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VERTICAL AXIS WIND TURBINES WITH POWER CONTROL

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Goal:

The invention relates to devices for converting wind energy into electricity, in particular to vertical axis wind turbines with power control. The problem solved by the invention consists in increasing the protection of the electric generator from overloads by automatic power control and increasing the reliability of the dynamic mechanical elements of the turbine.

Patent nr. 1616 Y MD, of 30.04.2022

Solution:

- ✓ The process of mechanical and aerodynamic braking;
- ✓ relatively simple constructive solutions;
- ✓ Securing the tower from overloads generated by high wind speeds.

Advantages:

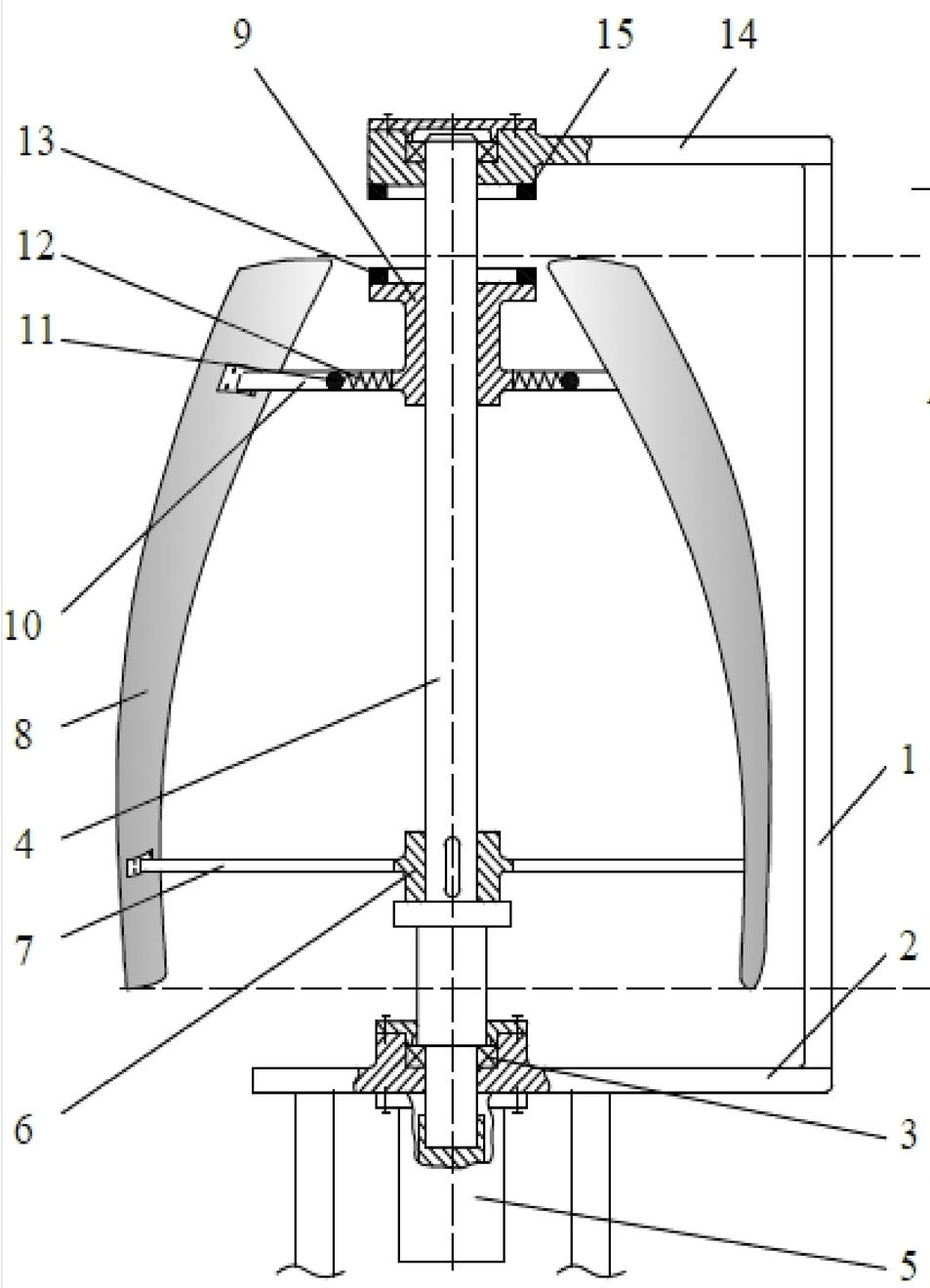
- ✓ Protection of the electric generator from overloads by automatic power control;
- ✓ Simple construction of the vertical axis wind turbine;
- ✓ Increased wind energy conversion efficiency
- ✓ Securing the tower from overloads generated by high wind speeds.

Stage:

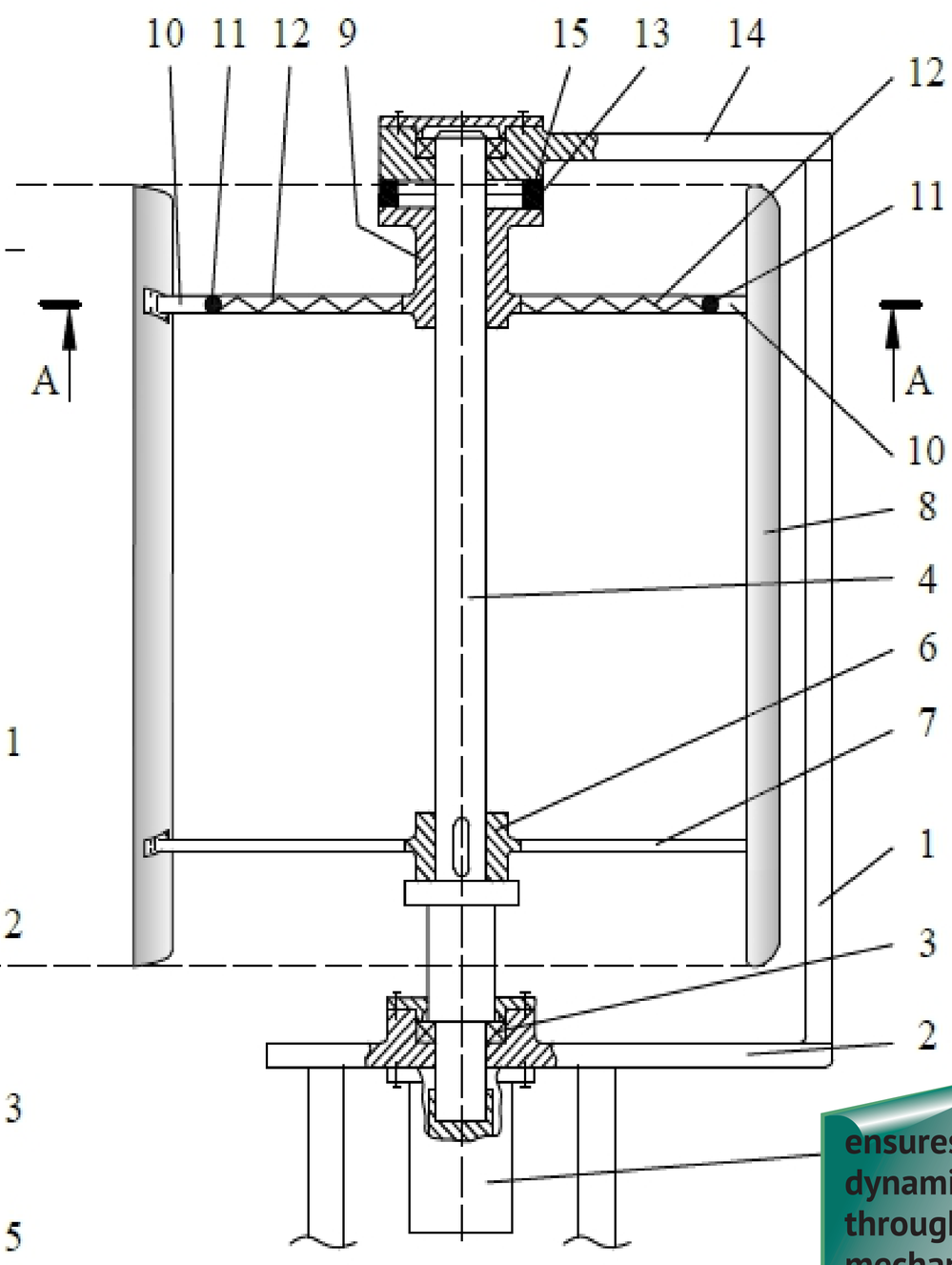
3D CAD model, CFD simulatian.

Computerized model of vertical axis wind turbine

Overview of the vertical axis wind turbine with power control, according to the first realization (initial phase)



Overview of the wind turbine, according to the first realization (final phase)



View A-A

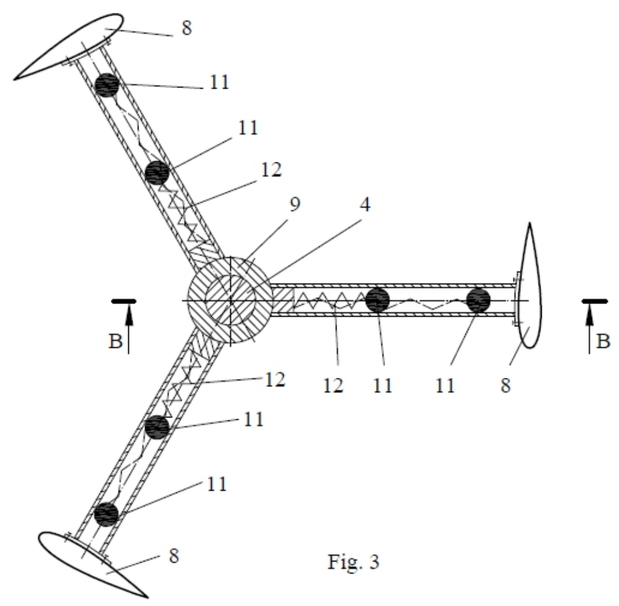


Fig. 3

B-B

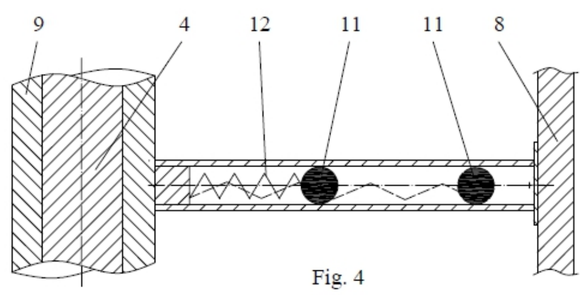


Fig. 4

The proposed technical solution ensures power control and protection of dynamic mechanical elements from overloads through the process of aerodynamic and mechanical braking through relatively simple construction solutions.

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