

No. 792,577.

PATENTED JUNE 13, 1905.

F. H. FLEECE.
CENTRIFUGAL CREAM SEPARATOR.
APPLICATION FILED JAN. 10, 1905.

Fig 2-

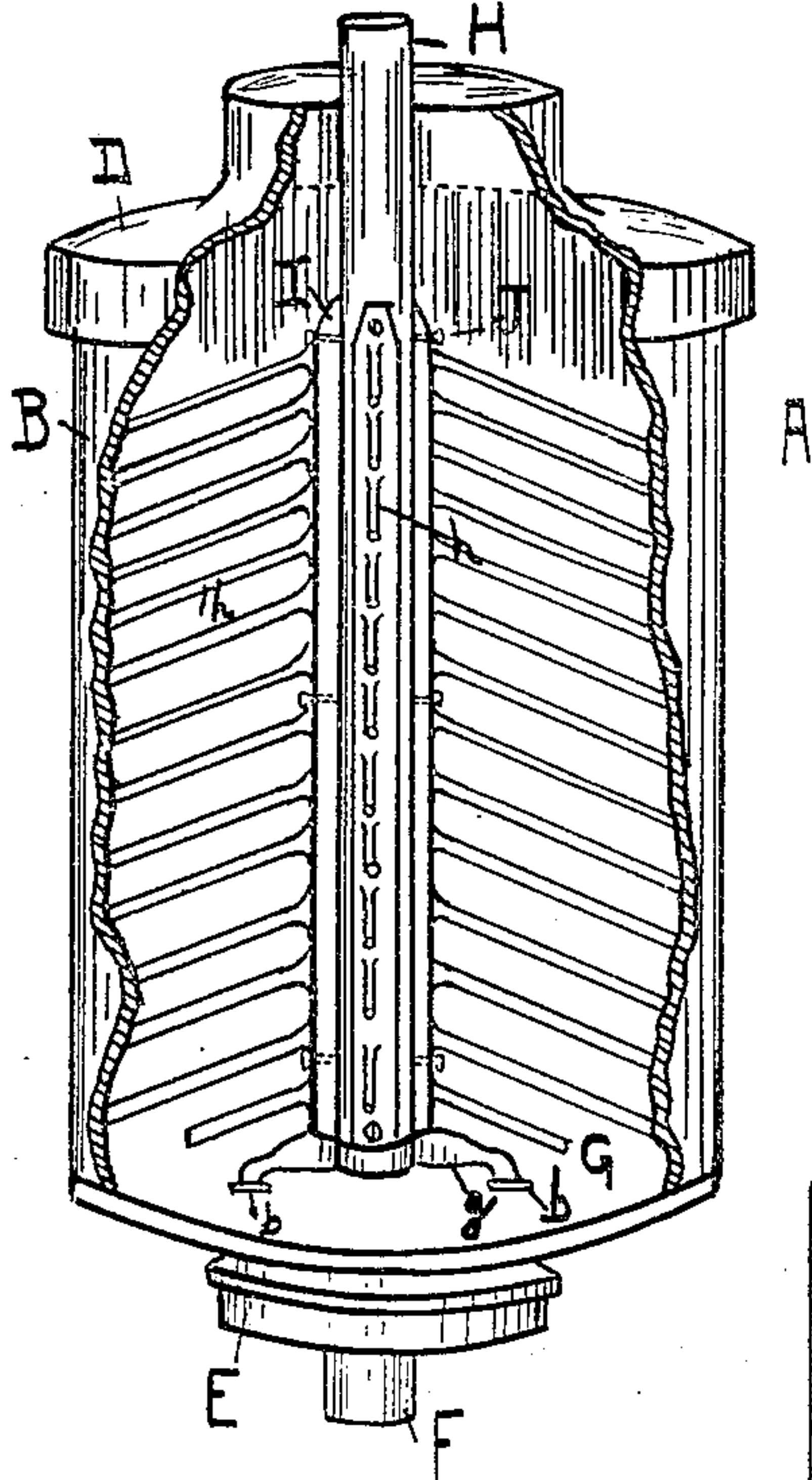


Fig 1-

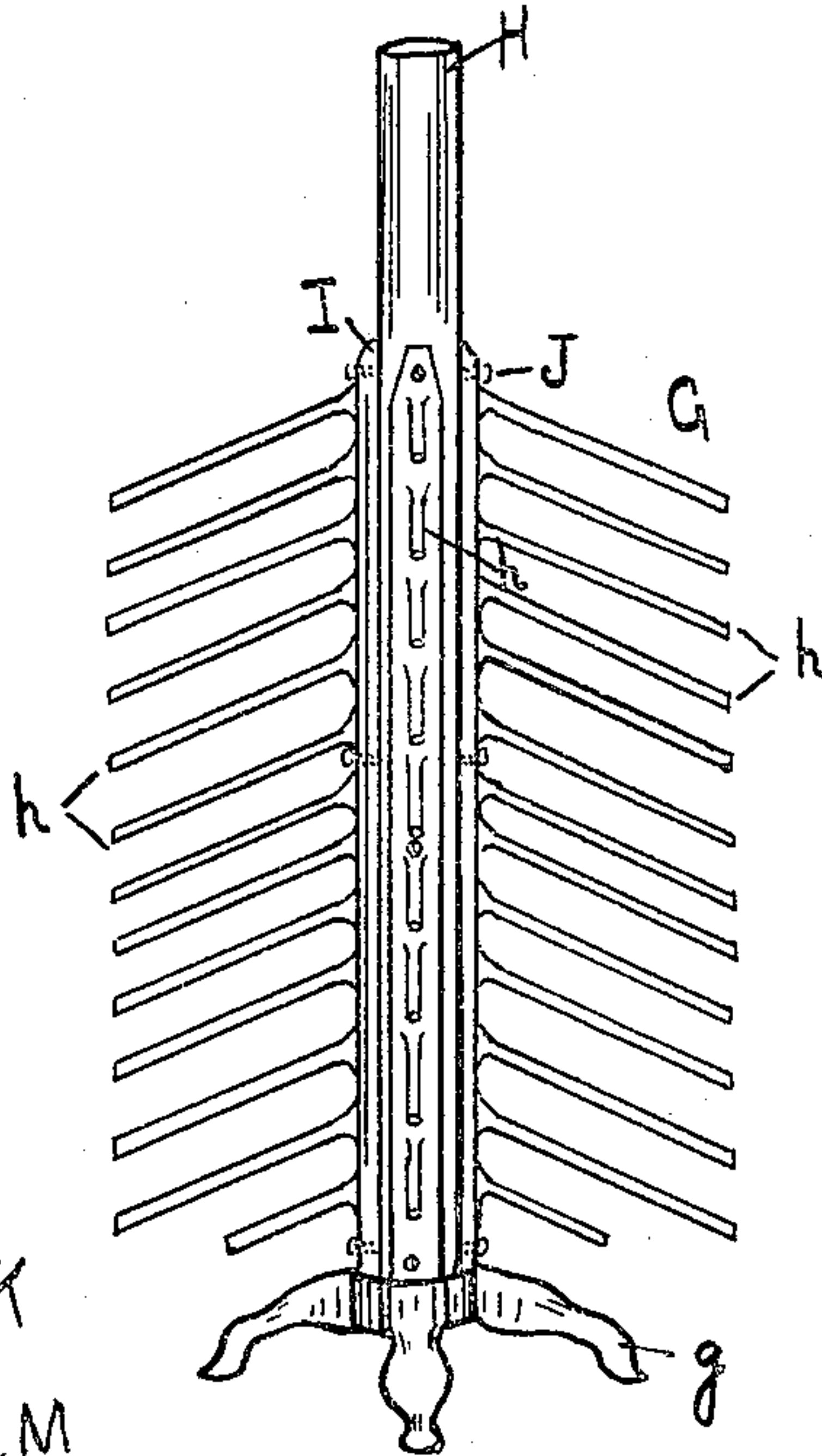
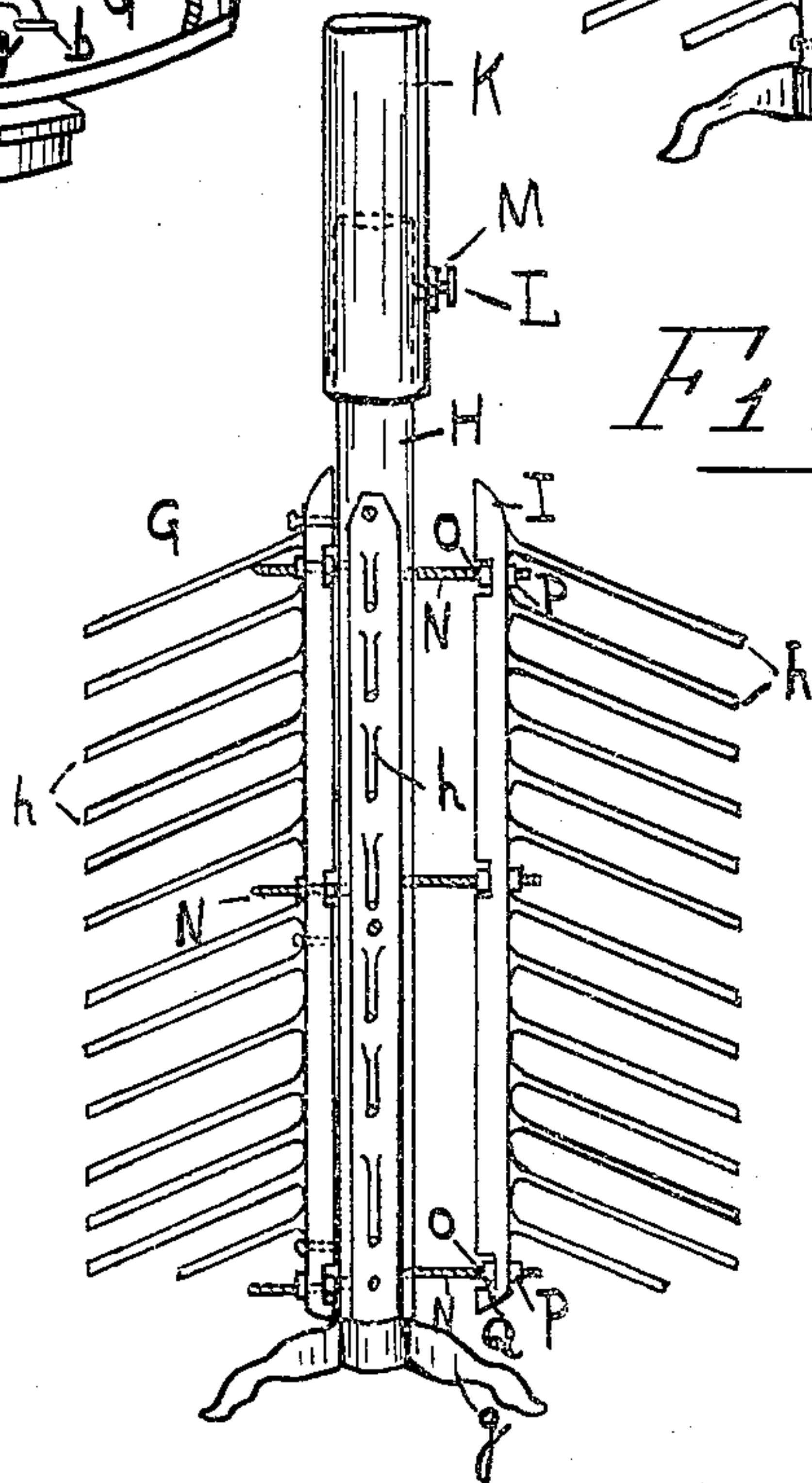


Fig 3-



WITNESSES:
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FRANK H. FLEEGE, OF MENOMINEE TOWNSHIP, JO DAVIESS COUNTY, ILLINOIS, ASSIGNOR OF ONE-HALF TO ANTON VAN DE WIEL, OF MENOMINEE, ILLINOIS.

CENTRIFUGAL CREAM-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 792,577, dated June 13, 1905.

Application filed January 10, 1905. Serial No. 240,396.

To all whom it may concern:

Be it known that I, FRANK H. FLEEGE, a citizen of the United States, residing in Menominee township, in the county of Jo Daviess and State of Illinois, have invented certain new and useful Improvements in Centrifugal Cream-Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to centrifugal cream-separators, with more particular and special reference to the liner, which is set in the bowl, and one of the objects is to provide a liner which shall be simple of construction, exceedingly easy to cleanse and keep clean, and will separate not only a large per cent. of the fat from the milk, but accomplish such separation with great rapidity.

Another object is to so construct the liner that a single one may be adjusted to fit almost any class or size of bowl.

The manner in which I accomplish these results will be fully set out in the following specification, when taken in connection with the drawings accompanying the same and forming a part hereof, in which—

Figure 1 is a perspective view of one form of liner. Fig. 2 shows the liner in Fig. 1 set in position in its casing or bowl. Fig. 3 is a perspective of a liner with its plates and beaters and showing the manner of adjustment to bowls of different lengths and diameters.

Like letters of reference denote corresponding parts in all of the drawings.

Referring to the drawings, A represents the bowl of a separator, which consists of a tubular casing B, to the top of which is secured a cap D, preferably of the form of a truncated cone, and upon the bottom a shoulder or plate E, to which is secured a shaft F, to which the power is applied for rotating the bowl. Within this bowl is set a liner G, which consists of a tube H, through which the liquid is introduced into the bowl and to

which is secured against the outside of the tube plates I, provided with arms *h*. There may be four or more of these plates I, each provided with arms *h*, attached to the same tube H; but in ordinary use two plates, each set in the same plane, but on opposite sides of the tube H, will be sufficient. The plates I may be fastened to the tube by screws J, passing through the plates I and into the tube H, or other convenient manner. The base of the liner G is provided with legs *g*, which rest upon the bottom of the inside of the bowl A and may be secured by lugs *b* or in any other convenient manner whereby they will be adapted to rotate with the bowl. The arms *h* are set in the plates at a short space apart and extend outward, preferably at a slight angle downward, to near the casing B of the bowl, having their outer ends free.

For the purpose of adjusting the liner longitudinally to adapt it to be used in bowls of different lengths the tube H is cut off a short distance above the upper end of the arms I, and this tube H is inserted into another tube K, which just fits around the tube H. The tube K is held in its position by a screw L, passing through the tube K and engaging the outer surface of the tube H. In order that it may not become loosened, there may be a shoulder M secured upon the tube K, which is perforated and through which passes the screw L. If it is desired to have the arms near the top and also near the bottom, then the tube H may be divided in the center and the tube K slip over the tube H at the center and make the adjustment at the center rather than at or near one end.

For the purpose of adjusting the liner to adapt it to be used in bowls of different diameters there is secured upon the tube H a pin N, which is screw-threaded. Near the base is placed a nut O and another nut P a short distance above. The plate I is recessed out at Q and perforated of the size of the pin N. The screw O is then screwed upon the pin N and the pin is screwed into the tube H. The plate I is now pressed down upon the pin N

through the perforation of the plate, and the screw P is partly screwed upon the pin. After the plate is thus loosely fastened, then it is adjusted by the screw O to adapt the
 5 liner to be used with bowls of different diameters. When the adjustment is made, the screw P is screwed upon the pin N against the outside of the plate and rigidly holds the plate down upon the pin between the screws O
 10 and P with the screw O in the recess Q. In this manner, by means of the two screws, the liner can be adjusted so that the end of the arms will come close to the inner side of bowls of different diameters.

15 It will be observed by this mode of construction, with the plates attached to the outside of the tube, that the liner after it has been used can be removed and dipped into boiling water and quickly and easily cleaned,
 20 especially the inside of the tube, as it is entirely unobstructed and presents a smooth polished surface from which the water will readily remove all particles of milk or other matter that may adhere to it. It will also be
 25 seen that a liner constructed in this manner may be adjusted to fit bowls of different diameters and different sizes and heights, whether they are made by the same manufacturer or otherwise, and always have the outer
 30 ends of the arms free.

It is manifest that the details of adjusting may be varied by a skilled mechanic within a wide range and still not depart from the spirit of my invention.

35 Having now described my invention, what I claim is—

1. In a centrifugal cream-separator, a rotating bowl and a liner consisting of a tube through which the liquid is introduced into
 40 the bowl, a plurality of plates secured to the tube, arms secured to the plates and projecting to near the surface of the bowl on the inside.

2. In a centrifugal cream-separator, a rotating bowl, a liner consisting of a tube through which the liquid is introduced into the bowl and rotating with the bowl, a plate secured to
 45 opposite sides of the tube, and arms secured to the plates at an angle thereto and the plates and arms in the same plane and having the outer ends of the arms free.
 50

3. In a centrifugal cream-separator, a rotating bowl, a liner consisting of a tube adapted to rotate with the bowl, a plurality of plates
 55 removably secured to the tube, and arms secured in the plates at an angle thereto and projecting to near the inner surface of the bowl.

4. In a device of the character described, a bowl, a liner consisting of a tube, means for
 60 adjusting the tube longitudinally to adapt it to fit bowls of different lengths or heights,

plates secured to the tube, and arms secured to the plates.

5. In a device of the character described, a rotating bowl, a liner adapted to rotate with
 65 the bowl and consisting of a tube through which the liquid to be separated is introduced into the bowl, plates removably secured to the outside of the tube, arms secured to the plates and having their outer ends free, and
 70 means attached to the tube for adjusting the plates with the arms thereon to adapt the free ends of the arms to extend to near the inner surface of bowls of different diameters.

6. In a device of the character described, a
 75 rotating bowl, a liner consisting of a tube, plates secured to the tube, arms secured to the plates, means for adjusting the length of the liner to adapt it to be used in bowls of different
 80 heights, and means for adjusting the liner to adapt it to be used with bowls of different diameters.

7. In a centrifugal cream-separator, a rotating bowl, a liner consisting of a tube, a plurality of plates secured to the tube, arms se-
 85 cured at an angle to the plates and projecting to near the surface of the bowl on the inside, and means for supporting and holding the liner in the bowl whereby the liner is rotated with the bowl and provides means for the in-
 90 troduction of the fluid into the bowl through the liner.

8. In a device of the character described, a rotating bowl, a liner consisting of a tube, means for adjusting the tube longitudinally
 95 to fit bowls of different lengths and heights a plurality of plates secured to the tube, arms secured to the plates and projecting at an angle to the plates, and a support for the liner.

9. In a device of the character described, a
 100 rotating bowl, a liner adapted to rotate with the bowl consisting of a tube, plates adjustably secured to the tube to adapt it to fit bowls of different diameters, arms secured to the plates, and means for supporting and holding
 105 the liner in contact with the bowl while the bowl and the liner are rotated together.

10. In a device of the character described, a rotating bowl, a liner consisting of a tube made in two parts and provided with means
 110 for lengthening or shortening the tube, plates removably secured to the tube, arms attached to the plates, means for adjusting the plates on the tube to adapt the liner to be used in bowls of different diameters, and means for
 115 supporting and holding the liner.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK H. FLEECE.

Witnesses:

M. M. CADY,
 ANTON VAN DE WEIL.