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**Shelton, IV et al.**

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(54) **SURGICAL STAPLING INSTRUMENT  
INCORPORATING AN E-BEAM FIRING  
MECHANISM**  
  
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(51) **Int. Cl.**<sup>7</sup> ..... **A61B 17/072**

(52) **U.S. Cl.** ..... **227/176.1; 227/19; 227/180.1**

(58) **Field of Search** ..... **227/175.1, 175.2,  
227/175.4**

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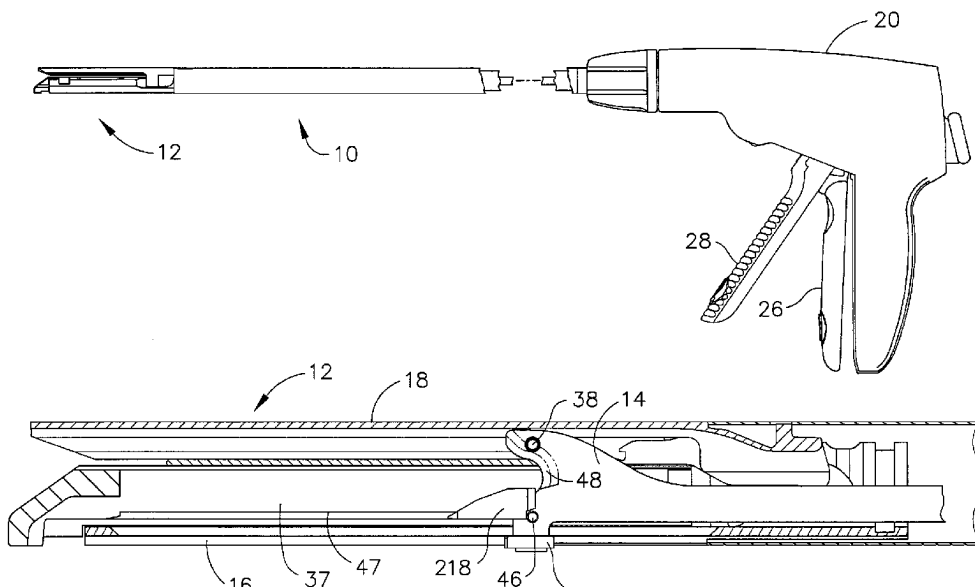
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(57) **ABSTRACT**

A surgical severing and stapling instrument clamps, suitable for laparoscopic and endoscopic clinical procedures, clamps tissue within an end effector of an elongate channel pivotally opposed by an anvil. An E-beam firing bar moves distally through the clamped end effector to sever tissue and to drive staples on each side of the cut. The E-beam firing bar affirmatively spaces the spaces the anvil from the elongate channel to assure properly formed closed staples, especially when an amount of tissue is clamped that is inadequate to space the end effector. In particular, an upper pin of the firing bar longitudinally moves through an anvil slot and a channel slot is captured between a lower cap and a middle pin of the firing bar to assure a minimum spacing.

**17 Claims, 17 Drawing Sheets**



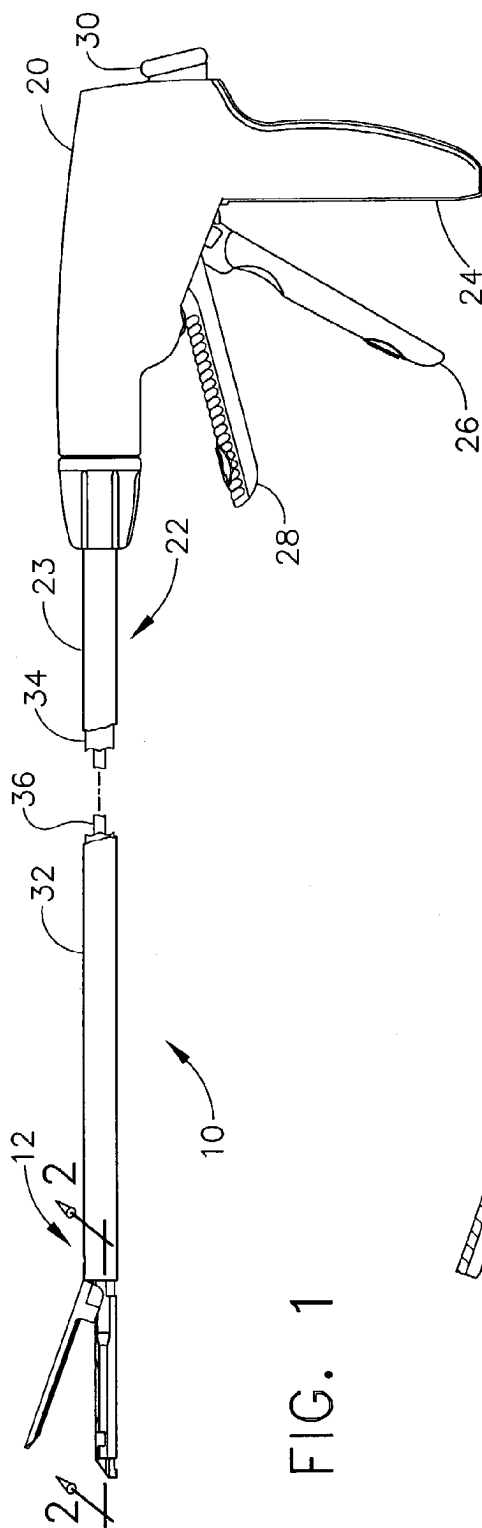


FIG. 1

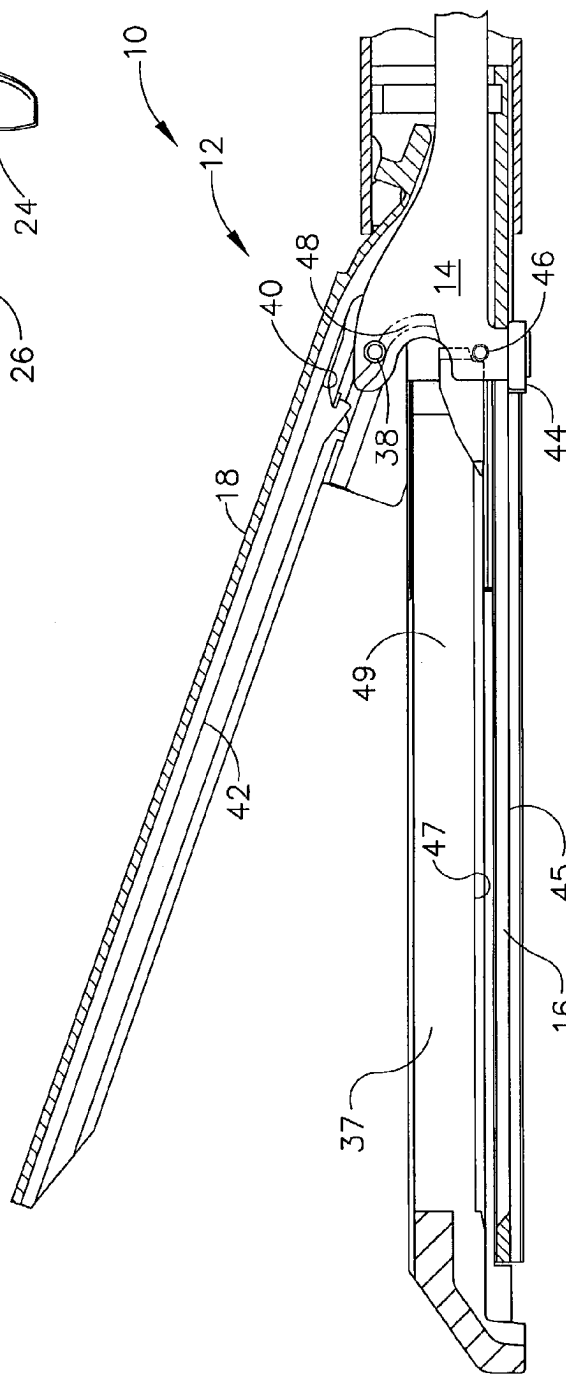


FIG. 2

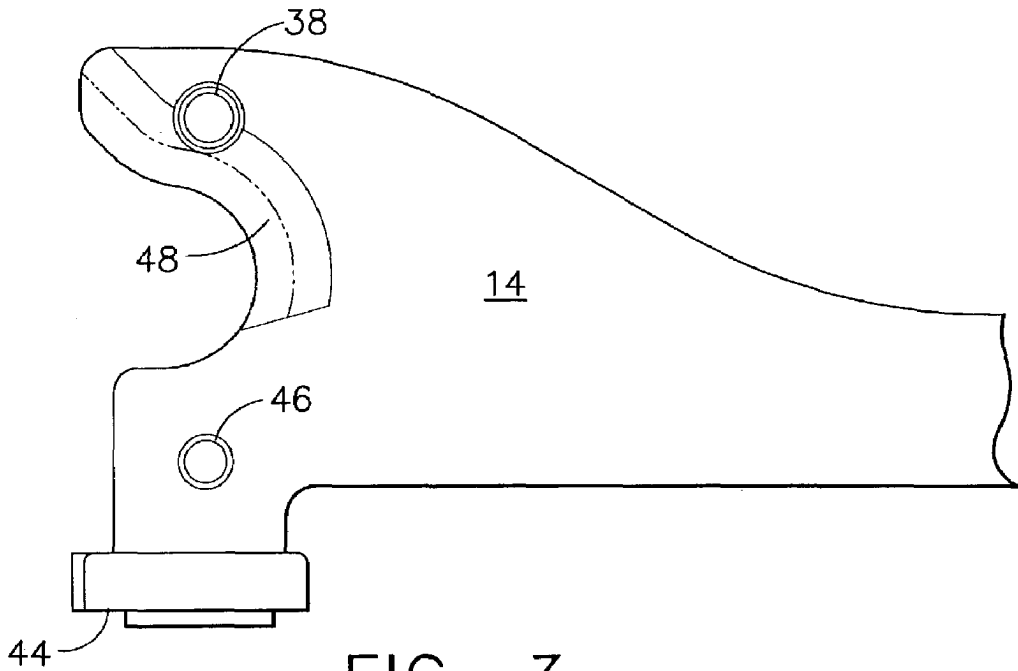


FIG. 3

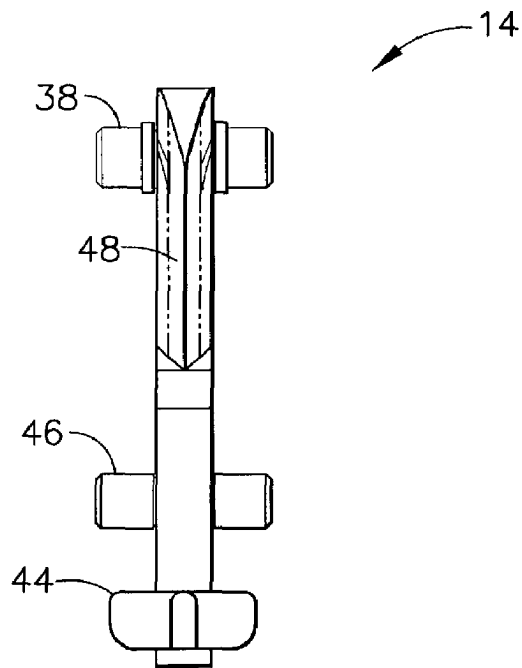


FIG. 4

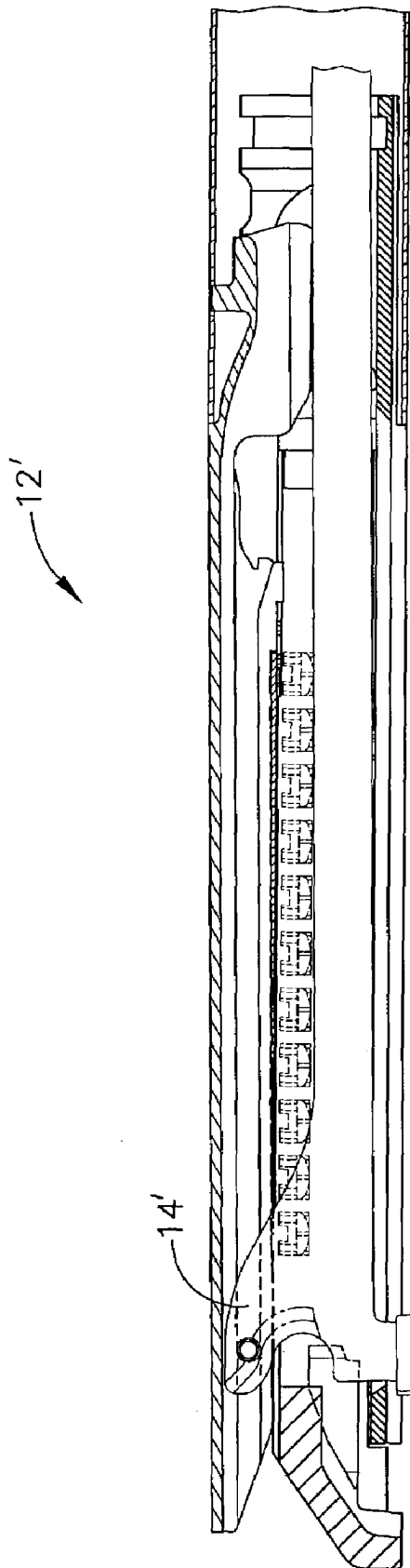


FIG. 5

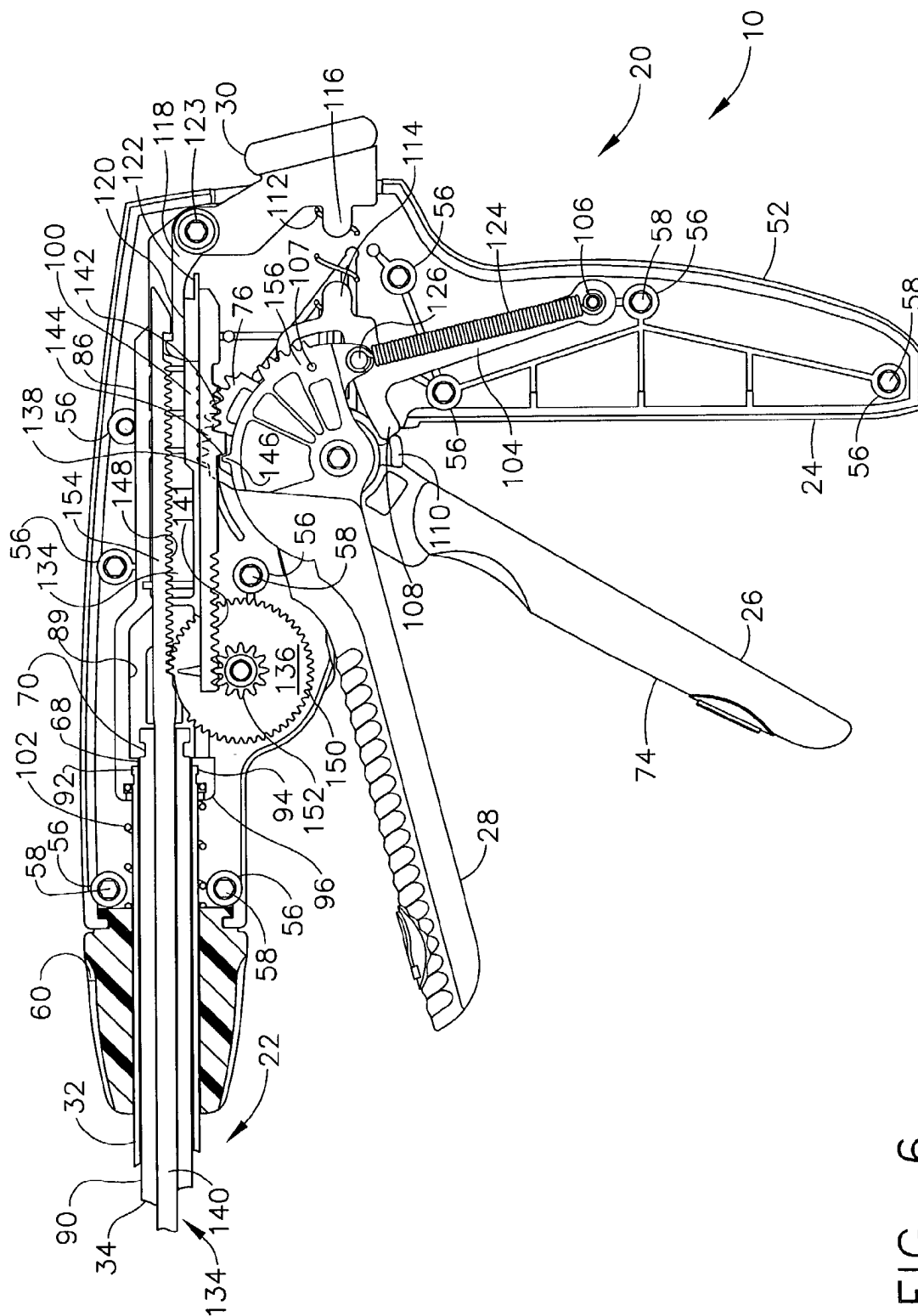


FIG. 6

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