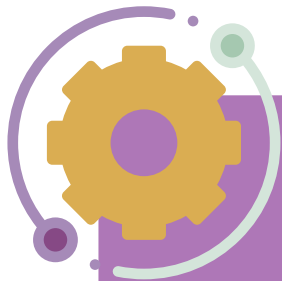




“Mechanical cushioning syntonized system to control and reduce the vibratory amplitude in machinery, structures and its syntonization process ”

MX/a/2024/013373



Technology description

The invention consists of a tuned mechanical cushioning system characterized by including a cable subsystem that absorbs and dissipates vibrations in a machine or structure; a tuned mass mechanical assembly, supported by the cable subsystem, which modifies the mechanical properties of the system by adjusting the mass weight and allows it to be tuned to a specific resonance frequency that matches the frequency at which the system will vibrate in order to dissipate vibrational energy; and a dual support-tensioner that allows the tension of the cables in the cable subsystem to be adjusted, such that varying the tension changes the stiffness of the system, thereby also modifying its resonance frequency. By combining this resonance variation with an adjustment of the tuned mass in the mechanical assembly, the system can be precisely tuned to the vibration frequencies that are intended to be reduced.

A tuning process was developed for the system, enabling adjustments to both the mass of the mechanical assembly and the cable tension in the cable subsystem, so that unwanted vibrations in the structure or machine can be absorbed.

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