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Title	VERTICAL AXIS WIND TURBINE WITH AERODYNAMIC PROTECTION AGAINST OVERLOADS
Authors	Viorel BOSTAN; Ion BOSTAN; Valeriu DULGHERU; Radu CIOBANU; Oleg CIOBANU; Valeriu ODAINĂI; Marin GUȚU; Ivan RABEL.
Institution	Technical University of Moldova
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Description	The invention relates to wind energy conversion systems, namely vertical axis wind turbines. The vertical axis wind turbine includes the tower 1, on which is installed a rotating shaft 2 with blades of an aerodynamic profile 3 executed at an angle and flexibly mounted with the possibility of automatically changing the angle of attack α by pivoting, the blades 3 are joined to the rotating shaft 2 by means of radial bars 4 at the peripheral ends of which are mounted mechanical joints 5 and 6 axially spaced from each other, which have a common joint axis O_1O_1 concurrent with the axis OO of the rotating shaft 2 and which in the section where the radial bars 4 are located

passes through a point with the projection on the chord of the blade profile 3 at the point N_I located between the leading edge B and the point O_I of application of the aerodynamic forces of lift F_L and resistance F_D in compliance with the condition $BN_I < BO'$, so that at the maximum limit speed of the air currents the blade 3 under the action of the aerodynamic and centrifugal forces defined by the mass m of the inertial body 9 and its angular velocity ω to position the blade 3 under an angle of attack α_m different from the optimal one α_{opt} , the forced increase of which $\alpha_m \neq \alpha_{opt}$, causes the increase in the aerodynamic resistance force F_D , which consequently by aerodynamic braking leads to the reduction of the angular velocity ω of the rotating shaft 2 and implicitly the centrifugal force F_{CF} of the mass m of the inertial body 9, and under the action of the elastic force of the spring 8 the aerodynamic blade 3 by pivoting around the axis $O_I O_I$ of the mechanical joints 5 and 6 returns to the position with the optimal angle of attack α_{opt} , thus the angular speed of the rotating shaft 2 and the rotor 7 of the electric generator 10 coaxially coupled with it returns to the value of the stationary mode of operation.

The proposed technical solutions ensure the process of mechanical and aerodynamic braking of the rotor through relatively simple constructive solutions and at the same time ensure the tower's security from overloads generated at high wind speeds.