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(71) Applicant: **NANYANG TECHNOLOGICAL UNIVERSITY** [SG/SG]; 50 Nanyang Avenue, Singapore 639798 (SG).

(72) Inventors: **LI, Hong**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG). **ACCOTO, Dino**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG). **CAMPOLO, Domenico**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG).

(74) Agent: **SPRUSON & FERGUSON (ASIA) PTE LTD**; P.O. Box 1531, Robinson Road Post Office, Singapore 903031 (SG).

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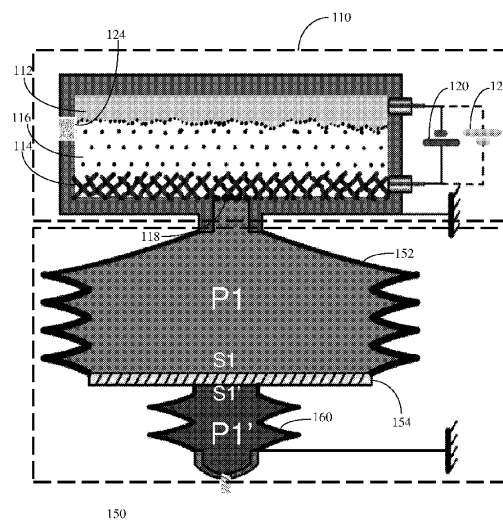


FIG. 1

(57) Abstract: A gas-reservoir electrochemical pressure generator and a dual-gas-reservoir electrochemical pressure generator are provided. The electrochemical pressure generator includes an electrical power source, an electrochemical pressure generator, one or more gas reservoirs, and a hydraulic means. The electrochemical pressure generator is selectably connected to the electrical power source and the electrical power source is configured to power the electrochemical pressure generator in high-pressure mode operation to convert a solid state of hydrogen or oxygen within the electrochemical pressure generator into a high-pressure gas with a first pressure when connected thereto. The one or more gas reservoirs are in fluid communication with the electrochemical pressure generator and each includes a first chamber and a second chamber arranged in series. The first chamber of each of the one or more gas reservoirs is in fluid communication with the electrochemical pressure generator and includes a first surface of a non-rigid dividing element having

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a first area. The second chamber of each of the one or more gas reservoirs includes a second surface of the non-rigid dividing element having a second area, the second surface mechanically connected to the first surface by the non-rigid dividing element to generate a second pressure. The hydraulic means is coupled to the second chamber and transmits the second pressure to a load.