

**No. 648,216.**

Patented Apr. 24, 1900.

**O. OHLSSON.**

**CENTRIFUGAL CREAM SEPARATOR.**

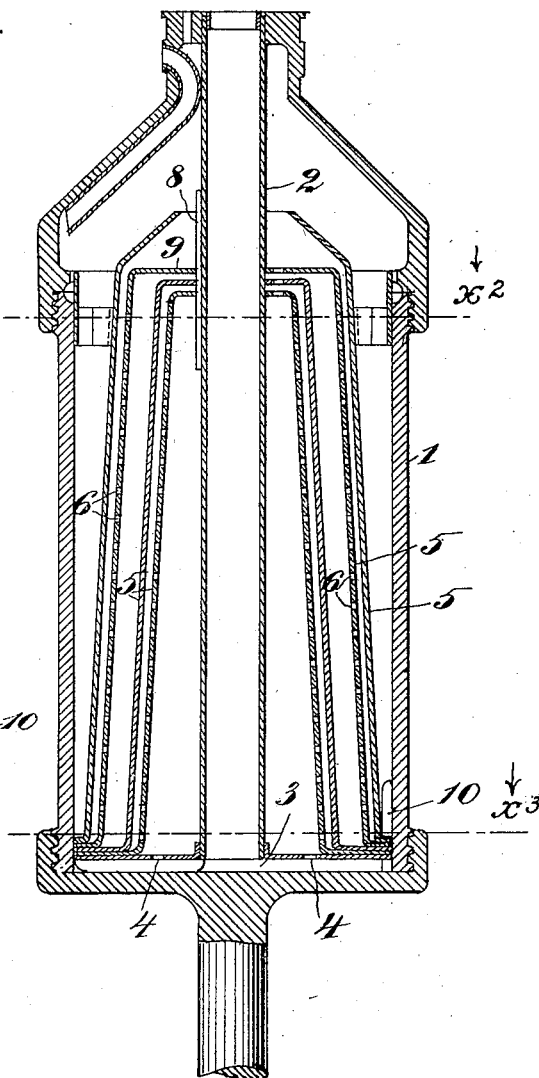
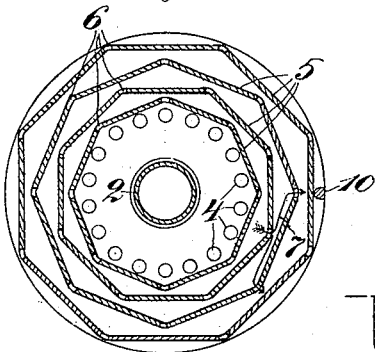
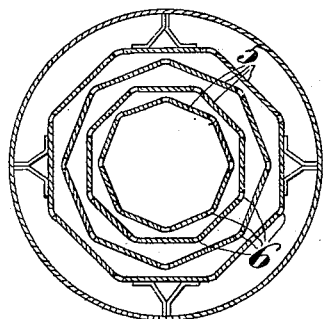
(Application filed Oct. 31, 1899.)

(No Model.)

*Fig:1.*

*Fig. 2.*

*Fig: 3.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## CENTRIFUGAL CREAM-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 648,216, dated April 24, 1900.

Application filed October 31, 1899. Serial No. 735,385. (No model.)

*To all whom it may concern:*

Be it known that I, OLOF OHLSSON, a citizen of the United States, residing at Södertelje, in the Kingdom of Sweden, have invented certain Improvements in Liners or Insets for Centrifugal Apparatus, of which the following is a specification.

This invention relates to the class of devices to be placed in the drum of a centrifugal apparatus and known as "insets" or "liners;" and the object is to so construct and form the liner that in the separating process the liquid flowing outward from the drum-axis will pass through these several intervening separating chambers or spaces in the drum in such a manner that it will not disturb the separation going on in these spaces and the separation of the heavier from the lighter portions of the liquid with a given centrifugal force acting thereon will be enhanced.

In the accompanying drawings, which illustrate an embodiment of the invention, Figure 1 is a vertical axial section of a centrifugal apparatus containing this invention; and Figs. 2 and 3 are horizontal sections of the same, taken, respectively, at lines  $x^2$  and  $x^3$  in Fig. 1.

1 is the drum of a centrifugal apparatus, and 2 is the usual axial pipe or tube through which the liquid to be separated is supplied. This pipe terminates below at the space 3, formed by the double bottoms of the drum and from which space the liquid rises into the separating-chamber through apertures 4.

The liner consists of hollow truncated pyramids 5, set one within another and provided at their upright corners or angles with rows of apertures or perforations 6. These pyramids are so arranged or placed with relation to one another that the upright salient angle or corner of one pyramid will be opposite to a plane side of the next adjacent exterior pyramid, or so that radii from the drum-axis which pass through the corners or angles of one pyramid will impinge at right angles on the inner faces of the sides of the next adjacent exterior pyramid. The advantage of this construction is that the jets of liquid in flowing outward through the rows of perforations 6 strike the plane surfaces of the next outer pyramid and are spread over the surface, whereby the separation going on therein dur-

ing the passage through the intermediate space is not disturbed and the lighter particles of the liquid still contained in it are the more readily separated. In Fig. 3 the arrows 7 illustrate the flow of the liquid. As the latter, thrown outward through the apertures 4, strikes the inner plane surface of the side of the adjacent external pyramid perpendicularly it is divided into two currents, which flow laterally in opposite directions to the outlets at the angles of that pyramid. It will be readily understood that the dispersion of the liquid in a thin layer or film over the plane surface will allow the lighter particles therein to separate and rise along the outer surfaces of the pyramids to the outlets provided for them.

In order that the pyramids may occupy their proper position, as shown, in relation to one another when they are inserted into one another, the best plan is to provide the inlet-pipe 2 with a longitudinal rib or spline 8 and to provide corresponding recesses in the upper edges 9 of the pyramids, which edges are made to embrace the said pipe, said recesses, together with the spline, serving as guides for the pyramids. A similar guide 10 may likewise be provided at the bottom edges of the pyramids. The latter edges are shown bent outward in such a manner that each of them will fit tightly against the inside wall of the centrifugal drum, and consequently one or more of the pyramids can be taken out without permitting the liquid to ascend between the bottom edges of the remaining pyramids and the wall of the drum.

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

1. A liner or inset for a centrifugal separator, consisting of two or more hollow pyramids placed upright, one within the other, each of said pyramids having in it apertures or perforations along its angles or corners, and these several pyramids so placed, relatively, that the angle of one pyramid will be opposite to the plane face of the other next adjacent, substantially as set forth.

2. A liner or inset for a centrifugal apparatus, consisting of a plurality of truncated, hollow pyramids, with apertures or perforations along their angles or corners, said pyra-

mids being so placed as to be concentric, one within another, with the angle or corner of one pyramid situated directly opposite to the center of a plane side of that pyramid next  
5 adjacent, substantially as set forth.

3. The combination with the drum 1, and the axial supply-pipe 2, of the hollow, truncated pyramids 5, set concentrically in the drum and one within another, said pyramids hav-  
10 ing apertures 6 along their angles or corners, and so placed, relatively, that the angle of

one pyramid shall be opposite to the plane side of the next adjacent pyramid, substantially as set forth.

In witness whereof I have hereunto signed 15  
my name in the presence of two subscribing witnesses.

OLOF OHLSSON.

Witnesses:

ERNST SVANQVIST,  
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