Title (en)

METHOD AND DEVICE FOR INSERTING A SEPARATION LINE INTO A TRANSPARENT, BRITTLE-FRACTURE MATERIAL, AND ELEMENT THAT CAN BE PRODUCED ACCORDING TO THE METHOD AND IS PROVIDED WITH A SEPARATION LINE

Title (de)

VERFAHREN UND VORRICHTUNG ZUM EINFÜGEN EINER TRENNLINIE IN EIN TRANSPARENTES SPRÖDBRÜCHIGES MATERIAL, SOWIE VERFAHRENSGEMÄSS HERSTELLBARES, MIT EINER TRENNLINIE VERSEHENES ELEMENT

Title (fr)

PROCÉDÉ ET DISPOSITIF POUR INSÉRER UNE LIGNE DE SÉPARATION DANS UN MATÉRIAU TRANSPARENT CASSANT, AINSI QU'ÉLÉMENT POURVU D'UNE LIGNE DE SÉPARATION, POUVANT ÊTRE FABRIQUÉ SELON LE PROCÉDÉ

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Abstract (en)

[origin: WO2019158488A1] The aim of the invention is that of preparing a brittle-fracture, transparent substrate for a separation process and creating a prepared separation line along which the element can be separated without high breaking forces and without the associated risk of conchoidal fractures on the produced edge. To this end, the invention proposes a method for preparing a parting of a workpiece (2), in which - a workpiece (2) is provided that is transparent for the light of a pulsed laser beam (4), wherein - the laser beam (4) is split into at least two partial beams (41, 42) by means of an optical system (6), wherein both partial beams (41, 42) are directed onto the workpiece (2) in such a way that they strike the workpiece (2) at different angles to the normal of the irradiated surface (21) and are superimposed in the interior of the workpiece (2), and the partial beams (41, 42) interfere with each other in such a way that a sequence of intensity maximums (45) lined up one after the other along the overlapping region (43) of the partial beams (41, 42) in the interior of the workpiece is formed, and wherein the intensity in the intensity maximums (45) is so high that the material of the workpiece (2) is modified such that a chain-like periodic arrangement (9) of material modifications (8) is formed, and wherein the workpiece (2) and the partial beams (41, 42) are moved relative to one another such that a plurality of chain-like periodic arrangements (9) of material modifications (8) along a path forming a separation line are produced.

IPC 8 full level

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