~~Patent~~ Claims

1. Packing element (1), in particular for mass and/or heat exchange columns, through which at least one gas and/or at least one liquid flow flows, comprising a plurality of neighbouring strips (2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9) curved inwards and/or outwards, wherein each strip (2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9) is connected to the neighbouring strips (2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9) at ~~at~~ least one end thereof, **characterized in that** at least one of the strips (2.3, 2.4, 2.6, 2.7) has an irregular shape, such that the at least one strip (2.3, 2.7) is curved perpendicular to the longitudinal axis (L) of the packing element (1) in an arch or wave shape and comprises at least two changes of direction of its slope, i. e. that the arch shape of the strip (2.3, 2.7) is such that the slope changes the digit sign at least twice and the arch shape of the strip (2.3, 2.7) is asymmetrical, so that the strip (2.3, 2.7) does not have any symmetry in itself, wherein the at least one strip (2.3, 2.7) has at least two vertices and has different heights in the vertices and wherein all strips (2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9) have different shapes, so that the cross-section of the packing element (1) is interrupted perpendicular to its longitudinal direction by numerous webs which, while they intersect each other, do not overlap in major regions.

~~2. Packing element (1) according to claim 1, **characterized in that** all strips (2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9) have different shapes, so that the cross-section of the packing element (1) is interrupted perpendicular to its longitudinal direction by numerous webs which, while they intersect each other, do not overlap in major regions.~~

~~3. Packing element (1) according to claim 1 or 2, **characterized in that** the at least one strip (2.3, 2.7) has at least two vertices and has different heights in the vertices.~~

~~4.~~2. Packing element (1) according to claim ~~3~~1, **characterized in that** the at least two vertices (S3, S7) have different distances to the respective neighbouring end of the at least one strip (2.3, 2.7).

~~5.~~3. Packing element (1) according to ~~at least one of the preceding claims~~claim 1 or 2, **characterized in that** at least one strip (2.3; 2.7) has three vertices (S3.1, S3.2, S3.3; S7.1, S7.2, S7.3), the central

vertex (S3.2; S7.2) having a first height and the two lateral vertices (S3.1, S3.3; S7.1, S7.3) having a second and a third height, and at least one of the heights differing from the other two heights.

~~6.~~4. Packing element (1) according to claim ~~5~~3, **characterized in that** the distance from a first end of the strip (2.3; 2.7) to the central vertex (S3.2; S7.2) is greater than the distance from a second end of the strip (2.3; 2.7) to the central vertex (S3.2; S7.2).

~~7.~~5. Packing element (1) according to at least one of the preceding claims, **characterized in that** at least one of the strips (2.4; 2.6) is split into two segments (2.4.1, 2.4.2; 2.6.1, 2.6.2) transverse to its longitudinal direction (l).

~~8.~~6. Packing element (1) according to claim ~~7~~5, **characterized in that** the two segments (2.4.1, 2.4.2; 2.6.1, 2.6.2) of the at least one strip (2.4; 2.6) have different lengths.

~~9.~~7. Packing element (1) according to claim ~~7~~ 5 or ~~8~~6, **characterized in that** at least one of the segments (2.4.2; 2.6.1) of the strip (2.4; 2.6) has an arch shape.

~~10.~~8. Packing element (1) according to at least one of claims ~~7~~ 5 to ~~9~~7, **characterized in that** the ends of the two segments (2.4.1, 2.4.2; 2.6.1, 2.6.2) of the strip (2.4; 2.6) facing each other are spaced apart.

~~11.~~9. Packing element (1) according to at least one of the preceding claims, **characterized in that** at least one central strip (2.5) has a symmetric arch shape having one vertex (S5).

~~12.~~10. Packing element (1) according to at least one of the preceding claims, **characterized in that** at least two outer strips (2.1, 2.2; 2.8, 2.9) have an asymmetrical arch shape having one vertex (S1, S2; S8, S9).

~~13.~~11. Packing element (1) according to claim ~~12~~10, **characterized in that** the two outer strips (2.1, 2.2; 2.8, 2.9) are, starting from a first mid-plane (M1), curved in different directions.

~~14.~~12. Packing element (1) according to claim ~~12~~ 10 or ~~13~~11, **characterized in that** the vertices (S1, S2; S8, S9) of the two outer strips (2.1, 2.2; 2.8, 2.9) are arranged on different sides of a second mid-plane (M2).

~~15.~~13. Packing element (1) according to at least one of claims ~~12~~ 10 to ~~14~~12, **characterized in that** at each end of the packing element (1), two strips (2.1, 2.2; 2.8, 2.9) are arranged with an asymmetrical arch shape having one vertex (S1, S2; S8, S9).

~~16.~~14. Packing element according to at least one of claims ~~11~~ 10 to ~~15~~13, **characterized in that** between the central strip (2.5) and the outer strips (2.1, 2.2; 2.8, 2.9), at least one strip (2.3; 2.~~4~~7) with an asymmetrical arch shape having at least two vertices (S3.1, S3.2, S3.3; ~~S4~~S7.1, ~~S4~~S7.2, ~~S4~~S7.3) is arranged.

~~17.~~15. Packing element (1) according to at least one of the preceding claims, comprising a central strip (2.5) with a symmetrical arch shape having one vertex (S5), at each end two outer strips (2.1, 2.2; 2.8, 2.9) with an asymmetrical arch shape having one vertex (S1, S2; S8, S9) each, which are curved in different directions and whose vertices (S1, S2; S8, S9) are located on different sides of a second mid-plane (M2) of the packing element (1) arranged between a left and a right side of the packing element, one strip (2.3; 2.7) each between the central strip (2.5) and the respective outer strips (2.1, 2.2; 2.8, 2.9), with an asymmetrical arch shape having three vertices (S3.1, S3.2, S3.3, S7.1, S7.2, S7.3), and one split strip (2.4; 2.6) each with two segments (2.4.1, 2.4.2; 2.6.1, 2.6.2).

~~18.~~16. Packing element (1) according to at least one of the preceding claims, **characterized in that** at least one of the strips (2.1, 2.2, 2.5, 2.8, 2.9) is provided with a bead (5).

~~19.~~17. Packing element (1) according to claim ~~19~~16, **characterized in that** only those strips (2.1, 2.2, 2.5, 2.8, 2.9) with only one vertex (S1, S2, S5, S8, S9) are provided with a bead (5).