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- (74) Agent: LINAK A/S; Patent Department, P.O. Box 238, DK-9100 Aalborg (DK).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

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- (54) Title: LINEAR ACTUATOR

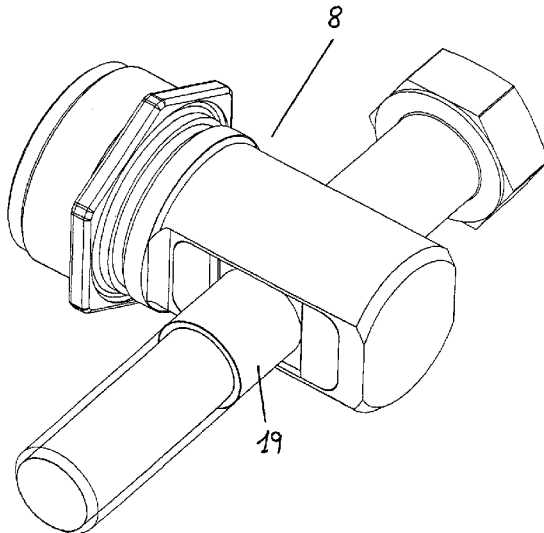


Fig. 4

(57) Abstract: Linear actuator wherein at least one mounting (8), by means of which the actuator can be secured in a structure, comprises a first axis around which the actuator can move, and where the first axis is located in an element (16) in the mounting, said element (16) can pivot around a second axis perpendicular to the first axis. Thus, the mounting can pivot (8) around two axes, which in a lot of cases solves the issue of the linear actuator not being able to move around more than one axis and further, the solution can be made relatively simple and thus relatively inexpensive, such that the solution can be widely used. Further, the structure can be made relatively small and short, i.e. the built-in length of the actuator is not increased or at least not considerably increased.





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# INTERNATIONAL SEARCH REPORT

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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. F16D3/16 ADD. F16H25/20				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) F16D F16H A47C				
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) EPO-Internal, WPI Data				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	WO 2013/076557 A1 (KONGSBERG AUTOMOTIVE AB [SE]) 30 May 2013 (2013-05-30) the whole document -----	1-3,6,8, 10		
X	JP 2009 133339 A (HONDA MOTOR CO LTD) 18 June 2009 (2009-06-18) the whole document -----	1-3,6,8, 10		
X	US 5 943 919 A (BABINSKI JAMES A [US]) 31 August 1999 (1999-08-31) the whole document -----	1,6 2-5,8,10		
A	GB 2 345 946 A (HAMILTON SUNDSTRAND CORP [US]) 26 July 2000 (2000-07-26) cited in the application the whole document -----	1,3,6,8, 10		
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<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"><input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.</td> <td style="width: 50%; border: none;"><input checked="" type="checkbox"/> See patent family annex.</td> </tr> </table>			<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.	<input checked="" type="checkbox"/> See patent family annex.
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Date of the actual completion of the international search	Date of mailing of the international search report			
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP H03 272354 A (TACHI S CO) 4 December 1991 (1991-12-04) the whole document	1,7
A	----- DE 296 03 173 U1 (DEWERT ANTRIEBS SYSTEMTECH [DE]) 4 April 1996 (1996-04-04) the whole document -----	1,7

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/DK2014/000034
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2013076557 A1	30-05-2013	CN 103946588 A EP 2783134 A1 US 2014298980 A1 US 2014345447 A1 WO 2013076557 A1 WO 2013076561 A1	23-07-2014 01-10-2014 09-10-2014 27-11-2014 30-05-2013 30-05-2013
JP 2009133339 A	18-06-2009	NONE	
US 5943919 A	31-08-1999	NONE	
GB 2345946 A	26-07-2000	GB 2345946 A US 6202803 B1	26-07-2000 20-03-2001
JP H03272354 A	04-12-1991	NONE	
DE 29603173 U1	04-04-1996	DE 29603173 U1 FR 2745438 A1	04-04-1996 29-08-1997