

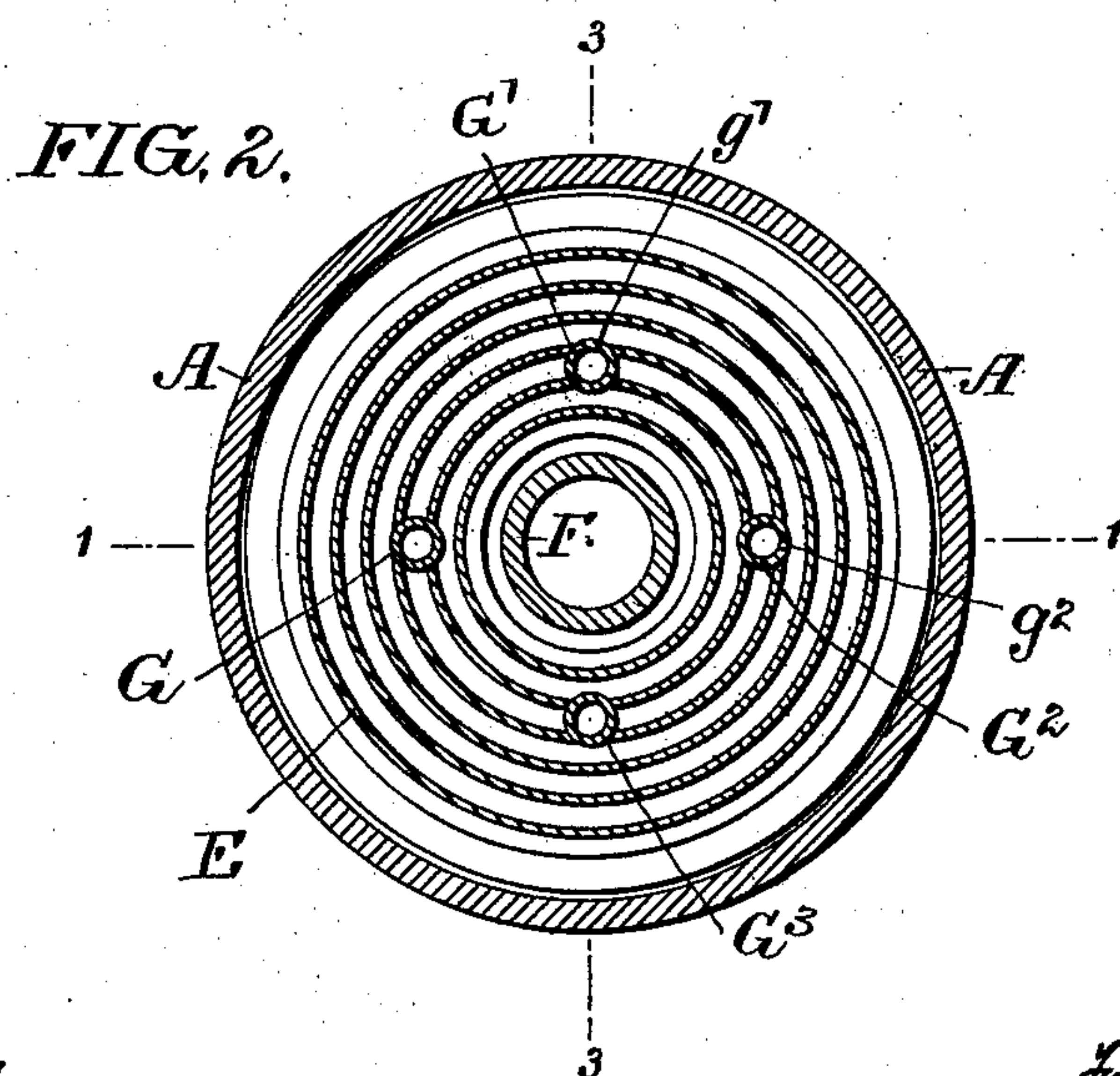
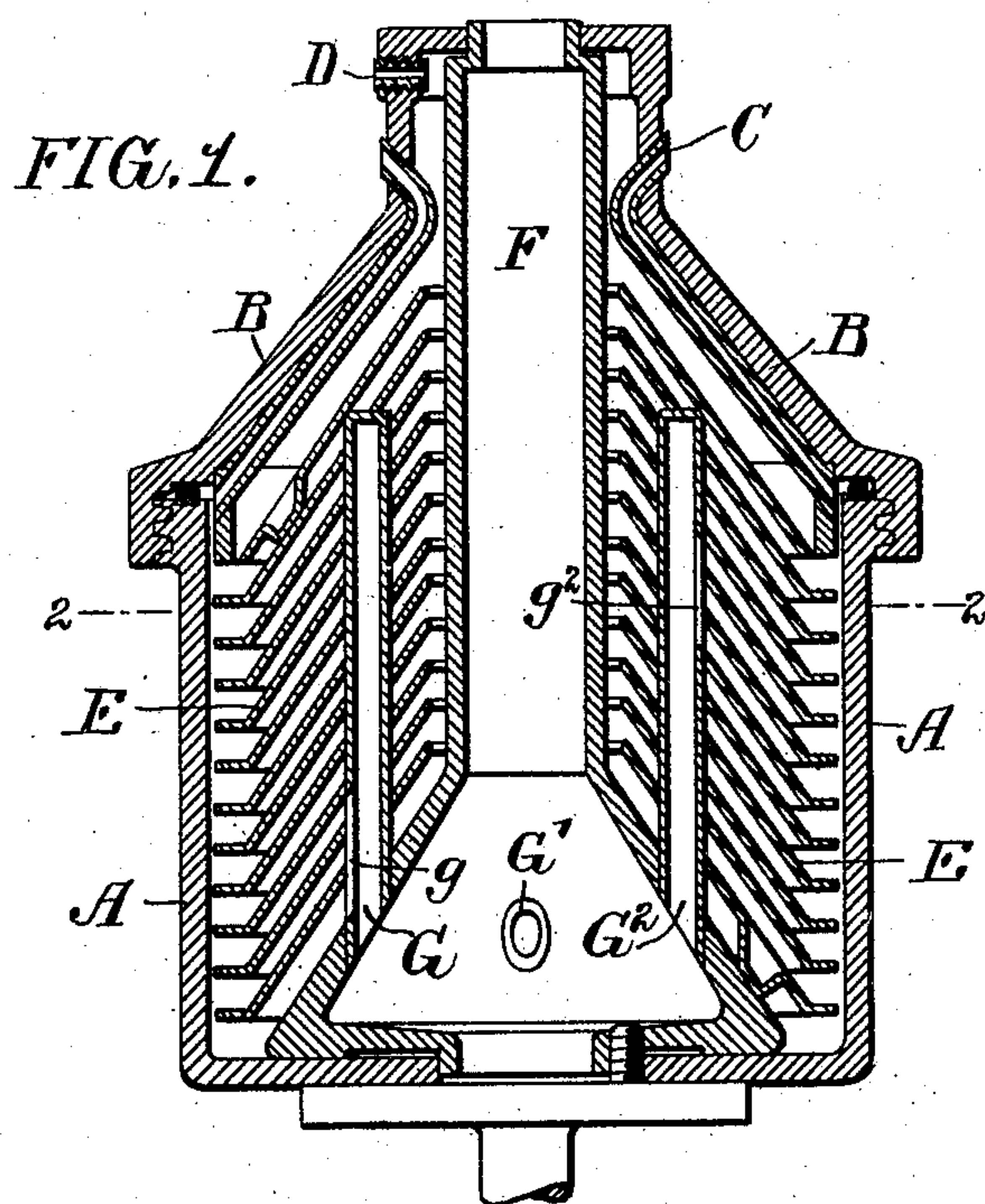
No. 775,464.

PATENTED NOV. 22, 1904.

F. J. AREND.
CENTRIFUGAL CREAMER.
APPLICATION FILED JUNE 23, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses:

M. M. Hamilton

W. B. Marks.

Inventor;
James J. Alexander
Hartney 744 and way
actg

No. 775,464.

PATENTED NOV. 22, 1904.

F. J. AREND.
CENTRIFUGAL CREAMER.
APPLICATION FILED JUNE 23, 1903.

NO MODEL.

4 SHEETS—SHEET 2.

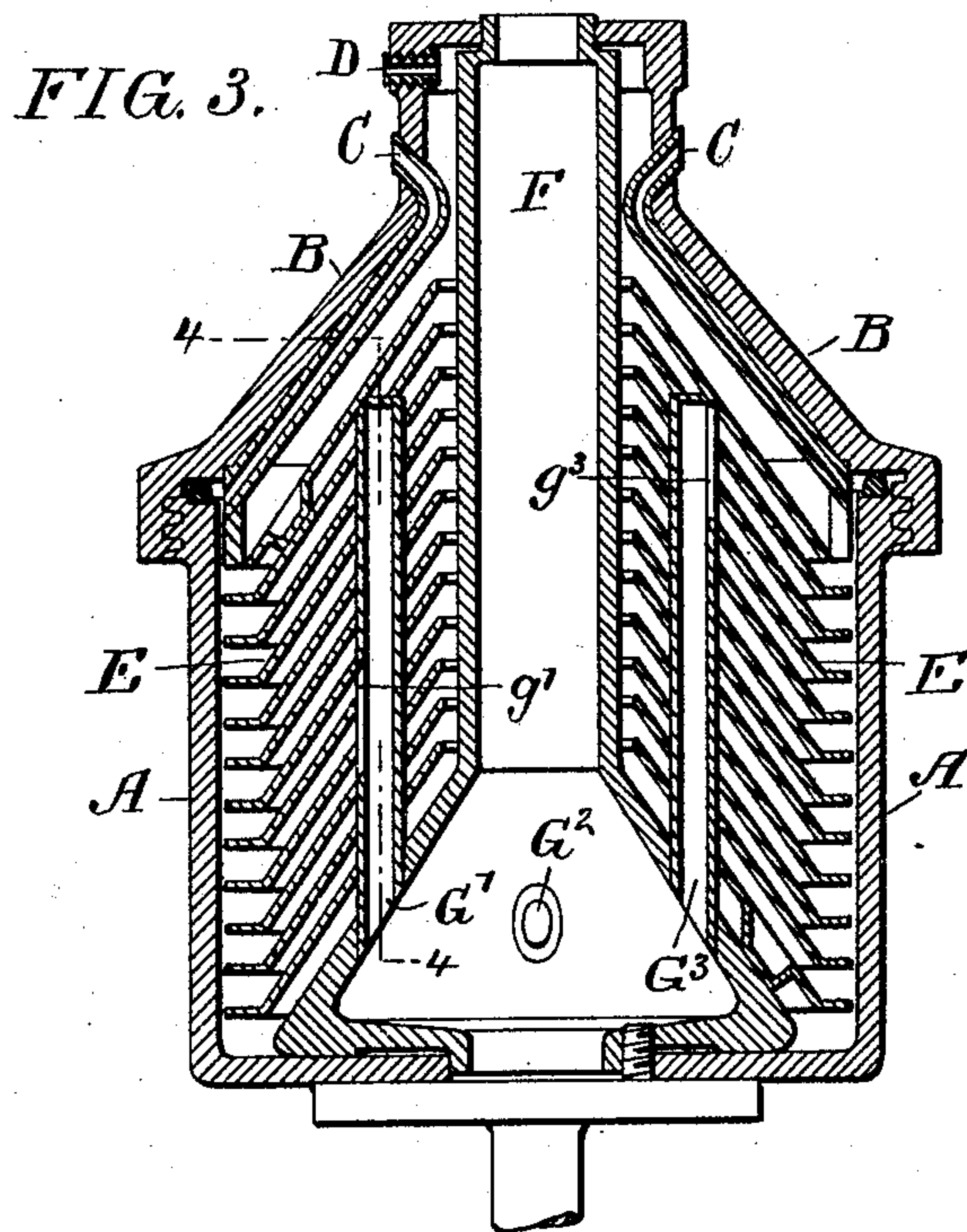
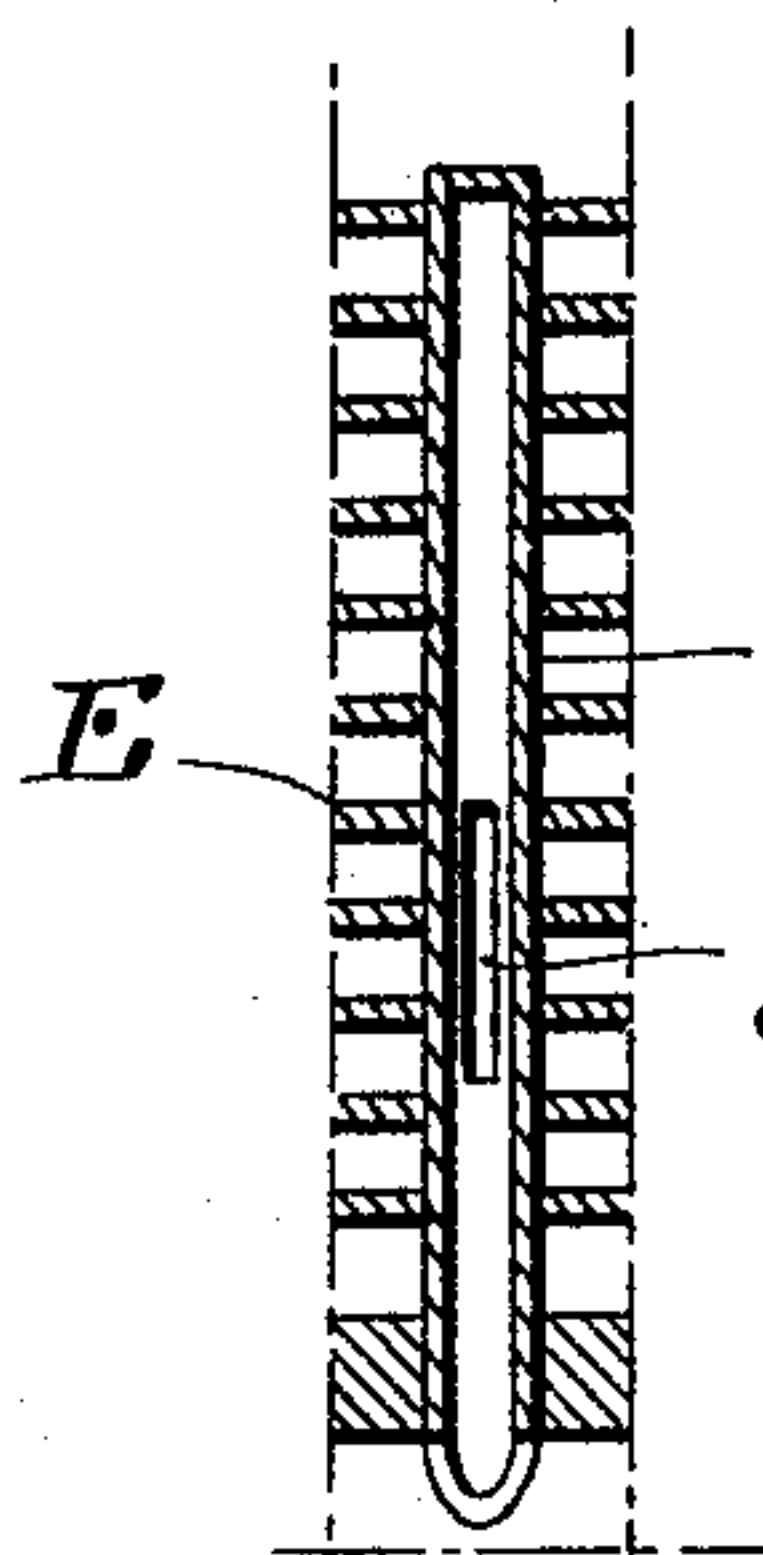


FIG. 4.



Witnesses:

M. M. Hamilton

W. B. Marks.

Inventor:

Inventor:
Francis J. Arnold
In Hadding & Hadding
attys

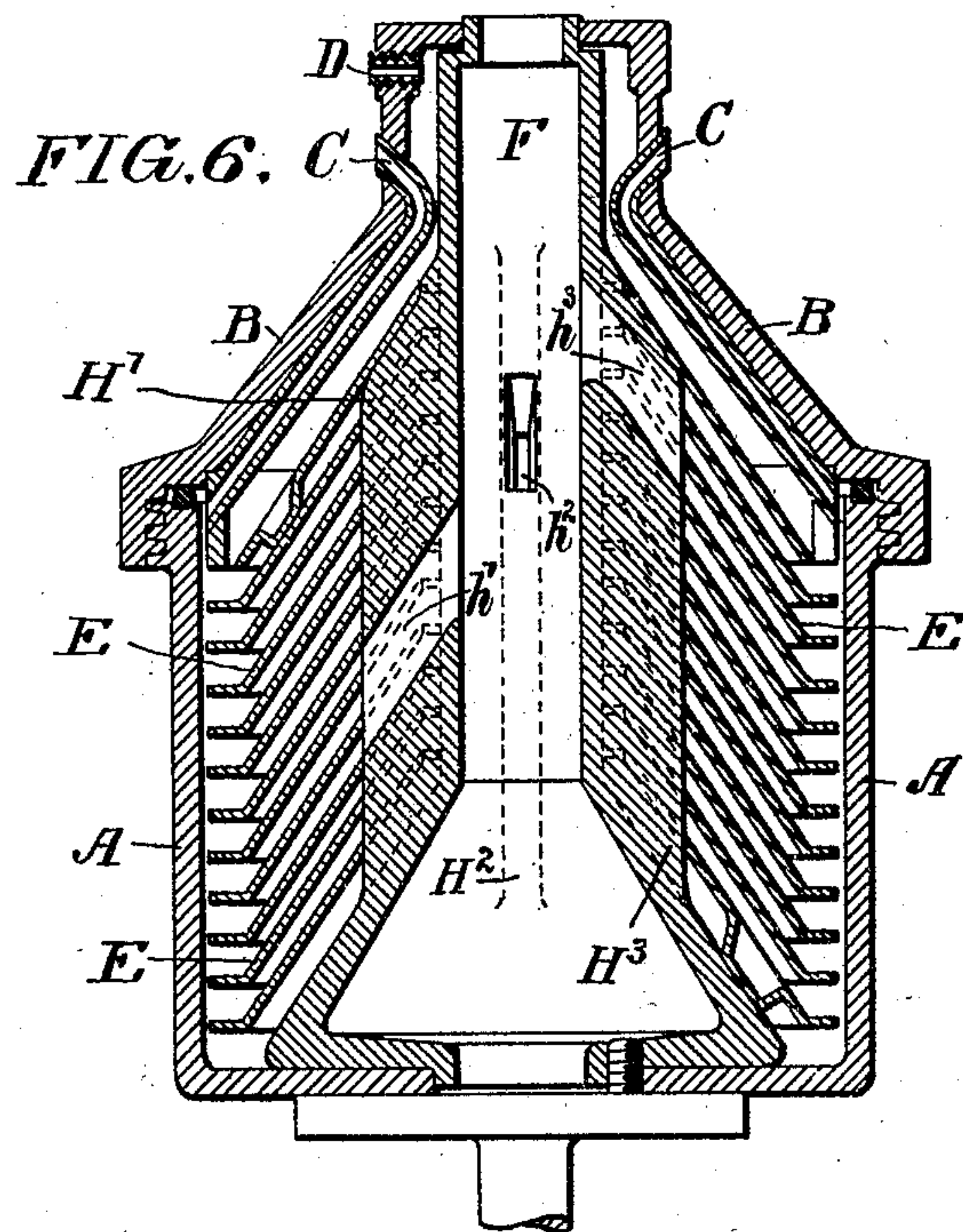
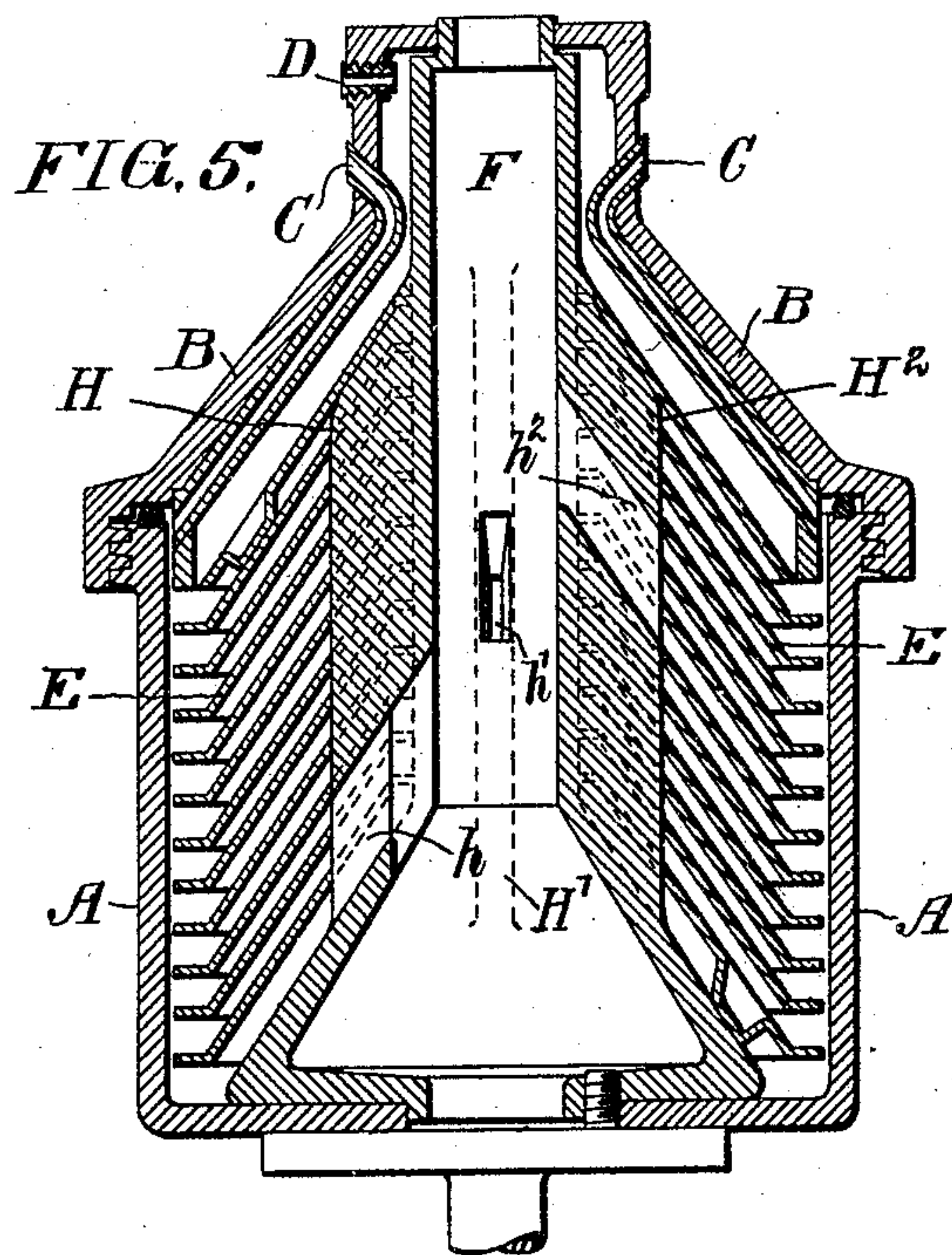
No. 775,464.

PATENTED NOV..22, 1904.

F. J. AREND.
CENTRIFUGAL CREAMER.
APPLICATION FILED JUNE 23, 1903.

NO MODEL.

4 SHEETS—SHEET 3.



Witnesses:

M. M. Hamilton.

W. B. Marks.

Inventor:

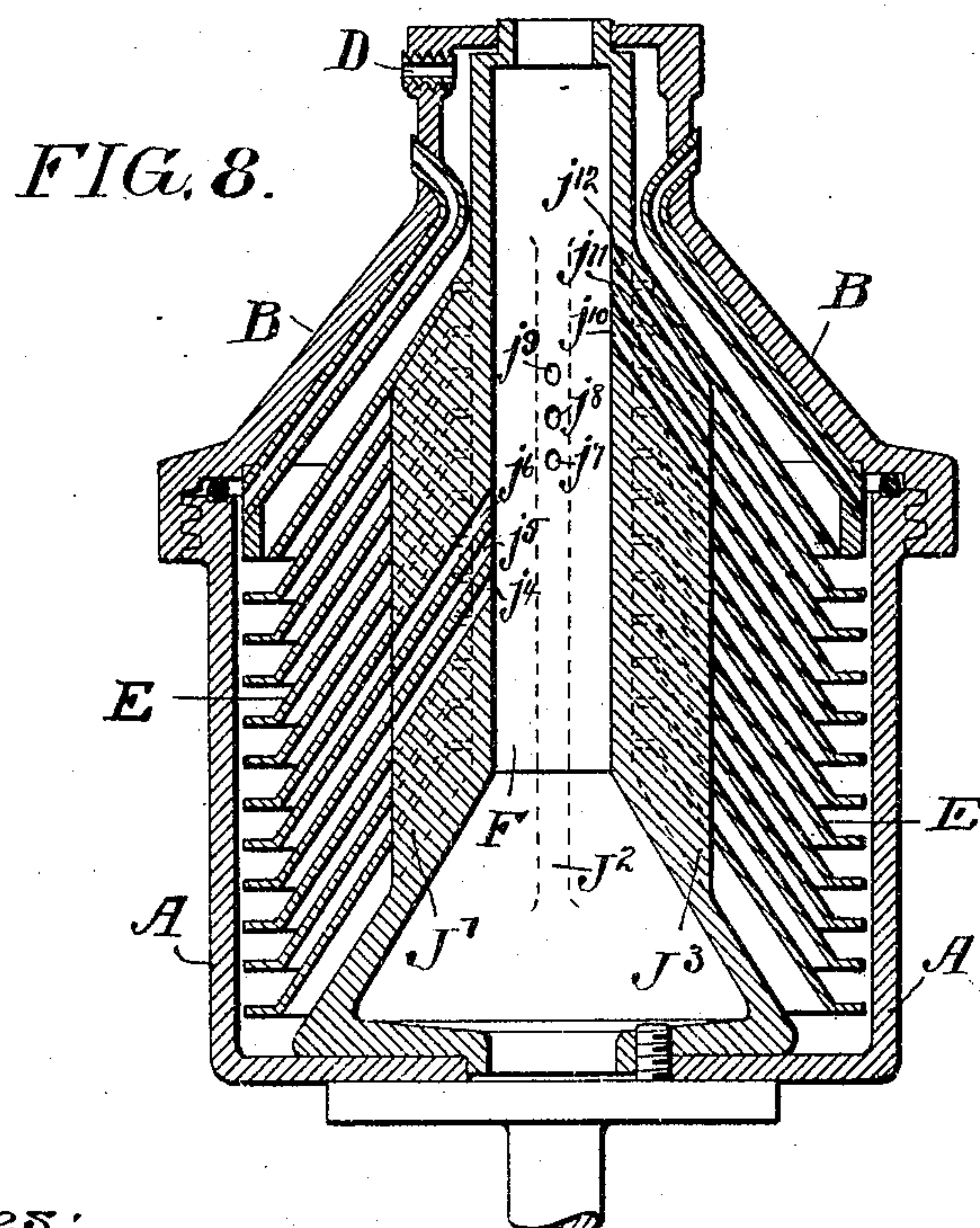
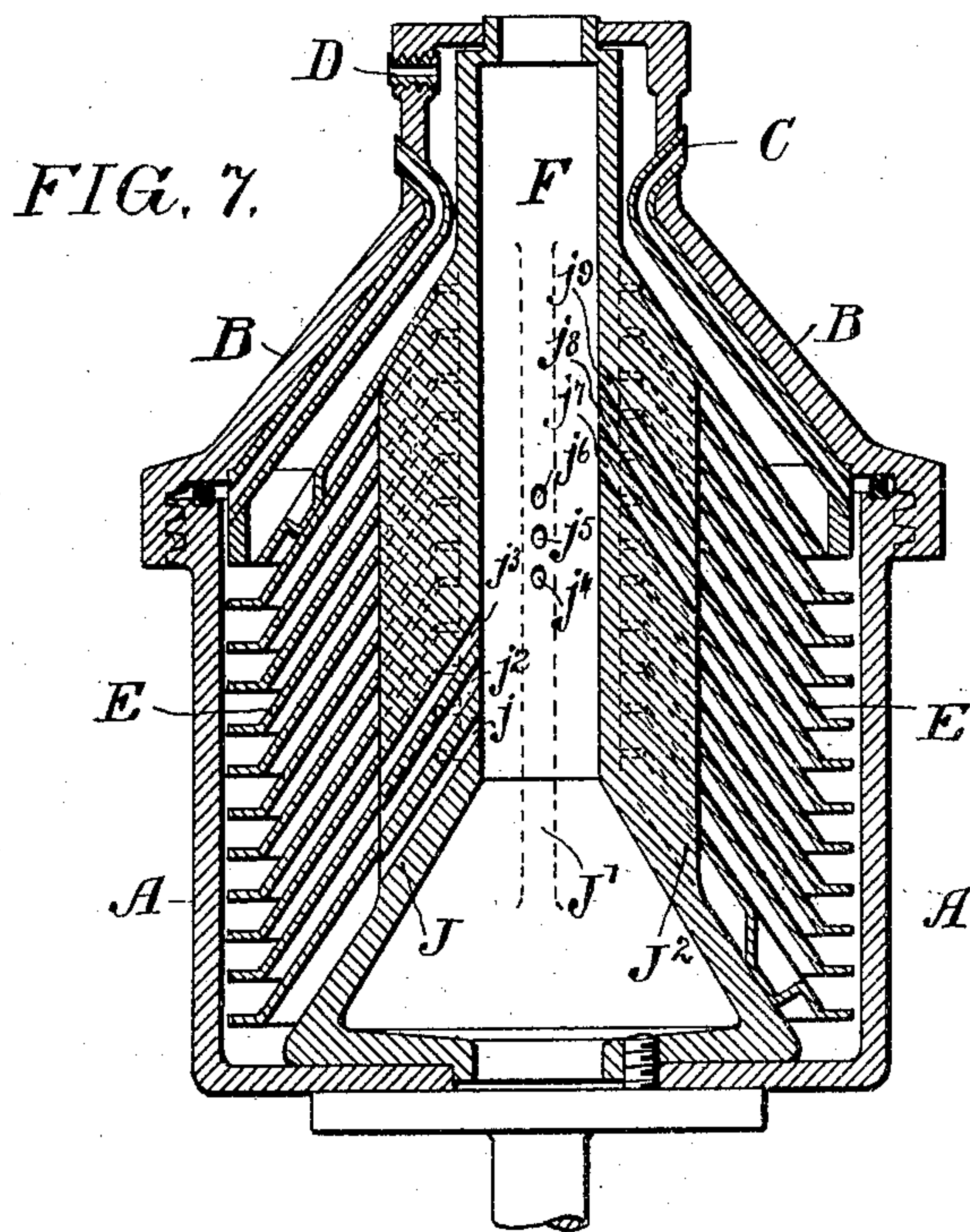
Francis J. Arand

Handing & Harding
att

F. J. AREND.
CENTRIFUGAL CREAMER.
APPLICATION FILED JUNE 23, 1903.

NO MODEL.

4 SHEETS—SHEET 4.



Witnesses:
M. M. Hamilton
H. B. Marks.

Inventor:
Francis J. Arend
By *Harvey W. Hastings*
attorney

UNITED STATES PATENT OFFICE.

FRANCIS J. AREND, OF NEW YORK, N. Y., ASSIGNOR TO THE DE LAVAL SEPARATOR COMPANY, A CORPORATION OF NEW JERSEY.

CENTRIFUGAL CREAMER.

SPECIFICATION forming part of Letters Patent No. 775,464, dated November 22, 1904.

Application filed June 23, 1903. Serial No. 162,715. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS J. AREND, a citizen of the United States, residing at New York city, county of New York, and State of New York, have invented a new and useful Improvement in Centrifugal Creamers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object the improvement of that type of centrifugal creamers which are illustrated, described, and claimed in Letters Patent of the United States No. 640,358, issued January 2, 1900, to John Joseph Berrigan, assignor to Aktiebolaget Separator. In that patent there is shown in the bowl a liner or division contrivance consisting of a series of superposed conical division plates or disks, the said plates or disks extending from near the periphery of the bowl toward the axis thereof, an orificed inlet and distributing device extending vertically through and intersecting said plates and opening into the neutral zone of the creamer between adjacent plates of the division contrivance or liner, the purpose of such combination being that the full milk will be fed between the disks beyond the cream-wall and also by means of the distributing device will be fed in approximately like quantities to the space between each pair of disks or plates. Without doubt the principle and combination of this patent enable like quantities to be fed into the spaces between each pair of disks, and to substantial, material, and beneficial extent it is so carried out in the specific embodiments of the invention or specific machines disclosed in that patent.

My invention has for its object certain improvements in details of construction which while not departing from the principle or invention of that patent have in practice given a more perfect distribution of the full milk into the spaces between the disks or plates. Speaking specifically, in the Patent No. 640,358 the distributing device is shown in one embodiment of the invention as a tube

or tubes slotted from end to end. In another embodiment it is shown as a wing or wings slotted or split from end to end. I have discovered with such machines if instead of forming the slot in the tubes or wings continuously from top to bottom I allow each tube to deliver the full milk into a proportionate number of spaces between pairs of plates there will be a more even distribution among all the spaces between pairs of plates—that is to say, if, for instance, there be twelve plates and four tubes or wings I provide in one of the wings or tubes a slot or orifice extending only to the first three spaces between the disks, in another tube or wing a slot or orifice extending only between the next three spaces, with the third tube or wing a slot or orifice only between the next three spaces, and with the fourth tube or wing an orifice or slot only between the last three spaces. I can also accomplish the same result if instead of using the continuous slot or orifice I make in one tube or wing a series of orifices opening into the first three spaces, in the next tube or wing a series of orifices opening into the next three spaces, in the third tube or wing a series of orifices opening into the next three spaces, and in the fourth tube or wing a series of orifices opening into the last three spaces.

I will now describe my invention as embodied in the accompanying drawings, in which—

Figure 1 is a vertical section through the bowl of a centrifugal separator on line 1 1, Fig. 2. Fig. 2 is a cross-section on the line 2 2, Fig. 1. Fig. 3 is a section on line 3 3, Fig. 2. Fig. 4 is a partial section on line 4 4, Fig. 3. Fig. 5 is a view similar to Fig. 1 of a modified form of inlet and distributing device. Fig. 6 is a view similar to Fig. 3 of the modified form of inlet and distributing device of Fig. 5. Fig. 7 is a view similar to Fig. 1 of a modified form of inlet and distributing device. Fig. 8 is a view similar to Fig. 3 of the modified form of inlet and distributing device of Fig. 7.

In the construction of all the figures, A is the bowl; B, the cover; C, the milk-outlet tube;

D, the cream-outlet tube; E, the frustro-conical disks or plates, twelve being shown; F, the central feed-tube.

In Figs. 1, 2, 3, and 4, G G' G² G³ are the distributing-tubes, having, respectively, the slots g g' g^2 g^3 , the slot g in the tube G being in line with the lower three spaces between the disks, the slot g' in tube G' being in line with the next three spaces, the slot g^2 in tube G² being in line with the next three spaces, and the slot g^3 in tube G³ being in line with the upper three spaces.

In Figs. 5 and 6, H H' H² H³ are the distributing-wings, having, respectively, the slots h h' h^2 h^3 , the slot h in the tube H being in line with the lower three spaces between the disks, the slot h' in wing H' being in line with the next three spaces, the slot h^2 in wing H² being in line with the next three spaces, and the slot h^3 in the wing H³ being in line with the upper three spaces.

In Figs. 7 8, J J' J² J³ are the distributing-wings. The wing J has in it orifices j j^2 j^3 , which are respectively opposite the lower three spaces between the plates. The wing J' has in it the orifices j^4 j^5 j^6 opposite the next three spaces between the plates. The wing J² has in it the orifices j^7 j^8 j^9 opposite the next three spaces between the disks, and the wing J³ has in it orifices j^{10} j^{11} j^{12} in line with the three upper spaces between the disks.

Of course I do not intend to limit myself to the application of the orifices j to j^{12} to wings alone, as they can be applied in place of a slot to the tube. Preferably I make the slots in the respective wings or tubes increase in width—

that is, to be less in width at the bottom and greater at the top. In like manner I prefer that the orifices in the wings J to J³ shall in each tube increase in size from the bottom to the top, although this feature I do not lay claim to in this application, as it forms the subject-matter of a separate application, nor do I intend to limit myself to the position as shown of the slots or orifices in the tubes or wings, nor to the number of tubes or wings as shown.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

In a centrifugal creamer, the combination, with a division contrivance, consisting of a series of superposed conical division-plates, the plates extending through the separating-space of the bowl, of a plurality of orificed inlet and distributing devices collectively extending vertically through and intersecting all of said plates, the orificed portion of each inlet and distributing device extending only opposite certain of the spaces between the plates, no two orificed portions extending opposite the same spaces between plates, and the orificed portions of the inlet and distributing devices collectively extending opposite all of the spaces between the plates.

In testimony of which invention I have hereunto set my hand, at New York city, on this 13th day of June, 1903.

FRANCIS J. AREND.

Witnesses:

JOHN S. PAUL,

GEO. R. REMINGTON.