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- with international search report (Art. 21(3))
- 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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(54) Title: GASKET FOR PARABOLIC RAMP SELF RESTRAINING BELL JOINT

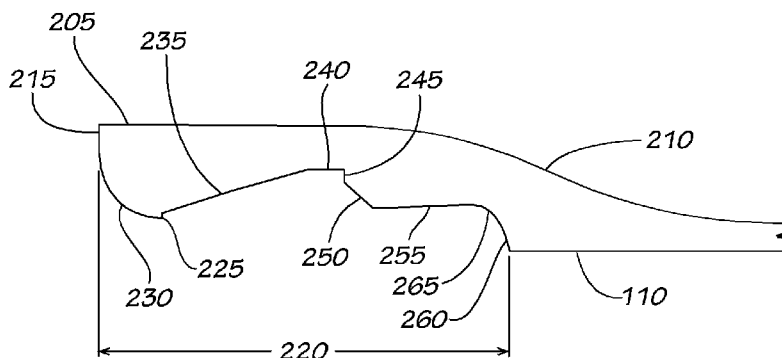


FIG. 2

(57) Abstract: Gaskets for use with a bell and spigot coupling system are disclosed herein. The gasket comprises an elastomeric member having a front edge, a first section, and a second section. Axial forces generated by the insertion of the spigot to the first section of the elastomeric member displace the first section of the elastomeric member in an axial and radial direction.

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INTERNATIONAL SEARCH REPORT

017040333 03.04.2012
International application No.

PCT/US2011/048953

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - F16L 27/02 (2011.01)

USPC - 277/626

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)

IPC(8) - F16L 21/00, 21/02, 21/03, 27/02, 27/025, F16J15/00, 15/02 (2011.01)

USPC - 277/590, 602, 612, 616, 626

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)

PatBase

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,197,768 A (CONNER) 30 March 1993 (30.03.1993) entire document	1, 3-6, and 11-16
Y		2
X	US 2004/0150170 A1 (SHAFFER et al) 05 August 2004 (05.08.2004) entire document	7-10
Y	US 5,580,068 A (GUNDY) 03 December 1996 (03.12.1996) entire document	2
A	US 3,048,415 A (SHOOK) 07 August 1962 (07.08.1962) entire document	1-16
A	US 7,134,204 B2 (CORBETT JR et al) 14 November 2006 (14.11.2006) entire document	1-16
A	US 2009/0273184 A1 (WRIGHT et al) 05 November 2009 (05.11.2009) entire document	1-16

 Further documents are listed in the continuation of Box C.

* 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 application or patent 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)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" 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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search

16 March 2012

Date of mailing of the international search report

03 APR 2012

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INTERNATIONAL SEARCH REPORT

011/048953 03.04.2012

International application No.

PCT/US2011/048953

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:

See extra 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 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.:

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.

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 need to be paid.

Group I, claims 1-6, 11-16 are drawn to a system and method for sealing a spigot.
Group II, claims 7-10 are drawn to a segment.

The inventions listed in Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1, because under PCT Rule 13.2 they lack the same or corresponding special technical features for the following reasons:

The special technical features of Group I, a system and method for sealing a spigot comprising a spigot, a bell, and a gasket seating area, are not present in Group II; and, the special technical features of Group II, a segment comprising an upper surface including a first portion, a second portion, a third portion, and a fourth portion; and at least two teeth, are not present in Group I.

Since none of the special technical features of the Groups I and II inventions are found in more than one of the inventions, unity is lacking.