



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/GB90/01453 (22) International Filing Date: 20 September 1990 (20.09.90) (30) Priority data: 3007/89 20 September 1989 (20.09.89) IE (71) Applicant (for all designated States except US): CROTTY, Martin [IE/IE]; 6 Trafalgar Lane, Monkstown, Co. Dublin (IE). (71)(72) Applicants and Inventors: MORGAN, David [GB/IE]; Fassaroe House, Fassaroe, Bray, Co. Wicklow (IE). STEPHENS, Brian [IE/IE]; 43 Mulgrave Street, Dun Laoghaire, Co. Dublin (IE). (72) Inventor; and (75) Inventor/Applicant (for US only) : TOBIN, Jerome [IE/IE]; Wenonah, Florence Road, Bray, Co. Wicklow (IE).		(74) Agent: STUART, Ian, A.; Mewburn Ellis, 2 Cursitor Street, London EC4A 1BQ (GB). (81) Designated States: AT, AT (European patent), AU, BB, BE (European patent), BF (OAPI patent), BG, BJ (OAPI patent), BR, CA, CF (OAPI patent), CG (OAPI patent), CH, CH (European patent), CM (OAPI patent), DE*, DE (European patent)*, DK, DK (European patent), ES, ES (European patent), FI, FR (European patent), GA (OAPI patent), GB, GB (European patent), HU, IT (European patent), JP, KP, KR, LK, LU, LU (European patent), MC, MG, ML (OAPI patent), MR (OAPI patent), MW, NL, NL (European patent), NO, RO, SD, SE, SE (European patent), SN (OAPI patent), SU, TD (OAPI patent), TG (OAPI patent), US. Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: A DEVICE FOR REMOVING A SCALPEL-BLADE FROM A SCALPEL-BLADE HANDLE (57) Abstract The invention concerns a scalpel blade remover comprising a container (10) in which the removed blades (2) are stored. The container (10) has an opening (13) in which the scalpel handle (1) with attached blade (2) may be inserted. The opening (13) has two opposed webs (14) which project inwardly from opposite sides of the opening (13). The webs (14) divide the opening (13) into a first slot (16) which receives the scalpel blade and a second slot (15) which receives a portion of the scalpel handle (1). As the scalpel handle is pressed downwardly into the opening (13) the webs (14) engage between the blade (2) and the stem (4). The webs (14) are provided with a step or recess (19) which engages the end of the partially detached blade such that when the handle (1) is withdrawn from the opening (13) the blade (2) is trapped within the container (10).		

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A device For Removing A Scalpel-Blade from a
Scalpel-Blade Handle

15 The invention relates to a device for removing a scalpel blade from a scalpel blade handle.

20 Scalpels comprising a handle having a detachable scalpel blade are commonly used in surgery. Similar scalpels with removable blades are also commonly used in design, graphics, photography and architectural offices for cutting film, paper, card and other materials. They have the advantage that the blade is extremely sharp and can be disposed of after use, while the handle may be reused with a new blade.

25 In practice, it is difficult to manually detach the used scalpel blade from the scalpel blade handle without a risk of injury to the user. This is a particular problem in the case of scalpels for surgical use because of the serious risk of infection should a nurse or other medical attendant be cut or scratched with a used blade. Thus after
30 medical use the scalpel blades are frequently changed using a forceps which can be quite a difficult procedure. The used blade is normally stored in a container called a "Sharp's Box" for later disposal.

35 Scalpel blade removers are known. Many of the known scalpel blade removers operate mechanically and involve moving parts. For example, U.S. Patent No. 4,378,624 discloses a scalpel blade remover in which the blade is clamped against a fixed block by manipulating a lever to cause a movable block, made from a resilient material, to move towards

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the fixed block to grasp the scalpel blade. A tab is provided on the movable block to engage an end of the blade to disengage the blade from the handle. The blade may then be dropped through a slot in a container in which the device is mounted. U.S. Patent No. 4,730,376
5 discloses a blade removal apparatus including a box part having a gap in which the scalpel blade is insertable. A push button on the box cover can be pushed down into the box and has a pair of projection pieces which make contact with stoppers which press the blade surfaces to assist in removing the blade from the handle. British Patent
10 Specification No. 1,596,199 discloses apparatus for removing the blade from a scalpel handle comprising a body having an aperture to receive the blade end of the scalpel. A manually movable part is provided adjacent the aperture to deform the blade to disengage it from the handle and hold the blade whilst the handle is withdrawn.

15 Scalpel blade removers of the kind described suffer from the disadvantage that because they have moving parts they tend to be more complicated to manufacture and may break-down in use. Furthermore, they frequently involve the use of two hands, one hand being necessary
20 to operate the device while the other hand holds the scalpel handle.

Scalpel blade removers not having moving parts are known. For example, U.S. Patent No. 4,466,539 discloses a scalpel blade remover which includes a single v-shaped slot in a vertically standing plate. The
25 tang portion of the handle, with blade attached, is inserted in the slot, and pressed downwards to wedge a portion of the blade against the v-shaped sides of the slot. The handle is then manipulated to disengage it from the blade and is withdrawn rearwardly out of the slot in a horizontal direction. A further scalpel blade remover, without
30 moving parts, is disclosed in European Patent Specification No. 034949A. This patent specification discloses a device for removing and storing scalpel blades comprising a container and an aperture in the container shaped to allow the introduction of the blade retaining section of the scalpel into the container such that the scalpel blade
35 is in opposed relation to the top of the container. The top wall of the container has a depressed section which deflects the front end of the scalpel blade upon insertion of the blade into the container. A pivotal support is provided within the container adjacent the aperture

for supporting the rear end of the blade. The support has a recess to receive the tang of the handle to permit the lifting of the rear end of the blade when the front end of the blade is deflected and the tang is depressed within the recess. The wall of the container adjacent the aperture is shaped to form an abutment to catch the rear end of the blade when the handle is axially withdrawn from the container.

The disadvantages associated with the aforesaid static devices are that they require considerable manipulation of the scalpel handle to achieve successful removal of the blade. Further, there is a danger that the blade may not be fully detached from the handle and may accidentally be withdrawn with the handle.

It is an object of the invention to provide a device for removing used scalpel blades which is simple and robust in construction, involves no moving parts, and is reliable and simple in use.

Accordingly, the invention provides a device for removing a scalpel blade from a scalpel blade handle, said device having an opening into which the scalpel blade, and at least the portion of the handle to which the blade is attached, may be inserted, wedge means disposed in said opening and adapted to engage between the blade and the handle to urge the blade away from the handle as the handle is pressed into said opening, and blade engagement means disposed in the opening and adapted to engage the blade to trap the blade within the opening on withdrawal of the handle from the opening.

Preferably, the wedge means comprises two opposed webs protruding from opposite sides of the opening, the webs dividing the opening into a first slot which is adapted to receive the scalpel blade and a second slot adapted to receive a portion of the handle. Suitably the webs are wedge-shaped. The second slot, which suitably is larger than the first slot, has a downwardly inclined outer wall.

The blade engagement means may comprise a recess or step in the opposed webs with which a rear portion of the blade engages.

Some embodiments of the invention are hereinafter described with

reference to the accompanying drawings, wherein

Figure 1 is a front elevation of a scalpel with a detachable scalpel blade;

5 Figure 2 shows the scalpel of Figure 1 with the blade detached;

Figure 3 is a side elevation of the handle portion of the scalpel of Figure 1;

Figure 4 is a perspective view from above of one embodiment of a device for removing scalpel blades according to the invention ;

10 Figures 5 and 6 are perspective views showing the device of Figure 4 in use;

Figure 7 is a plan view, to a smaller scale, of the device of Figure 4;

Figure 8 is a sectional view on the lines A-A of Figure 7;

Figure 9 is a sectional view on the lines B-B of Figure 8;

15 Figure 10 is a sectional view on the lines C-C of Figure 9;

Figure 11 is a front elevation of a second embodiment of the device of the invention;

Figure 12 is a plan view of the device of Figure 11;

Figure 13 is a plan view of a third embodiment of the invention;

20 Figure 14 is a sectional view on the lines A-A of Figure 13;

Figure 15 is a sectional view on the lines B-B of Figure 14;

Figure 16 is a sectional view on the lines C-C of Figure 15 and;

Figure 17 is a sectional view corresponding to Figure 14 showing a scalpel blade inserted in the device.

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Referring to Figures 1 to 3 of the drawings, a typical scalpel comprises a metal handle 1 and a scalpel blade 2. The scalpel blade 2 has a very sharp cutting edge 3, and typically conforms to British Standard BS2982. Both the handle and scalpel blade may vary in shape and size depending upon the use to which the scalpel is put.

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The blade 2 is detachable from the handle 1. The end of the handle 1 is formed with a narrow, elongate, blade-retaining stem 4. As shown most clearly in Figure 3, the stem 4 has a shallow groove 5 formed in each opposed side thereof. The scalpel blade 2 is formed with a central slot 6. The slot 6 has a narrow portion 6a adjacent the cutting edge 3, and a wider portion 6b remote from the cutting edge. When fitting the scalpel blade to the handle 1, the stem 4 is inserted

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into the wider portion 6b of the aperture 6, and is pushed forward until the edges of the narrow portion 6a of the aperture engage in the grooves 5, to secure the blade firmly in position on the stem 4, as shown in Figure 1.

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In practice, it is quite simple to attach the blade 2 to the scalpel handle 1 by hand, but it is more difficult to detach a used blade from the handle without risk of injury.

10 A first embodiment of a device for removing a scalpel blade from a scalpel blade handle is illustrated in Figures 4 to 11 of the accompanying drawings. The device consists of a container 10, which in this embodiment, may be in the shape of a cube but can be of a variety of different shapes including cylindrical. For the sake of simplicity
15 only part of the container is shown in the drawings. The device of the invention suitably is formed in an upper surface 11 of the container 10, although it will be appreciated that the device could also be provided in a sidewall of the container.

20 The device of the invention essentially comprises a downwardly depending moulding 12. Suitably, the container 10 and moulding 12 are injection-moulded from a plastics material. Alternatively, they may be cast machined, or fabricated from other materials, for example, aluminium or stainless steel. The moulding 12 defines a substantially
25 rectangular opening 13 in the top wall 11 of the container. The moulding 12 is formed with two opposed inwardly-directed webs 14, which extend vertically of the moulding 12 and divide the opening 13 into a large slot 15 and a narrow slot 16. The inner edges of the webs 14 do not meet but are spaced apart to define a gap 17 (see Figure 7). A top
30 portion of each web 14 is formed with a chamfered or rounded portion 18 such that the webs have the shape of a wedge, as hereinafter described. The faces of the webs 14, facing into the narrow slot 16, are formed, intermediate their length, with a recess or step 19. An outer wall 20 defining the larger slot 15, is inclined inwardly from
35 the top downward and merges with the webs 14, as best seen in Figure 8.

The method of using the device of the invention is illustrated in Figures 5 and 6. In order to remove a scalpel blade 2 from a handle 1,

the end of the handle 1 to which the scalpel blade 2 is attached is inserted into the opening 13. The narrow slot 16 and wider slot 15 are so dimensioned that the blade 2 fits conveniently into the narrow slot 16, while the stem portion 4 of the handle 1 fits into the wider slot 15. The handle 1 is pressed down into the opening such that the webs 14 engage between the blade 2 and the stem portion 4. As the handle is pushed further downwards the wedge shape of the webs 14 tends to force the rear portion of the blade 2 away from the stem 4 of the handle. At the same time, the inclined surface 20 of the aperture 15 causes the handle portion to assume an angle, as shown in Figure 5, and the stem (4) protrudes through the gap 17. With further downward movement, the rear edge of the blade 2 snaps into engagement beneath the recess 19. Further downward movement of the handle is prevented by the inclined surface 20. The handle 1 is now withdrawn and the blade 2, trapped by the recess 19, slides easily away from the retaining stem 4. The blade 2 then drops into the interior of the container 10.

The container 10 is sufficiently large to receive a large number of blades. Even with vigorous shaking it is difficult for a used blade to be accidentally discharged from the container. However, although not shown in the drawing, the base of the container 10 may be openable such that the used blades may be removed from the container when desired. However, the container may be regarded as being disposable when full in which case no opening is provided, and the container is sealed.

In the embodiment shown in Figures 4 to 9, the container is substantially cube shaped. In a second embodiment, shown in Figures 11 and 12 the container 10 is frusto-pyramidal in shape. The opening 13 is located in a flat upper wall 11 of the container. The device of the invention is essentially as described with reference to the first embodiment. Conveniently, the upper wall 11 of the container 10 may also be provided with an elongate slot 22. The slot 22 can be used to receive snap-off blades, eg. "Olfa" blades. A snap-off blade is frequently used for cutting film, paper, card and other materials. The snap-off blade is a continuous strip which can be broken off in sections along pre-machined grooves formed in the blade. In the device of the invention, the used portion of the blade may be inserted in slot 22, and breaking off of the used portion is achieved by applying

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sideways pressure against the blade edge. The now detached portion falls into the container 10.

As an added safeguard to ensure that a used scalpel blade 2 may not accidentally be discharged or removed from the container 10, the container 10 may be provided with a magnet 25. As shown in Fig. 11, the magnet 25 may be attached to the base of the container 10. Alternatively, the base of the container 10 may be made from a magnetized material. Thus, when used blades fall onto the container 10, the blades, being made from steel, are attracted to, and attach themselves to the magnet 25.

In yet another embodiment shown in Figures 13 to 17, a physical closure means is provided to close-off the slot 16 to prevent used blades 2 from being discharged from the container 10 through the slot 16. The means comprises a stopper 26 mounted on a flexible strip 27. The stopper 26 and strip 27 may be integrally moulded from a suitable plastics material, for example nylon. The lower end of the strip 27 is attached, for example by welding or mechanical means, to the lower end of the inclined wall 20 or may be moulded integrally with the remainder of the device. The stopper 26 is substantially wedge-shaped in section, as shown in Figure 14, and has a curved inclined face 28. The stopper 26 and strip 27, when in the closed position; are located vertically within the gap 17, between the opposed webs 14. However, the curved face 28 protrudes into the slot 16 to effectively close-off the slot 16 and so prevent used blades from exiting through the slot 16.

As shown in Figure 17, when it is desired to remove and insert a scalpel blade 2 into the container 10, the point of the scalpel blade 2 is inserted into the slot 16, which causes the stopper 26 to be pushed aside towards the inclined surface 20. As the scalpel handle is pushed into the slot 15 it engages the inclined surface 28 of the stopper 26 to further push it aside. The stopper 26 is shown in a fully open position in Figure 17 where it is housed in a recess 29 formed in the wall 20. The flexible strip 27 acts as a hinge to permit the opening movement of the stopper 26.

In the embodiment shown in Figures 13 to 17, the container 10 is of

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cylindrical shape and of such a size that it may conveniently be hand-held. However, it will be appreciated that in the various embodiments the shape of the container 10 may be varied as desired, and the size may also vary.

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A small downward pressure on the top of the handle is sufficient to separate the blade from the handle. The handle is encouraged into the correct position by the profile of the opening 13, and no complicated manipulation is required.

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C L A I M S

1. A device for removing a scalpel blade (2) from a scalpel handle (1), said device having an opening (13) into which the scalpel blade (1), and at least the stem portion (4) of the handle (1) to which the blade is attached, may be inserted, means disposed in said opening and adapted to at least partially disengage the blade (1) from the stem (4) as the handle is pressed into said opening (13), and blade engagement means (19) disposed in the opening (13) and adapted to engage the blade (2) to trap the blade (2) within the opening (13) on withdrawal of the handle (1) from the opening characterised in that said means for partially disengaging the blade (1) from the stem (4) of the scalpel handle (1) comprises wedge means (14) adapted to engage between the blade (2) and the handle (1) to urge the blade (2) away from the handle (1).
2. A device as claimed in Claim 1, characterised in that the wedge means comprises two opposed webs (14) protruding from opposite sides of the opening (13).
3. A device as claimed in Claim 2, characterised in that the webs (14) divide the opening (13) into a first slot (16) which when the device is in use is adapted to receive the scalpel blade, and a second slot (15) adapted to receive a portion of the handle (1).
4. A device as claimed in Claim 2 or Claim 3 characterised in that the opposed webs (14) project inwardly into the opening (13) but are spaced apart to define between them a gap (17) such that when a scalpel is inserted into the opening (13) the scalpel blade (2) is received in the slot (16) to one side of the webs (14) while a portion of the scalpel handle (1) is received in the slot (15) which is so shaped as to permit the handle (1) to tilt such that the stem (4) of the handle may protrude through the gap (17).
5. A device as claimed in any of Claims 2 to 4, characterised in that a top portion of each of the webs (14) is rounded to form a wedge shape.
6. A device as claimed in any of Claims 2 to 4 characterised in that the blade engagement means comprises a step or recess (19) formed in

the face of the webs (14) with which an end of the blade (2) may engage.

5 7. A device as claimed in any of Claims 2 to 6 characterised in that the second slot (15) has a wall (20) which is so inclined outwardly from the webs (14) as to permit tilting of the scalpel handle (1) when it is inserted into the opening (13).

10 8. A device as claimed in any of the preceding claims characterised in that the device is mounted in the wall of a container (10) in which removed scalpel blades (2) are stored.

15 9. A device as claimed in Claim 8 characterised in that a stopper (26) is located in the opening (13) and is movable from a first closed position, in which it prevents removed blades from being discharged through the opening (13) to an open position in which a scalpel blade with handle attached may be inserted into the opening (13) for removal.

20 10. A device as claimed in Claim 8, characterised in that the container is provided with a magnet (25) to assist in retaining removed blades within the container.

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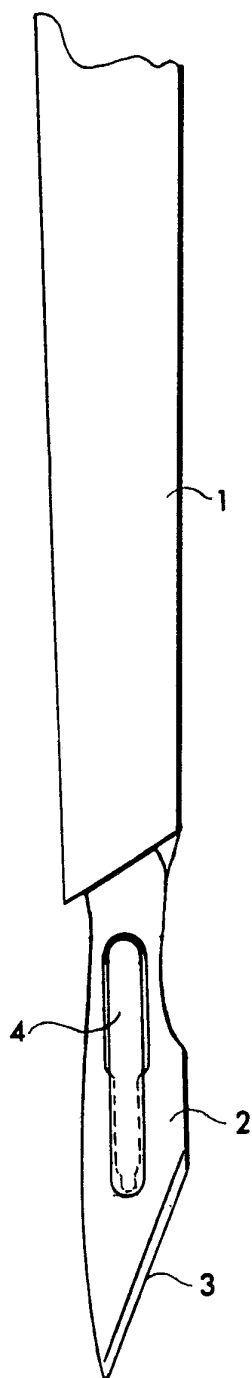


Fig 1

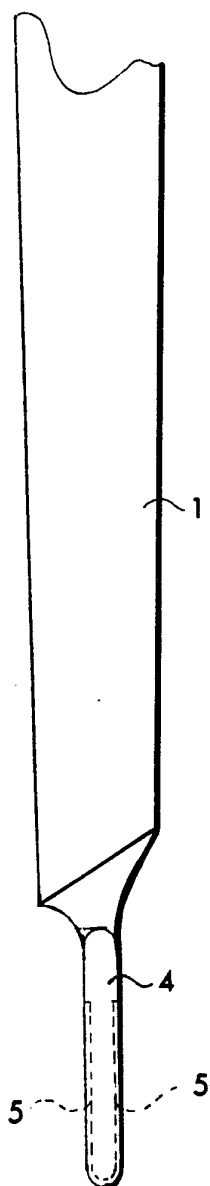


Fig 2

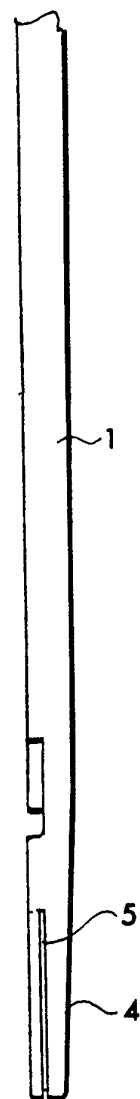
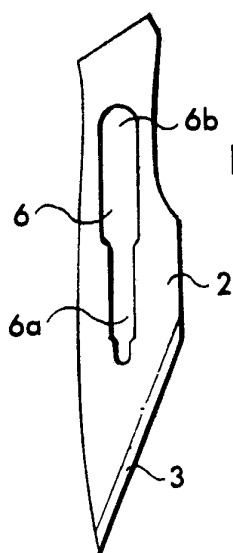


Fig 3



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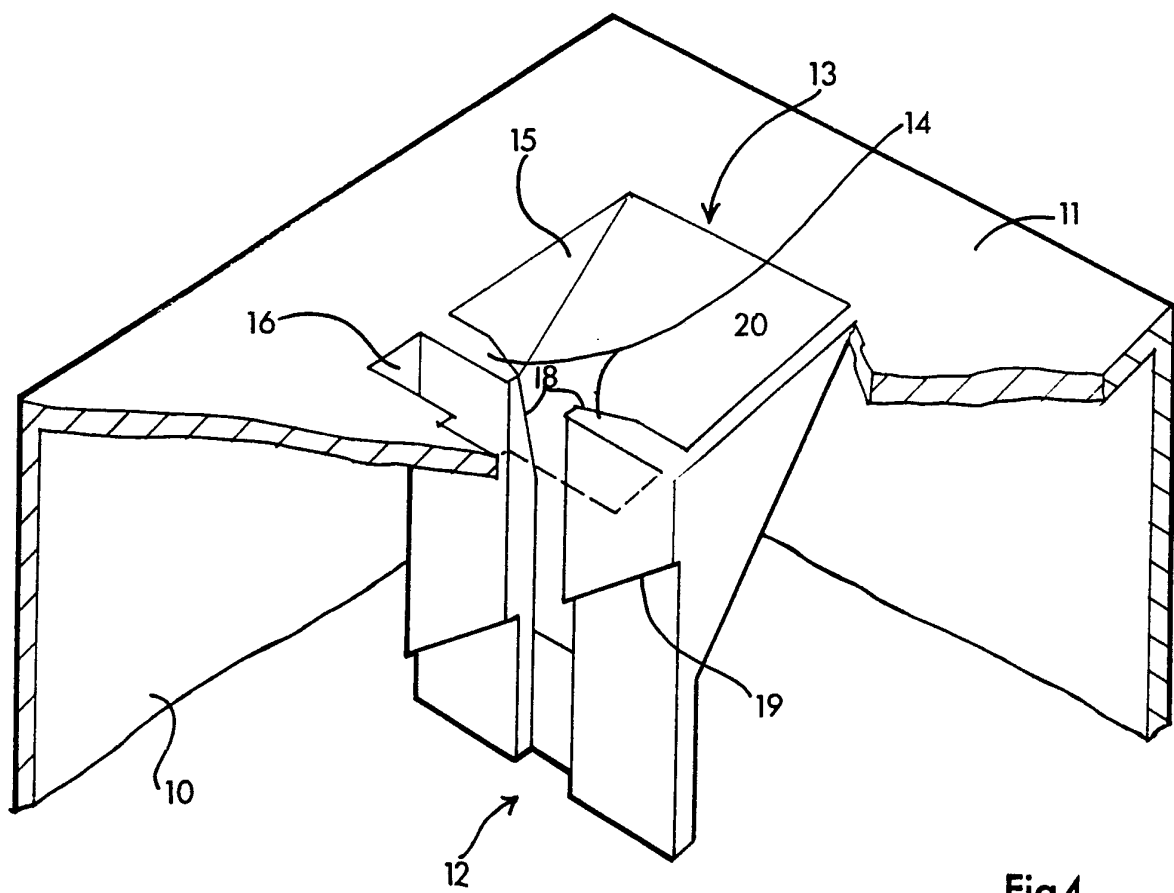
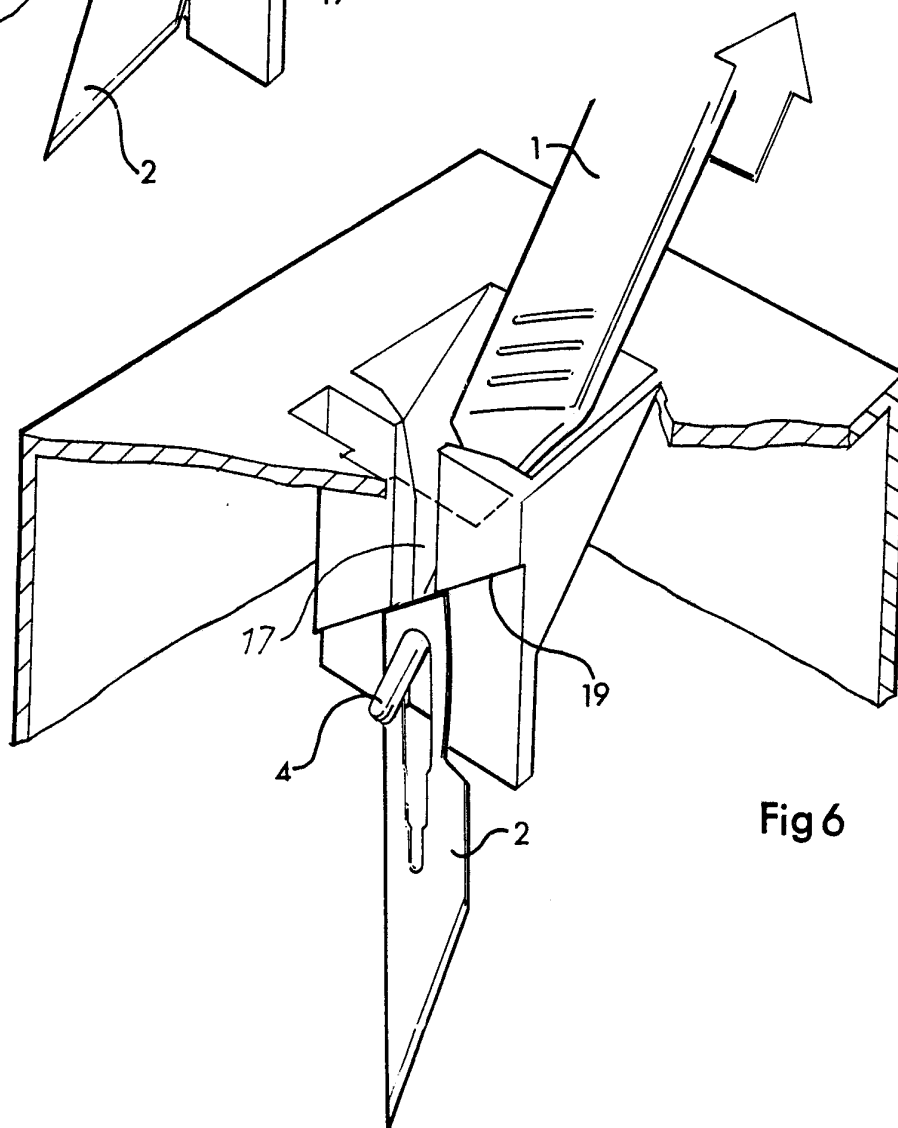
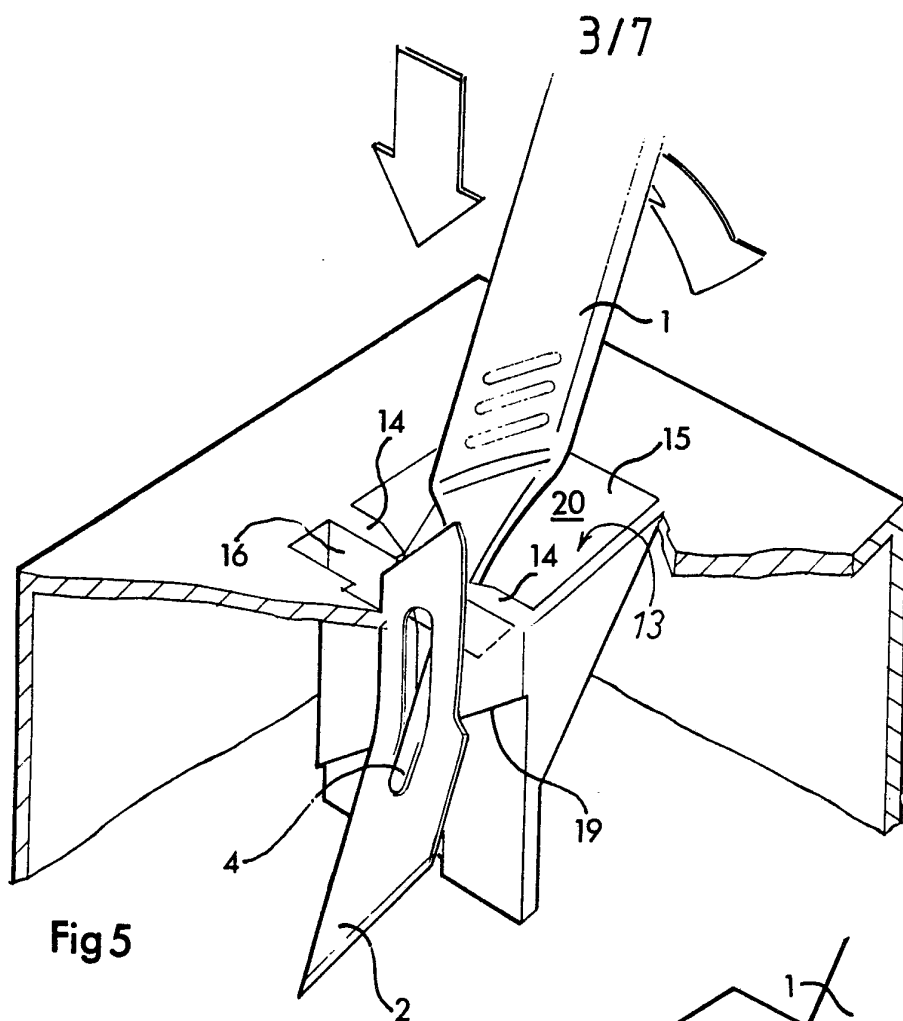


Fig4



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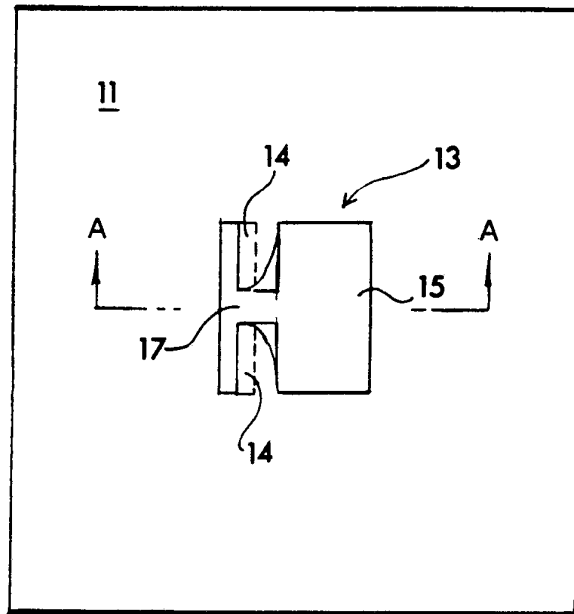


Fig7

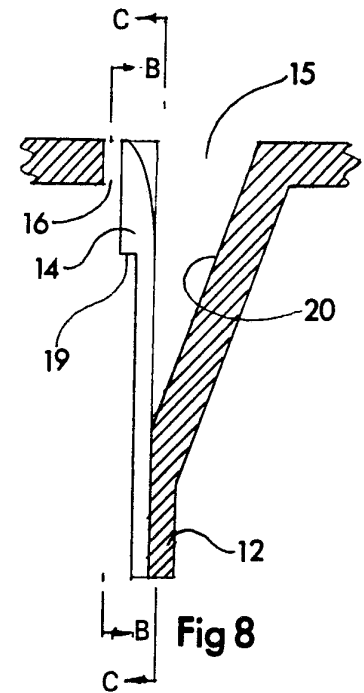


Fig 8

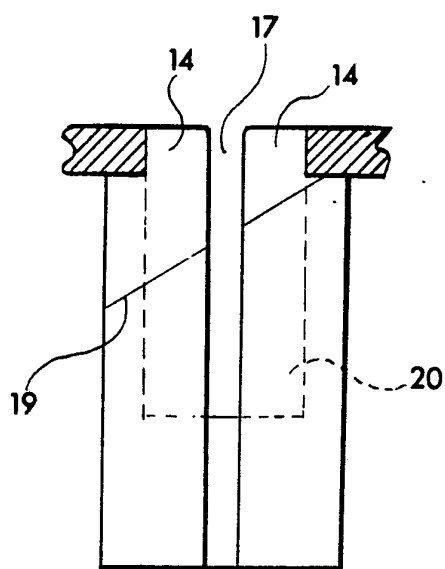


Fig9

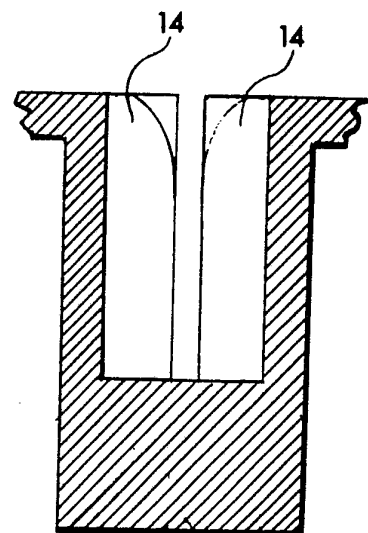
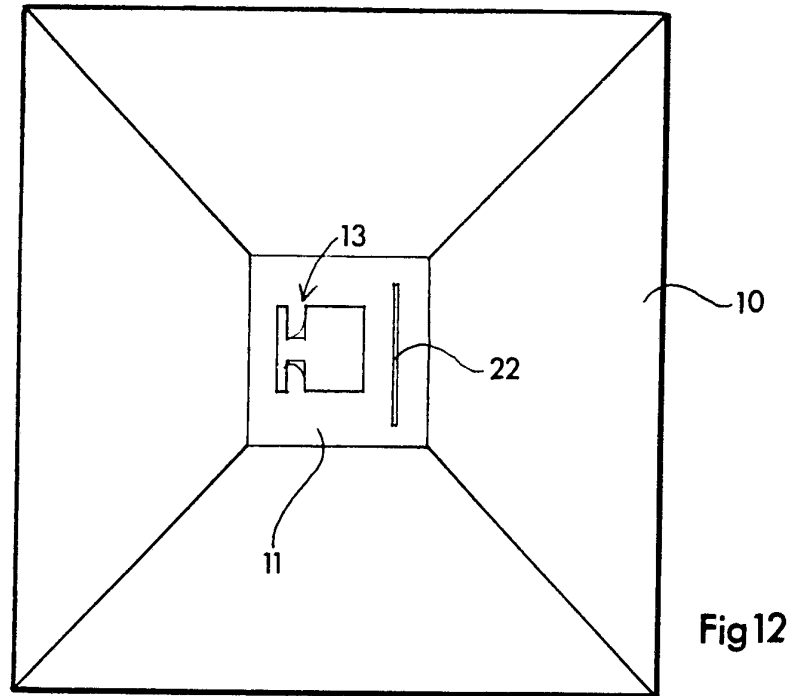
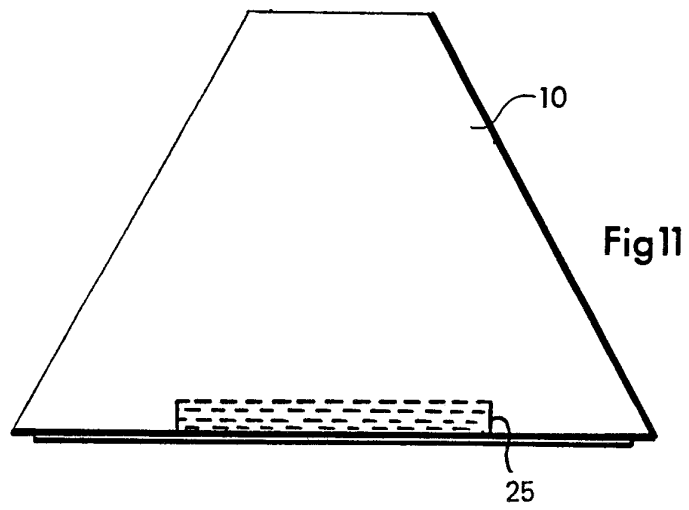


Fig10

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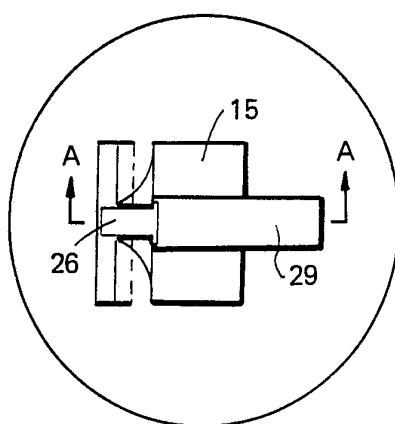


FIG. 13

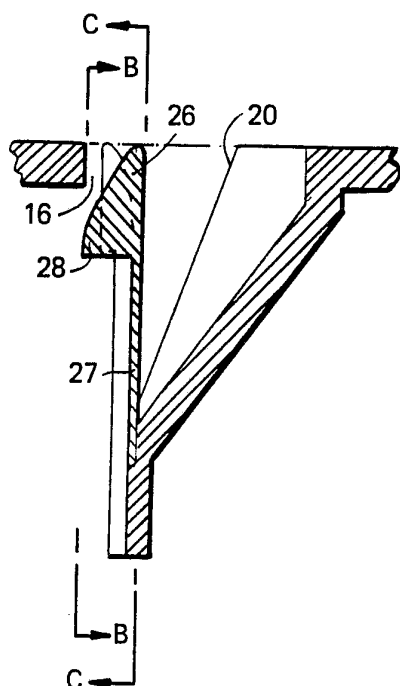


FIG. 14

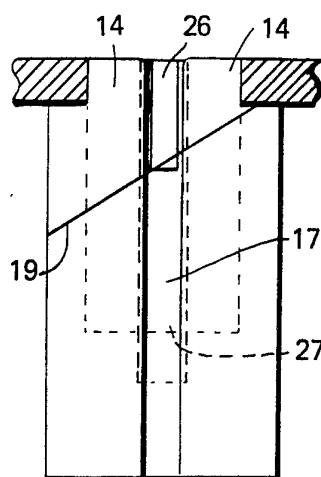


FIG. 15

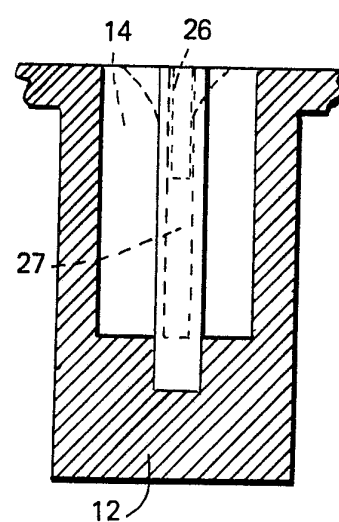


FIG. 16

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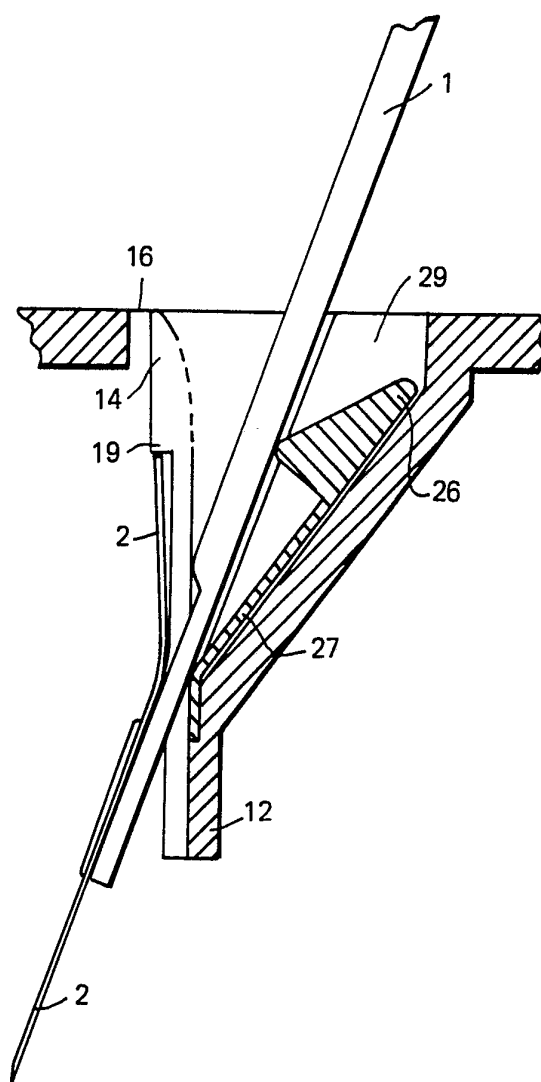
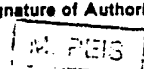


FIG. 17

INTERNATIONAL SEARCH REPORT

International Application No PCT/GB 90/01453

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC IPC ⁵ : A 61 B 17/32		
II. FIELDS SEARCHED		
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III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category [*]	Citation of Document, ¹¹ with Indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	WO, A, 83/00454 (INSTRANETICS) 17 February 1983 see figures 1,12; claim 1	1-8
Y	--	9,10
Y	US, A, 4746016 (POLLAK) 24 May 1988 see column 8, lines 23-24	9
Y	US, A, 3727658 (ELDRIDGE) 17 April 1973 see claim 1b	10
X	EP, A, 0034949 (SMITH & NEPHEW) 2 September 1981 see figure 5; page 5, lines 23-27	1-5,8
X	EP, A, 0005052 (JERMED) 31 October 1979 see figure 10; page 5, lines 17-19	1-4,7,8

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IV. CERTIFICATION		
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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