

SET-UP AND SYSTEM TO FOLD AND UNFOLD OPERATIONAL SURFACES

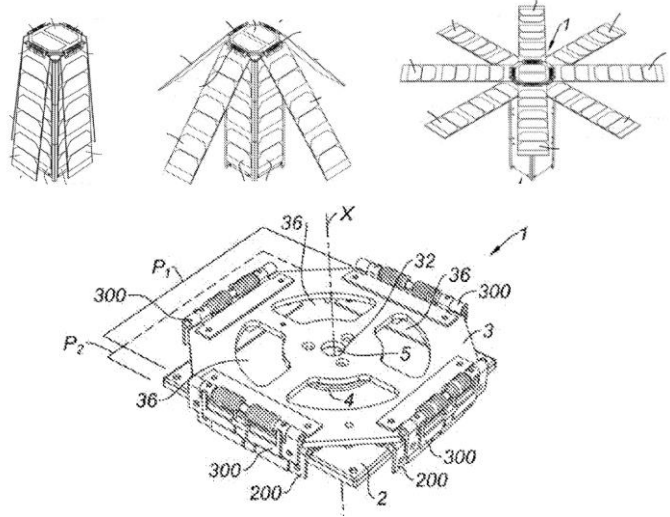
Technological advantages

Innovative :

- Simple spring elastic system based on two rotating plates.

Efficient :

- Suited to compact surfaces and easily portable.
- Reversible deployment.
- Simplified light structure.
- Does not require external power.



Invention synthesis

The invention deals with a set-up and system to deploy operational surfaces.

Existing systems are not optimum for example for launchers because they can be : heavy, complex, power hungry, non-reversible, cumbersome, ...

The invention presents a system to deploy at least one upper and one lower panels. Two plates (upper and lower) placed one on top of the other but mobile in rotation using a torsion spring, are connected using a spring hinge to the respective upper and lower panels. This set-up is reversible (to unfold and fold) and provides an accurate control on the deployment. It also allows increasing the panels operational surfaces.

Schematics representing the proposed set-up

- (2) Lower plate, square shape
- (3) Upper plate, octagonal shape
- (4) Torsion spring on the central axis
- (5) Inter-plate spacer
- (32) Circular opening to reduce friction
- (36) Trapezoid openings
- (200) Spring hinge, upper plate
- (300) Spring hinge, lower plate
- (2000) Upper solar panels using the upper plate hinges
- (3000) Lower solar panels using the lower plate hinges

Potential applications

- Solar panels, in general all domains where deployable surfaces are needed.

Commercial benefits

- System less complex and less costly compared to existing solutions.
- Optimizing operational surfaces.
- Light and reversible systems.

Patented invention - under license.