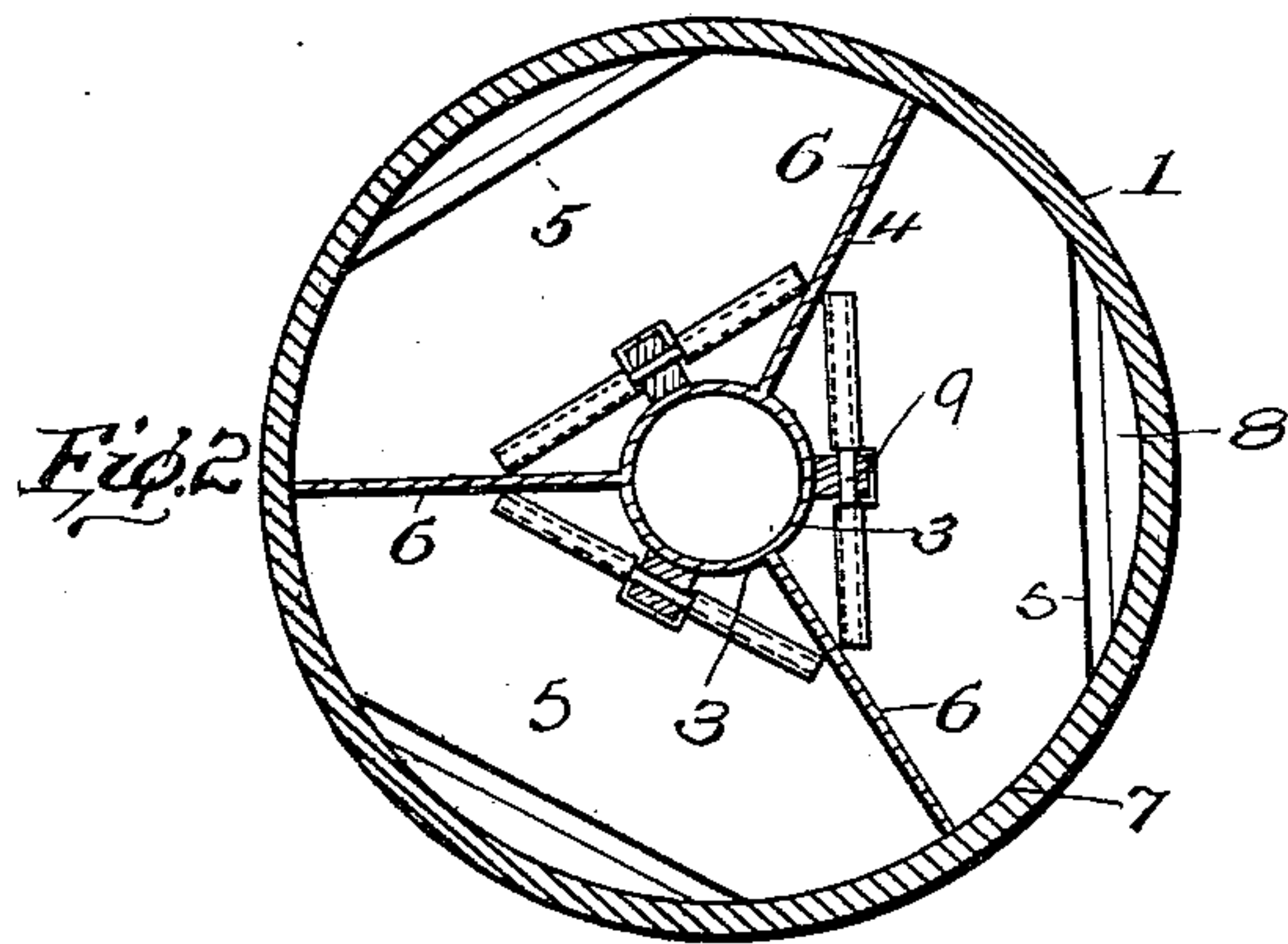
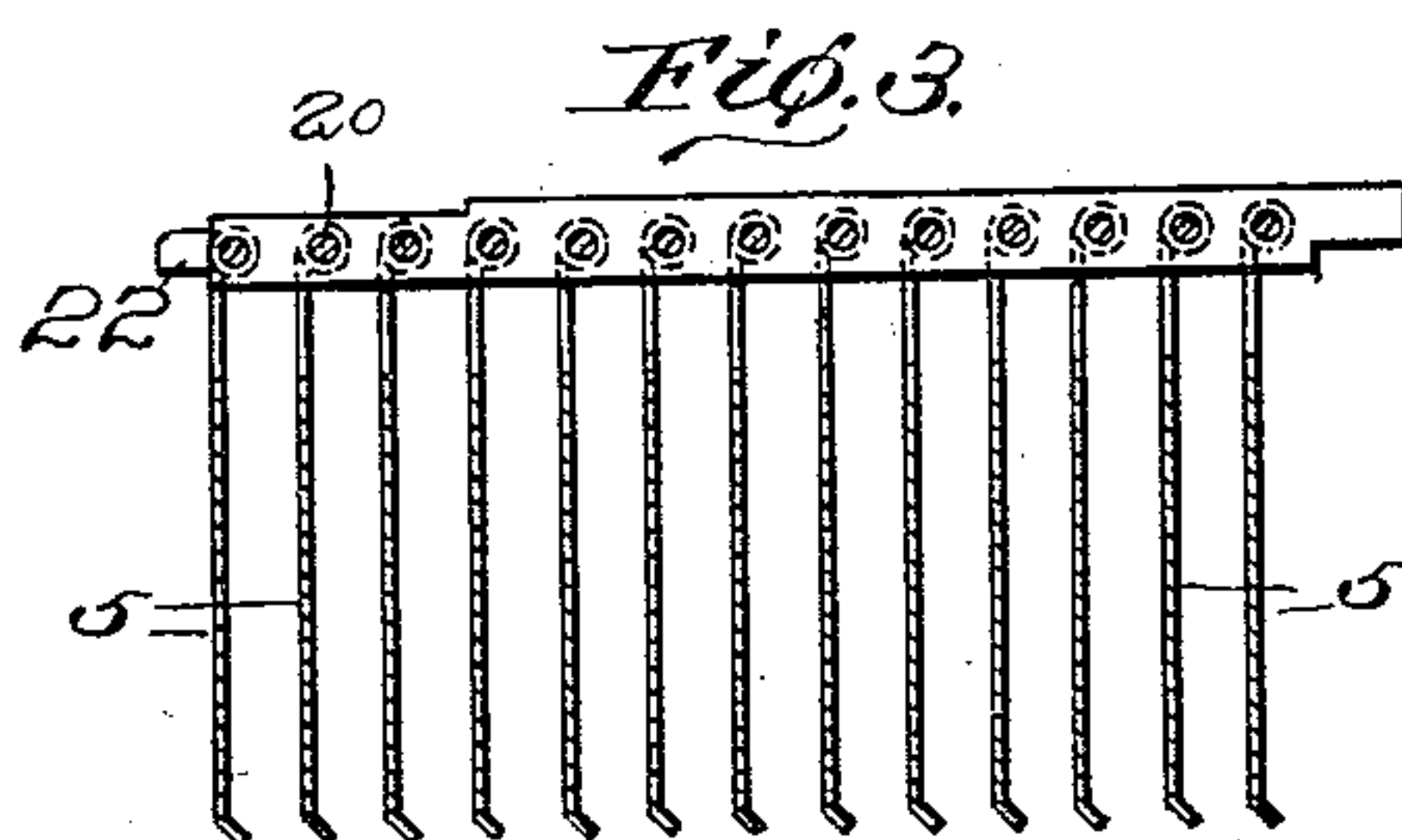
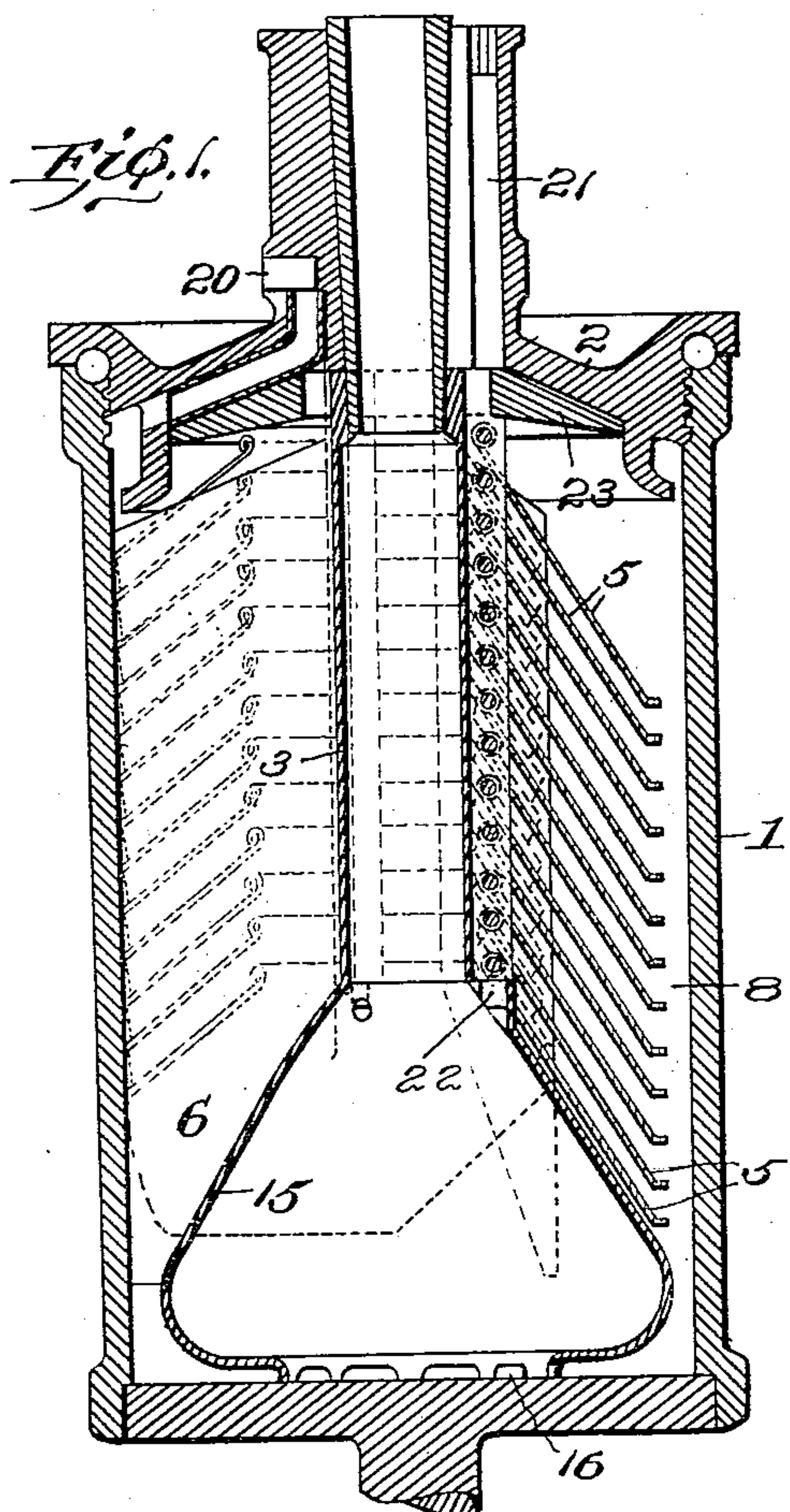


No. 733,585.

PATENTED JULY 14, 1903.

C. A. & O. W. HULT.
CENTRIFUGAL LIQUID SEPARATOR.
APPLICATION FILED MAR. 21, 1902.

NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CARL ALRIK HULT AND OSCAR WALFRID HULT, OF STOCKHOLM, SWEDEN.

CENTRIFUGAL LIQUID-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 733,585, dated July 14, 1903.

Application filed March 21, 1902. Serial No. 99,286. (No model.)

To all whom it may concern:

Be it known that we, CARL ALRIK HULT, of Flemmingatan 48, and OSCAR WALFRID HULT, of Handtverkaregatan 30, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Centrifugal Liquid-Separators, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to centrifugal liquid-separators, and particularly to a liner for such apparatus consisting of plates set at an angle to the radius of the drum. The said plates do not consist, however, of whole cones
15 or pyramids; as hitherto usual, but consist of separate sector-shaped plates supported partly by the wall of the drum, partly by radial partition-walls placed as a frame in the drum, so that the sector-shaped plates are
20 firmly held in position. The partition-walls are placed in the drum in an axial position. Preferably three partitions are employed, said partitions being placed at equal angles to one another. Placed in each angle is a set
25 or series of inclined plates lying one above the other with small intervals between them, so that the liquid is divided in the usual manner in thin layers, from which there are outlets nearest the center, as also nearest the pe-
30 riphery. One of the characteristic features of a liner is that the several plates in each series are articulated to the frame or to each other in such a manner that the edge of the plate or the joint about which the plate can be swung, if a liner is removed from the drum,
35 lies in a plane substantially perpendicular to the axis of the drum or to the partition-walls. This arrangement has many advantages. When the liner is removed, the plates in each
40 series can be turned like the leaves in a book, which is very convenient for cleansing. Further, the plates can be fastened to the frame in a simple manner, whereby the manufacturing is facilitated, in that the small plates have
45 accurately the same shape and the same size. Further, the plates are firmly kept in position in the drum on account of the effective supporting of the same from three sides, by which they are prevented from changing their
50 shape during the rotation of the drum. The best effect will also be obtained, as each se-

ries has a separate outlet common to all the interstices or intermediate spaces, one outlet being placed nearest the center and the other nearest the periphery, said outlets running
55 parallel with the axis of the drum—i. e., at an angle to the interstices. The fastening or connecting together of the plates can be performed in several ways, as will be described in the following. 60

In the drawings, Figure 1 shows a section through the axis of the centrifugal drum. Fig. 2 is a section through the drum at right angles to the former. Fig. 3 is a detail view showing one set of plates. 65

Referring to Figs. 1 to 3, the drum 1 is provided with a removable cover 2, so that the liner can be easily placed into the drum or removed from it when desired. The frame comprises the central pipe or tube 3, dilating
70 at 15 toward the bottom of the drum, vanes or partitions 4, firmly connected to the tube, extending radially from the same at equal angles to each other out to the wall of the drum, as shown in Fig. 2. In each angle
75 there is a series of plates 5. These plates are sector-shaped, but with a smaller angle between their radial edges than that between the partitions 4, so that the radial edges 6 of the plates do not bear on the partitions 4
80 until at a certain angle of inclination of the plates with respect to the radius of the drum—say forty-five degrees. In this position of the plates their outer edges 7 coincide with the wall of the drum, except that the plate is
85 cut off at the middle, as at 8, to form a passage for the blue milk. In order to stiffen the plates, their outer edges are bent slightly upward at the cut-off part. At the inner edge the plates are provided with a small
90 axle 9 or the like, Fig. 2, by means of which they are hung upon a bar 21, whose lower end is provided with a pin 22, entering a hole or recess in a protuberance at the top of the wider part 15 of the tube. The bars are
95 kept together at their upper ends by means of a ring, which is made wider at the outer edge, so as to form, as it were, an inner cover 23. If the liner is removed from the drum and the cover 23 is taken off, the bar 21 can
100 be lifted out from the recess, whereupon the whole series of plates attached to the bar can

be cleansed by immersing it in water and swinging the plates in opposite directions.

Fig. 3 shows the one series of plates hanging down from the detached horizontally-held bar.

The milk is brought into the drum through the tube 3, from which it passes through the openings 16 at the lower wider part of the tube and rises between the partitions into the series of plates. The blue milk moves toward the wall of the drum, rises through the passage at 8, and flows out through the passage 20. The cream moves toward the center of the drum, rises through a passage between the tube 3 and the inner edges of the plates, and flows out through the passage 21.

We claim—

1. A centrifugal apparatus comprising a casing radial partitions therein, and a series of plates pivotally supported near the center of the casing, and resting in inclined positions with their edges against the partitions and drum-wall, said plates having openings between their inner and outer edges and the

adjacent walls for the passage of the milk; substantially as described.

2. A centrifugal apparatus comprising a casing, a series of plates pivotally supported near the center of the casing and inclining outwardly, and a bar carrying the pivots of the said plates, substantially as described.

3. A centrifugal apparatus comprising a casing, a series of plates pivotally supported near the center of the casing and a bar carrying the pivots of the said plate, said bar extending vertically removably connected to the casing at its lower end and a ring engaging the upper end of the bar to hold the same in place removably, substantially as described.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

CARL ALRIK HULT.
OSCAR WALFRID HULT.

Witnesses:

ERNST SVANGVIST,
AUG. SORENSEN.