounted is secured a crank C^2, used for operating the device. Instead of using a crank on said shaft it is apprrent that a pulley may be substituted therefor, to which a belt may be applied for transmitting power.

The lower portion of the enlargement A^2 is provided with a segmental recess a^2 for the reception and operation of a segmental lug *e* on the inner surface of the releasing-lever E, which is fulcrumed on the lower portion of the enlargement A^2 by means of a screw or bolt *e'*, located in an opening e^2 therefor in the lower portion of said enlargement. Near the recess a^2 the enlargement A^2 is provided with an opening e^3 for the reception and operation of a push-button E', which is pressed outwardly by means of a spring e^4, located in the opening e^3 between its inner end and the inner end of said button, which is used to lock the releasing-lever E and the rod F, which it lifts, in their lowered position, as shown in Fig. 2 of the drawings. For this purpose the lever E is provided with a recess e^5, with which the button E' will engage when projected. The rod F is vertically and loosely located in an opening *b* in the enlargement A^2, which opening communicates with the slot or recess A^2, so that the segmental lug *e* of the lever E may engage the lower portion of the rod F, which is preferably provided near its lower end with a recess *f* for the reception and operation of said lug.

Secured to the enlargement A^2 and extending upwardly therefrom in parallelism with the rod F is another rod F', which rods project a slight distance above the top of the main frame, as is shown.

The upper bearing or journal-box for the upper end of the separator-cylinder G comprises a piece or casing G', usually circular in form and having a central circular opening *g* for the ring or cone G^2, which is provided on its inner surface with a circumferential groove *g'* to retain oil or a lubricant. The lower portion of the casing G' is formed with an inwardly-extending annular flange g^2, in which is located a ring g^3, having a flange g^4 to overlap the bottom of the casing, and which ring is held in place by screws g^5, secured in the casing. Between the flange g^2 and the ring g^3 are located a number of springs g^6, which extend upwardly and impinge the outer surface of the cone, which fits loosely in the casing, thus affording a yielding or cushioned bearing for the upper end of the cylinder. As shown, the cone is held in position by means of a plate g^7, fastened to the casing by screws or otherwise, and is provided with one or more pieces of wick or fibrous material g^8 in its walls to distribute the oil from the groove *g'* therefor. The casing G' is provided with two arms or extensions *h* and *h'*, each having near its free end an opening h^2 to receive the upper ends of the rods F and F'. One of said arms is secured to the rod F by means of a screw h^3, so that it as well as the casing will move with said rod.

The lower bearing, in which the worm-shaft D' is journaled, consists of a casing I, circular in form and provided with a central opening *i*, in which is loosely located a cone L, which has on its inner surface a circumferential groove *m* to retain oil. The cone L is held in position by means of a plate *m'*, secured to the casing by means of screws or otherwise. Located between the lower portion of the casing I and an annular flange *n* on a plate N, secured to the bottom of the casing, are a number of springs *o*, which press against the outer surface of the cone L, so as to form a yielding or cushioned bearing for the worm-shaft. The lower bearing or journal-box, now under consideration, is located in the upper part of the base portion of the main frame, as is clearly shown in Fig. 2 of the drawings. The upper portion of the cylinder G is contracted to form a neck *d*, which fits in the openings of the cone G^2, so as to rotate therein, and the lower portion of the cylinder is provided with a vertical socket or opening *d'* to receive the upper end of the worm-shaft D', which shaft is provided near its upper end with a transverse pin or projection d^2 to engage the depending pins d^3 on the lower end of the cylinder. Located on the upper end of the main frame and surrounding the upper portion of the cylinder is a cap M, which is provided with spouts *p* and *p'* for the discharge of cream and milk, respectively.

From the foregoing and by reference to the drawings it will be seen and clearly understood that by pressing the button E' inwardly the lever E may be raised to the position indicated by continuous lines in Fig. 3 of the drawings, in which operation the rod F will be lifted by reason of the engagement therewith of the segmental lug *e* on the lever. When thus lifted, one of the arms of the upper journal-box will be disengaged from the rod F', thus allowing it to be turned to the position shown by continuous lines in Fig. 3, when the cylinder may be inserted into the tubular portion A' of the main frame, so as to rest on the upper end of the worm-shaft and so that the rods d^3 will engage the pin d^2 on said shaft. When thus placed in position, the cap M may be placed over the upper end of the cylinder, so as to rest on the top of the main frame, and the upper journal-box turned to the position shown by dotted lines in Fig.

3, when one of its arms will engage the rod F′, at which time the said journal-box may be lowered by lowering the lever E and rod F, when the push-button E′ will engage the recess e^5 in the lever and lock the parts in position. When the parts are thus arranged, power may be applied to the shaft *c*, when the cylinder will be operated with great speed and accuracy.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the main frame, of a worm-shaft vertically journaled in its lower portion and having means to engage the lower portion of the cylinder, a journal-box vertically and rotatably movable on the upper portion of the main frame, a separator-cylinder located in the main frame and having means to engage the worm-shaft and upper journal-box, and means to operate said shaft and to raise and lower the journal-box for the upper end of the cylinder, substantially as described.

2. The combination with the main frame, of a journal-box located in its lower portion, said box comprising a casing and a spring-pressed cone located therein, a worm-shaft journaled in said cone and having means to engage the cylinder, a journal-box vertically movable and pivotally secured on the upper portion of the main frame, a separator-cylinder located in the main frame and having means to engage the worm-shaft and upper journal-box, and means to operate said shaft and to raise and lower the journal-box for the upper end of the cylinder, substantially as described.

3. The combination with the main frame, of two rods vertically located thereon, one of said rods being movable, a lever fulcrumed on the main frame and having a segmental lug to engage the lower portion of the movable rod, a journal-box comprising a casing provided with two arms having openings to receive the ends of said rods, one of said arms being secured to the movable rod, substantially as described.

4. The combination with the main frame, of two rods vertically located thereon, one of said rods being movable vertically, a lever fulcrumed on the main frame and having a segmental lug to engage the lower portion of the movable rod, a spring-actuated push-button on the frame to lock the lever, a journal-box casing having two openings to receive the ends of said rods, said casing being secured to the movable rod, substantially as described.

5. The combination with the main frame, of a worm-shaft vertically journaled in its lower portion and having means to engage the lower portion of the cylinder, a journal-box for the worm-shaft mounted on the lower portion of the main frame and consisting of a casing with a spring-pressed cone therein, a journal-box vertically movable and pivotally secured on the upper portion of the main frame, a separator-cylinder located in the main frame and having means to engage the worm-shaft and upper journal-box, and means to operate said shaft and to raise and lower the journal-box for the upper end of the cylinder, substantially as described.

6. The combination with the main frame, of a worm-shaft vertically journaled in its lower portion and having means to engage the lower portion of the cylinder, a journal-box for the worm-shaft located on the lower portion of the frame and comprising a casing with a spring-pressed cone therein, two vertical rods secured to the main frame and extending above the same, one of said rods being movable, a journal-box casing secured to the upper end of the movable rod, a spring-pressed cone within said casing to receive the upper end of the cylinder, a separator-cylinder located in the main frame and having means to engage the worm-shaft and the cone of the upper journal-box, a lever fulcrumed on the main frame and having a segmental lug to engage the lower end of the movable rod, and means to operate the worm-shaft, substantially as described.

7. The combination with the main frame, of a worm-shaft vertically journaled in its lower portion and having a transverse projection or pin near its upper end, a separator-cylinder located in the main frame and having in its lower end a socket to receive the upper end of the worm-shaft and provided with depending pins or projections to engage the transverse pin or projection on said shaft, a journal-box for the upper end of the cylinder and means to operate the worm-shaft, substantially as described.

MARTIN JOHNSRUD.

Witnesses:
CHAS. C. TILLMAN,
A. GUSTAFSON.