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**Adamek et al.**

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(54) **BELLOWS TYPE ADJUSTABLE CASING**  
(75) Inventors: **Frank C. Adamek**, Spring, TX (US);  
**James R. M. Allison**, Cypress, TX (US)  
(73) Assignee: **Vetco Gray Inc.**, Houston, TX (US)  
(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 436 days.

4,761,023 A 8/1988 Troxell, Jr.  
4,819,967 A 4/1989 Calder et al.  
5,407,237 A \* 4/1995 Smolowitz ..... 285/31  
5,556,679 A \* 9/1996 Booles ..... 428/36.91  
6,484,801 B2 \* 11/2002 Brewer et al. .... 166/65.1  
6,513,837 B2 2/2003 Fujikawa et al.  
6,854,930 B2 \* 2/2005 Pionetti ..... 405/172  
7,114,885 B2 \* 10/2006 Loset et al. .... 405/224.2  
7,188,677 B2 \* 3/2007 Moe ..... 166/355  
7,341,283 B2 \* 3/2008 Moses et al. .... 285/226  
7,654,315 B2 \* 2/2010 Du et al. .... 166/105  
2007/0074872 A1 \* 4/2007 Du et al. .... 166/369  
2008/0247719 A1 \* 10/2008 Cody et al. .... 385/114

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(52) **U.S. Cl.** ..... **166/367; 166/338; 166/355; 166/346**  
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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

993,934 A *	5/1911	Witzenmann	.....	285/114
3,105,509 A *	10/1963	Moore, Jr.	.....	137/102
3,168,334 A *	2/1965	Johnson	.....	285/55
3,477,507 A *	11/1969	Page, Jr.	.....	166/322
3,612,176 A *	10/1971	Bauer et al.	.....	166/359
3,876,235 A *	4/1975	Flint	.....	285/93
4,072,329 A *	2/1978	Mutchler	.....	285/187
4,176,863 A	12/1979	Wetmore		
4,195,865 A	4/1980	Martin		
4,278,277 A	7/1981	Krijgsman		
4,548,273 A	10/1985	Leicht et al.		
4,564,068 A *	1/1986	Baugh	.....	166/123
4,598,936 A	7/1986	Doll et al.		
4,624,318 A *	11/1986	Aagaard	.....	166/359

(Continued)

**FOREIGN PATENT DOCUMENTS**

CN 101333917 A 12/2008  
EP 2180133 A1 4/2010

**OTHER PUBLICATIONS**

GB Search Report dated Feb. 2, 2012 from corresponding Application No. GB1120136.5.

*Primary Examiner* — Thomas Beach  
*Assistant Examiner* — Aaron Lembo  
(74) *Attorney, Agent, or Firm* — Bracewell & Giuliani LLP

(57) **ABSTRACT**

A tieback connection between an offshore production platform and a wellhead on the sea floor has a riser and a tubular expandable and contractable member within the riser. The expandable and contractable member compensates for axial movement within the riser while maintaining axial tension in the riser. The expandable and contractable member is of unibody construction having a wall configured to correspondingly expand and contract to compensate for the riser movement. In cross section, the member wall comprises folds formable by alternating slots formed into the inner and outer wall surface or an undulating surface.

**14 Claims, 4 Drawing Sheets**

