

(No Model.)

O. OHLSSON.
CENTRIFUGAL SEPARATING MACHINE.

No. 521,730.

Patented June 19, 1894.

Fig. 1.

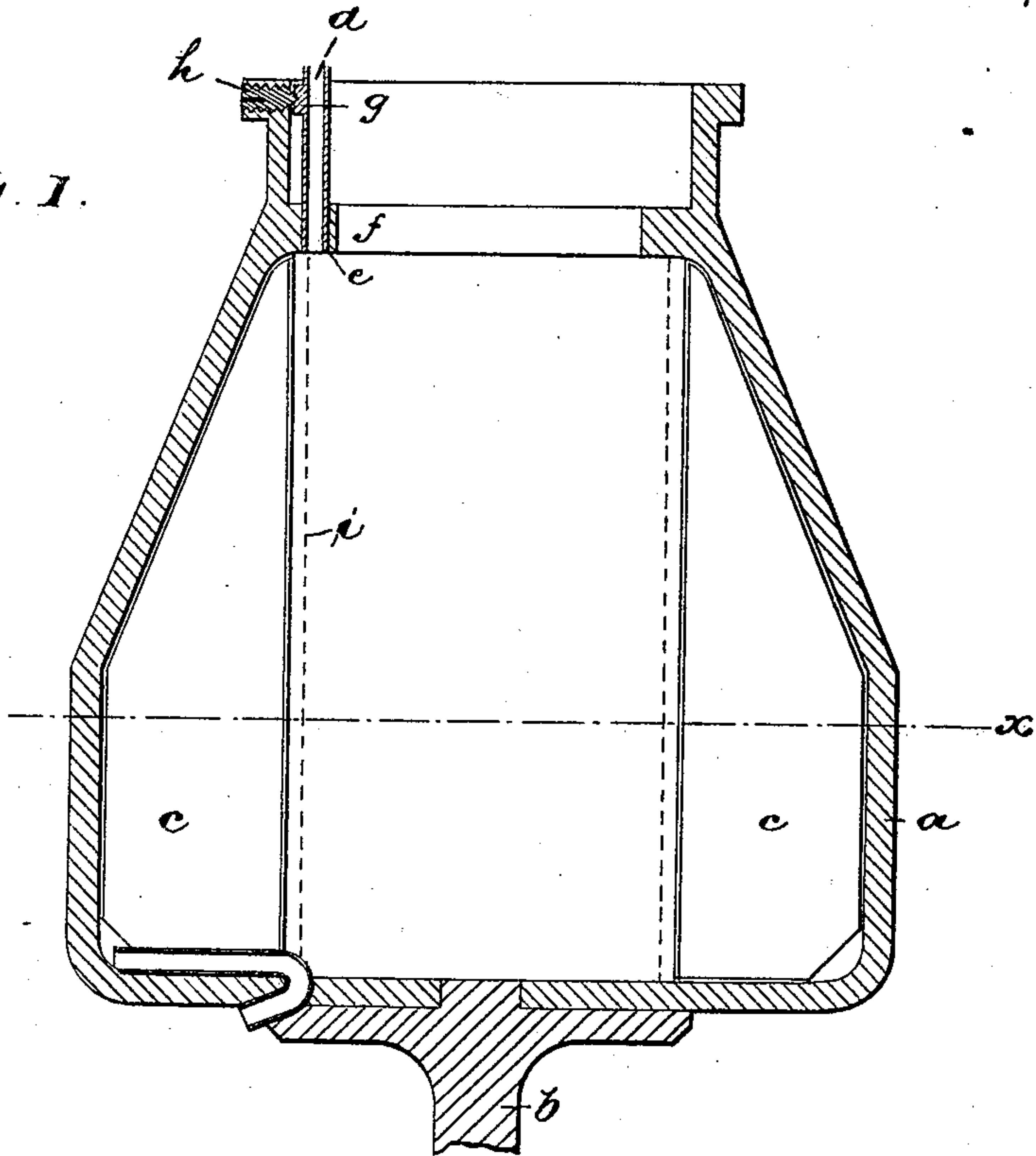


Fig. 3.

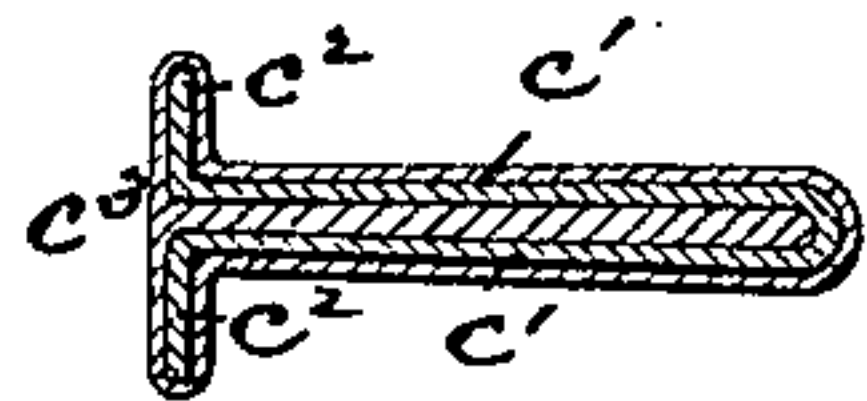
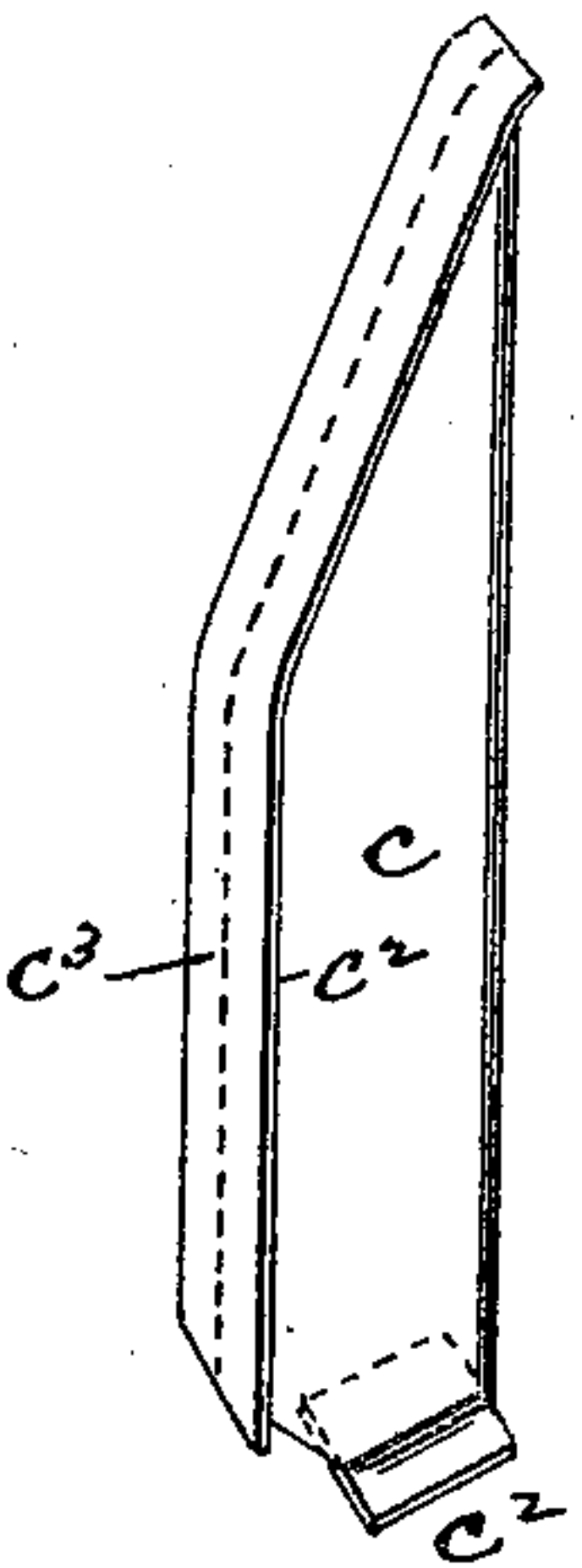


Fig. 4.

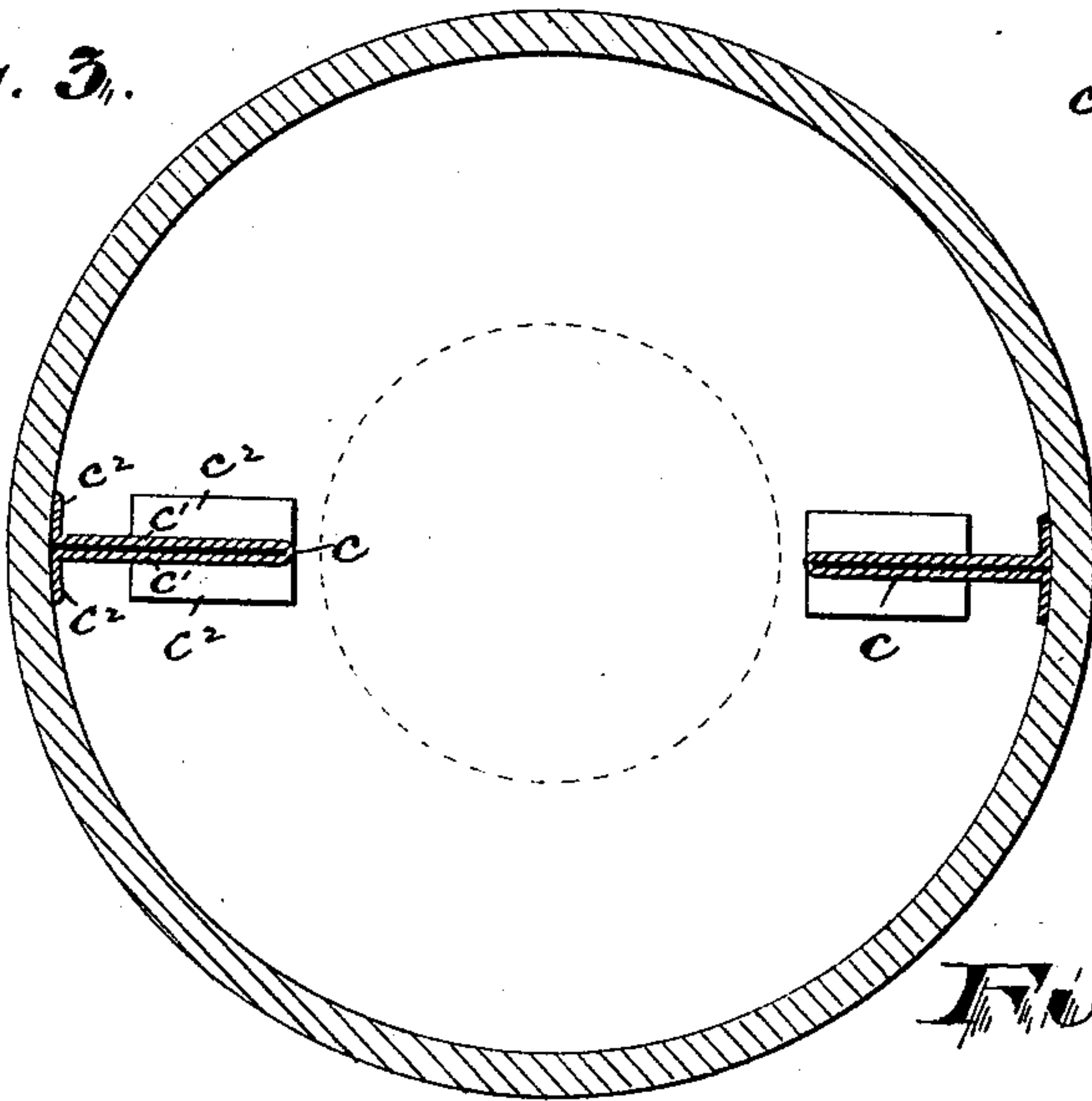


Fig. 2.

Witnesses

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OLOF OHLSSON, OF NEWARK, NEW JERSEY.

CENTRIFUGAL SEPARATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 521,730, dated June 19, 1894.

Application filed January 3, 1894. Serial No. 495,516. (No model.)

To all whom it may concern:

Be it known that I, OLOF OHLSSON, 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 Separating-Machines; 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.

This invention relates to that class of centrifugal separating machines adapted for use in connection with the manufacture of butter and cream, and, more particularly, to that class in which one or more interior flanges or "wings" are employed for imparting rotary movement to the fluid to be separated into heavier and lighter parts. In this class of machines, heretofore, the wings which have been of sheet metal have been formed of a single thickness of sheet metal and at their edges which engage the interior surfaces have been alternately bent, or so that, for a short distance, the metal extends laterally to one side of the wing at right angles thereto and then, for another distance, it is oppositely bent. But at no one point in its edge did the metal forming the flanged seat extend in opposite directions to resist more perfectly the strain of the fluid under centrifugal action, and, thus because of the said construction, the wings were a constant source of expense for repairs.

The object of the invention is to secure increased strength in the wings, to effect a more convenient adjustment of means for regulating the proportions of cream and blue milk in the final outflow, to reduce the cost of construction, and to secure other advantages and results some of which will be referred to in connection with the description of the working parts.

The invention consists in the improved centrifugal separator, and in the arrangements and combinations of parts, all substantially as will be hereinafter set forth and finally embodied in the clauses of the claim.

Referring to the accompanying drawings,

in which like letters indicate corresponding parts in each of the views, Figure 1 is a central vertical section of a centrifugal separating bowl having my improvements. Fig. 2 is a horizontal section of the same taken at line *x*. Fig. 3 is a detail perspective view of one of the wings in said separating bowl, and Fig. 4 is an enlarged section of one of said wings, showing more clearly the construction hereinafter described.

In said drawings, *a* indicates a centrifugal separating bowl of any ordinary and suitable construction.

b is a rotary supporting shaft driven by suitable mechanisms, not shown, and *c* are wings or flanges within said bowl, for imparting rotary movement to the liquid to be separated.

Heretofore, in separators of this class, great difficulty has been experienced in holding the wings in proper operative position. The resistance of the fluid, under centrifugal action, has tended to bend the wings when they were of sufficient lightness, and to wrench the same from their bearings on the walls of the bowl. In the present case, I have secured a light construction and yet one that possesses adequate strength, experience proving that the said wings are capable of resisting the forces commonly brought thereon in practical service.

The improved wings consist of thin sheet metal plates, doubled as indicated in Fig. 4, the side parts, *c'*, being pressed one against the other and, at their edges, *c''*, being bent outwardly to form a seat, *c'''*, to bear against the walls of the bowl. The said seat extends continuously on opposite sides of the wings, the flanges on each side part being bent oppositely from those on the adjacent side part, so that at each point of engagement with the bowl it has opposite supports and thus the wings are prevented from being forced out of shape under the pressure of the fluid, and from being torn from the side of the bowl as is the case when wings of the earlier construction are employed. The seat is made to conform to the shape of the said walls so that there may be a firm union of parts.

In referring to the walls of the bowl, I intend to be understood as including the bottom surfaces as well as the upper surfaces of the bowl. The plates, after having been bent as de-

scribed, are thrown into a kettle of liquid tin or soldering metal and the seams, formed in doubling the plates, are filled therewith, and, after removal, this tin forms a continuous coating to the wings and serves in making a solid interior. The tin surface enables the sheet metal to be soldered to the tinned surface of the bowl quickly and with strength.

To regulate the outflow of the cream from the bowl in the separating operations, I have provided an adjustable cream eduction tube, *d*, of novel construction, and of increased convenience under certain conditions. In arranging this tube in position, I insert one end in a perforation *e*, of a flange or bearing, *f*, of the bowl. The upper end of the said tube, extends to the mouth of the bowl, or to a position from whence the cream may flow to a suitable receptacle. Here said tube is provided with a bearing, *g*, which may be, and preferably is, recessed as shown in Fig. 1. A set or adjusting screw, *h*, arranged in the bowl adjacent to the bearings, *g*, extends toward said tube and enters the recess in said bearings, *g*, so that when the screw is turned in its threaded bearings, the free end will be caused to move to or from the axial center of the bowl, and thus the cream wall, indicated at *i*, will be correspondingly changed, the outflow of cream modified, and the proportion of cream and skim or blue milk remaining therein will be varied accordingly.

The operation of the machine to secure a separation of cream from the blue milk, is as

usual, and needs no further explanation or description.

Having thus described the invention, what I claim as new, and wish to secure by Letters Patent, is—

1. The combination with the centrifugal separating bowl of internal wings, each consisting of a piece of sheet metal doubled as described, and at both its vertical and horizontal edges oppositely bent to form directly opposite flanges which engage the vertical sides and bottom of the centrifugal separating chamber, the doubled part back from said opposite flanges being united by tin or other allied metal, substantially as set forth.

2. The combination with the bowl, of a cream eduction tube, having a fixed bearing upon the bowl, and having a free end controlled by a set screw and movable to or from the center of the bowl therewith and said set screw, substantially as set forth.

3. The combination with the bowl having the bearing *f*, a tube fixed on said bearing and having a free end, a set screw having its bearings adjacent to said free end, and adapted to move the same toward or from the center of the bowl, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 29th day of December, 1893.

OLOF OHLSSON.

Witnesses:

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