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Gilgunn et al.

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(54) **APPARATUS AND METHOD FOR IMPLANTATION OF DEVICES INTO SOFT TISSUE**

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(57) **ABSTRACT**

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Apparatus and method for surgeon-assisted rapid surgical implantation of devices into soft tissue. The apparatus comprises several subsystems that enable the referencing of the spatial position and orientation of the device being implanted with respect to the soft tissue into which it is being implanted and then the controlled implantation of the device at a pre-defined speed with higher positional accuracy and precision and a reduction in soft tissue damage, provided by ultrasonic assisted motion, compared to current state-of-the-art implantation methods and devices. The method includes automated loading of the device being implanted into a clamping mechanism from a cartridge holding a number of implants, referencing of the device position and orientation, referencing of the surface of the tissue into which the device is being implanted, monitoring of the tissue motion, identification of desirable implant location based on the soft tissue profile, allowance of surgeon selection and fine adjustment of the final implant location, high-speed implantation, device release and implant actuator retraction.

(65) **Prior Publication Data**

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CPC **A61B 5/4851** (2013.01); **A61B 5/6838** (2013.01); **A61B 5/6843** (2013.01)

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See application file for complete search history.

15 Claims, 18 Drawing Sheets

