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(54) **Braking device for toggle-lever drive apparatuses**

(57) The braking device (15, 16) for braking a rocking work arm (12) in toggle-lever drive apparatuses (10), comprises a hydraulic decelerator (17', 17'') operating in correspondence with an operative position of the work arm (12), which is provided with a control rod (18) movable according to a longitudinal axis (A); the braking device (15, 16) further comprises an actuating arm (19', 19'') connected to the rotatable drive shaft (13) of the

work arm (12) and designed to act on the control rod (18) of the hydraulic decelerator (17', 17''). The control rod (18) of the decelerator (17', 17'') and the actuating arm (19', 19'') have arched contact surfaces (20, 21) shaped and disposed in such a way that the actuating arm (19', 19'') exerts a thrust force on the control rod (18) which remains substantially coaxial to the longitudinal axis (A) of the decelerator (17', 17'').

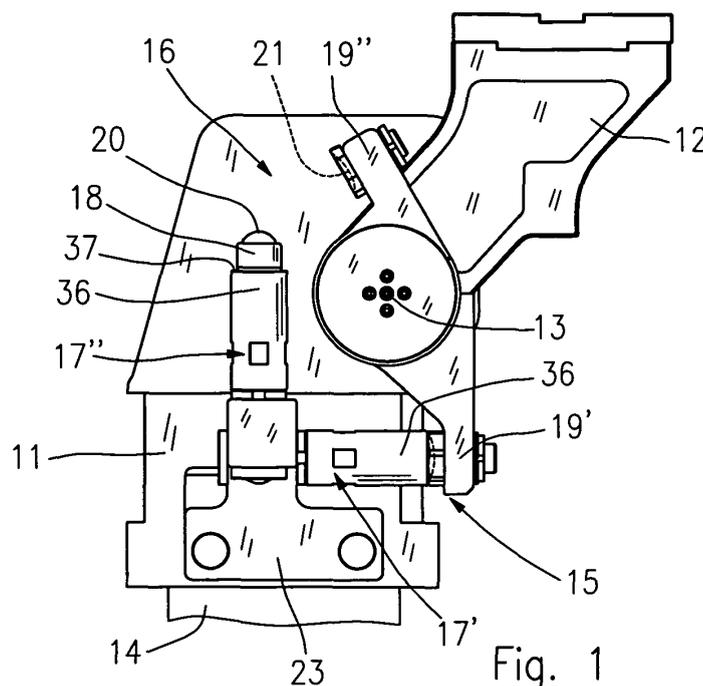


Fig. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 08 00 1501

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X A	US 1 783 599 A (BLAKE DENNIS B D) 2 December 1930 (1930-12-02) * page 1, line 86 - line 91; figures 1,2 *	1,3-7 9	INV. B25B5/12 B25B5/16
D,A	EP 1 300 625 A (VEP AUTOMATION SRL [IT]) 9 April 2003 (2003-04-09) * paragraphs [0016], [0029]; figure 1 *	1,20,27, 28	
A	US 2 002 980 A (GLEZEN WILLIAM M) 28 May 1935 (1935-05-28) * page 2, line 3; figures 2,5 *	1	
A	US 2 145 736 A (ROSSMAN EDWIN F) 31 January 1939 (1939-01-31) * figure 2 *	1	
A	DE 295 19 232 U1 (TUENKERS MASCHINENBAU GMBH [DE]) 4 April 1996 (1996-04-04) * page 11, line 1 - line 17; figure *	20	
A	EP 0 962 285 A (TUENKERS MASCHINENBAU GMBH [DE] TUENKERS MASCHB GMBH [DE]) 8 December 1999 (1999-12-08) * paragraphs [0053] - [0056]; figures 1,2 *	20	TECHNICAL FIELDS SEARCHED (IPC) B25B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 24 June 2009	Examiner Majerus, Hubert
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
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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24-06-2009

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 1783599	A	02-12-1930	NONE	

EP 1300625	A	09-04-2003	AT 292773 T	15-04-2005
			DE 60203577 D1	12-05-2005
			DE 60203577 T2	19-01-2006
			IT T020010915 A1	25-03-2003
			US 2003089225 A1	15-05-2003

US 2002980	A	28-05-1935	NONE	

US 2145736	A	31-01-1939	NONE	

DE 29519232	U1	04-04-1996	EP 0778107 A1	11-06-1997

EP 0962285	A	08-12-1999	AT 332212 T	15-07-2006
			DE 19824579 C1	17-06-1999
			DE 29811901 U1	08-10-1998
			US 6220588 B1	24-04-2001
