

SURGICAL INSTRUMENT HAVING FLUID ACTUATED OPPOSING JAWS

Abstract of the Invention

A surgical stapling and severing instrument enables minimally invasive surgical procedures by having upper and lower jaws (i.e., anvil and staple channel) that are positioned with an elongate shaft and handle through surgical openings, and in particular through a cannula of a trocar. A pair of fluid actuator bladders (lift bags) are positioned in the staple channel beneath a proximally projecting lever tray so that transfer of fluid from the handle causes closing and clamping of the anvil. The bi-directional fluid control may be mechanically produced at the handle or by activating an electroactive polymer actuator. Once firing is sensed, an EAP plunger in a medical substance syringe inserted into the elongate shaft is activated to dispense a medical substance (e.g., anesthetics, adhesives, cauterizing substances, antibiotics, etc.) and is guided along a firing bar to a cutting surface of an E-beam placing the substance on tissue as severed.

Figure 1