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Declarations under Rule 4.17:

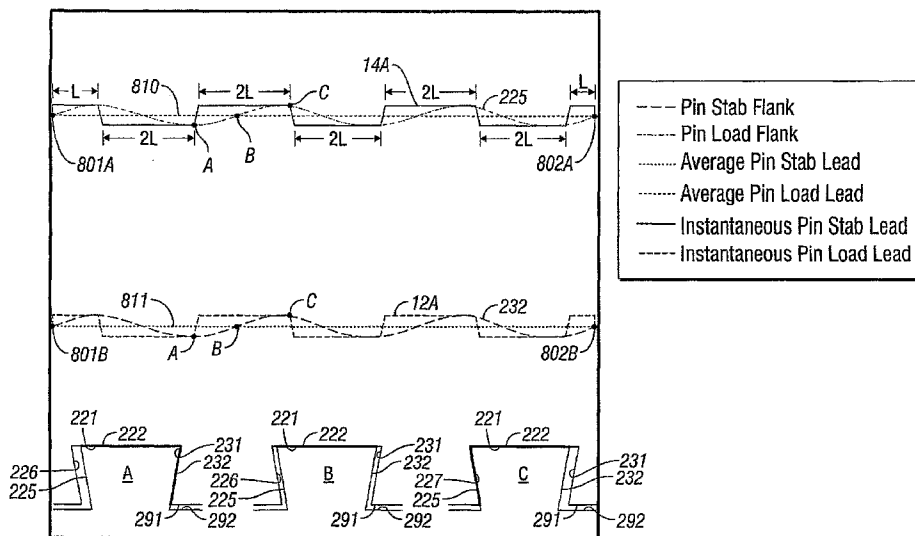
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: THREADS WITH PERTURBATIONS



(57) Abstract: A threaded connection including a pin member and a box member, and methods for manufacturing and forming said threaded connection. The pin member has a pin thread with a pin thread crest, a pin thread root, a pin load flank, and a pin stab flank. The box member has a box thread with a box thread crest, a box thread root, a box load flank, and a box stab flank. At least one of the pin thread crest, the pin load flank, the pin stab flank, the box thread crest, the box load flank, and the box stab flank has at least one perturbation formed thereon. Upon a selected make-up of the pin member with the box member, an increased contact stress exists between the pin thread and the box thread at the at least one perturbation.

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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
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A. CLASSIFICATION OF SUBJECT MATTER
INV. E21B17/042 F16L15/06 F16L15/00

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)
E21B F16L

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 3 882 917 A (ORLOMOSKI ET AL) 13 May 1975 (1975-05-13) column 1, lines 53,54; figures 3,4 column 2, lines 33,34	1, 3, 5, 6
X	US 4 917 409 A (REEVES ET AL) 17 April 1990 (1990-04-17) column 1, lines 67,68; figure 7 column 4, lines 61-67 column 5, lines 10-13	1, 2, 4
A	US 6 412 831 B1 (NOEL THIERRY ET AL) 2 July 2002 (2002-07-02) the whole document	1-9, 12
A	US 2004/155465 A1 (NOEL THIERRY ET AL) 12 August 2004 (2004-08-12) the whole document	1-9, 12
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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)
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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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- * & * document member of the same patent family

Date of the actual completion of the international search

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 346 920 A (DAILEY PATRICK E) 31 August 1982 (1982-08-31) column 2, lines 15,16; figure 13 column 15, lines 7-14,32,33 column 20, lines 28-3161-65 -----	10,11
A	GB 1 421 272 A (OKUMA MACHINERY WORKS LTD) 14 January 1976 (1976-01-14) page 1, lines 10-13 -----	10,11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/046874

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.:

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: 1-9, 12

A threaded connection wherein the thread comprises a perturbation having specific dimensions (claims 7 and 8) or a groove formed in a thread root and a perturbation forming a seal away from the groove (claim 9).

Technical problem to be solved: To provide a fluid storage region and a seal portion.

2. claims: 10, 11

A method of manufacturing a thread using a machine with a programmable control wherein the machine is programed by inputting several changes in axial position for different thread leads.

Technical problem to be solved: To accurately machine a thread with several leads.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2005/046874

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3882917	A	13-05-1975	NONE
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