need to cross the skin layer. The trans abdominal drive system could be hydraulically coupled to ensure only one violation of the skin at the umbilicus.

[0015] The trans abdominal drive system can transmit motion, energy, and data across a patient's body cavity wall without leaving a permanent scar. The trans abdominal drive system can be applied to laparoscopic surgical procedures including but not limited to appendix removal, gall bladder removal, hernia repair and uterus removal. The trans abdominal drive system allows the surgeon to use laparoscopic tools across a body cavity wall without leaving a scar.

[0016] The trans abdominal drive system can have a 14-gauge needle based drive system designed to mate to a handle on one end and mate to an end effecter on the other end. The trans abdominal drive system can have a needle, a drive trocar, an external plate, an internal plate, an external supporting member, an internal supporting member, an attachment mechanism between the plates, an attachment mechanism between the internal supporting member and the internal plate, an attachment mechanism between the external supporting member and the external plate, a suspension system between the external supporting mechanism and the outer housing, a suspension system between the internal supporting mechanism and the internal plate or a suspension system between the internal supporting mechanism and the end-effecter of the surgical tool, and an outer housing. The trans abdominal drive system could be magnetically coupled to eliminate the need to cross the skin layer. The trans abdominal drive system could be hydraulically coupled, for example, to ensure only one violation of the skin at the umbilicus.

[0017] The present disclosure relates to methods and equipment necessary to perform an elective surgical procedure to remove the gall bladder (Laparoscopic Cholecystectomy) with no visible scarring to the patient. The present invention achieves a no-scar result by using detachable instruments that result in only a needle point puncture through the abdomen.

[0017a] According to an aspect of the invention, there is provided a device for surgery comprising: an introducer rod or delivery system comprising an introducer; an end effector including a working tool, and a rotating-locking element comprising a first connector and a second connector, and wherein the end effector is attached to the working tool; and a control element comprising a control shaft including a distal end for introduction into a target site; wherein the first connector is configured to releasably attach the end effector to the introducer outside of a target site such that the introducer can deliver the end effector into the target site, and wherein the second connector is configured to releasably attach the end effector to the distal end of the control shaft of the control element in the target site.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] Figure 1 illustrates a variation of the surgical device including a secondary introduction tool.

[0019] Figure 2 illustrates the variation of the working portion of the device of Figure 1.