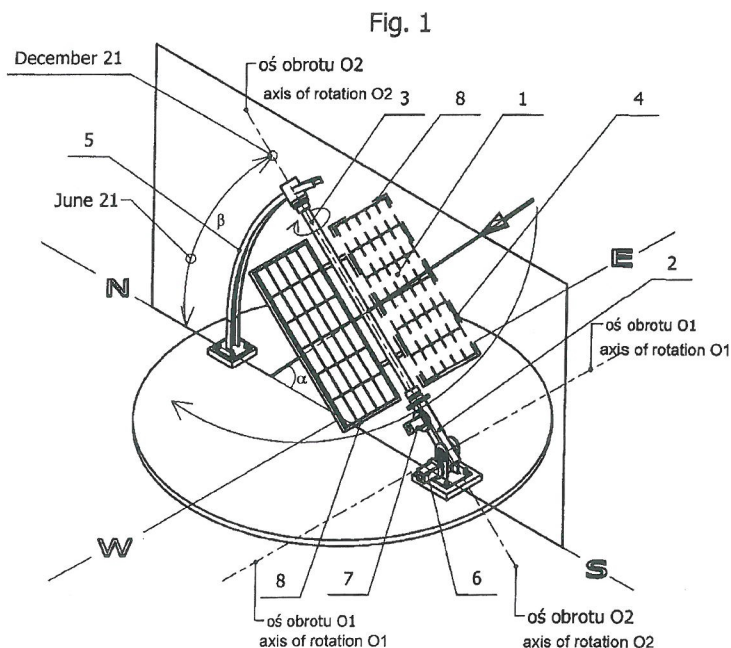




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(54) Title: METHOD OF POSITIONING PHOTOVOLTAIC PANELS AND TWO-AXIS TRACKER



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(57) Abstract: The subject of the invention is a method for positioning PV photovoltaic panels in a tracking system, in an open control system, according to the solar calendar and azimuth, using a tracker structure with parallel axes of rotation, as well as a clock mechanism and the solar tracker obtained in this way. According to the invention, the perpendicular arrangement of the panels (1) to the Sun, during its apparent migration across the sky, is a consequence of the movement of the shaft (3) as a result of combining rotational movements in the O1 axis in the cycle of the solar year and in the O2 axis in the daily cycle. The support column (2), located in the north-south axis, is mounted to the foundation tiltably and adjustably in the O1 axis, accordingly to the value of the angle of incidence of solar rays α on a given day, calculated based on the relationship: $\beta = 90^\circ - \alpha$ - angle α of incidence of rays in a solar year for a given latitude. In the support column (2), along its longitudinal axis O2, a shaft (3) is mounted, to which a frame (4) with panels (1) is rigidly

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attached. The free end of the shaft (3) is slidably connected along the arched stabilizing support (5) anchored to the foundation. The angle of adjustment of the support column (2) is changed with means of the actuator (6), in accordance with the angle β . The rotation of the shaft (3) in the O2 axis is carried out with means of the actuator (7) with a clock mechanism. The shaft evenly rotates from east to west by 360° in a daily cycle. During the rotation cycle of the shaft (3) during the upper culmination of the Sun, the panels (1) are positioned perpendicular to the direction of the Sun's rays and the transverse edges (8) to the axis of the shaft (3) in the frame (4) are level, which is the basis for calibration of the tracker mechanism. The rotation of the shaft in the daily cycle in the O2 axis is a component of the azimuth movement of the panels. The change in the angle β of the column tilt is a component of the panel movement in an up-down arrangement, depending on the position of the Sun in the solar year.