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(71) Applicant: **WATER OPTICS TECHNOLOGY PTE. LTD** [SG/SG]; 219 Bukit Batok Street 21, #09-385, Singapore 650219 (SG).

(72) Inventors: **LIU, Ai Qun**; c/o Water Optics Technology Pte. Ltd, 219 Bukit Batok Street 21, #09-385, Singapore 650219 (SG). **LEI, Lei**; c/o Water Optics Technology Pte. Ltd, 219 Bukit Batok Street 21, #09-385, Singapore 650219 (SG). **HUANG, Wei**; c/o Water Optics Technology Pte. Ltd, 219 Bukit Batok Street 21, #09-385, Singapore 650219 (SG). **PUKKEYIL SHAMSUDDIN, Shahnawaz**; c/o Water Optics Technology Pte. Ltd, 219 Bukit Batok Street 21, #09-385, Singapore 650219 (SG).

(74) Agent: **WATKIN, Timothy Lawrence Harvey**; Marks & Clerk Singapore LLP, Tanjong Pagar, PO Box 636, Singapore 910816 (SG).

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(54) **Title**: A SENSOR FOR PARTICLE DETECTION IN A FLUID

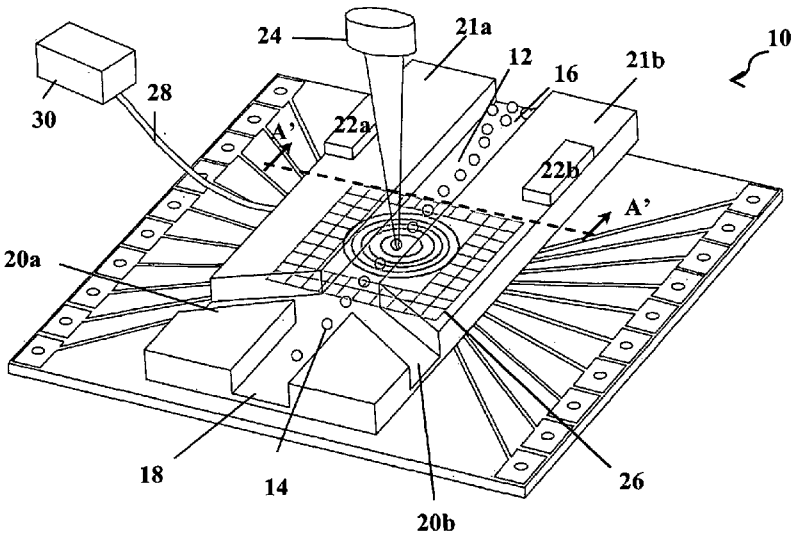

FIG. 1

(57) **Abstract**: A sensor is provided for detecting and characterizing particles in a fluid. The sensor has a microfluidic channel for receiving the fluid sample, an acoustic transducer module configured to generate a standing wave for concentrating the particles in a region of the microfluidic channel; an optical detection module configured to detect optical signals scattered by the particles upon illuminating the region of the fluid sample with a light source; and a data processing module configured to characterize the particles of the fluid sample based on the optical signals using a classifier.

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