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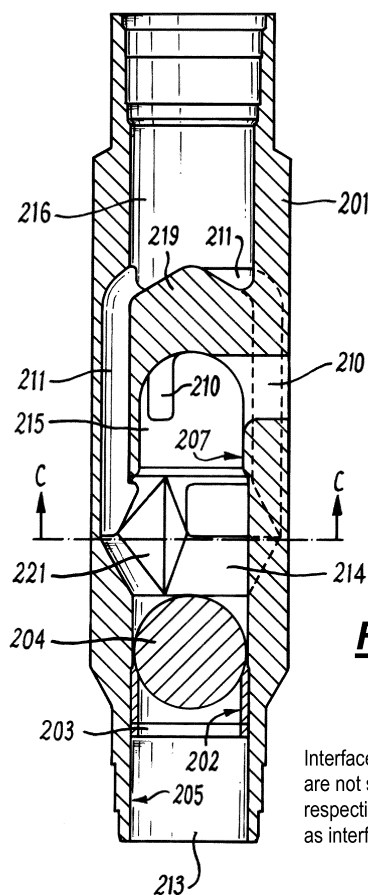
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(54) **Free flow valve**

(57) A valve for use with a downhole pump, wherein the valve comprises a single moving part that in a first position forms only a first interface and in a second position forms only a second interface, each interface presenting a barrier that cannot be breached by fluid, whereby the first interface directs fluid to the production tubing only from the annulus and the second interface directs fluid to the production tubing only from the pump, the pump and annulus and production tubing are simultaneously interconnected by a chamber of the valve when the single moving part is between the first and second positions, each interface is maintained or broken depending on the fluid pressure differential across the associated interface, the single moving part moves between the first position and second position according to the fluid direction through the valve, characterised by each of the two interfaces being formed between a convex surface of the single moving part and a concave surface of a non moving part of the valve, whereby the single moving part self aligns with each interface and only via the interface, and where the single moving part does not house or incorporate one or more rotational or/and linear axes.



**Fig. 10**

Interfaces 217, 218  
are not shown but are  
respectively the same  
as interfaces 17, 18



## EUROPEAN SEARCH REPORT

Application Number  
EP 14 16 5023

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 95/21641 A1 (SUMMERS DANIEL A [US]; LEVY HOWARD [US]) 17 August 1995 (1995-08-17) * page 5, line 33 - line 47; figures 1,2 *	1-29	INV. E21B34/08
X	US 2008/035121 A1 (WIECZOREK MARK T [US]) 14 February 2008 (2008-02-14) * figure 9 *	1-29	
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A	US 6 289 990 B1 (DILLON DAVID B [US] ET AL) 18 September 2001 (2001-09-18) * column 2, line 10 - line 51 * * column 3, line 5 - line 49 * * figures 2-4 *	1-29	
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 28 October 2014	Examiner Schneiderbauer, K
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82