

Claims:

1. Plant growing system for moving growing plants subject to positive control, the plant growing system having the following features:

- a first guidance panel having a first guidance panel center and first guidance panel slots extending within said first guidance panel from an area adjacent to the first guidance panel center in an outward direction,
- a further guidance panel with a further guidance panel center and further guidance panel slots providing guiding tracks for a multitude of plant holding elements, wherein said first guidance panel with said first guidance panel center and said further guidance panel with said further guidance panel center are coaxially arranged and adapted on top of each other to provide a rotation movement between each other around a common rotation axis, wherein plant openings for said plant holding elements are formed at intersections of said first guidance panel slots with said further guidance panel slots, wherein
- according to a first principle said plant openings are distributed in a spiral-like pattern around said rotation axis showing a sense of rotation, wherein in said sense of rotation of said spiral-like pattern several or all spiral-adjacent plant openings are arranged at a plant opening angle with respect to said rotation axis or
- according to a second principle said plant openings are distributed in several circle-like patterns coaxially to said rotation axis, wherein on the same circle-like pattern several or all circle-adjacent plant openings are arranged at a plant opening angle with respect to said rotation axis,

characterized in that,

said first guidance panel slots and said further guidance panel slots are curved such that between said spiral-adjacent or between said circle-adjacent plant openings a radially-adjacent plant opening is located in a radially outward direction on a bisecting line of said plant's opening angle or deviating at an angle of less than  $10^\circ$ , preferably less than  $8^\circ$  and more preferably less than  $6^\circ$  from said bisecting line.

2. Plant growing system according to claim 1, characterized in that said first guidance panel slots do have a first curvature and

referring back to the first principle said further guidance panel slots are formed in a continuous spiral-like shape

or

referring back to the second principle said further guidance panel slots are formed as curved slots having a further curvature that extends within said further guidance panel from an area adjacent to the further guidance panel center in an outward direction, wherein said further curvature is opposite to said first curvature of said first guidance panel slots .

3. Plant growing system according to claim 2, characterized in that referring back to the second principle the shape of one of said first guidance panel slots is mirror symmetric to the shape of one of said further guidance panel slots.

4. Plant growing system according to claims 2 or 3, characterized in that a majority or all of said further curvatures of said further guidance panel slots are identical.

5. Plant growing system according to claim 2, characterized in that referring to the first principle said continuous spiral-like shape is adapted with regards to its curvature to the growth cycle of specific plant varieties and referring to the second principle said first curvature and said further curvature are adapted to the growth cycle of specific plant varieties.

6. Plant growing system according to any one of claims 1 to 5, characterized in that the majority or all of the plant opening angles have the same magnitude.

7. Plant growing system according to any one of claims 1 to 6, characterized in that a majority or all of said first curvatures of said first guidance panel slots are identical.

8. Plant growing system according to any one of claims 1 to 7, characterized in that said first guidance panel and said further guidance panel are arranged in a detachable

manner thereby providing the possibility to combine different guidance panels for different plant varieties.

9. Plant growing system according to any one of claims 1 to 8, characterized in that said first guidance panel is formed in a disc shape that is arranged and adapted to rotate around said rotation axis, wherein said further guidance panel is fastened in relation to said rotation axis .

10. Plant growing system according to claim 9, characterized in that said first guidance panel has a disc circumference with a drive structure being arranged along said disc circumference and being adapted to be engaged by a driving member to rotate said first guidance panel around said rotation axis.

11. Plant growing system according to any of claims 1 to 10, characterized in that said first guidance panel and said further guidance panel are arranged on top of a container said container being adapted to accommodate plant roots that are controlled by said plant growing system and adapted to provide said plant roots with plant nutrients and/or water.

12. Plant growing system according to claim 11, characterized in that said container is adapted and arranged as a hydroponic and/or aeroponic plant growing device.

13. Plant growing system according to claim 11 or 12, characterized in that said container according to the first principle shows a spiral-like channel structure with channel walls starting from a center area of said channel structure or according to the second principle shows a channel structure with several curved channels extending from a center area of said channel structure in an outward direction and being separated from each other by channel walls.

14. Plant growing system according to claim 13, characterized in that said channel structure shows an incline going upwards in a direction towards said center area of said channel structure.

15. Plant growing system according to any one of claims 11 to 15, characterized in that said container comprises a control sensor device detecting parameters from the group consisting of temperature inside and outside said container, pH-value, plant fertilizer concentration and water level.

16. Plant growing system according to claim 15, characterized in that said control sensor device is adapted to control said temperature inside said container, said pH-value, said plant fertilizer concentration and said water level.

17. Plant growing system according to any one of claims 1 to 16, characterized in that the system comprises a horticultural lighting device for illumination of said plants arranged above said first guidance panel.

18. Plant growing system according to claim 17, characterized in that said lighting device comprises a dimming device to reduce said illumination depending on the amount of solar light reaching the plant growing system.

19. Plant growing system according to claim 17 or 18, characterized in that said lighting device comprises a movable light source arranged and adapted to rotate around said rotation axis.

20. Plant growing system according to any one of claims 1 to 19, characterized in that said first guidance panel and/or said further guidance panel mainly extending in or in parallel to a common panel plane are showing portions at and around said first guidance panel center that are elevated and extend outward from said panel plane.