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- (54) Title: METHOD OF CONTROLLED CRACK PROPAGATION FOR MATERIAL CLEAVAGE USING ELECTROMAG-
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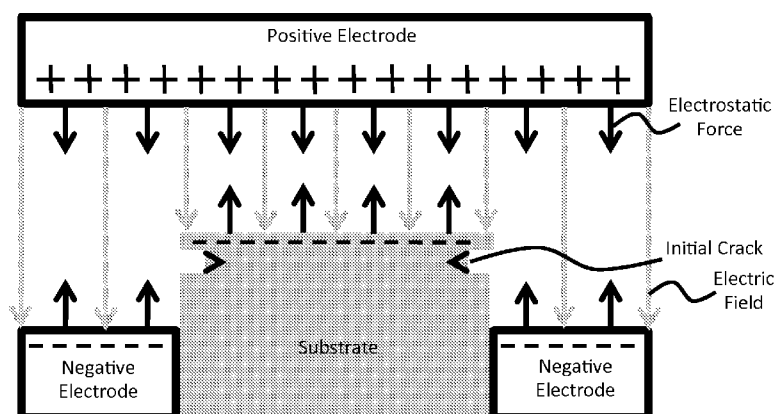


FIG. 1a

- (57) Abstract: To address the needs in the art, a method of cleaving substrate material that includes forming an initial crack in a bulk substrate material, where the crack is aligned along a cleaving plane of the bulk substrate material, aligning the cleaving plane between two parallel electrodes in a controlled environment, wherein the parallel electrodes include a top electrode and a bottom electrode, where the cleaving plane is parallel with the two parallel electrodes, where a bottom portion of the bulk substrate material is physically and electrically connected to the bottom electrode, and applying a voltage across the two parallel electrodes, where the voltage is at least 50 kV and establishes a uniform electromagnetic force on the top surface of the bulk substrate material, where the electromagnetic force is capable of inducing crack propagation along the cleaving plane and separating a cleaved substrate material from the bulk substrate material.

