

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of an electrical power generation system of the present invention wherein a shroud is partially shown;

5 FIG. 2 is a top view of the electrical power generation system in accordance with the present invention;

FIG. 3 is an enlarged cut away view of the shroud of the present invention;

FIG. 4 is a side elevational view of another embodiment of the present invention showing a solar energy collecting and converting unit mounted on a stationary pole wherein the
10 shroud is partially shown; and

FIG. 5 is a top view of still another embodiment of the present invention showing a puller propeller and a pusher propeller.

15 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 shows a side elevational view of an electrical power generation system 10 according to the present invention. The system 10 comprises a vertical axis solar powered generator 12 having a bottom side 14 grounded and a top side 16 connected to a vertical
20 rotor shaft 18, a central rotating hub 20 in the shape of a circular flat plate having a center 22 connected to the vertical rotor shaft 18, at least one solar energy collecting and converting unit 24 enclosed in a transparent dome 26 mounted on a top side of the central rotating hub (not shown), and a plurality of rotating arms 28 having a proximal end 30

secured to the central rotating hub 20 and a distal end 32 connected to at least one dual-V roller bearing 34.

The present invention further comprises an electric motor 36 with a propeller 38 mounted
5 proximate to the distal end 40 of each of the plurality of rotating arms 28, a circular
shaped shroud 42 attached to a ground 44, and a pair of circular shaped hollow tubes 46
attached to the circular shaped shroud 42 for providing guided support for the at least one
dual-V roller bearing 34. The at least one solar energy collecting and converting unit 24
provides an electric energy to the electric motor 36 which may turn the propeller 38 and
10 rotate the plurality of rotating arms 28. Thus the rotation of the plurality of rotating arms
28 causes the electric energy generation by the vertical axis solar powered generator 12.

The transparent dome 26 reduces the aerodynamic drag on the at least one solar energy
collecting and converting unit 24 due to the rotation of the central rotating hub 20. The at
15 least one solar energy collecting and converting unit 24 may comprise of a plurality of
solar panels 48 which may be tilted for optimum solar energy collection. The positive
and negative electrical leads from the plurality of solar panels are connected to form a
parallel or series circuit or combination of the two, depending on the electrical
requirements of the electrical motors 36. The central rotating hub 20 functions as a
20 medium for transferring a torque from the plurality of rotating arms 28 to the vertical
rotor shaft 18. The vertical rotor shaft 18 is aligned exactly with the center of the central
rotating hub 22 for the electric energy generation.

FIG. 2 is a top view of the electrical power generation system 10. A high diameter rotating arm can be used for a high power vertical axis solar powered generator. The high power vertical axis solar powered generator may require a small sized solar energy collecting and converting unit as the solar energy collecting and converting unit is
5 required to provide only the electric energy for a rotational movement of the electric motor 36. The circular shaped shroud 42 covers and provides protection for the electric motors 36, propellers 38, dual-V roller bearings 34, and pair of circular shaped hollow tubes 46 from the environment. Thus, the present system 10 adds safety to the design, keeps the electric motors 36 cool, and the surrounding clean. Further, the absence of
10 tower in the present invention reduces the cost of construction and makes no danger to birds as the propellers 38 are enclosed in the circular shaped shroud 42.

In the present invention, the at least one dual-V roller bearing 34 rides on the pair of circular shaped hollow tubes 46 as shown in FIG. 3. Thus, the pair of circular shaped
15 hollow tubes 46 provides a support for the distal end of the plurality of rotating arms 32. Moreover, with the arrangement shown, smooth rotational movement of the plurality of rotating arms 28 can be achieved and load on the plurality of rotating arms 28 can be reduced.

20 FIG. 4 is another embodiment showing a solar energy collecting and converting unit 50 mounted on a stationary pole attached to the ground 52 at a tilted position 54. The electrical energy output from the solar energy collecting and converting unit 50 may be transferred to an electric brush 56 by means of a wire 58. Further, the electrical energy

may be transferred to an annular ring 60 made of an electrically conductive material which is mounted on a bottom side of the central rotating hub 62.

FIG. 5 is a top view of still another embodiment of the present invention. An electric
5 motor 64 with a puller propeller 66 may be mounted on a forward side of each of the plurality of rotating arms proximate to the distal end 68 thereof and an electric motor 70 with a pusher propeller 72 may be mounted on an aft side of each of the plurality of rotating arms proximate to the distal end 74 thereof. A solar energy collecting and converting unit 76 may be mounted on a top side of each of the plurality of rotating arms
10 78 for high power generation. Yet another embodiment of the present invention may include the solar energy collecting and converting unit 50 mounted on the stationary pole or an element that stabilizes the unit, attached to the ground 52 and the solar energy collecting and converting unit 76 mounted on the top side of each of the plurality of rotating arms 78.

15 While a particular form of the invention has been illustrated and described, it will be apparent that various modifications can be made without departing from the spirit and scope of the invention. Accordingly, it is not intended that the invention be limited, except as by the appended claims.

CLAIMS

What is claimed is:

- 5 1. An electrical power generation system, comprising:
- a vertical axis solar powered generator having a bottom side grounded and
a top side connected to a vertical rotor shaft;
- a central rotating hub in the shape of a circular flat plate having a center
connected to the vertical rotor shaft;
- 10 at least one solar energy collecting and converting unit enclosed in a
transparent dome mounted on a top side of the central rotating hub;
- a plurality of rotating arms having a proximal end secured to the central
rotating hub and a distal end connected to at least one dual-V roller bearing;
- an electric motor with a propeller mounted proximate to the distal end of
15 each of the plurality of rotating arms;
- a circular shaped shroud attached to a ground; and
- a pair of circular shaped hollow tubes attached to the circular shaped
shroud for providing guided support for the at least one dual-V roller bearing;
- whereby the at least one solar energy collecting and converting unit
20 provides an electric energy to the electric motor which may turn the propeller and rotate
the plurality of rotating arms thereby causing the electric energy generation by the
vertical axis solar powered generator.

2. The electrical power generation system of claim 1 wherein the at least one dual-V roller bearing rides on the pair of circular shaped hollow tubes thereby achieving smooth rotational movement of the plurality of rotating arms and load reduction on the plurality of rotating arms.

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3. The electrical power generation system of claim 1 wherein the central rotating hub functions as a medium for transferring a torque from the plurality of rotating arms to the vertical rotor shaft.

10 4. The electrical power generation system of claim 1 wherein the vertical rotor shaft may be aligned exactly with the center of the central rotating hub for the electric energy generation.

15 5. The electrical power generation system of claim 1 wherein the transparent dome reduces the aerodynamic drag on the at least one solar energy collecting and converting unit due to the rotation of the central rotating hub.

6. The electrical power generation system of claim 1 wherein the at least one solar energy collecting and converting unit may comprise of a plurality of solar panels.

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7. The electrical power generation system of claim 6 wherein the plurality of solar panels may be tilted for optimum solar energy collection.

8. The electrical power generation system of claim 1 wherein a high diameter rotating arm may be used for a high power vertical axis solar powered generator.

9. The electrical power generation system of claim 8 wherein the high power vertical axis
5 solar powered generator may require a small sized solar energy collecting and converting unit as the solar panel is required to provide only the electric energy for a rotational movement of the electric motor.

10. The electrical power generation system of claim 1 wherein the circular shaped shroud
10 covers and provides protection for the electric motors, propellers, dual-V roller bearings, and pair of circular shaped hollow tubes.