Consequently, the two embodiments discussed last have proved to be successful. Nevertheless, there is a further demand for optimization, especially with regard to a good energy recovery with simultaneous assurance of a low tendency toward contamination.

Embodiments seek to provide solutions to the previously described problem.

According to an aspect, there is provided a solid-bowl screw centrifuge with at least one or more discharge weirs for discharging clarified liquid out of a drum which has a rotational axis and a direction of rotation, having the following features:

a. at least one or more outlet ports in a drum cover,

b. wherein a weir plate, which has a recess, is associated with the at least one outlet port in each case,

c. wherein an open discharge channel, by means of which a deflection from a direction parallel to the rotational axis of the drum essentially into a circumferential direction opposite the direction of rotation is carried out, is formed at the outlet opening in the recess,

d. wherein the discharge channel is designed in such a way that discharging liquid is directed via the bottom of the discharge channel up to an overflow edge,

e. wherein the bottom of the discharge channel is inclined inwardly toward the rotational axis toward the overflow edge relative to the tangential direction by an inclination angle $\delta \geq 0$ at the location of the overflow edge.

Patent claims

1. A solid-bowl screw centrifuge with at least one or more discharge weirs for discharging clarified liquid out of a drum which has a rotational axis and a direction of rotation, having the following features:
   a. at least one or more outlet ports in a drum cover,
   b. wherein a weir plate, which has a recess, is associated with the at least one outlet port in each case,
   c. wherein an open discharge channel, by means of which a deflection from a direction parallel to the rotational axis of the drum essentially into a circumferential direction opposite the direction of rotation is carried out, is formed at the outlet opening in the recess,
   d. wherein the discharge channel is designed in such a way that discharging liquid is directed via the bottom of the discharge channel up to an overflow edge,
   e. wherein the bottom of the discharge channel is inclined inwardly toward the rotational axis toward the overflow edge relative to the tangential direction by an inclination angle $\delta \geq 0$ at the location of the overflow edge.

2. The solid-bowl screw centrifuge as claimed in claim 1, wherein $\delta > 10°$ and $\delta < 25°$ apply to the inclination angle δ.

3. The solid-bowl screw centrifuge as claimed in claim 2, wherein $\delta \geq 10°$ and $\delta \leq 20°$ apply to the inclination angle δ.

the discharge channel, by its side or surface facing the drum, directly adjoins a first edge section of the recess and in that the angle α between the plane of the weir plate and the first guide plate piece is preferably between 0 and 45°, especially between 5° and 25°.

12. The solid-bowl screw centrifuge as claimed ~~in the preamble of claim 1 or as claimed~~ in one of the preceding claims, wherein an angle β, to which $\beta > 0°$ and $\beta < 30°$, especially $\beta < 20°$, applies, is formed between the plane of the weir plate and the plane into which extends the bend of the first guide plate piece.

13. The solid-bowl screw centrifuge as claimed in one of the preceding claims, wherein the second guide plate piece is preferably oriented perpendicularly, or in the main perpendicularly, to the weir plate and tangentially, or in the main tangentially, to the circumferential direction.

14. The solid-bowl screw centrifuge as claimed in one of the preceding claims, wherein the second and third guide plate piece align totally or partially with the corresponding edges of the recess in the weir plate.

15. The solid-bowl screw centrifuge as claimed in one of the preceding claims, wherein the at least one recess in the weir plate has one or more straight edge sections.

16. The solid-bowl screw centrifuge as claimed in one of the preceding claims, wherein the at least one recess in the weir plate has, at