

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
8 November 2007 (08.11.2007)

PCT

(10) International Publication Number
WO 2007/127430 A3

- (51) **International Patent Classification:**
B23P 9/02 (2006.01) **F16B 4/00** (2006.01)
B23P 11/00 (2006.01) **F16B 17/00** (2006.01)
- (21) **International Application Number:**
PCT/US2007/010343
- (22) **International Filing Date:** 27 April 2007 (27.04.2007)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
60/796,171 27 April 2006 (27.04.2006) US
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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, 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, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, 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, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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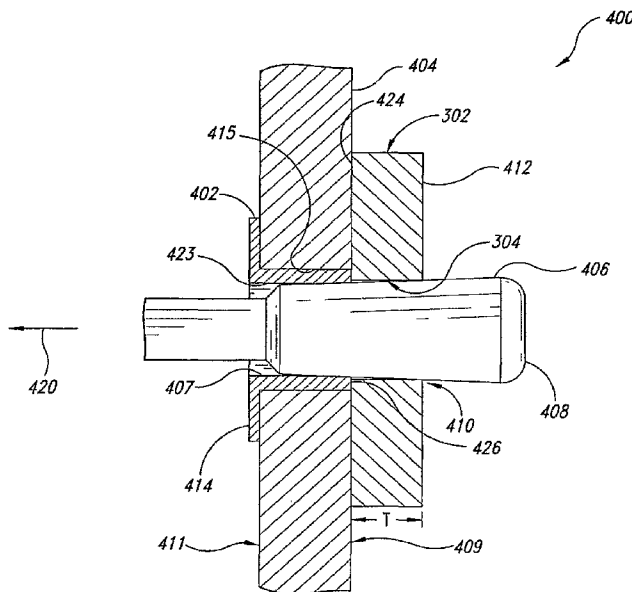
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report

[Continued on next page]

(54) **Title:** ALIGNMENT DEVICE AND METHODS OF USING THE SAME



(57) **Abstract:** An alignment device is located on a mandrel of an installation tool and is used to align a structural member in an opening of a workpiece while seating a radial flange of the structural member against a first surface of the workpiece. The alignment device comprises a disk-shaped device having an outer surface, an inner surface forming an opening through the alignment device, and where the opening is sized to be at least slightly smaller than a major diameter of an expansion portion of the mandrel. In one embodiment, the alignment is nylon to allow the inner surface of the alignment device to be repeatedly, radially expanded and yet the opening formed by the inner surface returns to its original size.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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

31 January 2008

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/010343

A. CLASSIFICATION OF SUBJECT MATTER
 INV. B23P9/02 B23P11/00 F16B4/00 F16B17/00

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)
 B23P C21D F16B B21D B25B B21J B21K

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 164 807 A (KING JR JOHN O) 21 August 1979 (1979-08-21)	1,3-5
Y	column 7, line 66 - column 8, line 63 column 10, line 44 - column 11, line 17 column 11, line 65 - column 12, line 26 column 13, line 41 - line 57 figures 7-9,13,17,21,30 the whole document	10
X	US 5 038 596 A (NOONAN DENIS E [US] ET AL) 13 August 1991 (1991-08-13)	1,2,4-9, 11
Y	column 2, line 23 - line 55; figure 1 the whole document	10,12-15
X	US 4 143 580 A (LUHM RALPH R) 13 March 1979 (1979-03-13)	16
Y	column 2, line 18 - column 4, line 17 figures	12-15
A	the whole document	1-11

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Date of the actual completion of the international search

22 November 2007

Date of mailing of the international search report

06/12/2007

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/010343

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4164807	A	21-08-1979	NONE	
US 5038596	A	13-08-1991	NONE	
US 4143580	A	13-03-1979	NONE	