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(54) **Road safety device for impact damping**

(57) The road safety device (1) comprises a plurality of uprights (2) ordered in longitudinal rows (21) which extend in the direction of the longitudinal axis (L) of the device (1) from the front side (3) to the rear side (4) of the device (1), and in transverse rows (2t) which extend from one lateral side (5) to the other (6) of the device (1) transversely with respect to the direction of the longitudinal axis (L) of the device (1), a plurality of collapsible primary profiles (7) forming a rigid interconnection between the adjacent uprights (2) of the longitudinal rows (21), a fixed and undeformable rear stop (8) to which the rear transverse row (2t) of uprights (2) is rigidly connected, and means for supporting and guiding the sliding of the uprights (2) in the direction of the longitudinal axis (L) of the device (1), the primary profiles (7) being collapsible in succession as a result of opposition of said rear stop (8) following frontal impacts against the front side (3) of the device (1) in such a way as to progressively absorb the kinetic energy released by the frontal impacts.

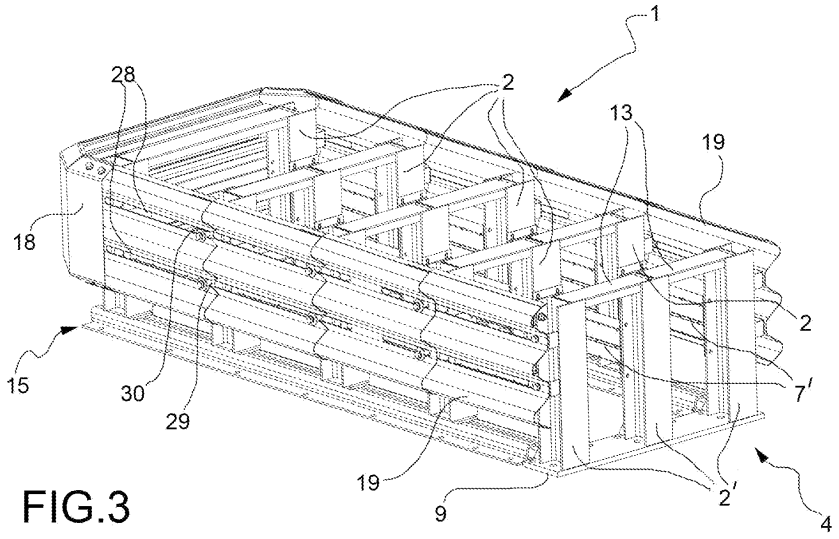

FIG.3

EP 2 383 391 A3

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EUROPEAN SEARCH REPORT

Application Number
EP 11 16 3907

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 Y	EP 0 042 645 A2 (NEDERLANDEN STAAT [NL]) 30 December 1981 (1981-12-30) * page 5, line 9 - page 6, line 30; figures * -----	1-5,7-15 6	INV. E01F15/14
X Y	WO 2006/031701 A2 (ENERGY ABSORPTION SYSTEM [US]; LA TURNER JOHN F [US]; OBERTH MICHAEL H) 23 March 2006 (2006-03-23) * page 15, lines 16-19 * * figures 1,2,6,14 * * page 14, line 8 * * page 32 * -----	1-5,7,8, 10,11, 13-15 6	
Y A	EP 2 148 009 A2 (SPS SCHUTZPLANKEN GMBH [DE]) 27 January 2010 (2010-01-27) * paragraph [0038]; figures 1-3,4a * -----	6 1	
A	EP 1 221 508 A2 (ENERGY ABSORPTION SYSTEM [US]) 10 July 2002 (2002-07-10) * paragraph [0012]; figures 1,3 * -----	1,9	

TECHNICAL FIELDS SEARCHED (IPC)
E01F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	16 June 2014	Tran, Kim Lien

CATEGORY OF CITED DOCUMENTS

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16-06-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0042645 A2	30-12-1981	DE 3161882 D1	16-02-1984
		EP 0042645 A2	30-12-1981
		JP S606410 B2	18-02-1985
		JP S57133909 A	18-08-1982
		NL 8003653 A	18-01-1982
		US 4399980 A	23-08-1983
WO 2006031701 A2	23-03-2006	AR 053970 A1	30-05-2007
		AU 2005285021 A1	23-03-2006
		AU 2010212308 A1	02-09-2010
		AU 2010212309 A1	02-09-2010
		BR PI0515324 A	22-07-2008
		CA 2579047 A1	23-03-2006
		CN 101099003 A	02-01-2008
		EP 1794372 A2	13-06-2007
		HK 1116843 A1	19-11-2010
		JP 5047796 B2	10-10-2012
		JP 2008513629 A	01-05-2008
		KR 20070051333 A	17-05-2007
		PA 8645801 A1	16-05-2006
		TR 200701606 T2	21-05-2007
		US 2006054876 A1	16-03-2006
		US 2008085153 A1	10-04-2008
		US 2009129860 A1	21-05-2009
		WO 2006031701 A2	23-03-2006
EP 2148009 A2	27-01-2010	DE 102008034980 A1	04-02-2010
		EP 2148009 A2	27-01-2010
EP 1221508 A2	10-07-2002	AU 783161 B2	29-09-2005
		AU 9708201 A	04-07-2002
		AU 2005237113 A1	15-12-2005
		EP 1221508 A2	10-07-2002
		IL 147251 A	10-04-2006
		IL 161839 A	11-06-2006
		JP 2002227151 A	14-08-2002
		US 2002122692 A1	05-09-2002
		US 2003012598 A1	16-01-2003

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82