

HANDHELD SURGICAL INSTRUMENT, SURGICAL TOOL SYSTEM, METHODS OF FORMING AND OPERATING THE SAME

Abstract

The present invention relates to a handheld surgical instrument including a laser source configured to emit a laser beam for generating a laser marker on a surface, an inertial measurement unit configured to detect a motion of the handheld surgical instrument and generate a first signal including information on the motion of the handheld surgical instrument detected by the inertial measurement unit, and a movable platform for holding a controlled tool tip. The handheld surgical instrument includes an actuator mechanically coupled to the movable platform, and a processing circuit configured to control the actuator to move the movable platform based on the first signal generated by the inertial measurement unit and a second signal generated by a vision unit based on a movement of the laser marker, so that the movement of the movable platform at least partially compensates a tremulous motion of the handheld surgical instrument. A surgical tool system comprising the surgical instrument and methods of operation of said instrument and system are also provided.

FIG. 1B