Claims

1. A divided-wall column (10), comprising:

a partition plate (11) arranged along an axial direction of the divided-wall column (10); and

a first shaft (22) arranged along a radial direction of the divided-wall column (10), and a first splitter plate (23) with an end connected to the first shaft (22), wherein the first splitter plate (23) is configured to be pivotable around the first shaft (22), so as to control distribution of a stream from below the first splitter plate (23) into spaces formed at two sides of the partition plate (11);

wherein the first shaft (22) is configured to be able to drive the first splitter plate (23) to rotate;

characterized in that,

the first shaft (22) and the first splitter plate (23) are both placed beneath the partition plate (11),

wherein the partition plate (11) and the first shaft (22) are located in a same axial plane of the divided-wall column (10);

further comprising a second shaft (13) arranged along the radial direction of the divided-wall column (10), and a second splitter plate (20) with an end connected to the second shaft (13), which are both placed above the partition plate (11), wherein the second splitter plate (20) is configured to be pivotable around the second shaft (13), so as to control distribution of the stream from above the second splitter plate (20) into the spaces formed at two sides of the partition plate (11).

2. The divided-wall column (10) according to claim 1, wherein the first splitter plate (23) is configured to be able to rotate between a first position, at which the first splitter plate (23) can prevent the stream from below the first splitter plate (11) from entering the space formed at one side of the partition plate (11), and a second position at which the first splitter plate (23) can prevent the stream from below the first splitter plate (23) from entering the space formed at the other side of the partition plate (11).

3. The divided-wall column (10) according to claim 1, wherein the spaces formed at two sides of the partition plate (11) have equal cross-sectional areas;

wherein the round crown of the first splitter plate (23) has a chord as long as an inner diameter of the divided-wall column (10); and

wherein a vertical distance from a top of the round crown of the first splitter plate (23) to the chord of the round crown of the first splitter plate (23) is shorter than a distance from a center of the divided-wall column (10) to an inner wall of the divided-wall column (10).

4. The divided-wall column (10) according to any one of claims 1-3, wherein the first splitter plate (23) is connected to the first shaft (22), which can rotate and thereby drive the first splitter plate to rotate;

wherein the first shaft (22) and the partition plate (11) are connected to each other by means of a baffle, the first shaft (22), the baffle, and the partition plate (11) being located in a same plane; and

wherein the first shaft (22) has one end supported on an inner wall of a column, and another end connected to a rotation controller (36) after passing through a column shell.

5. The divided-wall column (10) according to any one of claims 1-3, wherein the first splitter plate (23) is connected to the first shaft (22), which can rotate and thereby drive the first splitter plate (23) to rotate;

wherein the first shaft (22) is placed beneath the partition plate (11), to achieve seamless rolling contact with the partition plate (11); and

wherein the first shaft (22) has one end supported on an inner wall of a column, and another end connected to a rotation controller (36) after passing through a column shell.

6. The divided-wall column (10) according to claim 4, wherein the divided-wall column (10) further comprises one or a plurality of baffle plates (21,33) arranged on the inner wall of the divided-wall column in a space formed below the partition plate (11) and above the first shaft (22).

7. The divided-wall column (10) according to claim 5, wherein the divided-wall column (10) further comprises one or a plurality of baffle plates (21,33) arranged on

the inner wall of the divided-wall column (10) in the spaces formed at two sides of the partition plate (11) adjacent to a bottom of the partition plate (11).

8. The divided-wall column (10) according to claim 6 or 7, wherein the divided-wall column (10) further comprises velocity probes, respectively arranged on inner walls of the divided-wall column at two sides of the first splitter plate (23) in spaces formed below the baffle plates (21,33) and above the first shaft (22).

9. The divided-wall column (10) according to claim 1, wherein the second shaft (13) is configured to be able to drive the second splitter plate (20) to rotate.

10. The divided-wall column (10) according to claim 1 or 9, wherein the second splitter plate (20) is configured to be able to rotate between a third position, in which the second splitter plate (20) can prevent the stream from above the second splitter plate (20) from entering the space formed at one side of the partition plate (11), and a fourth position, in which the second splitter plate (20) can prevent the stream from above the second splitter plate (20) from entering the space formed at the other side of the partition plate (11).

11. The divided-wall column (10) according to claim 1, wherein the partition plate (11) and the second shaft (13) are located in a same axial plane of the divided-wall column (10).

12. The divided-wall column (10) according to claim 11, wherein the spaces formed at two sides of the partition plate (11) have equal cross-sectional areas;

wherein the round crown of the second splitter plate (20) has a chord as long as the inner diameter of the divided-wall column (10); and

wherein a vertical distance from a top of the round crown of the second splitter plate (20) to a chord of the round crown of the second splitter plate (20) is shorter than the distance from the center of the divided-wall column (10) to the inner wall of the divided-wall column (10).