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(54) **Title:** METHOD FOR FORMING A POROUS CELL SUBSTRATE

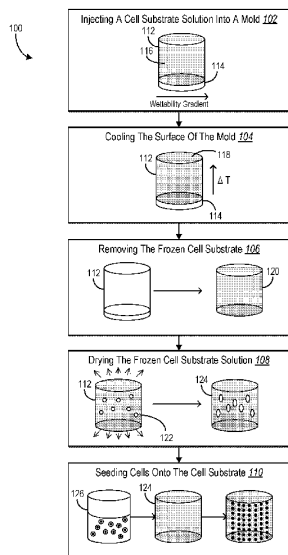


Fig. 1

(57) **Abstract:** This disclosure describes methods and apparatuses for creating or using a fibrous cell substrate that is formed in a mold using temperature and wettability gradients and that upon which cells can be grown. The disclosed method can include utilizing a temperature gradient and a wettability gradient within a mold to form a porous cell substrate. In particular, the temperature and wettability gradients control nucleation and growth of crystals within the cell substrate solution to form parallel layers of cell substrate. The crystals can be sublimated by freeze drying and the porous cell substrate is seeded. More specifically, the disclosed method includes using pressure and an increased cell mixture viscosity to seed cells deep within the cell substrate. This disclosure also describes an apparatus for forming the structured porous cell substrate.