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Declarations under Rule 4.17:

- as to the identity of the inventor (Rule 4.17(i))
- 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))

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(54) Title: HIGH TENSILE STRENGTH JOINT FOR CONNECTING RODS AND FITTINGS

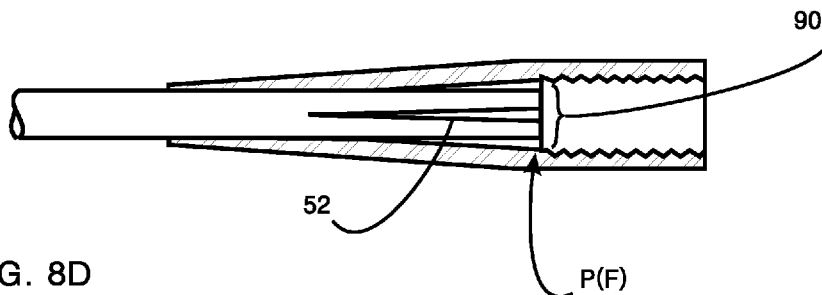


FIG. 8D

(57) Abstract: A joint exhibits high tensile strength. The joint includes a solid rod having a slit or opening into which a wedge is inserted. The rod and wedge are inserted into a fitting. Only a small amount of adhesive material is applied between the fitting and the rod. The adhesive material may be blended with non-adhesive, non-compressible "beads" that have a preferred diameter in order to insure that the desired adhesive thickness is achieved between the fitting and the rod. The internal surface of the fitting has a contour which continuously and nonlinearly varies with distance along the fitting. The wedge has a dimension having a similar contour. The shape of the contour can be described by a polynomial of order two or higher. The joint can be used to construct a sucker rod for an oil well, or it can be used in other applications. The joint can support high tensile loads, over long distances, while occupying a very narrow tubing bore.



INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC(8) - E21B 17/00; E21B 17/04; F04B 53/14 (2019.01)
 CPC - E21B 17/00; E21B 17/04; F04B 53/144 (2019.08)

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)

See Search History document

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

USPC - 403/265; 403/266; 403/268 (keyword delimited)

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

See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2013/0336711 A1 (HALE et al) 19 December 2013 (19.12.2013) entire document	1, 3-12, 15-18
A	US 4,430,018 A (FISCHER) 07 February 1984 (07.02.1984) entire document	1, 3-19
A	US 6,193,431 B1 (RUTLEDGE) 27 February 2001 (27.02.2001) entire document	1, 3-19
A	US 4,787,771 A (ALLEN) 29 November 1988 (29.11.1988) entire document	1, 3-19

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:

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