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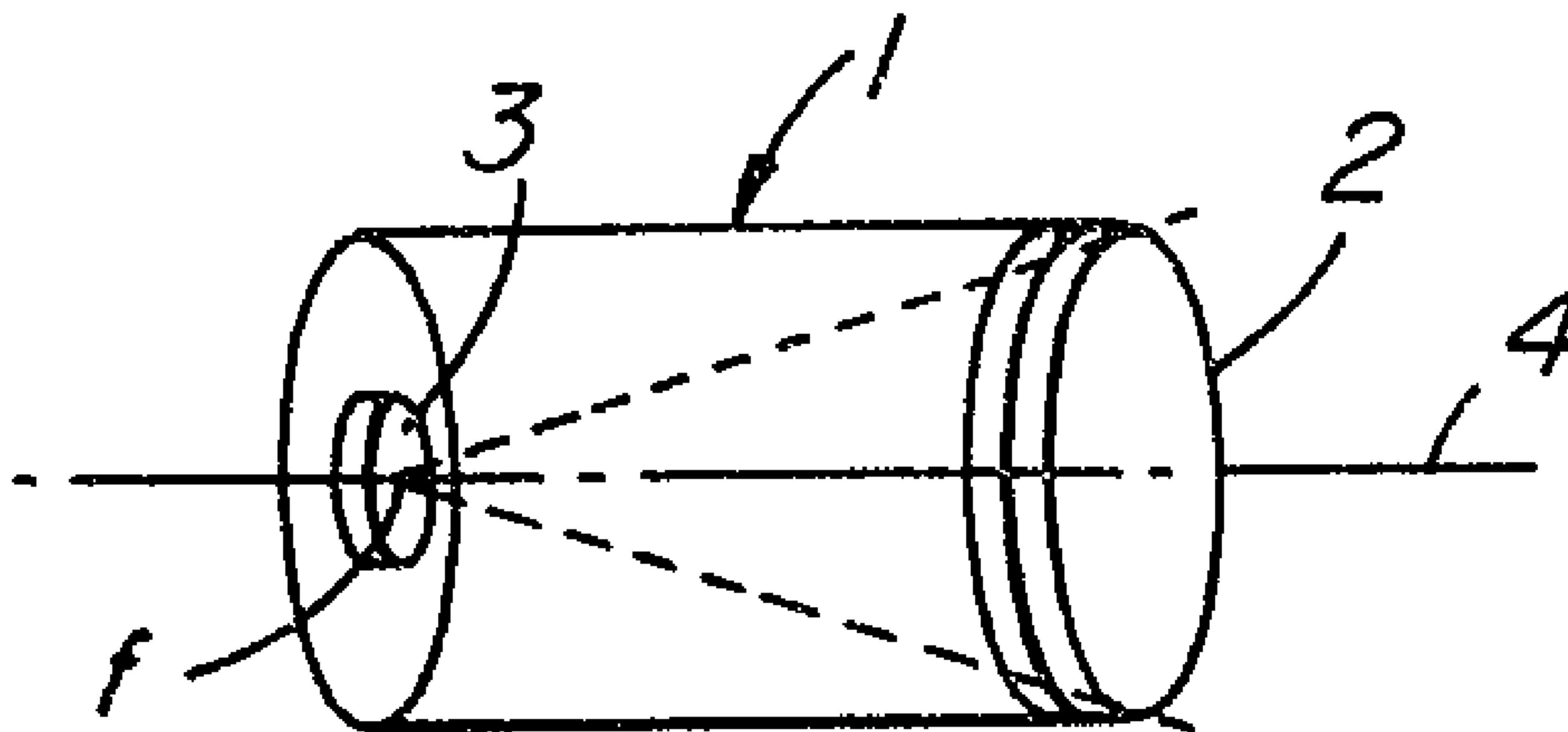
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(54) **LIDAR A DIFFUSION MULTIPLE**

(54) **MULTIPLE SCATTERING TECHNIQUE (MUST) LIDAR**



(57) A lidar with a laser transmitter for transmitting a laser beam and a receiver having receiving optics for detecting radiation reflected back from the beam by aerosol particles in the atmosphere, the receiver having an optical axis aligned with the beam. The receiver includes a number of radiation receiving elements such as concentric radiation detector elements placed in the receiving optics focal plane so that these concentric detector elements can measure backscatter radiation from the beam at several fields of view simultaneously. Backscattered signals at fields of view larger than the laser beams's divergence are due to multiple scattering. The unknown backscatter coefficient can then be eliminated by ratioing the lidar returns at the different fields of view.

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ABSTRACT

A lidar with a laser transmitter for transmitting a laser beam and a receiver having receiving optics for detecting radiation reflected back from the beam by aerosol particles in the atmosphere, the receiver having an optical axis aligned with the beam. The receiver includes a number of radiation receiving elements such as concentric radiation detector elements placed in the receiving optics focal plane so that these concentric detector elements can measure backscatter radiation from the beam at several fields of view simultaneously. Backscattered signals at fields of view larger than the laser beams's divergence are due to multiple scattering. The unknown backscatter coefficient can then be eliminated by ratioing the lidar returns at the different fields of view.

