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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))

[Continued on next page]

(54) **Title:** ANNULAR SEAL BETWEEN WELLHEAD AND HANGER

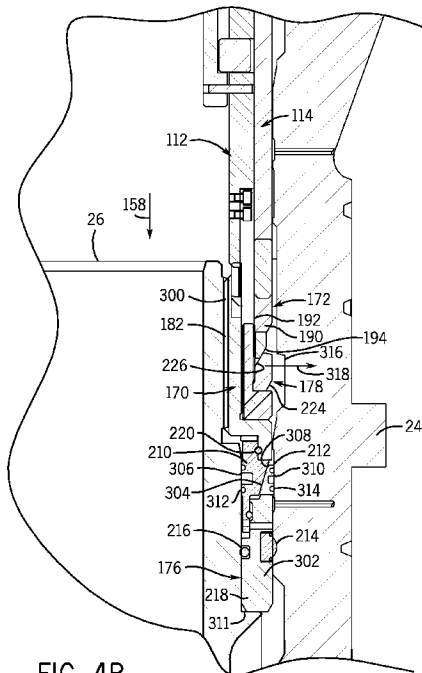


FIG. 4B

(57) **Abstract:** Disclosed are a running tool and an annular seal that may enable running the annular seal to the wellhead 12, rotating the annular seal and tool in a single direction to seat (e.g., compress) and lock (e.g., preload) the annular seal, and retrieving the annular seal running tool in a single trip. The annular seal 36 may be provided as a component that is installed and seated after the hanger 26 has been landed in the wellhead 12 (e.g., the tubing spool 24). The single-trip running tool 100 includes a coupler 110, an inner body 112, an outer body 114, shear pins 116, engagement pins 118, and catch pins 120. The seal 102 includes an inner energizing member 170, an outer energizing member 172, a load ring 174, an annular seal 176, and a lock ring 178.

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— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))* — *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))*

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## INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. E21B33/043

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

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 5 163 514 A (JENNINGS CHARLES E [US]) 17 November 1992 (1992-11-17) the whole document	1-2,5, 10-12
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A	US 4 611 663 A (GORIS GREGG A [US] ET AL) 16 September 1986 (1986-09-16) column 5, line 47 - column 6, line 18	1-40
A	US 3 897 823 A (AHLSTONE ARTHUR G) 5 August 1975 (1975-08-05) figures 3-6	1-40



Further documents are listed in the continuation of Box C.



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- \* & \* document member of the same patent family

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

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