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Lossless Adjustable Spring/Inerter Mechanism

Tech ID: 33957 / UC Case 2019-362-0

BRIEF DESCRIPTION

This technology offers a novel mechanical arrangement for lossless, adjustable operation of springs or inerters.

FULL DESCRIPTION

The technology consists of a mechanical setup where a spring or an inerter is connected via a lever with a variable pivot point, allowing for adjustable operation without energy loss. For rotary applications, it involves a lossless adjustable rotary 2-port transformer, realized through two cones coupled by rolling balls, enabling continuous adjustment of angular velocities and torques.

SUGGESTED USES

- » Automotive suspension systems.
- » Industrial machinery vibration dampening.
- » Robotic articulations and actuators.
- » Aerospace control surface actuation.

ADVANTAGES

- » Energy-efficient operation with minimal power loss.
- » Adjustable settings allow for versatile application in different mechanical setups.
- » Continuous lossless adjustment of torques and angular velocities.
- » Easy integration into existing mechanical systems.

PATENT STATUS

Patent Pending

RELATED MATERIALS

- » T. T. Georgiou, F. Jabbari and M. C. Smith, "Principles of Lossless Adjustable One-Ports," in IEEE Transactions on Automatic Control, vol. 65, no. 1, pp. 252-262, Jan. 2020, doi: 10.1109/TAC.2019.2917853.

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OTHER INFORMATION

CATEGORIZED AS

- » **Transportation**
- » Aerospace
- » Automotive
- » **Engineering**
- » Other
- » Robotics and Automation

RELATED CASES

2019-362-0

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