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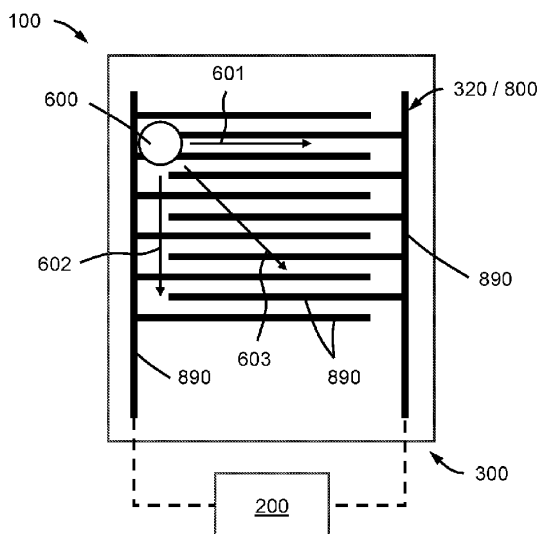


FIG. 6

(57) Abstract: A touchpad system includes: a circuit, a substrate, a first layer, and a laser-induced graphene (LIG) layer. The circuit includes a machine learning module configured to recognize a handwriting input provided by the touch. The first layer is a thin film polymer. The thin film polymer is any one of polytetrafluoroethylene (PTFE) and polyvinylidene fluoride (PVDF). The LIG layer is disposed between the first layer and the substrate. The LIG layer and the first layer form a triboelectric nanogenerator (TENG). The circuit is powered solely by a voltage response generated by the TENG.

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