



US 20060175375A1

(19) **United States**

(12) **Patent Application Publication**

**Shelton, IV et al.**

(10) **Pub. No.: US 2006/0175375 A1**

(43) **Pub. Date: Aug. 10, 2006**

(54) **SURGICAL STAPLING INSTRUMENT  
INCORPORATING A MULTI-STROKE  
FIRING MECHANISM WITH RETURN  
SPRING ROTARY MANUAL RETRACTION  
SYSTEM**

**Publication Classification**

(51) **Int. Cl.**  
*A61B 17/10* (2006.01)  
(52) **U.S. Cl.** ..... 227/176.1; 227/19

(75) **Inventors:** **Frederick E. Shelton IV**, Hillsboro, OH (US); **Kevin Ross Doll**, Mason, OH (US); **Douglas B. Hoffman**, Harrison, OH (US); **Michael Earl Setser**, Burlington, KY (US); **Jeffrey S. Swayze**, Hamilton, OH (US)

(57) **ABSTRACT**

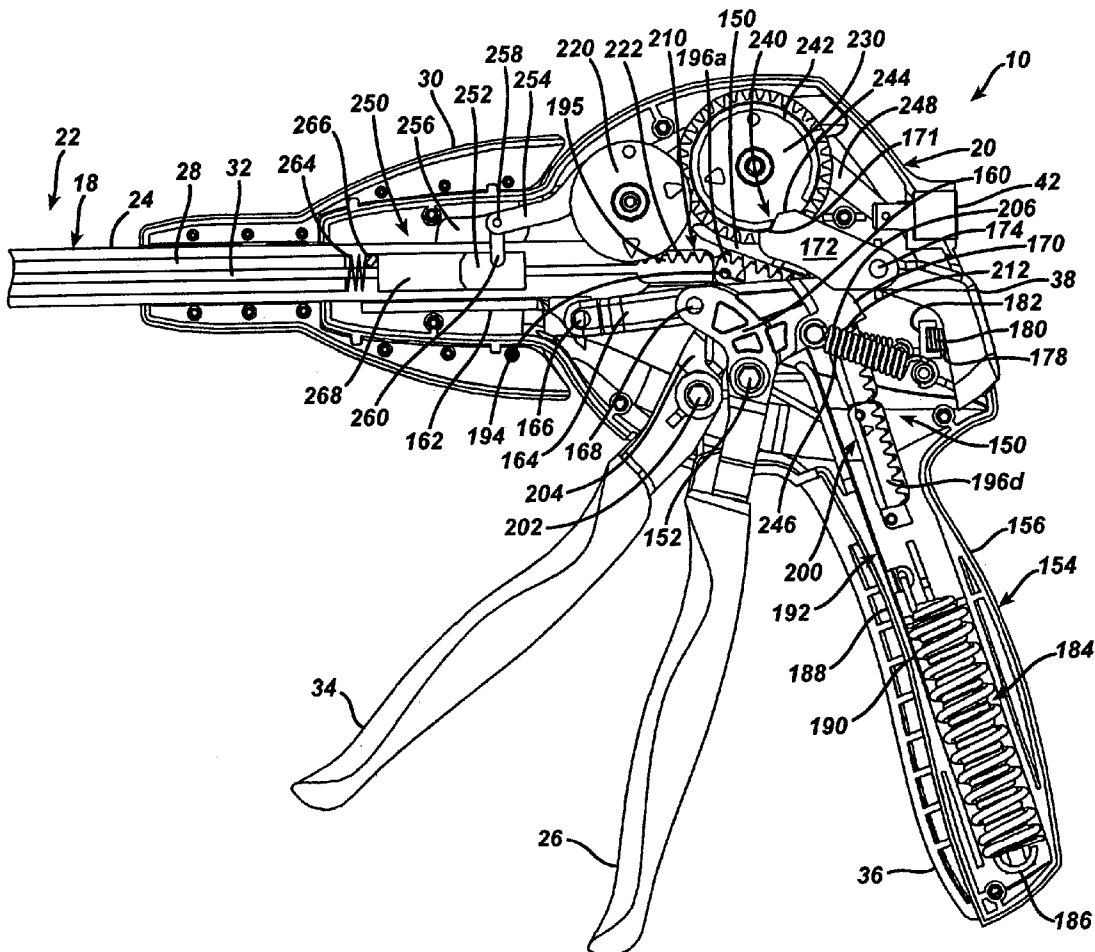
A surgical stapling and severing instrument particularly suited to endoscopic procedures incorporates a handle that produces separate closing and firing motions to actuate an end effector. In particular, the handle produces multiple firing strokes in order to reduce the required amount of force required to fire (i.e., staple and sever) the end effector. A linked transmission reduces the required handle longitudinal length, yet achieves a rigid, strong configuration when straightened for firing. A traction biased firing mechanism avoids binding in driving this straightened linked rack in cooperation with an anti-backup mechanism, with a lockout mechanism that prevents releasing the closure trigger during firing. Furthermore, an external indicator gives feedback to the surgeon as to how far firing has progressed, as well as providing a manual retraction capability.

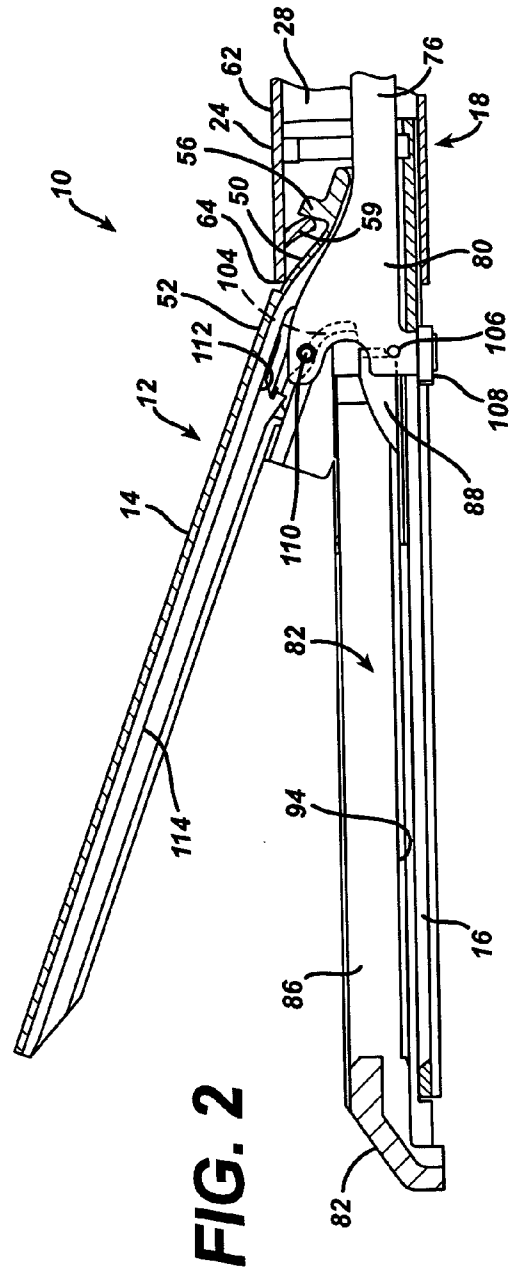
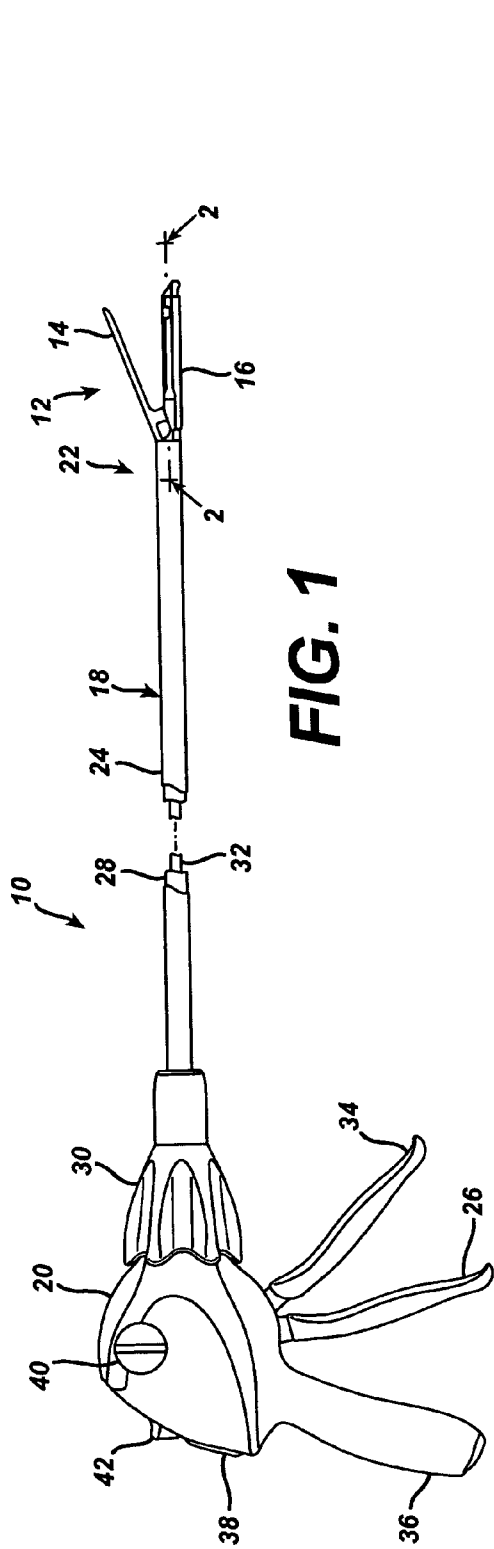
Correspondence Address:  
**FROST BROWN TODD, LLC**  
**2200 PNC CENTER**  
**201 E. FIFTH STREET**  
**CINCINNATI, OH 45202 (US)**

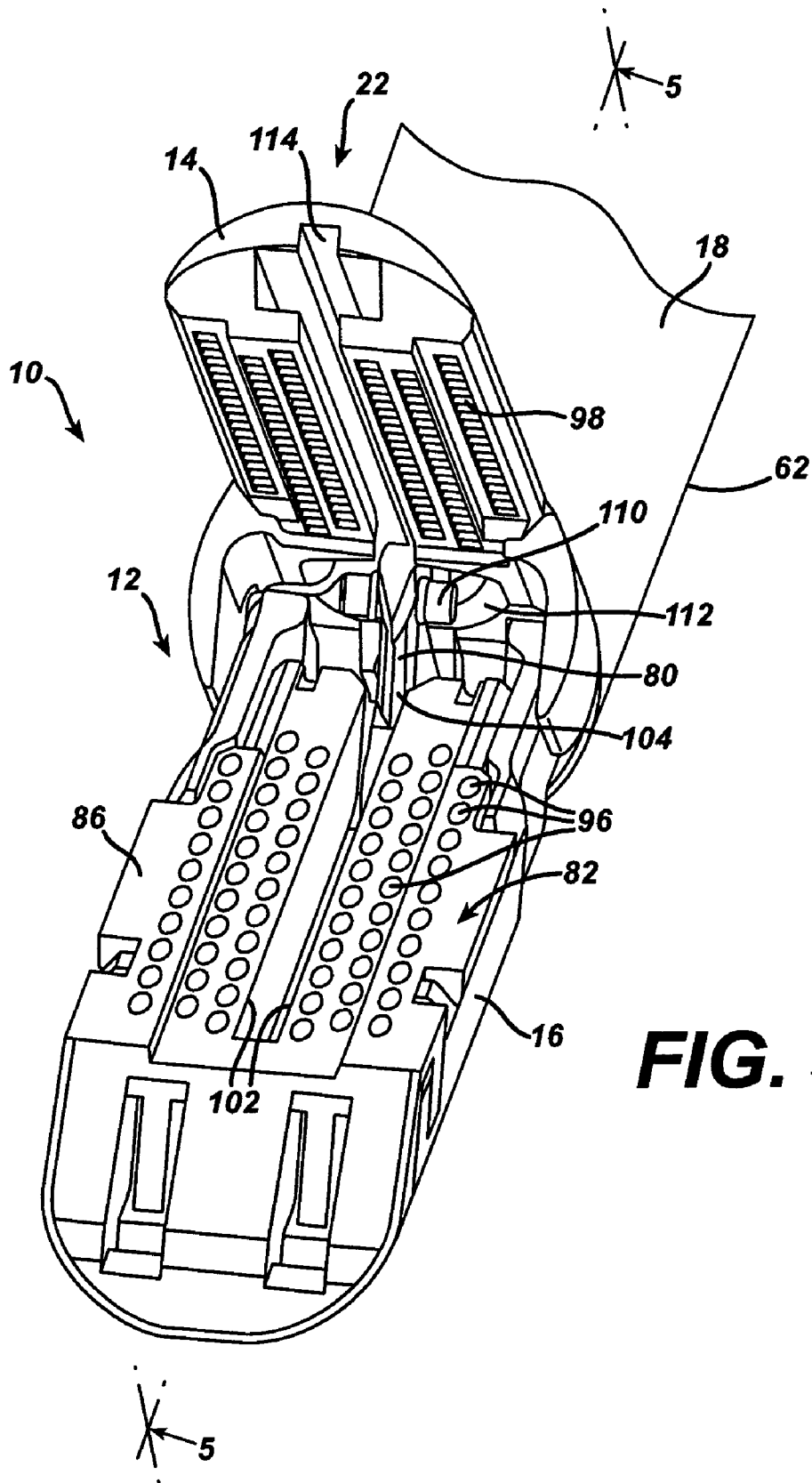
(73) **Assignee: Ethicon Endo-Surgery, Inc.**

(21) **Appl. No.: 11/052,387**

(22) **Filed: Feb. 7, 2005**







**FIG. 3**

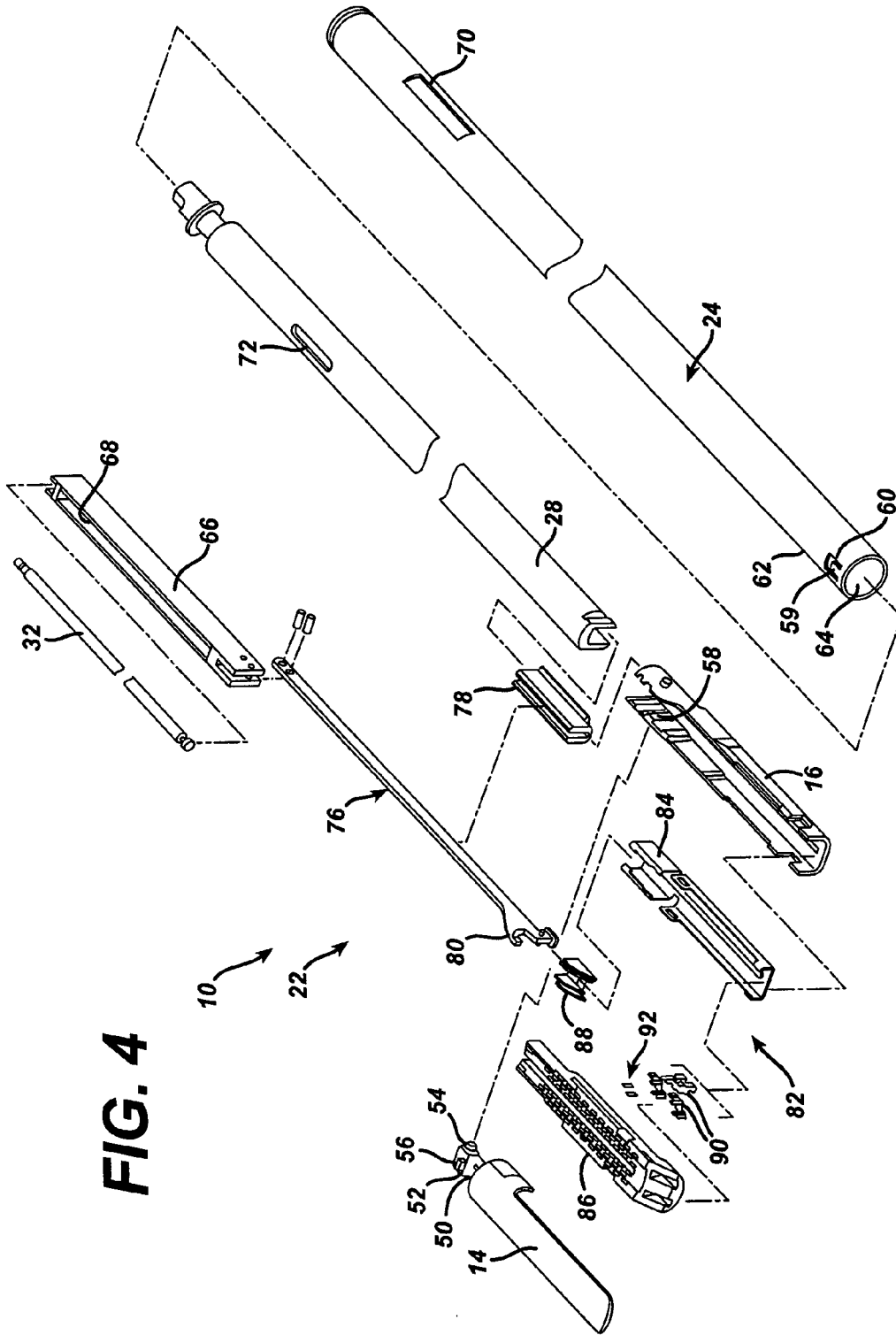
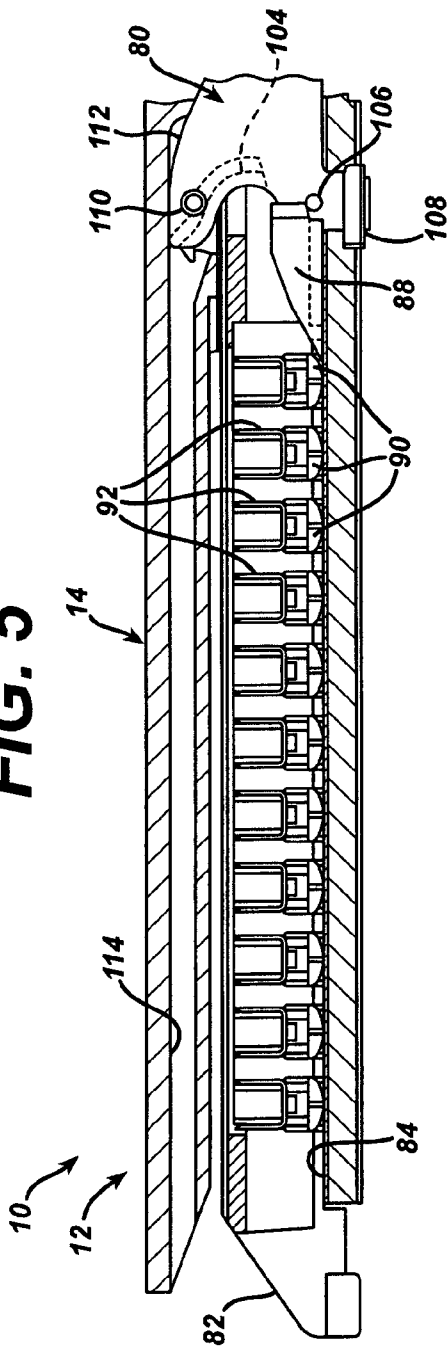
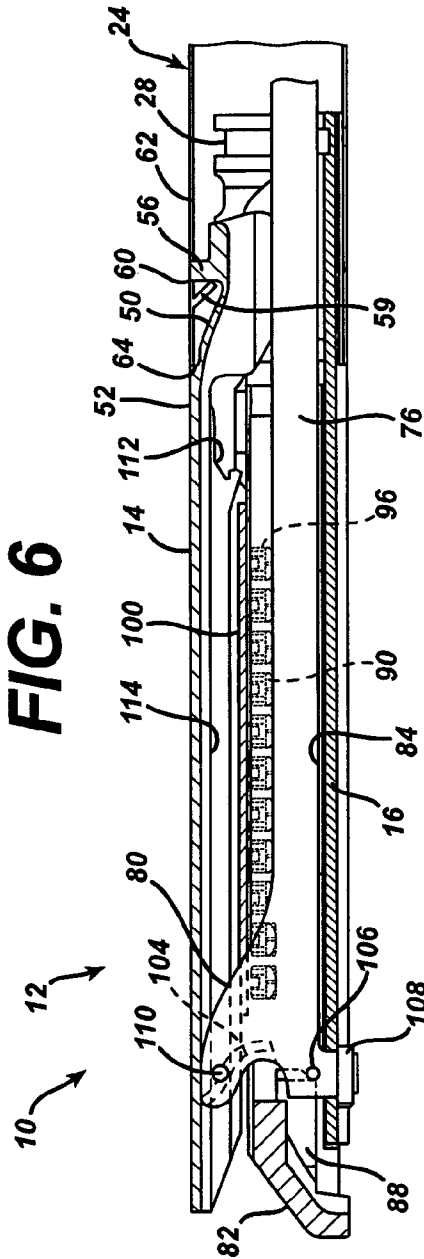


FIG. 4

**FIG. 5**



**FIG. 6**



# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.