

H. FELDMEIER & R. K. MINER.
CENTRIFUGAL LIQUID SEPARATOR.
APPLICATION FILED OCT. 18, 1909.

1,024,844.

Patented Apr. 30, 1912.

2 SHEETS—SHEET 1.

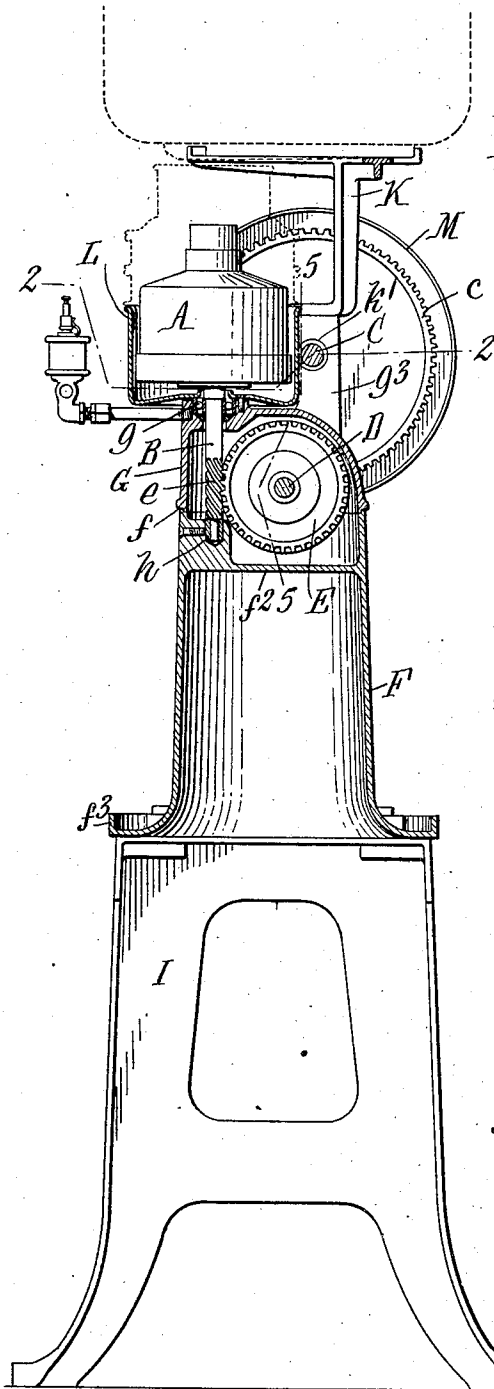


Fig. 1.

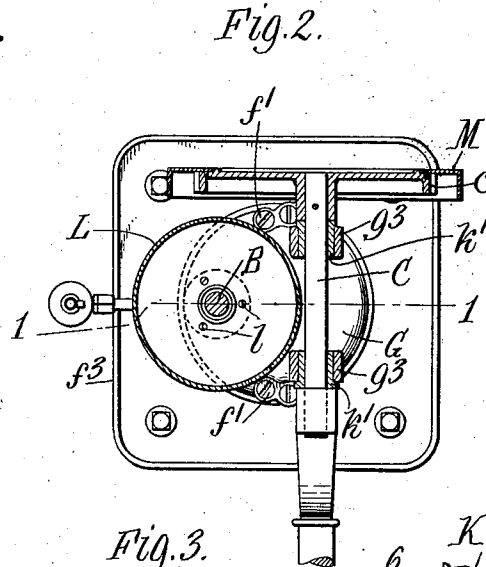


Fig. 2.

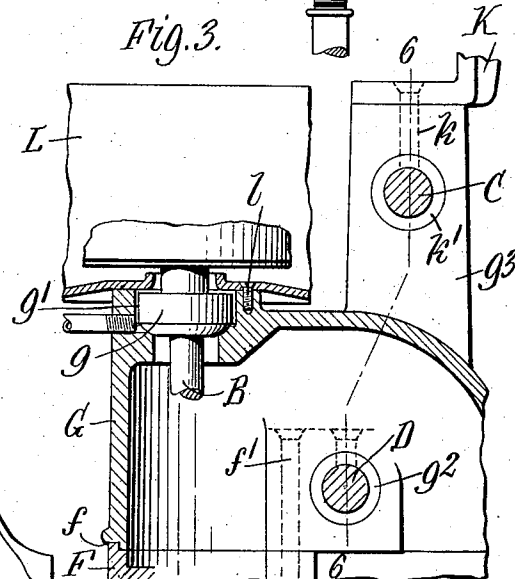


Fig. 3.

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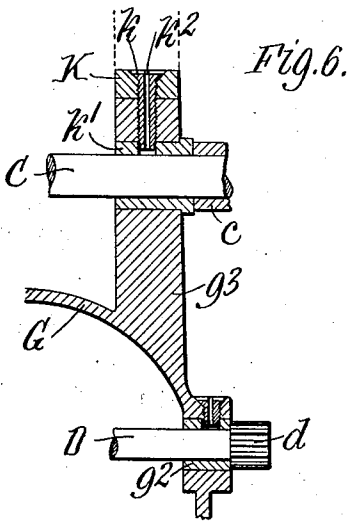
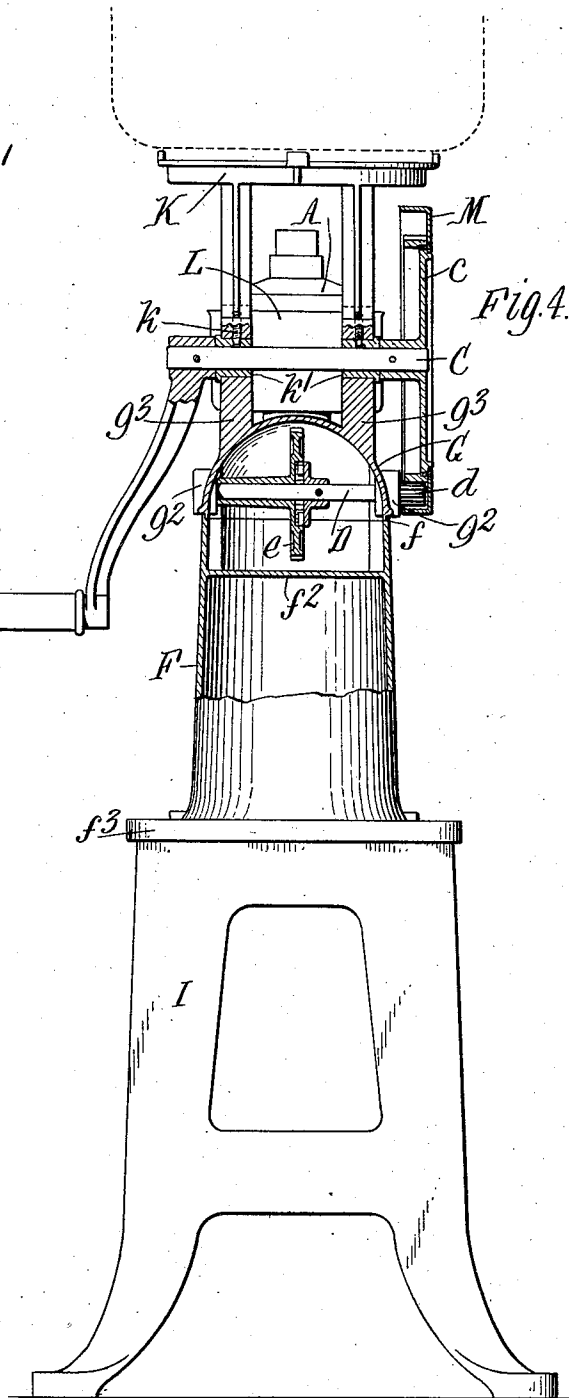
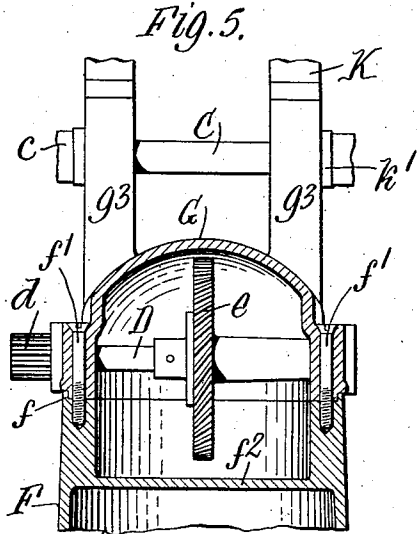
Harvey Feldmeier,
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UNITED STATES PATENT OFFICE.

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CENTRIFUGAL LIQUID-SEPARATOR.

1,024,844.

Specification of Letters Patent.

Patented Apr. 30, 1912.

Application filed October 18, 1909. Serial No. 523,312.

To all whom it may concern:

Be it known that we, HARVEY FELDMEIER, a citizen of the United States, residing at Little Falls, in the county of Herkimer and State of New York, and RALPH K. MINER, a citizen of the United States, residing at Oriskany Falls, in the county of Oneida and State of New York, have invented a new and useful Improvement in Centrifugal Liquid-Separators, of which the following is a specification.

This invention relates to that class of centrifugal liquid or cream separators in which the separating bowl or drum is mounted upon the upper end of a shaft or spindle which is driven by suitable gearing connecting with a crank or operating shaft, and more particularly to improvements in the construction of the casing or frame in which the bowl and its operating mechanism are mounted and housed.

One of the objects of the invention is to produce a highly efficient, light running and practically noiseless separator of inexpensive construction, in which the casing or frame is composed of separate parts of novel construction so arranged relative to each other and to the bowl and its driving mechanism as to reduce the labor and expense of casting and machining the parts.

Other objects of the invention are to construct the machine so that practically all of the machine work on the frame or casing is confined to a single part thereof which is of such size and construction that it can be easily handled and operated upon, and which carries all of the bearings for the working parts except the bearing for the lower end of the bowl spindle; also to make the casing of two separable parts which partially inclose the drive mechanism, thereby tending to produce a noiseless machine, and which can be quickly and easily separated to afford access to the drive mechanism.

In the accompanying drawings, consisting of two sheets: Figure 1 is a sectional elevation, in line 1—1, Fig. 2, of a centrifugal separator embodying the invention. Fig. 2 is a sectional plan thereof in line 2—2, Fig. 1. Fig. 3 is a fragmentary elevation, partly in section, of the upper part of the machine, on an enlarged scale. Fig. 4 is a sectional elevation at right angles to Fig. 1. Fig. 5 is a sectional elevation, on

an enlarged scale, in line 5—5, Fig. 1. Fig. 55

6 is a vertical section in line 6—6, Fig. 3.

Like reference characters refer to like parts in the several figures.

A represents the bowl or drum of a centrifugal cream separator, and B the upright shaft or spindle, to the upper end of which the bowl or drum is secured and which is rotated by drive mechanism consisting, for instance, of a hand operated crank shaft C connected by a spur wheel *c* and pinion *d* to a parallel intermediate shaft D which is provided with a worm wheel E meshing with a worm *e* on the spindle B.

The bowl and its drive mechanism, which are of known construction, are mounted on a frame or casing, the main or body portion of which consists of lower and upper hollow parts or castings F and G, respectively. The lower part F of the casing has the form of a column open at its upper end which is united with the open lower end of the upper part G of the casing by a horizontal circular joint *f* which can be readily turned, the two parts being removably secured together, preferably, by two screws *f'* Figs. 2 and 5. The upper casing part is preferably of dome-shape and together with the upper portion of the lower casing part and a horizontal partition *f*² in the latter forms a closed housing for a part of the bowl driving mechanism. This closed housing protects the drive mechanism and tends to produce a noiseless machine. The two parts of the casing can be quickly and easily separated to give access to the drive mechanism by simply removing the two screws *f'*. As shown, the lower casing part has a square lower end with an upturned flange *f*³ forming a catch basin for oil and milk, but this is not essential and the base portion of the casing may be of any suitable construction.

The bowl spindle B is preferably supported, as shown, in a self-centering upper or neck bearing *g* of any suitable construction which is retained in a socket or seat *g'* formed in the top of the upper casing part G, while the intermediate horizontal shaft D is journaled in bearings *g*², Fig. 4, arranged at the opposite sides of the casing part G, and the crank shaft C is journaled in two upright bearing posts *g*³ on the part G. Thus all of the bearings for the drive mechanism except the bearing *h* for the lower end

of the spindle, which is formed in the partition f^2 of the lower body part, are carried by the upper body part G so that practically all of the machine work is confined to this part, which being small and light can be easily manufactured, thereby materially facilitating the manufacture and reducing the cost of production of the casing. The upper and lower casing parts of the form described can be cast without cores, which further expedites and cheapens the production of the casing.

The two-part casing or frame is secured to a base pedestal or stand I, which may be of any suitable construction.

K represents a supporting bracket for the milk pan, which bracket may be of any suitable form and is secured on the upper ends of the bearing posts g^2 for the crank shaft, preferably by screws k , Figs. 3, 4 and 6, which also serve to hold the bushings k' of the crank bearings in place, and are made with axial oil passages k^2 , thus obviating the necessity for drilling holes in the casing for lubricating the bearings.

The bowl case L preferably consists of a cup-shaped sheet metal stamping secured by screws l , Fig. 3, upon the upper part G of the casing and serves to inclose the bowl, to support the cream and skim milk pans and to cover and protect the upper or neck bearing g for the bowl spindle.

The large spur gear wheel c which is located outside of the casing preferably has a flanged sheet metal ring M secured to it which surrounds this wheel and the intermeshing pinion d , Fig. 4, and forms an inexpensive guard or protecting housing for these parts.

We claim as our invention:

1. In a centrifugal liquid separator, the combination with the bowl and drive mechanism therefor including an operating shaft, of a supporting casing having bearings for said operating shaft, a supporting bracket for a milk can, and screws securing said bracket to said casing, which screws are located above said bearings and provided with

oil passages leading to said bearings, substantially as set forth.

2. In a centrifugal liquid separator, the combination with the bowl and drive mechanism therefor including an operating shaft, of a supporting casing having bearings for said operating shaft, bushings in said bearings, a supporting bracket for a milk can, and screws securing said bracket on said casing, which screws also secure said bushings in said bearings and are provided with oil passages, substantially as set forth.

3. In a centrifugal liquid separator, the combination with the bowl provided with a vertical spindle, and drive mechanism therefor comprising an operating shaft, an intermediate shaft, and gearing connecting said intermediate shaft to said operating shaft and to said spindle, of a supporting casing comprising upper and lower parts united by a separable horizontal joint and together forming a housing for part of said driving mechanism, the upper part of said casing carrying all of the bearings for said drive mechanism and the upper bearing for the spindle, and the lower part of said casing carrying the lower bearing for the spindle, substantially as set forth.

4. In a centrifugal liquid separator, the combination with the bowl provided with a vertical spindle, and drive mechanism therefor, of a casing comprising separable hollow upper and lower parts which are united by a horizontal joint and together form a housing for part of said drive mechanism, said upper and lower casing parts respectively carrying upper and lower bearings for the spindle, and a bowl case which surrounds the bowl and is detachably secured to the top of said upper part of the casing, substantially as set forth.

Witness our hands in the presence of two subscribing witnesses.

HARVEY FELDMEIER.
RALPH K. MINER.

Witnesses:

W. T. WOLFENDEN,
GEO. W. BELLINGER.