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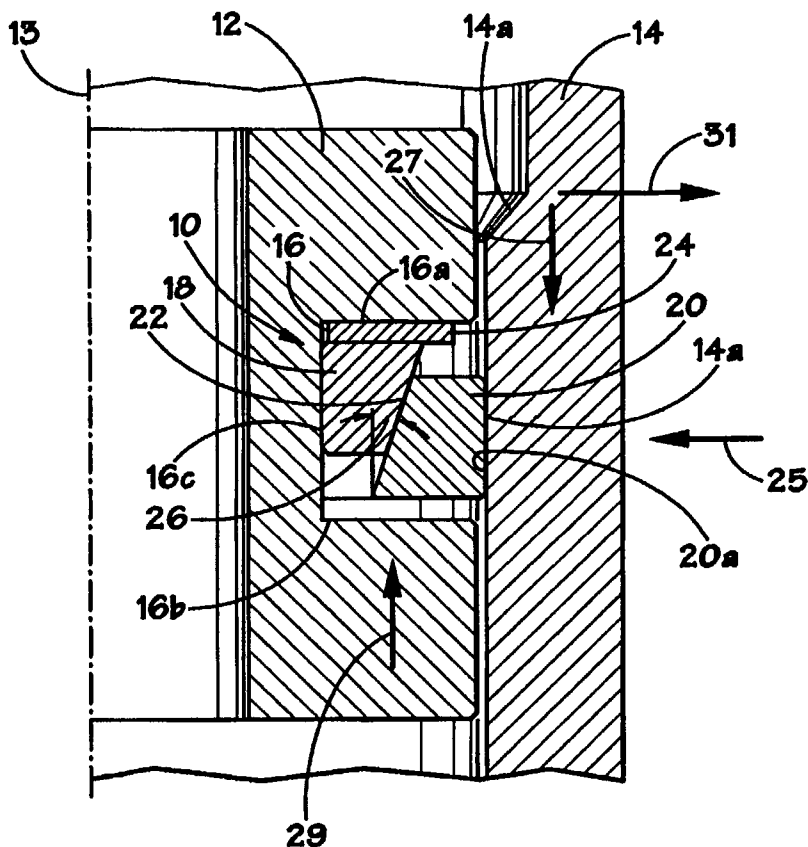
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[Continued on next page]

(54) Title: WEDGE SEAL



(57) Abstract: The present invention is directed to an energized wedge seal. In one illustrative embodiment, the device comprises a first component (12), the first component having a seal recess (16) formed therein, a first seal member (18) and a second seal member (20), the first and second seal members engaging one another along a sliding tapered interface (22), and at least one biasing spring (24) positioned in the seal recess, the biasing spring adapted to urge at least one of the first and second seal members along the sliding tapered interface.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/09463

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **E21B 33/03(2006.01),33/128(2006.01);F16L 21/00(2006.01),17/00(2006.01),25/00(2006.01)**

 USPC: 277/328,329,330,337,338,339,342,344;285/113,341,421
 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)
 U.S. : 277/328, 329, 330, 337, 338, 339, 342, 344; 285/113, 341, 421

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 practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---	US 1,873,859 A (Bailey) 23 August 1932 (23.08.1932), see all figures.	1-4 and 9 -----
Y		6-8 and 23-24
Y	US 4,032,159 A (Zitting) 28 June 1977 (28.06.1977), see entire document.	6
Y	US 3,588,126 A (McKillop) 28 June 1971 (28.06.1971), see entire document.	6

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"T"
"A" document defining the general state of the art which is not considered to be of particular relevance	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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 07 October 2006 (07.10.2006)	Date of mailing of the international search report 03 JAN 2007
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer <i>D. Wildermuth Jr</i> Vishal Patel Telephone No. 571-272-7060
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INTERNATIONAL SEARCH REPORT

International application No.

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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:
Please See Continuation 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 additional fees, this Authority did not invite payment of any 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.: 1-4,6-9,23 and 24
- 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.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/09463

BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In order for more than one species to be examined, the appropriate additional examination fees must be paid. The species are as follows:

Species I: figures 1-2.
Species II: figure 3.
Species III: figure 4.
Species IV: figures 5-6.

The claims are deemed to correspond to the species listed above in the following manner:

Species I: claims 1-4, 6-9 and 23-24.
Species II: claims 10-13, 15-19, 22, 25-26 and 29.
Species III: claims 14, 20-21 and 27-28.
Species IV: claims 5 and 30-37.

The following claim(s) are generic: At least claims 1.

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: Claims in species II require an energizing element and means for moving the energizing element which is not required in other species, claims in species III require an actuating member coupled to a second component that is adapted to move the energizing element is not required in other species and claims in species IV require a gasket that is not required in other species.