

No. 628,725.

Patented July 11, 1899.

E. G. N. SALENIUS.
CENTRIFUGAL CREAM SEPARATOR.

(Application filed Feb. 25, 1899.)

(No Model.)

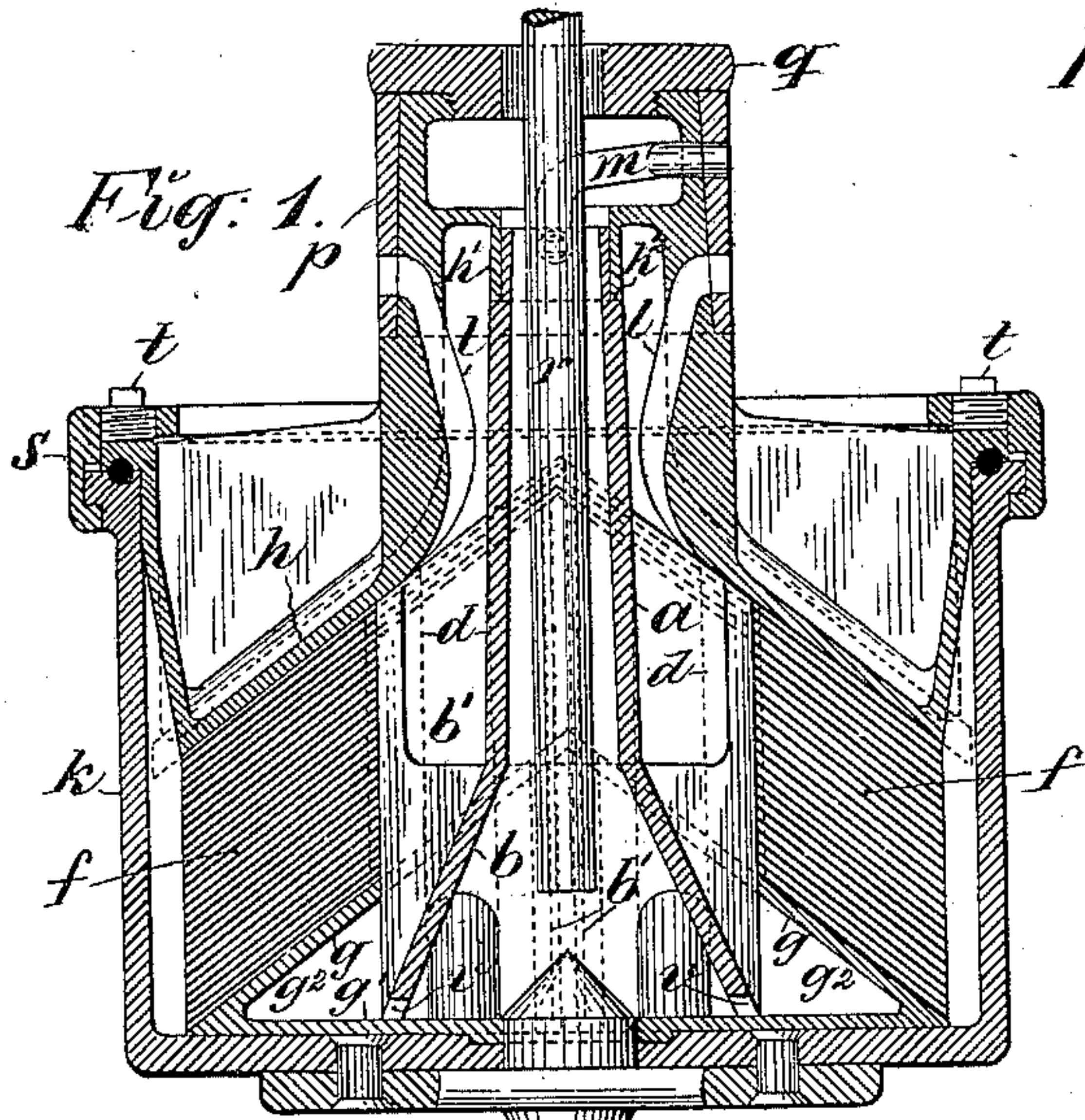


Fig. 2.

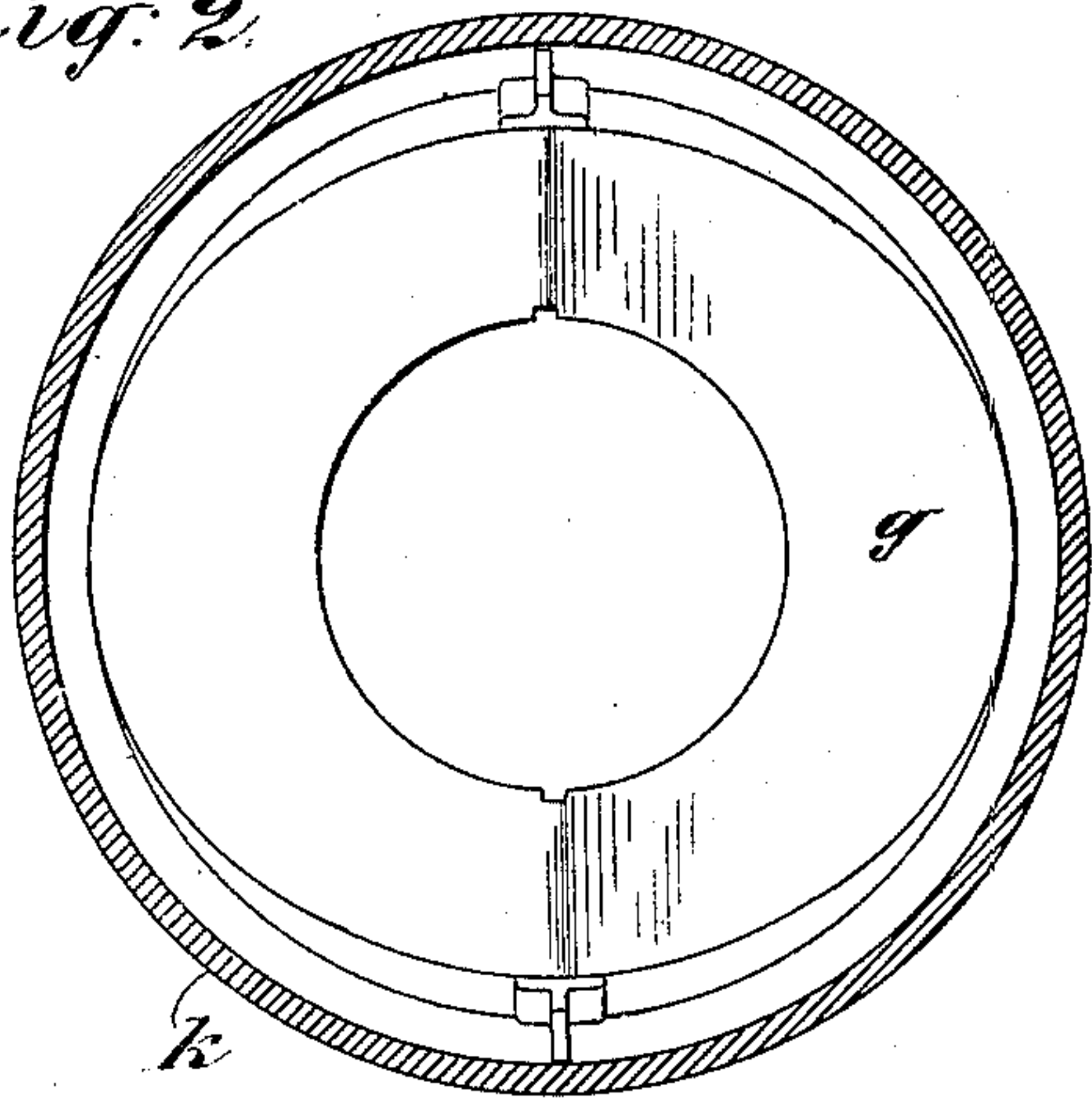


Fig. 3.

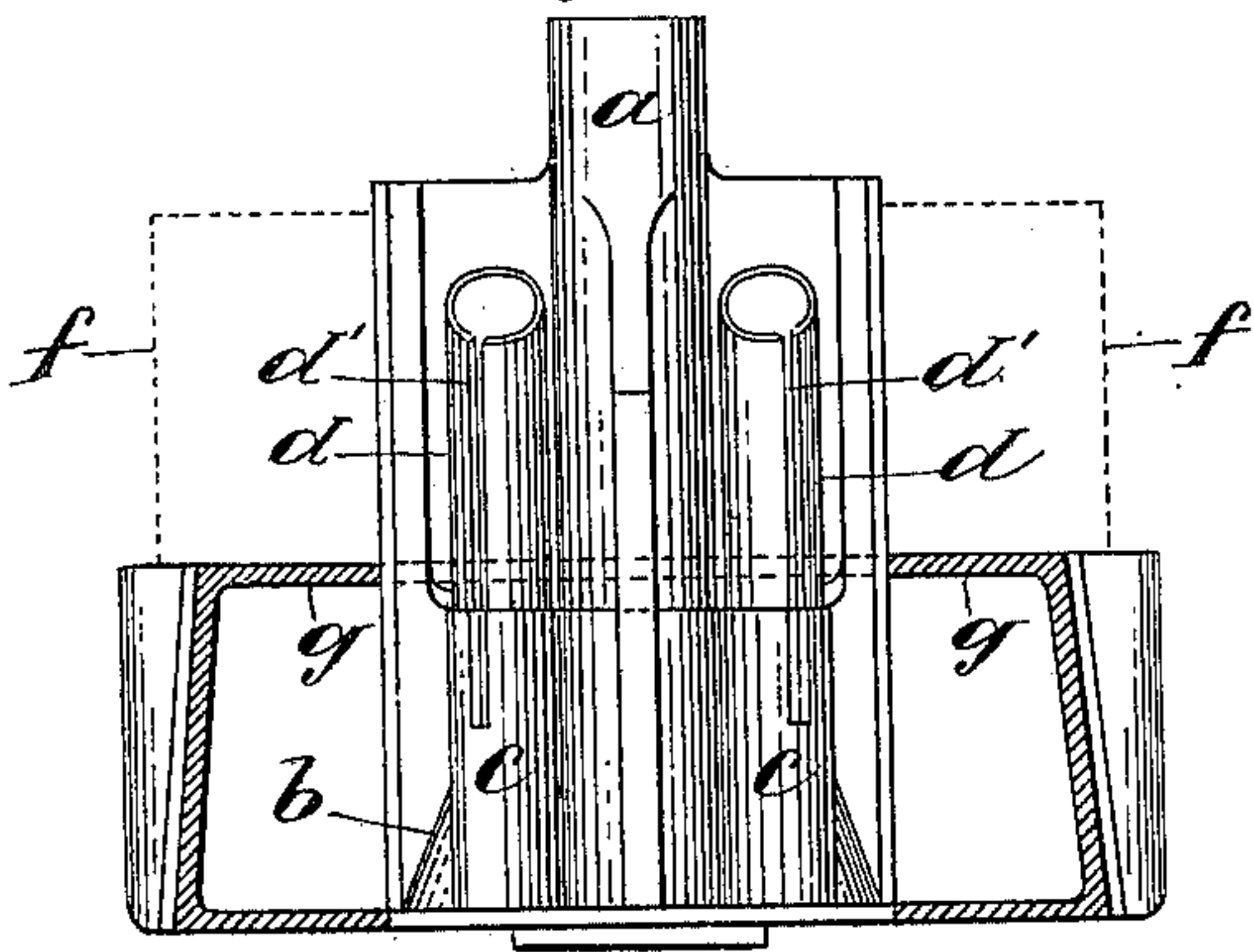


Fig. 5.

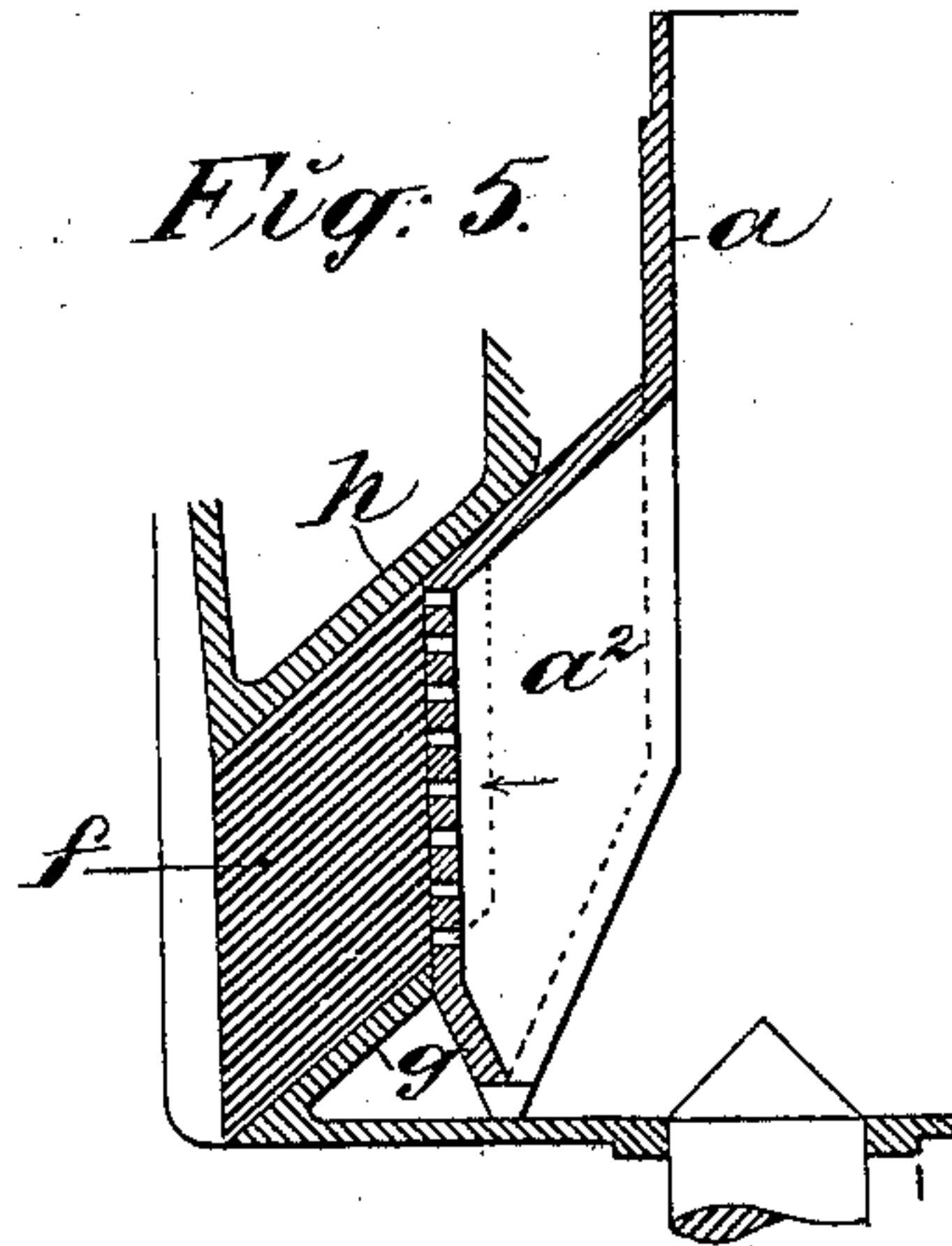


Fig. 6.

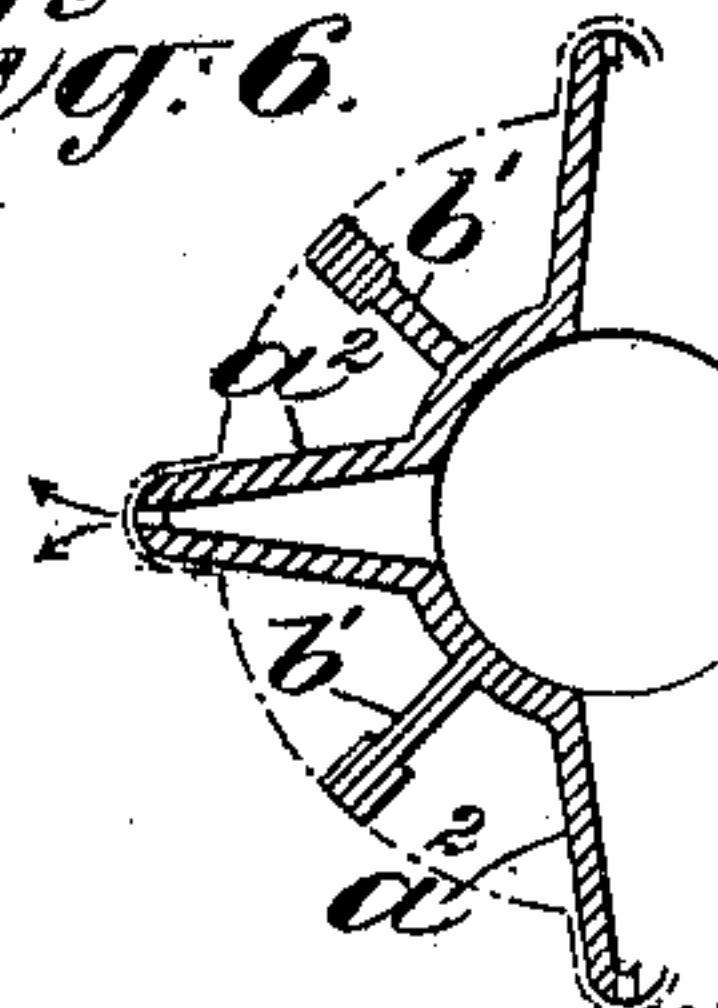
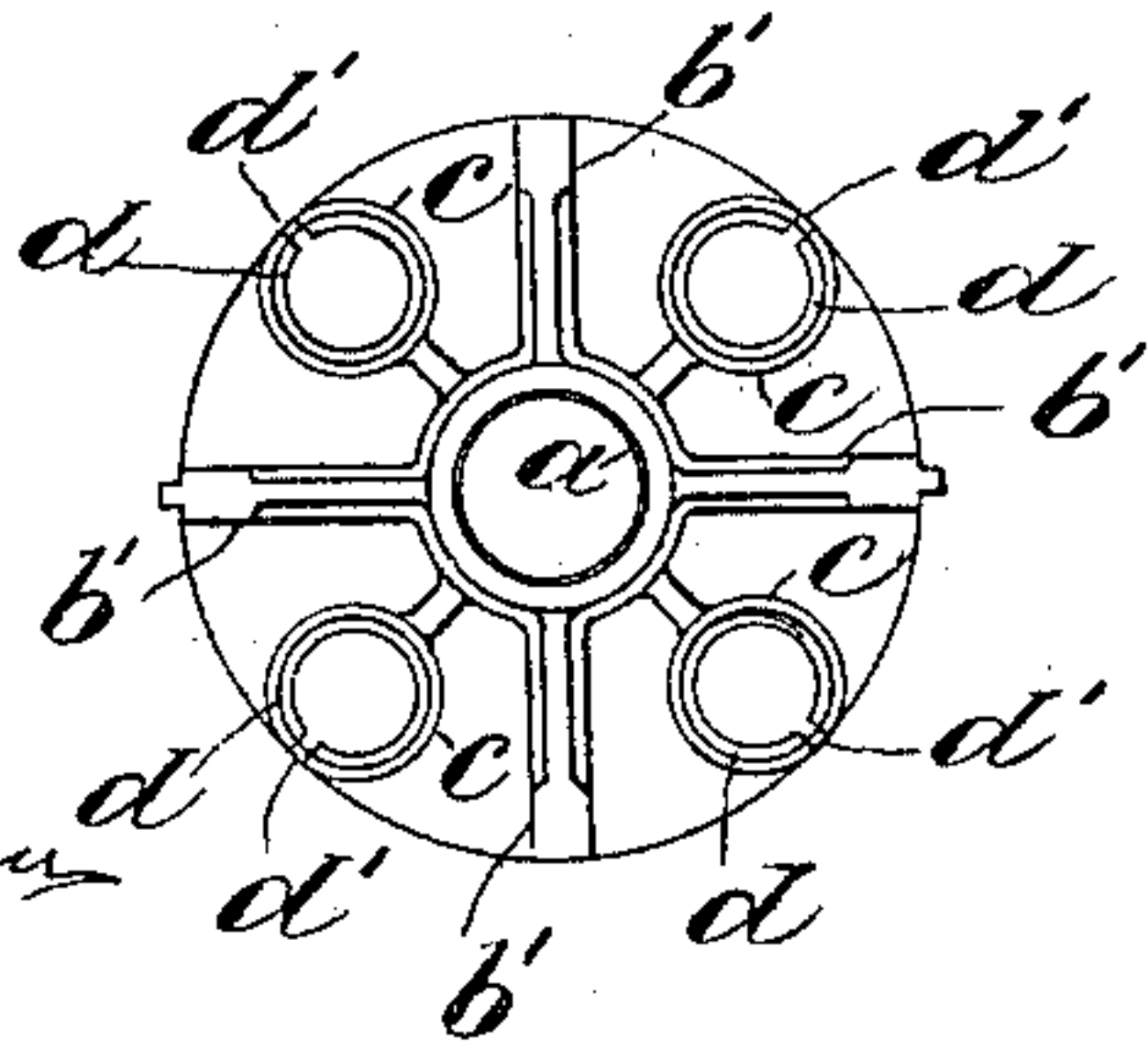


Fig. 4.



WITNESSES:

J. H. Whiman
Peter S. Ross

INVENTOR

Erik E. N. Salenius

BY

Henry Connell
ATTORNEY

UNITED STATES PATENT OFFICE.

ERIK GUSTAF NICOLAUS SALENIUS, OF ALBANO, SWEDEN, ASSIGNOR TO THE
AKTIEBOLAGET RADIATOR, STORA KRÁFTRIKET, OF SAME PLACE.

CENTRIFUGAL CREAM-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 628,725, dated July 11, 1899.

Application filed February 25, 1899. Serial No. 706,813. (No model.)

To all whom it may concern:

Be it known that I, ERIK GUSTAF NICOLAUS SALENIUS, a subject of the King of Sweden and Norway, and a resident of Stora Kráfttriket, Albano, Sweden, have invented certain Improvements in Centrifugal Separators, of which the following is a specification.

This invention relates to the class of separators used for separating cream from milk; and it has for its object to provide such a separator with means for spreading and distributing the inflowing liquid outwardly over the internal inclined partitions therein, the latter being of a known construction. These internal partitions are in the nature of superposed inclined plates, and the main central tube of the drum is, for the purposes of this invention, flared or enlarged at its lower end and provided with distributing tubes or devices, which latter extend upward to the cover of the drum, above the inclined internal partitions therein. The upper portions of these distributing devices are slotted or perforated, so that the milk rising therein can flow out therefrom onto said internal partitions, all as will be more particularly hereinafter described.

In the accompanying drawings, which illustrate an embodiment of the invention, Figure 1 is a vertical axial section of the drum of the apparatus and its internal mechanism or devices. Fig. 2 is a plan of the bottom piece *g* in the drum on which the superposed internal partitions are placed, the drum itself being seen in horizontal section. Fig. 3 is a side elevation of the main central and distributing tubes detached from the drum, the bottom piece *g* being seen in this view in vertical axial section, taken at right angles to the section in Fig. 1. Fig. 4 is a plan view of the main central and distributing tubes detached. Fig. 5 is a fragmentary vertical section, and Fig. 6 a horizontal section, illustrating a modified construction of the distributing device.

Referring primarily to Figs. 1 to 4, inclusive, *k* is the drum proper, *h* is the cover thereof, *g* is the bottom piece in the drum, and *f* are the inclined and superposed internal partitions in the drum between the cover *h*

and the bottom piece *g*. The cover *h* is depressed or hollowed and shaped to fit onto the inclined partitions *f*, and it has radial ribs to strengthen it. The cover is secured in place on the drum by means of a ring *s* and screws *t*. In general these features are already well known.

The main central tube *a*, through which the liquid, as milk, is admitted to the drum, is flared or enlarged at its lower end *b* and provided at this flared portion with suitable upright sockets *c*, in which are fitted upright distributing-tubes *d*, of which four are shown herein, Fig. 4. The sockets *c* are or may be integral with the flared wall of the portion *b*, and they and the tubes *d* open into the conical chamber within the portion *b*. The foot or lower end of the main central tube may fit into a central opening in the base portion *g'* of the bottom piece *g* or it may rest directly thereon, and at the top said tube is steadied and held in position by the cover *h*, which has a short neck-piece *h'*, embracing the reduced upper end of the central tube, above a shoulder *h²* on the latter.

It will be noted that the internal partitions *f* are roof-like or wedge-like and not conical, and that the cover *h* is of a corresponding shape and fits down upon and over said partitions, as already stated. The main central tube *a* is provided exteriorly with radial flanges *b'*, situated between the tubes *d*. These flanges project out about as far as the flared base *b* of the central tube and extend up to and fit under the cover *h*. The internal partitions *f* have central apertures of sufficient size to enable them to embrace the flanges *b'* and tubes *d*.

The tubes *d* have each a slot *d'* in its outer face, extending from its upper end down to about the level of the lowermost partition *f* of the series, or, in other words, to about the level of the top of the bottom piece *g*.

The discharge-passages *l* for the skimmed milk and the discharge-passages *m* for the cream open out through the neck on the drum-cover *h*, and these outlets are controlled by a sleeve *p*, which is ported and rotatable about said neck, being held in place by a screw-cap

q on the upper end of said neck. The fixed pipe r for the admission of the milk extends down through an aperture in said cover and down through the main central tube to near the bottom of the drum.

The milk descending through the tube r into the chamber within the flared portion or base b of the main central tube rises in the several distributing-tubes d and is thrown out through the slots d' or corresponding perforations therein onto the partitions f , being thus distributed over the entire series of said partitions. The blue milk passing outward through or between the partitions to the drum-wall finds its way to the outer receiving ends of the tubes l , and thence out of the apparatus in a well-known way. The cream rises at the central part of the apparatus and flows out by way of the discharge passage or passages m .

Apertures v , Fig. 1, allow slime and other impurities from the milk to escape from the chamber within the enlarged portion b of the central tube out into the chamber g^2 within the bottom piece g .

When the internal devices of the drum are to be removed, the cover h is first taken off. The partitions f are then taken out, and the parts including the main central tube and the distributing-tubes (seen in Fig. 4) can then be taken out together. This ability to remove all the distributing instrumentalities together possesses an important advantage over constructions where the distributing features are fixed separately in the drum. On the other hand, if a simple central tube only is employed, the partitions f do not perform the full function required of them.

The modified construction illustrated in Figs. 5 and 6 differs from that already described in the substitution for the slotted distributing-tubes d of integral, hollow, lateral, and radial enlargements a^2 on the lower portion of the central tube a , as clearly shown in Fig. 6. At their outer upright edges the enlargements a^2 have each a series of apertures or perforations for the escape of the milk. These enlargements a^2 may project far enough to enter recesses formed in the inner edges of the partitions f , as indicated in Fig.

6, where the inner circular margin of the partitions is indicated by a dotted line.

Having thus described my invention, I claim—

1. In a centrifugal separator, the combination with the drum k , the bottom piece g , the depressed cover h , and the superposed partitions f , in the drum and embraced between the said bottom piece and cover, the latter parts being inclined to fit the partitions, of the main central tube a , having an enlarged lower end b provided with a plurality of concentrically-arranged distributing devices, said devices being substantially within the central apertures of the partitions f and upright, apertured faces adjacent to said partitions, substantially as set forth.

2. In a centrifugal separator, the combination with the drum, the bottom piece, and the superposed partitions in the drum, of means for distributing the milk over said partitions, said distributing means comprising a main, central tube enlarged at its lower end and provided with sockets c , and the upright tubes d in said sockets, said tubes being concentrically arranged about the central tube and having apertures in their outer faces for the escape of the milk, substantially as set forth.

3. In a centrifugal separator, the combination with the drum k , the bottom piece g , the inclined, superposed, and apertured partitions f , and the depressed cover h , said bottom piece and cover being inclined to fit themselves to the inclined surfaces of said partitions, of the main central tube a , having an enlarged lower portion b , and the upright distributing-tubes d , communicating at the lower ends with the chamber in the portion b and extending up to said cover within the compass of the central aperture in the said partitions, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ERIK GUSTAF NICOLAUS SALENUS.

Witnesses:

ERNST SVANQVIST,
HANS B. OHLSSON.