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(54) **CORIOLIS MASS FLOW SENSOR HAVING OPTICAL SENSORS**

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(52) **U.S. Cl.** ..... **73/861.355**

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See application file for complete search history.

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(57) **ABSTRACT**

A Coriolis mass flow sensor includes a flow tube, a light source, and a light pipe having a light inlet situated to receive light from the light source and a light outlet for emitting light received from the light source. A light detector receives light from the light pipe light outlet, and a drive device vibrates the flow tube such that the flow tube moves through a light path between the light outlet of the light pipe and the light detector. In certain embodiments, the light pipe defines a generally square cross section. A sensing aperture having a predetermined shape is situated between the light outlet of the light pipe and the light detector. The sensing aperture passes a portion of the light emitted from the light outlet of the light to the light detector, such that the light entering the light detector has the predetermined shape.

**14 Claims, 7 Drawing Sheets**

