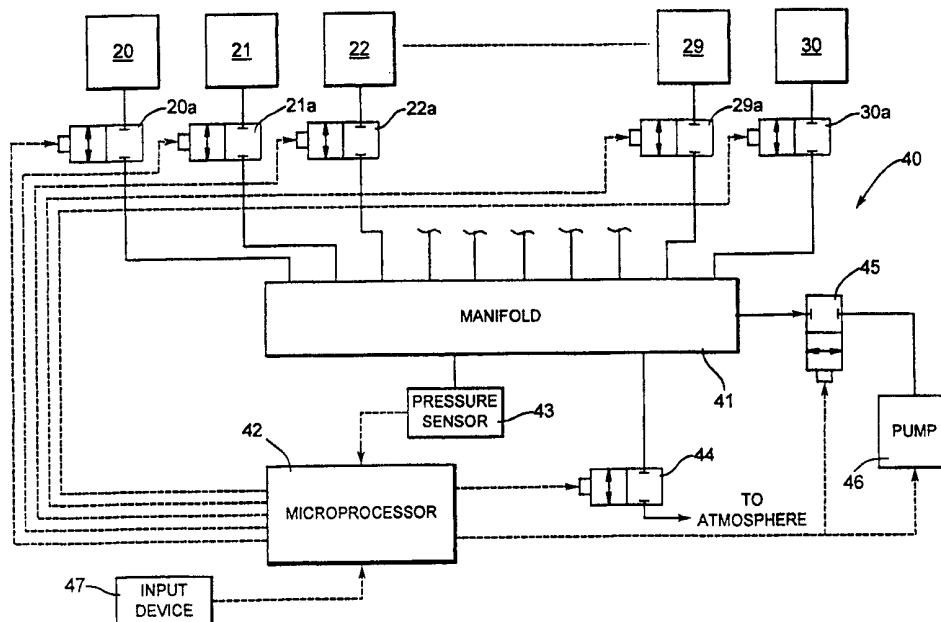




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁷ : A47C 27/10, 7/46</p>	<p>A3</p>	<p>(11) International Publication Number: WO 00/03623 (43) International Publication Date: 27 January 2000 (27.01.00)</p>																	
<p>(21) International Application Number: PCT/US99/15821 (22) International Filing Date: 14 July 1999 (14.07.99)</p> <p>(30) Priority Data:</p> <table border="0"> <tr> <td>60/092,849</td> <td>15 July 1998 (15.07.98)</td> <td>US</td> </tr> <tr> <td>60/092,851</td> <td>15 July 1998 (15.07.98)</td> <td>US</td> </tr> <tr> <td>60/092,852</td> <td>15 July 1998 (15.07.98)</td> <td>US</td> </tr> <tr> <td>60/092,854</td> <td>15 July 1998 (15.07.98)</td> <td>US</td> </tr> <tr> <td>60/092,856</td> <td>15 July 1998 (15.07.98)</td> <td>US</td> </tr> <tr> <td>60/092,858</td> <td>15 July 1998 (15.07.98)</td> <td>US</td> </tr> </table> <p>(71) Applicant: ROSTRA PRECISION CONTROLS, INC. [-/US]; 2519 Dana Drive, Laurinburg, NC 28352 (US).</p> <p>(74) Agents: MacMILLAN, Richard, S. et al.; MacMillan, Sobanski & Todd, LLC, 4th floor, One Maritime Plaza, 720 Water Street, Toledo, OH 43604 (US).</p>	60/092,849	15 July 1998 (15.07.98)	US	60/092,851	15 July 1998 (15.07.98)	US	60/092,852	15 July 1998 (15.07.98)	US	60/092,854	15 July 1998 (15.07.98)	US	60/092,856	15 July 1998 (15.07.98)	US	60/092,858	15 July 1998 (15.07.98)	US	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, 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), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 20 April 2000 (20.04.00)</p>
60/092,849	15 July 1998 (15.07.98)	US																	
60/092,851	15 July 1998 (15.07.98)	US																	
60/092,852	15 July 1998 (15.07.98)	US																	
60/092,854	15 July 1998 (15.07.98)	US																	
60/092,856	15 July 1998 (15.07.98)	US																	
60/092,858	15 July 1998 (15.07.98)	US																	

(54) Title: ELECTRONIC CONTROL SYSTEM FOR A VARIABLE SUPPORT MECHANISM



(57) Abstract

A variable support mechanism includes a plurality of pneumatic bladders (20-30) and an electronic control system for controlling the inflation and deflation thereof. Each of the bladders communicates through a valve (20A-30A) with a common manifold (41). The operations of the valves are individually controlled by a microprocessor (42). A pressure sensor (43) communicates with the manifold and generates electrical signals that are representative of the magnitude of the fluid pressure in the manifold to the microprocessor. The microprocessor is also connected to a vent valve (44) that provides selective fluid communication between the manifold and the atmosphere. The microprocessor is further connected to a pressure valve (45) that provides selective fluid communication between the manifold and a pump (46). Initially, the magnitude of the pressure in each of the bladders is sampled, measured, and stored by the electronic control system. Then, the measured pressure readings from the bladders are compared with respective target values. The bladders that have been identified as being Too Low or Too High are inflated or deflated respectively.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon		Republic of Korea	PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakistan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/15821

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 A47C27/10 A47C7/46

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)

IPC 7 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 practical, 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.
X A X A P,X A A	US 4 797 962 A (GOODE) 17 January 1989 (1989-01-17) column 6, line 40 -column 9, line 41; figures 3-7 --- US 5 542 136 A (TAPPEL) 6 August 1996 (1996-08-06) figure 2 --- WO 98 37790 A (MCCORD WINN TEXTRON) 3 September 1998 (1998-09-03) claim 1; figures --- EP 0 812 555 A (HILL-ROM) 17 December 1997 (1997-12-17) -----	1 2-8 1 2-8 1 2-8

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "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)
- "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

- "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
- "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
- "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.
- "&" document member of the same patent family

Date of the actual completion of the international search

18 February 2000

Date of mailing of the international search report

03/03/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

VandeVondele, J

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/15821

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4797962	A	17-01-1989	US 4949412 A	21-08-1990
US 5542136	A	06-08-1996	NONE	
WO 9837790	A	03-09-1998	CA 2250710 A	03-09-1998
			EP 0929248 A	21-07-1999
EP 812555	A	17-12-1997	US 5794288 A	18-08-1998