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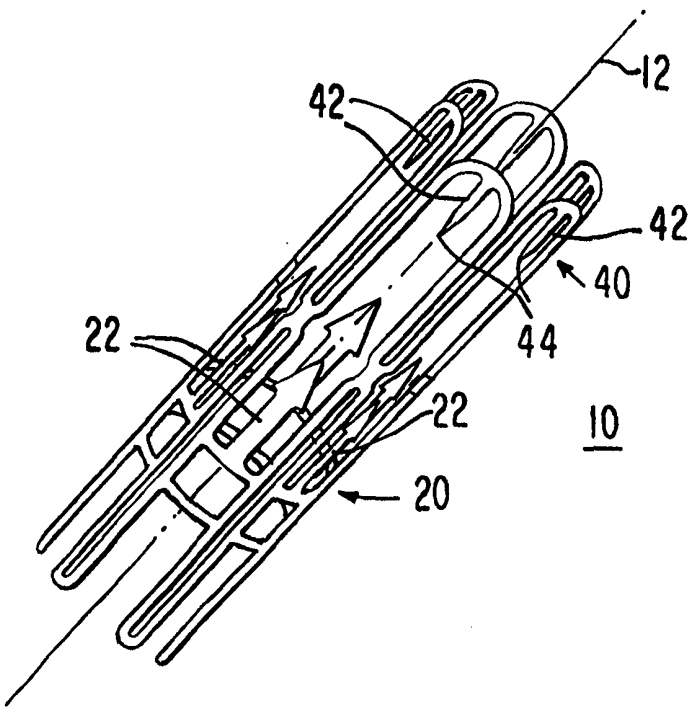
21 September 2000 (21.09.00)

(54) Title: MEDICAL ANASTOMOSIS APPARATUS

(57) Abstract

A connector for use in providing an anastomotic connection between two tubular body fluid conduits in a patient. The connector is preferably a single, integral, plastically deformable structure that can be cut from a tube. The connector has axial spaced portions that include members that are radially outwardly deflectable from other portions of the connector. The connector is annularly enlargeable so that it can be initially delivered and installed in the patient in a relatively small annular size and then annularly enlarged to provide the completed anastomosis. The radially outwardly deflected members of the first and second portions respectively engage the two body fluid conduits connected at the anastomosis and hold those two conduits together in fluid-tight engagement. Apparatus for use in delivering and deploying a connector is also disclosed.



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INTERNATIONAL SEARCH REPORT

Inte donal Application No
PCT/US 99/25928

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61F2/06 A61B17/11 A61B17/32 A61B17/34

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 A61F 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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 234 447 A (KASTER ROBERT L ET AL) 10 August 1993 (1993-08-10) column 5, line 54 - line 66; figures	1-3,8,9, 11-13, 15,16, 20,21, 37, 39-42, 44-48, 52,53
A	WO 98 19629 A (VASCULAR SCIENCE INC) 14 May 1998 (1998-05-14) page 5, line 11 - line 28; figures	1,10-12, 17,19, 32,37, 43-45, 51,52,63

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"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

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Date of the actual completion of the international search	Date of mailing of the international search report
15 May 2000	23. 05. 2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Neumann, E

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INTERNATIONAL SEARCH REPORT

Int. .tional Application No
PCT/US 99/25928

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 122 156 A (GRANGER RICHARD N ET AL) 16 June 1992 (1992-06-16) column 2, line 5 - line 64; figures	1,2,11, 12,15, 16, 20-22, 37,38, 40,41, 44,45, 48,52-54
X	US 5 693 083 A (BAKER STEVE G ET AL) 2 December 1997 (1997-12-02) column 8, line 10 - line 47; figures	68, 71-73, 75,76, 82,84, 87-89, 91,92,98
X	WO 98 42262 A (ANDREAS BERNARD H ;PERCLOSE INC (US); VETTER JAMES W (US)) 1 October 1998 (1998-10-01) page 17, line 5 - line 28; figures	68,71, 84,87
P,X	US 5 922 022 A (NASH JOHN E ET AL) 13 July 1999 (1999-07-13) column 5, line 15 -column 6, line 5; figures column 14, line 47 - line 61	68,84
A		73
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/25928

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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 II Observations where unity of invention is lacking (Continuation of item 2 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.:

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: 1-36,37-67

An anastomotic connector having first and second portions that are annulary spaced and deflectable radially outward whereby the connector is configured for annular enlargement

2. Claims: 68-83,84-99

An apparatus for inserting an annular graft connector comprising a conical tip structure with a cone angle less than 15A and a shaft structure extending from the tip structure

INTERNATIONAL SEARCH REPORT

Information on patent family members

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