



(51) International Patent Classification:

B29C 61/02 (2006.01) B29C 65/02 (2006.01)
A61M 25/06 (2006.01) B29C 70/02 (2006.01)
B29C 33/76 (2006.01) F16L 11/08 (2006.01)

(21) International Application Number:

PCT/US2009/054273

(22) International Filing Date:

19 August 2009 (19.08.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/198,500 26 August 2008 (26.08.2008) US

(71) Applicant (for all designated States except US): **COOK INCORPORATED** [US/US]; 750 N. Daniels Way, Bloomington, IN 47404 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LENTZ, David, Christian** [US/US]; 4178 S. Derby Drive, Bloomington, IN 47401 (US). **HOWAT, William, L.** [US/US]; 104 Pickerel Pond Road, Laconia, NH 03246 (US).

(74) Agent: **STEWART, Lawrence, A.**; Brinks Hofer Gilson & Lione, 201 North Illinois St., Suite 1100, Indianapolis, IN 47204-4220 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

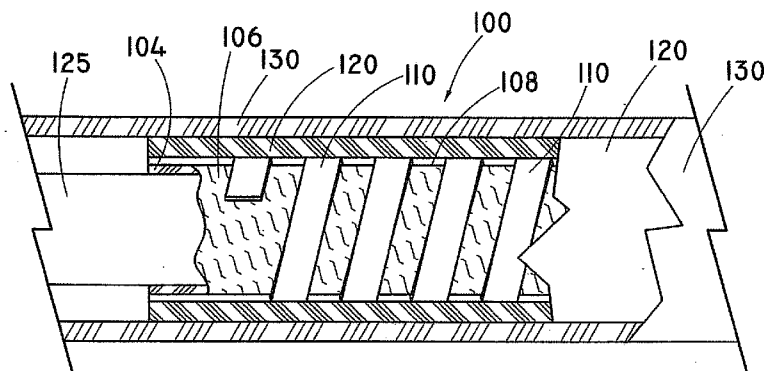
Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

27 May 2010

(54) Title: METHOD OF FORMING AN INTRODUCER SHEATH



PRIOR ART
FIG. 1

(57) Abstract: A method of forming an introducer sheath having a crease-free tapered distal tip portion. A mandrel is provided having an outer configuration comprising an elongated body and a tapered distal tip portion. A generally tubular inner liner comprising heat shrinkable PTFE, is positioned over the mandrel. The inner liner is heat shrunk to the outer configuration of the mandrel, in a manner that avoids the formation of creases along the inner diameter of the liner. A reinforcing member is positioned over a length of the inner liner, and an outer jacket is positioned over the reinforcing member and the inner liner. The liner, reinforcing member, and outer jacket are heated in a heat shrink enclosure, whereby the outer jacket melts and bonds to an outer surface of the inner liner.



INTERNATIONAL SEARCH REPORT

International application No

PCT/US2009/054273

A. CLASSIFICATION OF SUBJECT MATTER

INV. B29C61/02 A61M25/06 B29C33/76
ADD. B29C65/02 B29C70/02 F16L11/08

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)
B29C

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.
X	US 3 861 972 A (GLOVER GEORGE M ET AL) 21 January 1975 (1975-01-21) figures 1-8 columns 2,3	1-3



Further documents are listed in the continuation of Box C.



See patent family 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.
- *G* document member of the same patent family

Date of the actual completion of the international search

4 January 2010

Date of mailing of the international search report

08/04/2010

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Schneider, Dominik

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/054273

Box No. 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 No. 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 fees, this Authority did not invite payment of additional fees.
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.:

1-3

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ 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: 1-3

shrinking temperature of the inner liner

2. claims: 4-8

coiled composite

3. claims: 9-15

different melting temperatures

4. claims: 16-20

specification of the inner surface of the introducer sheath

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2009/054273

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3861972	A	21-01-1975	NONE