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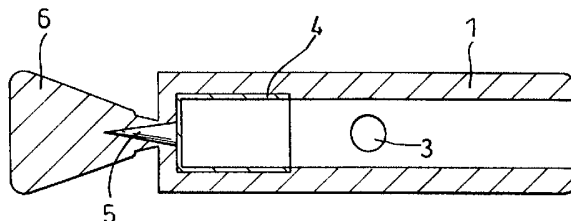
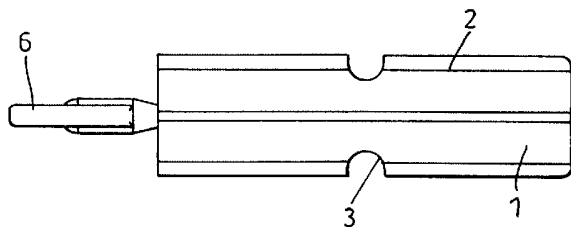
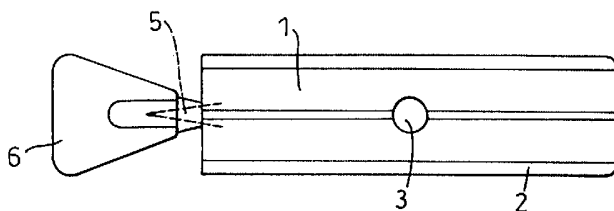
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(54) Title: IMPROVEMENTS RELATING TO LANCETS



(57) Abstract: A lancet has a generally tubular body (1). A hollow insert (4) with a closed end plugs one end of the body (1), and it has a co-axial projection (5) forming a sharp tip proud of that end of the body. The body (1) and insert (4) are simultaneously formed by twin shot moulding, the body being of polyethylene and the insert being of a liquid crystal polymer which will create a sharp tip of adequate strength.



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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

"Improvements relating to Lancets"

This invention relates to lancets for skin prickers, used to draw a drop of blood for analysis.

5 The conventional construction of such a lancet is a steel needle encased almost entirely in an elongate plastics body but with its sharp tip projecting from one end. The plastics body eases handling and can be shaped to be guided by a compatible firing device and to locate one end of a spring which shoots the lancet forwards when released. It is also quite usual to have the needle tip encased in a twist-off cap integrally moulded with the plastics body. This keeps
10 the tip safe and clean until immediately before use.

One problem with steel needles is that they are generally straight cylindrical bodies, apart from their tips, and they may be siliconised. Therefore the plastics of the body can have very little frictional grip on the needle that it encases, and it is not unknown for the needle to be shifted forwards relative to
15 the body when the cap is twisted and pulled. This results in too deep a prick when the lancet is fired.

The manufacture of such a lancet necessarily involves more than one step. The steel needle has to be made first, and this in itself means taking a blank and then grinding or otherwise sharpening one end to create the tip. Then
20 the needle is located in a mould, and finally is encased in the plastics body. It would clearly be advantageous to reduce the number of operations and form the needle tip with the body. However, an all-steel lancet would be far too extravagant, if nothing else since lancets are disposable, single use items, while simply moulding the body to have a tip at one end of the same material as the

plastics body will not produce a sharp enough point if the usual plastics (polyethylene) is employed.

It is the aim of this invention to overcome, at least in part, these drawbacks.

5 According to the present invention there is provided a lancet for skin pricking, the lancet comprising an elongate plastics body with a plastics insert at one end providing a sharp tip projecting from that end, the plastics material of the insert being a liquid crystal polymer.

10 Such a liquid crystal polymer, when melted, has extremely low viscosity and can flow almost like water. It can therefore penetrate fully into the part of a mould cavity which will form the needle tip. Moreover its strength when set in the direction of flow is very high. Therefore the insert emerges from the mould with the tip sharp and ready for use.

15 Liquid crystal polymers are expensive, and so the body of the lancet will be of less costly material and polyethylene can continue to be used.

 The body and the insert can be formed together in a single process by twin-shot moulding.

20 In the preferred form the body is generally tubular, the insert plugging one end. This enables the spring of a firing device to enter the other, open end of the body and to act directly on the insert, the body then serving primarily as guide member. Because the spring would not then act on the rear end of the body, this could enable the firing device to be more compact than existing ones.

A further advantage of the all-plastics construction is that such lancets will be easier to dispose of completely by incineration: there will be no steel needles to melt down or burn away.

While many firing devices automatically retract lancets to make them safe after use, this all-plastics lancet can quite easily be made safer to some degree if the tip is exposed. By pressing the tip at an angle against a hard surface the extremity can be broken off, leaving a blunted stump.

For a better understanding of the invention one embodiment will now be described, by way of example, with reference to the accompanying drawing, in which:

Figure 1 is a side view of an all-plastics lancet of the invention;

Figure 2 is a side view at 90° to that of Figure 1; and

Figure 3 is a cross-section through the lancet shown in Figure 1.

The lancet has a generally tubular body 1 with four evenly spaced external longitudinal fins 2. Two opposed ones are interrupted at their mid-length by apertures 3 through the body 1, left as part of the moulding process.

A hollow insert 4 with a closed end plugs one end of the body 1, and it has a co-axial projection 5 forming a sharp tip proud of that end of the body.

The insert 4 is moulded first, then the body 1 is moulded over the insert 4 during a twin-shot moulding process, forming a twist-off cap 6 which provides a sterile shield surrounding and protecting the needle tip 5. The body is formed from a low cost relatively soft material such as polyethylene, whilst the insert is formed from a liquid crystal polymer.

CLAIMS

1. A lancet for skin pricking, the lancet comprising an elongate plastics body with a plastics insert at one end providing a sharp tip projecting from that end, the plastics material of the insert being a liquid crystal polymer material.
- 5 2. A lancet according to claim 1, wherein the body of the lancet is formed from polyethylene.
3. A lancet according to claim 1 or claim 2, wherein the body and the insert have been formed together in a single operation by twin-shot moulding.
4. A lancet according to any one of claims 1 to 3, wherein the insert is
10 hollow, with a closed end carrying the sharp tip.
5. A lancet according to any one of claims 1 to 4, wherein the body is generally tubular, with the insert plugging one end.
6. A lancet according to any one of claims 1 to 5, wherein the body is formed with external longitudinal fins.
- 15 7. A lancet according to any one of claims 1 to 6, wherein a twist-off cap is integrally formed with the insert, to protect the sharp tip.
8. A lancet substantially as herein described with reference to the accompanying drawings.
9. Any novel combination of features of a lancet as described herein and/or
20 as illustrated in the accompanying drawings.

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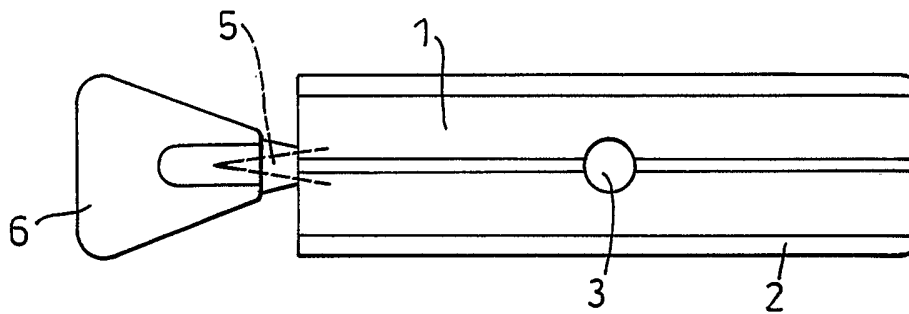


Fig. 1

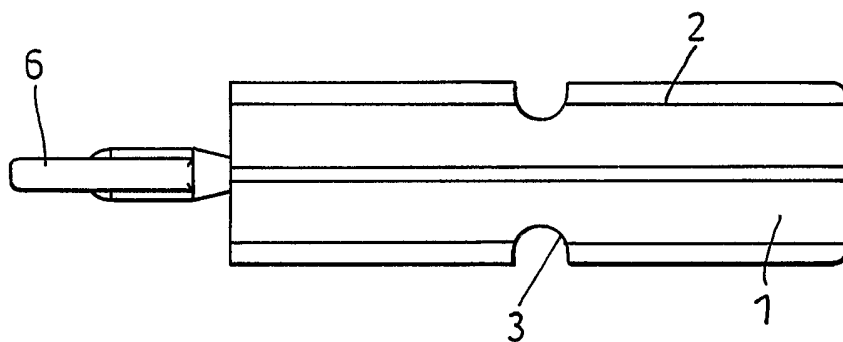


Fig. 2

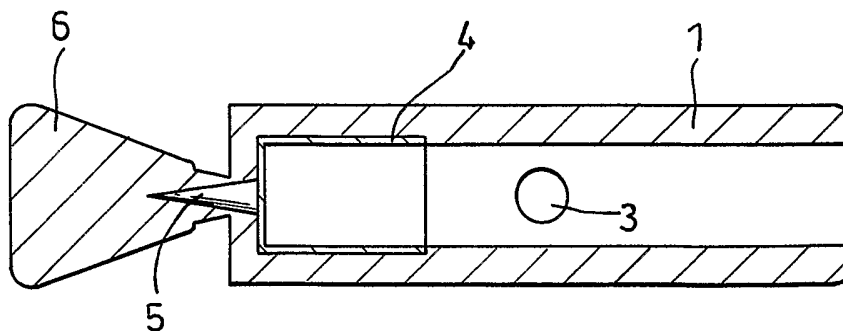


Fig. 3

INTERNATIONAL SEARCH REPORT

PCT/GB 03/00473

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 A61M5/32 A61B5/14

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)
 IPC 7 A61M A61B

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

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

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 447 726 A (BECTON DICKINSON CO) 25 September 1991 (1991-09-25) page 2, line 44 -page 3, line 38; figure 1 ---	1,2,4-7
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A	EP 0 017 999 A (INTERMEDICAT GMBH) 29 October 1980 (1980-10-29) abstract; figures 1,2 ---	1-7
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

A document defining the general state of the art which is not considered to be of particular relevance

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O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

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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.

* & * document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 8-9

Claim 8 and 9 are not allowable. see rule 6.2 (a)

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

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