

Title (en)

MATRIX-CONTROLLED PRINthead FOR AN ELECTROCHEMICAL ADDITIVE MANUFACTURING SYSTEM

Title (de)

MATRIXGESTEUERTER DRUCKKOPF FÜR EIN ELEKTROCHEMISCHES GENERATIVES FERTIGUNGSSYSTEM

Title (fr)

TÊTE D'IMPRESSION À COMMANDE MATRICIELLE POUR SYSTÈME DE FABRICATION ADDITIVE ÉLECTROCHIMIQUE

Publication

EP 4018018 A1 20220629 (EN)

Application

EP 20803671 A 20200821

Priority

- US 201962890815 P 20190823
- US 202016795495 A 20200219
- US 202062983274 P 20200228
- US 202016926598 A 20200710
- US 202016941372 A 20200728
- US 2020047531 W 20200821

Abstract (en)

[origin: WO2021041265A1] Printhead for a 3D manufacturing system that uses metal electrodeposition to construct parts; embodiments utilize a grid of anodes to achieve high quality parts with features that may be small and detailed. To support grids with thousands or millions of anodes, the printhead may use matrix control with row and column drivers similar to display backplanes. Unlike display backplanes where the design goal is to display images using minimal current, the printhead may be optimized for high current density for fast electrodeposition, and for anode longevity. Current density may exceed 1000 mA per cm-squared, at least an order of magnitude greater than that of display backplanes. Anode longevity may be enhanced by using relatively large anodes compared to the grid pitch of the printhead, by lengthening the conductive paths through anodes, or both. Embodiments may be constructed by adding anode and insulation layers on top of matrix-controlled switching circuits.

IPC 8 full level

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CPC (source: EP)

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