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(71) Applicant: **GRADIENT CORPORATION** [US/US]; 130
New Boston Street #200, Woburn, Massachusetts 01801
(US).

(72) Inventors: **LOKARE, Omkar**; Gradient Corporation, 130
New Boston Street #200, Woburn, Massachusetts 01801
(US). **STOVER, Richard**; Gradient Corporation, 130 New
Boston Street #200, Woburn, Massachusetts 01801 (US).

(74) Agent: **SAYRE, Robert**; Modern Times Legal, 1 Broad-
way, 14th Floor, Cambridge, Massachusetts 02142 (US).

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(54) Title: MEMBRANES WITH CONTROLLED POROSITY FOR SERIAL FILTRATION

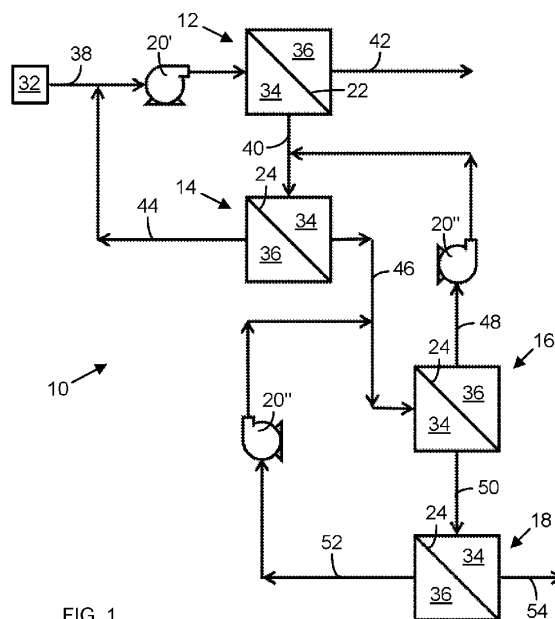


FIG. 1

(57) Abstract: A serial filtration system for liquid purification includes a preliminary-stage reverse-osmosis (RO) module and a first-stage, high-permeability, reverse-osmosis (HiRO) module. Both modules include (a) a chamber including an inlet, a retentate outlet, and a permeate outlet, and (b) at least one membrane separating the chamber into a retentate side on an upstream side of the membrane and a permeate side on a downstream side of the membrane. The membrane in the preliminary stage is an RO membrane, while the membrane in the first stage is an oxidized membrane. The first-stage inlet is in fluid communication with the preliminary-stage, retentate outlet; and the oxidized membrane in the first stage, comprises an oxidized polyamide active layer coated on a porous support, wherein the oxidized polyamide active layer has an atomic oxygen/nitrogen ratio of at least 1.5.

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