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Entomopter wing control system

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The essence of the invention is the use of a simple yoke and slide mechanism to impose specific movement of the wings of an entomopter.

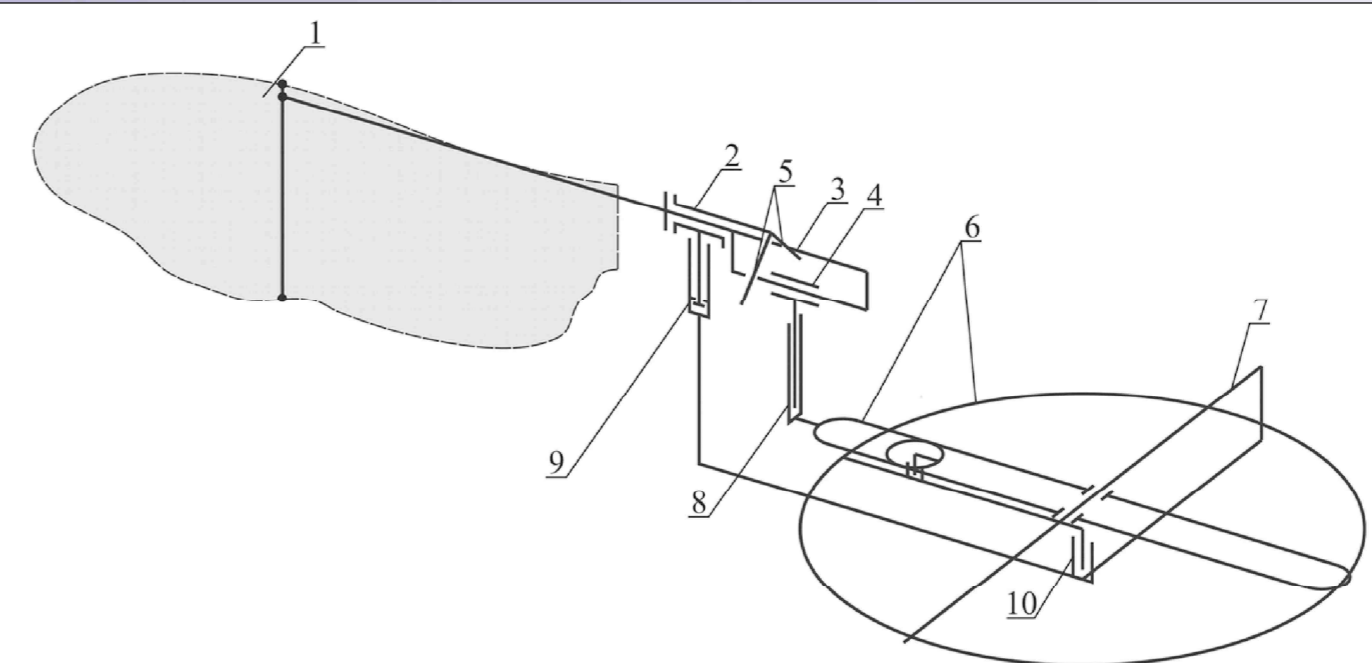
The movement of an insect wing consists (simplified) of the movement of the flapping and the movement of changing the angle of attack of the wing. These two movements take place in different planes and take place in a strictly defined position of the wing. The angle of attack of the wing changes in the extreme positions of the wing flapping.

The proposed mechanism allows to obtain just such a movement in a mechanical object.

A special feature of the invention is the use of a sliding mechanism with a two-way slider, which, in combination with the wing swing lever and a suitably shaped guide of the wing swing lever, ensures a sequential change of the mechanical wing in the respective phases of its movement.

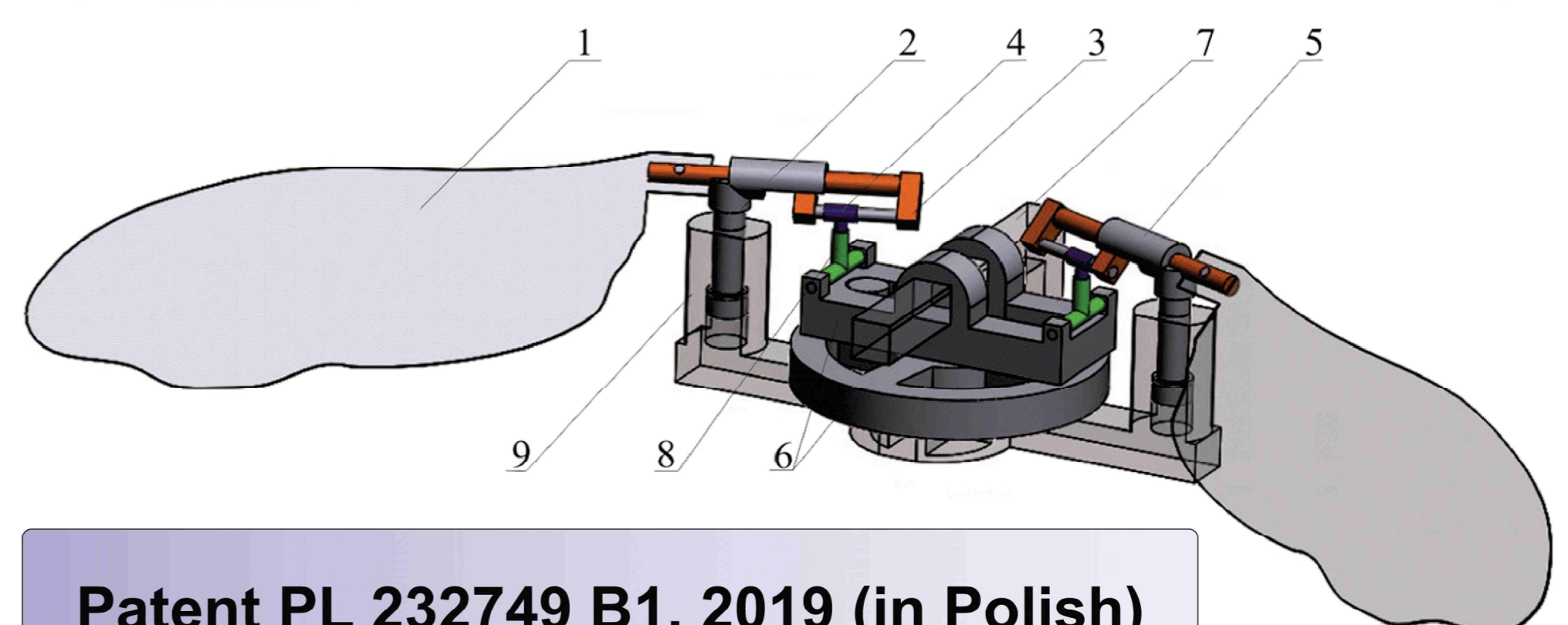
Kinematic model (for one wing) of the proposed mechanism. It is composed of:

- 1 - entomopter wing,
- 2 - rocking lever guide with limiters of the angle of attack 5,
- 3 - wing rocking lever,
- 4 - bilateral slide,
- 6 - slotted-link mechanism,
- 7 - slotted-link mechanism guide,
- 8 - bushing and guide of the bilateral slide,
- 9 - wing rocking level guide bushing,
- 10 - slotted-link mechanism bushing.

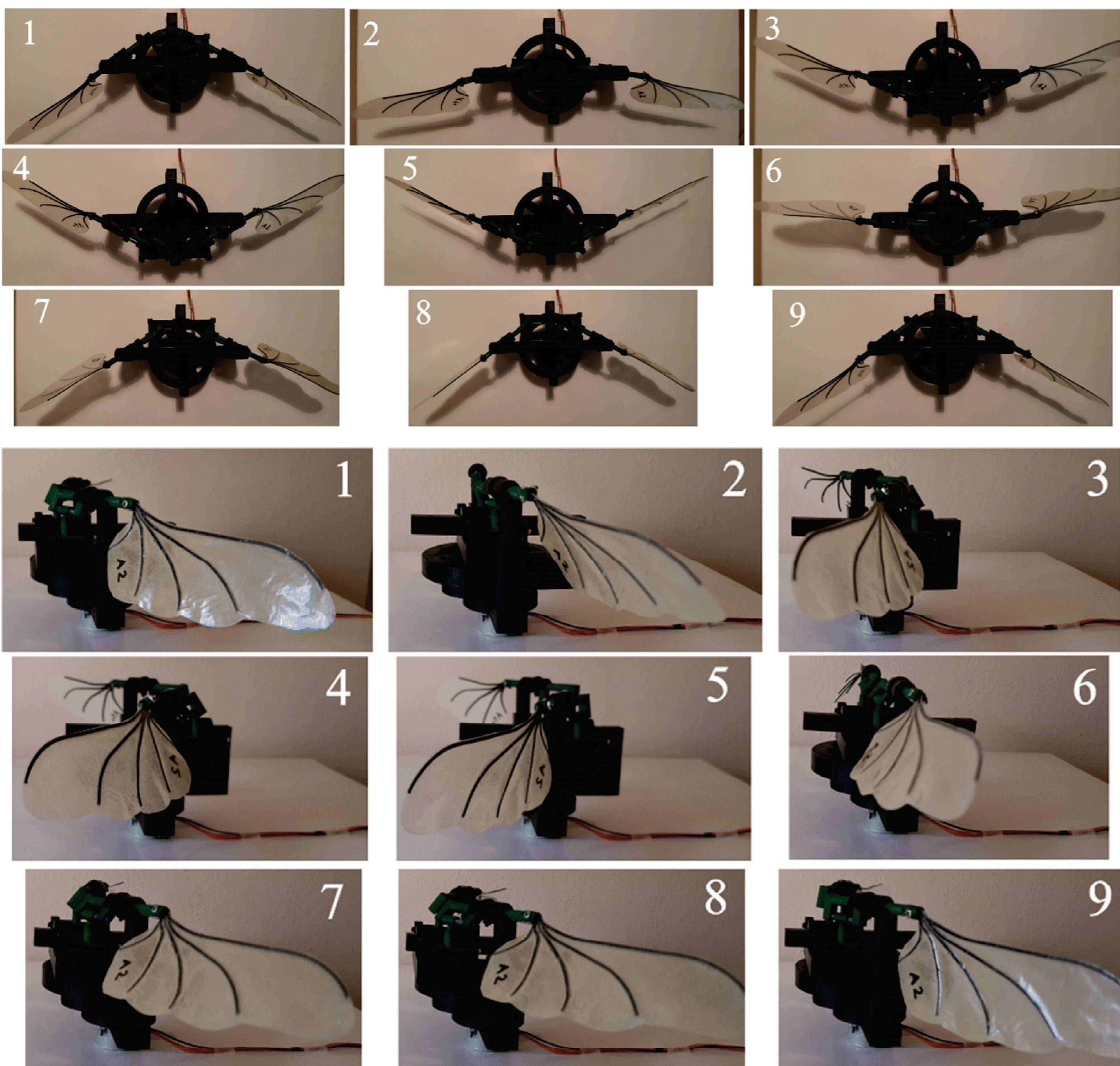


The model (similar to the kinematic design) is composed of the following components:

- 1 - wing,
- 2 - rocking lever guide,
- 3 - rocking lever,
- 4 - bilateral slider,
- 5 - limiters of the angle of wing rotation (adequately shaped guide 2),
- 6 - slotted-link mechanism,
- 7 - slotted-link mechanism,
- 8 - bushing and guide of the bilateral slider,
- 9 - guide bushing.



Patent PL 232749 B1, 2019 (in Polish)



The work of the mechanism can be seen in the video under the link:
http://www.imipkm.pcz.pl/wp-content/uploads/2016/08/New_mechanism.wmv

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