

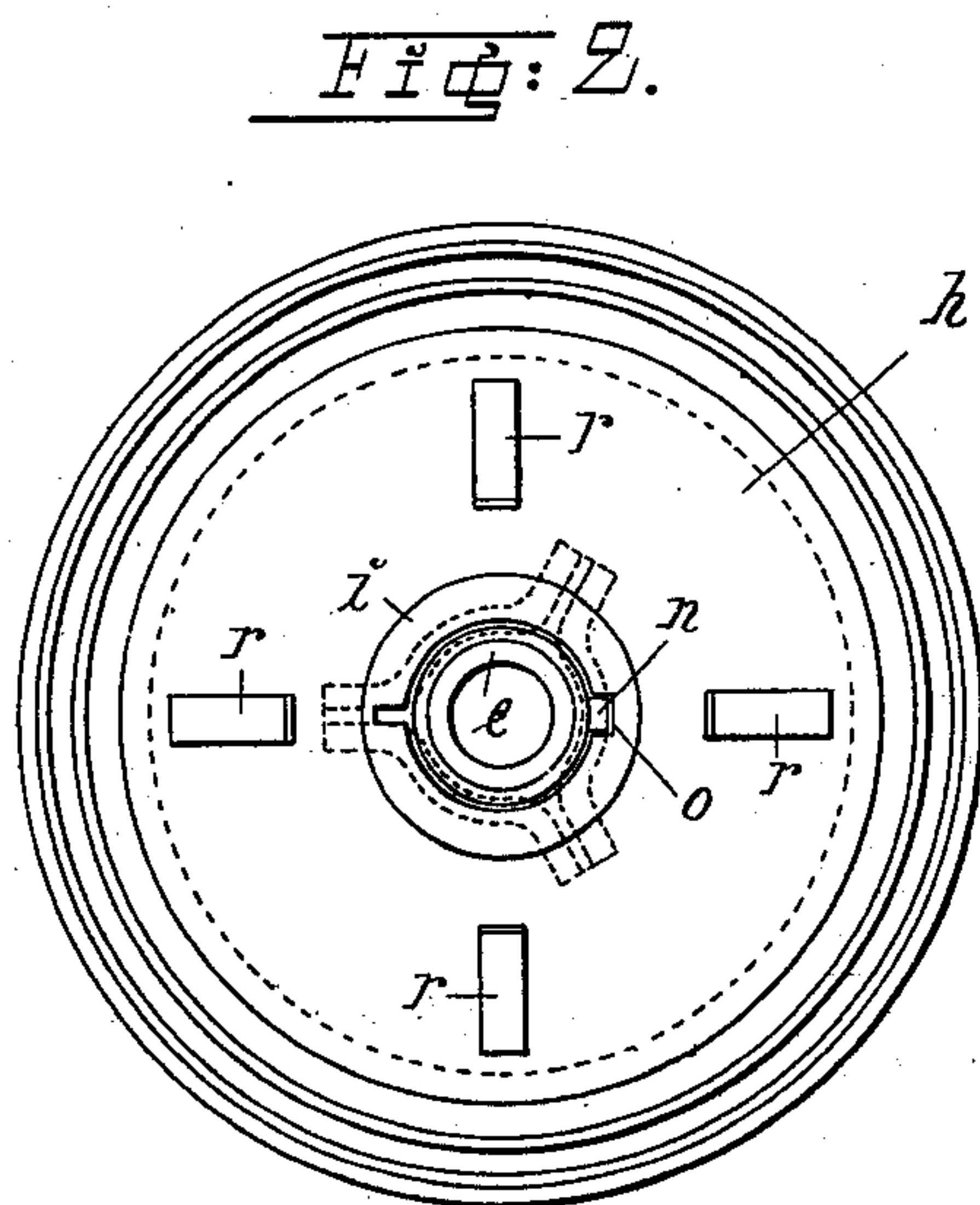
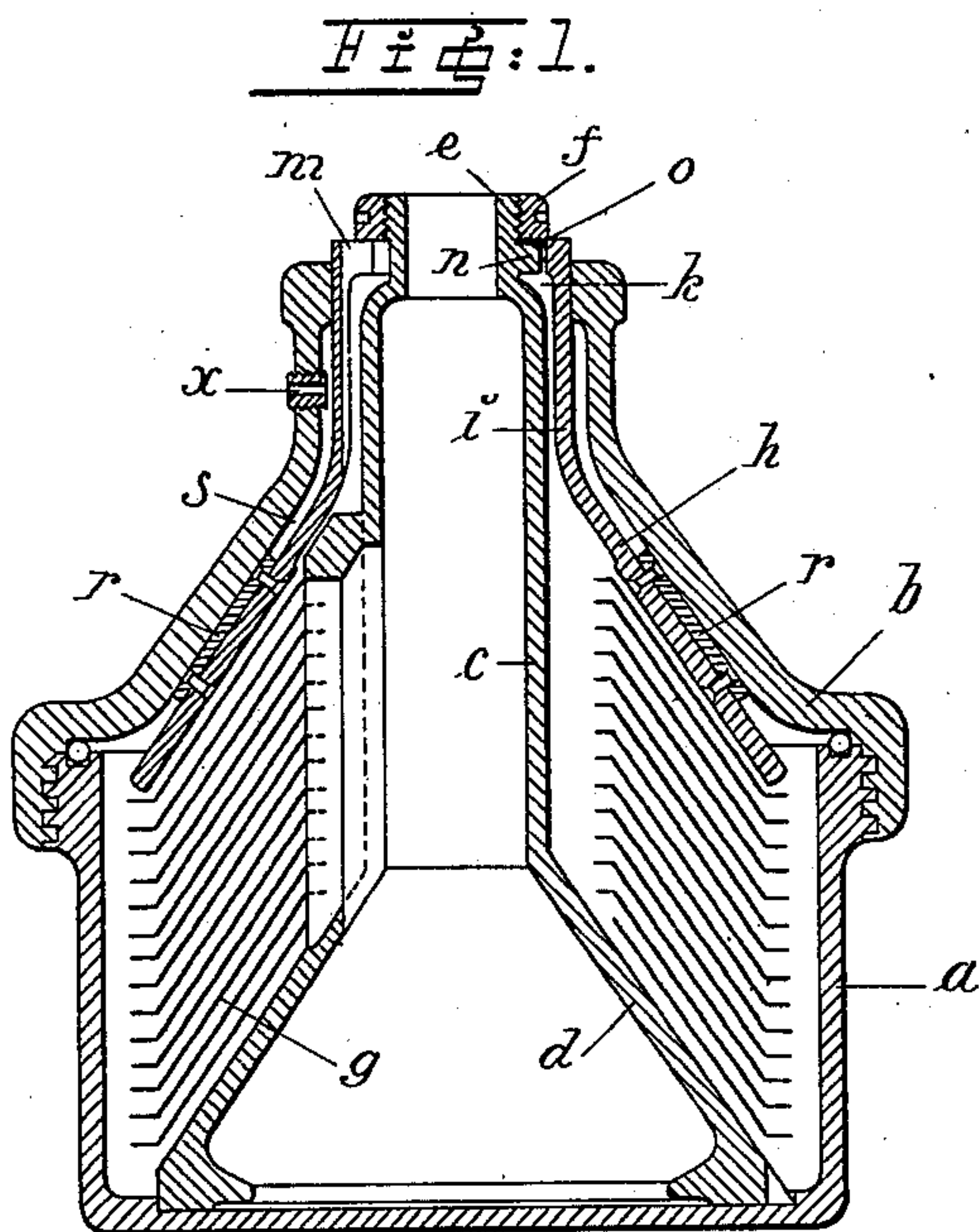
No. 670,569.

Patented Mar. 26, 1901.

O. J. R. STRÖM.
CENTRIFUGAL LIQUID SEPARATOR.

(Application filed May 29, 1900.)

(No Model.)



Witnesses:

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att'y

UNITED STATES PATENT OFFICE.

OSSIAN JOHAN ROBERT STRÖM, OF STOCKHOLM, SWEDEN, ASSIGNOR TO
AKTIEBOLAGET SEPARATOR, OF SAME PLACE.

CENTRIFUGAL LIQUID-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 670,569, dated March 26, 1901.

Application filed May 29, 1900. Serial No. 18,448. (No model.)

To all whom it may concern:

Be it known that I, OSSIAN JOHAN ROBERT STRÖM, engineer, a subject of the King of Sweden and Norway, residing at Flemminggatan No. 14, Stockholm, Sweden, have invented certain new and useful Improvements in Centrifugal Separators; 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.

In the bowls of centrifugal separators containing a separate portion or device capable of being inserted or removed from such bowl, as required, and which bowls are now used for milk-separating purposes, it is the practice at the present time to effect the discharge of the separated milk through one or more narrow tubes or pipes soldered or otherwise fixed to the inner surface of the bowl-cover. These pipes, however, cannot be cleaned without some inconvenience, inasmuch as the cleaning operation necessitates the use of a brush which has to be drawn through each pipe. Besides, the pipes while being thus cleaned are apt to become damaged at the part where they are secured to the bowl-cover, thereby affecting both the operation and the output of the machine. It has been attempted to remove this objection by arranging a conical casing or hood in the interior of the bowl-cover, to which it was secured in such a manner that the separated milk might be conducted away through the space which was left free between the outer cover and inner hood. Both in the case of the narrow discharging-pipes and in that of the hood, however, it has been found that where the removable body which was inserted consisted of a series of conical plates or disks there arose the difficulty that when the cover was screwed on this had very frequently the effect of turning the upper plate of the set out of its proper position, while in addition to this there remained a clear space between the hood and the topmost plate which caused the whole set of plates to become insecure and to begin to vibrate or jar the moment the centrifugal

machine was set in motion. This was owing to the high speed at which it was necessary to make the machine revolve, and it necessarily exercised a disturbing effect upon the operation of the separator.

The present invention has for its object to provide an arrangement by which the plates of the liner are caused to be and remain so firmly compressed as to be capable of no displacement during the operation of the machine, this compressing effect being secured quite independently of any action of the bowl-cover, while at the same time the improved arrangement enables a predetermined supply of both cream and separated milk to be delivered from the separator.

In the accompanying drawings, which illustrate this invention, Figure 1 is a vertical central section through the bowl of the separator, and Fig. 2 is a plan thereof with the bowl-cover removed.

In the drawings, *a* designates the centrifugal bowl; *b*, the cover, which is firmly screwed down upon the same, and *c* the central milk-supply pipe, with the deposit-chamber *d* at its lower end. The upper end of the milk-supply pipe *c* is extended beyond the bowl-cover *b*, at which point it is somewhat contracted and screw-threaded, as at *e*, to receive a nut *f*.

The liner-body consists of a series of superposed hollow truncated cones *g*, of any well-known construction, which may be held separated from each other by any suitable means—as, for instance, by projections made in the cones or by means of yielding spacing-pieces placed between the cones, thus producing a flexible body. A hood *h*, of a shape corresponding to that of the cones, is placed over the liner, and the neck *i* of the hood projects slightly above the edge of the cover *b* and is closed in by the nut *f* on the end of the supply-pipe *c*. Between such neck *i* and the milk-supply pipe *c* an annular space *k* is provided sufficient for the passage of the separated cream, such cream being discharged through a channel or groove *m* formed in the inner surface of the said neck *i* of the hood. Over the hood the cover *b* is then passed and screwed onto the bowl *a* in the customary manner. The neck of the cover should accu-

5 rately fit the neck *i* of the hood. It will be
 seen that with this arrangement after the com-
 plete set of plates has been inserted into the
 bowl such plates may be compressed to the
 10 desired extent by pressing the hood *h* through
 the rotation of the screw-nut *f*, the pressure
 of which lowers the said hood as may be re-
 quired and firmly fixes and retains the plates
 in position, the bowl-cover being put in place
 15 over the whole after this has been accom-
 plished. Any rotary motion or displacement
 of the hood *h* while it is being fixed in place
 is obviated by the projection *n* at the upper
 end of the milk-supply pipe *c*, and which en-
 20 gages in a corresponding recess *o* in the neck
 of the hood.

To prevent the cover *b* from coming into
 contact with the hood *h*, the latter is provided
 with distance-pieces *r* on the upper side, so
 25 that there is left a free space *s* for the dis-
 charge of the separated milk, which is al-
 lowed to leave the machine through the hol-
 low screw *x*.

It is feasible without in any way interfer-
 30 ing with the cover *b* to readjust the hood *h*
 and by raising or lowering it to bring more
 or less pressure to bear upon the plates, either
 before such cover has been mounted in its
 place or while it is fixed in position.

Having now particularly described and as-
 35 certained the nature of the said invention and
 in what manner the same is to be performed,
 I declare that what I claim is—

1. In a centrifugal separator, in combina-
 40 tion with the bowl and cover, of a supply-
 pipe extending above said cover and having
 a deposit-chamber at its lower end, a liner
 composed of a series of superposed hollow
 truncated cones supported by said chamber,
 a hood mounted on said cones and having a

recess formed in its neck, a lug on the sup-
 ply-pipe to engage in said recess and a nut on
 said pipe above the cover for engaging the top
 of the hood, substantially as described.

2. In a centrifugal separator, in combina- 45
 tion with the bowl, of a cover therefor pro-
 vided with an outlet near its top, a supply-
 pipe extending above the cover and having a
 deposit-chamber at its lower end, a liner com- 50
 posed of a series of superposed hollow trun-
 cated cones supported by said chamber, a
 hood mounted on said cones and extending
 above the cover and forming an annular cham-
 ber between said cover and hood, a lug on the
 supply-pipe adapted to engage a recess in the 55
 hood, and a nut on said pipe for adjusting the
 hood, substantially as and for the purpose
 specified.

3. In a centrifugal separator, in combina- 60
 tion with the bowl, of a cover therefor pro-
 vided with an outlet near its top, a supply-
 pipe extending above the cover and having a
 deposit-chamber at its bottom, a liner com-
 prising a series of superposed hollow trun- 65
 cated cones supported by the chamber, a hood
 mounted on said cones and having a neck pro-
 vided with a discharge-opening extending
 above the cover, spacing-strips interposed be-
 tween the cover and hood, a lug formed on
 the supply-pipe adapted to engage a recess in 70
 the neck of the hood and a nut on the supply-
 pipe adapted to press upon the neck of the
 hood, substantially as described.

In testimony that I claim the foregoing as
 my invention I have signed my name in pres- 75
 ence of two subscribing witnesses.

OSSIAN JOHAN ROBERT STRÖM.

Witnesses:

TH. WAWRINSKY,
 M. GENBERG.