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(54) **Title**: COMBINED ELECTROCHEMICAL AND CHEMICAL ETCHING PROCESSES FOR GENERATION OF POROUS SILICON PARTICULATES

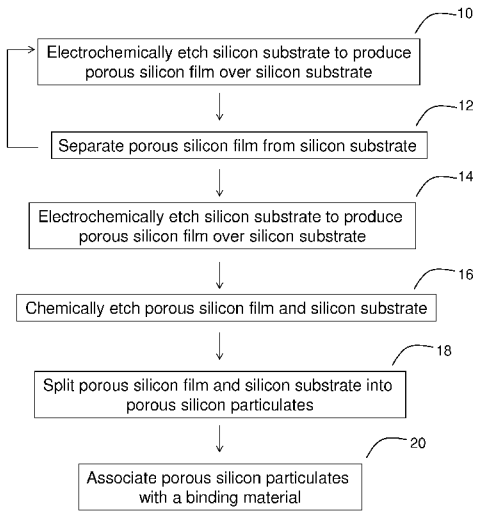


FIG. 1

(57) **Abstract**: Embodiments of the present disclosure pertain to methods of preparing porous silicon particulates by: (a) electrochemically etching a silicon substrate, where electrochemical etching comprises exposure of the silicon substrate to an electric current density, and where electrochemical etching produces a porous silicon film over the silicon substrate; (b) separating the porous silicon film from the silicon substrate, where the separating comprises a gradual increase of the electric current density in sequential increments; (c) repeating steps (a) and (b) a plurality of times; (d) electrochemically etching the silicon substrate in accordance with step (a) to produce a porous silicon film over the silicon substrate; (e) chemically etching the porous silicon film and the silicon substrate; and (f) splitting the porous silicon film and the silicon substrate to form porous silicon particulates. Further embodiments of the present disclosure pertain to the formed porous silicon particulates and anode materials that contain them.

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