

ABSTRACT

TITLE : “SCRIBE LINE FORMING DEVICE AND SCRIBE LINE FORMING METHOD”

A scribe line forming method, wherein the wheel tip (5a) of a glass cutter (5) is moved in contact with the surface of a fragile material substrate (S) with a load of such a degree that does not give a damage to the surface of the fragile material substrate (S), a vertical crack is produced on the fragile material substrate (S) at a specified position by an armature (6) which gives a sharp impact force to product the vertical crack of a specified depth to the glass cutter (5) moving on the fragile substrate (S), and the vertical crack formed by the wheel tip (5a) of the glass cutter (5) is extended along a predicted scribe line by a stress gradient produced by a compressive stress produced in a radiated area where laser beam is radiated from a laser beam transmitter (8) on the fragile material substrate (S) to the vertical cracks and a tensile stress produced in a cooled area which is produced by a cooling medium jetted from a cooling nozzle (7) to form a scribe line, as shown in Figure 1.