

(54) Title of the Invention: A solar panel support

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(72) Inventor(s):
Stephen Dempsey

(73) Proprietor(s):
Modular Solar Technologies Ltd
(Incorporated in the United Kingdom)
Leverton House, Jagers Lane, Hathersage,
Hope Valley, S32 1AZ, United Kingdom

(74) Agent and/or Address for Service:
Swindell & Pearson Ltd
48 Friar Gate, DERBY, DE1 1GY, United Kingdom

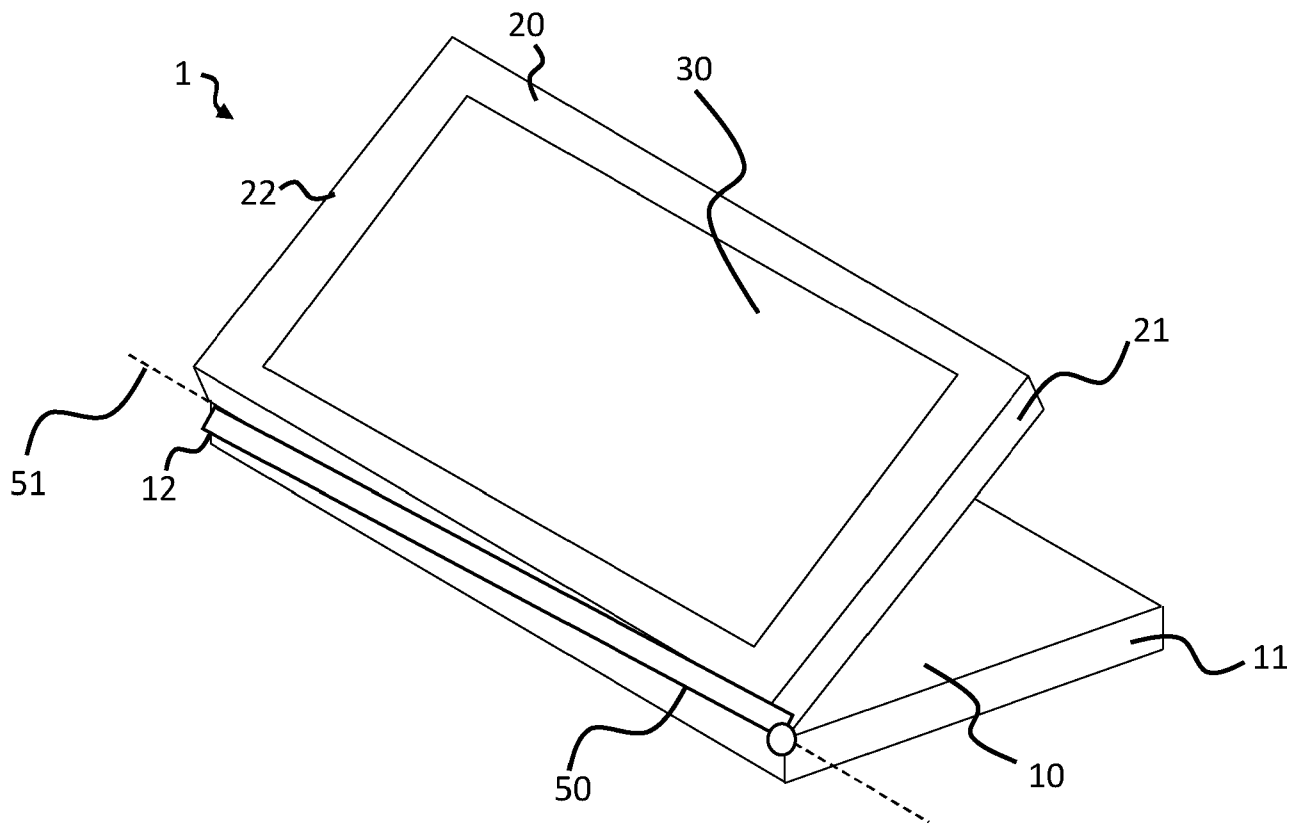


FIG. 1

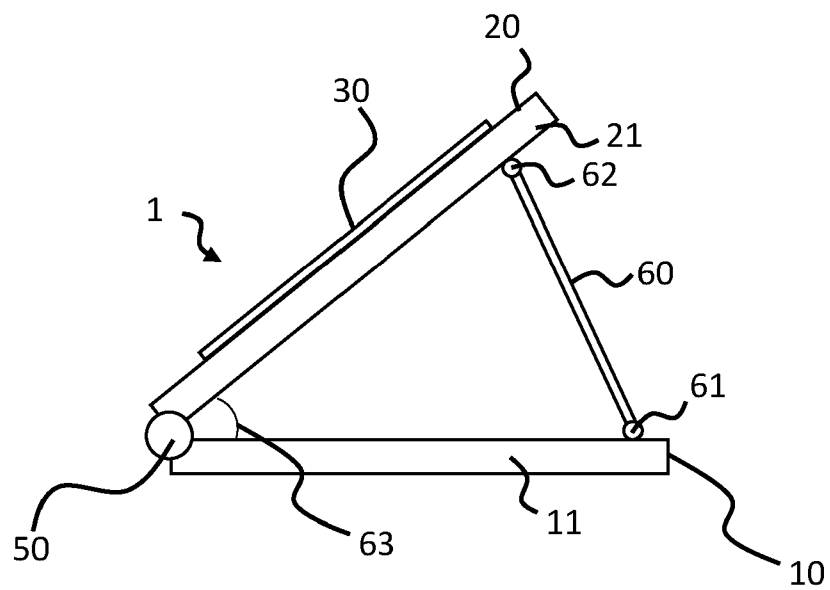


FIG. 2

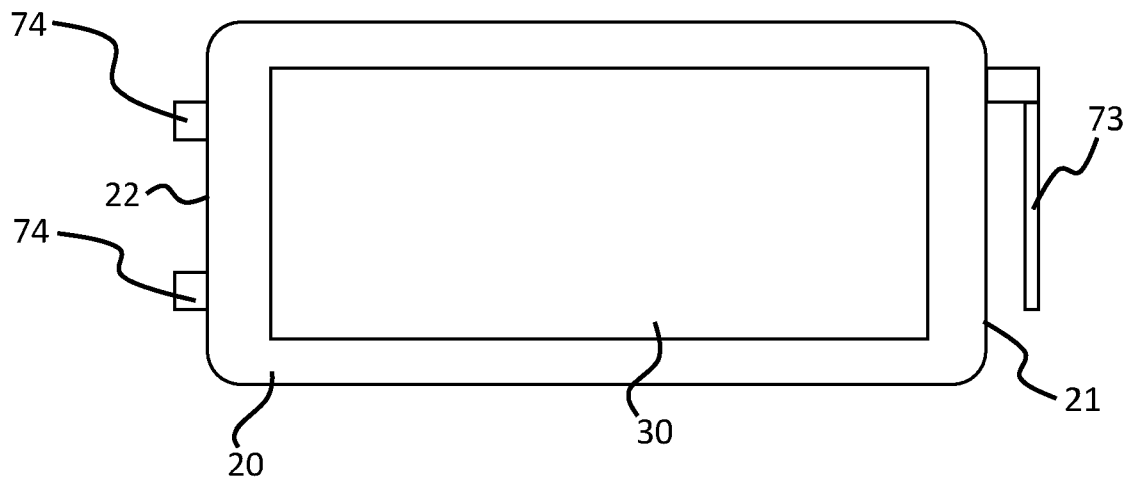
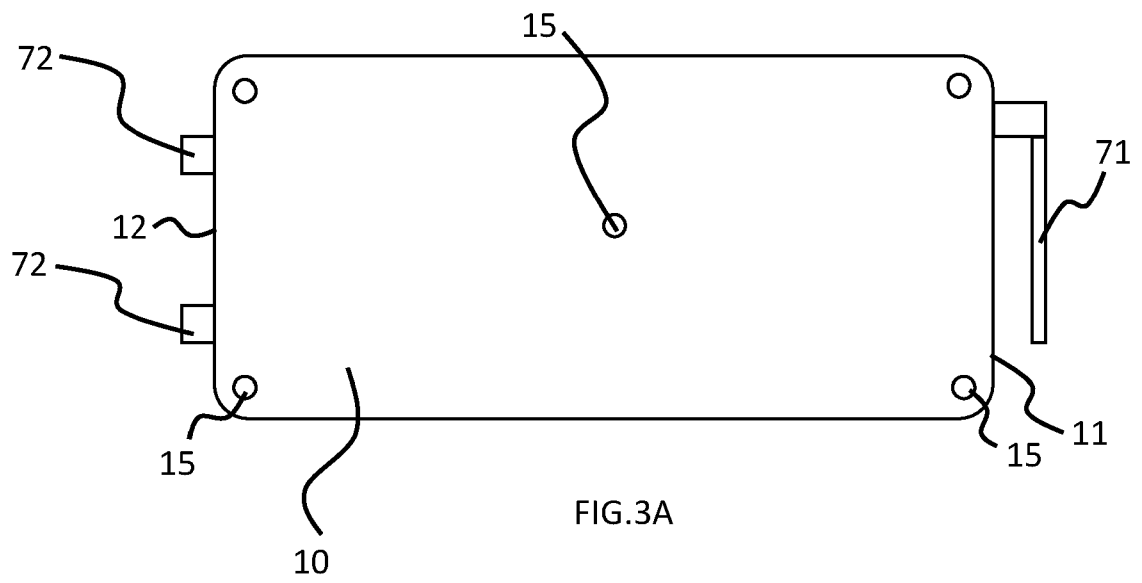


FIG.3B

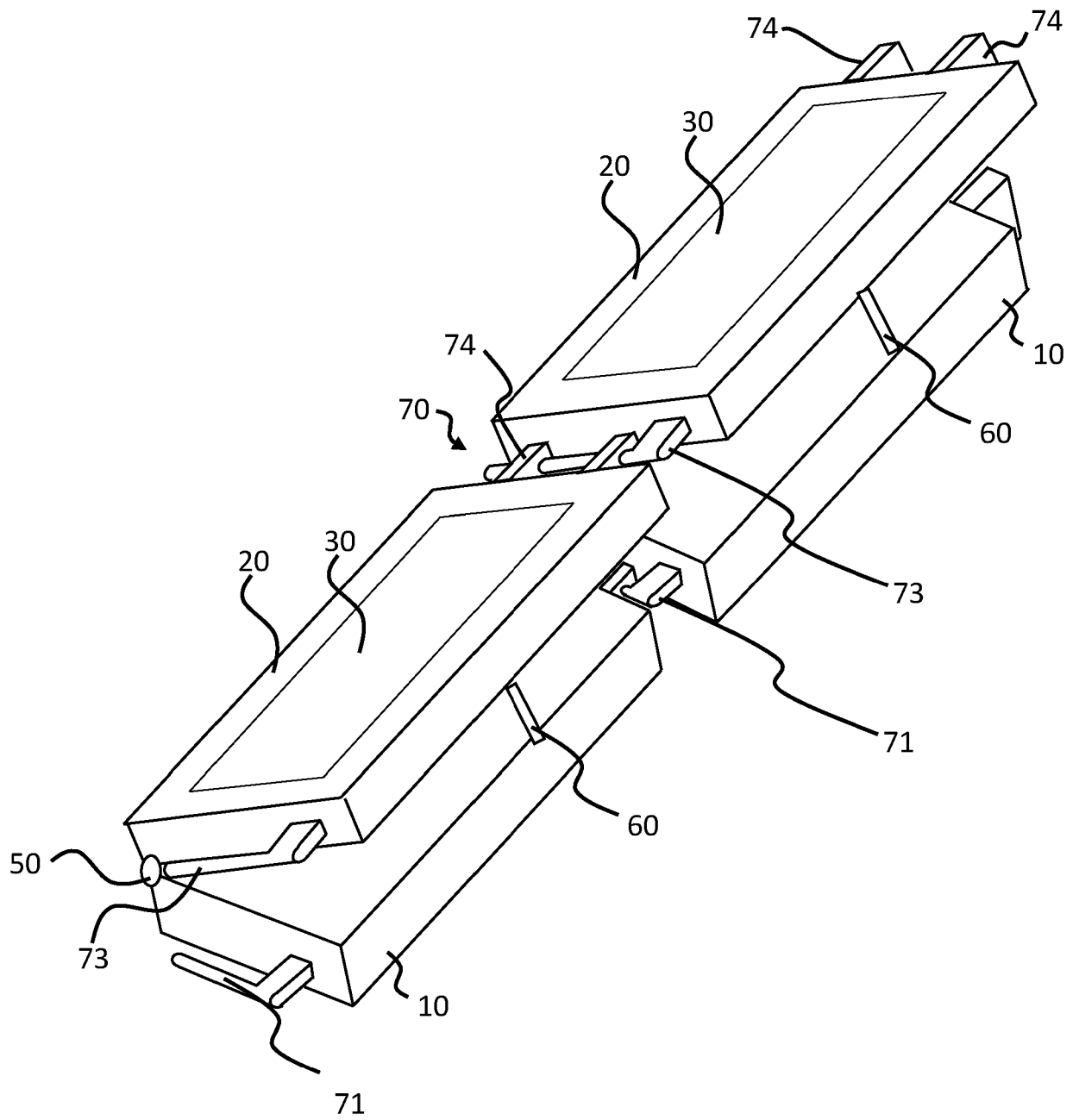


FIG. 3C

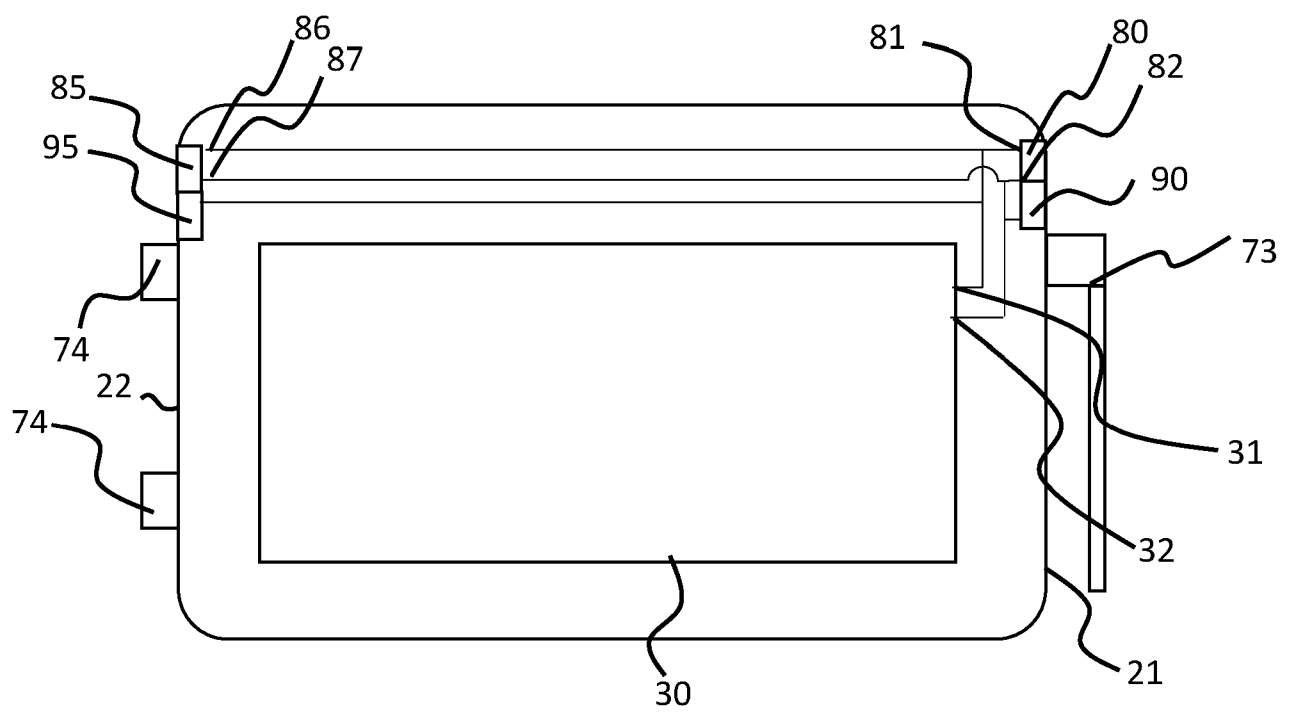


FIG. 4A

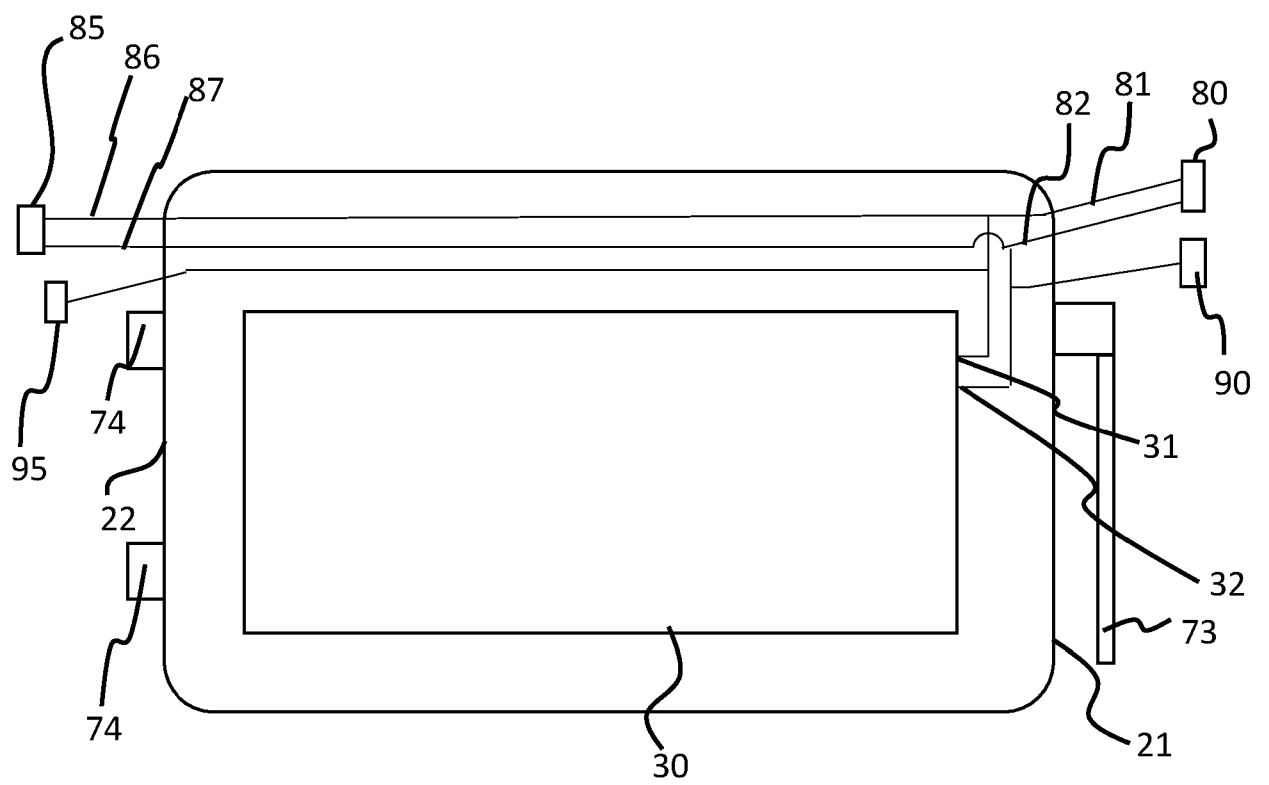


FIG. 4B

A Solar Panel Support

TECHNICAL FIELD

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The present disclosure relates to a support for a solar panel. In particular, but not exclusively it relates to a solar panel support that is configured for supporting a solar panel on a body of water or on land.

10 BACKGROUND

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Photovoltaic panels for electrical power generation are becoming increasingly commonplace, with large arrays of photovoltaic panels being installed. However, groundworks for the installation of the arrays of photovoltaic panels can be significant, as can the area of land occupied by these arrays.

SUMMARY OF THE INVENTION

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According to various but not necessarily all embodiments, there is provided a solar panel support. The solar panel support comprises a base panel and an inclinable panel. The inclinable panel is inclinable at an angle to the base panel. The inclinable panel is configured to be attached to the solar panel. The inclinable panel is provided with coupling means configured to couple the inclinable panel of the solar panel support to an inclinable panel of an adjacent solar panel support. The base panel and inclinable panel are rotatably connected by at least one hinge. The base panel is a float and is configured to float the support on a body of water.

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The base panel may comprise a male connector and a female connector sized for insertion of a male connector within a female connector in an insertion direction. The male connector and the female connector may be at opposing lateral sides of the base panel. The insertion directions may be substantially orthogonal to the at least one hinge.

The inclinable panel may comprise a male connector and a female connector sized for insertion of a male connector within a female connector in an insertion direction. The male

connector and the female connector may be at opposing lateral sides of the inclinable panel. The insertion directions may be substantially orthogonal to the at least one hinge.

5 The female connector of the base panel may be configured to receive a male connector of a second base panel of a second support.

The female connector of the inclinable panel may be configured to receive a male connector of a second inclinable panel of a second support.

10 The base panel may comprise at least one tether attachment.

The base panel may comprise at least one gas-filled void.

15 The angle of the inclinable panel to the base panel may be controllable by an adjustment means.

The base panel and the inclinable panel may be substantially cuboid.

20 The inclinable panel may comprise electrical connection means to electrically connect the solar panel supported by the solar panel support to an electrical network.

Solar panels comprising the electrical network may be electrically connected in series or parallel.

25 According to various, but not necessarily all embodiments, there is provided a system, comprising a first solar panel support, connected to a second solar panel support.

30 According to various, but not necessarily all embodiments, there is provided a method for locking adjacent solar panel supports. The method comprises aligning a base panel and an inclinable panel of a first solar panel support to be coplanar; aligning a base panel and an inclinable panel of a second solar panel support to be coplanar; receiving a male connector of the base panel of the first solar panel support within a female connector of the base panel of the second solar panel support and receiving a male connector of the inclinable panel of the first solar panel support within a female connector of the inclinable panel of the second solar

panel support; and inclining the inclinable panels of the first and second solar panel supports to the base panels of the first and second solar panel supports.

Within the scope of this application, it is expressly intended that the various aspects, embodiments, examples and alternatives set out in the preceding paragraphs, in the claims and/or in the following description and drawings, and in particular the individual features thereof, may be taken independently or in any combination that falls within the scope of the appended claims. That is, all embodiments and/or features of any embodiment can be combined in any way and/or combination that falls within the scope of the appended claims, unless such features are incompatible. The applicant reserves the right to change any originally filed claim or file any new claim accordingly, including the right to amend any originally filed claim to depend from and/or incorporate any feature of any other claim although not originally claimed in that manner.

BRIEF DESCRIPTION OF THE DRAWINGS

One or more embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

FIG. 1 illustrates a three-dimensional view of an example of the support for a solar panel; FIG. 2 illustrates a side view of an example of the support for a solar panel; side view example; FIG. 3A illustrates a plan view of an example of the base panel of the support for a solar panel; FIG. 3B illustrates a plan view of an example of the inclinable panel of the support for a solar panel; FIG. 3C illustrates a three-dimensional view of a pair of coupled supports; FIG. 4A illustrates an exemplary illustration of electrical connections of the support; and FIG 4B illustrates a second exemplary illustration of electrical connections of the support.

DETAILED DESCRIPTION

As is illustrated by FIG.1, the support 1 for a solar panel comprises a base panel 10 and an inclinable panel 20.

The base panel 10 and the inclinable panel 20 may be substantially cuboid, the base panel 10 and inclinable panel 20 each having a length, a breadth and a height.

A thickness of the base panel 10 may be less than the length and/or breadth of the base panel 10.

- 5 A surface defined by the length and breadth of the base panel 10 may be planar.

A surface defined by the breadth and height of base panel 10 may be substantially planar. The base panel 10 has two such surfaces, at opposite ends of the base panel 10. These surfaces are a first base panel side 11 and a second base panel side 12. Sides 11 and 12 are opposing lateral sides of the base panel. The second base panel side 12 is opposite the first base panel side 11. The second base panel side 12 is parallel to the first base panel side 11.

15 A thickness of the inclinable panel 20 may be less than the length and/or breadth of the inclinable panel 20.

A surface defined by the length and breadth of the inclinable panel 20 may be planar.

20 A surface defined by the breadth and height of inclinable panel 20 may be substantially planar. The inclinable panel 20 has two such surfaces, at opposite ends of the inclinable panel 20. These surfaces are a first inclinable panel side 21 and a second inclinable panel side 22. Sides 21 and 22 are opposing lateral sides of the inclinable panel. The second inclinable panel side 22 is opposite the first base panel side 21. The second inclinable panel side 22 is parallel to the first inclinable panel side 21.

25 The base panel 10 and inclinable panel 20 may have substantially the same dimensions.

For example, the length of the base panel 10 and the inclinable panel 20 may be approximately 2m; the width of the base panel 10 and the inclinable panel 20 may be approximately 1m; the thickness of the base panel 10 and the inclinable panel 20 may be in a range of 0.01 – 0.2m.

Alternatively, the base panel 10 and the inclinable panel 20 may have different dimensions.

For example, in embodiments in which the support 1 is configured to float on a body of water, the thickness of the base panel 10 may be greater than the thickness of the inclinable panel.

The thickness of the base panel 10 may be increased to increase buoyancy of the support 1, due to increasing upthrust of the base panel.

The base panel 10 and the inclinable panel 20 may be rotatably connected by at least one hinge 50. An axis 51 of the at least one hinge 50, about which rotation of the inclinable panel 20 relative to the base panel 10 may occur, may be aligned with the length of the base panel 10 and the length of the inclinable panel 20. The axis 51 of the at least one hinge 50 is therefore substantially perpendicular to the first base panel side 11, the second base panel side 12, the first inclinable panel side 21 and the second inclinable panel side 22.

The at least one hinge 50 may comprise a first leave, a second leave, a hinge knuckle and a pin.

In some but not necessarily all embodiments, the at least one hinge 50 may be separate to the base panel 10 and / or the inclinable panel 20, and may be attached to the base panel 10 and /or the inclinable panel 20 by mechanical fixings such as screws, rivets and/or clips.

In some but not necessarily all embodiments, the at least one hinge 50 may be attached to the base panel 10 and /or the inclinable panel 20 by adhesive.

In some but not necessarily all embodiments, at least one component (for example, the first leave, the second leave) of the at least one hinge 50 may be integral with the base panel 10 and / or the inclinable panel 20. For example, in embodiments in which either of the base panel 10 or the inclinable panel 20 is molded, the first leave and/or second leave may be integral with the support 10, 20. In these embodiments, the first leave and/or second leave may be formed by the molding process.

The axis 51 of the at least one hinge 50 may be at an edge of the inclinable panel 20, but away from an edge of the at least one base panel 10. This may be desirable in embodiments in which the solar panel support is floating on a body of water. This is because it may be desirable to align the centre of buoyancy and centre of gravity of the support for a solar panel.

FIG. 2 provides a side elevation of the support 1 for a solar panel 30. It illustrates the solar panel 30 attached to the inclinable panel 20 of the support 1. In the example of FIG. 2, the

solar panel 30 is attached to a planar surface of the inclinable panel 20, and is supported by the inclinable panel 20 of the support 1.

As is illustrated in FIG.2, the base panel 10 and inclinable panel 20 may be connected by an adjustment means 60. the adjustment means 60 may be adjusted manually by a user, or automatically. The adjustment means 60 may be provided such that the inclination of the solar panel 30, supported by the support 1, may be adjusted to compensate for the elevation of the sun above the horizon.

The adjustment means 60 may be rotatably connected at a first end 61 to the base panel 10, and at a second end 62 to the inclinable panel 20. The adjustment means 60 may be adjusted by adjusting a length of the adjustment means 60. Adjusting the length of the adjustment means 60 changes the angle of inclination 63 of the inclinable panel 20 relative to the base panel 10. In other words, adjusting the length of the adjustment means adjusts the angle of inclination 63 subtended between the inclinable panel 20 and the base panel 10. Increasing the length of the adjustment means 60 increases the angle of inclination 63 of the inclinable panel relative to the base panel 10. Decreasing the length of the adjustment means 60 decreases the angle of inclination 63 of the inclinable panel 20 relative to the base panel 10.

The adjustment means 60 may be by any suitable means. For example, the adjustment means may comprise a lead screw, a hydraulic piston or a pneumatic piston.

The adjustment means may comprise feedback means. The feedback means may comprise a position sensor, an angle sensor.

The position sensor may determine the separation between the first end 61 and the second end 62. Position sensing may be done by a user or automatically. For example, a ruler may be aligned parallel with an axis of the adjustment means 60, in which the axis of the adjustment means passes through the first end 61 and the second end 62. The ruler may be read by a user to determine the separation between the first end 61 and the second end 62.

Alternatively, position sensing by the position sensor may comprise measuring an electrical resistance of the position sensor, in which the resistance of the sensor changes with the length of the sensor and the length of the position sensor changes with the length of the adjustment means.

Alternatively, position sensing by the position sensor may comprise laser-based distance measurement. Laser-based distance measurement may comprise determination of a distance of a target associated with either of the inclinable panel or base panel from a laser-based distance measuring device associated with the other of the inclinable panel or base panel - i.e., the target is connected to one of the inclinable panel or base panel while the laser-based distance measuring device is connected to the other of the inclinable panel or base panel.

Alternatively, position sensing may be determined indirectly, by for example, measuring the number of rotations of a lead screw from a datum and multiplying the number of rotations by a thread pitch of the lead screw. This determines a length offset to add to a datum length of the adjustment means to determine the length of the adjustment means, and hence, the separation between the first end 61 and the second end 62.

The angle sensor may comprise a protractor and/or a rotational potentiometer. The protractor may be configured to measure the angle of inclination 63 of the inclinable panel 20 relative to the base panel 10. The protractor may be read manually by a user. The electrical resistance of the rotational potentiometer may vary with the angle of inclination 63.

In embodiments in which position sensing or angle sensing is automatic, the adjustment means 60 may be controlled automatically. For example, the length of the adjustment means 60 may be adjusted by an electrical machine such as a stepper motor, controlled by a control unit (not shown). The control unit may control the length of the adjustment means 60 based at least in part on a time of day and/or day of the year and/or latitude. The time of day and/or day of the year may be provided to the control unit by a timer within the control unit. The latitude may be provided to the control unit by a user input, in which the latitude corresponds to the latitude of the location of the support. In these embodiments, the control unit provides a set-point for the length of the adjustment means 60, with closed loop feedback of the actual length of the adjustment means 60 (separation between first end 61 and second end 62) used to drive the adjustment means 60 to the setpoint.

In other embodiments, the control unit may provide a set point for the angle of inclination of the inclinable panel 20 relative to the base panel 10. In these embodiments, closed loop feedback of the actual angle of inclination 63 of the inclinable panel 20 relative to the base

panel 10 may be derived from an output of the rotational potentiometer, and used to drive the adjustment means 60 to the setpoint.

The control unit may be configured to receive a control signal (not shown). The control signal may be provided to the control unit by any suitable means. For example, the control signal may be provided to the control unit by a wired connection, or may be provided to the control unit by a wireless connection (for example, Bluetooth or Wifi).

In embodiments in which the adjustment means comprises an electrical machine, the electrical energy provided to the electrical machine may be provided by the solar panel supported by the support for a solar panel. In some but not necessarily all embodiments, the electrical energy provided to the electrical machine may be provided by an electrical battery. The electrical battery may be charged by the solar panel 30 supported by the support 1.

As is illustrated in FIG. 3A, the base panel 10 may comprise a plurality of tether points 15. Tether points 15 may be provided proximal to a corner of the base panel and/or proximal to a centre of the base panel.

The tether points 15 are configured to mount the support 1 at a fixed location, for example, to mount it to the ground or anchor it on a body of water. A body of water may comprise a lake, a river or an area of water close to a coastline.

Although a plurality of tether points 15 may be provided, a subset of the plurality of tether points may mount the base panel to the ground or anchor the base panel on a body of water.

This is because by coupling adjacent supports to each other, as is now disclosed, the number of required tether points per ground panel may be reduced. This eases installation.

The inclinable panel is provided with coupling means 70 for coupling a first inclinable panel 20 to an adjacent second inclinable panel 20. The base panel unit may also be provided with coupling means 70 for coupling a first base panel 10 to an adjacent second base panel 10.

The coupling means is configured to couple a first support 1 for a solar panel to an adjacent support 1 (a second support) for a solar panel. Similarly, the second solar panel support may be coupled to a third solar panel support that is adjacent to the second support etc.

Coupling multiple supports for a solar panel may form an array of supports for a solar panel. This may be beneficial when tethering the supports for a solar panel to the ground, or a body of water. This is because the coupling means 70 reduces movement between adjacent supports and reduces the number of tethering means (tethers) that are required to locate the support to a location.

For example, when coupled to form an array of supports, a single tether may be used per support. This is because the tether locates the support, while rotation of the support is reduced by reaction forces with adjacent supports in the array of supports. This may be desirable because the amount of groundwork, such as preparation of foundations, may be decreased, or the amount of anchoring may be decreased if the array is installed on a body of water.

In some embodiments, an array of supports may comprise up to 30 coupled supports. In other embodiments, an array of support may comprise more than 30 coupled supports.

The coupling means 70 may be a mechanical coupling means. The coupling means may comprise a male connector 71 and a female connector 72. Each base panel 10 may comprise at least one male connector 71 and at least one female connector 72. Each inclinable panel 20 may comprise at least one male connector 73 and at least one female connector 74. As is illustrated in FIGS. 3A-3C, the at least one male connector 71, 73 and the at least one female connector 72, 74 may be located at opposing lateral sides of the base panel 10 and inclinable panel 20.

As illustrated in FIGS. 3A – 3C, the at least one male connector 71 of the base panel 10 is located on the first base panel side 11, the at least one female connector 72 of the base panel 10 is located on the second base panel side 12, the at least one male connector 73 of the inclinable panel 20 is located on the first inclinable panel side 21 and the at least one female connector 74 of the inclinable panel 20 is located on the second inclinable panel side 22.

The male connector 71 of a first base panel 10 may be a tang 71 (protrusion) that is configured to fit within the female connector 72 (receptacle) of an adjacent second base panel 10 to provide a rotatable joint. The male connector may be inserted into the female connector in an insertion direction. The insertion direction may align with an axis of the rotatable joint. Thus, the at least one male connector 71 of the first base panel may be rotatably coupled to the at least one female connector 72 of an adjacent, second base panel.

An advantage of the rotatable joint between neighbouring panels is that it allows undulations in the ground to which adjacent panels are tethered to be accommodated during ground installation, or, if the panels are floating on a body of water, allows rotational movement between adjacent panels, to accommodate water waves on the surface of the body of water, as for example, may be generated by wind on the surface of a lake.

The male connector 71 of the base panel 10 may extend in a direction towards the hinge axis 51 of the hinge 50 that is rotatably connecting the base panel 10 to the inclinable panel 20.

The male connector 73 of the inclinable panel 20 may extend in a direction towards the hinge 50 rotatably connecting the base panel 10 to the inclinable panel 20.

In at least these embodiments, the hinge 50 is configured to enable the inclinable panel 20 to lie on top of the base panel 10, such that the inclinable panel 20 overlays the base panel 10.

In this configuration, a plane defined by the length and width of the inclinable panel 20 is parallel to a plane defined by the length and width of the base panel 10, i.e., in this configuration, the base panel 10 and inclinable panel 20 are aligned to be coplanar.

It may be appreciated that in some embodiments, to enable the inclinable panel to overlay the base panel, it may be desirable to disconnect the adjustment means 60 from one of the inclinable panel 20 or base panel 10. For example, it may be desirable to disconnect the adjustment means 60 at first end 61 or second end 62. In some embodiments, for example, embodiments comprising a lead screw an aperture may be provided in the inclinable panel, through which the adjustment means may protrude, when the inclinable panel 20 overlays the base panel 10.

As the at least one male connector 71 of the base panel 10 extends parallel to the plane of the base panel 10, and the at least one male connector 73 of the inclinable panel 20 extends parallel to the plane of the inclinable panel 20, when the inclinable panel 20 overlays the base panel 10, the at least one male connector 71 of the base panel 10 is parallel to the at least one male connector 73 of the inclinable panel 20.

As the at least one male connector 71 of the base panel 10 and the at least one male connector 73 of the inclinable panel 20 both extend towards the hinge 50, when the inclinable panel 20 overlays the base panel 10, the at least one male connector 71 of the base panel 10 and the

at least one male connector 73 of the inclinable panel 20 are parallel, and extend in the same direction.

Similarly, the at least one female connector 72 of the base panel and the at least one female connector 74 of the inclinable panel 20 each have an axis for receiving at least one male connector 71, 73. The axis of the female connector of the base panel 10 is in the plane of the base panel 10. The axis of the female connector of the base panel 20 is in the plane of the inclinable panel 20. Thus, when the inclinable panel 20 overlays the base panel 10, the axis of the at least one female connector of the base panel is parallel to the axis of the at least one female connector of the inclinable panel.

The axis of the at least one male connectors 71, 73 and the at least one female connectors 72, 74 is parallel to the first base panel side 11, second base panel side 12, first inclinable panel side 21 and the second inclinable panel side 22.

Adjacent supports for a solar panel, each comprising a base panel and an inclinable panel may thus be connected by aligning the male connector 71 of the first base support 10 with the female connector 72 of the adjacent second base panel 10, and by simultaneously aligning the male connector 73 of the first inclinable panel 20 with the female connector 74 of the second inclinable panel 20. This is possible because the male connectors 71, 73 and female connectors 72, 74 are all aligned in a common direction, towards the hinge 50.

Once aligned, the male connectors of the first support may be pushed into the female connectors of the adjacent second support to form the coupling means 70. The male connectors 71, 73 are pushed into the female connectors 72, 74, such that the hinge axis 51 of the first support and the hinge axis of the second support are substantially co-axial.

The fit between the male connectors 71, 73 of the first support and the female connectors of the second support may be a loose fit. Thus, in addition to permitting rotational movement of the first support relative to the second support, about an axis aligned with the male connector, the coupling additionally permits limited rotation of the coupling about an axis that is perpendicular to the axis of the male connector. It may be appreciated that contact between the male connectors 71, 73 of the first support and the female connectors 72, 74 of the second support may generate a reaction force between the first support and the second support.

The angle of the first and second inclinable panels 20 may then be increased relative to the first and second base panels 10. In some, but not necessarily all embodiments, this may comprise connecting the adjustment means 60 at least one of the first end 61, second end 62.

5 Changing the angle of the inclinable panels relative to the base panels correspondingly changes the direction in which the at least one male connector 71 of the base panel 10 extends relative to the direction in which the at least one male connector 73 of the inclinable panel 20 extends.

10 As the coupling means 70 may be disengaged by relative motion of the male connector 71 along the axis of the female connector 72 and by relative motion of the male connector 73 along the axis of the female connector 74, changing the angle of the inclinable panels relative to the base panels therefore forms a lock between adjacent supports. Thus, adjacent panels may be quickly and simply coupled and locked together, without additionally fixings or tooling.

15 Although in the above example, the at least one male connector of the base panel and the at least one male connector of the inclinable panel extend towards the hinge 50, it may be appreciated that in other examples the at least one male connector of the base panel and the at least one male connector of the inclinable panel may extend away from the hinge 50.

20 In some but not necessarily all embodiments, the base panel may not comprise at least one male connector, but may comprise female connectors, such as sockets, at opposing ends of the base panel. In these embodiments, female connectors 72 of neighbouring base panels 10 may be rotatably connected by aligning the sockets of the female connectors 72 of adjacent
25 base panels along a common axis and inserting a male connector pin (not shown) along the axis.

In some but not necessarily all embodiments, the coupling means 70 may additionally comprise an engagement means (not shown). The engagement means is configured to
30 enable rotation of the rotatable joint, but to inhibit disengagement of the male connector 71 from the female connector 72, by inhibiting relative movement of the male connector 71 relative to the female connector 72 along an axis of the rotatable joint. The engagement means may comprise a pin, configured to intersect the male connector 71, 73, preventing the male connector 71 from disengaging from the female connector 72.

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Alternatively, the second coupling means (not shown) may be different to the first coupling means 70. For example, in embodiments in which the coupling means 70 comprises at least one female connector, and at least one male connector, the second coupling means may comprise at least one female connector on a first base panel, a second at least one female connector on the adjacent second base panel and a male connector, in the form of a hinge pin that is inserted into the at least one female connector and the second at least one female connector.

The base panel 10 and the inclinable panel 20 may comprise a thermoplastic. For example, the base panel 10 and/or the inclinable panel 20 may comprise high density polyethylene (HDPE). The base panel 10 and/or the inclinable panel 20 comprising a thermoplastic may be formed by molding. Thus, the base panel 10 and/or the inclinable panel 20 may be lightweight. This may be desirable when installing a plurality of supports for a solar panel as an array.

In some, but not necessarily all embodiments, the base panel 10 and / or the inclinable panel 20 may be formed by blow-molding a thermoplastic. Thus, the base panel 10 and / or inclinable panel 20 may be hollow, further reducing the mass of the base panel 10 and the inclinable panel 20. Panels 10, 20 that are hollow may comprise at least one gas filled void.

In these embodiments, the exterior surface of the base panel 10 and the inclinable panel 20 may be continuous. That is, at least one gas filled void inside the base panel 10 and / or at least one gas filled void inside the inclinable panel 20 is sealed from an environment surrounding the support 10,20. This may be advantageous if the support is floating on a body of water, as water is prevented from entering the panels.

It may be appreciated that in some embodiments, the base panel 10 and / or inclinable panel 20 may not comprise a thermoplastic, but may comprise other materials, such as wood.

The solar panel 30 may be mechanically connected to the inclinable panel by any suitable means. For example, the solar panel may be clamped to the inclinable panel 20 by a frame 25, at the perimeter of the solar panel, with the frame secured to the inclinable panel by mechanical fixings such as bolts, screws, rivets and/or clips secure the frame and panel relative to the inclinable panel. Alternatively, or additionally, the solar panel 30 may be attached to the inclinable panel 20 by adhesive.

As is illustrated in FIGS. 4A and 4B, each solar panel 30 comprises a positive electrical output terminal 31, and a negative electrical output terminal 32.

- 5 In FIG 4A, the inclinable panel 20 may comprise a first twin electrical connector 80 comprising a positive port 81 and a negative port 82, and a second twin electrical connector 85, comprising a positive port 86 and a negative port 87.

10 The positive electrical output 31 of a solar panel 30 attached to inclinable panel 20 may be electrically connected to the positive port 81 of the first twin electrical connector 80 and the positive port 86 of the second twin electrical connector 85; the negative electrical output terminal 31 may be connected to the negative port 82 of the first twin electrical connector 80 and the negative port 87 of the second twin electrical connector 85.

- 15 The first twin electrical connector 80 may be proximal to the first side 21 of the inclinable panel 20. The second twin electrical connector 85 may be proximal to the second side 22 of the inclinable support 20. Once a first support 1 is coupled to an adjacent second support 1, the first twin electrical connector 80 of the first support 1 is proximal to the second twin electrical connector 85 of the adjacent support 1.

20 A first twin core electrical cable (not shown), may be configured to electrically connect the first twin electrical connector 80 of a first support to the second twin electrical connector 85 of the adjacent second support. Similarly, a second twin core electrical cable (not shown), identical to the first twin-core electrical cable (not shown), may be configured to electrically connect the
25 second support to a third support etc. Thus, a plurality of twin core electrical cables (not shown) may electrically connect solar panels 30 supported by supports 1 in parallel.

The inclinable panel 20 may comprise a first single electrical connector 90, and a second single electrical connector 95.

30 The negative electrical output 32 of the solar panel 30 may be electrically connected to the first single electrical connector 90. The positive electrical output 31 of the solar panel 30 may be electrically connected to second single electrical connector 95. Alternatively, the positive electrical output 31 of the solar panel 30 may be electrically connected to the first single

electrical connector 90 and the negative electrical output 32 of the solar panel 30 may be electrically connected to second single electrical connector 95.

The first single electrical connector 90 may be proximal to the first side 21 of the inclinable panel 20. The second single electrical connector 95 may be proximal to the second side 22 of the inclinable support 20. Once a first support 1 is coupled to an adjacent second support 1, the first single electrical connector 90 of the first support 1 is proximal to the second single electrical connector 95 of the adjacent support 1.

A first single core electrical cable (not shown) may be configured to electrically connect the first single electrical connector 90 of a first support to the second single electrical connector 95 of the adjacent second support. Similarly, a second single core electrical cable, identical to the first single core electrical cable (not shown), may be configured to electrically connect the second support to a third support etc. Thus, a plurality of single core electrical cables may electrically connect solar panels supported by supports 1 in series.

The first twin electrical connector 80, second twin electrical connector 85, first single electrical socket 90, second single electrical connector 95 and electrical connections (vias) between these connectors and the positive and negative electrical terminals of the solar panel 30, therefore comprise electrical connection means to electrically connect a solar panel 30 supported by the support 1 to an electrical network.

It may be appreciated that connectors 80, 85, 90, 95 may comprise either of a plug (male connection) or socket (female connection).

Solar panels 30 may be connected in either series or parallel, in dependence upon whether electrical connection is made via twin core electrical connectors 80, 85 or single core electrical connectors 90, 95.

An alternative embodiment is illustrated in FIG 4B. The electrical connections between the solar panel 30 and the electrical connectors 80, 85, 90, 95 of FIG 4B are as illustrated in FIG. 4B.

FIG 4B differs from FIG 4A in that electrical connector 80, 85, 90, 95 are not proximal to sides 21, 22 of the inclinable panel 20, but instead extend beyond sides 21,22, although remaining

electrically connected to the solar panel 30 by electrical cabling. The electrical connectors 80, 95, 90, 95 extend beyond sides 21, 22 such that when adjacent supports are mechanically connected, adjacent solar panels may be electrically connected by electrical connectors 80 and 85 or 90 and 95.

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The electrical connectors of FIG 4B also differ from the electrical connectors of FIG 4A in that although the electrical connectors 80, 85, 90, 95 of FIG. 4A may be all of the same type (i.e., all plug and/or or all socket), in FIG. 4B, the electrical connectors 80, 85, 90, 95 are such that if electrical connector 80 comprises a plug, electrical connector 85 comprises a socket (and / or vice versa) and/ or if electrical connector 90 comprises a plug, electrical connector 95 comprises a socket (and / or vice versa).

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An advantage of this is that adjacent solar panels of adjacent supports may be directly connected to each other by the electrical plug: socket combinations of connectors 80, 85 or electrical plug socket combinations of connectors 90, 95, without additionally requiring the single core electrical cable or twin core electrical cable of the example of FIG 4A. This eases electrical connection of solar panels 30 to an electrical network.

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At least one mechanical interlock may be provided to prevent electrical connection of a solar panel by both twin connector and single connector sockets.

The electrical cables, connections and sockets may be waterproof.

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It will be appreciated that various changes and modifications can be made to the present invention without departing from the scope of the present application.

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Although embodiments of the present invention have been described in the preceding paragraphs with reference to various examples, it should be appreciated that modifications to the examples given can be made without departing from the scope of the invention as claimed.

Features described in the preceding description may be used in combinations other than the combinations explicitly described.

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Although functions have been described with reference to certain features, those functions may be performable by other features whether described or not.

Although features have been described with reference to certain embodiments, those features may also be present in other embodiments whether described or not.

- 5 Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

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CLAIMS

1. A solar panel support, the solar panel support comprising:

a base panel; and

an inclinable panel;

wherein the inclinable panel is:

inclinable at an angle to the base panel,

configured to be attached to the solar panel, and

is provided with coupling means configured to couple the inclinable panel of the

solar panel support to an inclinable panel of an adjacent solar panel support;

wherein the base panel and inclinable panel are rotatably connected by at least one hinge; and

wherein the base panel is a float configured to float the support on a body of water.

2. The solar panel support as claimed in claim 1, wherein:

the coupling means comprises a male connector and a female connector sized for insertion of a male connector within a female connector in an insertion direction, wherein the male connector and the female connector are at opposing lateral sides of the inclinable panel and the insertion directions are substantially orthogonal to the at least one hinge; and

the base panel comprises a male connector and a female connector sized for insertion of a male connector within a female connector in an insertion direction, wherein the male connector and the female connector are at opposing lateral sides of the base panel and the insertion directions are substantially orthogonal to the at least one hinge.

3. The solar panel support as claimed in claim 2, wherein:

the female connector of the base panel is configured to receive a male connector of a second base panel of a second support; and

the female connector of the inclinable panel is configured to receive a male connector of a second inclinable panel of a second support.

4. The solar panel support as claimed in any preceding claim, wherein the base panel comprise at least one tether attachment.

5. The solar panel support as claimed in any preceding claim, wherein the base panel comprises at least one gas-filled void.
6. The solar panel support as claimed in any preceding claim, wherein the angle of the inclinable panel to the base panel is controllable by an adjustment means.
7. The solar panel support as claimed in any preceding claim, wherein the base panel and the inclinable panel are substantially cuboid.
8. The solar panel support as claimed in any preceding claim, wherein the inclinable panel comprises electrical connection means to electrically connect the solar panel supported by the support to an electrical network.
9. The solar panel support as claimed in claim 8, wherein the solar panels comprising the electrical network are electrically connected in series or parallel.
10. A system, comprising a first solar panel support as claimed in any previous claim when dependent on claim 2, connected to a second solar panel support as claimed in any previous claim when dependent on claim 2.
11. A method for locking adjacent solar panel supports, the method comprising:
- aligning a base panel and an inclinable panel of a first solar panel support to be coplanar;
 - aligning a base panel and an inclinable panel of a second solar panel support to be coplanar;
 - receiving a male connector of the base panel of the first solar panel support within a female connector of the base panel of the second solar panel support and receiving a male connector of the inclinable panel of the first solar panel support within a female connector of the inclinable panel of the second solar panel support; and
 - inclining the inclinable panels of the first and second solar panel supports to the base panels of the first and second solar panel supports.