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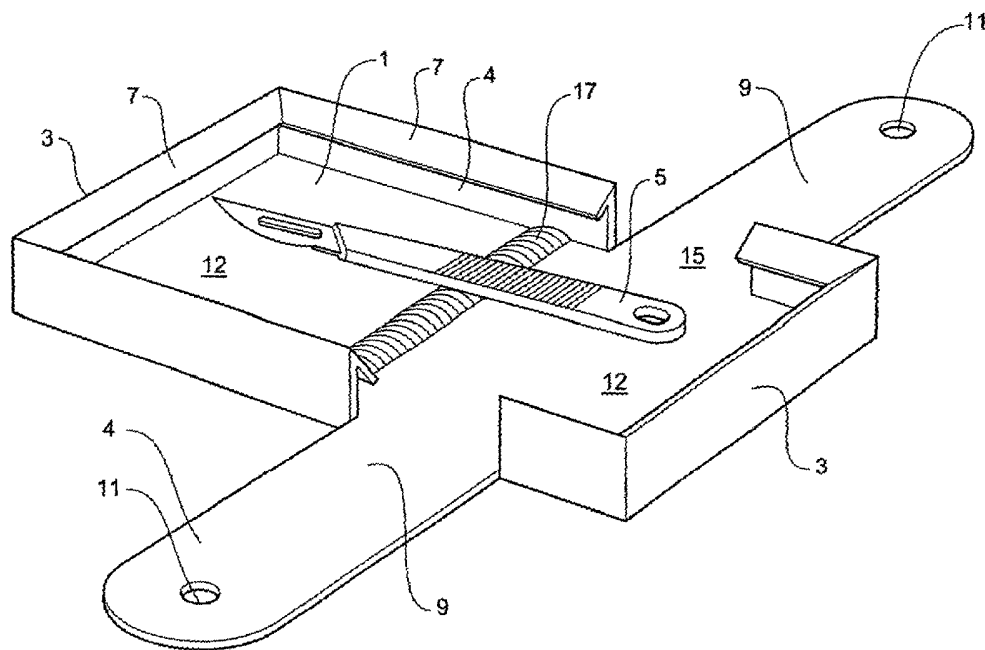
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(54) Title: MEDICAL SHARPS RECEPTACLE



(57) Abstract: A receptacle to hold a medical sharps device such as a scalpel (5) during a surgical procedure. The receptacle has an elongate recess (10, 12) to receive the medical sharps device, a finger access arrangement (15) to enable access to the handle of the medical device and laterally extending wings (9) on the receptacle to provide stability for the receptacle in use. A raised portion (17) in the recess raises the handle of the medical device to assist gripping it. Adhesive pads (13) may be placed under the wings. The receptacle can be disposable or be able to be sterilised.



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## MEDICAL SHARPS RECEPTACLE

### FIELD OF INVENTION

This invention relates to improvements in the storing and handling of medical devices such during surgical procedures. The medical devices may be medical sharps such as scalpels.

### BACKGROUND OF THE INVENTION

For many years surgical staff have investigated methods of reducing injuries and possible contraction of blood borne diseases, some fatal, from the use of medical sharps such as scalpels as they are handled from one staff member to another in, for instance, an operating theatre.

One current method is to place the medical sharp in a kidney shaped dish on the sterile field, usually on a patients body during a surgical procedure allowing the medical device to be taken from the dish and returned as required.

This procedure has a number of disadvantages:

a) The kidney dish has rounded bottom edges and there are no means to fix it in a stable manner on the sterile drapes extending over a patient. This can allow the dish to tilt and potentially spill the medical sharp out of the kidney dish onto the floor and hence make it un-sterile. This may also cause injury to the lower limbs of the medical staff.

b) The shape of the dish allows the user to grasp the medical sharp by the sharp end which could potentially cause injury. Further the handle of medical sharp devices such as scalpels are often flat and as such may be difficult to grasp from the flat inner bottom of the kidney dish.

It is the object of this invention to provide a medical sharps receptacle which will overcome at least some of these problems or at least provide surgical staff with a useful alternative.

#### BRIEF DESCRIPTION OF THE INVENTION.

In one form therefore the invention is said to reside in a receptacle to hold a medical sharps device during a surgical procedure, the medical sharps device being of a type having an operative portion and a gripping or handle portion, the receptacle having an elongate recess to receive the medical sharps device, an arrangement to enable access to the handle of the medical device when it is retained in the recess and laterally extending wings on the receptacle to provide stability for the receptacle in use.

Although this invention is particularly discussed in relation to its use for medical sharps devices, it can equally be used for other devices used in, for instance, an operating theatre where it is desired to retain such devices in a sterile field during a surgical procedure.

The type of medical sharps to which the invention may be particularly directed includes scalpels, skin hooks, needles, trocars, catheters, cannulas, syringes and the like but as discussed above it is also directed to any other device which is desired to be kept safely on the sterile field during a surgical procedure.

The arrangement to enable access to the handle of the medical sharps device may comprise a finger recess either side of the receptacle in the region of the receptacle in which the handle or gripping region is placed in use.

Alternatively or additionally there may be a raised portion in the recess which causes the handle portion to be lifted above the surface of the recess to enable it to be gripped by a user.

Preferably the receptacle is comprised of a planar rectangular base, walls extending from the base around the periphery thereof except in a central portion of the elongate base where the walls are not present thereby defining the finger recesses. The raised portion in the recess which causes the handle portion of a medical sharp when placed in the recess to be lifted above the surface of the recess to enable it to be gripped by a user may be positioned across the elongate base in the central portion. The wings may extend laterally from the central portion.

There may be provided inwardly and/or downwardly directed flanges round the recess. These will act to prevent a medical sharp which is placed into the recess spilling from the recess and act to guide a medical sharps device into the recess when it is being replaced. The shape of the recess may be such that the medical sharps device can only be reasonably placed in an orientation which places the handle in a position for it to be grasped again when it is needed.

The medical sharps receptacle of the present invention may include multiple recesses so that more than one type of instrument may be held in this sterile field.

There may be provided self adhesive pads on the under sides of each of the laterally extending wings and/or self adhesive pads on the underside of the receptacle body which enable it to be removably fastened onto, for instance, the drape covering the patient.

There may be further provided holes or apertures in the wings so that the receptacle can be fastened or taped into a desired position in the sterile field.

There may be further included a pad or portion of a magnetic material in the recess adjacent to or associated with the raised portion in the recess. This pad or portion of magnetic material may assist with retaining a handle of a medical sharp in an easily accessible region of the recess.

The receptacle according to the present invention may be made from plastics material, cardboard, metal or the like and it may be disposable so that it can be disposed after one use or may be sterilisable for further uses.

This then generally describes the invention but to assist with understanding reference will now be made to the accompanying drawings which show preferred embodiments of the invention.

#### BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings;

Figure 1 shows a first embodiment of medical sharps receptacle according to the invention;

Figure 2 shows an underside view of the embodiment shown in Figure 1;

Figure 3 shows an alternative embodiment of medical sharps receptacle according to the present invention;

Figure 4 shows a still further embodiment of medical sharps receptacle;

Figure 5 shows an arrangement for manufacture of a further embodiment of medical sharps receptacle; and

Figure 6 shows the embodiment of medical sharps receptacle of Figure 5 when assembled ready for use.

#### DESCRIPTION OF PREFERRED EMBODIMENTS

Now looking more closely to the drawings and in particular the embodiment shown in Figures 1 and 2 it will be seen that the receptacle comprises a body with a base 1 with end walls 3 and longitudinal side walls 4 around the periphery of the base, the base 1 and walls 3 and 4 together defining a recess into which may be placed a medical sharps device such as a scalpel 5. Angled inward and downward flanges 7 on the end and side walls 3 and 4 assist in preventing the spilling of the scalpel 5 or

other implement from the recess as well as guiding the scalpel 5 or other implement into the recess when it is replaced.

The longitudinal side walls 4 are discontinuous at 15 to define finger recesses and in those discontinuous regions 15, wings 9 extend out each side from the base 1. In this embodiment the discontinuous regions 15 are nearer one end of the receptacle than the other so that a longer recess portion 10 and a shorter recess portion 12 are defined. Apertures 11 are provided in each wing and as can be seen in Figure 2 self adhesive pads 13 are provided under each wing. The discontinuous portions 15 of the side walls enable fingers to be easily engaged against the sides of the handle of the scalpel 5 so that a user can easily pick it up.

A ridge or raised portion 17 extends across the base 1 adjacent the discontinuous portions 15 so that when a scalpel or other medical sharp is placed into the recess the handle end of the scalpel 5 is lifted up to assist with gripping it. In this embodiment the ridge or raised portion 17 is formed from or includes a magnetic material so that where the handle of the scalpel 5 is formed from a ferro-magnetic material it is assisted in being retained in the recess.

The embodiment shown in Figures 1 and 2 is of a suitable form to be fabricated from cardboard or similar to make easily disposable or could be moulded from plastics material or fabricated from sheet metal such as stainless steel.

In a variation of the embodiment shown in Figures 1 and 2 the discontinuous portion and the wings may be provided midway between the ends so that the scalpel or other medical sharp may be placed in the recess pointing in either directions.

In Figure 3 an alternative embodiment of a sharps receptacle is shown.

In this embodiment the elongate substantially rectangular body 20 has angled inward sides 22 with an elongate recess 24 to receive a medical sharp. Side walls 26 extend down from the upper ends of the angled guides 22. In the region where a handle of a medical sharps device such as scalpel would be in the receptacle a deeper recess 28 is provided with a semicircular extension on either side of and below the recess 24 so that a users fingers may be extended into the recess to grip a handle of a medical sharps device. Flanges or wings 30 extend out either side of the device to provide improved stability when placed on, for instance, a drape on a patient during a surgical procedure in a sterile area. Holes 32 are provided at the distal ends of the wings so that the device can be taped or tied down as required. Self adhesive pads may be provided under each wing as discussed in the earlier embodiment.

Once again the recess 28 and wings 30 may be midway between the ends or closer one end than the other.

In Figure 4 an alternative embodiment of medical sharps receptacle is known. This embodiment is particularly adapted as a disposable item.

The receptacle shown in Figure 4 has a base 40 with sides 41 and flanges 42 extending in from the sides. Wings 43 extend each side of the base 40 and are placed midway between the ends of the receptacle. A raised portion 44 on the base is between the wings 43. A discontinuous portion of the flanges 42 on each side is provided so that a finger can get into grip the scalpel blade.

This embodiment is particularly adapted for a totally disposable unit which would contain a disposal scalpel and blade. For this purpose there would be provided a removable cover (not shown) when it is supplied. An adhesive pad 45 would have a cover on it and when the scalpel is no longer needed to be used the wings 43 can be folded in and the adhesive pad 45 exposed by removal of the cover and stuck down

on top of the other wing to provide a secure disposal article. To assist with folding in of the wings scoring 46 may be provided between the wings and the base.

Figure 5 shows an arrangement for manufacture of a further embodiment of medical sharps receptacle and Figure 6 shows the embodiment of medical sharps receptacle of Figure 5 when assembled ready for use.

To facilitate manufacture by injection moulding the embodiment shown in Figures 5 and 6 the medical sharps receptacle is formed in three sections with an integral moulded plastics material hinge between them. The three sections are a central section 50 and end portions 52 and 54. The integral hinge 53 joins the end portion 52 to the central portion 50 and the integral hinge 55 joins the end portion 54 to the central portion 50. When moulded, as shown in Figure 5, the end portions 52 and 54 extend at right angles to the plane of the central portion and after moulding the end portions are hinged up so that they are co-planar with the central portion 50. A catch arrangement holds the end portions 52 and 54 in the co-planar position. The catch arrangement consists of a projection 57 at four places on the central portion 50 and a hook portion 61 on the sides of each end portion 52 and 54. When the end portions 52 and 54 are hinged up so that they are co-planar with the central portion 50 the hook portions 61 engage behind their respective projections 57 to retain the end portions 52 and 54 in their co-planar position with respect to the central portion 50.

The central section generally shown as 50 comprises the central recess portion 56 with wings 58 extending laterally from the central recess portion 56. Each wing 58 has an aperture 59 for enabling the device to be fastened to a sterile medical field as discussed earlier. On the central recess portion 56 there is a transverse ridge or raised portion 60 which assists with raising the handle portion of a medical sharp when in use.

Each end portion 52 and 54 is formed with a base 62 and side walls 64. At the top of the side walls 64 are inwardly directed flanges 66.

By forming the receptacle as a substantially U shaped component (as shown in Figure 5) a simple two portion injection moulding die can be used. Special undercut arrangements are not required as would be necessary to form the inwardly directed flanges if the device was formed as a flat product (as shown in Figure 6).

The embodiment or receptacle shown in Figures 5 and 6 is shown with the end portions 52 and 54 of substantially the same length but the receptacle could be formed with the ends of different length. The a transverse ridge or raised portion 60 is shown as nearer one side of the central portion 56 but could be in the centre of the central recess portion 56.

It will be seen that by these embodiments of the invention, a receptacle is provided which can be used during surgical procedures to retain medical sharps when not in use and which has wings extending outside of it to provide the necessary stability for those surgical procedures.

Throughout this specification, various indications have been given as to the scope of the invention but the invention is not limited to any one of these but may reside in two or more of these combined together, the examples are given for illustration and not for limitation.

Throughout this specification unless the contents requires otherwise, the words comprise and include and variations such as comprises and including will be understood to imply the inclusion of a stated integer or group of integers.

## THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A receptacle to hold a medical sharps device during a surgical procedure, the medical sharps device being of a type having an operative portion and a gripping or handle portion, the receptacle having an elongate recess to receive the medical sharps device, an arrangement to enable access to the handle of the medical device when it is retained in the recess and laterally extending wings on the receptacle to provide stability for the receptacle in use.
2. A receptacle as in Claim 1 wherein the arrangement to enable access to the handle of the medical sharps device comprises a finger recess either side of the receptacle in the region of the receptacle in which the handle or gripping region is placed in use.
3. A receptacle as in Claim 1 wherein the recess is defined by a substantially planar surface and peripheral walls and further including a raised portion in the recess which causes the handle portion to be lifted above the surface of the recess to enable it to be gripped by a user.
4. A receptacle as in Claim 1 comprising a substantially planar rectangular base, walls extending from the base around the periphery thereof except in a central portion of the elongate base where the walls are not present thereby defining the finger recesses.
5. A receptacle as in Claim 4 including raised portion in the recess which causes the handle portion of a medical sharp when placed in the recess to be lifted above the surface of the recess to enable it to be gripped by a user.
6. A receptacle as in Claim 4 including inwardly and/or downwardly directed flanges round the recess.

7. A receptacle as in Claim 1 including self adhesive pads on the under sides of each of the laterally extending wings.
8. A receptacle as in Claim 3 further including a pad or portion of a magnetic material in the recess adjacent to or associated with the raised portion in the recess.
9. A receptacle as in Claim 1 including holes or apertures in the wings so that the receptacle can be fastened or taped into a desired position in the sterile field.
10. A receptacle as in Claim 1 formed from a material selected from the group comprising cardboard, plastics material or metal.
11. A receptacle as in Claim 1 which is disposable.
12. A receptacle to hold a medical sharps device during a surgical procedure, the medical sharps device being of a type having an operative portion and a gripping or handle portion, the receptacle having a substantially planar elongate rectangular base having opposed long sides and short opposed ends, peripheral walls extending up from the base except in a central portion of the opposed long sides where the walls are not present thereby defining a finger access region, each of the walls having an inwardly directed flange defining a guide to assist with placement of a medical sharp into the recess and to prevent a medical sharp from falling out of the receptacle and laterally wings extending from the opposed long sides to provide stability for the receptacle in use.
13. A receptacle as in Claim 12 further including a transversely extending raised portion on the base in the finger access region which in use causes the handle portion of a medical sharps device to be lifted above the base to enable it to be gripped by a user.

14. A receptacle as in Claim 13 further including a pad or portion of a magnetic material in the recess adjacent to or associated with the raised portion in the recess.
15. A receptacle as in Claim 12 further including self adhesive pads on the under sides of each of the laterally extending wings.
16. A receptacle as in Claim 12 formed from a material selected from the group comprising cardboard, plastics material or metal.
17. A receptacle as in Claim 12 which is disposable.

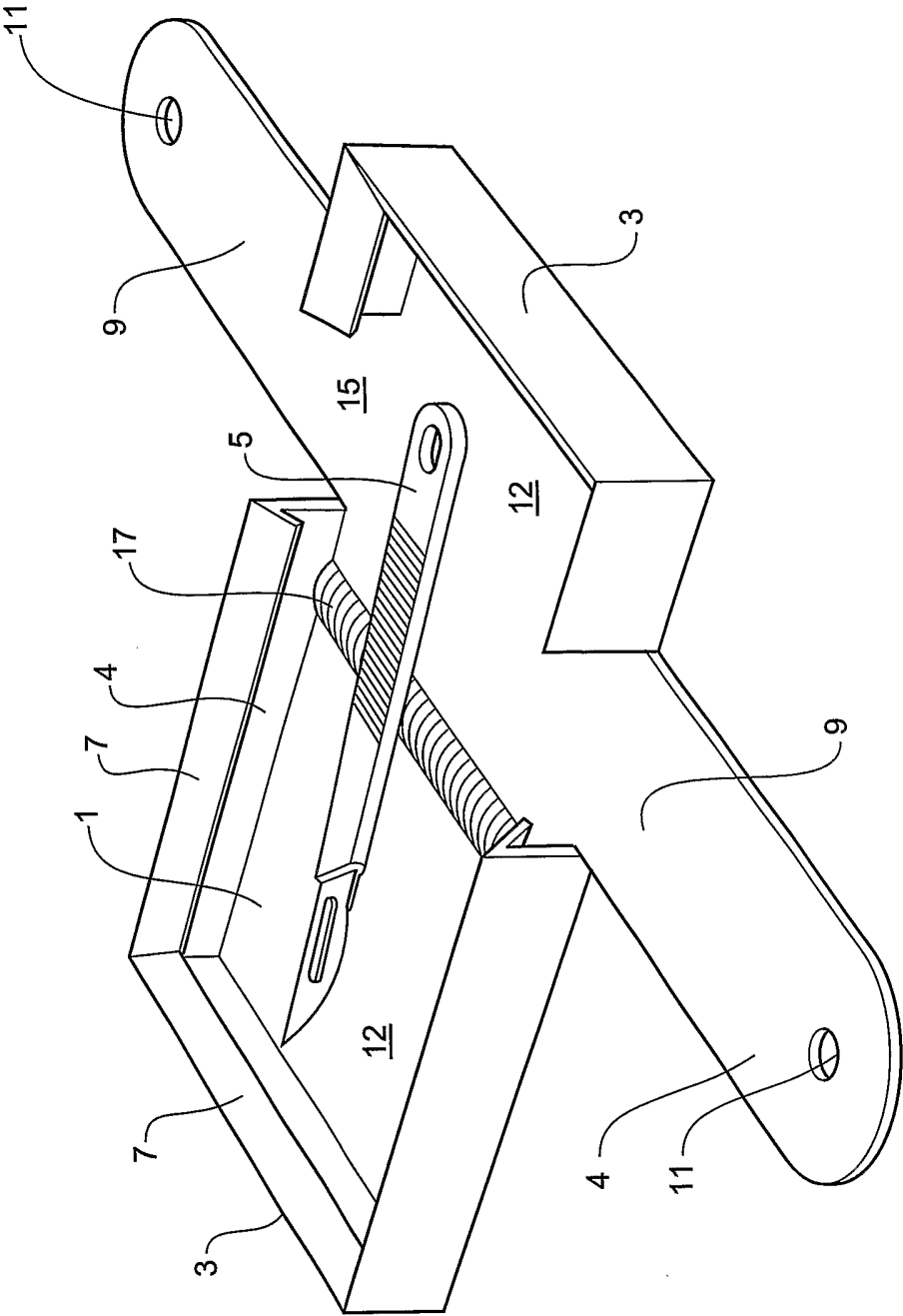
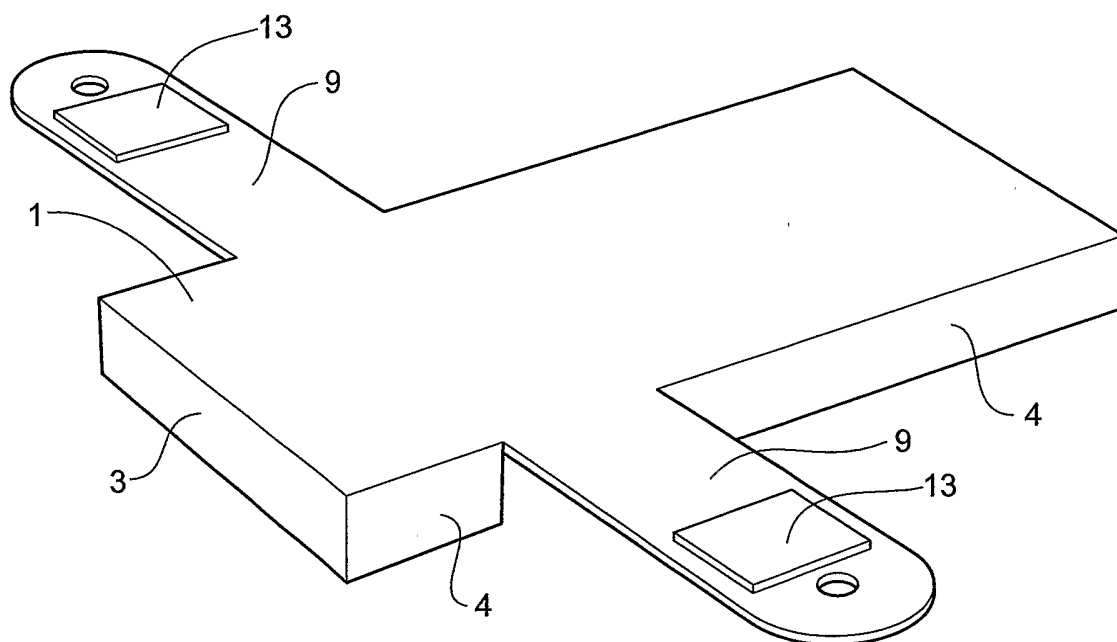
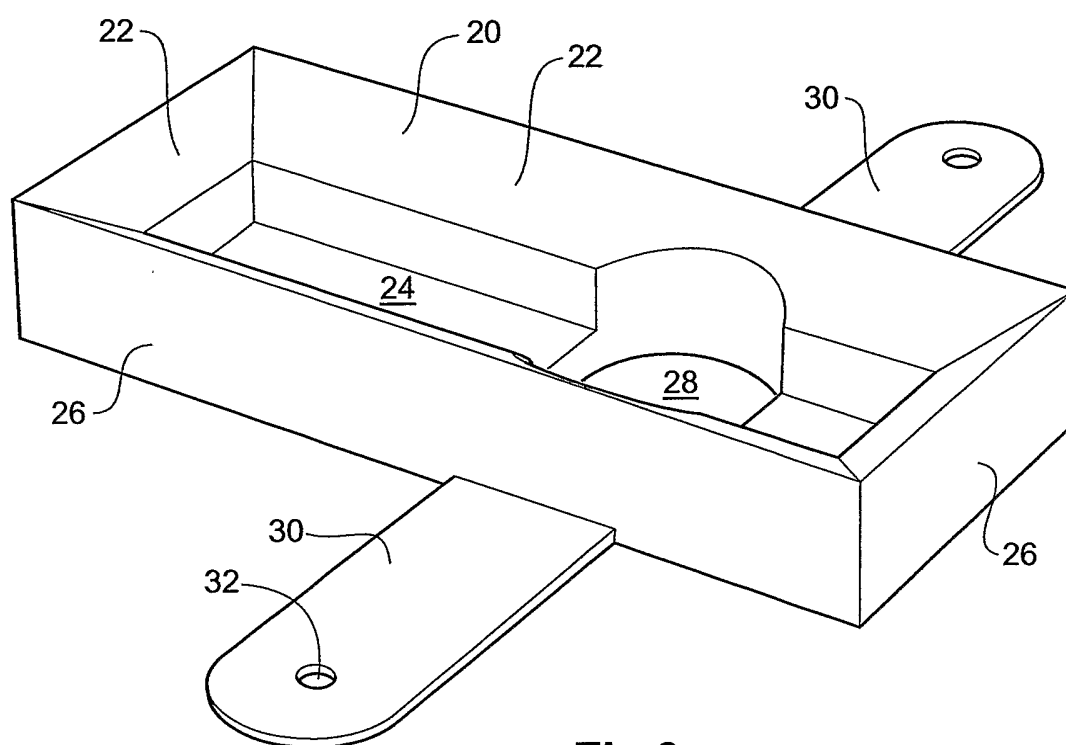


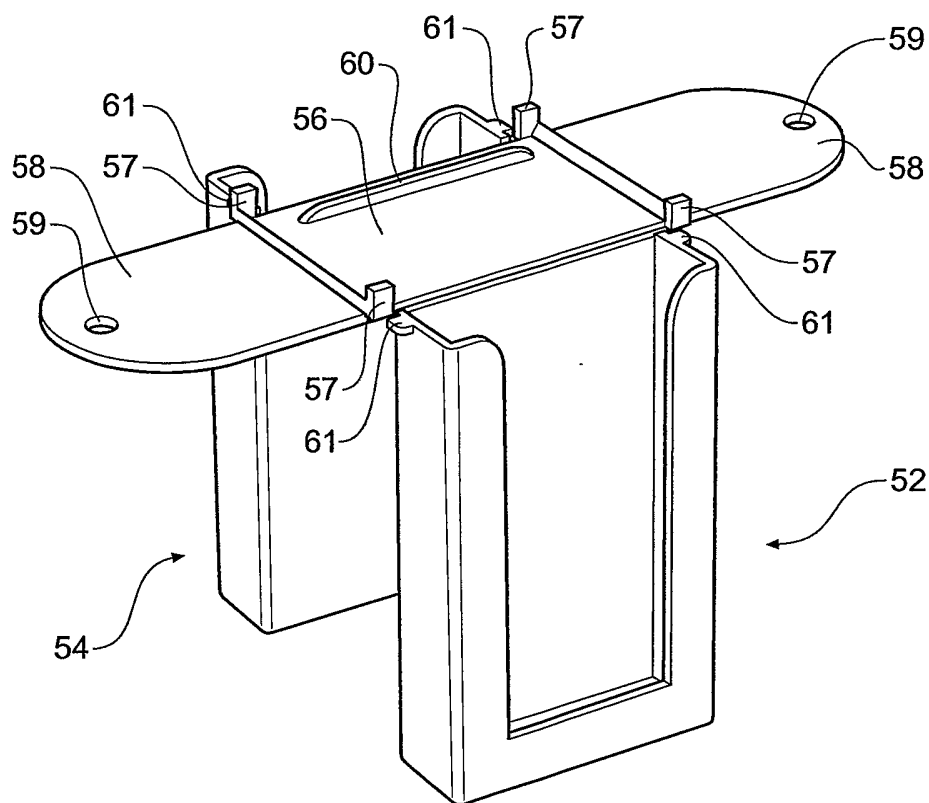
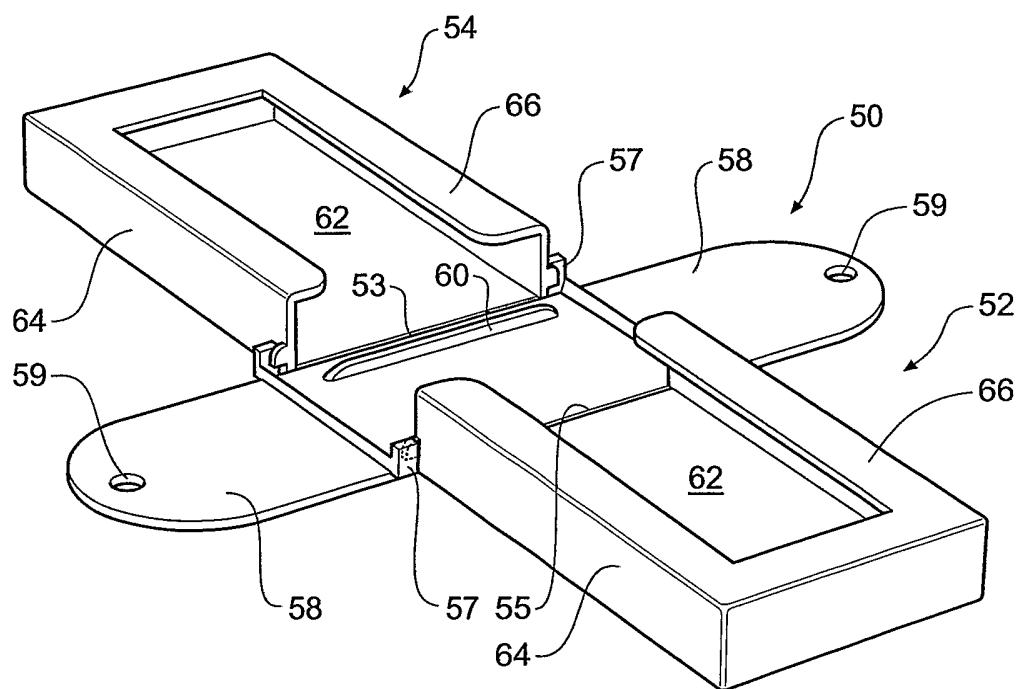
Fig 1

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**Fig 2****Fig 3**



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**Fig 5****Fig 6**

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU03/00390

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>												
Int. Cl. <sup>7</sup> : A61B 19/02												
According to International Patent Classification (IPC) or to both national classification and IPC												
<b>B. FIELDS SEARCHED</b>												
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 IPC A61B 19/02												
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) DWPI & Keywords: medical, surgical, surgery, receptacle, container, enclosure, tray, case, holder, box, carrier, sharp, needle, syringe, scalpel, knife, blade, instrument, tool, wing, flange, extension, extend, tab, arm, leg, limb, flap, stability, tilt, tip, steady, lateral, side, base, and similar terms.												
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>												
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
A	US 5342380 A (HOOD) 30 August 1994 figures 19, 20, column 16											
A	US 6047826 A (KALINSKI et al.) 11 April 2000											
A	WO 97/40753 A1 (CAVANAGH) 6 November 1997											
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex												
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"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</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&amp;" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"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	"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed	
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Date of the actual completion of the international search 16 April 2003		Date of mailing of the international search report 30 APR 2003										
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929		Authorized officer  Geoff Sadlier Telephone No : (02) 6283 2114										

# INTERNATIONAL SEARCH REPORT

International application No.

**PCT/AU03/00390**

<b>C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5301807 A (DONAHUE) 12 April 1994	
A	US 4484913 A (SWAUGER) 27 November 1984	

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

**PCT/AU03/00390**

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.

Patent Document Cited in Search Report		Patent Family Member	
US 5342380	US 5261922	US 5695510	US 5935142
	US 5935143		
US 6047826	US 5984097		
WO 9740753	AU 23749/97	EP 904018	US 6065596
US 5301807	NONE		
US 4484913	NONE		
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