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(54) **OPTIMIZED OUTDOOR UMBRELLA**

(57) Optimized outdoor umbrella (100) comprising: a plurality of substantially linear profiles (101) configured to secure at least one canopy fabric; a support structure (102); a movement system for the plurality of profiles (101) between a closed position and an open position.

Wherein the movement system of the plurality of profiles (101) comprises:

- A plurality of interconnected hinges (104, 104a, 104b), each hinge (104a, 104b) being attachable to a profile of the plurality of profiles (101);
- At least one piston (107) hinged at a first end to the support (102) and at a second end to at least one arm (105) connected directly or via a hinge (104) to a terminal profile (101a), said arm being configured to constrain to a roto-translational movement.

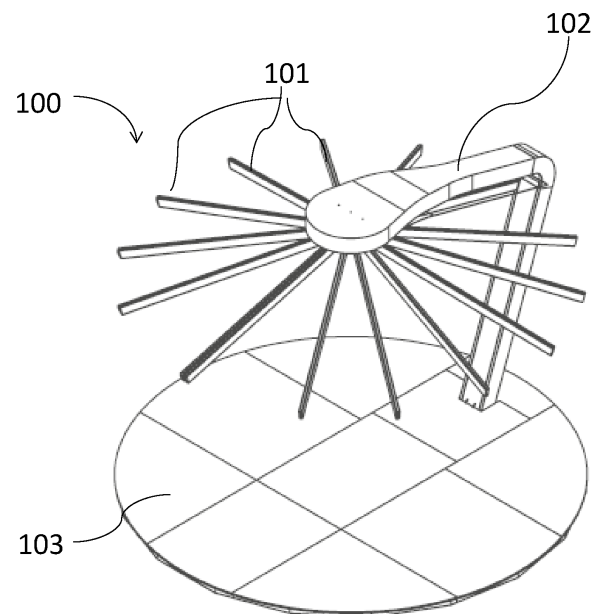


Fig. 1

Description

[0001] The present invention relates to an optimized outdoor umbrella of the type used in open-air environments, for example at swimming pools, terraces, or gardens. More particularly, the present invention relates to an optimized outdoor umbrella provided with a motorized or manual movement system.

[0002] Motor-driven umbrellas are known in the art, such as those described in documents CN205831281U and CN101077243B. The known motorization systems allow an umbrella to be opened or closed automatically but do not solve the technical problem associated with the presence of a central support structure, which creates considerable bulk when the umbrella is in the closed configuration and limited practicality during use.

[0003] An example of a retractable outdoor covering is described in document ITPD20080285A1. In particular, said document describes a covering comprising a central post provided at its lower end with a base designed to be fixed to the ground, at whose upper end two opposing lateral arms are hinged, said arms being movable from a position substantially adjacent to the post to a substantially horizontal position, orthogonal to said post and mutually opposed and aligned, wherein on each side of said lateral arms there is provided a rollable covering structure configured to extend and retract in a direction orthogonal to said arms, either horizontally or inclined downward.

[0004] Further examples of outdoor coverings or garden umbrellas are described in documents WO2016/139575A1, EP0632975A1, and CN202370191U.

[0005] The aim of the present invention is to provide an optimized garden umbrella, having a motorized or manual movement system, which can be opened and closed in a practical and optimized manner without creating bulk in the central portion or, in any case, in the closed configuration of the canopy fabric, thereby maximizing the usable space both when the umbrella is extended and open and when it is in a gathered or closed configuration, and having characteristics suitable for overcoming the limitations that still affect the solutions previously described with reference to the known art.

[0006] According to the present invention, an optimized outdoor umbrella is provided, as defined in claim 1.

[0007] For a better understanding of the present invention, a preferred embodiment is now described, purely by way of nonlimiting example, with reference to the accompanying drawings, in which:

- Figure 1 shows a schematic three-dimensional view of a portion of an optimized outdoor umbrella in an open position, according to the invention;
- Figure 2 shows detailed views of a movement system of the optimized outdoor umbrella, according to the invention;

- Figure 3 shows the opening phases of the optimized outdoor umbrella, according to the invention;
- Figure 4 shows schematic detailed views of the movement system of the optimized outdoor umbrella, according to the invention.

[0008] With reference to said figures and, in particular, to Figure 1, an optimized outdoor umbrella 100 of the type used, for example, in gardens, swimming pools, or terraces is shown according to the invention.

[0009] The optimized outdoor umbrella 100 comprises:

- a plurality of substantially linear profiles 101 configured to secure at least one canopy fabric;
- a support structure 102;
- a movement system for the plurality of profiles 101 between a closed position and an open position.

[0010] According to one aspect of the invention, the movement system comprises:

- a plurality of interconnected hinges 104, 104a, 104b, each hinge 104a, 104b being attachable to a profile of the plurality of profiles 101 either directly or by means of a support element 104c;
- at least one piston 107, preferably hinged at a first end thereof to the support structure 102;
- at least one arm 105 hinged at a second end 105b thereof to the piston 107 and connected, at a third attachment point 105c, either directly or by means of an element of a hinge 104a, to a terminal profile 101a of the plurality of profiles 101.

[0011] According to a further aspect of the invention, said arm 105 is hinged at a first end 105a thereof to a rod 106, hinged at a second end 105b thereof to a piston 107, and fixed, at a third attachment point 105c, to a terminal profile 101a of the plurality of profiles 101.

[0012] Advantageously, the arm 105 effectively constrains a roto-translational movement, also by virtue of the hinge provided at the motor attachment. The arm 105 further stabilizes the position of the last hinge, since it is constantly subjected to the force exerted by the motor, thereby preventing further rotation thereof.

[0013] According to one aspect of the invention, each profile 101 is a hollow profile having a preferably rectangular cross-section and a substantially linear or slightly curved longitudinal development.

[0014] According to one aspect of the invention, a magnet is housed on the surface or inside each terminal profile 101a, also referred to as a head profile. The presence of two magnets, one for each terminal profile 101a, advantageously allows complete closure of the profiles at the upper dead point of the motor or motors.

[0015] According to one aspect of the invention, the piston 107 and the arm 105 are movable between a closed position A and an open position B.

[0016] According to one aspect of the invention, the open position corresponds to the plurality of profiles 101 arranged along an arc of a circumference, preferably over an angle of approximately 180°.

[0017] According to one aspect of the invention, the movement system comprises, and preferably consists of, two pistons 107 symmetrically connected to the support structure 102, and two arms 105, both symmetrically connected to the rod 106 or to two parallel rods 106, configured to move a plurality of profiles 101 and the canopy fabrics secured thereto over an angle substantially equal to 180° each.

[0018] According to one aspect of the invention, the umbrella 100 comprises at least one motor configured to move said plurality of profiles 101. According to one aspect of the invention, actuation of the at least one piston 107 is performed by means of a dedicated linear electric motor.

[0019] According to one aspect of the invention, the at least one motor is housed at an upper end of the support structure 102.

[0020] According to one aspect of the invention, the plurality of profiles 101 is constrained by means of a concatenation of hinges 104 which, by means of pistons 107 actuated by at least one motor, are moved by rotating between a closed position A and an open position B.

[0021] The umbrella 100 is movable between an open position B, shown in Figure 3, and a closed position A, in which the plurality of profiles 101 are substantially gathered in correspondence with the arm of the support structure 102.

[0022] Advantageously, the structure and movement of the umbrella 100 allow minimizing the bulk of the umbrella even in the closed configuration.

[0023] According to one aspect of the invention, the umbrella 100 comprises a base 103 to which one end of the support structure 102 is fixed.

[0024] According to one aspect of the invention, the base 103 is modular and configurable, thereby being advantageously adaptable to different spaces and requirements.

[0025] According to one aspect of the invention, each profile 101 comprises, at one end thereof, an ogive-shaped portion provided at the front section of the profile, configured to advantageously allow insertion of triangular canopy fabrics, which define an additional constraint for the movement. In particular, the width of the respective arcs of circumference defined between two adjacent profiles 101 determines the rotation and positional locking of the hinges 104.

[0026] According to one aspect of the invention, movement of the umbrella 100 is performed by means of two motors configured to move the profiles 101 synchronously. According to one aspect of the invention, at least one canopy fabric is secured to the plurality of profiles 101 and, in order to allow closure on opposite sides of the support structure 102, the canopy fabrics may be two.

[0027] According to one aspect of the invention, the

movement system of the plurality of profiles 101 comprises, and preferably consists of:

- a plurality of interconnected hinges 104a, 104b, each provided with a support element 104c, each hinge 104a, 104b being attachable to a profile of the plurality of profiles 101 by means of the support element 104c;
- a piston 107 hinged at a first end thereof to the support structure 102 and at a second end thereof to a first arm of a plurality of arms 105, wherein at least one further arm of said plurality of arms 105 is connected to a profile of the plurality of profiles 101, either directly or by means of a support element 104c.

[0028] According to one aspect of the invention, the umbrella 100 comprises an upper protective casing configured to function as a finishing cover and, optionally, as a covering for the canopy fabric, thereby improving protection thereof and limiting wear.

[0029] Furthermore, according to one aspect of the invention, the umbrella 100 comprises an opening in the central portion of the plurality of hinges, through which cables for powering motors and LEDs may be conveniently routed.

[0030] It is finally evident that modifications and variations may be made to the optimized outdoor umbrella described and illustrated herein without thereby departing from the scope of protection of the present invention, as defined by the appended claims.

Claims

1. Optimized outdoor umbrella (100) comprising:

- A plurality of substantially linear profiles (101) configured to secure at least one canopy fabric;
- A support structure (102) for the plurality of profiles (101);
- A movement system for the plurality of profiles (101) between a closed position and an open position;

Characterized in that the movement system of the plurality of profiles (101) comprises:

- A plurality of interconnected hinges (104, 104a, 104b), each hinge (104a, 104b) being attachable to a profile of the plurality of profiles (101) either directly or through a support element (104c);
- At least one piston (107) hinged at a first end to the support (102) and at a second end to at least one arm (105) connected directly or via a hinge (104) to a terminal profile (101a) of the plurality of profiles (101), said arm being configured to

constrain to a roto-translational movement.

2. Umbrella (100) according to claim 1, **characterized in that** said at least one arm (105) is hinged at a first end (105a) to a rod (106), at a second end (105b) to the at least one piston (107), and it is fixed at a third attachment point (105c) to a hinge (104). 5

3. Umbrella (100) according to claim 1, **characterized in that** said support element (104c) consists of a hollow profile designed to be inserted inside a profile (101) to determine its inclination and connection to the support structure (102) and the movement system. 10
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4. Umbrella (100) according to claim 1, **characterized in** comprising at least one motor designed to move said at least one piston (107) between a closed position A and an open position B. 20

5. Umbrella (100) according to claim 1, **characterized in that** the movement system comprises: 25
 - A plurality of interconnected hinges (104, 104a, 104b) designed to secure a plurality of profiles (101);
 - A pair of pistons (107) and at least one motor for their movement;
 - A pair of arms (105), each piston (107) being hinged at a first end to the support structure (102) and at a second end to an arm of the pair of arms (105); 30
 - A rod (106) symmetrically fixed to one end of each arm (105). 35

6. Umbrella (100) according to claim 1, **characterized in** comprising a base (103) to which one end of the support structure (102) is fixed.

7. Umbrella (100) according to claim 6, **characterized in that** said base (103) is modular and configurable. 40

8. Umbrella (100) according to claim 1, **characterized in** comprising a magnet on the surface or inside each terminal profile (101a). 45

9. Umbrella (100) according to claim 1, **characterized in that** the movement system of the plurality of profiles (101) comprises: 50
 - A plurality of interconnected hinges (104, 104a, 104b), each having a support element (104c), with each hinge (104a, 104b) being attachable to a profile from the plurality of profiles (101) via the support element (104c); 55
 - A piston (107) hinged at a first end to the support (102) and at a second end to a first arm from a plurality of arms (105), wherein at

least one other arm of the plurality of arms (105) is connected to a profile from the plurality of profiles (101), either directly or via a support element (104c) .

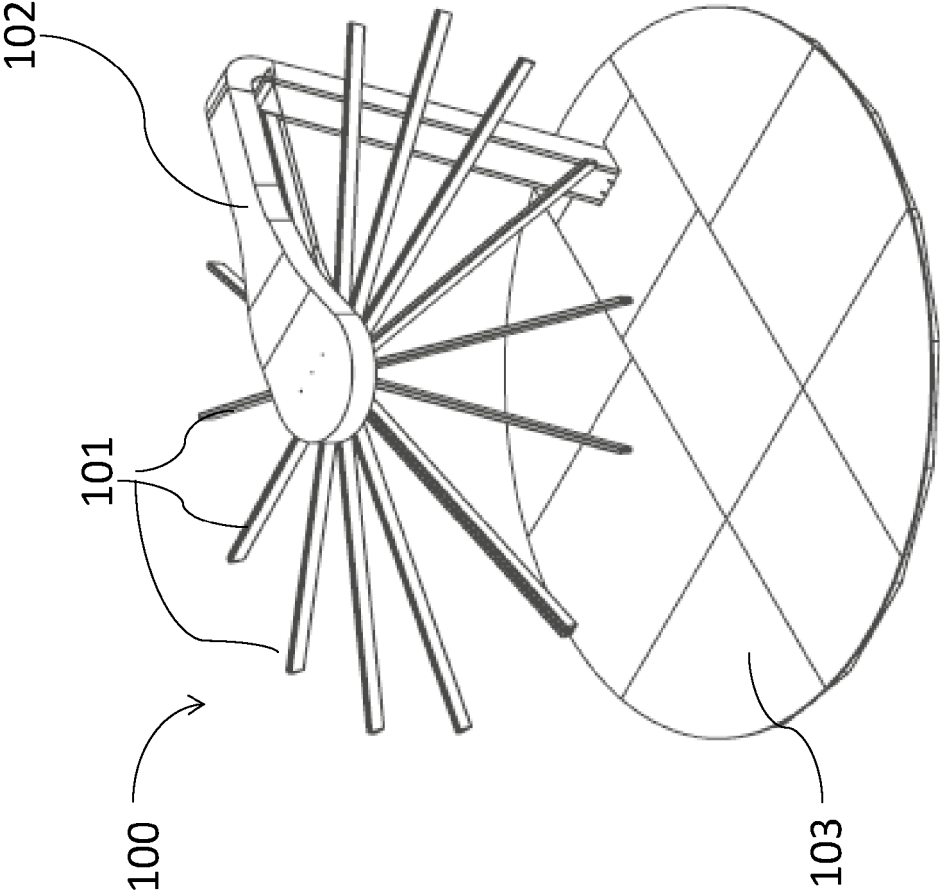


Fig. 1

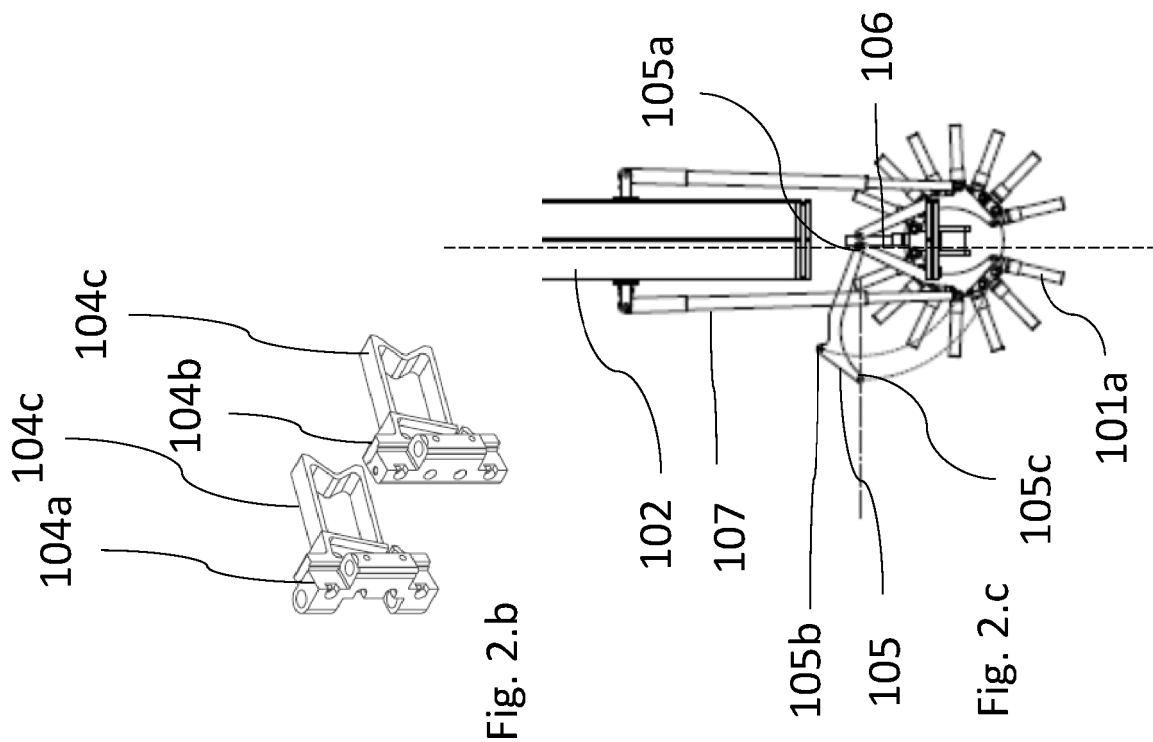


Fig. 2

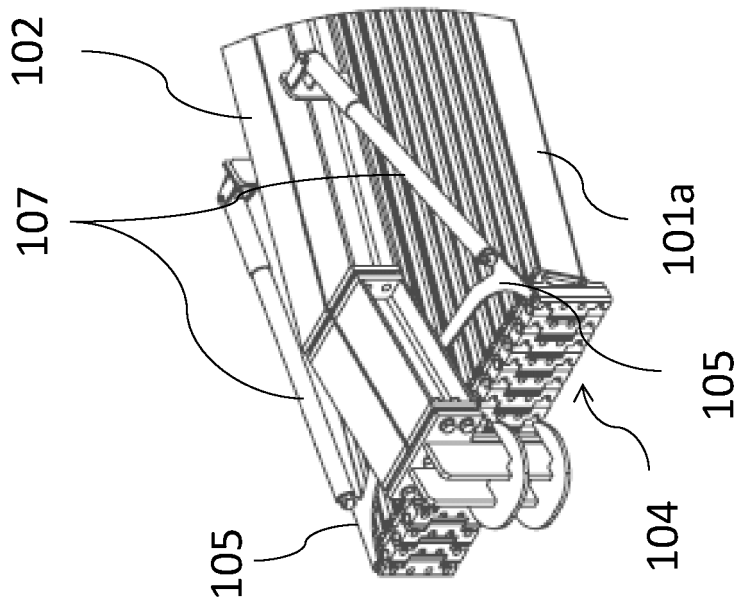


Fig. 2.a

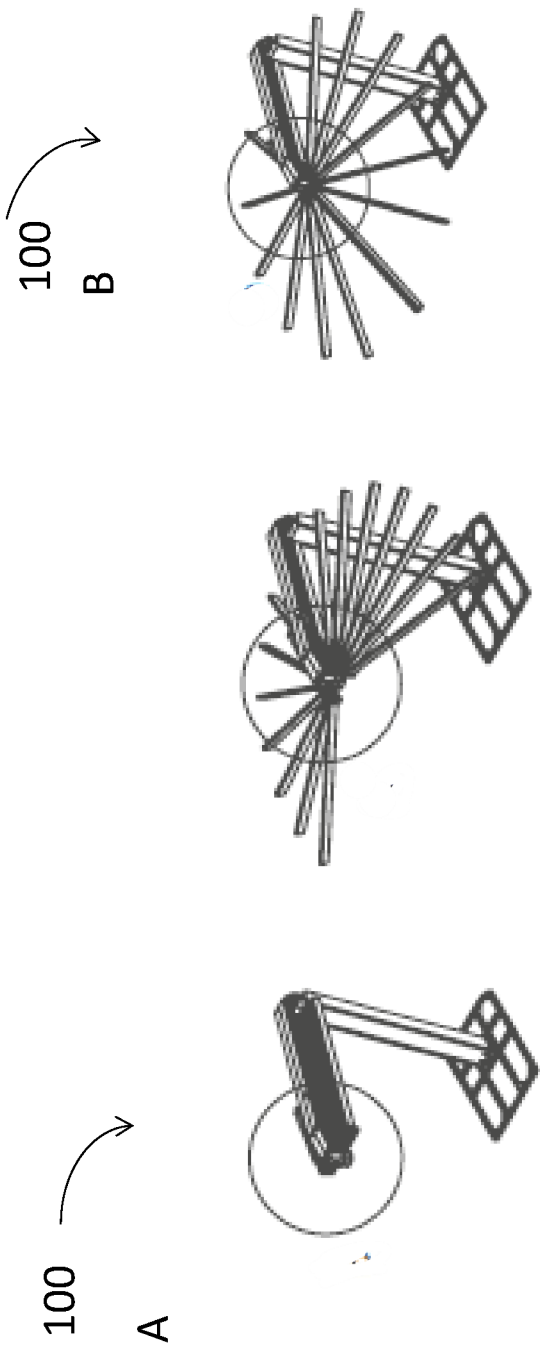
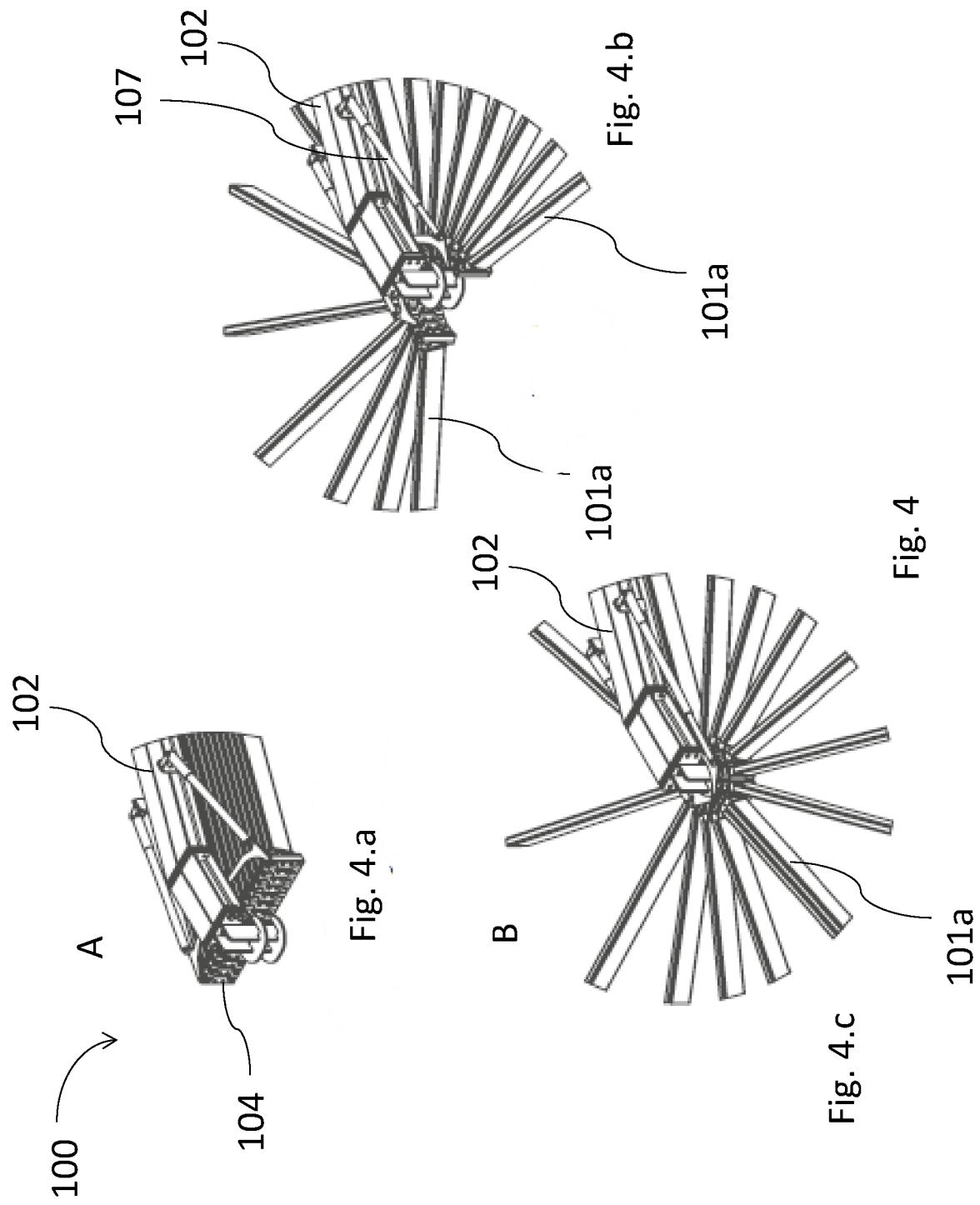


Fig. 3.a

Fig. 3.b

Fig. 3.c

Fig. 3





EUROPEAN SEARCH REPORT

Application Number

EP 26 02 5006

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	IT PD20 080 285 A1 (GIARDINI VENETI SNC DI A BISCAZZO E P GHIOTTO) 11 April 2010 (2010-04-11) * page 8, line 13 - page 11, line 11; figures *	1-9	INV. A45B23/00 A45B25/14
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A	CN 202 370 191 U (HUZHOU HENGWEI ALUMINUM PRODUCTS CO LTD) 8 August 2012 (2012-08-08) * paragraph [0019] - paragraph [0022]; figures *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			A45B E04F
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		9 June 2026	van de Beek-Duijker
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 26 02 5006

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