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(54) **SYSTEM AND METHODS FOR PERFORMING SURGICAL PROCEDURES AND ASSESSMENTS**

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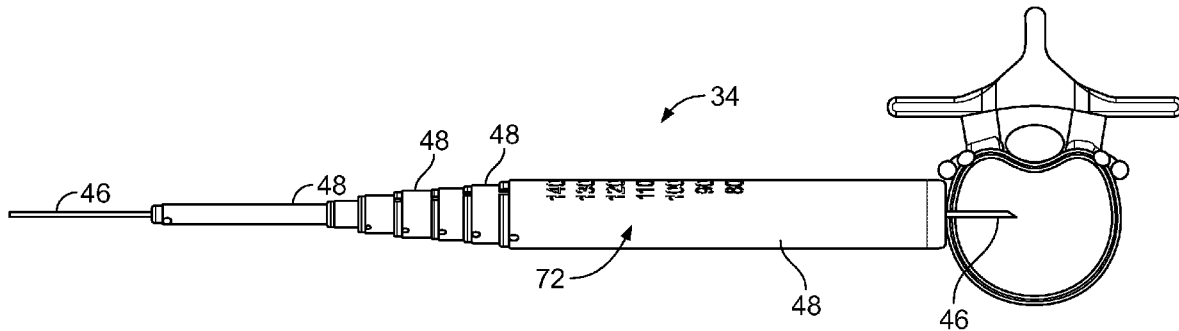
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(57) **ABSTRACT**

The present invention involves systems and related methods for performing surgical procedures and assessments, including the use of neurophysiology-based monitoring to: (a) determine nerve proximity and nerve direction to surgical instruments employed in accessing a surgical target site; (b) assess the pathology (health or status) of a nerve or nerve root before, during, or after a surgical procedure; and/or (c) assess pedicle integrity before, during or after pedicle screw placement, all in an automated, easy to use, and easy to interpret fashion so as to provide a surgeon-driven system.

12 Claims, 31 Drawing Sheets



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