# Surgical Instruments

# 66

Alexandra Ferre, Raul J. Rosenthal, Emanuele Lo Menzo, and Samuel Szomstein

## Open Surgery

### Blades and Knife Handles

#### History

Evidence of knives used in medicine goes back as far as the Mesolithic Period (Middle Stone Age)—around 8000 BC, when flint knives were used as scrapers to cut through the skull. It is presumed that the skull was penetrated to allow the escape of demons that caused headaches, melancholy, or epilepsy [1–5]. Hippocrates was the first to describe the surgical knife, employing *macairion*, derived from *machaira*, an old Lacedaemonian sword, which had a broad cutting blade on a single edge and a sharp, straight point. Therefore, even in Hippocrates' time, the shape of the scalpel was much the same as it is today. Galen in his early writings used the word *smilé* to denote a scalpel. The Romans used the Latin *scallpellus*, from which the English *scalpel* is clearly derived. This was the golden age of surgery in Rome, when Celsus and Galen, as leaders of Roman surgery, followed the teaching of Hippocrates. After the death of Galen and the other great surgeons of the second century AD, there came a period of hundreds of years in which the art of medicine and surgery fell back under the sway of religious fanatics.

Fortunately, the stagnation of surgical innovation that prevailed in Medieval Europe led to the dawn of the Golden Age of Islamic medicine and surgery. Islam's most valuable contributions were in the field of surgery throughout the tenth and thirteenth centuries. Muslim surgeons such as Albucasis developed numerous previously unknown surgical instruments and further perfected existing tools such as the scalpel. Translation of his encyclopedia entitled *Kitab al-Tasrif* sparked a similar revolution in Western surgery and influenced the likes of Chauliac and Paré during the fourteenth and fifteenth centuries [6].

Paré began as a barber surgeon and became a military surgeon, then a master surgeon, and finally surgeon to the court of Henry II, King of France. Paré improved and refined surgical instruments more than any other man. The development of the modern scalpel with disposable blade, as we know it today, was the result of Mr. King Gillette's invention of the safety razor (patented in 1904). In 1910, the eminent Dr. John B. Murphy of Chicago perfected special handles for both single- and double-edged razor blades, assuring the surgeon of ready access to a very sharp knife blade. Although Murphy's handles permitted the use of these blades, they were not satisfactory from a technical standpoint. It was Morgan Parker who figured a way to put the blade and handle together without a third part. His new two-piece design provided rigidity and enabled the exchange of old blades for new after each use [1, 6].

**#10 Blade** (Fig. 66.1)
Alias: skin blade.
Use: making skin incision.
Additional information: attaches to a #3 handle.

**#15 Blade** (Fig. 66.2)
Alias: none.
Use: multipurpose blade.
Additional information: attaches to a #3 or #7 handle.

**#11 Blade** (Fig. 66.3)
Alias: none.
Use: cutting.
Additional information: used for making incisions for laparoscopic trocars.

A. Ferre · R. J. Rosenthal · S. Szomstein (✉)
Department of General Surgery, Cleveland Clinic Florida, Weston, FL, USA
e-mail: rosentr@ccf.org; szomsts@ccf.org

E. Lo Menzo
The Bariatric and Metabolic Institute, Digestive Disease Institute, Weston, FL, USA

Department of General Surgery, Cleveland Clinic Florida, Weston, FL, USA
e-mail: lomenze@ccf.org



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**Fig. 66.1** #10 blade

**Fig. 66.2** # 15 blade

**Fig. 66.3** # 11 blade

**Fig. 66.4** #3 knife handle

**#3 Knife Handle** (Fig. 66.4)
Alias: scalpel.
Use: holds knife blade.
Additional information: used for the 10, 11, and 15 blades. Various lengths from short to long; usually straight but can be angled [4].

**#7 Knife Handle** (Fig. 66.5)
Alias: none.
Use: attaching knife blade.
Additional information: use with a 15 blade.

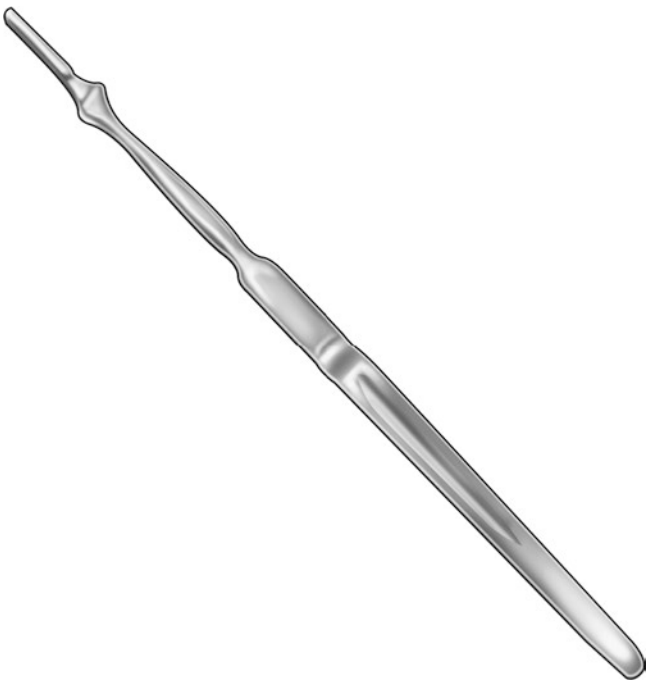


**Fig. 66.5** #7 knife handle

## Scissors

**Mayo Scissors** (Fig. 66.6)
Alias: suture scissors.
Use: cutting.
Additional information: multipurpose scissor, most often for cutting sutures.

**Curved Mayo Scissors** (Fig. 66.7)
Alias: curved mayo.
Use: cutting.
Additional information: larger than Metzenbaum often used for cutting tough tissue.

### History

The Mayo scissors have semiblunt ends and are either straight or curve-bladed as shown above. Straight-bladed Mayo scissors were designed for cutting body tissues near the surface of the wound, however, are also used for cutting sutures or stitches and, as such, are often called suture scissors. Curved Mayo scissors were developed to cut thick tissues such as the uterus during pelvic surgery but can also be used for less delicate dissection [5].

**Metzenbaum Scissors** (Fig. 66.8)
Alias: Metz, tissue scissors [4].
Use: cutting delicate tissue and blunt dissection.

**Fig. 66.6** Mayo scissors

**Fig. 66.7** Curved Mayo scissors

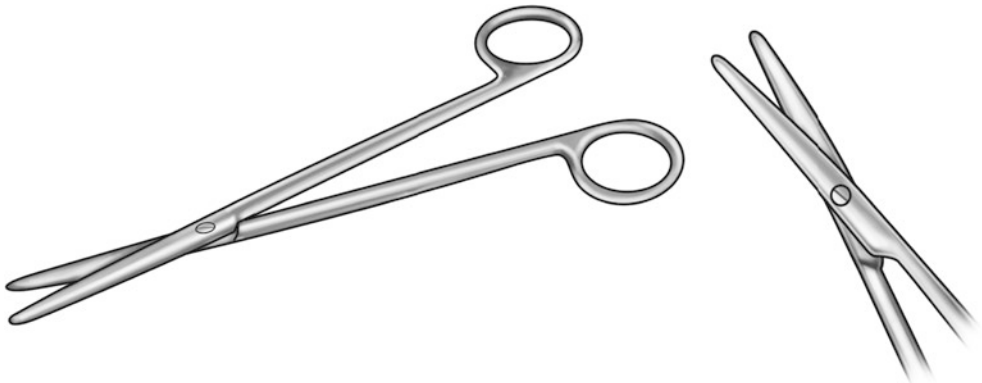


**Fig. 66.8** Metzenbaum scissors

### History

Myron Metzenbaum (1876–1944) was born in Cleveland, Ohio, and was trained in otolaryngology at the Crile Clinic (later Cleveland Clinic). In 1908 he became a member of the American Academy of Ophthalmology and Otolaryngology and received his certification from the American Board of Otolaryngology. Metzenbaum was also a founding member of the America Board of Plastic Surgery in 1937 with the vision of uniting the specialized fields that treat congenital and acquired deformities.

Metzenbaum (short name Metz) scissors are typically used for cutting and dissecting through soft tissues. They are blunt-tipped scissors with curved or straight blades. Compared to Mayo scissors, they are lighter and have a longer handle and a more slender midsection that allows their use in tighter operating fields [5].

### **Potts Scissors** (Fig. 66.9)

Alias: vascular scissors, Potts-Smith [4].

Use: cutting.

Additional information: 25–60 angled blades; various lengths; can be forward or reverse angles. Used for cutting down the shaft of the vessel in preparation for a graft. To extend venotomy or arteriotomy incisions [4].

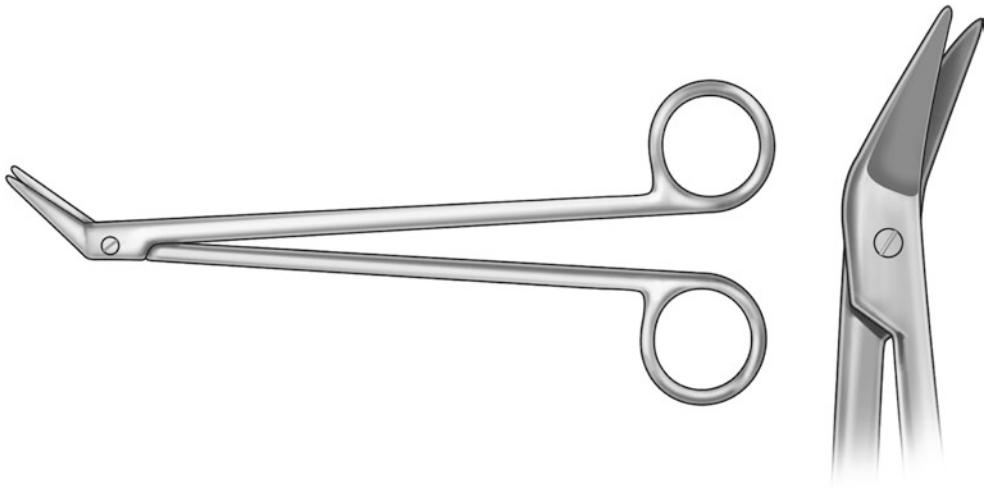
### **Strully Scissors** (Fig. 66.10)

Alias: dissecting scissors, neurological scissors.

Use: cutting fine tissue during abdominal, vascular, or neurosurgery.

Additional information: slightly curved blades with probe tips; 8 inches long [4].

**Fig. 66.9** Potts scissors



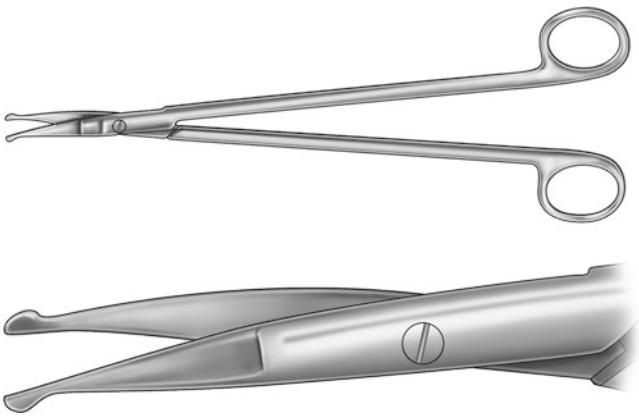


**Fig. 66.10** Strully scissors

**Fig. 66.11** Electrocautery pencil

## Electrocautery Pencil

### Electrocautery Pencil (Fig. 66.11)

Alias: bovie.

Use: cutting and coagulation.

Additional information: plugs into an electrosurgical unit (ESU) for cutting and coagulation of tissue. Requires a grounding pad for the patient.

#### History

The history behind the invention of this device models the ideals of the pioneering spirit and collaboration between clinicians and scientists. The use of heat in a therapeutic manner dates as far back as the prehistoric period, when heated stones were used to achieve hemostasis [6]. It was not until scientific discoveries of the eighteenth century that a possibility for using electricity to generate heat for cautery was considered.

In 1900, the electrical current's coagulation properties were discovered by a Parisian physician, Joseph Rivière, while treating an insomniac patient. Rivière accidentally touched one of the metal plate electrodes and noted that an arcing spark from the electrode coagulated his skin causing no burn. This observation sparked the first true use of electricity in surgery, when Rivière used the electrical current to treat an ulcer of the dorsum of a patient's hand.

Doyen, who coined the term electrocoagulation, improved current penetration by placing a grounding plate on the patient. William Clark further improved their electrical apparatus by increasing the amperage and decreasing the voltage to achieve a short spark capable of deeper tissue penetration. He coined the term desiccation and became the first American to safely use electrosurgery in the removal of malignant lesions of the skin, head/neck, breast, and cervix [6, 7].

In an effort to improve the diathermy unit developed by Clark, William Bovie experimented with increasing the current frequency while also installing a surgical loop that could be used by a surgeon for cutting, coagulation, and desiccation. Bovie was the first to propose that different currents could be used for coagulation versus cutting. Of note, the original Bovie design was first used by the father of American neurosurgery Dr. Harvey Cushing at the Peter Bent Brigham Hospital in Boston in October 1, 1926, to remove an enlarging head myeloma [6]. The collaboration between Bovie and

Cushing is often cited as the spark that spawned the era of translation research between clinicians and basic scientists to achieve medical progress [8].

## Suction

**Poole Suction** (Fig. 66.12)
Alias: none.
Use: suction.
Additional information: suction of large volumes of irrigation fluid out of the abdominal cavity.

**Yankauer Suction Tip** (Fig. 66.13)
Alias: none.
Use: suction.
Additional information: common general surgery suction tip for suctioning of blood and fluid during surgery.

## Needle Holder

**Mayo-Hegar Needle Holder** (Fig. 66.14)
Alias: needle driver.
Use: suturing.
Additional information: available in a variety of sizes, depending on the size of the needle to be used.

**Heaney Needle Holder** (Fig. 66.15)
Alias: none.
Use: suturing.
Additional information: recognized by the curved jaw.

## Forceps

**Adson Forceps** (Fig. 66.16)
Alias: skin forceps.
Use: grasping.
Additional information: common forceps for use in skin suturing. Smooth end or with 1 × 2 teeth or 2 × 3 teeth; $4^3/_4$ inches long [4].

**Adson Brown Forceps** (Fig. 66.17)
Alias: none.
Use: grasping.
Additional information: differentiated from regular Adsons by teeth. Commonly used in cosmetic and ENT surgery. 7 × 8 or 9 × 9 teeth; $4^3/_4$ inches long [4].

**Bonney Forceps** (Fig. 66.18)
Alias: bonneys.
Use: grasping.
Additional information: heavy pickup used for grasping the fascia to close the peritoneum.

**Fig. 66.12** Poole suction

**Fig. 66.13** Yankauer suction tip

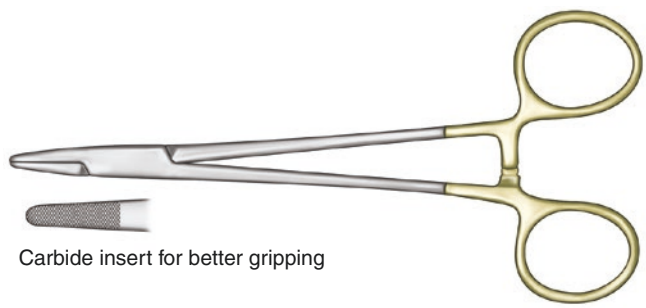



**Fig. 66.14** Mayo-Hegar needle holder

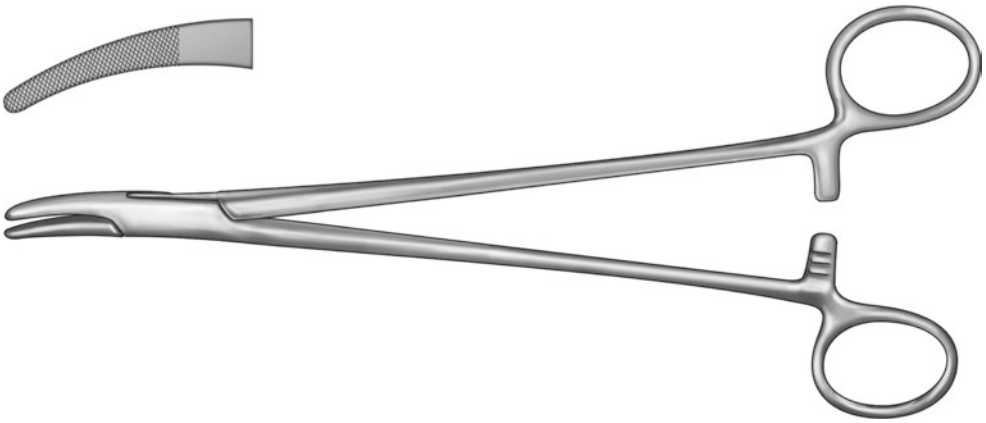


**Fig. 66.15** Heaney needle holder

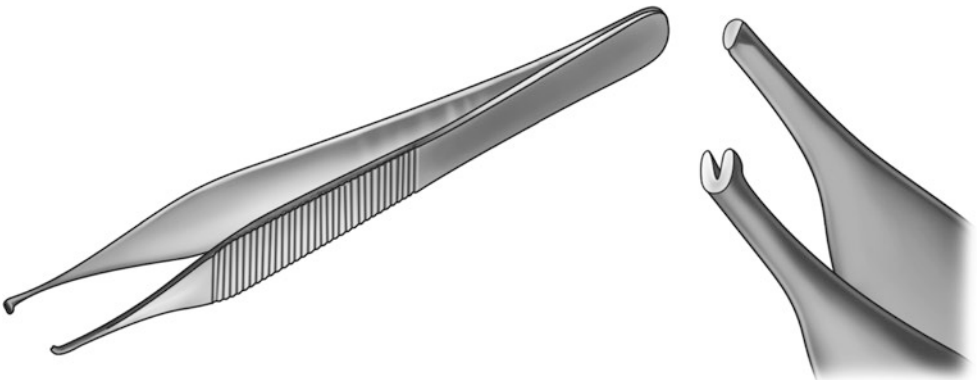


**Fig. 66.16** Adson forceps

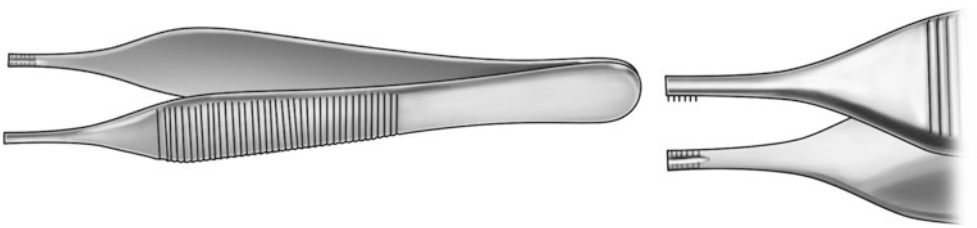


**Fig. 66.17** Adson Brown forceps

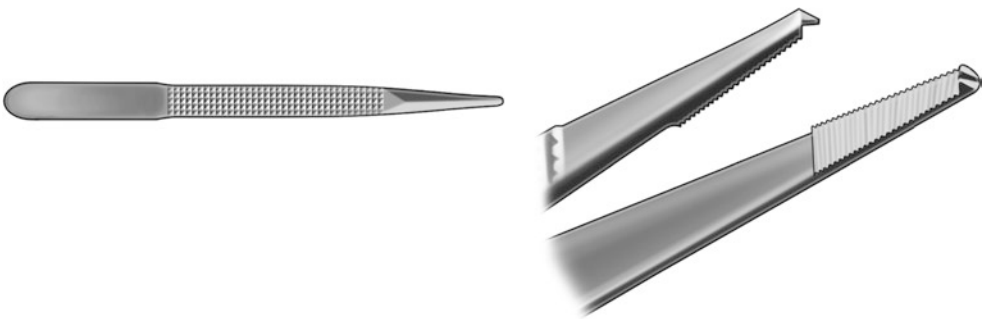


**Fig. 66.18** Bonney forceps

**DeBakey Forceps** (Fig. 66.19)
Alias: none.
Use: grasping.
Additional information: used to grasp more delicate structures such as vessels, bowel, and soft tissue. Straight or angled tip; various tip lengths; various jaw tip widths [4].

**Rat Tooth Forceps** (Fig. 66.20)
Alias: toothed pickups.
Use: grasping.
Additional information: commonly used to grasp bone or when closing the umbilical port after laparoscopic surgery.

**Gerald Tissue Forceps** (Fig. 66.21)
Alias: none.
Use: grasping.
Additional information: small vascular pickup.

**Russian Forceps** (Fig. 66.22)
Alias: none.
Use: grasping.
Additional information: nontraumatic multipurpose grasper. To approximate tissue during wound closure (i.e., abdominal wall fascia, uterus); to lift clots when evacuating hematomas. 6, 8, and 10 inches long [4].

**Foerster Sponge Forceps** (Fig. 66.23)
Alias: sponge stick, ring forceps, sponge forceps, Fletcher sponge forceps [4].
Use: grasping.
Additional information: often has a radiologically detectable gauze folded in the jaw for blunt dissection and dabbing in open abdominal surgeries.

## Clamps/Hemostats

### History

The predecessor of the modern hemostat, called bec de corbin, was developed by Parè. Hemostatic clamps, arterial

**Fig. 66.19** DeBakey forceps

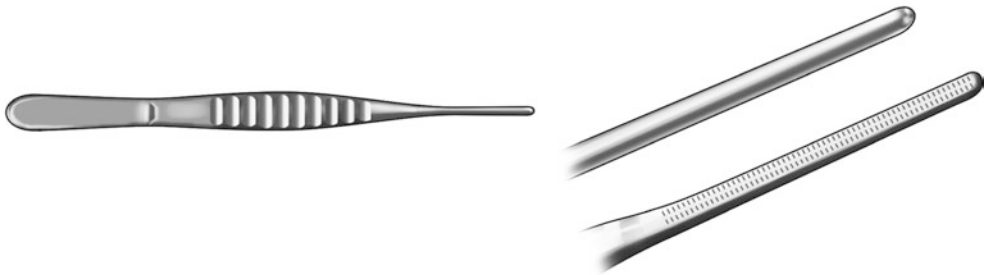


**Fig. 66.20** Rat tooth forceps

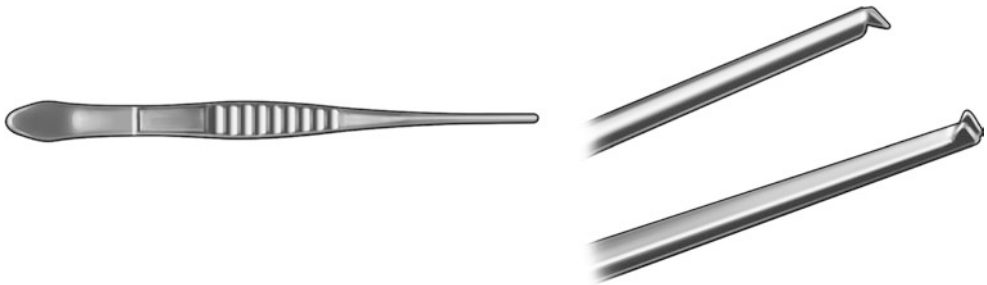
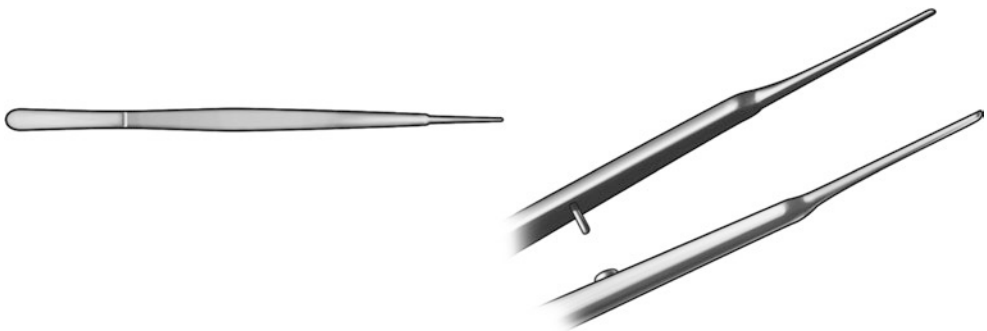


**Fig. 66.21** Gerald tissue forceps



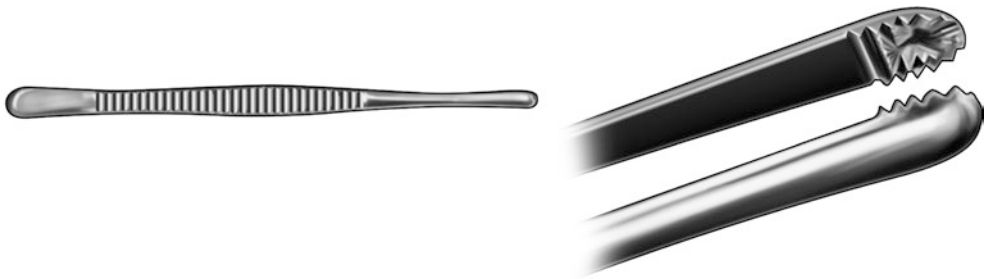


**Fig. 66.22** Russian forceps

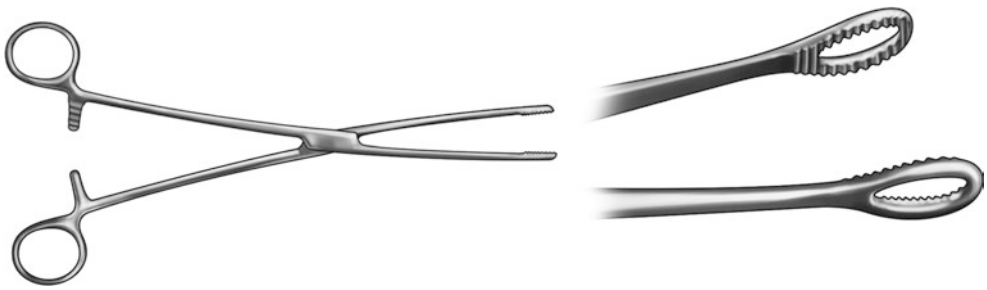


**Fig. 66.23** Foerster sponge forceps

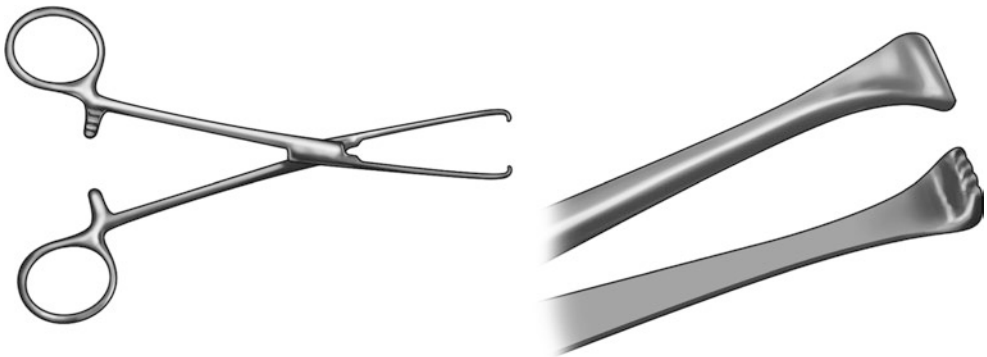


**Fig. 66.24** Allis clamp

forceps, or peangs were initially used primarily to control bleeding by clamping a vessel before securing it with a ligature. The name peang stems from the French surgeon Pèan, to whom credit has been given for creating the first of the modern hemostats [9–11].

### Allis Clamp (Fig. 66.24)

Alias: none.

Use: grasping.

Additional information: to grasp and hold tissues or organs; to secure any operating material (i.e., cords and suction tubing) onto the drapes. 4 × 5, 5 × 6, or 9 × 10 teeth; various lengths; angular jaws [4].

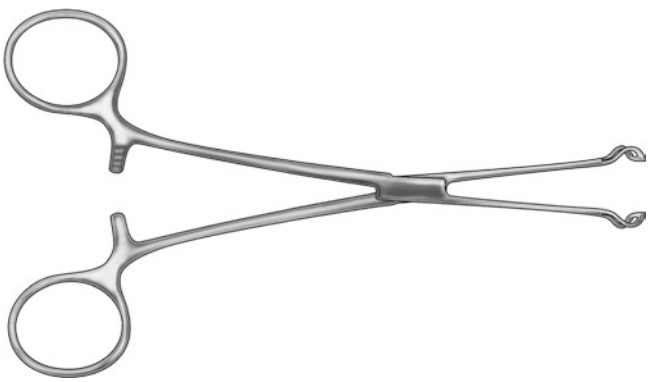


**Fig. 66.25** Babcock clamp

#### History

The renowned orthopedic surgeon Allis lends his name to multiple devices including an ether inhaler, splint, and dissector; however, he is most recognized for the long-armed forceps, which he developed as a means to manipulate intestinal ends during bowel anastomosis. Allis describes his device as having inward-curved blades which are toothed with lateral-edge serrations allowing for turning in the mucous edge while approximating the serous edge during the anastomosis [11].

### Babcock Clamp (Fig. 66.25)

Alias: none.

Use: grasping.

Additional information: for grasping soft tissue, lymph nodes, and bowel. Heavy or delicate jaws; various lengths ($5^1/_2$–$9^1/_2$ inches) [4].

### Crile Clamp (Fig. 66.26)

Alias: snap clamp, Péan clamp, Rankin clamp, Rochester clamp, Schnidt clamp.

Use: clamping.

Additional information: to secure temporary hemostasis in deep anatomy. Straight or curved; serrated along entire length of jaw; various lengths [4].

#### History

Crile was a prolific surgeon best known for his advancements in head, neck, and thyroid surgery. He was the innovator of many devices including the rubber-shod, spring-loaded vascular clamps used in radical neck dissections and the Crile hemostat, which resembles those developed by Halsted but varies in size [11].

### Halsted Clamp (Fig. 66.27)

Alias: hemostat.

Use: clamping.

Additional information: to secure individual bleeding vessels for hemostasis. Straight or curved; serrated along entire length of jaw; various lengths [4].

### Adson Clamp (Fig. 66.28)

Alias: hemostat.

Use: clamping.

Additional information: to secure hemostasis of vessels. Straight or curved; $7^1/_4$ or $8^3/_4$ inches long; serration along half the length of jaw [4].

### Doyen Clamp (Fig. 66.29)

Alias: Doyen intestinal forceps.

Use: control bleeding temporarily during gastrointestinal surgery.

Additional information: straight or curved; longitudinal serrations; flexible blades [4].

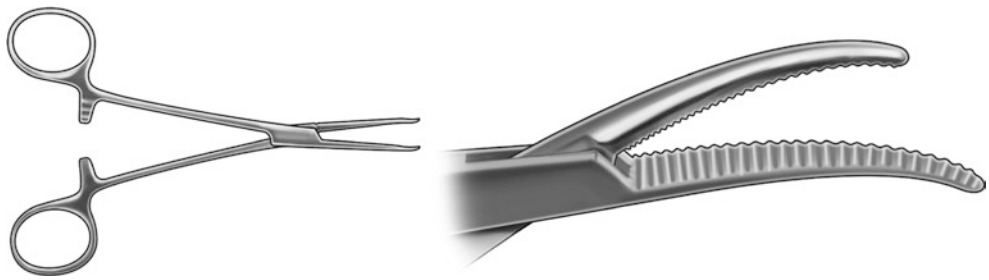


**Fig. 66.26** Crile clamp

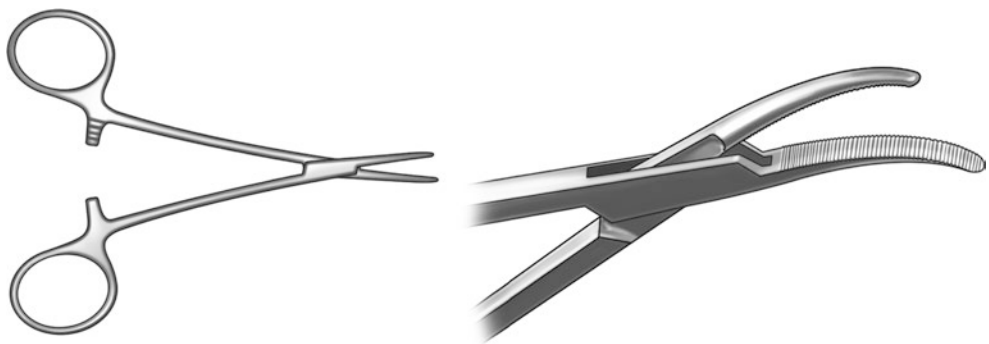


**Fig. 66.27** Halsted clamp

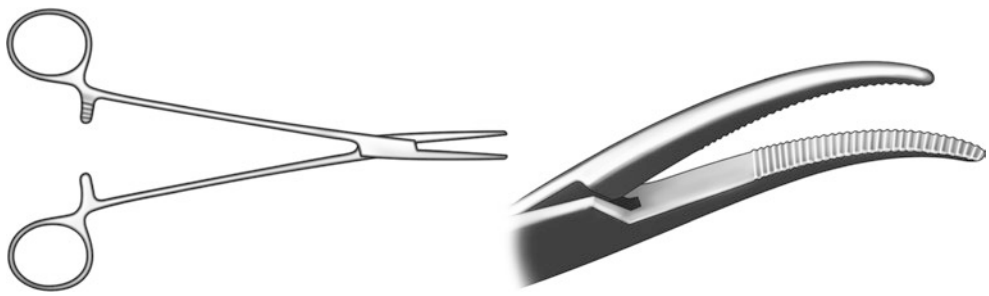


**Fig. 66.28** Adson clamp

**Fig. 66.29** Doyen clamp

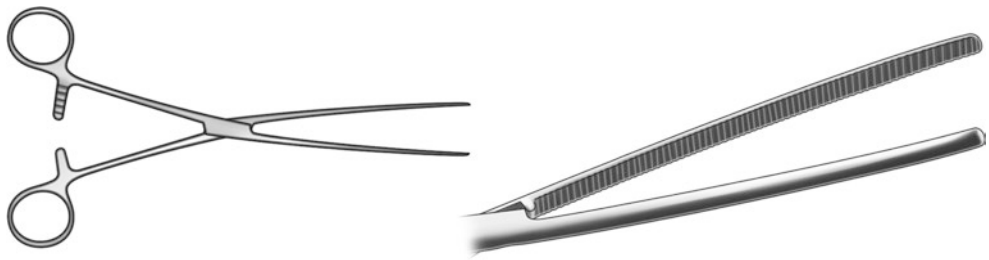
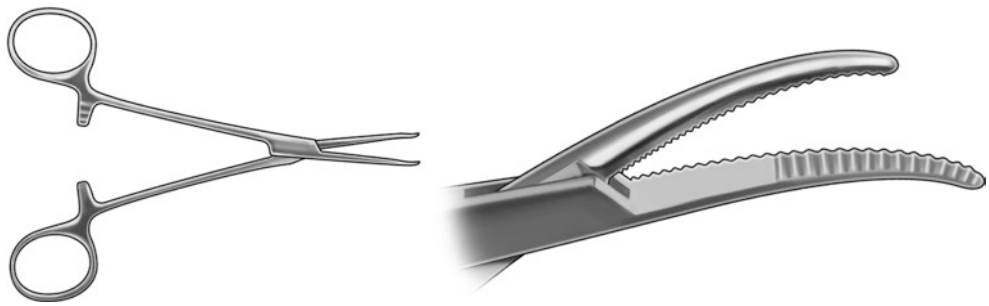


**Fig. 66.30** Carmalt clamp

**Fig. 66.31** Kelly clamp



**Carmalt Clamp** (Fig. 66.30)
Alias: none.
Use: clamping.
Additional information: larger than a Kelly and the same size as a peon, the Carmalt with its characteristic jaws are used to clamp bowel.

**Kelly Clamp** (Fig. 66.31)
Alias: snap.
Use: clamping.
Additional information: the most basic of the clamps, multipurpose. Straight or curved; serrations along part of length of jaw; 5–10 inches long [4].

**Mosquito Clamp** (Fig. 66.32)
Alias: snap clamp.
Use: clamping, dissection.
Additional information: smaller than Kelly with similar jaw. To secure hemostasis of delicate tissues. Straight or curved; serrations along the entire length of jaw; 5–5$^{1}/_{2}$ inches long [4].

**Right Angle Clamp** (Fig. 66.33)
Alias: none.
Use: clamping.
Additional information: often used to pass things under structures or separate and dissect soft tissue structures.

**Tonsil Clamp** (Fig. 66.34)
Alias: Schnidt.
Use: clamping.
Additional information: often used with silk or Vicryl ties off the end for ligating structures.

**Towel Clamp** (Fig. 66.35)
Alias: Backhaus towel clamp.
Use: grasping and approximating.

**Non-perforating Towel Clamp** (Fig. 66.36)
Alias: Lorna.
Use: grasping.
Additional information: securing drapes; securing suction, ESU, or camera cords to the drape.

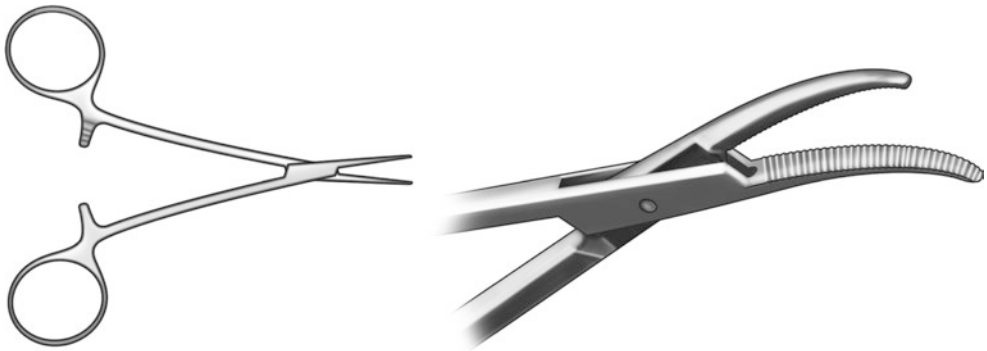


**Fig. 66.32** Mosquito clamp

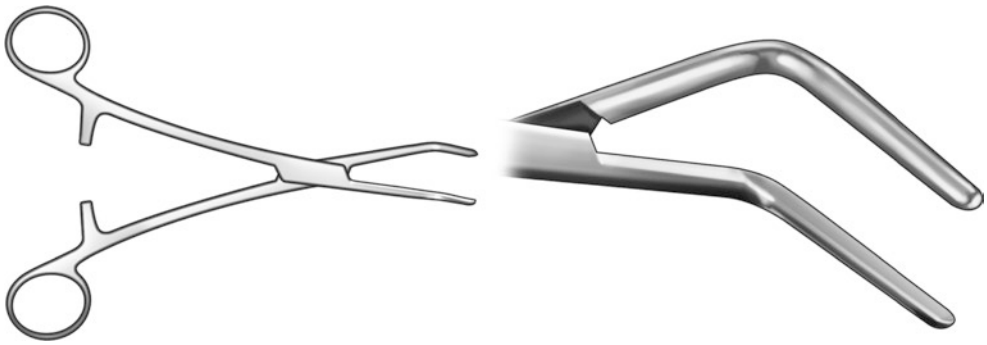


**Fig. 66.33** Right angle clamp

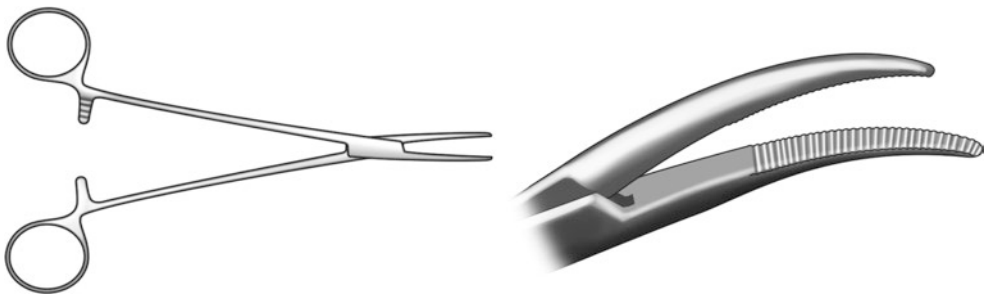


**Fig. 66.34** Tonsil clamp

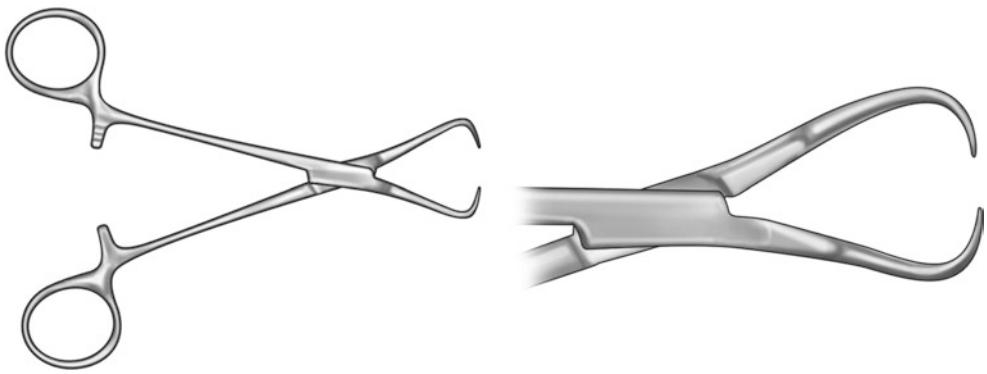


**Fig. 66.35** Towel clamp

## Kocher Clamp (Fig. 66.37)

Alias: none.

Use: grasping bone or fascia.

Additional information: to secure hemostasis or to grasp tissue. Straight or curved; fine or heavy; various lengths [4].

### History

Throughout a productive lifetime, Kocher contributed more than 200 articles and books on his experimental studies of the thyroid gland, traumatic epilepsy, brain damage, and intracranial pressures. He was renowned for his devotion to solving medical problems, which enabled him to become the first Swiss citizen and the first surgeon to be awarded the

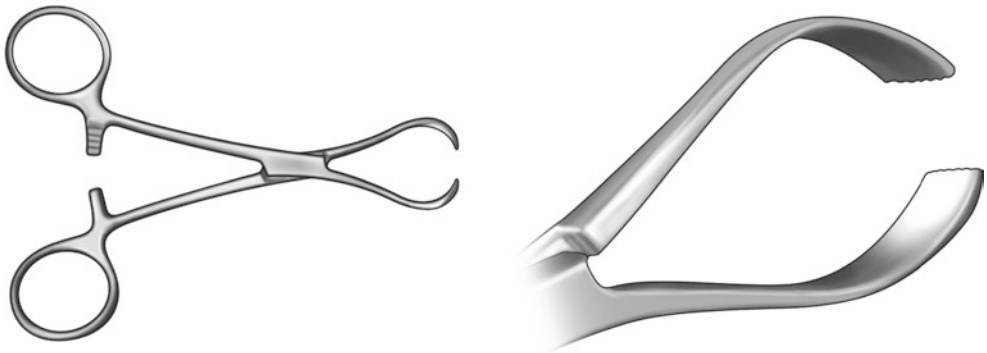


**Fig. 66.36** Non-perforating towel clamp

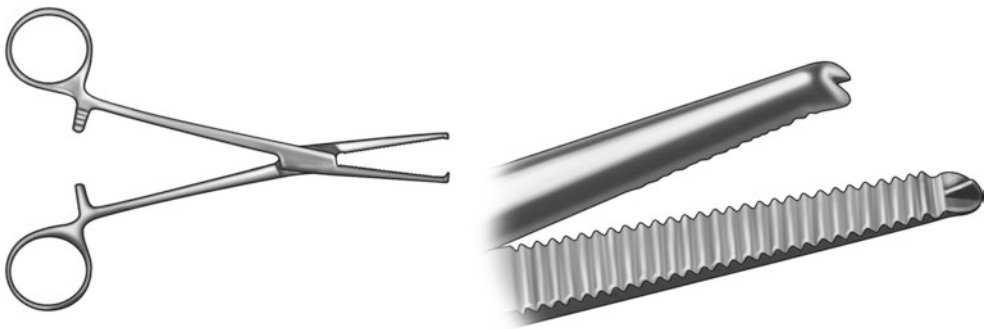


**Fig. 66.37** Kocher clamp

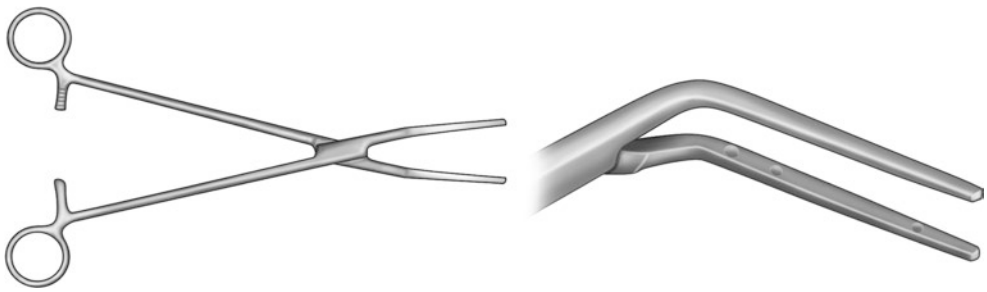


**Fig. 66.38** Aortic clamp

Nobel Prize in recognition for his contributions relating to the pathophysiology and surgery of the thyroid gland. Kocher's devotion to advancing asepsis during surgery prompted his design of the interlocking toothed clamp, designed to allow a firm grip of dense tissues while the surgeon ligates bleeding points, reducing at the same time the risk of contamination [11].

**Aortic Clamp** (Fig. 66.38)
Alias: none.
Use: clamping.
Additional information: non-traumatic DeBakey clamp like teeth used to clamp the aorta in a AAA repair.

**DeBakey Clamp** (Fig. 66.39)
Alias: none.
Use: clamping large vessels.
Additional information: multipurpose nontraumatic vascular clamp.

**Glover Clamp** (Fig. 66.40)
Alias: none.
Use: clamping.
Additional information: large nontraumatic vascular clamp.

**Satinsky Clamp** (Fig. 66.41)
Alias: Satinsky vena cava clamp.
Use: vascular clamping.
Additional information: partial occlusion of blood vessel; occludes blood flow to clamped-off area but allows blood flow to continue through the rest of the vessel.

**Duval Clamp** (Fig. 66.42)
Alias: none.
Use: grasping.
Additional information: used for grasping the lung. Atraumatic; small medium or large tip; straight or angled [4].

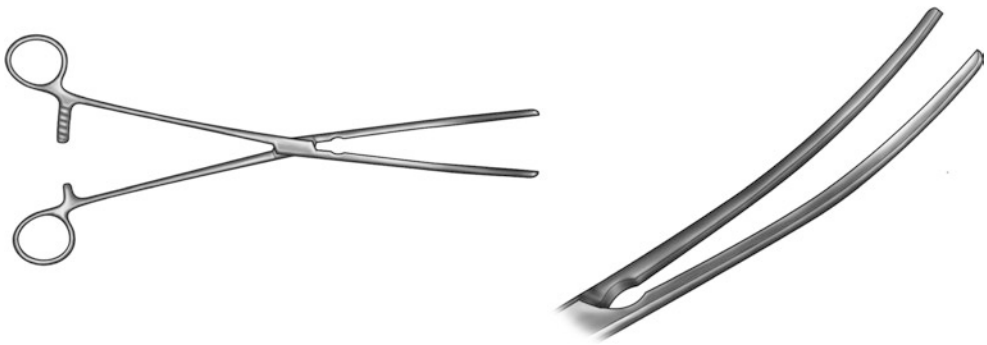


**Fig. 66.39** DeBakey clamp

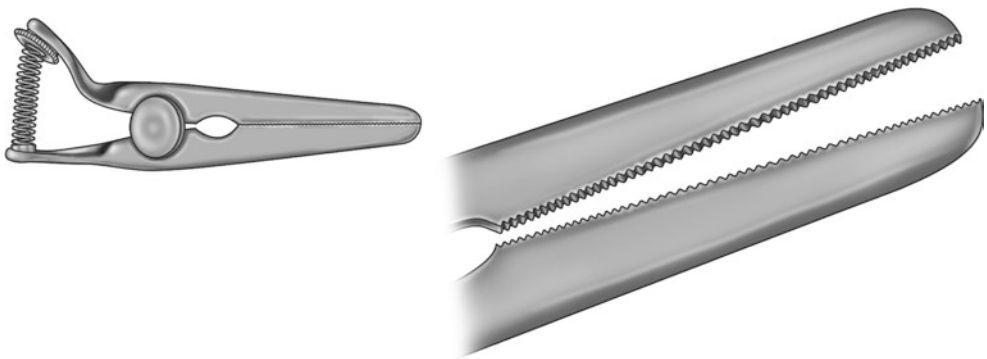


**Fig. 66.40** Glover clamp

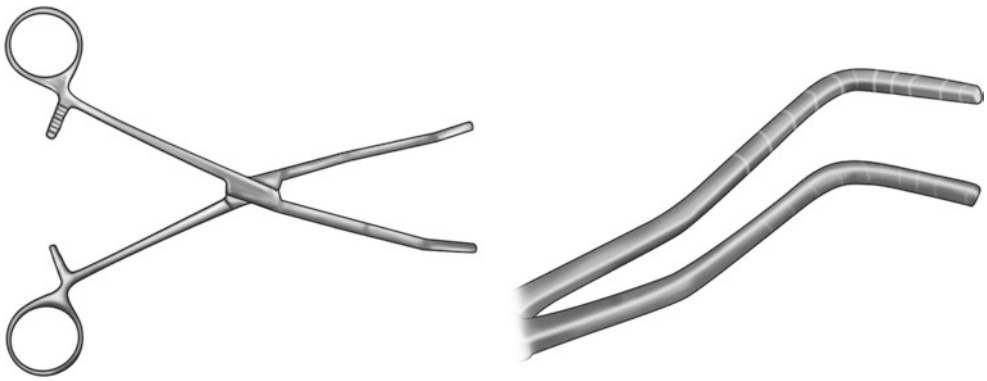


**Fig. 66.41** Satinsky clamp

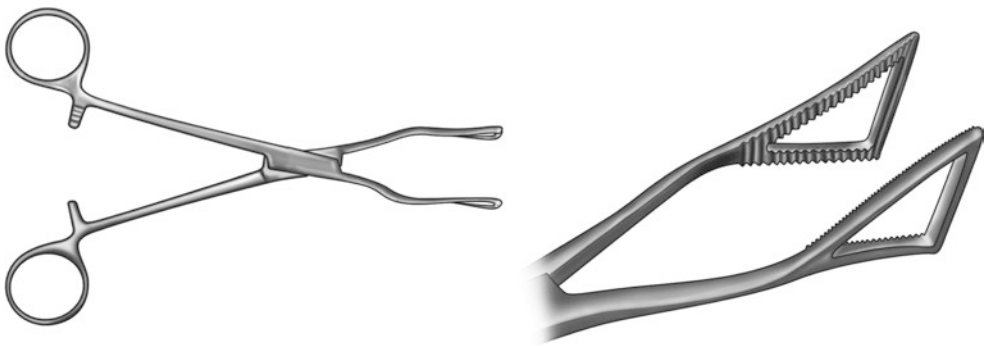


**Fig. 66.42** Duval clamp

## Retractors

### History

Some historians believe that surgical retractors were heavily influenced by hooked tools used as early trenching implements to extract food from the bedrock during the late Old Stone Age. Albucasis, the Muslim surgeon, is credited with devising numerous hooks for surgical retraction, characterized by a terminal bend that rotated at least 135°. His inventions included sharp and blunt single-, double-, and triple-ended hooks of different sizes and gave rise to the nineteenth-century tenaculum. Initial retractor designs were characterized by single or bilateral terminal angular blunt ends of less than 90°. Doyen and Jackson (1895) were the first to use self-retaining retractors, known as autostatics, developed for bladder and gynecological procedures deep in the pelvis. Self-retaining retractors were later used in abdominal surgeries by Gosset for appendectomies [9, 10].

### Senn Retractor (Fig. 66.43)

Alias: senn rake.

Use: retraction.

Additional information: available with both sharp and dull teeth.

### History

The Swiss-born Nicholas Senn was known as the great master of abdominal surgery. One of Senn's greatest contributions is the invention of the double-ended retractor often used in plastic or vascular surgery. One end of the retractor has a right-angle L shape, and the other end has three bent prongs that may be either dull or sharp [10].

### Farabeuf Retractor (Fig. 66.44)

Alias: none.

Use: superficial retraction.

Additional information: handheld, double ended, usually used in pairs.

### Army-Navy Retractor (Fig. 66.45)

Alias: US retractor.

Use: retraction.

Additional information: handheld; double ended; usually used in pairs.

### Parker Retractor (Fig. 66.46)

Alias: band retractor, Parker-Bard retractor.

Use: retraction.

Additional information: set of two lengths, 5 inches and $7^{1}/_{4}$ inches. Set of two, double-ended [4].

### Goelet Retractor (Fig. 66.47)

Alias: none.

Use: retraction.

Additional information: handheld, double ended, usually used in pairs.

**Fig. 66.43** Senn retractor

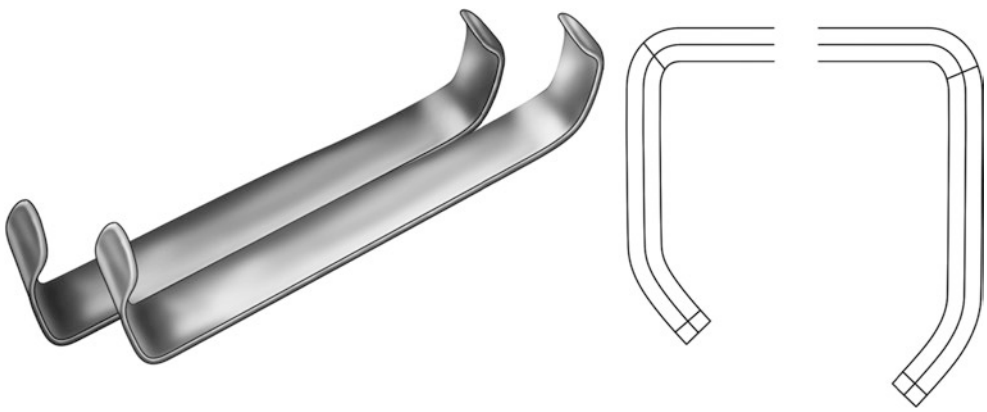


**Fig. 66.44** Farabeuf retractor

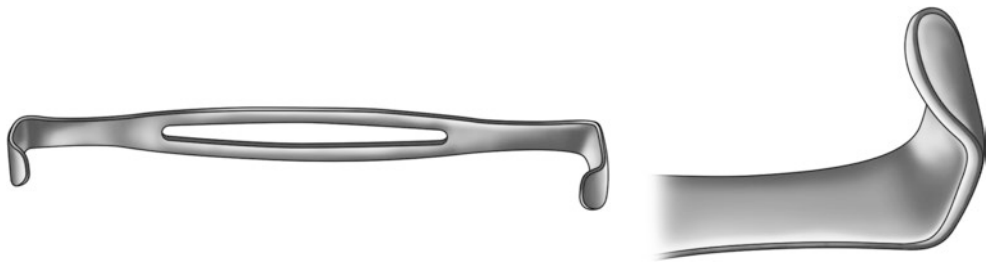


**Fig. 66.45** Army-Navy retractor

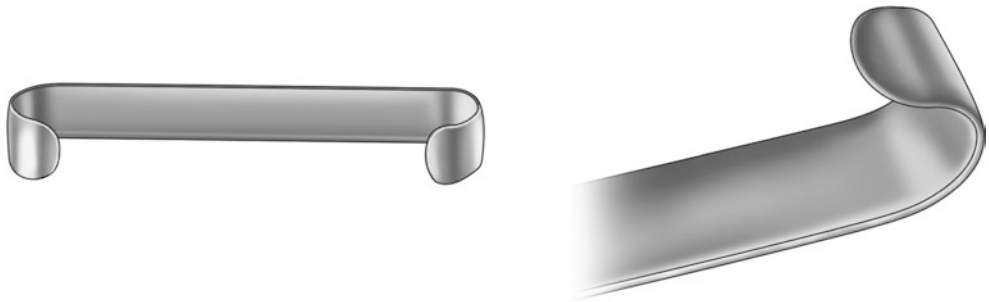


**Fig. 66.46** Parker retractor

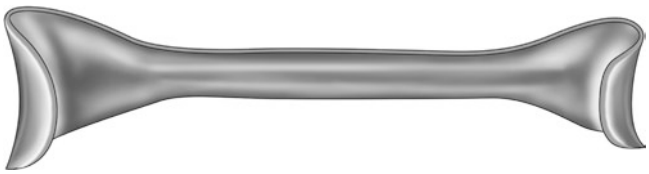


**Fig. 66.47** Goelet retractor

**Israel Retractor** (Fig. 66.48)
Alias: Israel rake, large rake.
Use: retraction.
Additional information: handheld; rake can have four to six prongs; blades are 1.75″ × 1.75″.

**Deaver Retractor** (Fig. 66.49)
Alias: none.
Use: retraction.
Additional information: available in different widths.

**Mayo Bodywall Retractor** (Fig. 66.50)

Alias: none.
Use: retraction.
Additional information: used for large open abdominal surgeries.

**Richardson Retractor** (Fig. 66.51)
Alias: rich.
Use: retraction.
Additional information: abdominal retractor.

**Sims Retractor** (Fig. 66.52)
Alias: Sims double-ended vaginal speculum.
Use: retraction.
Additional information: to provide exposure during vaginal procedures.

**Ribbon Retractor** (Fig. 66.53)
Alias: malleable retractor.
Use: protect soft tissue during dissection; to aid in blunt retraction of bowel and malleable retraction of soft tissue around the bone [4].

**Beckman Retractor** (Fig. 66.54)
Alias: none.
Use: retraction.
Additional information: self-retaining. Sharp or blunt prongs [4].

**Henley Retractor** (Fig. 66.55)
Alias: none.
Use: retraction.
Additional information: similar to a Beckman with the addition of a vertical retraction blade.

### History

The Italian Franz Weitlaner served in a small community only as a surgeon for many years in Austria. Not content to merely practice medicine, and influenced by the lack of assistance during his interventions, he published an article entitled Ein automatischer Wundspreizer (automatic wound spreader) in the Vienna Clinical Review in 1905. Weitlaner noted that the Broz Wound dilator, which was the primary

**Fig. 66.48** Israel retractor

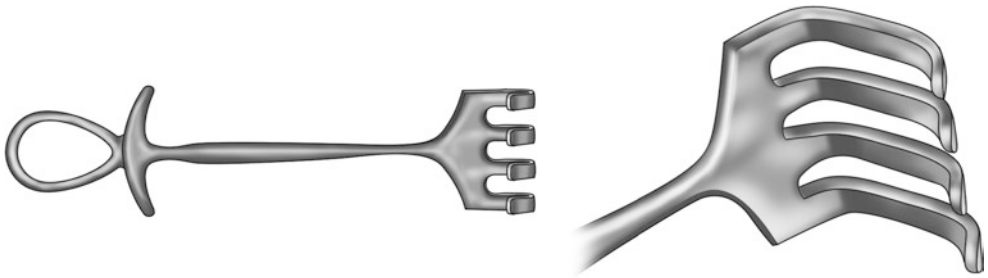


**Fig. 66.49** Deaver retractor

**Fig. 66.50** Mayo bodywall retractor

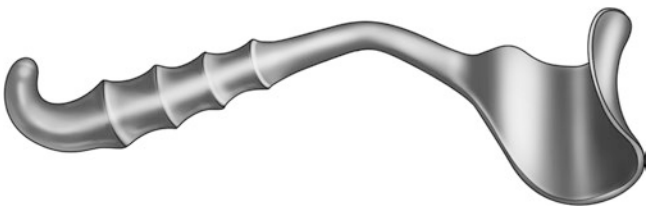


**Fig. 66.51** Richardson retractor

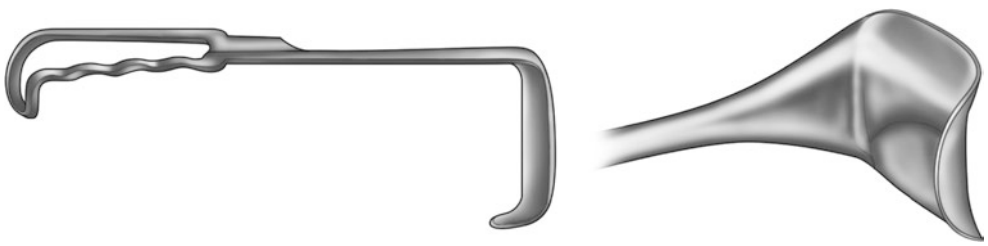


**Fig. 66.52** Sims retractor

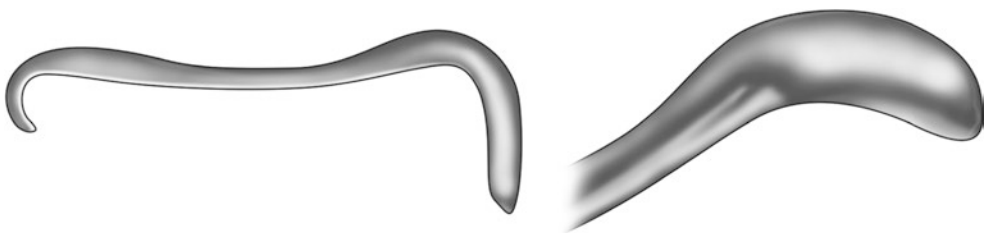
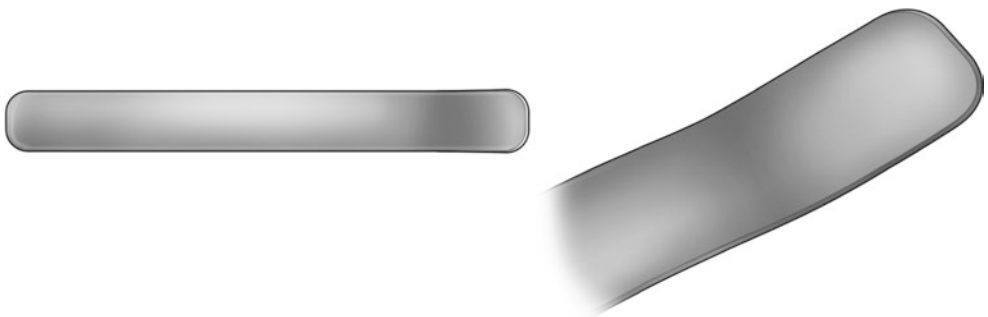


**Fig. 66.53** Ribbon retractor



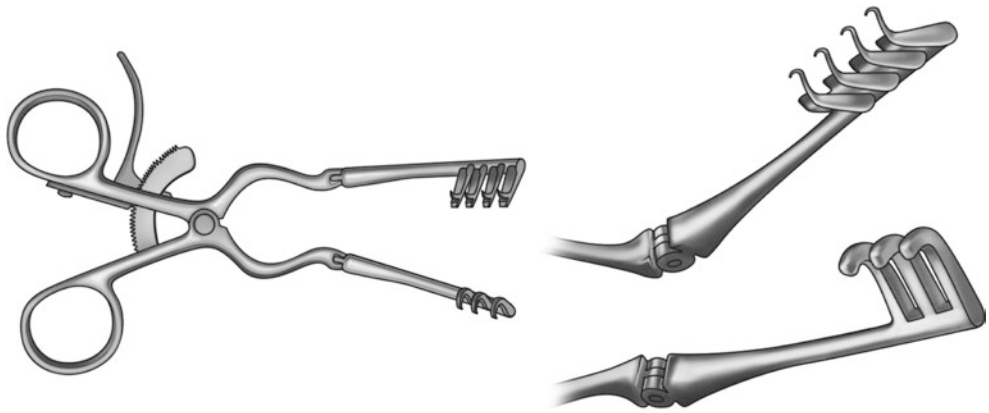


**Fig. 66.54** Beckman retractor

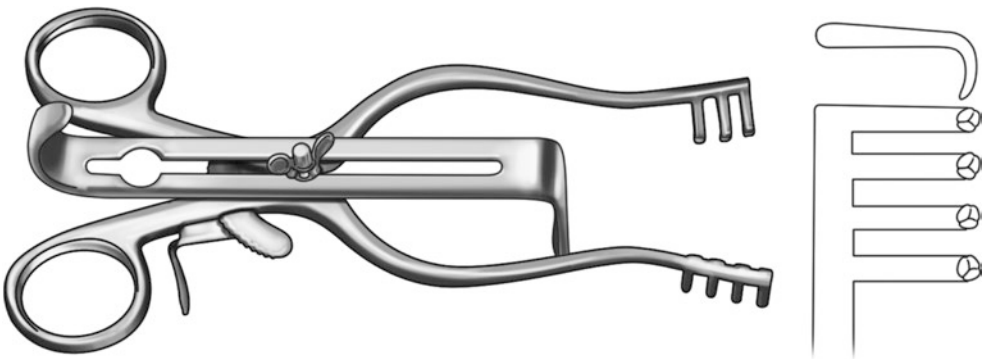


**Fig. 66.55** Henley retractor

self-retaining retractor of his time, required the surgeon to use both hands to open the retractor, and the position of the screw on the device was inaccessible depending on the size or angle of the wound. The Weitlaner (pronounced Vight-lahn-er) was heavily influenced by Péan's clamp design. Weitlaner further modified the device by having the wound hooks move apart as the surgeon brought his fingers together and allowed the surgeon to activate the retractor with a single hand [10].

**Balfour Retractor** (Fig. 66.56)
Alias: none.

Use: retraction.

Additional information: general surgery mid-sized abdominal retractor. Add Bookwalter's retractor.

**Burford-Finochietto Retractor** (Fig. 66.57)
Alias: none.

Use: retraction.

Additional information: used to spread and retract the rib cage for thoracic surgery.

## Laparoscopic Surgery

### Pneumoperitoneum

**Veress Needle** (Fig. 66.58)
Alias: Surgineedle.

Use: puncture and enter abdomen to insufflate and cause pneumoperitoneum.

Additional information: 120 mm, 150 mm sizes; single-use instrument [4].

### Trocars and Ports

**Laparoscopic Trocar** (Fig. 66.59)
Alias: none.

Use: access for laparoscopic surgery.

Additional information: the trocar is used for introduction of the port to the abdomen but then removed to allow instruments to be passed through.

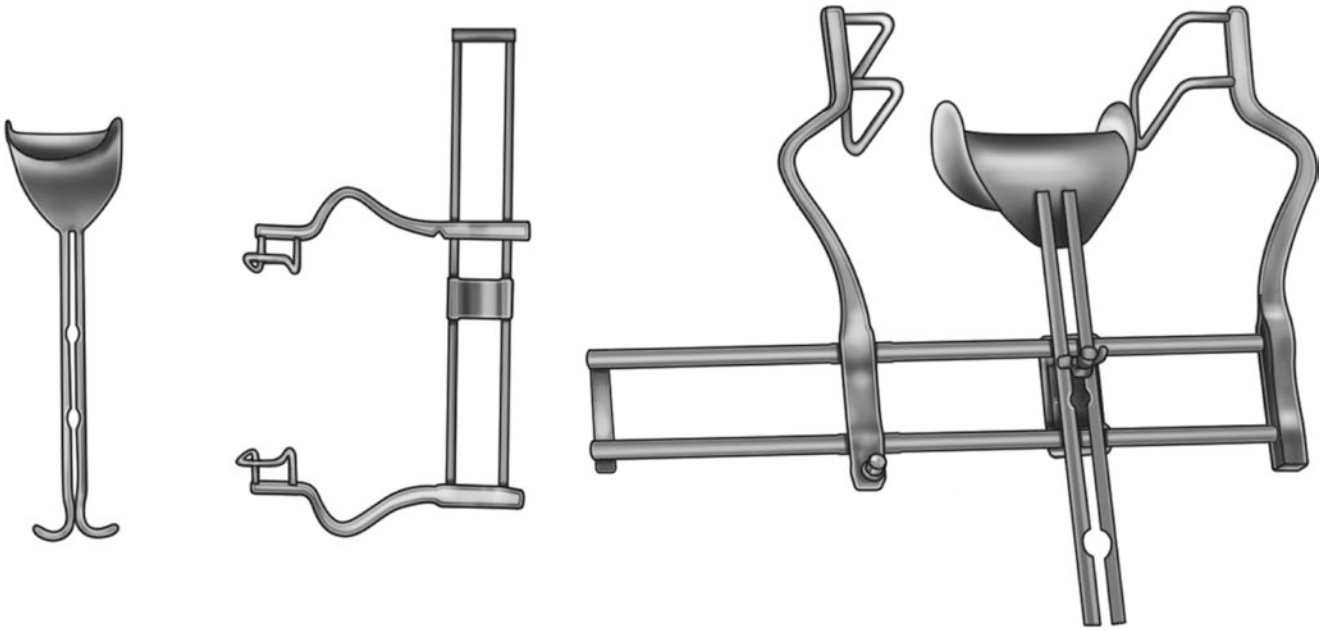


**Fig. 66.56** Balfour retractor

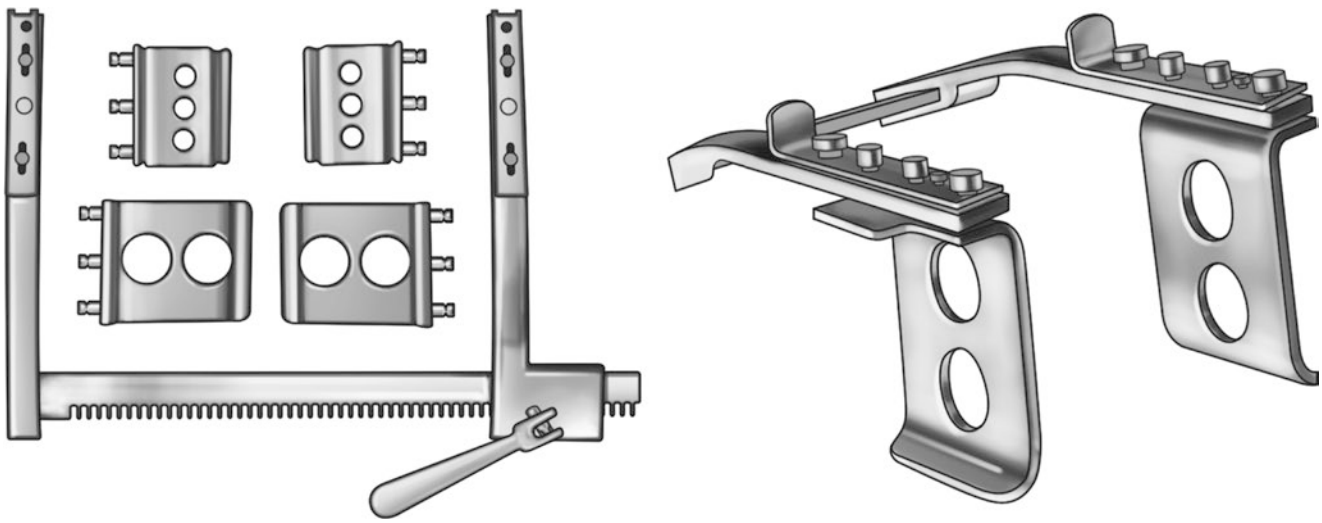


**Fig. 66.57** Burford-Finochietto retractor

**Fig. 66.58** Veress needle

**Fig. 66.59** Laparoscopic trocar

**Fig. 66.60** Fiber optics

## Fiber Optics Add Camera and Insufflator: Video Processor Camera Boxes

**Fiber Optics** (Fig. 66.60)
Alias: none.
Use: light carrier.
Additional information: multipurpose light source.

## Grasper

**Laparoscopic Grasper** (Fig. 66.61)
Alias: DeBakey grasper.
Use: grasping.
Additional information: for grasping bowel in laparoscopic surgery.

## Dissector

**Curved Dissector** (Fig. 66.62)
Alias: Maryland grasper, dolphin nose.
Use: dissection.
Additional information: can be attached to a cautery cord and often is used to ligate vessels and dissect.

## Clip Applier

**Clip Applier** (Fig. 66.63)
Alias: endo clip.
Use: laparoscopic clip applier.
Additional information: 5 mm, 10 mm sizes; medium or large size clip [4].

## Laparoscopic Scissors

**Metzenbaum Scissors** (Fig. 66.64)
Alias: none.
Use: cutting or dissecting delicate tissue.
Additional information: blunt tips.

**Hook Scissors** (Fig. 66.65)
Alias: none.
Use: cutting tissue.
Additional information: single-action jaws.

## Needle Holder

**Needle Holder** (Fig. 66.66)
Alias: none.
Use: holding suture needles.
Additional information: straight, right-curved, or left-curved jaws.

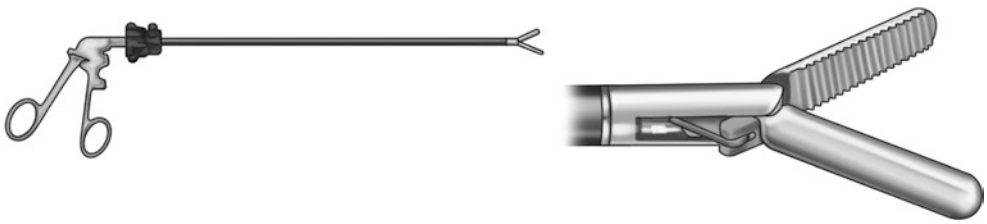


**Fig. 66.61** Laparoscopic grasper

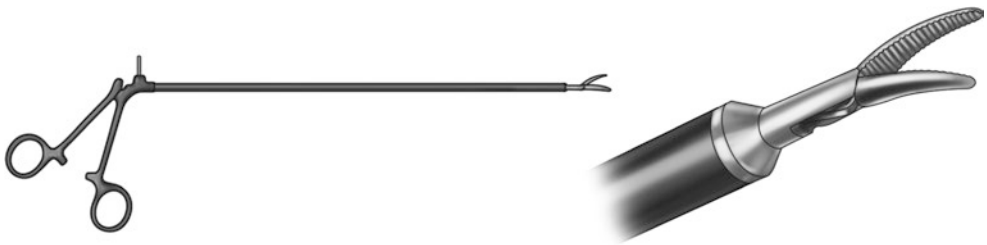


**Fig. 66.62** Curved dissector

**Fig. 66.63** Clip applier

**Fig. 66.64** Metzenbaum scissors

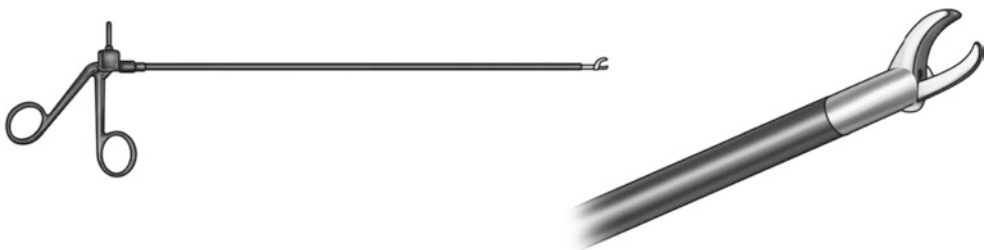


**Fig. 66.65** Hook scissors

**Fig. 66.66** Needle holder

**Fig. 66.67** Suture passer

**Fig. 66.68** L Hook

**Fig. 66.69** Specimen bag

## Accessories

**Suture Passer** (Fig. 66.67)
Alias: none.

Use: transmural suturing of wound sites and fixation of prosthetic device during laparoscopic surgery.

Additional information: single-patient use; the non-disposable metal suture passer is known as a Gore suture passer.

**L Hook** (Fig. 66.68)
Alias: Hook.

Use: monopolar cauterization of tissue.

Additional information: insulated around the tip to direct current to desired tissue.

**Specimen Bag** (Fig. 66.69)
Alias: Endo Catch™, specimen pouch.

Use: laparoscopic bag for specimen retrieval.

Additional information: 10 mm and 15 mm size [4].

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