TUBULAR STRUCTURE LIGATOR

– A Minimally Invasive Surgical Instrument (New Product Idea)

Inventor / Patent Holder:

Dr. VIVEK HARIHAR
M.B.B.S, M.S (General Surgery),
F.MAS, D,MAS & M.MAS.

Patent No: 356740 (India)

Introduction -

- The given instrument relates to the field of Operating Surgical Instrument.
- This instrument can ligate and cut tubular organs and tubular structures or tissues simultaneously in a single sitting.
- To the best of our knowledge and understanding, no similar prototype or Ligator instrument is available in the global market.
- The inventor, being a practicing surgeon himself, feels that a good cutting tool always encourages a surgeon to be efficient and always be in demand.

The current technology -

- The current technique consists of two instruments, a clip applicator and a scissor for Ligation of any tubular structure.

or

- A simple free suture to be manually tie around the target structure.

- There are two types of clips, Titanium and plastic clips.
- The Titanium clip will be available in 4 varying sizes, which requires 4 different respective clip applicators.

Need of Invention -

- The dissection of the target organ and ligating the blood vessels supplying it which is a complex procedure for following reasons:
  - Application of sutures or clips requires meticulous dissection of tissue, during the course of which, the adjacent vital structures may get damaged.
  - Sometimes clip dislodges itself from the applicator jaw into the abdominal cavity even before applying, which is considered as a loss and is most commonly noted problem in Minimally Invasive Surgeries.
  - Slippage of sutures and dislodgement of clip in the abdominal cavity may cause haemorrhage, stump leak, clip cholelithiasis, abscess formation and etc, in the post-operative period.

- Hence there is a need of an improved tissue cutting tool or instrument that can overcome above mentioned drawbacks.

About the Invention -

- A single instrument in which the ligators and scissor are incorporated, so that instrument acts as a ligator and as well as scissor.
- A unique type of ligators cause 360 degree strangulation of the tissue, causing complete stoppage of its blood flow, facilitating a clean hemostatic cut / ligation.
- Easy to operate particularly in limited operating field and consumes less time.

Additional Significant Advantages -

- Apart from conventional open surgeries, this instrument can also be fitted into different modes of surgeries like
  - Laparoscopic,
  - Thoracoscopic and
  - Robotic surgery,
- This instrument in particular is very useful in Appendectomy, where to dissect meso-appendix and ligate the appendicular artery, one needs at least 30 minutes. With this instrument, the complete appendectomy procedure can be done in 3 to 5 minutes.

Additional Significant Advantages (continued) -

- This instrument is very useful in surgery, where the access to target tissue will be very difficult. In such situations, this instrument can be easily negotiated into the deeper planes, without the need of meticulous dissection or causing any injury to the neighbouring tissues. Hence dissecting of the tissue is minimised as well as surgical complications.
- Such type of instrument increases the efficiency of surgeon.

Applications -

This instrument can be used in different fields of surgeries like…

- Minimally Invasive Surgery / General Surgery - Appendectomy, Cholecystectomy, Splenectomy and Thyroidectomy.
- Gynaecological surgeries - Female sterilization etc.
- Gastro-intestinal surgeries – Bowel resection procedures.
- Neurosurgery - Cerebral aneurysm clamping.
- Urology – Nephrectomy.
- Vascular surgeries - Varicose vein surgery and Ligation of various blood vessels.
- Cardiac surgeries - for taking venous grafts in cardiac bypass surgery.

Schematic diagram representing the invention instrument -

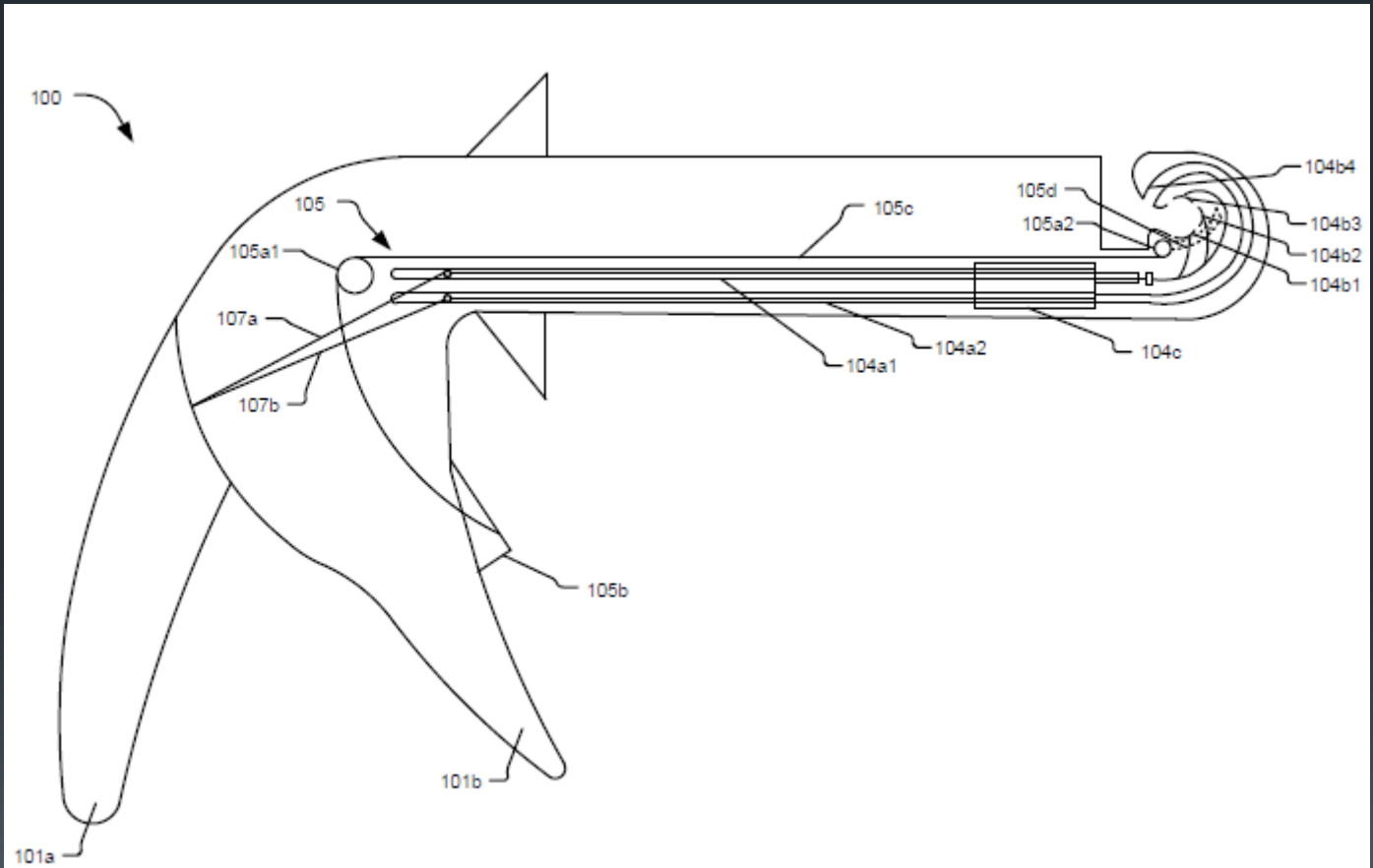
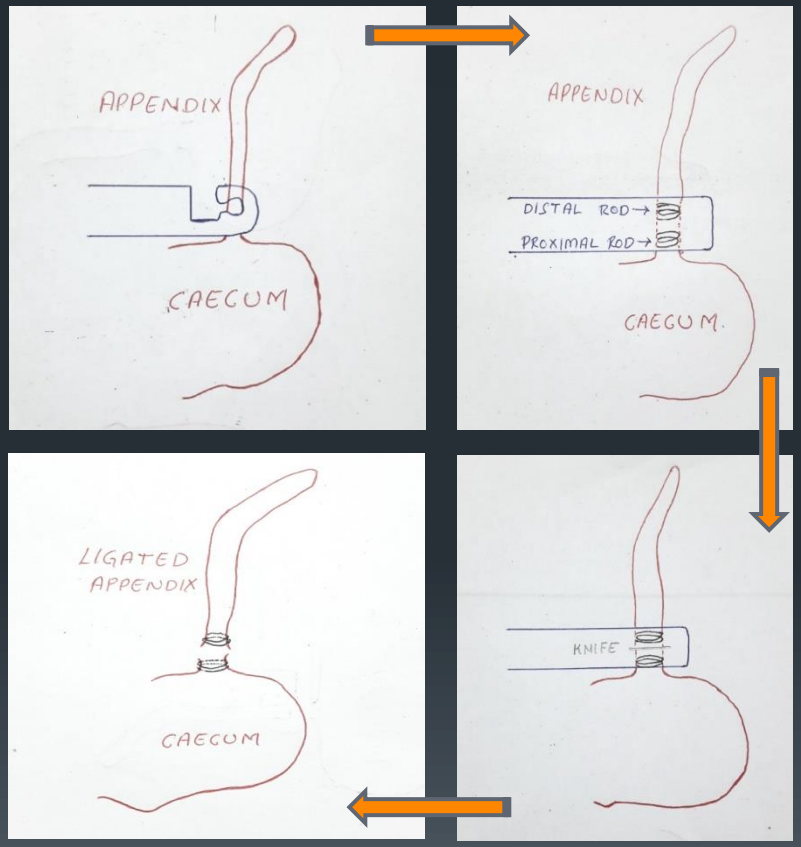


FIG. 1

Explaining the working of the instrument with an illustration -

1.Considering a case of appendicitis, where appendix is identified and hooked.



2. Handles are closed, showing the application of proximal and distal winding structures / rods

3. Fired trigger, showing the appearance of cutting Knife and cutting the tissue

4. Representation of successfully ligated appendix

Expectations -

- Patentee is interested in sale of IP
- Patentee wishes to offer Licensing Rights.

Additional Note -

To safeguard the Technology and keep all its technical details confidential, further details will be shared with interested entities pursuant to execution of a mutual Non Disclosure Agreement (NDA).

Contact Details -

IIPRD Consulting

Arindam Purkayastha

Email: commercialization@iiprd.com | arindam@iiprd.com
Phone: +91-120- 4296878; +91-9811542307
Address: E-13, UPSIDC, Site-IV, Behind-Grand Venice, Kasna Road, Greater Noida - 201310, UP, National Capital Region, India.