Noise Cancellation for Drones

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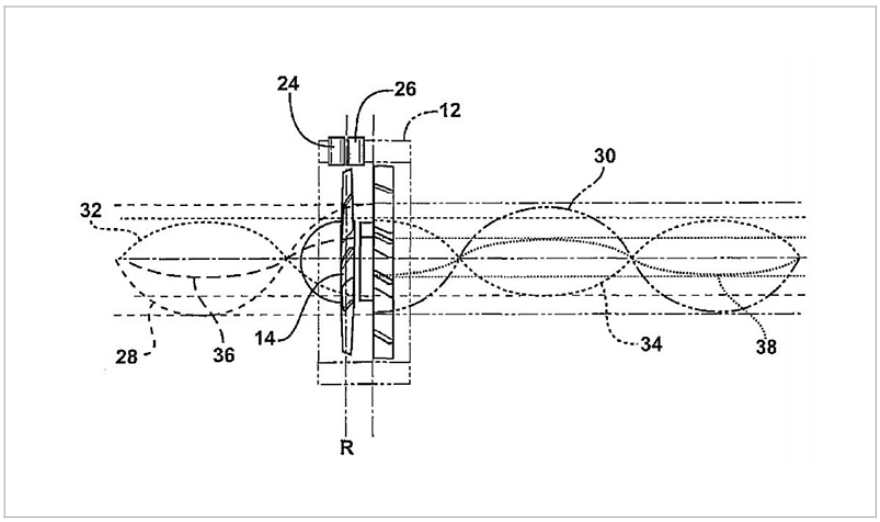

Noise Cancellation System

Technology Summary

The present invention is a novel demonstration of a tunable, flow-induced dipole resonator source. By using flow-excited, tunable quarter-wavelength resonators, the subject technology effectively reduces plane wave propagations by orienting resonator chambers axially on either side of the blade region, enabling a dipole-like secondary sound field to be passively generated. The resonator sources are then tuned in terms of magnitude and phase to reduce bi-directional propagations of blade tone noise. Accordingly, the invention substantially reduces blade passage frequency tones radiated by axial fans and can be back fitted to existing axial fan systems.

Application & Market Utility

Blade tones are of primary concern in noise control applications since they are annoying for human hearing. Axial turbomachinery noise is prevalent in many products, including large scale turbofan engines, compressor/turbine arrays, HVAC systems, computer cooling fans, and drone propellers. Blade passage frequency (BPF) noise reductions of 12.9 dB and 11.6 dB were achieved simultaneously in the upstream and downstream directions. This technology is protected by the 7,992,674 patent.

Next Steps

Seeking licensing opportunities.

TECHNOLOGY READINESS LEVEL 4-7

Seeking

Investment | Licensing | Research

Keywords

- turbomachinery noise
- resonator
- fan
- rotor blade
- drone noise

Researchers

Gary Koopmann
Professor Emeritus

Dean Capone
Research Associate at the Applied Research Laboratory and Assistant Professor in the College of Engineering

Lee Gorny

Originating College
ARL

Office of Technology Management Contact
Rokita, Joseph
jjr152@psu.edu
814-863-6336