

Claims

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1. Separating apparatus-(1), comprising:
a sedimentation settler-(2) having a plurality of channels; and
a collection vessel-(3) disposed underneath and being in fluid communication with the sedimentation settler-(2), the collection vessel-(3) forming a receiving chamber-(4) having an outlet-(5) at or adjacent to the chamber bottom and having an inflow inlet opening-(6) above the outlet-(5),
wherein the inflow inlet opening-(6) is located at the same vertical height level of the separating apparatus-(1) as the lower edge-(22) of the sedimentation settler-(2) or below the lower edge-(22) of the sedimentation settler-(2), and
wherein the collection vessel-(3) is arranged such that the flow direction of the fluid inflow in the receiving chamber-(4) is substantially in line with the direction of the channels of the sedimentation settler-(2) after passing the inlet opening-(6).
2. The separating apparatus according to claim 1, wherein the collection vessel-(3) comprises an inflow deflection element-(7).
3. The separating apparatus according to claim 2, wherein the deflection element-(7) is adapted such that the retention time of a fluid in the collection vessel-(3) is reduced.
4. The separating apparatus according to claim 2, or 3, wherein the inflow deflection element-(7) is located at or in proximity to the inlet opening-(6).
5. The separating apparatus according to any of claims 2 to 4, wherein the deflection element-(7) is shaped and arranged such that it downwardly deflects an inflow of fluid after passing the inlet opening-(6).
6. The separating apparatus according to any of claims 1 to 5, wherein the wall-(41) of the receiving chamber-(4) is curved such that the horizontal cross-sectional area decreases towards the bottom thereof.

7. The separating apparatus according to claim 6, wherein the arrangement and shape of the deflection element-(7) and the curvature of the receiving chamber-(4) are adapted to each other such that the initially downwardly deflected inflow is further guided up towards the sedimentation settler-(2).
8. The separating apparatus according to any of the claims 2 to 7, wherein the inflow deflection element-(7) is a baffle plate.
9. The separating apparatus according to claim 8, wherein the baffle plate is arranged inclined relative to a first imaginary vertical plane-(V₁) being perpendicular to a second imaginary vertical plane-(V₂) comprising the inflow direction axis through the inlet opening.
10. The separating apparatus according to claim 9, wherein the baffle plate is inclined such that it intersects said first imaginary vertical plane-(V₁) along a horizontal line-(H₁).
11. The separating apparatus according to claim 10, wherein the inclination-(α) of the baffle plate is the same as the inclination-(α') of the channels of the sedimentation settler-(2).
12. The separating apparatus according to any of claims 8 to 11, wherein the baffle plate extends in elongation of the lower end-(21) of the sedimentation settler-(2) at the lower edge-(22) of the sedimentation settler-(2) closest to the inlet opening.
13. The separating apparatus according to any of claims 8 to 11, wherein the baffle plate is connected to the inner wall of the collection vessel-(3) above the inlet opening-(6).
14. The separating apparatus according to claim 1, wherein the inflow inlet opening-(6) is arranged such that the direction of fluid inflow after passing the inlet opening-(6) is parallel to the direction-(α') of the sedimentation settler-(2), or where the direction of fluid inflow through the inlet opening-(6) deviates from the direction-(α') of the sedimentation settler-(2) by +/- 10°, if seen in a imaginary vertical plane-(V₂) comprising the inflow direction axis through the inlet opening-(6).

15. The separating apparatus according to any of the preceding claims, further comprising a swirl element~~(600)~~ provided upstream of the inlet opening~~(6)~~ to set the inflow in rotation.
16. The separating apparatus according to claim 15, wherein the swirl element is a rotor comprising one or more vanes~~(601-606)~~.
17. The separating apparatus according to any of the preceding claims, wherein the sedimentation settler~~(2)~~ comprises a plurality of plates~~(23_i, ..., 23_n)~~ forming a plurality of sedimentation channels in between.
18. System, comprising:

 - a first fermenter,
 - a separating apparatus~~(1)~~ according to any of the preceding claims located downstream of the first fermenter, and
 - at least a second fermenter located downstream of the separating apparatus.