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Marshall Space Flight Center



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Industrial Filter Bags Cleaned by High-Frequency Vibration: A Concept

The problem:

Fly ash and other industrial furnace byproducts are removed from exhaust gases by expensive cloth filter bags mounted between the furnace and the exhaust stack in what is called a baghouse. These filter bags are cleaned by low-frequency vibration or reverse-air jets. Each of these processes puts stress on the bag fibers and shortens service life.

The solution:

A system that holds the filter bag around a fine-mesh metal screen vibrates the screen at its resonant frequency. This removes the deposited byproducts and protects the bag fibers from damaging forces.

How it's done:

The fine-mesh metal screen is slightly larger in diameter than the filter bag. It is placed within the filter bag and is attached to the exciter stinger to hold snugly against the inner surface of the bag. When the bag needs cleaning, the exciter is turned on and vibrates the bag/screen assembly at the screen resonant frequency until all deposited solids are removed from the bag.

Notes:

1. Because filter bags represent 20 to 40 percent of any industrial filtering investment, this method of extending bag life should be of interest to those responsible for plant maintenance.
2. Requests for further information may be directed to:
Technology Utilization Officer
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Patent status:

Title to this invention has been waived under the provisions of the National Aeronautics and Space Act [42 U.S.C. 2457 (f)], to the Rockwell International Corp., Downey, California 90241

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