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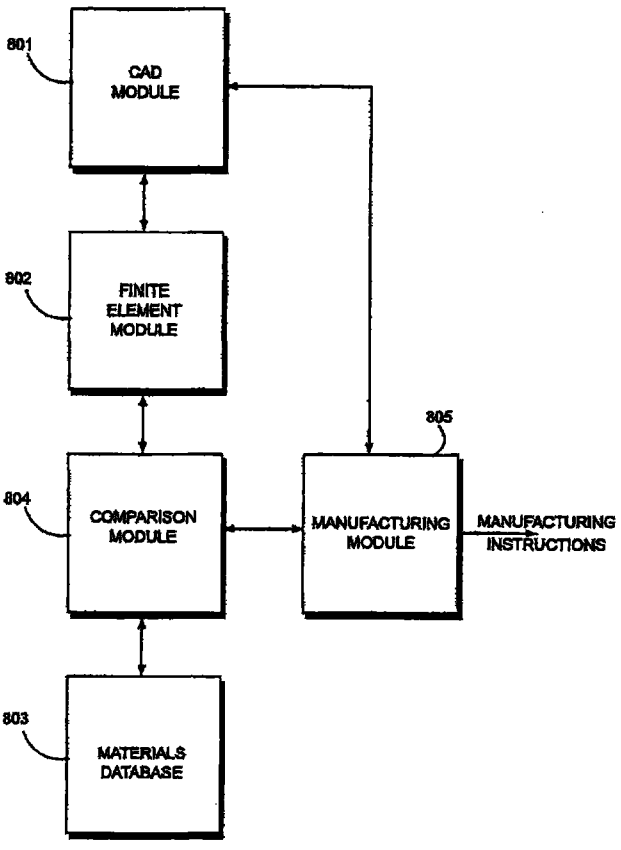
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(54) Title: MANUFACTURING SYSTEM AND METHOD



(57) Abstract: A method for manufacturing an object having a potential {x} that is generated in response to a field {f} applied thereto. A computerized mathematical model (801) of the object is generated by discretizing a geometric model of the object into a plurality of finite elements (802) and specifying values for the field {f} and potential {x} relative to the finite elements (802). The material properties (804) of the finite elements (802) are specified to have a particular symmetry and a material property (804) matrix [k] is calculated based on the relationship {f}=[k]{x} and the specified symmetry. Material property (804) coefficients are extracted from the material property (804) matrix [k] for each finite element (802) in the computerized mathematical model (801) and the extracted material property (804) coefficients are compared to material property (804) coefficients for known materials to match the extracted material property (804) coefficients to the material property (804) coefficients for known materials. Manufacturing parameters (805) for controlling manufacturing equipment are determined based on the matched material property (804) coefficients and the manufacturing equipment is controlled in accordance with the determined manufacturing parameters (805) to thereby manufacture the object.

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