A surgical instrument holder for use in surgery having a holder body (10) able to hold one of a plurality of surgical instruments used together in surgery, such as a diathermy pencil and a separate suction means or two laparoscopic instruments or the like, but allow easy removal of the surgical instruments. A holder attachment means (41) supports the holder body (10) and connects adjacent elongated cylinders (11, 13) at or near respective circumferential points on the elongated cylinders (11, 13) along an intersecting line between respective axes of the adjacent elongated cylinders (11, 13). A connection part (48) associated with the holder attachment means (41) enables the surgical instrument holder (10) to be removably mounted on or near a patient so that the surgical instrument holder (10) provides simultaneous access to each of the adjacent elongated cylinders (11, 13) allowing easy removal of the surgical instruments.
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SURGICAL INSTRUMENT HOLDER

TECHNICAL FIELD

This invention relates to a surgical instrument holder able to hold a plurality of surgical instruments used together in surgery, such as a diathermy pencil and a suction instrument or laproscopic instruments or the like, and able to be removably mounted on or near a patient during surgery.

BACKGROUND ART

A quiver or scabbard comprising an open ended elongated container has been known to be used in surgery for a number of years to hold a plurality of surgical instruments such as a diathermy pencil and suction instrument for use in surgical procedures such as cauterising procedures or laproscopic instruments or the like. Many surgical techniques now require these types of instruments each having a specialised shape, size and length for the specialised surgical application.

Usually a plurality of instruments, including an electrically connected diathermy pencil and a metal tubular suction instrument, are included in the same quiver or scabbard. Clearly this is not a safe practice due to the risk of electrical mishap and possible resultant burns to the patient. Also the holding, insertion and reinsertion of a plurality of delicate expensive instruments together in a scabbard increase the likelihood of damage, and increases the risk of cross contamination of instruments during a surgical procedure.

Another development in the understanding of safe operating procedures is the understanding that live virus can be included in the resultant plume from the use of diathermy pencils or the like and this live virus can be inhaled by the surgeon. Of particular concern is the transfer of Hepatitis C from the patient by this method. One proposed solution to this problem is to include suction means integrally with the diathermy pencil to enable
simultaneous plume evacuation during the surgical use of the diathermy pencil. Apart from the substantial increase in size of such a compound instrument, it is still often necessary to include a separate suction instrument for removal of other surgical waste or use in combination with other surgical instruments. Using a plurality of quivers or scabbards located in different positions provides difficulty in locating instruments used together and provides difficulty in removing instruments used together while ensuring correct handling.

DISCLOSURE OF INVENTION

It is an object of this invention to provide a surgical instrument holder that overcomes or at least ameliorates the problems of the prior art but allows ready access to a plurality of instruments for surgical procedures.

In accordance with the invention there is provided a surgical instrument holder for use in a surgery including a holder body having a plurality of discrete elongated chambers each having one closed end and one open end and each sized to hold one of a plurality of surgical instruments used together in surgery, such as a diathermy pencil and a separate suction means or two laproscopic instruments or the like, but allow easy removal of the surgical instruments, and a holder attachment means connected to the holder body and supporting the holder body and enabling the surgical instrument holder to be removably mounted on or near a patient to provide substantially adjacent access to each of the discrete elongated chambers simultaneously allowing easy removal of the surgical instruments.

In a particularly preferred form of the invention there is provided a surgical instrument holder for use in surgery having a holder body formed by a plurality of coextending elongated cylinders each having an open end at a common end of the holder body and each sized to be able to hold one of a plurality of surgical instruments used together in surgery, such as a diathermy pencil and a separate suction means or two laproscopic instruments or the like, but
allow easy removal of the surgical instruments, a holder attachment means supporting the
holder body and connected to adjacent elongated cylinders at or near respective
circumferential points on the elongated cylinders along an intersecting line between
respective axes of the adjacent elongated cylinders, and a connection part associated with the
holder attachment means and enabling the surgical instrument holder to be removably
mounted on or near a patient, wherein the surgical instrument holder provides simultaneously
access to each of the adjacent elongated cylinders allowing easy removal of the surgical
instruments.

The surgical instrument holder may be formed from a thermostable plastic or other
dielectric and chemically resistant material able to insulate the surgical instruments when held
separately in said discrete elongated chambers and to allow ready cleaning by autoclave or
chemical means.

Preferably the holder attachment means and the holder body are shaped, attached and
sized and without concave surfaces to eliminate substantially, blood and surgical residue
collection points. Further, to assist the cleaning capabilities, the surgical instrument holder
can have removable end caps that form respective closed ends of the discrete elongated
chambers. The removable end caps can be connected to the discrete elongated chambers by
screw means interfitting with external thread on the discrete elongated chambers.

BRIEF DESCRIPTION OF INVENTION

In order that the invention is more readily understood an embodiment thereof will now
be described by way of example wherein:

Figure 1 is a rear plan view of a surgical instrument holder according to a first
embodiment of the invention.

Figure 2 is a side diagrammatic side view of the surgical instrument holder of Figure 1.
BEST MODE FOR CARRYING OUT THE INVENTION

Referring to the drawings there is shown a surgical instrument holder including a holder body 10 having a plurality of discrete elongated chambers in the form of coextending elongated cylinders 11, 12 each having one closed end 31, 33 and one open end 34, 35 and each sized to hold one of a plurality of surgical instruments used together in surgery such as a diathermy pencil and a suction means or laproscopic instruments or the like. The elongated cylinders 11, 12 have the same diameter and length and aligned to be fully co-extensive so that the open ends 34, 35 align. A holder attachment means 41 is connected to the coextending elongated cylinders 11, 12 to retain them in relative position and to support the holder body 10 enabling the surgical instrument holder to be removably mounted on or near a patient to provide substantially adjacent access to each of the discrete elongated chambers simultaneously allowing easy removal of the surgical instruments.

The body of the surgical instrument holder 10 of another preferred embodiment has two aligned different length cylinders each having a closure at a common end and an opening at the opposite common end. This structure enables a diathermy pencil to be held in the larger cylinder and a suction instrument to be held in the smaller cylinder with the open ends aligned.

In the surgical instrument holder 10 shown in the drawings the attachment means 41 is formed as a bent elongated flat strip having constant width with a first planar portion 43 extending between the lines of the closest radial points of the adjacent aligned cylinders 11, 13. The outer parallel edges 44, 45 of the first planar portion 43 are plastic butt welded to respective outer surface of the cylinders 11, 13 along the longitudinally extending lines of closest radial points. The shaped attachment means 41 extends via an angled part 46 to a second planar portion 47 parallel to the first planar portion 43. The second planar portion 47
extends substantially along a tangential plane to both of the adjacent aligned cylinders 11, 13 a quarter revolution around each cylinder from the plastic weld join 44, 45. This provides planar aligned surfaces of the cylinders 11, 13 and shaped attachment means 41 to allow for flat placement of the surgical instrument holder 10 on patient surgical drapes covering a patient during surgery or nearby. The end of the second planar portion 47 of the attachment means 41 not connected to the cylinders 11, 13 is able to be attached by connection means to surgical drapes or the like by surgical clips mounted on a ring inserted in a hole 48 in the end of the attachment means 41.

The upper openings 34, 35 of the cylinders 11, 13 have outwardly extending flanges to allow easy insertion and removal of the surgical instruments. At the other end of the cylinders 11, 13 near the base is an outlet hole 51, 53 which allows for drainage of liquids from the instruments such as excess blood. These outlet holes 51, 53 also act as pressure relief ports to allow the surgical instrument holder 10 to be autoclaved or otherwise pressure steam cleaned without a build up of pressure in the tubular enclosure.

The end of the holder 10 also incorporates a screw threaded end caps 31, 33 engaging with respective screw thread on the outer side of the cylinders 11, 13 to provide a smooth continuous inner cylindrical surface and allowing the end caps 31, 33 to be easily connected. The lack of internal connection surfaces results in a smooth continuous surface for thorough mechanical or other cleaning of the surgical instrument holder 10. The removal aspect of the end caps 31, 33 further improves the cleaning capabilities of this surgical instrument holder 10. Still further, the minimisation of external concave shapes also improves the cleaning capabilities of the surgical instrument holder 10. In surgery these cleaning capabilities are of significant importance to the usability and reusability of surgical items.
The closed bottom end of the plurality of cylinders 11,13 may be by a removable cap that is clipped on. The optimal cap is a screw cap that is attached to an external thread on the outer bottom of the cylinders. This strong structure is not deformed by a plurality of autoclaving procedures required for constantly used products in hospital surgeries. The cap however could comprise a single clip on piece to close both bottom ends of the cylinders to minimise the number of pieces while still allowing easy cleaning. The attachment of the single piece may be by clips attaching to outer parts of the surgical instrument holder body.

The cylinders 11, 13 preferably have a length of about 15 to 35 centimetres and with a cylindrical internal diameter of between 35 to 50 millimetres. These cylinders can be other lengths and diameters dependent on the surgical instrument to be held.

In construction of the surgical instrument holder body 10 the coextending elongated cylinders 11, 13 and the attachment means 41 can be formed integrally such as by injection moulding or the like, or made in separate parts which are attached at radial portions of the cylinders 11, 13. However the construction must minimise points of collection of blood or surgical waste. The join at the side of the cylinders 11, 13 at the closest radial points of the cylinders that is along the plane comprising the axis of both cylinders 11, 13 provides the best joining angle and the least width of the attachment means 41.

The material of the surgical instrument holder 10 is a thermostable plastic able to withstand multiple autoclaving procedures as is required for sterilising and cleaning surgical instruments and associated material in hospitals. The material is also a dielectric and chemically resistant material able to insulate electrically the surgical instruments when held separately in said coextending elongated cylinders 11, 13.

The above description of the preferred embodiments of the invention is provided as illustrative only of the invention and not limiting.
CLAIMS:

1. A surgical instrument holder for use in a surgery including:

   a holder body 10 having a plurality of discrete elongated chambers 11, 12 each having one
   closed end 31, 33 and one open end 34, 35 and each sized to hold one of a plurality of
   surgical instruments used together in surgery, such as a diathermy pencil and a separate
   suction means or two laproscopic instruments or the like, but allow easy removal of the
   surgical instruments;

   and a holder attachment means 41 connected to the holder body 10 and supporting the
   holder body 10 and enabling the surgical instrument holder 10 to be removably mounted on
   or near a patient to provide substantially adjacent access to each of the discrete elongated
   chambers 11, 12 simultaneously allowing easy removal of the surgical instruments.

2. A surgical instrument holder according to claim 1 formed from a thermostable plastic
   or other dielectric and chemically resistant material able to insulate the surgical instruments
   from each other when held separately in said discrete elongated chambers 11, 12 and to
   allow ready cleaning by autoclave or chemical means.

3. A surgical instrument holder according to claim 1 having the holder attachment means
   41 and the holder body 10 shaped, attached and sized and substantially without concave
   surfaces to eliminate or minimise blood and surgical residue collection points.

4. A surgical instrument holder according to claim 1 having removable end caps 31, 33
   that form respective closed ends of the discrete elongated chambers 11, 12 and enable
   thorough cleaning of the discrete elongated chambers 11, 12.

5. A surgical instrument holder according to claim 4 wherein the removable end caps 31,
   33 forming respective closed ends of the discrete elongated chambers 11, 12 are connected
to the discrete elongated chambers 11, 12 by screw means interfitting with respective
external thread on the discrete elongated chambers 11, 12.

6. A surgical instrument holder for use in surgery having:
a holder body 10 formed by a plurality of coextending elongated cylinders 11, 13 each
having an open end 34, 35 at a common end of the holder body 10 and each sized to be able
to hold one of a plurality of surgical instruments used together in surgery, such as a
diathermy pencil and a separate suction means or two laproscopic instruments or the like, but
allow easy removal of the surgical instruments;
a holder attachment means 41 supporting the holder body 10 and connected to adjacent
elongated cylinders 11, 13 at or near respective circumferential points on the elongated
cylinders 11, 13 along an intersecting line between respective axes of the adjacent elongated
cylinders 11, 13; and
a connection part 48 associated with the holder attachment means 41 and enabling the
surgical instrument holder 10 to be removably mounted on or near a patient;
wherein the surgical instrument holder 10 provides simultaneously access to each of the
adjacent elongated cylinders 11, 13 allowing easy removal of the surgical instruments.

7. A surgical instrument holder according to claim 6 wherein the holder attachment
means 41 extends between adjacent elongated cylinders 11, 13 on or within a plane
connecting tangential points of outer parts of the adjacent elongated cylinders 11, 13 so as to
provide a substantially planar lower resting surface of the surgical instrument holder 10
allowing for flat positioning on a surgical drape around a patient.

8. A surgical instrument holder according to claim 7 wherein the elongated cylindrical
chambers 11, 12 have fluted open ends 34, 35.
9. A surgical instrument holder according to claim 6 formed from a thermostable plastic or other dielectric and chemically resistant material able to insulate the surgical instruments from each other when held separately in said coextending elongated cylinders 11, 13 and to allow ready cleaning by autoclave or chemical means.

10. A surgical instrument holder according to claim 6 having the holder attachment means 41 and the holder body 10 shaped, attached and sized which minimises concave surfaces and vertices to eliminate substantially blood and surgical residue collection points.

11. A surgical instrument holder according to claim 6 having removable end caps 31, 33 that form respective closed ends of the coextending elongated cylinders 11, 13.

12. A surgical instrument holder according to claim 11 wherein the removable end caps 31, 33 forming respective closed ends of the coextending elongated cylinders 11, 13 are connected to the coextending elongated cylinders 11, 13 by screw means interfitting with external thread on the coextending elongated cylinders 11, 13.

13. A surgical instrument holder according to any one of the preceding claims wherein the body of the surgical instrument holder 10 has two coextending elongated cylinders 11, 13.

14. A surgical instrument holder substantially as hereinbefore described with reference to the drawings.
AMENDED CLAIMS
[received by the International Bureau on 23 November 1999 (23.11.99);
original claims 1-14 unchanged; new claims 15-18 added; (2 pages)]

15. A surgical instrument holder for use in a surgery including:

- a holder body 10 having a plurality of discrete elongated cylinders 11, 12 each having one closed end 31, 33 and one open end 34, 35 and each sized to hold one of a plurality of surgical instruments used together in surgery, such as a diathermy pencil with integral suction and a separate suction means or laproscopic instruments or the like, but allow easy removal of the surgical instruments;

- and at least one holder attachment means 41 integrally connected between adjacent cylinders to support the holder body 10 and providing an attachment for removable mounting on or near a patient providing substantially adjacent access to each of the discrete elongated cylinders 11, 12 and easy removal of the surgical instruments;

- wherein substantially all internal and external surfaces of the surgical instrument holder extend at 90° or greater to adjacent surfaces so as to eliminate or minimise blood and surgical residue collection points;

- and wherein the instrument holder is formed from a thermostable plastic or other dielectric and chemically resistant material able to insulate the surgical instruments from each other when held separately in said discrete elongated cylinders 11, 12 and to allow ready cleaning by autoclave or chemical means.

16. A surgical instrument holder according to claim 15 having removable screw threaded end caps 31, 33 that form respective closed ends engaging with external thread of the discrete elongated cylinders 11, 12 and enabling thorough cleaning of the discrete elongated cylinders 11, 12.
17. A surgical instrument holder according to claim 15 or 16 wherein the discrete elongated cylinders are aligned and the at least one holder attachment means 41 extends linearly and along the plane between adjacent cylinder axes and is integrally joined to radial extremities of the cylinders.

18. A surgical instrument holder according to claim 17 wherein the elongated cylinders have an internal cross sectional shape that is circular, elliptical or continuous curve.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

Int Cl6: A61B 19/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

au : A61B 19/02

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DERWENT, JAPIO: SURGICAL, DENTAL, MEDICAL, INSTRUMENT, TOOL, APPARATUS, HOLD, RECEPTACLE, TUB, CYLIND, CHAMBER, VERTICAL, ELONGATED, PLURALITY, MULTI, ADJACENT, CLOSE, PARALLEL, CO-EXTENDING, INSTRUMENT, TOOL, APPARATUS, SCABBARD, SHEATH, QUIVER

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>US 5337894A (IVEY) 16 August 1994 Figures 1,5</td>
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X Further documents are listed in the continuation of Box C

X See patent family annex

* Special categories of cited documents:
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  "O" Document referring to an oral disclosure, use, exhibition or other means
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  "T" Later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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Date of the actual completion of the international search
19 August 1999

Date of mailing of the international search report
25 AUG 1999

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INTERNATIONAL SEARCH REPORT  
Information on patent family members

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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