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United States Patent [19] Michelson

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[54] **METHODS AND INSTRUMENTATION FOR THE SURGICAL CORRECTION OF HUMAN THORACIC AND LUMBAR SPINAL DISEASE FROM THE ANTERO-LATERAL ASPECT OF THE SPINE**

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(List continued on next page.)

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 74,781, Jun. 10, 1993, which is a continuation-in-part of Ser. No. 698,674, May 10, 1991, which is a division of Ser. No. 205,935, Jun. 13, 1988, Pat. No. 5,015,247, and a continuation-in-part of Ser. No. 219,626, Mar. 28, 1994.

[51] **Int. Cl.⁶** A61B 17/56
[52] **U.S. Cl.** 606/61; 623/17
[58] **Field of Search** 606/60, 61, 72-79; 623/16, 17

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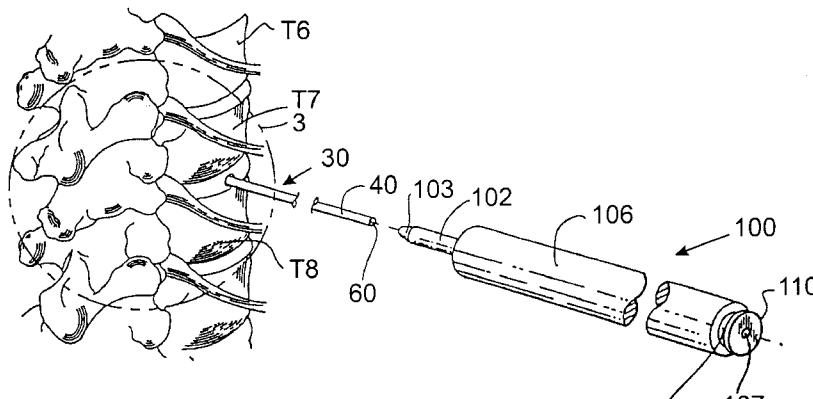
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[57] ABSTRACT

An improved method and instrumentation for performing spinal surgery, including discectomy, interbody fusion and rigid internal fixation of the spine, from the lateral aspect of the spine is disclosed. The surgical procedure can be performed through a very small incision. The instrumentation of the present invention, all of which is inserted from a lateral position into the spine in the preferred embodiment, comprises a guide pin, a distractor, an extended outer sleeve, an inner sleeve an adjustable drill and an implant driver. The distractor of the present invention is driven into the disc for spacing apart and realigning the adjacent vertebrae. It further functions as an alignment rod for inserting the extended outer sleeve which is a hollow tubular member capable of maintaining said spacing and alignment of two adjacent vertebrae and defines a protected space through which subsequent instruments which may include, but are not limited to, a drill and a diameter reducing inner sleeve may be passed, as well as a spinal implant. The remainder of the surgical procedure consisting of the removal of spinal material across the disc, fusion, and rigid internal stabilization via the implant may all be performed via the closed space within the extended outer sleeve.

87 Claims, 14 Drawing Sheets



MSD 1148
IPR2013-00506
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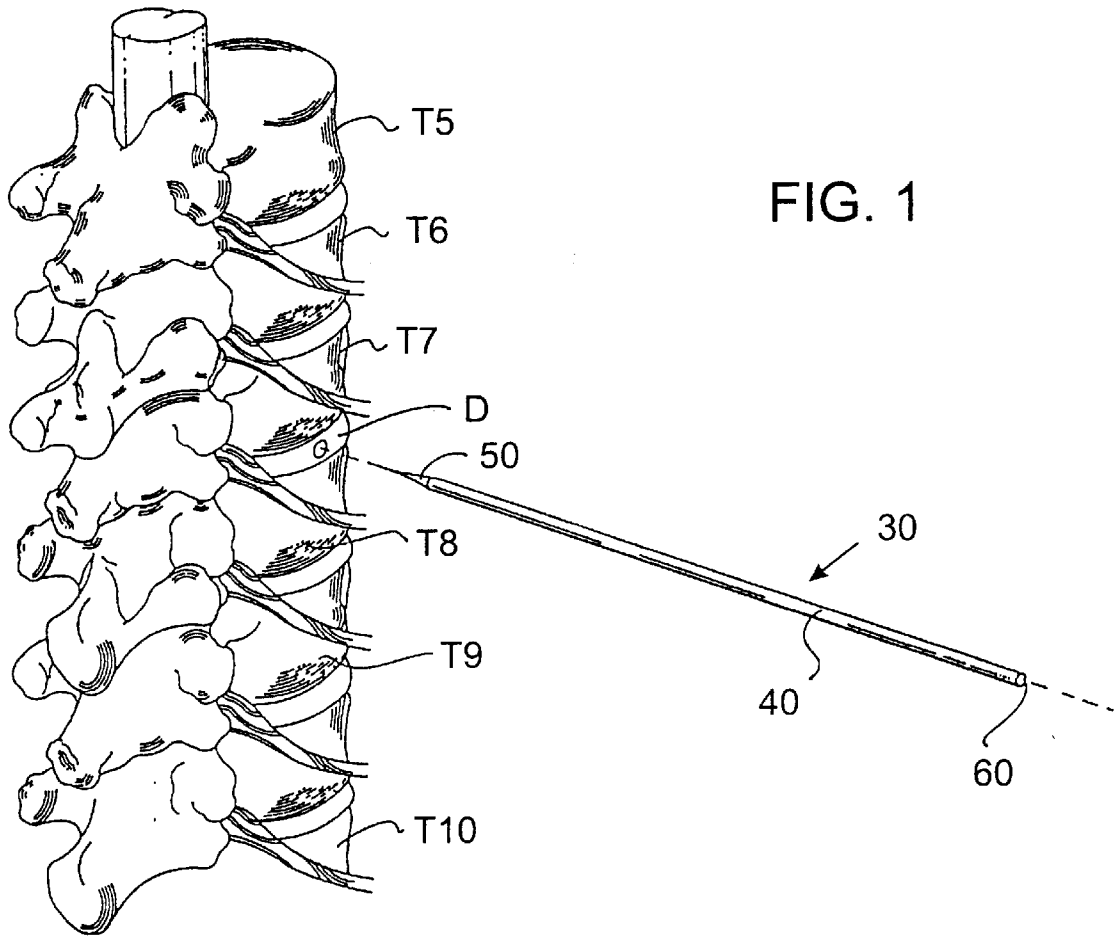


FIG. 1

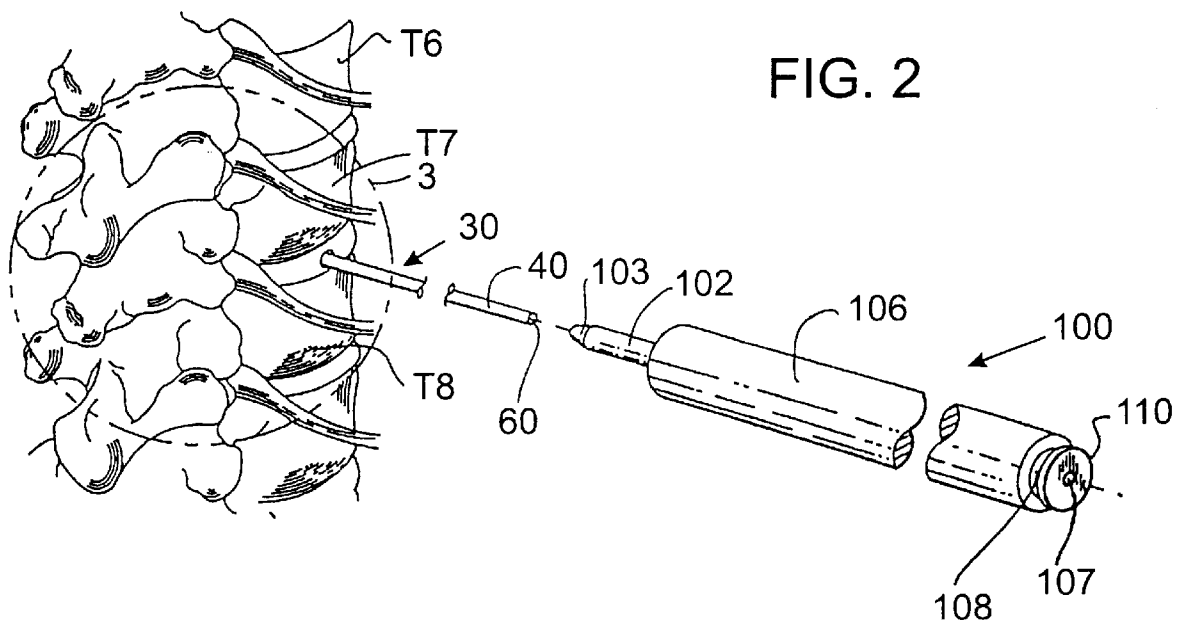


FIG. 2

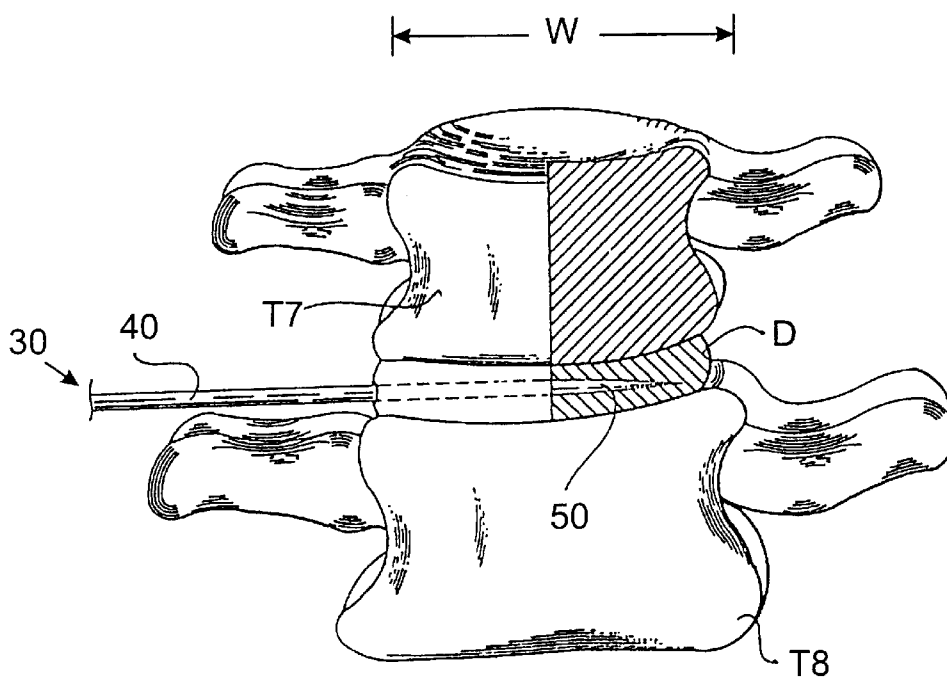


FIG. 3

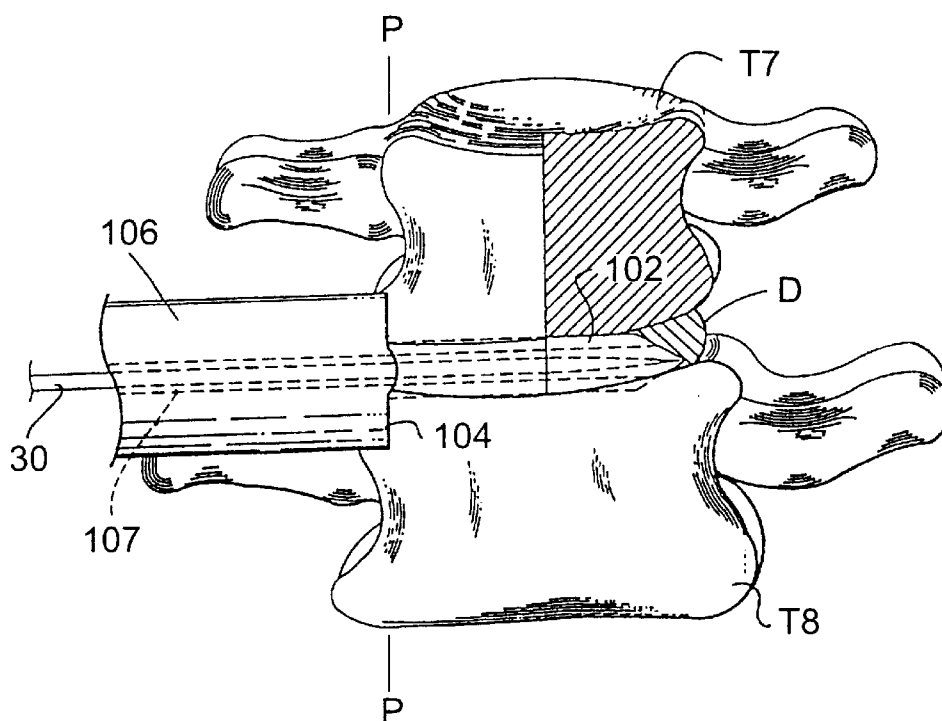


FIG. 4

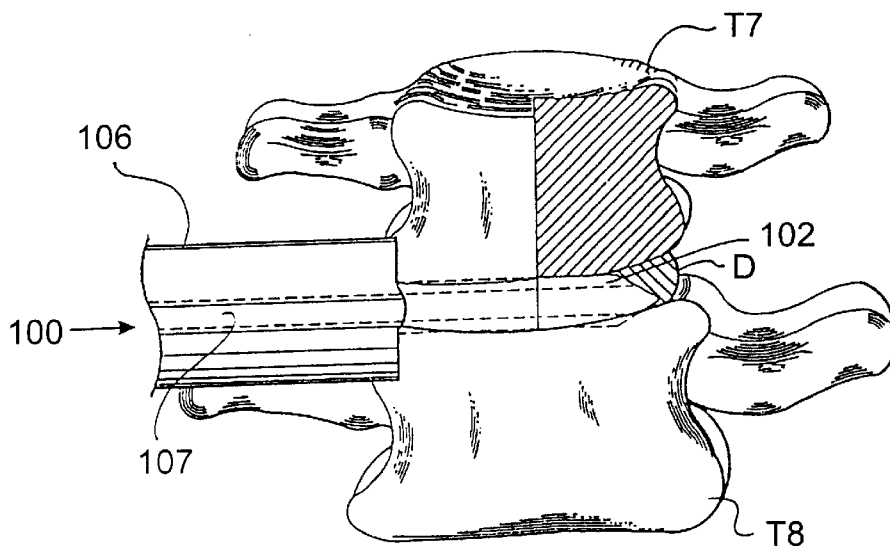


FIG. 5

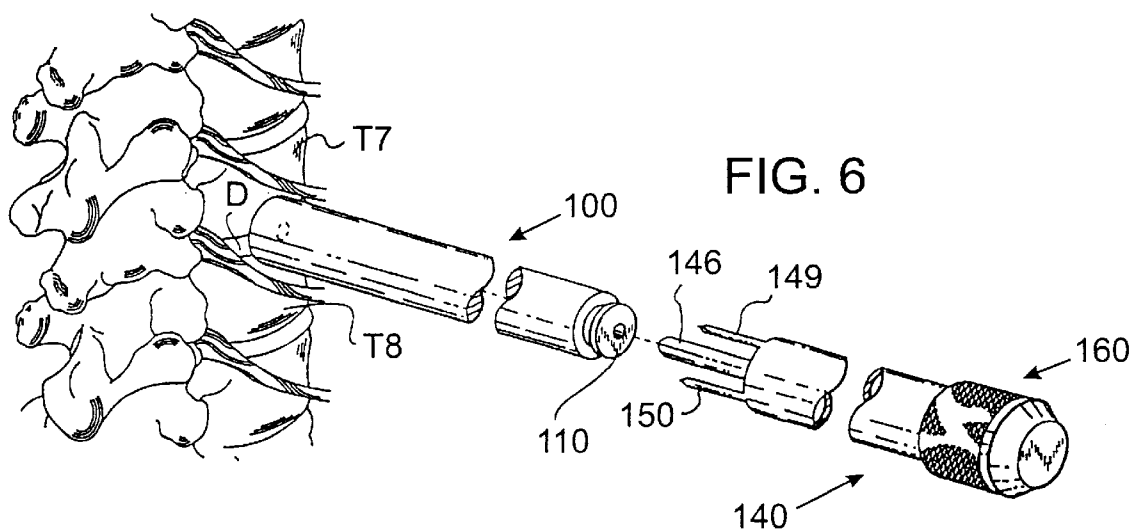


FIG. 6

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