

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
24 October 2002 (24.10.2002)

PCT

(10) International Publication Number  
WO 02/083029 A3

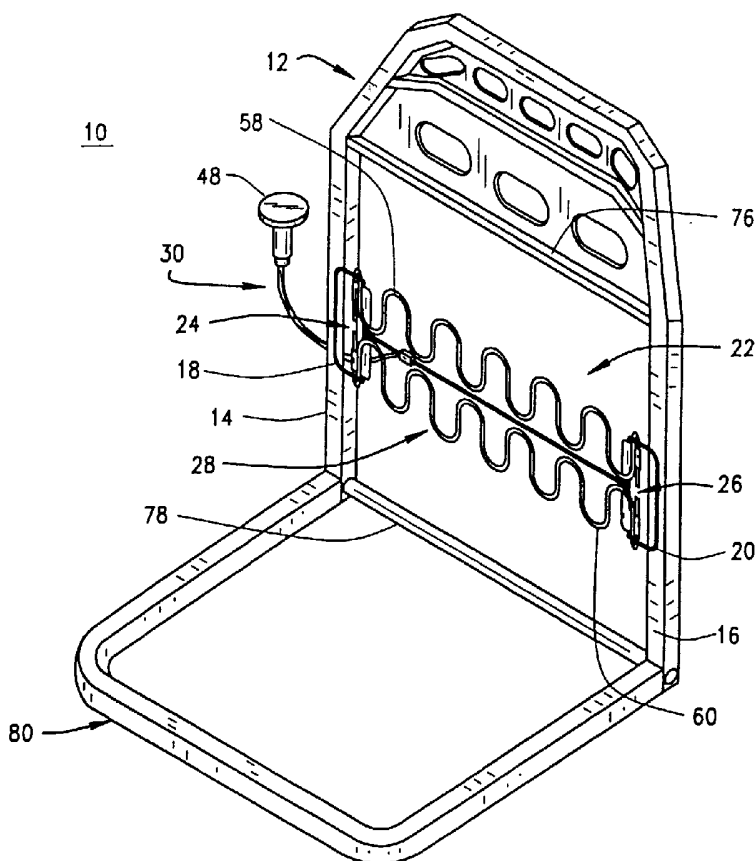
- (51) International Patent Classification<sup>7</sup>: A47C 7/46
- (21) International Application Number: PCT/US02/11399
- (22) International Filing Date: 11 April 2002 (11.04.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
09/832,692 11 April 2001 (11.04.2001) US
- (71) Applicant: L & P PROPERTY MANAGEMENT COMPANY [US/US]; 4095 Firestone Boulevard, South Gate, CA 90280 (US).
- (72) Inventor: MUNDELL, Donald, David; 1815 River, Carthage, MO 64836-3343 (US).
- (74) Agent: DONAHUE, Dennis, J., M., III; Husch & Eppenger, LLC, 190 Carondelet Plaza, Suite 600, St. Louis, MO 63105 (US).

- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:  
— with international search report

[Continued on next page]

(54) Title: LUMBAR SUPPORT DEVICE



(57) Abstract: A lumbar support device (10) has a seat frame (12), a pair of brackets (18, 20) connected to the seat frame, a spring assembly (22) connected to the pair of brackets in such a manner as to form a center section (28) traversing the seat frame and a pair of cantilevered ends (24, 26) on opposite sides of the center section, and an actuator assembly (30) operatively connecting the cantilevered ends. The pair of brackets respectively provide a pair of fulcrums (32, 34) about which the cantilevered ends can rotate. In operation, the actuator assembly moves the cantilevered ends of the spring assembly to bow the center portion. The lumbar support device may also have a single cantilevered end.



WO 02/083029 A3



---

**(88) Date of publication of the international search report:**

30 October 2003

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/11399

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : A47C 7/46  
 US CL : 297/284.4

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
 U.S. : 297/284.4, 284.1

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)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3,095,188 A (GIESE) 25 June 1963 (25.06.1963), see figure 1.	1
A	US 3,241,879 A (CASTELLO ET AL) 22 March 1966 (22.03.1966), see figure 1.	1
A	US 3,378,299 A (SANDOR) 16 April 1968 (16.04.1968), see figure 1.	1
A	US 4,019,777 A (HAYASHI) 26 April 1977 (26.04.1977), see figs. 3, 4.	1
A	US 4,715,653 A (HATTORI ET AL) 29 December 1987 (29.12.1987), see figures 1, 4.	1
A	US 5,954,399 A (HONG) 21 September 1999 (21.09.1999), see figs. 1, 6.	1

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

12 August 2002 (12.08.2002)

Date of mailing of the international search report

**27 MAR 2003**

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks  
 Box PCT  
 Washington, D.C. 20231  
 Facsimile No. (703)305-3230

Authorized officer

Peter R. Brown  
 Telephone No. 703-308-2103

