

DIAMOND SUBSTRATE PRODUCING METHOD

ABSTRACT OF THE DISCLOSURE

A diamond substrate producing method includes a belt-shaped separation layer forming step of applying a laser beam to a diamond ingot as relatively moving the diamond ingot and a focal point of the laser beam in a $[110]$ -direction perpendicular to a (110) -plane, thereby forming a belt-shaped separation layer extending in the $[110]$ -direction inside the diamond ingot, an indexing step of relatively moving the diamond ingot and the focal point in an indexing direction parallel to a (001) -plane and perpendicular to the $[110]$ -direction, a planar separation layer forming step of repeating the belt-shaped separation layer forming step and the indexing step to thereby form a planar separation layer parallel to the (001) -plane inside the diamond ingot, the planar separation layer being composed of a plurality of belt-shaped separation layers arranged side by side in the indexing direction, and a separating step of separating a diamond substrate from the diamond ingot along the planar separation layer.

Figure 2A