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(71) Applicant(s)  
**Alan David Mogg**  
44 Albert Road, FERNDOWN, Dorset, BH22 9HE,  
United Kingdom

(72) Inventor(s)  
**Alan David Mogg**

(74) Agent and/or Address for Service  
**Barker, Brettell & Boutland**  
Prudential Buildings, 97-101 Above Bar Street,  
SOUTHAMPTON, SO14 7JW, United Kingdom

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(56) Documents Cited  
GB 2147811 A WO 91/07204 A2 US 4659329 A  
US 4533349 A US 4419094 A US 4261363 A

(58) Field of Search  
UK CL (Edition M ) A5R RGA RGE  
INT CL<sup>5</sup> A61M 25/02

(54) Catheter retainer

(57) A catheter retainer is disclosed which can be secured to a patient's skin at the insertion site to hold the catheter in position. The device allows the catheter to be bent through a right angle as it exits from the patient without the tube becoming kinked. The catheter is held in the device by means of a pivoted clamping arm 2, a sliding clip (8, Figure 5) or by being wound round and pulled into a V-shaped circular groove (Figure 7). It is secured to the patient's skin by tape, sticky pad or sutures.

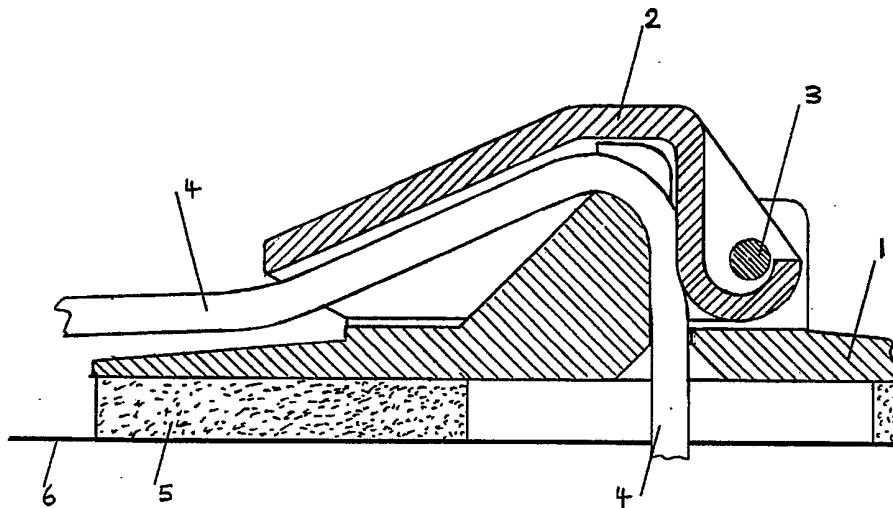


Fig 3

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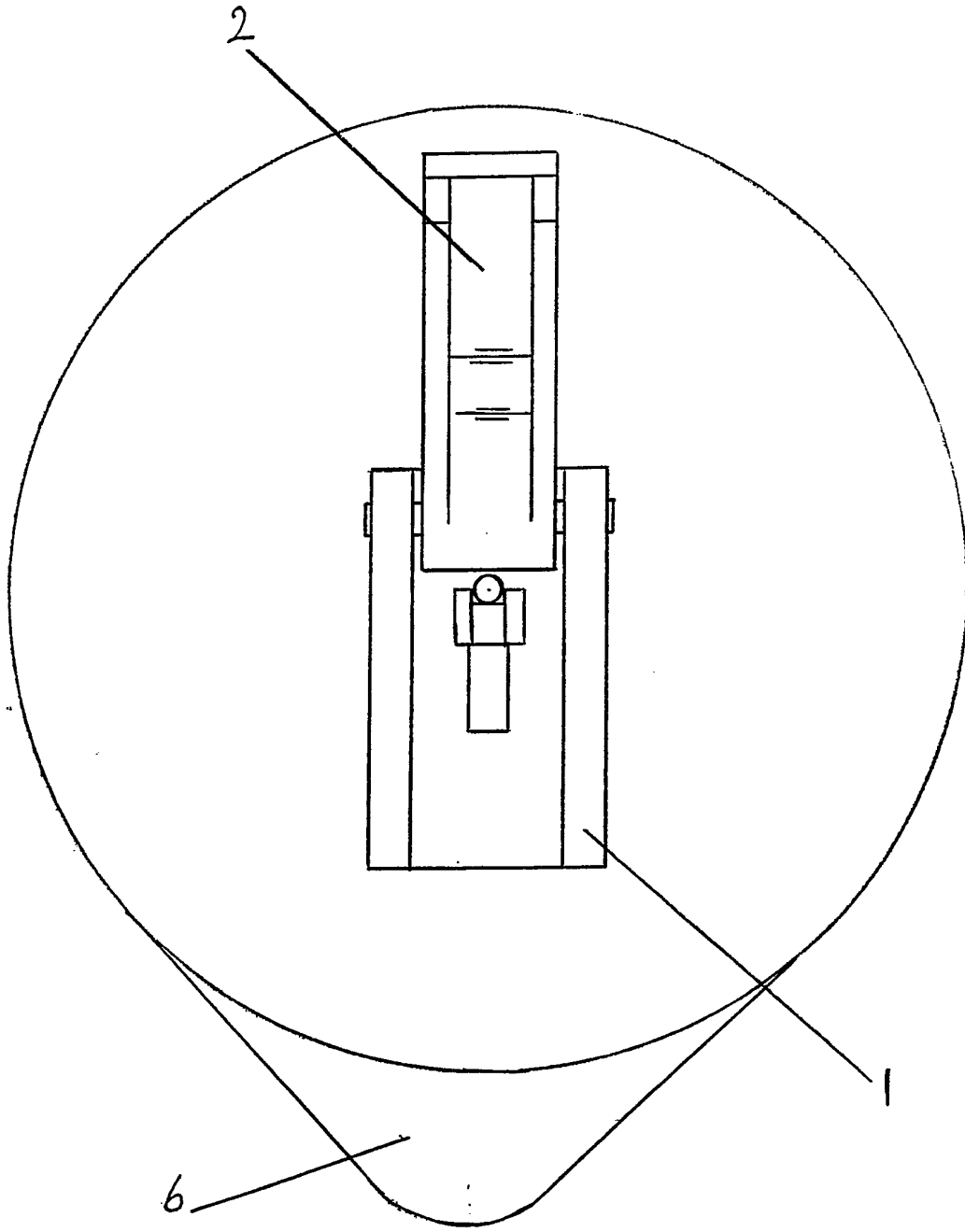


Fig 1

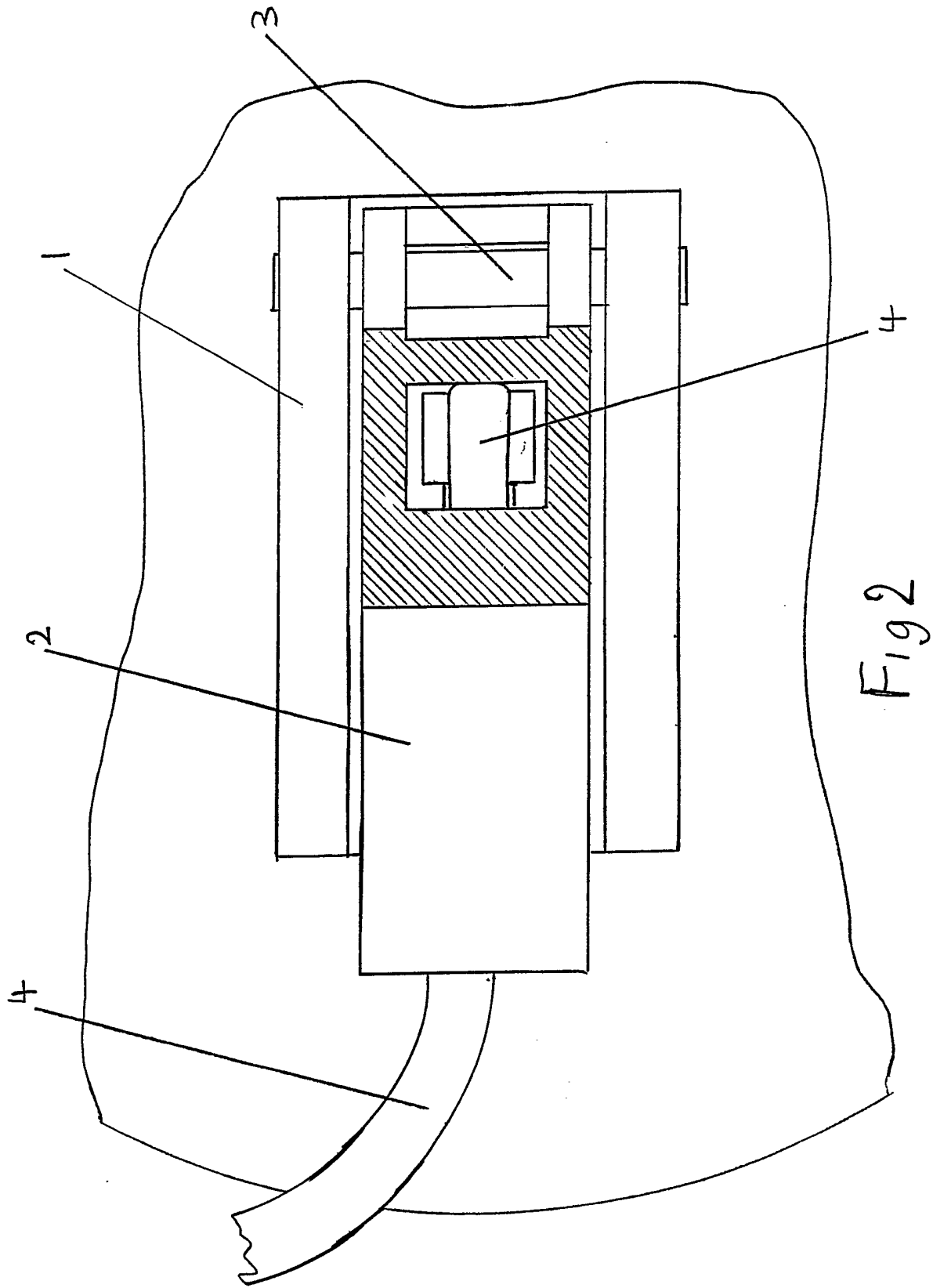


Fig 2

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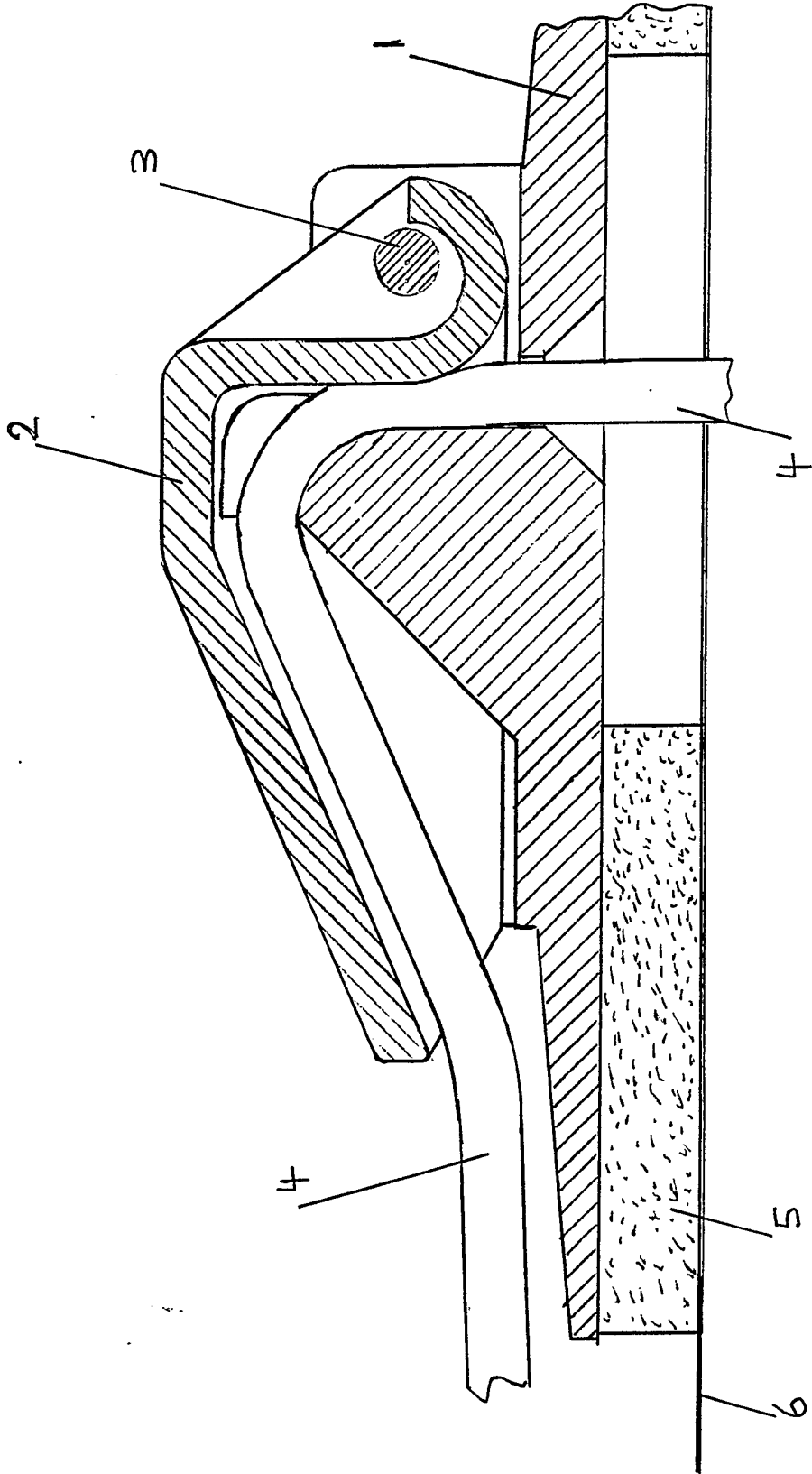


Fig 3

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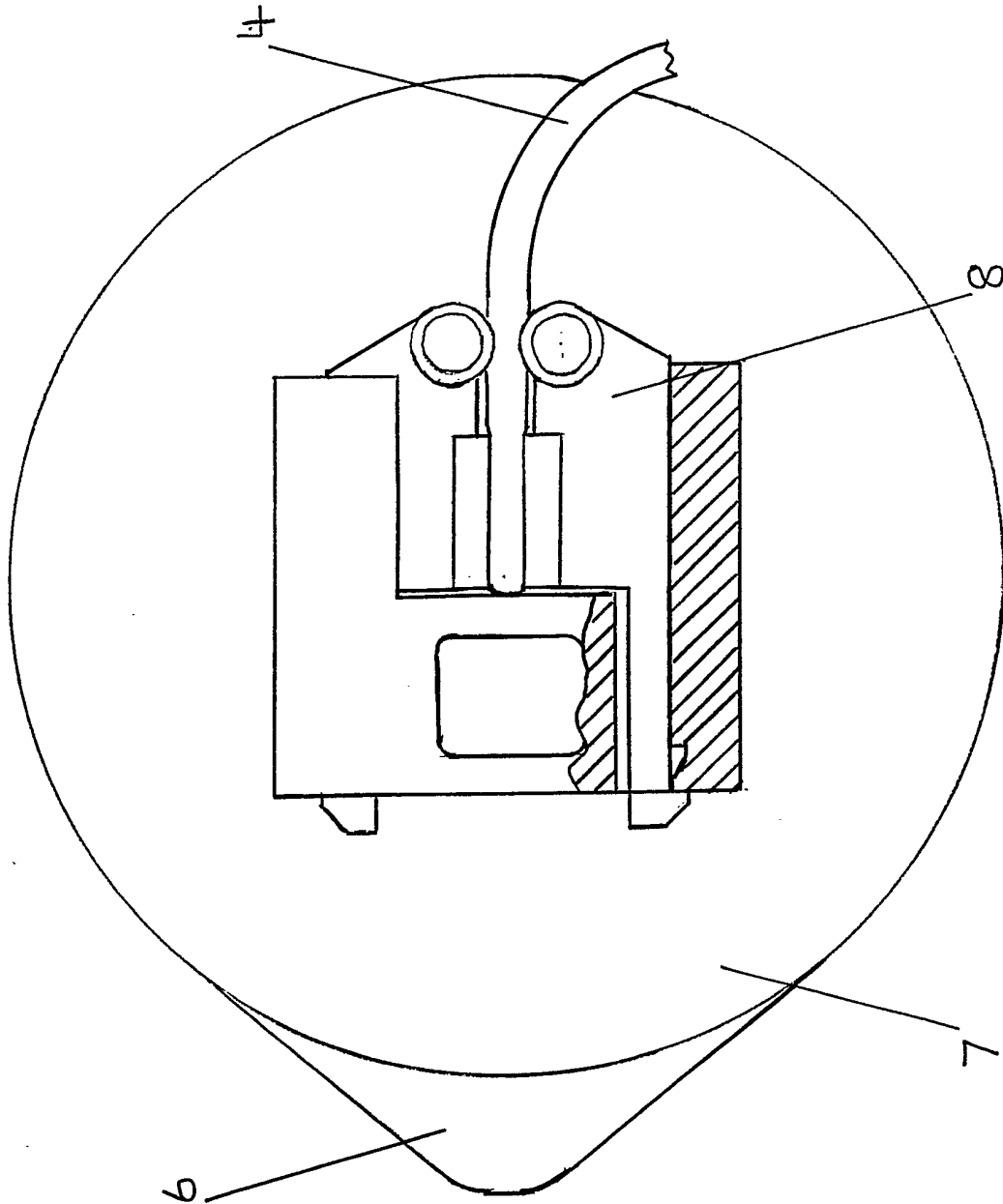


Fig 4

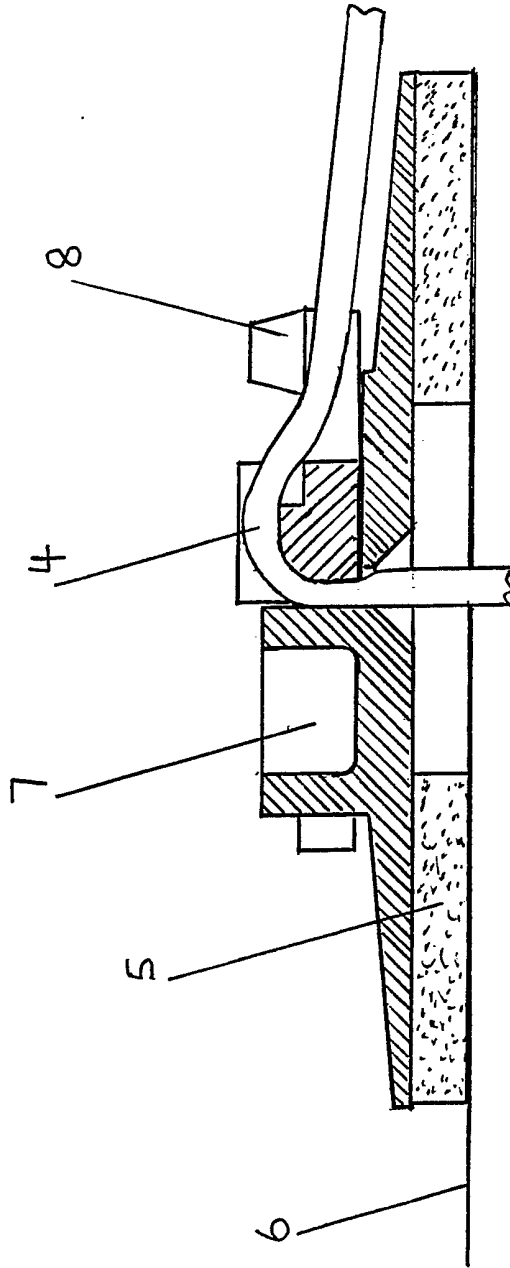


Fig 5

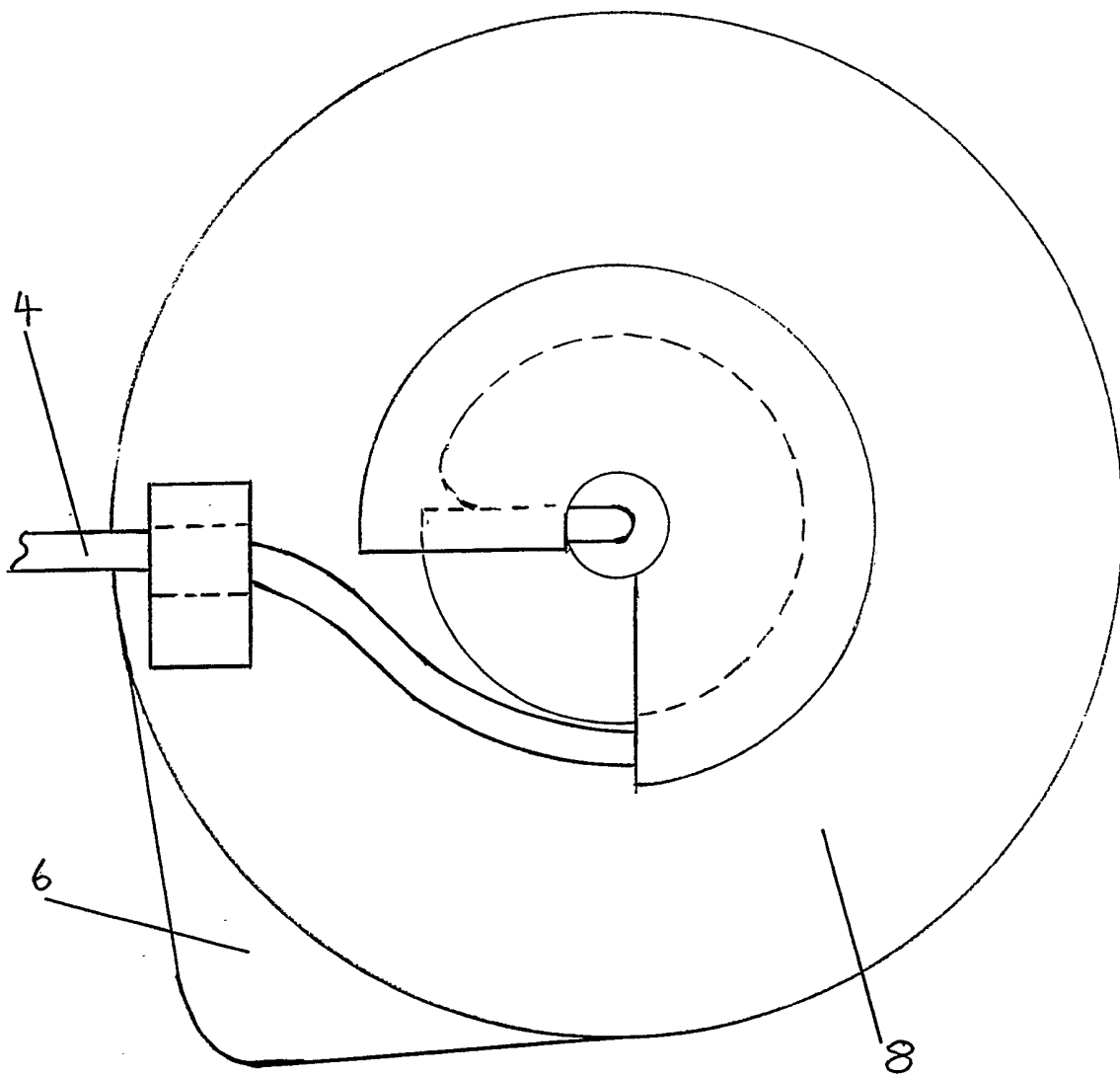


Fig 6

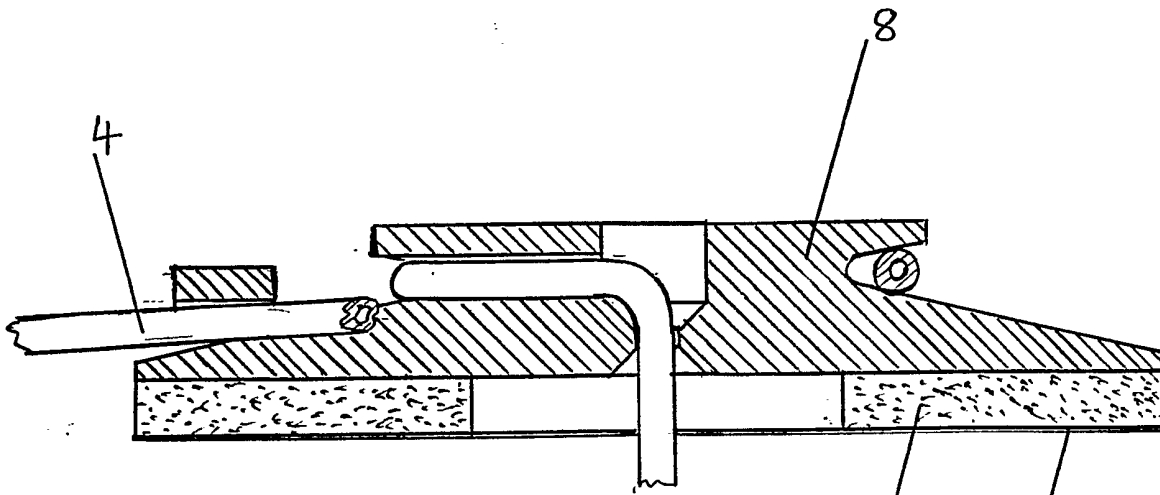


Fig 7

CATHETER CLAMP

This invention relates to a clamp for attaching catheters to patients skin at the insertion site.

Catheters can be inserted into patients where there is a requirement, for example, to administer continuous or repeated doses of analgesia, such as infusions for epidurals, spinals or nerve blocks.

Catheters being typically flexible tubes of small diameter are difficult to hold and consequently easily pulled from the patient or the end displaced causing ineffective pain control. Also flexure of the catheter can cause the analgesia to leak back along the outside of the catheter.

Traditionally catheters have been either sutured to the patients skin, which is time consuming and distressing to the patient, or taped to the patients skin by various ad-hoc methods giving inconsistent results with high risk of catheter displacement and leakage. Also, as the catheter leaves the patient perpendicular to the surface of the skin it is necessary to bend the catheter through a right angle before being taped to the patient, so that kinking of the catheter can occur at the bend causing the catheter to occlude.

According to the present invention there is provided a catheter clamp comprising a device through which a catheter can be inserted, means by which the catheter can be bent through a right angle without kinking, means by which the catheter can be held, the device being of a shape and size that can be secured to the skin by tape, sticky pad or suture.



A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 shows the top view with the clamp open.

Figure 2 shows an enlarged part top view, in part section, of the clamp holding a catheter.

Figure 3 shows an enlarged part side view, in section, of the clamp holding a catheter.

Referring to the drawings the catheter clamp comprises a plastic moulded body 1 and a plastic moulded clamp arm 2 which is mounted on and can pivot around pin 3.

When the clamp is in the open position, as shown in fig. 1, a catheter 4 can be fed through the guide hole and vertical rectangular slot in body 1. When clamp arm 2 is rotated the curved clamping surface, being eccentric to the pivot pin, closes onto the catheter 4 compressing and clamping it into the close fitting vertical rectangular slot. Also as the clamp arm comes round the catheter is guided into a close fitting curved rectangular slot and down through the arm to clear the clamp at right angles to its entry, as shown in fig. 3. When fully operated the clamp arm is clipped into the body (not shown), by for example two small moulded pins on the outside of the clamp arm 2 engaging into holes in the upright rails of body 1

If the catheter 4 is pulled when the clamp arm is in the clamped position, then the catheter is forced into the curved rectangular slot which also jams and holds the catheter in addition to the initial clamping afforded by the clamp arm.

An annular shaped sticky foam pad 5, with release paper 6, is stuck to body 1 so that when in use it provides a secure and comfortable attachment to the patient.

Another specific embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 4 shows a top view, in part section, of the clamp holding a catheter.

Figure 5 shows a side view, in section, of the clamp holding a catheter.

Referring to the drawings the catheter clamp comprises a plastic moulded body 7, and a plastic moulded clip 8, which is mounted in the body and able to slide in slots in the body.

When the clip is retracted the clip ends are located in grooves within the body and catheter 4 can be fed through the guide hole in body 7. To clamp the catheter the clip 8 is slide along so that the catheter enters the close fitting vertical rectangular groove in the clip, and is compressed against the upright of body 7, the clip being retained in this position by the sprung ends of the clip engaging around the body. The catheter is then bent round in a curved rectangular groove in clip 8, and pressed down between the tapered pins to retain the catheter as illustrated in fig. 5.

If the catheter is pulled when clamped, then the catheter is forced into the curved rectangular slot which also jams and holds the catheter in addition to the initial clamping afforded by the sliding clip.

An annular shaped sticky foam pad 5, with release paper 6, is stuck to body 7 so that when in use it provides a secure and comfortable attachment to the patient.

Another specific embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 6 shows a top view of the clamp holding a catheter. Figure 7 shows a side view, in section, of the clamp holding a catheter.

Referring to the drawings the catheter clamp comprises a single plastic moulding 8 which has a circular vee shaped slot a quarter of which is missing, a groove leading from the central guide hole to the start of the circular groove, and a cantilever arm on its edge.

The catheter is fed up through the guide hole, turned through a right angle into the radial groove and is then wound around and into the circular groove. From the exit of the circular groove the catheter is slide under the cantilevered arm, and as the gap under the tip of cantilevered arm is smaller than the diameter of the catheter, the catheter is retained in this position. If the catheter is pulled, then the catheter is compressed into the vee groove and locked.

An annular shaped sticky foam pad 5, with release paper 6, is stuck to body 2 so that when in use it provides a secure and comfortable attachment to the patient.

CLAIMS

1. A catheter clamp comprising a device through which a catheter can be inserted, means by which the catheter can be bent through a right angle without kinking, means by which the catheter can be held, the device being of a shape and size that can be secured to the skin by tape, sticky pad or suture.
2. A catheter clamp comprising a body through which a catheter can be inserted, means by which the catheter can be bent through a right angle without kinking, a route by which the catheter can be run such that the catheter locks into features of the moulding when the catheter is pulled, the body being of a shape and size that can be secured to the patients skin by tape, sticky pad or suture.
3. A catheter clamp as claimed in Claim 1 wherein the clamping device is provided by a pivoted arm having an eccentric face which bears down on and secures the catheter when operated.
4. A catheter clamp as claimed in Claim 1 wherein the clamping device is provided by a sliding clip which bears down on and secures the catheter when operated.
5. A catheter clamp as claimed in Claim 1, Claim 3 or Claim 4 wherein means are provided to loosely retain the catheter adjacent to the edge of the clamp body.
6. A catheter clamp as claimed in Claim 1, Claim 3, Claim 4 or Claim 5 wherein the means by which the catheter is turned through a right angle is provided by a close fitting curved groove.
7. A catheter clamp substantially as described herein with reference to figures 1-3 of the accompanying drawings.

8. A catheter clamp substantially as described herein with reference to figures 4 and 5 of the accompanying drawings.

9. A catheter clamp substantially as described herein with reference to figures 6 and 7 of the accompanying drawings.

**Relevant Technical Fields**

- (i) UK Cl (Ed.M)     A5R (RGA, RGE)  
 (ii) Int Cl (Ed.5)     A61M 25/02

Search Examiner  
 MR N FRANKLIN

Date of completion of Search  
 11 OCTOBER 1994

**Databases (see below)**

- (i) UK Patent Office collections of GB, EP, WO and US patent specifications.  
 (ii)

Documents considered relevant following a search in respect of Claims :-  
 1-9

**Categories of documents**

- X:** Document indicating lack of novelty or of inventive step.     **P:** Document published on or after the declared priority date but before the filing date of the present application.  
**Y:** Document indicating lack of inventive step if combined with one or more other documents of the same category.     **E:** Patent document published on or after, but with priority date earlier than, the filing date of the present application.  
**A:** Document indicating technological background and/or state of the art.     **&:** Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2147811 A     (BRISTOL-MYERS) note Figure 1	1, 6
X	WO 91/07204 A2     (FRIMBERGER) note Figure 9	1, 2, 6
X	US 4659329     (ANNIS) note figures	1, 2, 6
X	US 4533349     (MEDICAL) note figures and column 3 lines 9-15	1, 2, 6
X	US 4419094     (PATEL) note Figure 8	1, 2, 6
X	US 4261363     (BARD) note Figure 1	1, 2, 6

**Databases:**The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).