



ROTARY VISCOUS DAMPING APPARATUSES AND APPROACH

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Inventors: Ryan McAdams, Meghan Horan, Josh Gollub, Joshua Varghese, Joseph Byrne, Nicole Parmenter, Greta Scheidt, Sydney Polzin

The Invention

A UW-Madison clinician has developed an innovative spring and damper system designed to significantly reduce whole-body vibrations (WBV) during neonatal transport. Developed through a collaborative effort between neonatology experts and biomedical engineering students, this device aims to protect vulnerable neonates from the harmful effects of WBV, which can increase the risk of severe brain injuries such as intraventricular hemorrhage (IVH). The system employs rotary viscous dampers in parallel with linear springs to target and mitigate vibrations near the critical natural frequency of 17 Hz. Laboratory and clinical tests have demonstrated promising results, including a 31.9% reduction in acceleration in controlled settings and a 6.7% reduction in real-world ambulance environments. Additionally, the system achieves a frequency shift, reducing the natural frequency from 19.96 Hz to 6.76 Hz, thereby minimizing the risk of vibrations falling within the harmful human sensitivity range. The system integrates seamlessly with existing neonatal transport setups, making it a practical and effective solution for improving the safety and outcomes of neonatal transport.

Additional Information

For More Information About the Inventors

- [Ryan McAdams](#)

Tech Fields

- [Medical Devices : Medical tools](#)

For current licensing status, please contact Michael Carey at mccarey@warf.org or 608-960-9867