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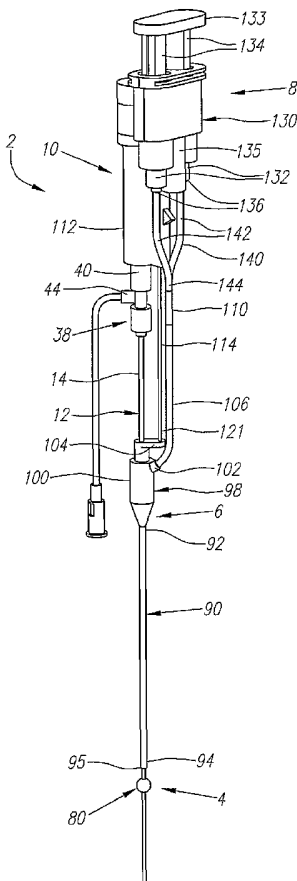
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(54) Title: APPARATUS FOR SEALING A VASCULAR PUNCTURE



(57) Abstract: Apparatus for sealing a puncture communicating with a blood vessel includes an introducer sheath, an occlusion member with a balloon thereon, a retraction assembly, and a syringe assembly including sealing material therein. The syringe assembly may include a pair of syringe barrels having sealing components therein, and a plunger assembly biased to slide within the barrels from proximal to distal positions for injecting the components through outlets of the barrels. An auto-injector assembly may be coupled to the plunger apparatus, and includes a spring mechanism locked in an inactive condition and an actuator activatable to release the spring mechanism, whereupon the spring mechanism automatically advances the plunger assembly towards the distal position to inject the components from the barrels.

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European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,
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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.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2005/007990

A. CLASSIFICATION OF SUBJECT MATTER
A61B17/00

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)
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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | US 5 951 589 A (EPSTEIN ET AL.) 14 September 1999 (1999-09-14) column 6, line 48 - column 7, line 55 column 23, line 52 - column 25, line 3 figures 1,5a-5d,24 | 1 |
| A | US 6 048 358 A (BARAK) 11 April 2000 (2000-04-11) abstract; figures | 1 |
| A | US 6 056 768 A (CATES ET AL.) 2 May 2000 (2000-05-02) the whole document | 1 |

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
- "E" earlier document but published on or after the international filing date
- "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)
- "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

- "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
- "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
- "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

5 October 2005

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No.
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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-10

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-10

Retraction assembly for moving the tubular member relative to the occlusion member

2. claims: 11-21

Auto-injection mechanism for loading or delivering sealing components in and out the barrel storing chambers

3. claims: 22-31

Tensioner for holding an expandable member against a wall of the body lumen

4. claims: 32-38

Actuator mechanism for inflating an expandable occluding member

INTERNATIONAL SEARCH REPORT

on patent family members

International Application No

PCT/US05/007990

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
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