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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/904,340	12/12/2006	7147207	RS152	1340

23470 7590 11/22/2006
SRAM CORPORATION
1333 N. KINGSBURY, 4TH FLOOR
CHICAGO, IL 60622

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Brian Jordan, Chicago, IL;
Kevin Wesling, Lombard, IL;
Christopher Shipman, Chicago, IL;
Eric Swaidner, Colorado Springs, CO;
John Cheever, Chicago, IL;

Issue Classification 	Application/Control No. 10/904,340	Applicant(s)/Patent under Reexamination JORDAN ET AL.
	Examiner John K. Fristoe Jr.	Art Unit 3751

ISSUE CLASSIFICATION									
ORIGINAL					INTERNATIONAL CLASSIFICATION				
CLASS		SUBCLASS			CLAIMED			NON-CLAIMED	
251		263			F	16	K	31	/44
									/
CROSS REFERENCES									/
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)								/
267	64.18								/
188	322.22								/
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John K. Fristoe Jr. 9/6/2006 (Assistant Examiner) (Date)					Edward K. Look SUPERVISORY PATENT EXAMINER (Print Name)			Total Claims Allowed: 11	
(Legal Instruments Examiner) (Date)					O.G. Print Claim(s) 1			O.G. Print Fig. 1	

☐ Claims renumbered in the same order as presented by applicant		☐ CPA		☐ T.D.		☐ R.1.47	
Final	Original	Final	Original	Final	Original	Final	Original
1	1		31		61		91
2	2		32		62		92
3	3		33		63		93
4	4		34		64		94
5	5		35		65		95
6	6		36		66		96
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	8		38		68		98
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7	10		40		70		100
8	11		41		71		101
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U.S. Patent and Trademark Office

Part of Paper No. 20060906

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Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**
Commissioner for Patents
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Alexandria, Virginia 22313-1450
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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

23470 7590 09/13/2006

SRAM CORPORATION
 1333 N. KINGSBURY, 4TH FLOOR
 CHICAGO, IL 60622

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

<i>Lisa Serdynski</i>	(Depositor's name)
<i>Lisa Serdynski</i>	(Signature)
<i>October 2, 2006</i>	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/904,340 11/04/2004 Brian Jordan RS152 1340

TITLE OF INVENTION: ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1400 \$300 \$0 \$1700 12/13/2006

EXAMINER	ART UNIT	CLASS-SUBCLASS
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FRISTOE JR, JOHN K 3751 251-285000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 *Milan Milosevic*
 2 *Lisa Serdynski*
 3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

SRAM Corporation

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Chicago, Illinois

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

☐ A check is enclosed.
☒ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature *Lisa Serdynski*
 Typed or printed name *Lisa Serdynski*

Date *October 2, 2006*
 Registration No. *40,307*

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Electronic Patent Application Fee Transmittal				
Application Number:		10904340		
Filing Date:		04-Nov-2004		
Title of Invention:		ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM		
First Named Inventor:		Brian Jordan		
Filer:		Lisa J Wunderlich		
Attorney Docket Number:		RS152		
Filed as Large Entity				
Utility Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	1501	1	1400	1400
Publication fee for republication	1505	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1700

Electronic Acknowledgement Receipt

EFS ID:	1230712
Application Number:	10904340
Confirmation Number:	1340
Title of Invention:	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM
First Named Inventor:	Brian Jordan
Customer Number:	23470
Filer:	Lisa J Wunderlich
Filer Authorized By:	
Attorney Docket Number:	RS152
Receipt Date:	02-OCT-2006
Filing Date:	04-NOV-2004
Time Stamp:	15:37:04
Application Type:	Utility
International Application Number:	

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	\$ 1700
RAM confirmation Number	153
Deposit Account	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part	Pages
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1	Issue Fee Payment Recorded	issue_fee.pdf	69031	no	1
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	8291	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			77322		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.					

Attorney Docket No. RS152

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

JORDAN et al.

Serial No. 10/904,340

Filed: November 4, 2004

For: Actuator Apparatus for Controlling a Valve
Mechanism of a Suspension System

Group Art Unit 3751

Examiner: John K. Fristoe Jr.

I hereby certify that this correspondence is being
facsimile transmitted to the United States Patent
and Trademark Office via EFS-Web, on

September 29, 2006

Date

Lisa Serdynski

Typed Name



Signature

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Notice of Allowability dated September 13, 2006,
Applicant respectfully submits the following comments on the reasons for allowance.

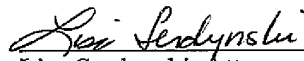
In Examiner's statement of reasons for allowance, Examiner misstates that Wicker (US 4,488,704) discloses "an adjuster assembly for adjusting the characteristics of the valve mechanism independent of the valve actuating assembly." Contrary to Claim 1 of the present invention, the actuator nut 28 of Wicker is not an adjuster assembly that changes the damping characteristics corresponding to at least one position of the operating handle 32 *independently* of the damping characteristics corresponding to another position of the operating handle 32. Rather, the actuator nut 28 of Wicker is merely a fine tuning device that *necessarily* changes the damping characteristics corresponding to all positions of the operating handle 32. In other words, no damping characteristic corresponding to one

U.S. Serial No. 10/904,340

position of the operating handle 32 remains unchanged in response to adjustment of actuator nut 28.

Respectfully submitted,

JORDAN et al.



Lisa Serdynski, Attorney
Registration No. 40,307
SRAM Corporation
1333 N. Kingsbury, 4th Floor
Chicago, IL 60622
(312) 664-3652

Electronic Acknowledgement Receipt

EFS ID:	1226765
Application Number:	10904340
Confirmation Number:	1340
Title of Invention:	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM
First Named Inventor:	Brian Jordan
Customer Number:	23470
Filer:	Lisa J Wunderlich
Filer Authorized By:	
Attorney Docket Number:	RS152
Receipt Date:	29-SEP-2006
Filing Date:	04-NOV-2004
Time Stamp:	10:54:00
Application Type:	Utility
International Application Number:	

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part	Pages
1	Post Allowance Communication - Incoming	comments_on_reasons_for_allowance.pdf	34746	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	34746
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.	



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NOTICE OF ALLOWANCE AND FEE(S) DUE

23470 7590 09/13/2006
SRAM CORPORATION
1333 N. KINGSBURY, 4TH FLOOR
CHICAGO, IL 60622

EXAMINER	
FRISTOE JR, JOHN K	
ART UNIT	PAPER NUMBER

3751
DATE MAILED: 09/13/2006

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/904,340	11/04/2004	Brian Jordan	RS152	1340
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TITLE OF INVENTION: ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$0	\$1700	12/13/2006

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

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I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/904,340 11/04/2004 Brian Jordan RS152 1340

TITLE OF INVENTION: ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1400 \$300 \$0 \$1700 12/13/2006

EXAMINER	ART UNIT	CLASS-SUBCLASS
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FRISTOE JR, JOHN K 3751 251-285000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

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☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

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 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/904,340	11/04/2004	Brian Jordan	RS152	1340
23470	7590	09/13/2006		
SRAM CORPORATION 1333 N. KINGSBURY, 4TH FLOOR CHICAGO, IL 60622			EXAMINER FRISTOE JR, JOHN K	
			ART UNIT	PAPER NUMBER
			3751	
DATE MAILED: 09/13/2006				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/904,340	JORDAN ET AL.	
	Examiner	Art Unit	
	John K. Fristoe Jr.	3751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85), or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 8/25/2006.
2. ☒ The allowed claim(s) is/are 1-6 and 10-14.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. ☐ Notice of References Cited (PTO-892) | 5. ☐ Notice of Informal Patent Application |
| 2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>5/9/06, 8/25/06</u> | 7. ☐ Examiner's Amendment/Comment |
| 4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. ☒ Examiner's Statement of Reasons for Allowance |
| | 9. ☐ Other _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements filed 5/9/2006 and 8/25/2006 are acknowledged by the examiner.

Allowable Subject Matter

2. Claims 1-6 and 10-14 are allowed.
3. The following is an examiner's statement of reasons for allowance: U.S. Pat. No. 4,488,704 (Wicker) discloses an actuator for a valve assembly comprising a valve actuating assembly (14, 32), a valve mechanism (20), wherein the valve actuating assembly moves the valve mechanism (20) between multiple positions, an adjuster assembly for adjusting the characteristics of the valve mechanism independent of the valve actuating assembly, and a selector (32) but lacks a valve actuating assembly further including a camshaft.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

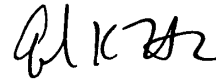
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Fristoe Jr. whose telephone number is (571) 272-4926. The examiner can normally be reached on Monday-Friday, 7: 00 a.m-4: 30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine R. Yu can be reached on (571) 272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number: 10/904,340
Art Unit: 3751

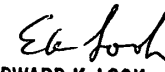
Page 3

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John K. Fristoe Jr.
Examiner
Art Unit 3751

JKF



EDWARD K. LOOK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700
9/16/06

IDS - 05/09/2006

PTO/SB/08a (08-03)
 Approved for use through 07/31/2006. OMB 0651-0031
 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
 Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	10904340
	Filing Date	2004-11-04
	First Named Inventor	Brian Jordan
	Art Unit	3751
	Examiner Name	John K. Fristoe, Jr.
	Attorney Docket Number	RS152

U.S. PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
JKF	1	6360857		2002-03-26	Fox			
JKF	2	4036335		1977-07-19	Thompson			
JKF	3	5505281		1996-04-09	Lee			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S. PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
JKF	1	20030234144		2003-12-25	Fox			
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FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² j	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
JKF	1	1415608	GB		1975-11-26	Armstrong Patents Co.		☐

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	10904340
Filing Date	2004-11-04
First Named Inventor	Brian Jordan
Art Unit	3751
Examiner Name	John K. Fristoe, Jr.
Attorney Docket Number	RS152

If you wish to add additional Foreign Patent Document citation information please click the Add button Add			
NON-PATENT LITERATURE DOCUMENTS			Remove
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
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If you wish to add additional non-patent literature document citation information please click the Add button Add			
EXAMINER SIGNATURE			
Examiner Signature	/John K. Fristoe Jr/		Date Considered 09/01/2006
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			
¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.			

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	10/904,340
		Filing Date	November 4, 2004
		First Named Inventor	Brian Jordan
		Art Unit	3751
		Examiner Name	John K. Fristoe, Jr.
Sheet 1	of 1	Attorney Docket Number	RS152

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
JKF		Mountain Bike Action Suspension Special, Pages 75-78, February, 1991	
JKF		Ceriani Product Catalog, Circa 1991	
JKF		One set of five pages of photographs of a Ceriani Fork	
JKF		Cross-sectional schematic of a Ceriani Fork	

Examiner Signature	/John K. Fristoe Jr/	Date Considered	09/01/2006
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Index of Claims 		Application/Control No. 10/904,340 Examiner John K. Fristoe Jr.		Applicant(s)/Patent under Reexamination JORDAN ET AL. Art Unit 3751	
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√	Rejected	-	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	+	Restricted	I	Interference	O	Objected

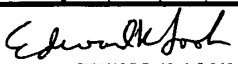
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Issue Classification 	Application/Control No. 10/904,340	Applicant(s)/Patent under Reexamination JORDAN ET AL.
	Examiner John K. Fristoe Jr.	Art Unit 3751

ISSUE CLASSIFICATION												
ORIGINAL					INTERNATIONAL CLASSIFICATION							
CLASS		SUBCLASS			CLAIMED					NON-CLAIMED		
251		263			F	16	K	31	/44			/
CROSS REFERENCES									/			/
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)								/			/
267	64.18								/			/
188	322.22								/			/
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John K. Fristoe Jr. (Assistant Examiner)	9/6/2006 (Date)	 EDWARD K. LOOK SUPERVISORY PATENT EXAMINER (Print Name) 9/11/06	Total Claims Allowed: 11
(Legal Instruments Examiner)	(Date)	O.G. Print Claim(s) 1	O.G. Print Fig. 1

☐ Claims renumbered in the same order as presented by applicant				☐ CPA				☐ T.D.				☐ R.1.47			
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	29		59		89		119		149		179		209		
	30		60		90		120		150		180		210		

Search Notes



Application/Control No.

10/904,340

Examiner

John K. Fristoe Jr.

Applicant(s)/Patent under Reexamination

JORDAN ET AL.

Art Unit

3751

SEARCHED

Class	Subclass	Date	Examiner
251	251 262 263	12/30/2005	JKF
267	64.15	12/30/2005	JKF
267	64.18	12/30/2005	JKF
267	293	12/30/2005	JKF
188	321.11	12/30/2005	JKF
188	322.15	12/30/2005	JKF
188	322.22	12/30/2005	JKF
~~UPDATED 4/13/06 JKF~~			
~~UPDATED 5/6/06 JKF~~			

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner
Interference Text Search in PG Pub		5/6/06	JKF

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
Inventor Name Search	12/30/2005	JKF
Received Search from Examiner Rodriguez in class 188 and 267	12/30/2005	JKF

~~12/30/05 JKF~~ ~~4/13/06~~ 5/6/06

BEST AVAILABLE COPY

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	(actuator and valve and suspension and assembly and camshaft and rotatable and adjuster).clm.	US-PGPUB	OR	OFF	2006/09/06 16:03

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

**Request
for
Continued Examination (RCE)
Transmittal**

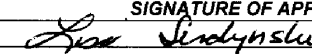
Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	10/904,340
Filing Date	November 4, 2004
First Named Inventor	Brian Jordan
Art Unit	3751
Examiner Name	John K. Fristoe, Jr.
Attorney Docket Number	RS152

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. **Submission required under 37 CFR 1.114** Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).
- a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
- i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ii. ☐ Other _____
- b. ☒ Enclosed
- i. ☒ Amendment/Reply
- ii. ☐ Affidavit(s)/ Declaration(s)
- iii. ☒ Information Disclosure Statement (IDS)
- iv. ☐ Other _____
2. **Miscellaneous**
- a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
- b. ☐ Other _____
3. **Fees** The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
- The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to
- a. ☐ Deposit Account No. _____. I have enclosed a duplicate copy of this sheet.
- i. ☐ RCE fee required under 37 CFR 1.17(e)
- ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)
- iii. ☐ Other _____
- b. ☐ Check in the amount of \$ _____ enclosed
- c. ☒ Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED			
Signature		Date	8/25/06
Name (Print/Type)	Lisa Serdyski	Registration No.	40,307

CERTIFICATE OF MAILING OR TRANSMISSION			
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.			
Signature			
Name (Print/Type)		Date	

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PATENT

Attorney Docket No. RS152

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

JORDAN et al.

Serial No. 10/904,340

Filed: November 4, 2004

For: Actuator Apparatus for Controlling a Valve
Mechanism of a Suspension System

Group Art Unit 3751

Examiner: John K. Fristoe Jr.

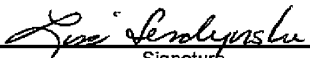
I hereby certify that this correspondence is being
facsimile transmitted to the United States Patent
and Trademark Office via EFS-Web, on

August 25, 2006

Date

Lisa Serdynski

Typed Name


Signature

AMENDMENT

Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the office action dated April 25, 2006, please amend the above-
identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of
this paper.

Remarks begin on page 5 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (currently amended) An actuator apparatus for controlling a valve mechanism of a suspension system, the actuator apparatus comprising:
 - a valve actuating assembly operatively connected to the valve mechanism, the valve actuating assembly including a camshaft and operable rotatable between at least two ~~rider-selectable~~ positions to adjust the valve mechanism between various suspension settings; and
 - an adjuster assembly operatively connected to the valve actuating assembly for adjusting the damping characteristics corresponding to at least one of the positions of the valve actuating assembly independently of the damping characteristics corresponding to another position of the valve actuating assembly.
2. (currently amended) The actuator apparatus of claim 1 wherein the valve actuating assembly comprises:
 - a driver movable to adjust the valve mechanism between various suspension settings; and
 - a selector operatively connected to the driver and operable rotatable between the ~~rider-selectable~~ positions.
3. (currently amended) The actuator apparatus of claim 2 wherein the selector comprises:
 - a lever operable between the ~~rider-selectable~~ positions; and
 - [[a]] the camshaft operatively connected to the lever, ~~the camshaft having a rotation axis~~ and at least two cam surfaces corresponding to the ~~rider-selectable~~ positions of the lever, the cam surfaces configured to be engageable with the driver.

4. (original) The actuator apparatus of claim 3 wherein at least one of the cam surfaces is disposed substantially parallel to the camshaft axis and at least another of the cam surfaces is disposed at an angle relative to the camshaft axis.

5. (original) The actuator apparatus of claim 4 wherein the adjuster assembly comprises a knob operatively connected to the camshaft to axially displace the camshaft to vary the engagement point of the driver along the angled cam surface.

6. (original) The actuator apparatus of claim 4 wherein the adjuster assembly is formed integrally with the selector of the valve actuating assembly, the camshaft threadably coupled to a housing of the suspension system to axially displace the camshaft along the housing to vary the engagement point of the driver along the angled cam surface.

7. (cancelled)

8. (cancelled)

9. (cancelled)

10. (currently amended) The actuator apparatus of claim 2 wherein the selector comprises:

a lever operable between the ~~rider-selectable~~ positions;

[[a]] ~~the camshaft rotatable about an axis and~~ having at least two cam surfaces corresponding to the ~~rider-selectable~~ positions of the lever, the camshaft operatively connected to the lever; and

a stop element rotatable with the selector and configured to abut against the adjuster assembly to prevent over-rotation of the lever.

11. (original) The actuator apparatus of claim 10 wherein the cam surfaces are disposed substantially parallel to the camshaft axis.

12. (original) The actuator apparatus of claim 11 wherein the adjuster assembly comprises a limit screw threadably coupled to a housing of the suspension system and configured to be engageable with the stop element to prevent over-rotation of the lever.

13. (currently amended) The actuator apparatus of claim 2 wherein the selector comprises:

a lever operable between the ~~rider-selectable~~ positions;

[[a]] the camshaft ~~rotatable about an axis and~~ having a plurality of cam surfaces, at least one of said cam surfaces configured to be engageable with the driver, the cam surfaces corresponding to the ~~rider-selectable~~ positions of the lever, the cam surfaces disposed substantially parallel to the axis of the camshaft, the camshaft operatively connected to the lever.

14. (original) The actuator apparatus of claim 13 wherein the adjuster assembly is operatively connected to the driver to position the driver relative to camshaft of the selector.

15. (new) The actuator apparatus of claim 1 wherein the positions of the valve actuating assembly are rider-selectable positions.

REMARKS

Reconsideration of this application as amended is respectfully requested.

Claims 1, 2, 3, 10 and 13 have been amended and claims 7-9 were cancelled.

Claims 1 and 2 were rejected under 35 U.S.C. 102(b) as being anticipated by Wicker (US 4,488,704). In the Office Action mailed April 25, 2006, Examiner misstates Applicant's argument in the Reply dated April 5, 2006. Wicker *does* disclose a valve that allows a user to adjust damping characteristics. That is not at issue. What is at issue, is *how* the damping characteristics are adjusted. Claim 1 of the present invention calls for "an adjuster assembly operatively connected to the valve actuating assembly for adjusting the damping characteristics corresponding to at least *one of the positions* of the valve actuating assembly *independently* of the damping characteristics corresponding to *another position* of the valve actuating assembly" (emphasis added). Contrary to Claim 1 of the present invention, the actuator nut 28 of Wicker is not an adjuster assembly that changes the damping characteristics corresponding to at least one position of the operating handle 32 *independently* of the damping characteristics corresponding to another position of the operating handle 32. Rather, the actuator nut 28 of Wicker is merely a fine tuning device that *necessarily* changes the damping characteristics corresponding to all positions of the operating handle 32. In other words, no damping characteristic corresponding to one position of the operating handle 32 remains unchanged in response to adjustment of actuator nut 28.

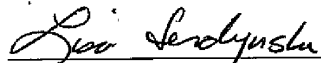
Claim 2 was rejected as claim 1 under 35 U.S.C. 102(b). Since claim 2 depends directly from and contain all the limitations of claim 1, it is felt to overcome the rejection in the same manner as claim 1.

U.S. Serial No. 10/904,340

This amendment is believed to be fully responsive to the comments and suggestions of the Examiner and places this application in condition for allowance. Favorable action is requested.

Respectfully submitted,

JORDAN et al.

A handwritten signature in cursive script, appearing to read "Lisa Serdynski", is written over a horizontal line.

Lisa Serdynski, Attorney
Registration No. 40,307
SRAM Corporation
1333 N. Kingsbury, 4th Floor
Chicago, IL 60622
(312) 664-3652

Attorney Docket No. RS152

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

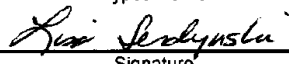
In re application of:

JORDAN et al.

Serial No. 10/904,340

Filed: November 4, 2004

For: Actuator Apparatus for Controlling a Valve
Mechanism of a Suspension System

I hereby certify that this correspondence is being deposited with the United States Patent and Trademark Office via the EFS-Web, on
August 25, 2006
Date
Lisa Serdynski
Typed Name

Signature

Group Art Unit 3751

Examiner: John K. Fristoe, Jr.

INFORMATION DISCLOSURE STATEMENT

Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. § 1.56 and 1.97(b), Applicant brings to the attention of the Examiner the documents listed on the attached PTO-1449. Copies of the documents are enclosed. Applicant respectfully requests that the Examiner consider the listed documents, and evidence that consideration of relevant portions thereof by making appropriate notations on the attached form.

The attached documents disclose a Ceriani fork. On information and believe, the Ceriani fork includes an axially displaceable plunger connected by a Bowden-type control cable to a remote lever actuator. The control cable is displaceable within a cable housing, the length of the cable housing adjustable by a barrel adjuster. The plunger includes an inclined surface in contact with a rod element connected to a valve mechanism, the rod element being displaceable along the inclined surface by operation of the remote lever actuator.

U.S. Serial No. 10/904,340

It is believed that this reference either taken alone or in combination with others does not disclose or suggest the invention claimed by the Applicant. However, it is the Applicant's desire to have this reference available in the record for both the Examiner and the public to see. The Applicant specifically reserves all rights of privilege and confidence with respect to this matter and submission of this document is not to be construed as a waiver of those rights. Moreover, submission of this document should not be considered an admission that the reference cited here in is proper prior art to the aforementioned application.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that the listed documents are material or constitute "prior art." If it should be determined that the listed documents do not constitute "prior art" under United States law, Applicant reserves the right to present to the Office the relevant facts and law regarding the appropriate status of such documents.

Applicant further reserves the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should the document be applied against the claims of the present application.

Respectfully submitted,

JORDAN et al.



Lisa Serdynski, Attorney
Registration No. 40,307
SRAM Corporation
1333 N. Kingsbury, 4th Floor
Chicago, IL 60622
(312) 664-3652

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>		Complete if Known	
		Application Number	10/904,340
		Filing Date	November 4, 2004
		First Named Inventor	Brian Jordan
		Art Unit	3751
		Examiner Name	John K. Fristoe, Jr.
Sheet 1	of 1	Attorney Docket Number	RS152

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Mountain Bike Action Suspension Special, Pages 75-78, February, 1991	
		Ceriani Product Catalog, Circa 1991	
		One set of five pages of photographs of a Ceriani Fork	
		Cross-sectional schematic of a Ceriani Fork	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Electronic Patent Application Fee Transmittal				
Application Number:		10904340		
Filing Date:		04-Nov-2004		
Title of Invention:		ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM		
First Named Inventor:		Brian Jordan		
Filer:		Lisa J Wunderlich		
Attorney Docket Number:		RS152		
Filed as Large Entity				
Utility Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Petition fee- 37 CFR 1.17(h) (Group III)	1464	1	130	130
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 1 month with \$0 paid	1251	1	120	120
Miscellaneous:				
Request for continued examination	1801	1	790	790
Total in USD (\$)				1040

Electronic Acknowledgement Receipt

EFS ID:	1172977
Application Number:	10904340
Confirmation Number:	1340
Title of Invention:	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM
First Named Inventor:	Brian Jordan
Customer Number:	23470
Filer:	Lisa J Wunderlich
Filer Authorized By:	
Attorney Docket Number:	RS152
Receipt Date:	25-AUG-2006
Filing Date:	04-NOV-2004
Time Stamp:	17:33:42
Application Type:	Utility
International Application Number:	

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	\$ 1040
RAM confirmation Number	381
Deposit Account	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part	Pages
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1	Extension of Time	extension.pdf	17847	no	1
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	RCE.pdf	60330	no	1
Warnings:					
Information:					
3	Amendment Submitted/Entered with Filing of CPA/RCE	amendment.pdf	130275	no	6
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Filed	IDS.pdf	100615	no	3
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
5	NPL Documents	reference1.pdf	22557582	no	4
Warnings:					
Information:					
6	NPL Documents	reference2.pdf	10844695	no	2
Warnings:					
Information:					
7	NPL Documents	reference4.pdf	9141975	no	1
Warnings:					
Information:					
8	NPL Documents	reference3.pdf	23526115	no	5
Warnings:					
Information:					
9	Fee Worksheet (PTO-875)	fee-info.pdf	8472	no	2
Warnings:					

Information:	
Total Files Size (in bytes):	66387906
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.	

PATENT

Attorney Docket No. RS152

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

JORDAN et al.

Serial No. 10/904,340

Filed: November 4, 2004

For: Actuator Apparatus for Controlling a
Valve Mechanism of a Suspension System

Group Art Unit 3751

Examiner: John K. Fristoe, Jr.

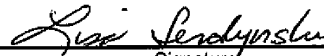
I hereby certify that this correspondence is being
transmitted to the United States Patent and
Trademark Office via the EFS-Web, on

August 25, 2006

Date

Lisa Serdynski

Typed Name


Signature

PETITION FOR EXTENSION OF TIME

Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant hereby petitions for a one-month extension of time for responding
to the Office Action dated April 25, 2006, in the above-identified patent application.

Respectfully submitted,

JORDAN et al.



Lisa J. Serdynski, Attorney
Registration No. 40,307
SRAM Corporation
1333 N. Kingsbury, 4th Floor
Chicago, IL 60622
(312)664-3652

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD					Application or Docket Number 10904310						
Substitute for Form PTO-875											
CLAIMS AS FILED – PART I											
(Column 1)		(Column 2)		SMALL ENTITY		OR	OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA		RATE	FEE		RATE	FEE			
BASIC FEE (37 CFR 1.16(a))					\$			\$			
TOTAL CLAIMS (37 CFR 1.16(c))	14	minus 20 =	*			OR	X \$	=			
INDEPENDENT CLAIMS (37 CFR 1.16(b))	1	minus 3 =	*			OR	X \$	=			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(d))						OR	X \$	=			
						OR	+	\$ =			
				TOTAL		OR	TOTAL				
* If the difference in column 1 is less than zero, enter "0" in column 2.											
CLAIMS AS AMENDED – PART II											
AMENDMENT A	(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
	Total (37 CFR 1.16(c))	12	Minus	**	20	=			OR	X \$	=
	Independent (37 CFR 1.16(b))	1	Minus	***	3	=			OR	X \$	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))								OR	+	\$ =
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		
AMENDMENT B	(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
	Total (37 CFR 1.16(c))	*	Minus	**		=			OR	X \$	=
	Independent (37 CFR 1.16(b))	*	Minus	***		=			OR	X \$	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))								OR	+	\$ =
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		
AMENDMENT C	(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
	Total (37 CFR 1.16(c))	*	Minus	**		=			OR	X \$	=
	Independent (37 CFR 1.16(b))	*	Minus	***		=			OR	X \$	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))								OR	+	\$ =
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.											

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		10904340
	Filing Date		2004-11-04
	First Named Inventor	Brian Jordan	
	Art Unit	3751	
	Examiner Name	John K. Fristoe, Jr.	
	Attorney Docket Number	RS152	

U.S. PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	6360857		2002-03-26	Fox			
	2	4036335		1977-07-19	Thompson			
	3	5505281		1996-04-09	Lee			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S. PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	20030234144		2003-12-25	Fox			
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² j	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	1415608	GB		1975-11-26	Armstrong Patents Co.		☐

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		10904340
	Filing Date		2004-11-04
	First Named Inventor	Brian Jordan	
	Art Unit	3751	
	Examiner Name	John K. Fristoe, Jr.	
	Attorney Docket Number	RS152	

If you wish to add additional Foreign Patent Document citation information please click the Add button				Add
NON-PATENT LITERATURE DOCUMENTS				Remove
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵	
	1		☐	
If you wish to add additional non-patent literature document citation information please click the Add button				Add
EXAMINER SIGNATURE				
Examiner Signature		Date Considered		
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.				
¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.				

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	10904340
	Filing Date	2004-11-04
	First Named Inventor	Brian Jordan
	Art Unit	3751
	Examiner Name	John K. Fristoe, Jr.
	Attorney Docket Number	RS152

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Lisa Wunderlich/	Date (YYYY-MM-DD)	2006-05-09
Name/Print	Lisa Wunderlich	Registration Number	40307

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT SPECIFICATION

(11) 1 415 608

1 415 608

- (21) Application No. 59412/73 (22) Filed 21 Dec. 1973
(44) Complete Specification published 26 Nov. 1975
(51) INT CL² F16F 9/19
(52) Index at acceptance F2S 8M2A2 8M2P1A 8M2P1C 8M3B1
(72) Inventors GEOFFREY GILBERT JANES and LESLIE BANKS



(54) IMPROVEMENTS IN AND RELATING TO TELESCOPIC HYDRAULIC SHOCK ABSORBERS

ERRATUM

SPECIFICATION No. 1,415,608

Sheet 1 of drawings, for 8 sheets read 3 sheets

THE PATENT OFFICE
18th December, 1975

- with telescopic shock absorbers of the type (hereinafter referred to as the type described) of so-called tube-within-a-tube construction, wherein the hydraulic cylinder within which the piston is situated is a pressure cylinder arranged coaxially within an outer cylinder, the annular space between the two cylinders constituting a hydraulic reservoir, and wherein the cylinders are closed and located relative to one another on the one hand by a recuperation or foot valve assembly which engages the cylinder ends in front of the piston and on the other hand by a piston rod guide which engages in the opposite cylinder ends, valves in the foot valve assembly together with the valves in the piston being arranged, if desired, to permit fluid flow in one direction only from the pressure cylinder space behind the piston to the reservoir and from the reservoir through the foot valve assembly to the pressure cylinder space in front of the piston.
- According to the present invention, the piston rod has an axial passage therethrough spring bearing on the valve closure member or it may comprise two or more such springs, of different spring rates, if desired, arranged axially in series.
- According to another feature of the invention, the piston rod guide comprises a fluid flow passage including adjustable damping valve means which are contained wholly within said piston rod guide and are accessible through a co-operating opening in the outer tube. Preferably, the damping valve means is a multiple orifice valve such as a sleeve valve having a rotatable valve member provided with a number of circularly spaced ports selectively registrable with fluid flow passage means in the piston rod guide for determining the rate of fluid flow between the pressure cylinder and the reservoir cylinder.
- Since the damping valve means provided within the piston rod guide is contained wholly within that guide, the external surface of the outer tube of the shock absorber is kept free from any projections and thus enables greater flexibility to be

SEE ERRATA SLIP ATTACHED

PATENT SPECIFICATION

(11) 1 415 608

1 415 608

- (21) Application No. 59412/73 (22) Filed 21 Dec. 1973
 (44) Complete Specification published 26 Nov. 1975
 (51) INT CL² F16F 9/19
 (52) Index at acceptance F2S 8M2A2 8M2P1A 8M2P1C 8M3B1
 (72) Inventors GEOFFREY GILBERT JANES and LESLIE BANKS



(54) IMPROVEMENTS IN AND RELATING TO TELESCOPIC HYDRAULIC SHOCK ABSORBERS

(71) We, ARMSTRONG PATENTS CO. LIMITED, a British Company, of Gibson Lane, Melton, North Ferriby, Yorkshire HU14 3HY, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention concerns telescopic hydraulic shock absorbers, that is to say, shock absorbers comprising a hydraulic cylinder containing a hydraulic fluid and having a piston displaceable therein, the piston being carried at one end of a piston rod having its opposite end extending externally from the cylinder, and valve means in a hydraulic flow passage through the piston for damping the piston movement in at least one direction in the cylinder. The invention is more particularly concerned with telescopic shock absorbers of the type (hereinafter referred to as the type described) of so-called tube-within-a-tube construction, wherein the hydraulic cylinder within which the piston is situated is a pressure cylinder arranged coaxially within an outer cylinder, the annular space between the two cylinders constituting a hydraulic reservoir, and wherein the cylinders are closed and located relative to one another on the one hand by a recuperation or foot valve assembly which engages the cylinder ends in front of the piston and on the other hand by a piston rod guide which engages in the opposite cylinder ends, valves in the foot valve assembly together with the valves in the piston being arranged, if desired, to permit fluid flow in one direction only from the pressure cylinder space behind the piston to the reservoir and from the reservoir through the foot valve assembly to the pressure cylinder space in front of the piston.

45 According to the present invention, the piston rod has an axial passage therethrough

wherein is fitted an axially displaceable adjuster rod co-operating at its inner end with the piston valve for enabling the resistance offered by said valve to hydraulic flow therethrough to be varied and in which displacement of said adjuster rod is effected by a cam member.

Preferably the cam member is rotatable to vary the displacement of the adjustable rod and is conveniently located adjacent the free end of the piston rod, for example within a mounting eye or similar connection means carried by the piston rod for securing the same to a vehicle frame. Conveniently, the piston fluid flow passage includes an annular valve seat against which a valve closure member is resiliently urged by spring means and the adjuster rod is arranged to act on the spring means to vary the compression thereof. The spring means may comprise a single coil compression spring bearing on the valve closure member or it may comprise two or more such springs, of different spring rates, if desired, arranged axially in series.

According to another feature of the invention, the piston rod guide comprises a fluid flow passage including adjustable damping valve means which are contained wholly within said piston rod guide and are accessible through a co-operating opening in the outer tube. Preferably, the damping valve means is a multiple orifice valve such as a sleeve valve having a rotatable valve member provided with a number of circularly spaced ports selectively registrable with fluid flow passage means in the piston rod guide for determining the rate of fluid flow between the pressure cylinder and the reservoir cylinder.

Since the damping valve means provided within the piston rod guide is contained wholly within that guide, the external surface of the outer tube of the shock absorber is kept free from any projections and thus enables greater flexibility to be

SEE ERRATA SLIP ATTACHED

exercised in the use of the shock absorber, for example in wheel suspension units which employ a shock absorber and a coil suspension spring in combination, with the shock absorber arranged coaxially inside the suspension spring. In such units, the spring rests at one end upon a spring platform mounted on the shock absorber outer tube and at its other end engages a spring abutment carried by the outer end of the piston rod. In constructions wherein the external surface of the outer tube is interrupted by damping valve adjuster screws or other projecting members, it is usually possible to assemble a suspension unit by passing the spring over one end only of the outer tube and furthermore, where the spring platform is threaded on to the outer tube, the range of adjustment of the spring platform along the outer tube is limited by the presence of the projections. By virtue of this feature of the invention, however, the spring can be fitted over the outer tube from the foot valve end, making it unnecessary, as hitherto, to dismantle the spring abutment on the piston rod, while the thread for the spring platform can be extended over a much greater length of the outer tube.

The invention will be described further, by way of example, with reference to the accompanying drawings, in which:—

Fig. 1 is an axial section through one shock absorber embodying the invention; and

Fig. 2 is a detail taken on an axial section at right angles to that of Fig. 1.

In the shock absorber illustrated in the drawings, a compression cylinder 10 is mounted coaxially within an outer cylinder 12 and the two cylinders define between them an annular space 14 which constitutes a hydraulic reservoir. Within the pressure cylinder 10 is arranged a piston 16 carried by the inner end of a piston rod 18 of which the outer end extends externally of the cylinders 10 and 12. At the ends through which the piston rod 18 passes the cylinders 10 and 12 are closed and located relative to one another by a piston rod guide 20, the opposite ends of the cylinders being similarly closed and located relative to one another by a foot valve assembly generally designated 22. The piston 16 is formed with a threaded axial bore 24, the wall of which is recessed as indicated at 26 in order to provide a fluid flow passage from one side of the piston to the other. The free end or front face of the piston is fitted with a closure valve 28 screwed into the threaded bore 24 and terminating within that bore in an annular valve seat against which a valve closure member 32 sliding on a pin 30 is urged by axially serially arranged springs 34 and 36. The valve closure member 32 thus acts to permit fluid flow through the piston

as the latter moves further into the cylinder 10, the rate of flow being determined by the springs 34 and 36 which may conveniently be of different spring rates. The closure member 32 also acts to prevent fluid flow through the piston in the opposite direction of piston movement.

The foot valve assembly 22 will be seen to comprise a valve block 38 which is provided with an axially parallel port 40 extending between its end faces, the port 40 opening at the inner end face of the valve block 38 into an annular recess 42 which is bordered by annular lands 44, 46 constituting a seat for a plate valve closure member 48 which is biased towards that seat by a compression spring 50. It will be observed that the foot valve assembly acts to allow flow of hydraulic fluid from the reservoir 14 into the pressure cylinder space in front of the piston 16 as the piston moves outwardly of the pressure cylinder but prevents fluid flow in the opposite direction. The plate valve closure member 48 and spring 50 are retained on the valve block 38 by means of a rivet assembly 52 which passes through an axial bore formed through the valve block.

Within the hydraulic reservoir 14 there is secured to the piston rod guide a tube 56 which at its free end acts as a valve seat for a closure member 58 resiliently urged towards said end by a spring 60. The spring is carried on a guide 62 held in the tube 56 adjacent its free end, the guide 62 being threaded and carrying an adjustable nut 64 by which the compression of the spring 60 may be set. The other end of the tube 56 is engaged in a threaded hole provided therefor in the piston rod guide and communicates with a port 66 formed in an axially parallel direction in the guide and in turn communicating with a port 68 which opens into the reservoir space behind the piston. As will be apparent, therefore, the valve closure member 32 determines the damping exerted on the piston in a weight acting or bump direction and the closure member 58 determines the damping exerted on it in the opposite, rebound direction.

For many circumstances of use, it is desirable to make provision for the damping in the two directions of movement of the piston to be adjustable.

For this purpose, the invention provides an adjuster rod 70 which passes through a longitudinal bore of the piston rod 18 and has hingedly connected to its inner end a cylindrical coupling sleeve 72 from which projects the pin 30 serving as a guide and retainer for the valve springs 34, 36. The outer end of the adjuster rod 70 engages resiliently against a cam member 74 arranged within a bore provided therefor in a mounting eye 116 of the shock absorber, the mounting eye 116 being threadedly

secured to the outer end of the piston rod 18. The cam member 74 is resiliently urged towards one end of the bore in which it is mounted by a compression spring 76 of a click stop mechanism including a plate 78 carrying a pair of diametrically opposed balls 80. The balls 80 abut one end of the cam member 74, which is formed with corresponding and circularly spaced holes or dimples 82 and engagement of the balls 80 in a pair of holes 82 serves to maintain the cam member 74 in a selected rotational position. Rotation of the cam member 74 is effected by means of a screwdriver slot 84 formed in its outer end and results in axial displacement of the adjuster rod 70 to compress or slacken the springs 34,36 and accordingly adjusts the resilient seating force on the valve closure member 32.

Although the cam member 74 is shown in Fig. 2 as having a smoothly curved cam surface providing for infinitely variable adjustment of the valve setting within predetermined limits, it could, of course, alternatively be formed with a succession of flats each representing a discrete adjustment. It will be appreciated that the use of a cam with flats would eliminate the need for a click-stop mechanism.

At a position circularly spaced from the port 66, the piston rod guide is formed with a second axially parallel port 88 which opens into a radial port 90 formed in the guide 20. The radial port 90 communicates at its inner end with the pressure cylinder space behind the piston, by way of a further axially parallel port 92. Within the radial port 90 there is arranged a sleeve valve generally designated 94 and which has one end registering with an opening 96 in the outer tube 12 and formed with a screwdriver slot 98. Radially inwardly of that end, the sleeve valve 94 is formed with an axial blind bore 100 from which open a number of radial ports of differing diameters of which two ports 102 and 104 are visible in the drawing. The inner end face of the sleeve valve 94 is fitted with a pair of spring-loaded balls 106 which are engageable in co-operating dimples or holes formed in a plate 95 arranged towards the inner end of the blind bore 100, the action of the balls 106 serving to locate the sleeve valve rotationally in such a manner that one of the radial ports e.g. 102,104 is registered with the axially parallel port 88 of the piston rod guide 20. In order to ensure correct initial positioning of the plate 95 for this purpose, the plate is provided with a locating hole 97 in which engages a pin 103 mounted in the piston rod guide 20. The spring loading on the balls 106 is provided by a spring washer 105 which also acts to maintain the valve member 94 in abutment with the outer tube 12. The fluid flow path represented by the ports in the piston rod guide and by the sleeve valve 94 thus provides a leak path relative to the rebound valve 58 and accordingly enables the rebound damping to be adjusted. A tube 89 is screwed into the piston rod guide 20 to register with the port 88 and discharge hydraulic fluid therefrom into the reservoir 14.

It will be appreciated that the range of damping made possible by the invention is a function of the springs 34,36 and of the adjustment of the cam member 74 when the piston is moving in a weight-acting direction but that in the opposite or rebound direction it is a function of the setting of the valve member 58 by the spring 60 together with the leak path provided by the valve member 94. In the rebound direction, therefore, the valve member 58 may even be used solely as an overload valve with the valve member 94 governing the rebound damping but it is alternatively possible by suitable selection of the spring 60 and of the sizes of the radial ports in the valve member 94 to use the valve member 58 as the rebound damping valve with the valve member 94 providing simply for discrete changes in the rebound setting.

As may be seen from the drawing, the outer end of the sleeve valve member 94 registers in the radial opening 96 of the piston rod guide 20, so that the external surface of the outer cylinder 12 remains uninterrupted and free from any radial projections. This feature is particularly useful when the shock absorber is to be used in combination with a coil suspension spring as a composite suspension unit for a vehicle wheel suspension. In such a suspension unit, as shown in the drawing, a coil spring 108 is arranged coaxially around the shock absorber outer cylinder 12 and is supported on that cylinder by way of an annular spring platform 110 which is internally threaded and engages on a complementary thread 112 formed externally of the cylinder 12. The opposite end of the suspension spring 108 engages a spring abutment 114 which is retained on the piston rod 18 by the mounting eye 116 threaded on to the end of the piston rod. Due to the absence of any radial projections along the length of the outer cylinder 12 and the shock absorber, the thread 112 can be extended for a considerable distance along the outer cylinder and thus provides for considerable adjustment of the suspension spring 108. This facility is not possible in shock absorber constructions wherein the rebound damping adjustment valve is situated, for example, at the lower end of one or other of the tubes 56 or 89 since in such a situation the manually adjustable member of the valve must necessarily project radially through the outer tube 12. The freedom of the outer

tube 12 in the illustrated construction from radial projections also enables the suspension spring to be fitted over the shock absorber from the foot valve end rather than from the end from which the piston rod extends, thus making it unnecessary to dismantle the spring abutment 114 by removing the mounting eye 116.

In shock absorber constructions wherein the adjustable rebound damping valve is situated adjacent the foot valve assembly, the piston rod guide and its dependent tubes must, during assembly, be introduced in a predetermined position into the outer cylinder 12 in order that the relevant tube may engage with the damping valve. This is unnecessary in the construction provided by the present invention.

WHAT WE CLAIM IS:—

1. A telescopic hydraulic shock absorber of the type described in which the piston rod has an axial passage therethrough wherein is fitted an axially displaceable adjuster rod co-operating at its inner end with the piston valve for enabling the resistance offered by said valve to hydraulic flow therethrough to be varied and in which displacement of said adjuster rod is effected by a cam member.
2. A shock absorber as claimed in claim 1 in which the cam member is rotatable to vary the displacement of the adjuster rod.
3. A shock absorber as claimed in claim 1 or claim 2 in which the cam member is located adjacent the free end of the piston rod.
4. A shock absorber as claimed in claim 3 in which the cam member is arranged within a mounting eye or other similar connection means carried by the piston rod for securing

the same to a vehicle frame.

5. A shock absorber as claimed in any one of claims 1 to 4, in which the piston fluid flow passage includes an annular valve seat against which a valve closure member is resiliently urged by spring means comprising two separate springs arranged axially in series, the adjuster rod acting on the spring means to vary the compression thereof.

6. A shock absorber as claimed in claim 5, in which the springs are of different spring rate.

7. A shock absorber as claimed in any one of the preceding claims, in which the piston rod guide comprises a fluid flow passage including adjustable damper valve means which are contained wholly within said piston rod guide and are accessible through a co-operating opening in the outer tube.

8. A shock absorber as claimed in claim 7, in which the damping valve means is a sleeve valve having a rotatable valve member provided with a number of circularly spaced ports selectively registrable with fluid flow passage means in the piston rod guide for determining the rate of fluid flow between the pressure cylinder and the reservoir cylinder.

9. A telescopic hydraulic shock absorber constructed, arranged and adapted to operate substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

W. P. THOMPSON & CO.,

Chartered Patent Agents,

Seaton Buildings,

Paragon Square,

Hull, Yorkshire, HU1 3JS and

Coopers Building, Church Street,

Liverpool, L1 3AB.

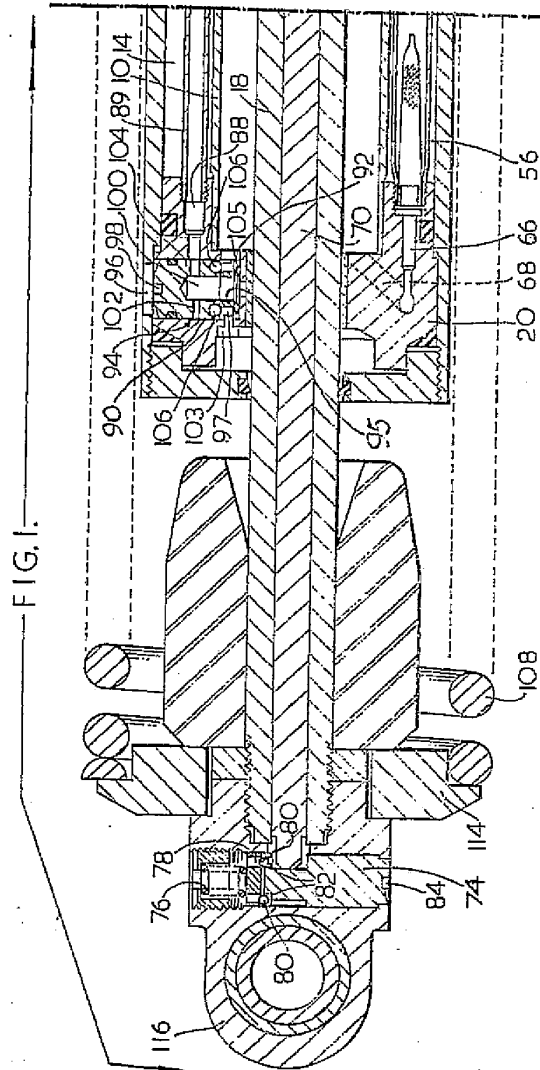
1415608

COMPLETE SPECIFICATION

B SHEETS

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the Original on a reduced scale

Sheet 1

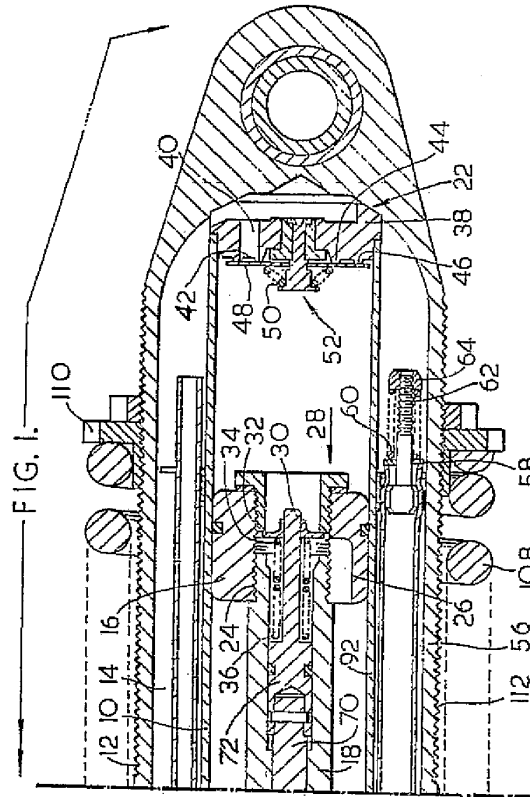


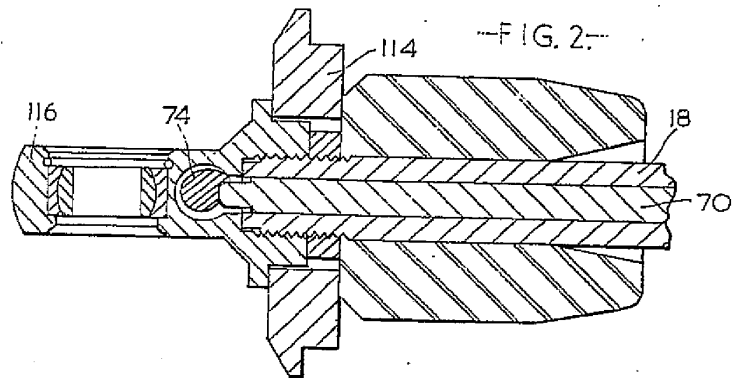
I415608

COMPLETE SPECIFICATION

3 SHEETS

This drawing is a reproduction of
the Original on a reduced scale
Sheet 2





Electronic Acknowledgement Receipt

EFS ID:	1042136
Application Number:	10904340
Confirmation Number:	1340
Title of Invention:	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM
First Named Inventor:	Brian Jordan
Customer Number:	23470
Filer:	Lisa J Wunderlich
Filer Authorized By:	
Attorney Docket Number:	RS152
Receipt Date:	09-MAY-2006
Filing Date:	04-NOV-2004
Time Stamp:	09:50:39
Application Type:	Utility
International Application Number:	

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part	Pages
1	Information Disclosure Statement (IDS) Filed	US_IDS_Form__SB_08a.pdf	1409530	no	4

Warnings:					
Information:					
2	Foreign Reference	GB1415608.pdf	353039	no	8
Warnings:					
Information:					
Total Files Size (in bytes):			1762569		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.					



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/904,340	11/04/2004	Brian Jordan	RS152	1340
23470	7590	04/25/2006	EXAMINER	
SRAM CORPORATION 1333 N. KINGSBURY, 4TH FLOOR CHICAGO, IL 60622			FRISTOE JR, JOHN K	
			ART UNIT	PAPER NUMBER
			3751	

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/904,340		Applicant(s) JORDAN ET AL.	
	Examiner John K. Fristoe Jr.		Art Unit 3751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 05 April 2006.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1 and 2 is/are rejected.

7) ☒ Claim(s) 3-14 is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 05 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____

4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date: _____

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/5/2006 have been fully considered but they are not persuasive. Applicants' argue that Wicker does not disclose a valve that allows a user to adjust damping characteristics, the examiner disagrees. Wicker discloses a valve mechanism that is capable of adjusting damping characteristics if the fluid passing through the valve based on the position of the valve and how much fluid is allowed to pass through the valve. Since the examiner is maintaining the rejection from the previous Office action the instant Office action has been made final.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 4,488,704 (Wicker). Wicker discloses an actuator for a valve assembly comprising a valve actuating assembly (32, 14), a valve mechanism (20), wherein the valve actuating assembly moves the valve mechanism (20) between multiple positions, an adjuster assembly (28B, 28) for adjusting the characteristics of the valve mechanism independent of the valve actuating assembly, a driver (14), and a selector (32).

Regarding the suspension settings recited within claims 1 and 2, the examiner considers the valve mechanism of Wicker to be inherently capable of being used within a suspension system.

Allowable Subject Matter

4. Claims 3-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

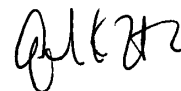
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Fristoe Jr. whose telephone number is (571) 272-4926. The examiner can normally be reached on Monday-Friday, 7: 00 a.m-4: 30 p.m.

Application/Control Number: 10/904,340
Art Unit: 3751

Page 4

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine R. Yu can be reached on (571) 272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John K. Fristoe Jr.
Examiner
Art Unit 3751

JKF



EDWARD K. LOOK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

4/22/06

Index of Claims 	Application/Control No.		Applicant(s)/Patent under Reexamination	
	10/904,340		JORDAN ET AL.	
	Examiner		Art Unit	
	John K. Fristoe Jr.		3751	

✓	Rejected	—	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	+	Restricted	I	Interference	O	Objected

Claim		Date						
Final	Original	4/18/06						
	1	✓						
	2	✓						
	3	○						
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Bib Data Sheet

CONFIRMATION NO. 1340

SERIAL NUMBER 10/904,340	FILING DATE 11/04/2004 RULE	CLASS 251	GROUP ART UNIT 3751	ATTORNEY DOCKET NO. RS152
-----------------------------	---------------------------------------	--------------	------------------------	------------------------------

APPLICANTS

Brian Jordan, Chicago, IL;
 Kevin Wesling, Lombard, IL;
 Christopher Shipman, Chicago, IL; Eric Swaidner, Colorado Springs, CO;
 John Cheever, Chicago, IL;

** CONTINUING DATA *****
 none JKF

** FOREIGN APPLICATIONS *****
 none JKF

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
 ** 12/08/2004

Foreign Priority claimed ☐ yes ☒ no 35 USC 119 (a-d) conditions met ☒ yes ☐ no ☐ Met after Allowance Verified and Acknowledged Examiner's Signature: <i>[Signature]</i> Initials: JKF	STATE OR COUNTRY IL	SHEETS DRAWING 8	TOTAL CLAIMS 14	INDEPENDENT CLAIMS 1
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ADDRESS
 23470
 SRAM CORPORATION
 1333 N. KINGSBURY, 4TH FLOOR
 CHICAGO, IL
 60622

TITLE
 ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM

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10/904,340

Examiner

John K. Fristoe Jr.

JORDAN ET AL.

Art Unit

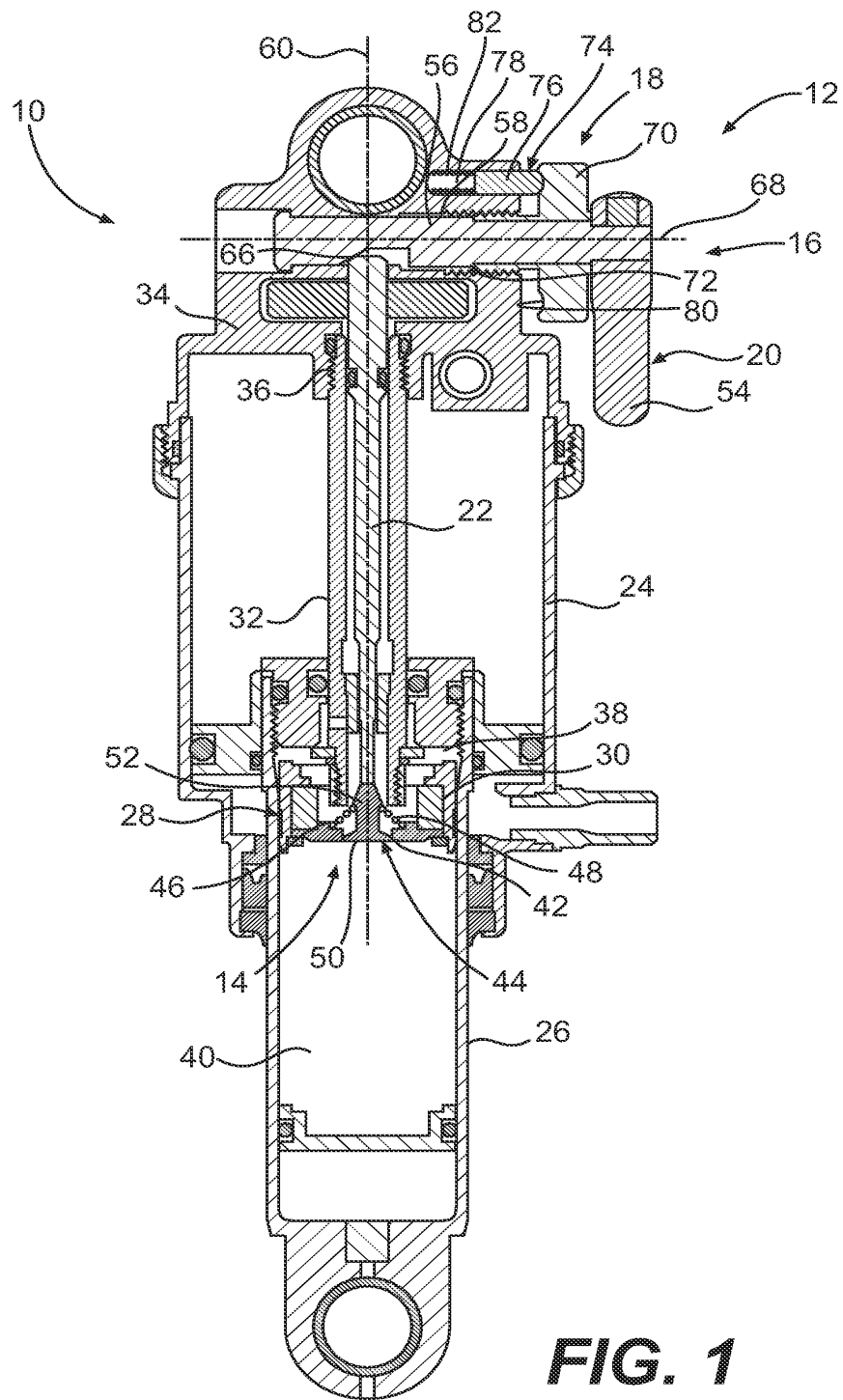
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[illegible]

Class	Subclass	Date	Examiner

[illegible]

~~12/18/06~~ JK = 4/18/06



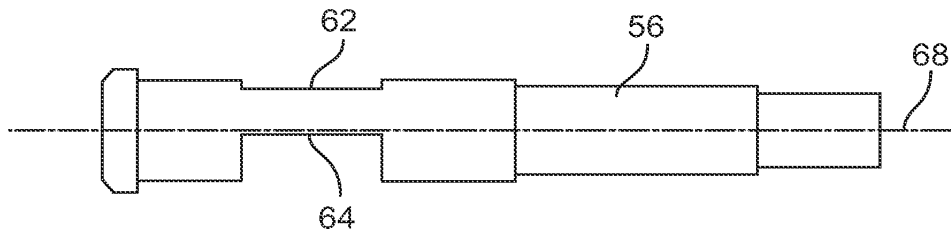


FIG. 2

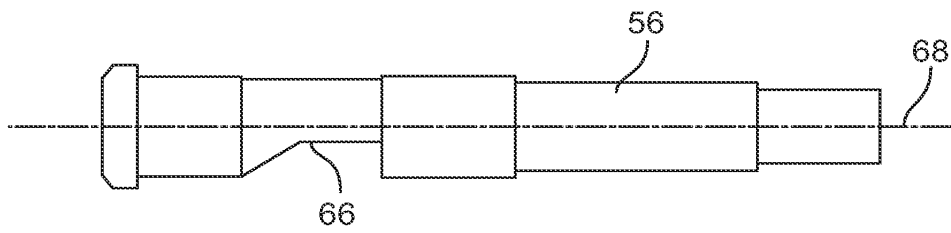


FIG. 3

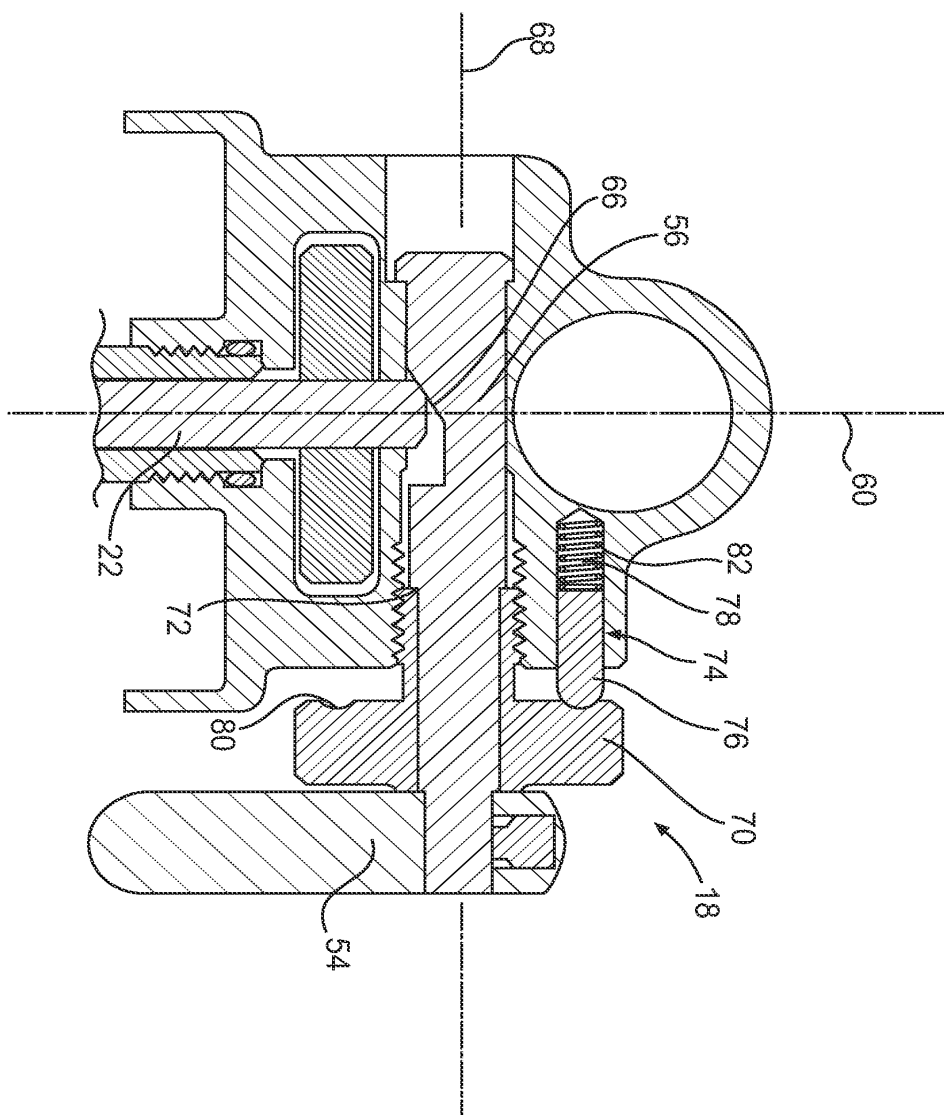


FIG. 4a



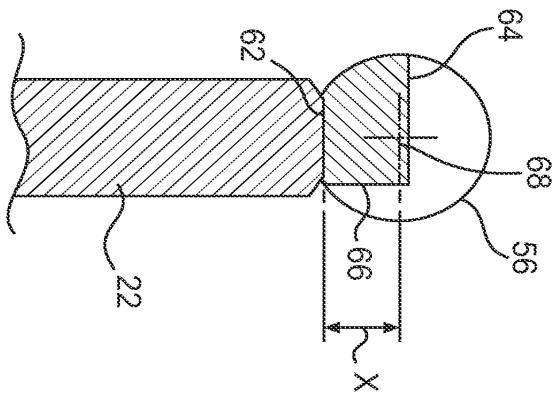


FIG. 5a

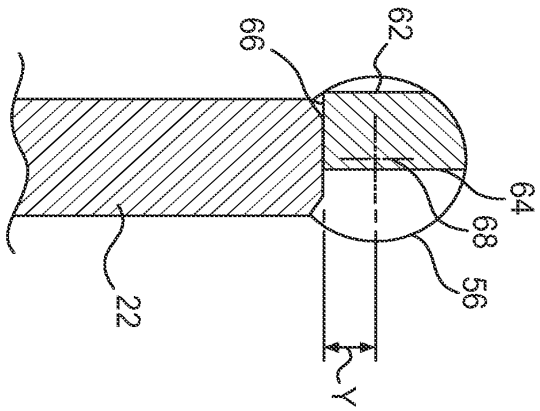


FIG. 5b

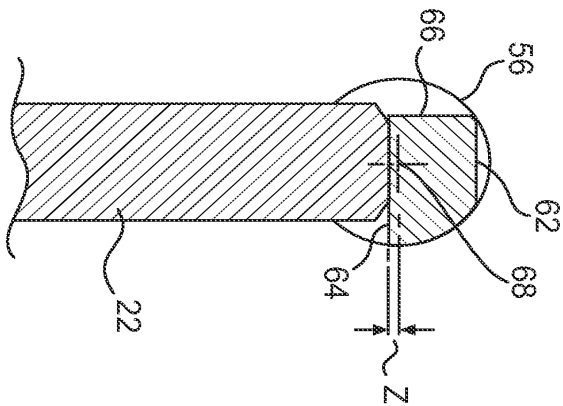


FIG. 5c

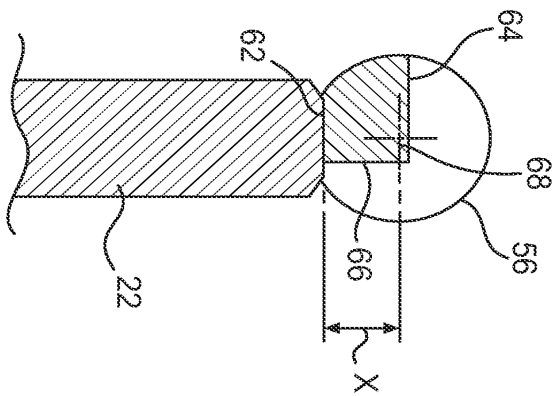


FIG. 6a

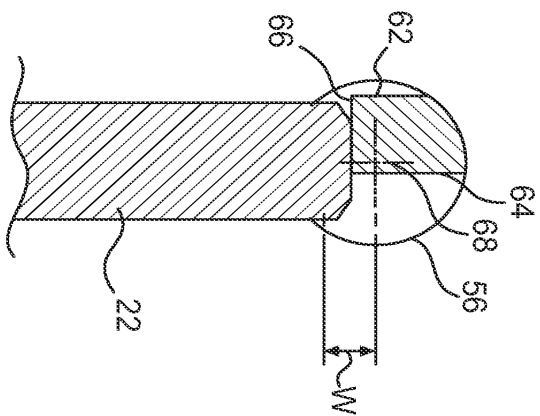


FIG. 6b

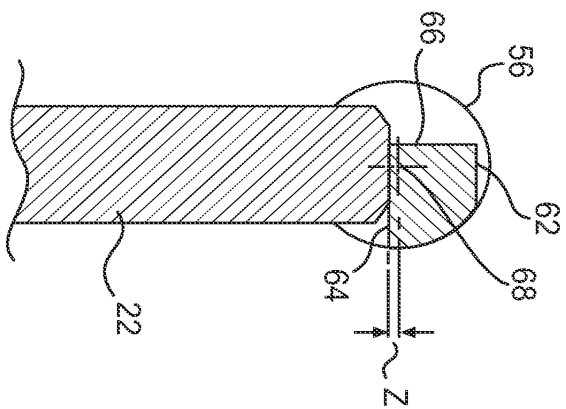


FIG. 6c

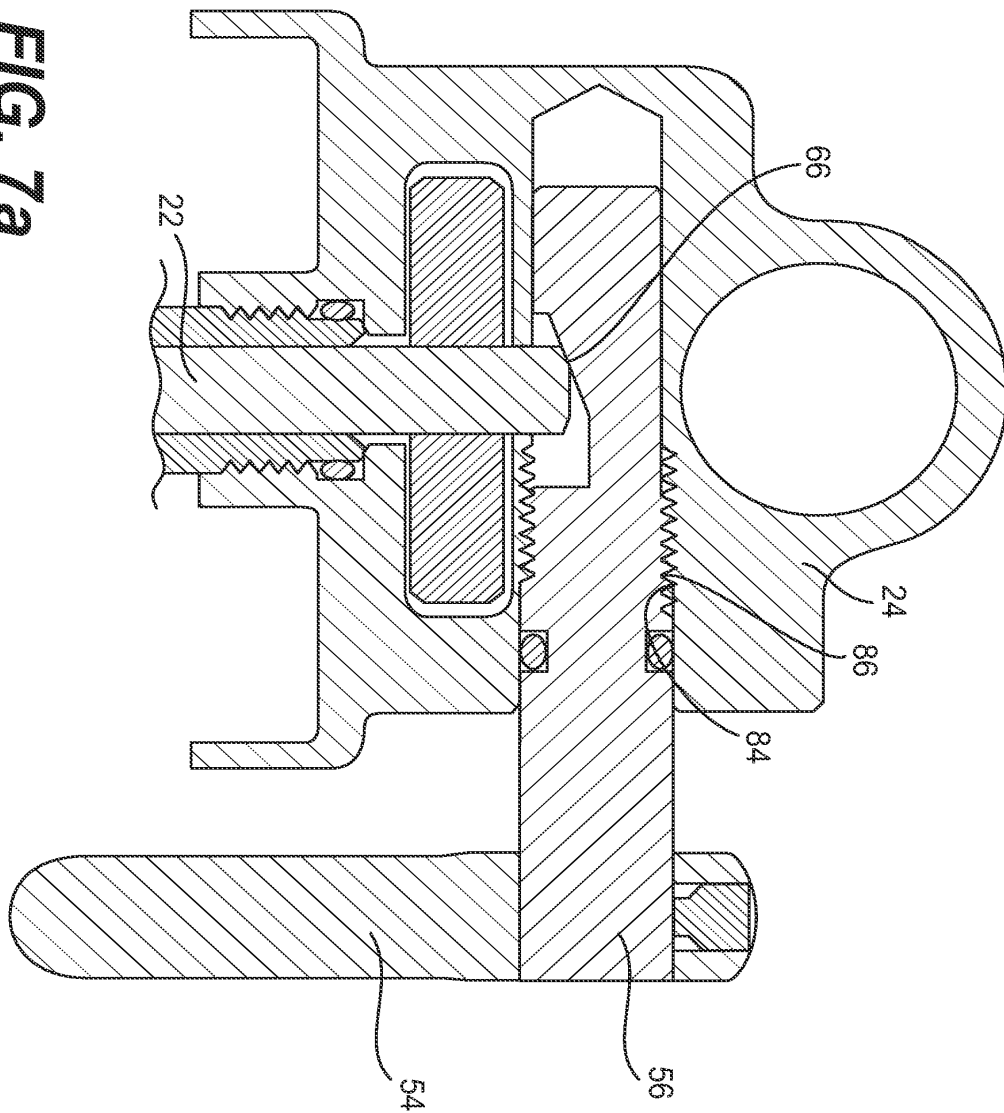


FIG. 7a

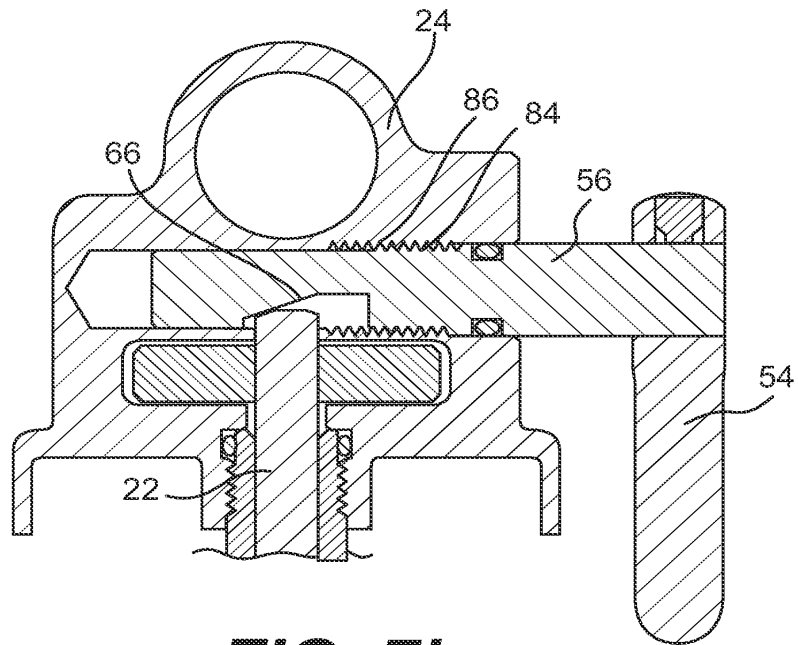


FIG. 7b

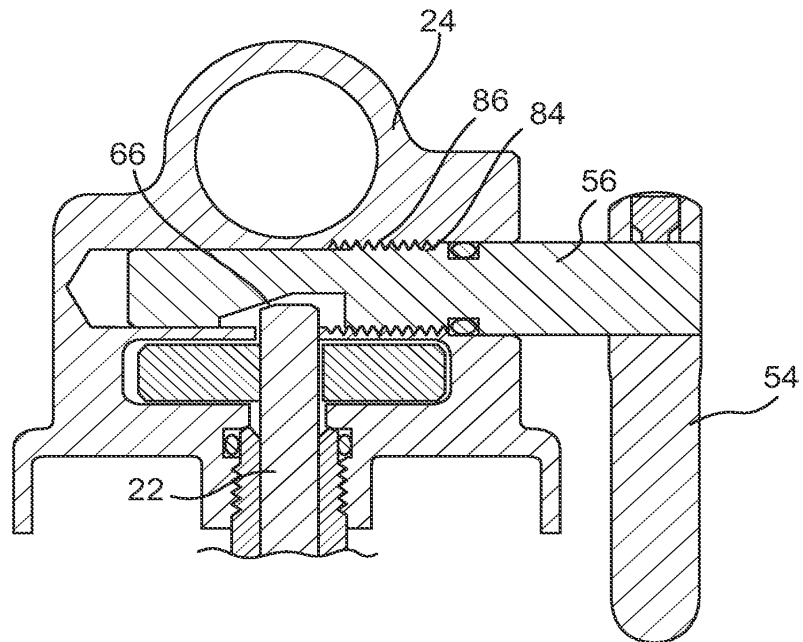


FIG. 7c

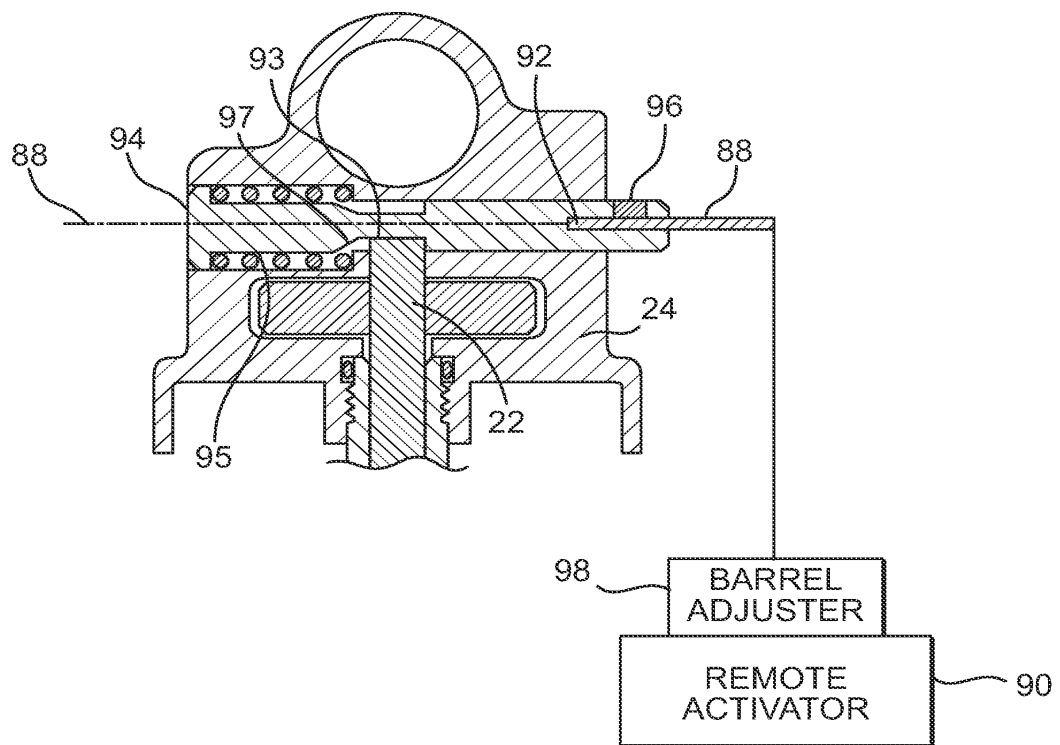


FIG. 8a

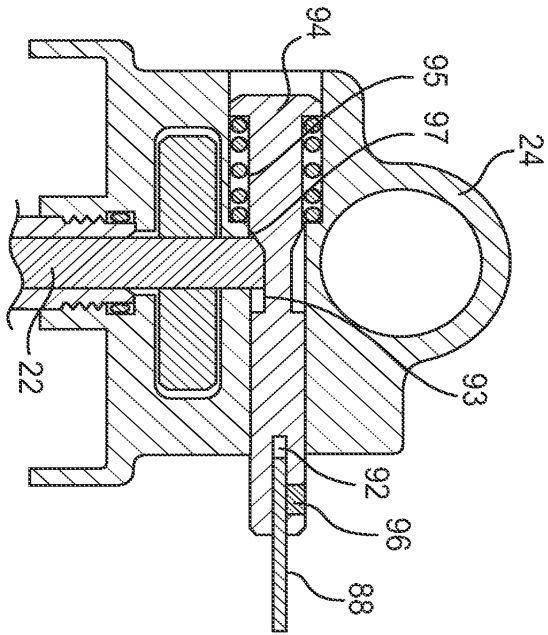


FIG. 8b

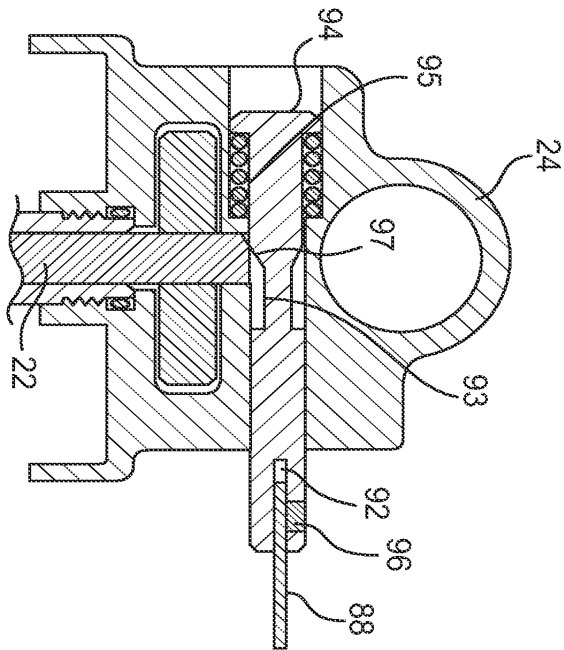


FIG. 8c

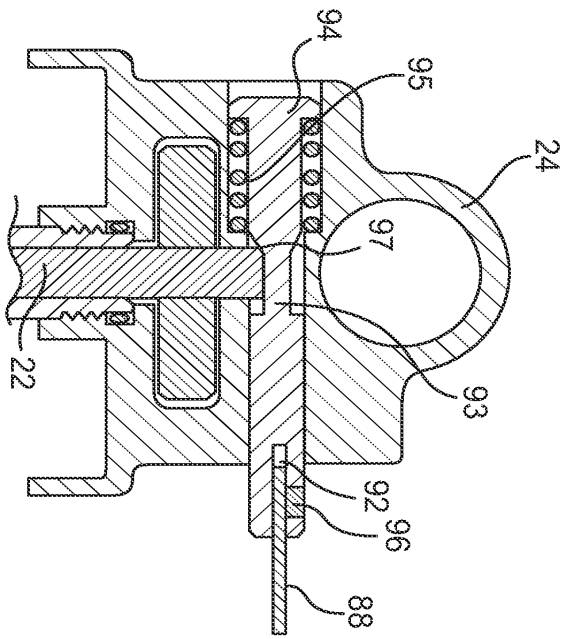


FIG. 9a

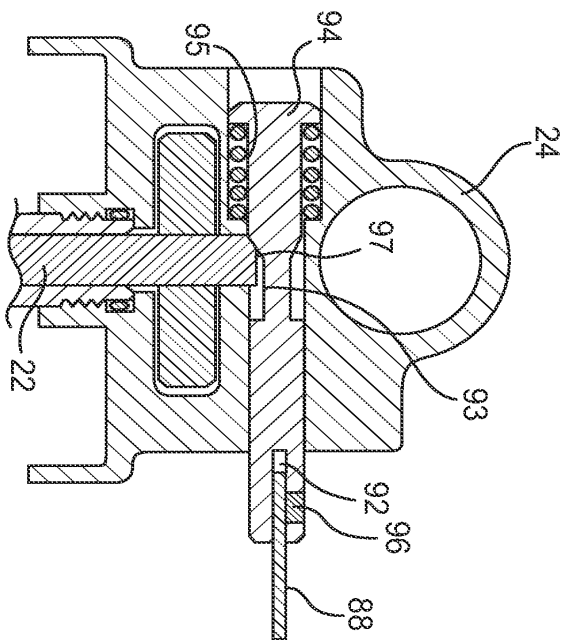


FIG. 9b

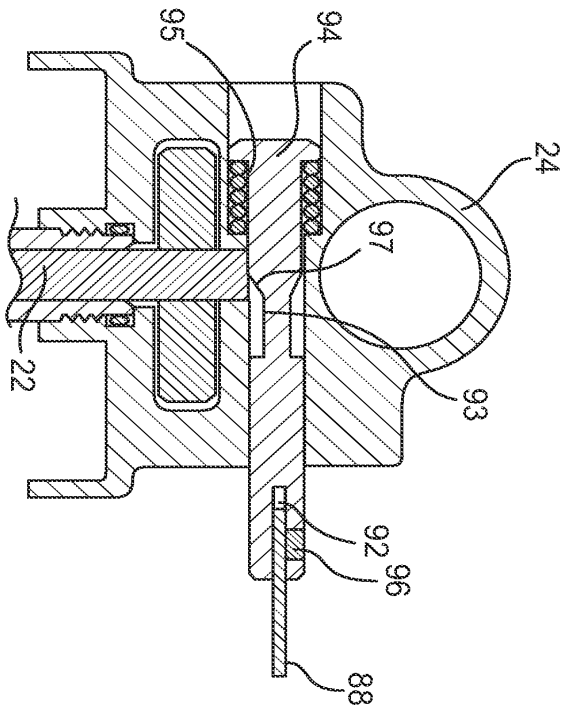


FIG. 9c

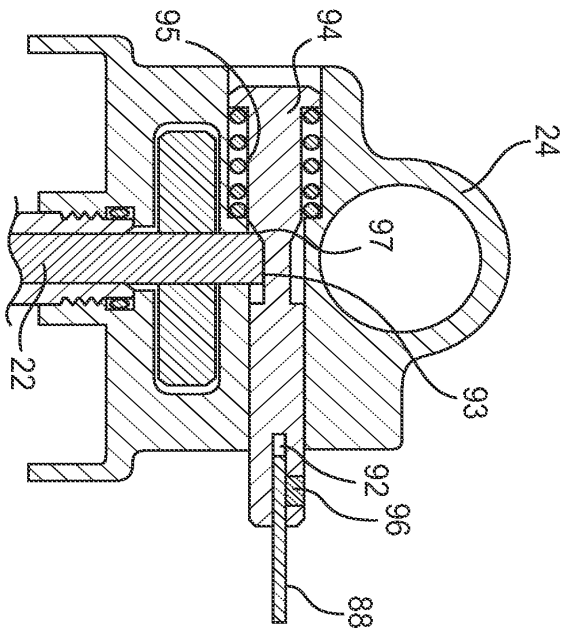


FIG. 10a

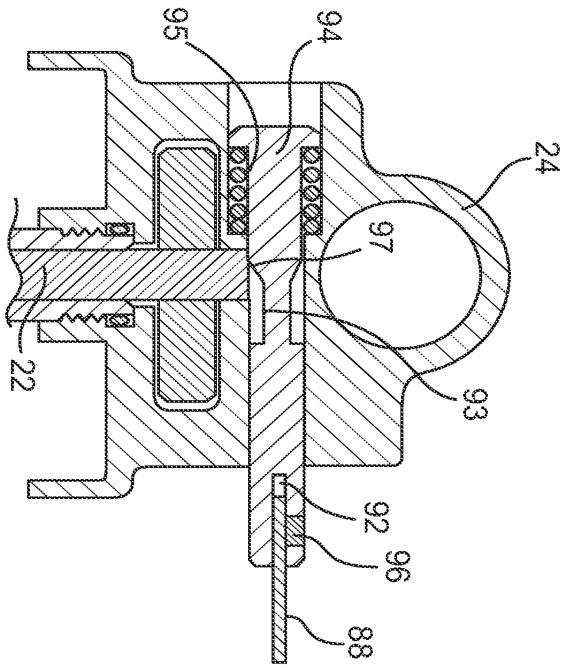


FIG. 10b

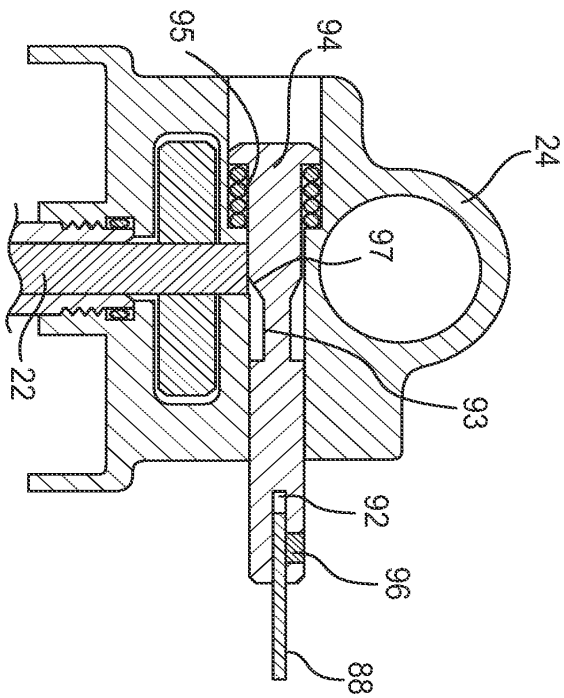


FIG. 10c

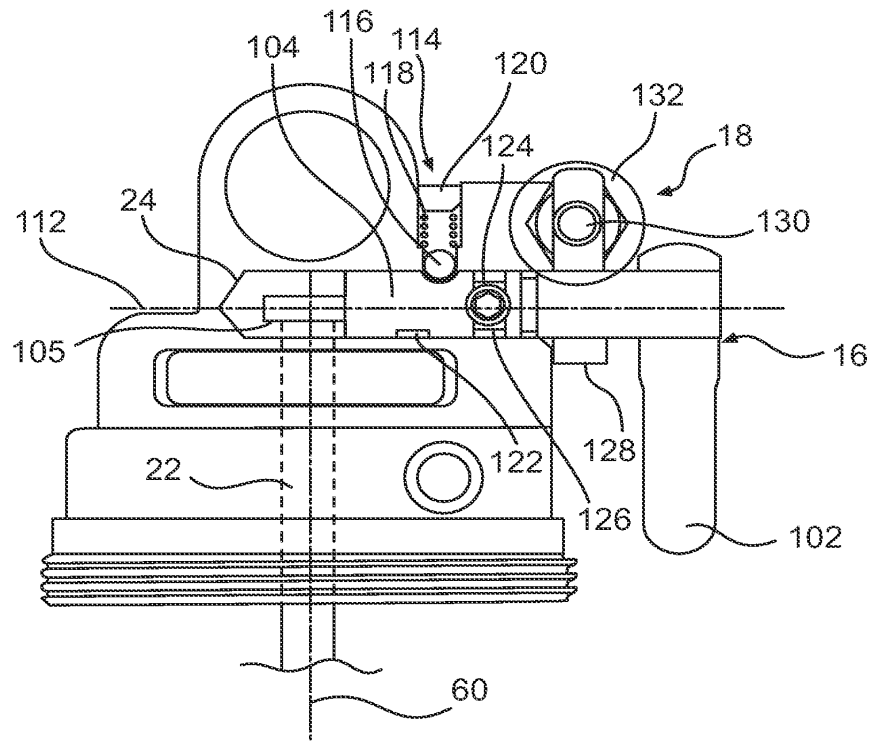


FIG. 11a

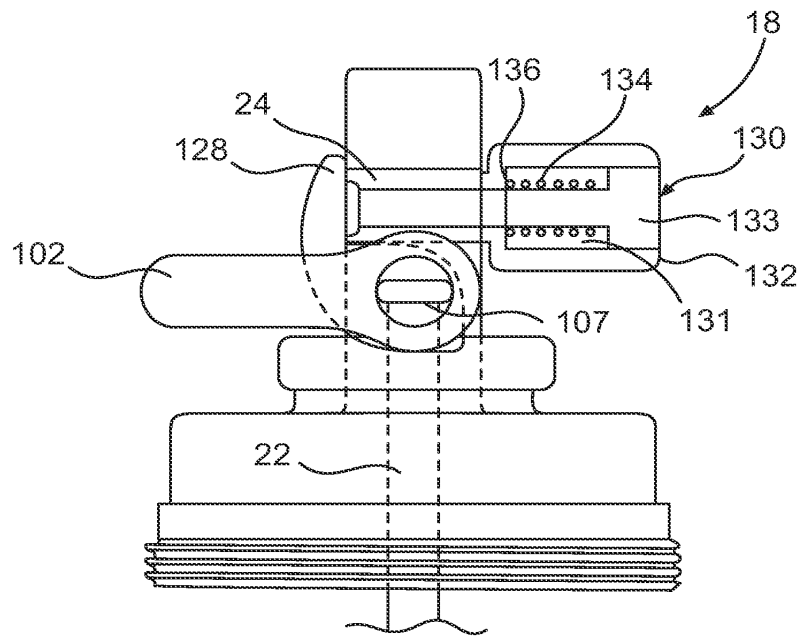


FIG. 11b

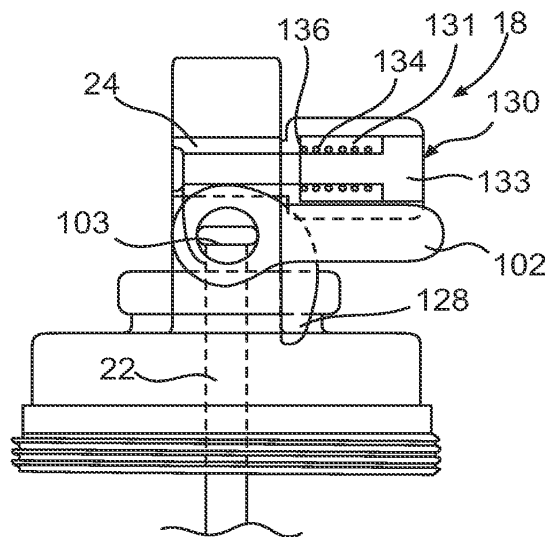


FIG. 11c

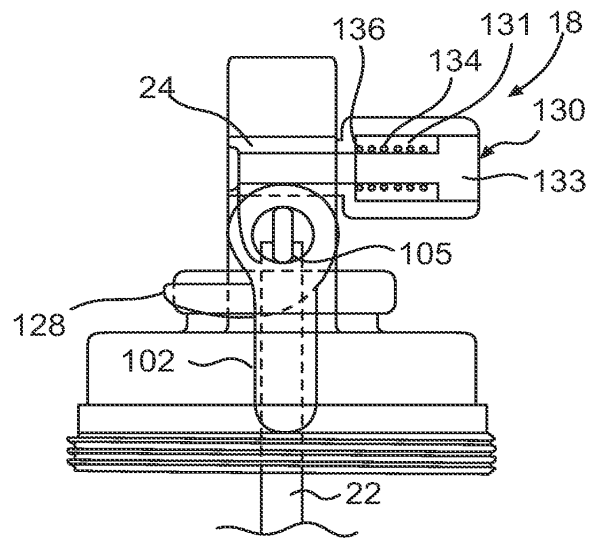


FIG. 11d

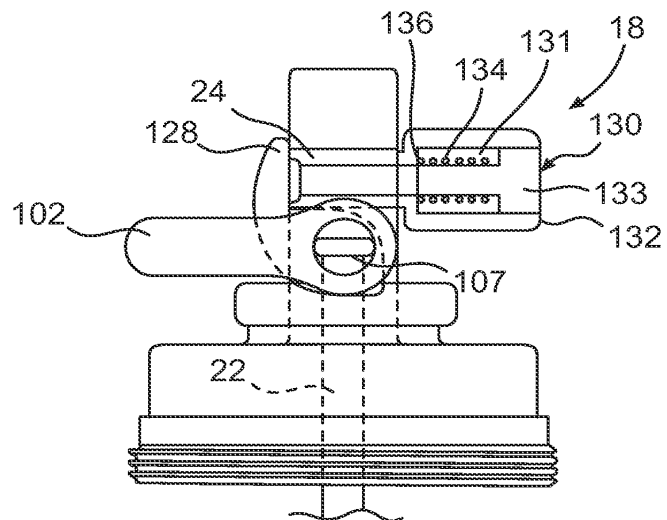


FIG. 11e

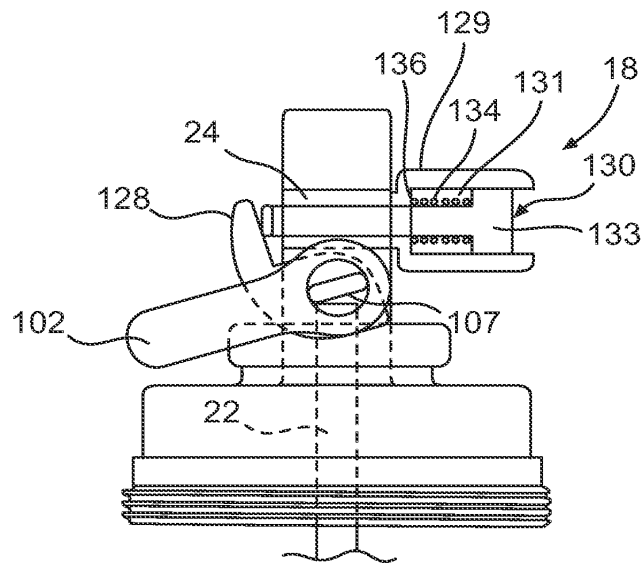


FIG. 11f

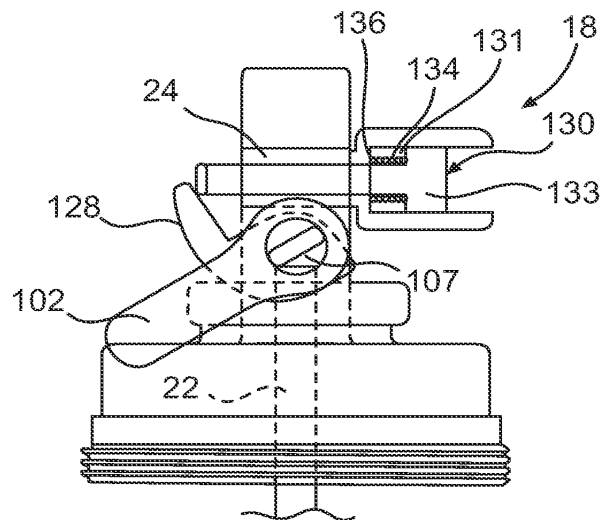


FIG. 11g

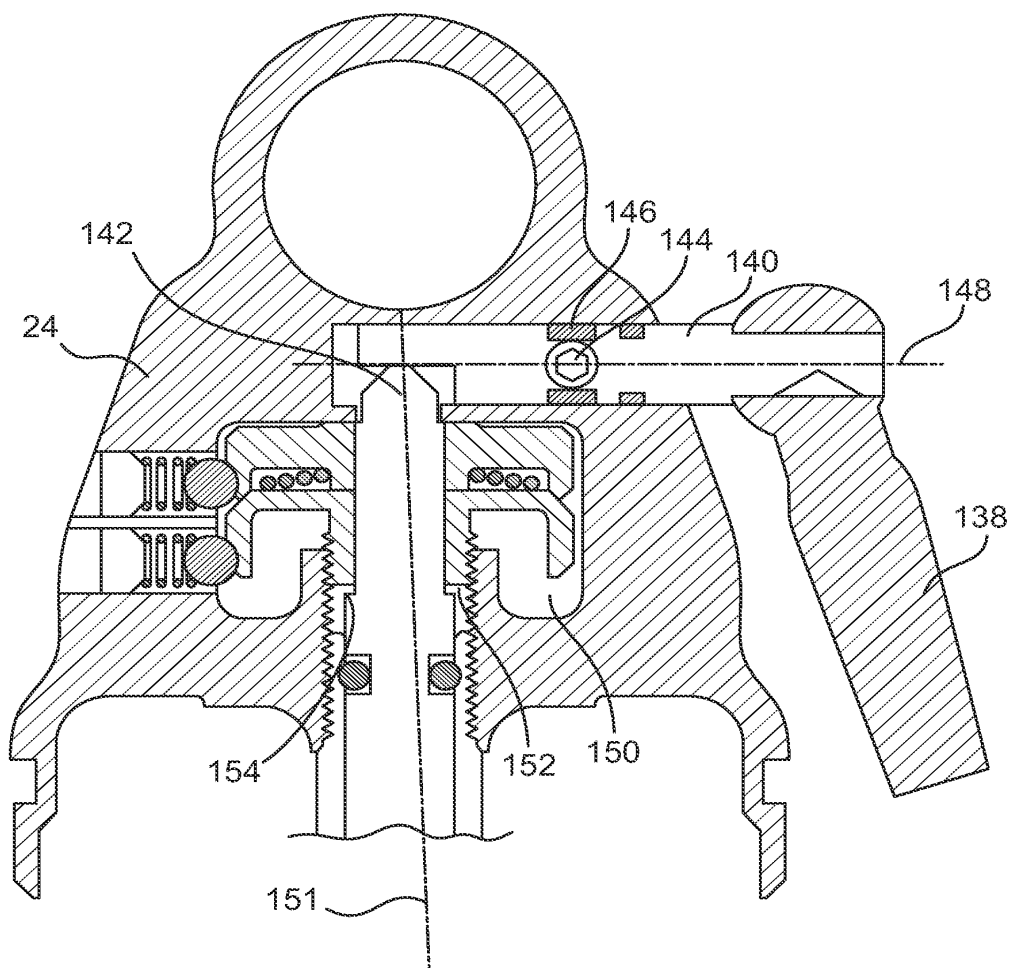


FIG. 12

Electronic Acknowledgement Receipt

EFS ID:	1017555
Application Number:	10904340
Confirmation Number:	1340
Title of Invention:	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM
First Named Inventor:	Brian Jordan
Customer Number:	23470
Filer:	Lisa J Wunderlich
Filer Authorized By:	
Attorney Docket Number:	RS152
Receipt Date:	05-APR-2006
Filing Date:	04-NOV-2004
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Application Type:	Utility
International Application Number:	

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part	Pages
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Warnings:					
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2	New or Additional Drawings	10904340formaldrawings.pdf	410075	no	18
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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/904,340	
	Filing Date	November 4, 2004	
	First Named Inventor	Brian Jordan	
	Art Unit	3751	
	Examiner Name	John K. Fristoe Jr.	
Total Number of Pages in This Submission	19	Attorney Docket Number	RS152

ENCLOSURES (Check all that apply)		
☐ Fee Transmittal Form ☐ Fee Attached ☐ Amendment/Reply ☐ After Final ☐ Affidavits/declaration(s) ☐ Extension of Time Request ☐ Express Abandonment Request ☐ Information Disclosure Statement ☐ Certified Copy of Priority Document(s) ☐ Reply to Missing Parts/ Incomplete Application ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53	☒ Drawing(s) ☐ Licensing-related Papers ☐ Petition ☐ Petition to Convert to a Provisional Application ☐ Power of Attorney, Revocation Change of Correspondence Address ☐ Terminal Disclaimer ☐ Request for Refund ☐ CD, Number of CD(s) _____ ☐ Landscape Table on CD	☐ After Allowance Communication to TC ☐ Appeal Communication to Board of Appeals and Interferences ☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) ☐ Proprietary Information ☐ Status Letter ☐ Other Enclosure(s) (please identify below):
Remarks Applicant submits herewith eighteen (18) sheets of formal drawings.		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	SRAM Corporation		
Signature			
Printed name	Lisa Wunderlich		
Date	April 5, 2006	Reg. No.	40,307

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sram.com

Fax

To:	John K. Fristoe Jr.	From:	Lisa Wunderlich
Fax:	571-273-8300	Pages:	3 (including cover)
Phone:		Date:	4/5/2006
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● Comments:

In re application of:

JORDAN et al.

Serial No. 10/904,340

Filed: November 4, 2004

For: Actuator Apparatus for Controlling a Valve Mechanism of a Suspension System

Group Art Unit 3751

Examiner: John K. Fristoe Jr.

Attached herewith is a reply.

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PATENT

Attorney Docket No. RS152

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

JORDAN et al.

Serial No. 10/904,340

Filed: November 4, 2004

For: Actuator Apparatus for Controlling a Valve
Mechanism of a Suspension System

Group Art Unit 3751

Examiner: John K. Fristoe Jr.

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REPLY

Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the office action dated January 5, 2006, please reconsider the
above-identified application in view of the following remarks:

REMARKS

Claims 1 and 2 were rejected under 35 U.S.C. 102(b) as being anticipated by
Wicker (US 4,488,704). Applicants respectfully disagree with Examiner's interpretation of
the language of Claim 1. Claim 1 does not call for "an adjuster assembly for adjusting the
characteristics of the valve mechanism independent of the valve actuating assembly" but
rather "an adjuster assembly ... for adjusting the damping characteristics corresponding to at
least *one of the positions* of the valve actuating assembly *independently of* the damping
characteristics corresponding to *another position* of the valve actuating assembly."

Page 1 of 2

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2006/APR/05/WED 09:34 AM SRAM CORPORATION

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P. 003

U.S. Serial No. 10/904,340

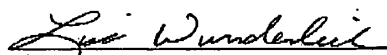
(emphasis added) In other words, the independence is between the damping characteristics corresponding to two positions of the valve actuating assembly, not simply the availability of alternative coarse or fine adjustments of the valve mechanism as in Wicker. In fact, in Wicker, there is never independence between the damping characteristics corresponding to two positions of the valve actuating assembly 32, 14 through operation of the actuator nut 28. On the contrary, in the present invention, for example, the damping characteristic corresponding to positions 62 and 64 are not affected by adjustment of the adjuster assembly. Therefore, the rejection of claim 1 should be withdrawn.

Claim 2 was rejected as claim 1 under 35 U.S.C. 102(b). Since claim 2 depends directly from and contain all the limitations of claim 1, it is felt to overcome the rejection in the same manner as claim 1.

This reply is believed to be fully responsive to the comments and suggestions of the Examiner and places this application in condition for allowance. Favorable action is requested.

Respectfully submitted,

JORDAN et al.



Lisa Wunderlich, Attorney
Registration No. 40,307
SRAM Corporation
1333 N. Kingsbury, 4th Floor
Chicago, IL 60622
(312) 664-3652

Page 2 of 2

PAGE 3/3 * RCVD AT 4/5/2006 10:21:57 AM [Eastern Daylight Time] * SVR:USPTO-EFAXF-6/41 * DNIS:2738300 * CSID:3126648826 * DURATION (mm-ss):01-08



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/904,340	11/04/2004	Brian Jordan	RS152	1340
23470	7590	01/05/2006		
SRAM CORPORATION 1333 N. KINGSBURY, 4TH FLOOR CHICAGO, IL 60622			EXAMINER FRISTOE JR, JOHN K	
			ART UNIT	PAPER NUMBER
			3751	

DATE MAILED: 01/05/2006

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JP

Office Action Summary	Application No.	Applicant(s)	
	10/904,340	JORDAN ET AL.	
	Examiner	Art Unit	
	John K. Fristoe Jr.	3751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 04 November 2004.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1 and 2 is/are rejected.

7) ☒ Claim(s) 3-14 is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 04 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892) 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2/4/05</u> .	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ 5) ☐ Notice of Informal Patent Application (PTO-152) 6) ☐ Other: _____.
--	---

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 2/4/2005 is acknowledged by the examiner.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 4,488,704 (Wicker). Wicker discloses an actuator for a valve assembly comprising a valve actuating assembly (32, 14), a valve mechanism (20), wherein the valve actuating assembly moves the valve mechanism (20) between multiple positions, an adjuster assembly (28B, 28) for adjusting the characteristics of the valve mechanism independent of the valve actuating assembly, a driver (14), and a selector (32).

Regarding the suspension settings recited within claims 1 and 2, the examiner considers the valve mechanism of Wicker to be inherently capable of being used within a suspension system.

Allowable Subject Matter

4. Claims 3-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

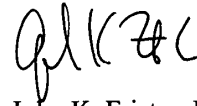
Art Unit: 3751

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Fristoe Jr. whose telephone number is (571) 272-4926.

The examiner can normally be reached on Monday-Friday, 7: 00 a.m-4: 30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine R. Yu can be reached on (571) 272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John K. Fristoe Jr.
Examiner
Art Unit 3751

JKF



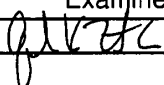
EDWARD K. LOOK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

1/4/05

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

Stylesheet Version v18.0

Title of Invention	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM						
Application Number :		10/904340					
Confirmation Number:		1340					
First Named Applicant:		Brian Jordan					
Attorney Docket Number:		RS152					
Art Unit:		3754					
Examiner:							
Search string:		(6360857 or 6279703 or 4305483 or 2745517),pn					
US Patent Documents							
Note: Applicant is not required to submit a paper copy of cited US Patent Documents							
init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
JKF	1	6360857	2002-03-26	Fox			
JKF	2	6279703	2001-08-28	Mete			
JKF	3	4305483	1981-12-15	Cowan			
JKF	4	2745517	1953-04-20	Zook			
Signature							
Examiner Name				Date			
				12/30/05			

Notice of References Cited	Application/Control No. 10/904,340	Applicant(s)/Patent Under Reexamination JORDAN ET AL.	
	Examiner John K. Fristoe Jr.	Art Unit 3751	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,488,704	12-1984	Wicker, Gordon R.	251/265
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims 	Application/Control No.		Applicant(s)/Patent under Reexamination	
	10/904,340		JORDAN ET AL.	
	Examiner		Art Unit	
	John K. Fristoe Jr.		3751	

√	Rejected	-	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	+	Restricted	I	Interference	O	Objected

Claim		Date						
Final	Original	12/30/05						
	1	√						
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Search Notes

Application/Control No.

10/904,340

Examiner

John K. Fristoe Jr.

Applicant(s)/Patent under
Reexamination

JORDAN ET AL.

Art Unit

3751

SEARCHED

Class	Subclass	Date	Examiner
251	251 262 263	12/30/2005	JKF
267	64.15	12/30/2005	JKF
267	64.18	12/30/2005	JKF
267	293	12/30/2005	JKF
188	321.11	12/30/2005	JKF
188	322.15	12/30/2005	JKF
188	322.22	12/30/2005	JKF

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
Inventor Name Search	12/30/2005	JKF
Receieved Search from Examiner Rodriguez in class 188 and 267	12/30/2005	JKF

12/30/05 JKF



Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.
Additionally, enter the **first few letters** of the Inventor's First name.

Last Name**First Name**

Jordan

Brian

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Day : Thursday
Date: 12/15/2005
Time: 13:20:59

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Enter the **first few letters** of the Inventor's Last Name.
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Wesling

Kevin

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Date: 12/15/2005
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Shipman	Christopher	Search

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Swaidner

Eric

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Additionally, enter the **first few letters** of the Inventor's First name.

Last Name**First Name**

Cheever

John

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Lfw
PATENT

Attorney Docket No. RS152

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

JORDAN et al.

Serial No. 10/904,340

Filed: November 4, 2004

For: Actuator Apparatus For Controlling A Valve
Mechanism Of A Suspension System

Group Art Unit 3754

I hereby certify that this correspondence is being deposited with the United States Postal Service as U.S. First Class Mail in an envelope addressed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on

February 8, 2005

Date

Lisa Wunderlich

Typed Name

Lisa Wunderlich
Signature

PETITION TO CORRECT FILING RECEIPT

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

We request that a corrected filing receipt be generated in conformity with the attached Inventors Declaration recently filed with this application. Specifically, please amend the filing receipt to reflect the correct spelling of the first name of the last named inventor: John Cheever.

Respectfully submitted,

JORDAN et al.

Lisa Wunderlich

Lisa J. Wunderlich, Attorney
Registration No. 40,307
SRAM Corporation
1333 N. Kingsbury, 4th Floor
Chicago, IL 60622
(312) 664-8800 ext. 1393



Docket No.: RS152US

DECLARATION/POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; that I believe I am the original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention or design ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM, the specification of which:

is attached hereto; or
X was filed in the United States on November 4, 2004, Serial No. 10/904,340; or
was filed as International Application Serial Number _____ on
_____, which application designated the United States of America; or
was the subject of an amendment filed in the U.S. Patent and Trademark
Office on _____

that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above; and that I know the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. §1.56(a).

I hereby claim foreign priority benefits under 35 U.S.C. §119 or §365(b) of any foreign application(s) for patent or inventor's certificate designated below, or under §365(a) of any application filed under the Patent Cooperation Treaty which designated at least one country other than the United States of America, and have also identified below any foreign application(s) for patent or inventor's certificate having a filing date before that of the application to which priority is claimed:

<u>Application Number</u>	<u>Country</u>	<u>Date Filed</u>	<u>Priority Claimed</u>	<u>Certified Copy Attached</u>
---------------------------	----------------	-------------------	-------------------------	--------------------------------

I hereby claim the benefit under 35 U.S.C. §120 of any United States application(s) listed below or under 35 U.S.C. §365(c) of any PCT International application designating the United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application(s) in the manner provided by the first paragraph of 35 U.S.C., I acknowledge the duty to disclose material information as defined in 37 C.F.R. §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

<u>Application Serial Number</u>	<u>Date Filed</u>	<u>Status</u>
----------------------------------	-------------------	---------------

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

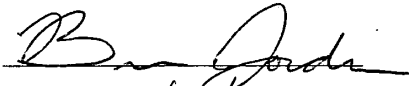
Milan Milosevic, Reg. No. 42,005 and Lisa J. Wunderlich, Reg. No. 40,307

Address all correspondence and telephone calls to:

Lisa Wunderlich
SRAM Corporation
1333 N. Kingsbury, 4th Floor
Chicago, Illinois 60622
(312) 664-8800 ext. 1393

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such false statements may jeopardize the validity of the application or any patent issuing thereon.

Full Name of First Joint Inventor: BRIAN JORDAN

Inventor's Signature: 

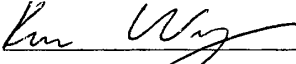
Date: 1/5/05

Residence: Chicago, Illinois

Citizenship: United States

Post Office Address: 4047 N. Damen
Chicago, Illinois 60618

Full Name of Second Joint Inventor: KEVIN WESLING

Inventor's Signature: 

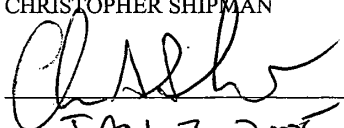
Date: Jan 7, 2005

Residence: Lombard, Illinois

Citizenship: United States

Post Office Address: 512 S. Craig Place
Lombard, Illinois 60148

Full Name of Third Joint Inventor: CHRISTOPHER SHIPMAN

Inventor's Signature: 

Date: JAN 7, 2005

Residence: Chicago, Illinois

Citizenship: United States

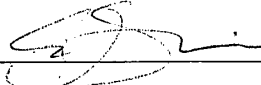
Post Office Address:

1519 W. Sunnyside Ave., #4
Chicago, Illinois 60640

Full Name of Fourth Joint Inventor:

ERIC SWAIDNER

Inventor's Signature:


1/10/05

Date:

Residence:

Colorado Springs, Colorado

Citizenship:

United States

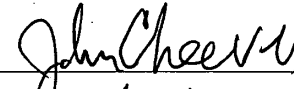
Post Office Address:

411 N. Wahsatch Ave.
Colorado Springs, Colorado 80903

Full Name of Fifth Joint Inventor:

JOHN CHEEVER

Inventor's Signature:


1/5/05

Date:

Residence:

Chicago, Illinois

Citizenship:

United States

Post Office Address:

2020 W. Churchill
Chicago, Illinois 60647

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

Stylesheet Version v18.0

Title of Invention	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM						
 Application Number : 10/904340 							
Confirmation Number: 1340							
First Named Applicant: Brian Jordan							
Attorney Docket Number: RS152							
Art Unit: 3754							
Examiner:							
Search string: (6360857 or 6279703 or 4305483 or 2745517).pn							
 US Patent Documents							
Note: Applicant is not required to submit a paper copy of cited US Patent Documents							
init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
	1	6360857	2002-03-26	Fox			
	2	6279703	2001-08-28	Mete			
	3	4305483	1981-12-15	Cowan			
	4	2745517	1953-04-20	Zook			
 Signature							
Examiner Name				Date			

TRANSMITTAL

Electronic Version v1.1

Stylesheet Version v1.1.0

Title of Invention	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM							
Application Number : 10/904340 Date : 2005-02-04 First Named Applicant: Mr. Jordan Brian Confirmation Number: 1340 Attorney Docket Number: RS152 								
I hereby certify that the use of this system is for OFFICIAL correspondence between patent applicants or their representatives and the USPTO. Fraudulent or other use besides the filing of official correspondence by authorized parties is strictly prohibited, and subject to a fine and/or imprisonment under applicable law. I, the undersigned, certify that I have viewed a display of document(s) being electronically submitted to the United States Patent and Trademark Office, using either the USPTO provided style sheet or software, and that this is the document(s) I intend for initiation or further prosecution of a patent application noted in the submission. This document(s) will become part of the official electronic record at the USPTO.								
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 45%; text-align: center;">Submitted By:</td><td style="width: 25%; text-align: center;">Elec. Sign.</td><td style="width: 30%; text-align: center;">Sign. Capacity</td></tr><tr><td>Ms. Lisa Wunderlich Registered Number: 40307</td><td style="text-align: center;">/Lisa Wunderlich/</td><td style="text-align: center;">Attorney</td></tr></table>			Submitted By:	Elec. Sign.	Sign. Capacity	Ms. Lisa Wunderlich Registered Number: 40307	/Lisa Wunderlich/	Attorney
Submitted By:	Elec. Sign.	Sign. Capacity						
Ms. Lisa Wunderlich Registered Number: 40307	/Lisa Wunderlich/	Attorney						

Documents being submitted:	Files
us-ids	RS152-usidst.xml us-ids.dtd us-ids.xsl
Comments	

ACKNOWLEDGEMENT RECEIPT

Electronic Version 1.1

Stylesheet Version v1.1.1

Title of Invention	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM																																		
Submission Type :	Information Disclosure Statement																																		
Application Number:	10/904340																																		
EFS ID:	77539																																		
Server Response:	<table border="1"><thead><tr><th>Confirmation Code</th><th>Message</th></tr></thead><tbody><tr><td>ISVR1</td><td>Submission was successfully submitted - Even if Informational or Warning Messages appear below, please do not resubmit this application</td></tr><tr><td>ICON1</td><td>1340</td></tr><tr><td>USPTOEFSNot</td><td>For assistance with e-filing a patent application, contact the Patent Electronic Business Center: Toll-Free Number:1 (866) 217-9197 Website: http://www.uspto.gov/ebc/</td></tr></tbody></table>			Confirmation Code	Message	ISVR1	Submission was successfully submitted - Even if Informational or Warning Messages appear below, please do not resubmit this application	ICON1	1340	USPTOEFSNot	For assistance with e-filing a patent application, contact the Patent Electronic Business Center: Toll-Free Number:1 (866) 217-9197 Website: http://www.uspto.gov/ebc/																								
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First Named Applicant:	Brian Jordan																																		
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Timestamp:	2005-02-04 17:33:16 EDT																																		
From:	us																																		
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Digital Certificate Holder Name:	cn=Lisa J Wunderlich,ou=Registered Attorneys,ou=Patent and Trademark Office,ou=Department of Commerce,o=U.S. Government,c=US																																		



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/904,340	11/04/2004	Brian Jordan	RS152

23470
SRAM CORPORATION
1333 N. KINGSBURY, 4TH FLOOR
CHICAGO, IL 60622

CONFIRMATION NO. 1340

FORMALITIES LETTER



OC000000014809012

Date Mailed: 12/23/2004



NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is missing.
A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(e) of \$130 for a non-small entity, must be submitted with the missing items identified in this letter.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is \$130 for a Large Entity

- \$130 Late oath or declaration Surcharge.

Replies should be mailed to: Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

01/19/2005 MAHNE1 00000035 10904340

01 FC:1051

130.00 OP

*A copy of this notice **MUST** be returned with the reply.*

2005/JAN/13/THU 03:32 PM SRAM CORPORATION

FAX No. 3126648826

P. 004

Page 2 of 2

A handwritten signature in black ink, appearing to be 'Dong', is written over a horizontal line.

Customer Service Center

Initial Patent Examination Division (703) 308-1202

PART 2 - COPY TO BE RETURNED WITH RESPONSE

PAGE 4/8 * RCVD AT 1/13/2005 4:27:19 PM [Eastern Standard Time] * SVR:USPTO-EFAX-2/0 * DNIS:7464060 * CSID:3126648826 * DURATION (mm-ss):02-12

**SRAM.**

SRAM Corporation

1333 North Kingsbury, 4th Floor
Chicago, IL 60622
U.S.A.tel +1 (312) 664 8800
fax +1 (312) 664 8826

sram.com

Fax

To: Office of Initial Patent Examination From: Lisa Wunderlich

Fax: 703-746-4060 Pages: 7 (including cover)

Phone: Date: 1/13/2005

Re: RS152 CC:

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

● Comments:

In re application of:

JORDAN et al.

Serial No. 10/904,340

Filed: November 4, 2004

For: Actuator Apparatus for Controlling a Valve Mechanism of a Suspension System

Group Art Unit 3754

Attached herewith are the following:

1. Response to Notice to File Missing Parts of Application;
2. Copy of Notice to File Missing Parts of Application;
3. Declaration/Power of Attorney; and
4. PTO-2038 Credit card form.

RECEIVED
JAN 18 2005
OIPE/JCWS



PATENT

Attorney Docket No. RS152
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

JORDAN et al.

Serial No. 10/904,340

Filed: November 4, 2004

For: Actuator Apparatus for Controlling a Valve
Mechanism of a Suspension System

Group Art Unit 3754

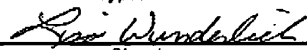
I hereby certify that this correspondence is being
facsimile transmitted to the United States Patent
and Trademark Office (Fax No. (703) 746-4060),
on

January 13, 2005

Date

Lisa Wunderlich

Typed Name


Signature

RESPONSE TO NOTICE TO FILE MISSING PARTS OF APPLICATION

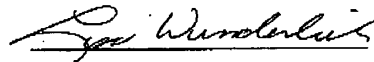
Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Notice to File Missing Parts of Application mailed on
December 23, 2004, the following is enclosed:

- 1) A signed declaration/power of attorney;
- 2) A copy of the Notice to File Missing Parts of Application; and
- 3) A Credit Card Payment Form (Form PTO-2038) for the amount of \$130
for the surcharge fee pursuant to 37 C.F.R. 1.16(e).

Respectfully submitted,
JORDAN et al.



Lisa Wunderlich, Attorney
Registration No. 40,307
SRAM Corporation
1333 N. Kingsbury, 4th Floor
Chicago, IL 60622
(312)664-8800 ext. 1393



Docket No.: RS152US

DECLARATION/POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; that I believe I am the original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention or design ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM, the specification of which:

is attached hereto; or
 X was filed in the United States on November 4, 2004, Serial No. 10/904,340; or
 was filed as International Application Serial Number _____ on
 _____, which application designated the United States of America; or
 was the subject of an amendment filed in the U.S. Patent and Trademark
 Office on _____

that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above; and that I know the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. §1.56(a).

I hereby claim foreign priority benefits under 35 U.S.C. §119 or §365(b) of any foreign application(s) for patent or inventor's certificate designated below, or under §365(a) of any application filed under the Patent Cooperation Treaty which designated at least one country other than the United States of America, and have also identified below any foreign application(s) for patent or inventor's certificate having a filing date before that of the application to which priority is claimed:

<u>Application Number</u>	<u>Country</u>	<u>Date Filed</u>	<u>Priority Claimed</u>	<u>Certified Copy Attached</u>
---------------------------	----------------	-------------------	-------------------------	--------------------------------

I hereby claim the benefit under 35 U.S.C. §120 of any United States application(s) listed below or under 35 U.S.C. §365(c) of any PCT International application designating the United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application(s) in the manner provided by the first paragraph of 35 U.S.C., I acknowledge the duty to disclose material information as defined in 37 C.F.R. §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

<u>Application Serial Number</u>	<u>Date Filed</u>	<u>Status</u>
----------------------------------	-------------------	---------------

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Milan Milosevic, Reg. No. 42,005 and Lisa J. Wunderlich, Reg. No. 40,307

Address all correspondence and telephone calls to:

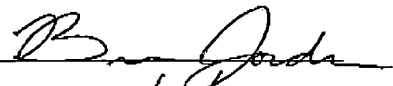
Page 1 of 3

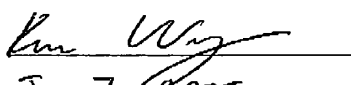
PAGE 5/8 * RCVD AT 1/13/2005 4:27:19 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-2/0 * DNIS:7464060 * CSID:3126648826 * DURATION (mm:ss):02:12

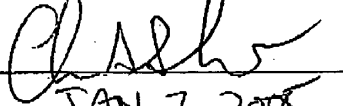


Lisa Wunderlich
SRAM Corporation
1333 N. Kingsbury, 4th Floor
Chicago, Illinois 60622
(312) 664-8800 ext. 1393

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such false statements may jeopardize the validity of the application or any patent issuing thereon.

Full Name of First Joint Inventor: BRIAN JORDAN
Inventor's Signature: 
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Residence: Chicago, Illinois
Citizenship: United States
Post Office Address: 4047 N. Damen
Chicago, Illinois 60618

Full Name of Second Joint Inventor: KEVIN WESLING
Inventor's Signature: 
Date: Jan 7, 2005
Residence: Lombard, Illinois
Citizenship: United States
Post Office Address: 512 S. Craig Place
Lombard, Illinois 60148

Full Name of Third Joint Inventor: CHRISTOPHER SHIPMAN
Inventor's Signature: 
Date: JAN 7, 2005
Residence: Chicago, Illinois
Citizenship: United States



Post Office Address:

1519 W. Sunnyside Ave., #4
Chicago, Illinois 60640

Full Name of Fourth Joint Inventor:

ERIC SWAIDNER

Inventor's Signature:


1/12/05

Date:

Residence:

Colorado Springs, Colorado

Citizenship:

United States

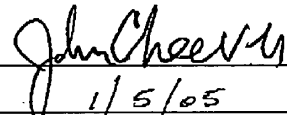
Post Office Address:

411 N. Wahsatch Ave.
Colorado Springs, Colorado 80903

Full Name of Fifth Joint Inventor:

JOHN CHEEVER

Inventor's Signature:


1/5/05

Date:

Residence:

Chicago, Illinois

Citizenship:

United States

Post Office Address:

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Chicago, Illinois 60647



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
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 Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/904,340	11/04/2004	Brian Jordan	RS152

23470
 SRAM CORPORATION
 1333 N. KINGSBURY, 4TH FLOOR
 CHICAGO, IL 60622

CONFIRMATION NO. 1340

FORMALITIES LETTER



OC000000014809012

Date Mailed: 12/23/2004

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

*Filing Date Granted***Items Required To Avoid Abandonment:**

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is missing.
A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(e) of \$130 for a non-small entity, must be submitted with the missing items identified in this letter.

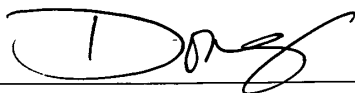
SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **\$130** for a Large Entity

- **\$130** Late oath or declaration Surcharge.

Replies should be mailed to: Mail Stop Missing Parts
 Commissioner for Patents
 P.O. Box 1450
 Alexandria VA 22313-1450

*A copy of this notice **MUST** be returned with the reply.*

A handwritten signature in black ink, appearing to be 'Dong', written over a horizontal line.

Customer Service Center

Initial Patent Examination Division (703) 308-1202

PART 3 - OFFICE COPY

APPLICATION DATA SHEET

Electronic Version v14

Stylesheet Version v14.0

Title of Invention	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM		
Application Type : regular, utility			
Attorney Docket Number : RS152			
Correspondence address:			
Customer Number:		23470	
Inventors Information:			
<u>Inventor 1:</u>			
Applicant Authority Type:	Inventor		
Citizenship:	US		
Name prefix:	Mr.		
Given Name:	Brian		
Family Name:	Jordan		
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State of Residence:	IL		
Country of Residence:	US		
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Address-2 of Mailing Address:			
City of Mailing Address:	Chicago		
State of Mailing Address:	IL		
Postal Code of Mailing Address:	60618		
Country of Mailing Address:	US		
Phone:			
Fax:			
E-mail:			
<u>Inventor 2:</u>			
Applicant Authority Type:	Inventor		
Citizenship:	US		
Name prefix:	Mr.		
Given Name:	Kevin		

Family Name: Wesling
Residence:
City of Residence: Lombard
State of Residence: IL
Country of Residence: US
Address-1 of Mailing Address: 512 S. Craig Place
Address-2 of Mailing Address:
City of Mailing Address: Lombard
State of Mailing Address: IL
Postal Code of Mailing Address: 60148
Country of Mailing Address: US
Phone:
Fax:
E-mail:

Inventor 3:

Applicant Authority Type: Inventor
Citizenship: US
Name prefix: Mr.
Given Name: Christopher
Family Name: Shipman
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City of Residence: Chicago
State of Residence: IL
Country of Residence: US
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State of Mailing Address: IL
Postal Code of Mailing Address: 60640
Country of Mailing Address: US
Phone:
Fax:
E-mail:

Inventor 4:

Applicant Authority Type: Inventor
Citizenship: US
Name prefix: Mr.
Given Name: Eric
Family Name: Swaidner
Residence:

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Country of Residence: US
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State of Mailing Address: CO
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Country of Mailing Address: US
Phone:
Fax:
E-mail:

Inventor 5:

Applicant Authority Type: Inventor
Citizenship: US
Name prefix: Mr.
Given Name: Johnn
Family Name: Cheever
Residence:
City of Residence: Chicago
State of Residence: IL
Country of Residence: US
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Address-2 of Mailing Address:
City of Mailing Address: Chicago
State of Mailing Address: IL
Postal Code of Mailing Address: 60647
Country of Mailing Address: US
Phone:
Fax:
E-mail:

Attorney Information:

Name	Registration Number
Mr. Milan Milosevic	42005
Ms. Lisa Wunderlich	40307

Publication Information:

Suggested Figure for Publication - figure 1
Suggested Classification -

Suggested Technology Center -
Total Number of Drawing Sheets -

Assignee 1:

Organization Name:	SRAM Corporation
Address-1 of Mailing Address:	1333 N. Kingsbury, 4th Floor
Address-2 of Mailing Address:	
City of Mailing Address:	Chicago
State of Mailing Address:	IL
Postal Code of Mailing Address:	60622
Country of Mailing Address:	US
Phone:	
Fax:	
E-mail:	

FEE TRANSMITTAL

Electronic Version v09

Stylesheet Version v08.0

Title of Invention	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM																						
Application Number :																							
Date :																							
First Named Applicant:		Mr. Brian Jordan																					
Attorney Docket Number:		RS152																					
TOTAL FEE AUTHORIZED \$ 790																							
Patent fees are subject to annual revisions on or about October 1st of each year.																							
Filing as large entity																							
BASIC FILING FEE																							
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Fee Description	Fee Code	Amount \$	Fee Paid \$																				
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EXTRA CLAIM FEES																							
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Subtotal For Extra Claims Fees: \$ 0																							
AUTHORIZED BILLING INFORMATION																							
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Credit account number:		2192																					
Expiration Date (YYYYMMDD):		2007-10-31																					
Authorized name:		Lisa Wunderlich																					
Billing address:		60622																					

TRANSMITTAL

Electronic Version v1.1

Stylesheet Version v1.1.0

Title of Invention	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM						
Application Number : Date : First Named Applicant: Mr. Brian Jordan Confirmation Number: Attorney Docket Number: RS152							
I hereby certify that the use of this system is for OFFICIAL correspondence between patent applicants or their representatives and the USPTO. Fraudulent or other use besides the filing of official correspondence by authorized parties is strictly prohibited, and subject to a fine and/or imprisonment under applicable law. I, the undersigned, certify that I have viewed a display of document(s) being electronically submitted to the United States Patent and Trademark Office, using either the USPTO provided style sheet or software, and that this is the document(s) I intend for initiation or further prosecution of a patent application noted in the submission. This document(s) will become part of the official electronic record at the USPTO. <table border="1"><tr><td>Submitted By:</td><td>Elec. Sign.</td><td>Sign. Capacity</td></tr><tr><td>Ms. Lisa Wunderlich Registered Number: 40307</td><td>/Lisa Wunderlich/</td><td>Attorney</td></tr></table>		Submitted By:	Elec. Sign.	Sign. Capacity	Ms. Lisa Wunderlich Registered Number: 40307	/Lisa Wunderlich/	Attorney
Submitted By:	Elec. Sign.	Sign. Capacity					
Ms. Lisa Wunderlich Registered Number: 40307	/Lisa Wunderlich/	Attorney					

Documents being submitted:	Files
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us-request	RS152-usrequ.xml us-request.dtd us-request.xsl
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claims-pdf	application-clms.pdf
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drawings-pdf	application-draw.pdf
Comments	

ACKNOWLEDGEMENT RECEIPT

Electronic Version 1.1

Stylesheet Version v1.1.1

Title of Invention	ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM			
Submission Type : Utility Patent Filing Application Number: 10/904340  EFS ID: 71957 Server Response:				
	Confirmation Code	Message		
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	ICON1	1340		
	USPTOEFSNot	For assistance with e-filing a patent application, contact the Patent Electronic Business Center: Toll-Free Number:1 (866) 217-9197 Website: http://www.uspto.gov/ebc/		
	WUTL2	Filename= RS152-pkda.xml BusinessRule= The utility patent submission does not include at least one declaration.		
First Named Applicant: Brian Jordan Attorney Docket Number: RS152 Timestamp: 2004-11-04 21:12:56 EDT From: us File Listing:				
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ACTUATOR APPARATUS FOR CONTROLLING A VALVE MECHANISM OF A SUSPENSION SYSTEM

DESCRIPTION

Background of the Invention

[Para 1] The present invention relates to suspension systems and more particularly to an actuator apparatus for controlling a valve mechanism of a suspension system that includes a valve actuating assembly operable between at least two rider-selectable positions and an adjuster assembly for adjusting the damping characteristics of at least one of the rider-selectable positions.

[Para 2] Typically, a suspension system includes a piston disposed in a cylinder of housing for reciprocation therein. The piston divides the cylinder into two opposed chambers. A piston shaft is connected to the piston and extends from the piston to a position outside of the cylinder. A fluid, such as oil, or air, or the like, is normally contained in the chambers. In use, the fluid passes between the chambers in response to reciprocation of the piston in the cylinder to affect damping.

[Para 3] The damping characteristics of a suspension system can affect the quality of performance provided by a shock absorber for a given application. Damping characteristics are affected by various factors such as rider weight, rider skill, terrain conditions, etc. Accordingly, it is desirable to provide a suspension system wherein the damping characteristics are adjustable. Further, it is advantageous to provide shock absorbers that are externally adjustable by the rider.

[Para 4] A typical design for a damping adjuster uses an adjuster rod that extends down the center of the piston shaft and engages the valve mechanism or performs the function of the valve mechanism. Adjustment is commonly made in either of two ways, the adjuster rod is moved axially (up or down) to alter damping or the adjuster rod is rotated to alter damping. For example, a cam attached to a lever may be engageable with the adjuster rod to vary the axial position of the rod. One problem associated with this configuration is that any given angular position of the lever/cam corresponds to exactly one position of the adjuster rod. This limits the ability of the rider to customize the damping characteristics of the suspension system to suit the terrain or the rider's particular riding style.

Summary of the Invention

[Para 5] The objective of the present invention is to provide an actuator apparatus for adjusting the damping of a suspension system that allows the rider to customize the damping characteristics of the system to suit the terrain or the rider's particular riding style. The present invention provides an actuator apparatus for controlling a valve mechanism for a suspension system. The actuator apparatus generally includes a valve actuating assembly and an adjuster assembly. The valve actuating assembly adjusts the valve mechanism between various suspension settings. The adjuster assembly is operatively connected to the valve actuating assembly for adjusting the damping characteristics corresponding to at least one of the positions of the valve actuating assembly independently of the damping characteristics corresponding to another position of the valve actuating assembly.

[Para 6] In one embodiment of the present invention, the valve actuating assembly includes a driver movable to adjust the valve mechanism between various suspension settings, and a selector operatively connected to the driver and operable between the rider-selectable positions. The selector includes a lever operable between the rider-selectable positions and a camshaft

operatively connected to the lever. The camshaft has a rotation axis and at least two cam surfaces corresponding to the rider-selectable positions of the lever. The cam surfaces are engageable with the driver and at least one cam surface is substantially parallel to the axis and at least another cam surface is at an angle relative to the camshaft axis. The adjuster assembly includes a knob operatively connected to the camshaft to axially displace the camshaft to vary the point at which the driver engages the angled cam surface, thereby providing various positions of the driver along its axis, resulting in various damping characteristics. Alternatively, the knob may be replaced with threads on the camshaft that engage threads on a housing or cylinder of the suspension system.

[Para 7] In another embodiment of the present invention, the above-mentioned lever may be replaced by a control cable that is pulled or released by a remote actuator operable between the rider-selectable positions and located on a handlebar of the bicycle. The control cable is operatively connected to the camshaft. As in the previous embodiments, the camshaft has three cam surfaces. Two of the cam surfaces are substantially parallel to the camshaft axis and the third cam surface is at an angle relative to the camshaft axis. The adjuster assembly includes a cable adjustment device that adjusts the length of the cable. By adjusting the length of the cable, the axial position of the camshaft is adjusted. Accordingly, the point at which the driver engages the angled cam surface is adjusted by adjusting the cable length, thereby adjusting the damping characteristics of the adjustable position without affecting the damping characteristics of the other two positions corresponding to the substantially parallel cam surfaces.

[Para 8] In another embodiment of the present invention, a lever is rigidly attached to the camshaft having three cam surfaces. However, in this embodiment all three of the cam surfaces are substantially parallel to the camshaft axis and a setscrew engages the camshaft to prevent axial movement of the camshaft while still allowing rotational movement of the camshaft. A detent mechanism positions the lever such that when one of the three rider-

selectable positions is selected, the corresponding cam surface is perpendicular to the driver. This embodiment further includes a stop element that prevents over-rotation of the lever. The adjuster assembly includes a limit screw. The limit screw is configured such that when it is fully retracted all three of the cam surfaces are perpendicular to the driver. However, when the limit screw is partially or fully advanced, the stop element contacts the end of the limit screw and prevents the lever and the camshaft from fully rotating to the third position. In this position, the cam surface corresponding to the third position is prevented from rotating perpendicular to the driver and is held at an angle relative to the driver. Accordingly, the amount in which the limit screw is advanced or retracted determines the damping characteristics of the third position of lever.

[Para 9] In yet another embodiment of the present invention, the camshaft is only rotatable by the lever and is axially fixed by a setscrew. The camshaft has three cam surfaces that are substantially parallel to the camshaft axis and correspond to the three rider-selectable positions of the lever. The adjuster assembly includes a knob having a through-hole for receiving the driver. The knob is threaded into a housing enclosing the valve mechanism such that as the knob is rotated it moves along the driver axis and may cause the driver to displace along its axis. When the lever is rotated to the adjustable position, a shoulder of the driver contacts the knob and further rotation of the lever causes the driver to disengage from the camshaft. In this third position, the axial position of the driver is determined by the axial position of the knob, not by the cam surface.

[Para 10] These and other features and advantages of the present invention will be more fully understood from the following description of certain embodiments of the invention, taken together with the accompanying drawings.

Brief Description of the Drawings

[Para 11] In the drawings:

[Para 12] FIG. 1 is a cross-sectional view of the suspension system in accordance with one embodiment of the present invention;

[Para 13] FIG. 2 is a top view of a camshaft included in the suspension system of FIG. 1;

[Para 14] FIG. 3 is a side view of the camshaft included in the suspension system of FIG. 1;

[Para 15] FIGS. 4a – 4b are partial cross-sectional views of the suspension system of FIG. 1, showing different positions of a valve actuating assembly;

[Para 16] FIGS. 5a – 5c and 6a–6c are partial cross-sectional views of the suspension system of FIG. 1, showing various positions of the camshaft engaging a driver of the valve actuating assembly;

[Para 17] FIG. 7a – 7c are partial cross-sectional views of another embodiment of the present invention, showing various positions of a valve actuating assembly;

[Para 18] FIGS. 8a–8c, 9a–9c and 10a–10c are cross-sectional views of another embodiment of the present invention, showing various positions of a valve actuating assembly;

[Para 19] FIGS. 11a–11g are cross-sectional views of another embodiment of the present invention, showing various positions of a valve actuating assembly; and

[Para 20] FIG.12 is a cross-sectional view of another embodiment of the present invention, showing various positions of a valve actuating assembly.

Detailed Description

[Para 21] FIGS. 1-6 illustrate a suspension system 10 having an actuator apparatus 12 for controlling a valve mechanism 14 in accordance with one embodiment of the present invention. The actuator apparatus 12 generally includes a valve actuating assembly 16 operable between at least two rider-selectable positions to adjust the valve mechanism 14 between various suspension settings and an adjuster assembly 18 operatively connected to the valve actuating assembly 16 to adjust the damping characteristics corresponding to at least one of the positions of the valve actuating assembly 16 independently of the damping characteristics corresponding to another position of the valve actuating assembly 16. The valve actuating assembly 16 includes a selector 20 having at least two rider-selectable positions and a driver 22 movable to adjust the valve mechanism 14 between various suspension settings. In this embodiment, the selector 20 has three rider-selectable positions representing open, lockout and adjustable positions. The adjuster assembly 18, formed separate from the valve actuating assembly 16, adjusts the damping characteristics of the adjustable position of the selector 20.

[Para 22] The suspension system 10 generally includes first and second cylinders 24, 26 displaceable relative to each other during compression and rebound strokes of the suspension system 10. The second cylinder 26 encloses a piston assembly 28 having a piston 30 slidably mounted in the second cylinder 26 and a hollow piston rod 32 extending between the piston 30 and a distal end 34 of the first cylinder 24. The piston rod 32 is rigidly connected to the distal end 34 of the first cylinder 24 by a threaded

engagement 36. The piston 30 divides the second cylinder 26 into first and second fluid chambers 38, 40. The piston 30 has a fluid passageway 42 for allowing fluid to pass between the two fluid chambers 38, 40 in response to reciprocation of the piston 30 in the second cylinder 26 to affect damping.

[Para 23] The second cylinder 26 further encloses the valve mechanism 14 for controlling the fluid flow between the first and second fluid chambers 38, 40. The valve mechanism 14 includes a valve 44 and a valve seat 46, the valve 44 displaceable relative to the valve seat 46. The valve 44 is biased toward a closed position by a valve spring 48. The valve 44 further includes a valve head 50 and a valve stem 52 connected to the valve head 50, the valve head 50 configured to sealingly engage the valve seat 46, the valve stem 52 configured to interface with the driver 22. The driver 22 extends through the hollow piston rod 32 and is displaceable relative to the piston rod 32 to engage the valve stem 52 of the valve 44.

[Para 24] In this embodiment, the selector 20 includes a rider-operated lever 54 and a camshaft 56 rigidly connected to the lever 54. The camshaft 56 is received in an opening 58 of the first cylinder 24 and is engageable with the driver 22 to axially displace the driver 22 along axis 60. As shown in FIGS. 2 and 3, the camshaft 56 has three cam surfaces 62, 64, 66 engageable with the driver 22 which correspond to the three rider-selectable positions of the selector 20, open, lockout and adjustable positions, respectively. Cam surfaces 62, 64 are substantially parallel to an axis 68 of the camshaft 56 and cam surface 66 is oriented at an angle relative to the axis 68 of the camshaft 56. The driver 22 is biased against the camshaft 56 by the pressurized damping fluid contained in the chambers 38, 40. Alternatively, the driver 22 may be biased against the camshaft 56 by a coil spring or the like.

[Para 25] In this embodiment, the adjuster assembly 18 includes a knob 70 threaded into the opening 58 of the first cylinder 24 and is located between the lever 54 and a shoulder 72 of the camshaft 56. The camshaft 56 extends through the knob 70 and is secured to the lever 54. As the knob 70 is

threaded in and out of the opening 58, the camshaft 56 is displaced along its axis 68. The adjuster assembly 18 may further include a detent mechanism 74 for holding the knob 70 in a particular angular position. The detent mechanism 74 may include a detent rod 76 received in a cavity 78 of the first cylinder 24 and engageable with a plurality of detent notches 80 on the knob 70. A detent spring 82 biases the detent rod 76 against one of the detent notches 80 on the knob 70.

[Para 26] The lever 54 is operable between three positions, open, lockout and adjustable. When the lever 54 is rotated to the open position, the camshaft 56 is rotated until the cam surface 62 engages the driver 22 to axially displace the driver 22 to engage or displace the valve stem 52, thereby opening the valve 44 and allowing fluid to flow between the chambers 38, 40. So positioned, fluid flow is permitted between the chambers 38, 40 in response to reciprocal displacement of the piston 30 within the second cylinder 26. When the lever 54 is rotated to the lockout position, the camshaft 56 is rotated until the cam surface 64 engages the driver 22 to axially displace the driver 22 away from the valve stem 52, thereby substantially closing the valve 44 and preventing fluid to flow between the chambers 38, 40.

[Para 27] When the lever 54 is rotated to the adjustable position, the driver 22 engages the angled cam surface 66. To further adjust the damping characteristics of the system, the knob 70 is rotated to axially move the camshaft 56, thereby modifying the point of engagement of the driver 22 along the angled cam surface 66. FIG. 4a shows the knob 70 rotated to its minimum engagement with the threads of the first cylinder 24, which causes the driver 22 to engage the angled cam surface 66 at its lowest point. FIG. 4b shows the knob 70 rotated to its maximum engagement with the threads of the first cylinder 24, which causes the driver 22 to be at the highest point on the angled cam surface 66. The knob 70 may be rotated anywhere between these two extreme positions, thereby providing various positions of the driver 22 along the axis 60, resulting in various damping characteristics.

[Para 28] The adjuster assembly 18 is configured such that the damping characteristics of the adjustable position of the lever 54 may be adjusted without affecting the damping characteristics of the open and lockout positions of the lever 54, this is illustrated in FIGS. 5a–5c and 6a–6c. In FIGS. 5a–5c, the camshaft 56 is in the same axial position as shown in FIG. 4a. Looking to FIG. 5a, when the lever 54 is rotated such that the cam surface 62 engages the driver 22, the distance between the end of the driver 22 and the axis 68 is X. Looking to FIG. 5b, when the lever 54 is rotated such that the cam surface 66 engages the driver 22, the distance between the end of the driver 22 and axis 68 is Y. And as shown in FIG. 5c, when the lever 54 is rotated such that the cam surface 64 engages the driver 22, the distance between the end of the driver 22 and axis 68 is Z. Similarly, in FIGS. 6a–6c, the camshaft 56 is in the same axial position as shown in FIG. 4b. Comparing FIGS. 5a and 6a, there is no difference in the axial positions of the driver 22. Similarly, comparing FIGS. 5c and 6c, there is no difference in the axial positions of the driver 22. However, in comparing FIGS. 5b and 6b, there is a difference between the axial positions of the driver 22. In FIG. 5b, the driver 22 is at a distance Y from the axis 68 and the driver 22 of FIG. 6b is at a different distance W from the axis 68. Accordingly, the axial position of the driver 22, when engaged with the cam surfaces 62, 64, is independent of the axial position of the cam shaft 56 and, in contrast, the axial position of the driver 22, when engaged with the cam surface 66 is dependent on the axial position of the cam shaft 56. Therefore, the knob 70 may be rotated to vary the damping characteristics of the rider–selectable position corresponding to the cam surface 66, without affecting the damping characteristics of the other rider–selectable positions corresponding to the cam surfaces 62, 64.

[Para 29] Another embodiment of the present invention is shown in FIGS. 7a–7c. In this embodiment, the function of the knob 70 of the previous embodiments is replaced with threads 84 on the camshaft 56 that engage threads 86 on the first cylinder 24. The adjuster assembly 18 is formed integrally with the selector 20. As in the embodiment shown in FIGS. 1–6, the lever 54 is rigidly connected to the camshaft 56 and the camshaft 56 has the

same three surfaces 62, 64, 66 shown in FIGS. 2 and 3 at one end. Cam surfaces 62, 64 are substantially parallel to the axis 68 of the camshaft 56 and cam surface 66 is at an angle relative to the axis 68. Rotation of the lever 54 through its three rider-selectable positions that correspond to the cam surfaces 62, 64, 66 causes the driver 22 to be held at three different positions. In order to change the point, at which the driver 22 engages the angled cam surface 66, the lever 54 is rotated through one or more complete revolutions. For example, the lever 54 shown in FIG. 7b has been rotated through one complete revolution compared to the lever 54 shown in FIG. 7a, causing the camshaft 56 to axially displace by an amount equal to one thread pitch and the driver 22 to engage the angled cam surface 66 at a low point on surface 66. However, when the lever 54 is rotated such that the cam surfaces 62, 64 engage the driver 22, the driver 22 position has not changed. FIG. 7c shows the lever 54 rotated through one complete revolution in the opposite direction, causing the camshaft 56 to move axially in the opposite direction, resulting in the driver 22 engaging the angled cam surface 66 at a higher point than in FIG. 7b.

[Para 30] Another embodiment of the present invention is shown in FIGS. 8a–8c, 9a–9c and 10a–10c. In this embodiment, the lever 54 of the previous embodiments is replaced by a control cable 88 that is pulled or released by a remote actuator 90 located on a handlebar of the bicycle. The remote actuator 90 may be a lever rotatable to take-up the control cable 88, which is commonly known to one skilled in the art in the bicycle industry. The control cable 88 is received in an opening 92 in a camshaft 94 and is retained in the opening 92 by a setscrew 96. As in the previous embodiments, the camshaft has three surfaces 93, 95, 97. Two of the surfaces 93, 95 are substantially parallel to the camshaft axis 68 and the third surface 97 is at an angle relative to the camshaft axis 68. Actuation of the remote actuator 90 between its three rider-selectable positions, lockout, adjustable and open, that correspond to the cam surfaces 93, 95, 97, respectively, causes the driver 22 to be held at three different positions. In this embodiment, the adjuster assembly 18 includes a cable adjustment device 98 that adjusts the length of the cable 88.

By adjusting the length of the cable 88, the axial position of the camshaft 68 is adjusted. Accordingly, the point at which the driver 22 engages the angled cam surface 97 is adjusted by adjusting the cable length, thereby adjusting the damping characteristics of the adjustable position corresponding to the cam surface 97, without affecting the damping characteristics of the other two positions corresponding to the cam surfaces 93, 95. The adjustment device 98 may be a barrel adjuster, which is commonly known to one skilled in the art in the bicycle industry. The barrel adjuster may be located near the camshaft 94 or near the remote actuator 90.

[Para 31] FIGS. 8a–8c show an operating sequence of the actuator when the cable adjustment device 98 is set to where the length of the cable 88 is maximized. When the remote actuator 90 is in the first position, as shown in FIG. 8a, the driver 22 is engaged with cam surface 93 and is positioned closest to the longitudinal axis 68 of the camshaft 94. When the actuator 90 is in the second position, as shown in FIG. 8b, the driver 22 is still positioned closet to the longitudinal axis 68 of the camshaft 94. When the remote actuator 90 is in the third position, as shown in FIG. 8c, the driver 22 is engaged with cam surface 95 and is positioned farthest from the longitudinal axis 68 of the camshaft 94.

[Para 32] FIGS. 9a–9c show the same operating cycle as above, but the cable adjustment device 98 is set to where the length of the cable 88 is between the maximum and minimum lengths. Looking to the FIGS. 8a–8c and 9a–9c, the driver 22 position of FIG. 9a is the same as that of FIG. 8a and the driver 22 position of FIG. 9c is the same as that of FIG. 8c. However, the driver 22 position of FIG. 9b is different than the driver 22 position of FIG. 8b, since the driver 22 engages the angled cam surface 97 of the cam shaft 94.

[Para 33] FIGS. 10a–10c show the same operating cycle, but the cable adjustment device 98 is set to where the length of the cable 88 is the shortest. Comparing FIGS. 10a–10c to FIGS. 8a–8c and FIGS. 9a–9c, the driver 22

position in FIG. 10a is the same as that of FIGS. 8a and 9a and the driver 22 position in FIG. 10c is the same as that of FIGS. 8c and 9c. However, the driver 22 position of FIG. 10b is different than shown in either FIG. 8b or FIG. 9b. Accordingly, by adjusting the cable adjustment device 98, when the remote actuator 90 is in the second position, the driver 22 position can be varied without affecting the driver 22 positions of the first and third positions of the remote actuator 90.

[Para 34] Another embodiment of the present invention is shown in FIGS. 11a-g. The selector 20 of this embodiment includes a lever 102 rigidly connected to a camshaft 104 having three cam surfaces 103, 105, 107 disposed at one end of the camshaft 104. The lever 102 is operable between three positions, lockout, open and adjustable, which correspond to the three cam surfaces 103, 105, 107, respectively. All three of the cam surfaces 103, 105, 107 are substantially parallel to the longitudinal axis 112 of the camshaft 104. The selector 20 further includes a detent mechanism 114 having a ball 116, a spring 118 and a setscrew 120. The camshaft 104 has three recesses 122 for alternately receiving the ball 116. The recesses 122 are configured such that as lever 102 is rotated, the ball 116 engages each of the recesses 122 when the corresponding cam surface 103 is oriented substantially perpendicular to the longitudinal axis 60 of the driver 22. A setscrew 124 engages a groove 126 in the camshaft 104 to prevent axial movement of the camshaft 104 while still allowing rotational movement of the camshaft. The driver 22 is biased against the camshaft 104 by pressurized damping oil in the first cylinder 24. Accordingly, the axial position of the driver 22 is selected by rotating the lever 102 to select one of the desired cam surfaces 103, 105, 107 to engage the driver 22. This embodiment further includes a stop element 128 that is rotatable with the camshaft 104. The stop element 128 having a configuration such that when the lever 102 and camshaft 104 are rotated, the stop element 128 engages the adjuster assembly 18 at the extreme positions of the lever 102, and prevents over-rotation of the lever 102 and camshaft 104.

[Para 35] The adjuster assembly 18, in this embodiment, includes a limit screw 130 and a knob 132. The limit screw 130 is threaded into the first cylinder 24. The knob 132 has a hexagonal shaped counterbore 131 that is engageable with a corresponding hexagonal shaped head 133 of the limit screw 130 such that when the knob 132 is rotated the limit screw 130 rotates causing the limit screw 130 to displace axially relative to the knob 132. A compression spring 134 is located between the head 133 of the limit screw 130 and an end 136 of the counterbore 131 of the knob 132 for biasing the knob 132 against the first cylinder 24. The adjuster assembly 18 may further comprise a detent mechanism (not shown) that includes protrusions on the face of the knob 132 and corresponding recesses in the first cylinder 24. The protrusions alternately engage the recesses as the knob 132 is turned.

[Para 36] When the limit screw 130 is fully retracted, as shown in FIGS. 11c – 11e, the lever 102 and camshaft 104 is rotatable 180 degrees, and all of the cam surfaces 103, 105, 107 may alternately be oriented perpendicular to the longitudinal axis 60 of the driver 22. When the limit screw 130 is partially or fully advanced, as shown in FIGS. 11f and 11g, respectively, the stop element 128 contacts the end of the limit screw 130 and prevents the lever 102 and the camshaft 104 from fully rotating to the third position. In this position, the cam surface 107 corresponding to the third position is prevented from rotating perpendicular to the longitudinal axis 60 of the driver 22 and is held at an angle relative to the driver axis 60. Looking to FIGS. 11f and 11g, when the cam surface is held at an angle, the driver 22 is at a lower axial position than compared to the other positions. Accordingly, the more the limit screw 130 is advanced, the lower the driver 22 is held. Rotation of the knob 132 allows the rider to adjust the damping characteristics of the third position without affecting the other two damping positions.

[Para 37] FIG. 12 shows another embodiment of the present invention wherein the selector 20 includes a lever 138 that is rigidly connected to a camshaft 140 having three cam surfaces. In this embodiment, the camshaft

140 is only rotatable by the lever 138 and is axially fixed by a setscrew 144 that engages a groove 146 in the camshaft 140. The three cam surfaces correspond to three rider-selectable positions of the lever and are all substantially parallel to a longitudinal axis 148 of the camshaft 140. The driver 142 is biased against the camshaft 140 by pressurized damping oil in the first cylinder 24. The adjuster assembly 18 includes a knob 150 having a through-hole 152 for receiving the driver 142. The knob 150 is threaded into the first cylinder 24 such that when the knob 150 is rotated, the driver 142 may displace along its axis 151.

[Para 38] When the lever 138 is rotated into the first two positions, the axial position of the driver 142 is determined by the angular position of the lever 138 and camshaft 140. When lever 138 is rotated into the third position, the adjustable position, a shoulder 154 of the driver 142 contacts the knob 150 and further rotation of the lever 138 causes the driver 142 to disengage from the camshaft 140. In this third position, the axial position of the driver 142 is determined by the axial position of the knob 150, not by the cam surface. Accordingly, the rotation of the knob 150 allows the rider to adjust the damping characteristics of the third position without affecting the damping of the first and second positions.

[Para 39] While this invention has been described by reference to a preferred embodiment, it should be understood that numerous changes could be made within the spirit and scope of the inventive concepts described. For example, the bicycle suspension has been depicted as a rear shock but it can take the form of a front fork, a seat post, or any other type of suspension positioned along the bicycle frame. Accordingly, it is intended that the invention not be limited to the disclosed embodiment, but that it have the full scope permitted by the language of the following claims.

What is claimed is:

[Claim 1] An actuator apparatus for controlling a valve mechanism of a suspension system, the actuator apparatus comprising:

a valve actuating assembly operatively connected to the valve mechanism and operable between at least two rider-selectable positions to adjust the valve mechanism between various suspension settings; and

an adjuster assembly operatively connected to the valve actuating assembly for adjusting the damping characteristics corresponding to at least one of the positions of the valve actuating assembly independently of the damping characteristics corresponding to another position of the valve actuating assembly.

[Claim 2] The actuator apparatus of claim 1 wherein the valve actuating assembly comprises:

a driver movable to adjust the valve mechanism between various suspension settings; and

a selector operatively connected to the driver and operable between the rider-selectable positions.

[Claim 3] The actuator apparatus of claim 2 wherein the selector comprises:

a lever operable between the rider-selectable positions; and

a camshaft operatively connected to the lever, the camshaft having a rotation axis and at least two cam surfaces corresponding to the rider-selectable positions of the lever, the cam surfaces configured to be engageable with the driver.

[Claim 4] The actuator apparatus of claim 3 wherein at least one of the cam surfaces is disposed substantially parallel to the camshaft axis and at least another of the cam surfaces is disposed at an angle relative to the camshaft axis.

[Claim 5] The actuator apparatus of claim 4 wherein the adjuster assembly comprises a knob operatively connected to the camshaft to axially displace the camshaft to vary the engagement point of the driver along the angled cam surface.

[Claim 6] The actuator apparatus of claim 4 wherein the adjuster assembly is formed integrally with the selector of the valve actuating assembly, the camshaft threadably coupled to a housing of the suspension system to axially displace the camshaft along the housing to vary the engagement point of the driver along the angled cam surface.

[Claim 7] The actuator apparatus of claim 2 wherein the selector comprises: a camshaft having an axis and at least two cam surfaces corresponding to the rider-selectable positions of the selector, the cam surfaces configured to be engageable with the driver; a remote actuator operable between the rider-selectable positions; and a control cable extending between the camshaft and the remote actuator, the control cable displacing the camshaft along its axis.

[Claim 8] The actuator apparatus of claim 7 wherein at least one of the cam surfaces is disposed substantially parallel to the camshaft axis and at least another of the cam surfaces is disposed at an angle relative to the camshaft axis.

[Claim 9] The actuator apparatus of claim 8 wherein the adjuster assembly includes a cable adjustment device for adjusting a length of the control cable.

[Claim 10] The actuator apparatus of claim 2 wherein the selector comprises:

a lever operable between the rider-selectable positions;
a camshaft rotatable about an axis and having at least two cam surfaces configured to be engageable with the driver, the cam surfaces corresponding to the rider-selectable positions of the lever, the camshaft operatively connected to the lever; and
a stop element rotatable with the selector and configured to abut against the adjuster assembly to prevent over-rotation of the lever.

[Claim 11] The actuator apparatus of claim 10 wherein the cam surfaces are disposed substantially parallel to the camshaft axis.

[Claim 12] The actuator apparatus of claim 11 wherein the adjuster assembly comprises a limit screw threadably coupled to a housing of the suspension system and configured to be engageable with the stop element to prevent over-rotation of the lever.

[Claim 13] The actuator apparatus of claim 2 wherein the selector comprises:

a lever operable between the rider-selectable positions;
a camshaft rotatable about an axis and having a plurality of cam surfaces, at least one of said cam surfaces configured to be engageable with the driver, the cam surfaces corresponding to the rider-selectable positions of the lever, the cam surfaces disposed substantially parallel to the axis of the camshaft, the camshaft operatively connected to the lever.

[Claim 14] The actuator apparatus of claim 13 wherein the adjuster assembly is operatively connected to the driver to position the driver relative to camshaft of the selector.

ABSTRACT

An actuator apparatus controls a valve mechanism of a suspension system. The apparatus includes a valve actuating assembly and an adjuster assembly. The valve actuating assembly is operatively connected to the valve mechanism and is operable between at least two rider-selectable positions to adjust the valve mechanism between various suspension settings. The adjuster assembly is operatively connected to the valve actuating assembly for adjusting the damping characteristics corresponding to at least one of the positions of the valve actuating assembly independently of the damping characteristics corresponding to another position of the valve actuating assembly.

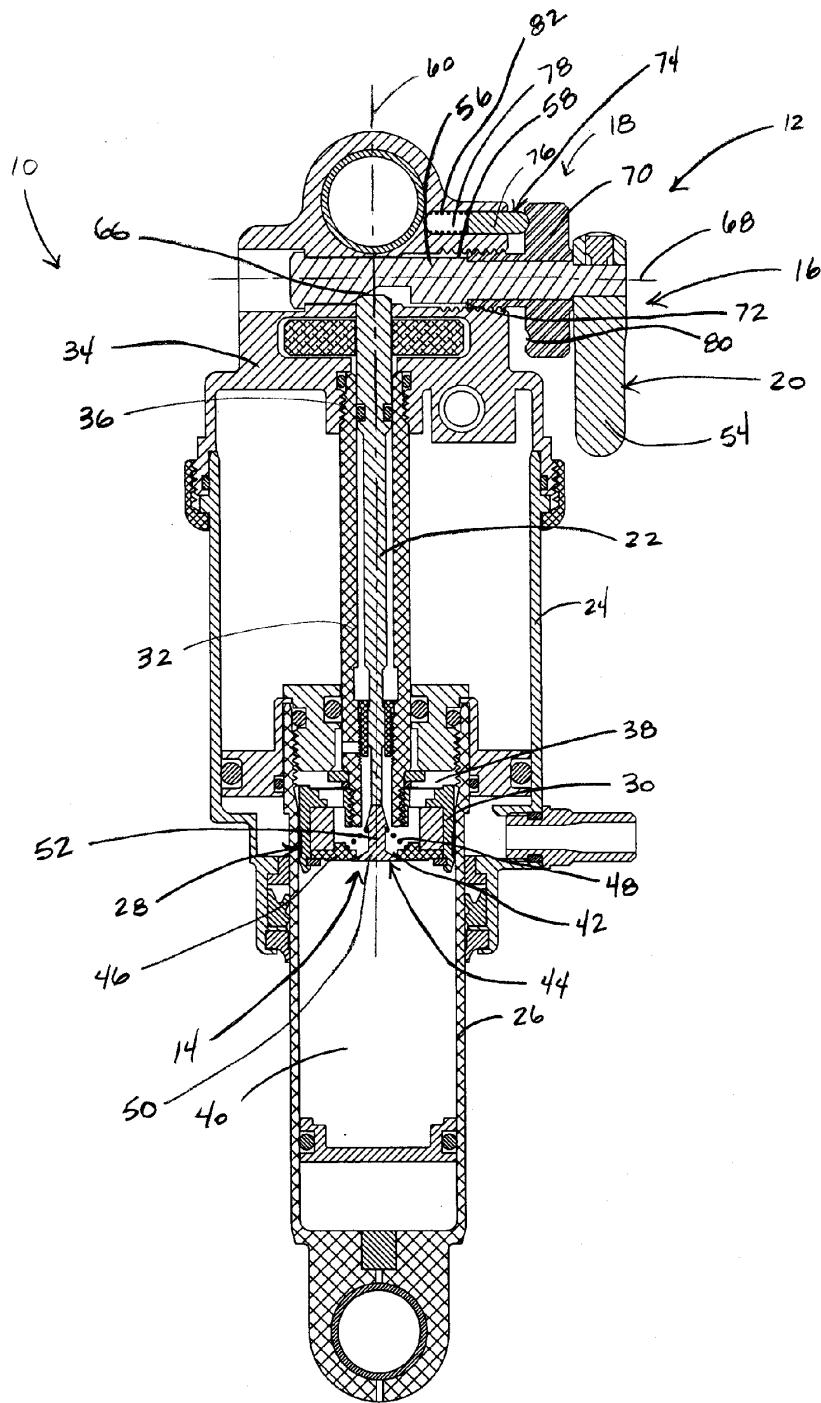


FIG. 1

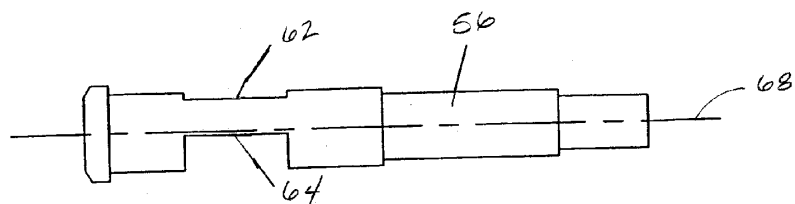


FIG. 2

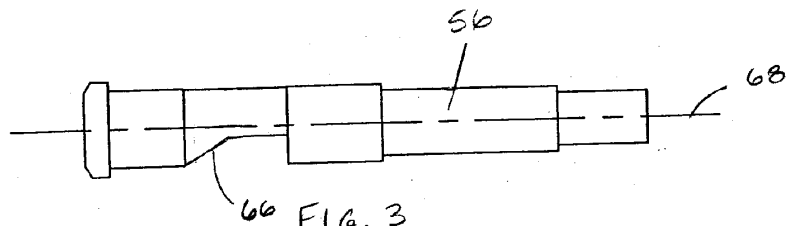


FIG. 3

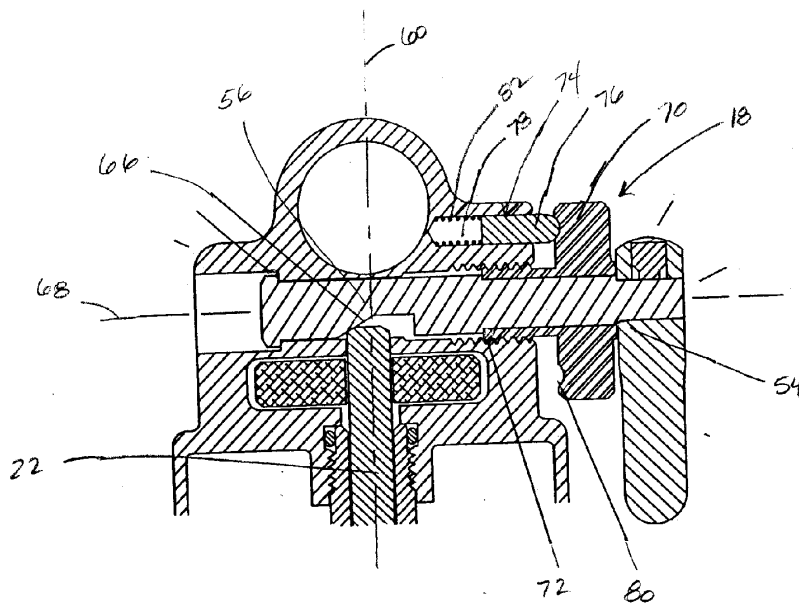


FIG. 4a

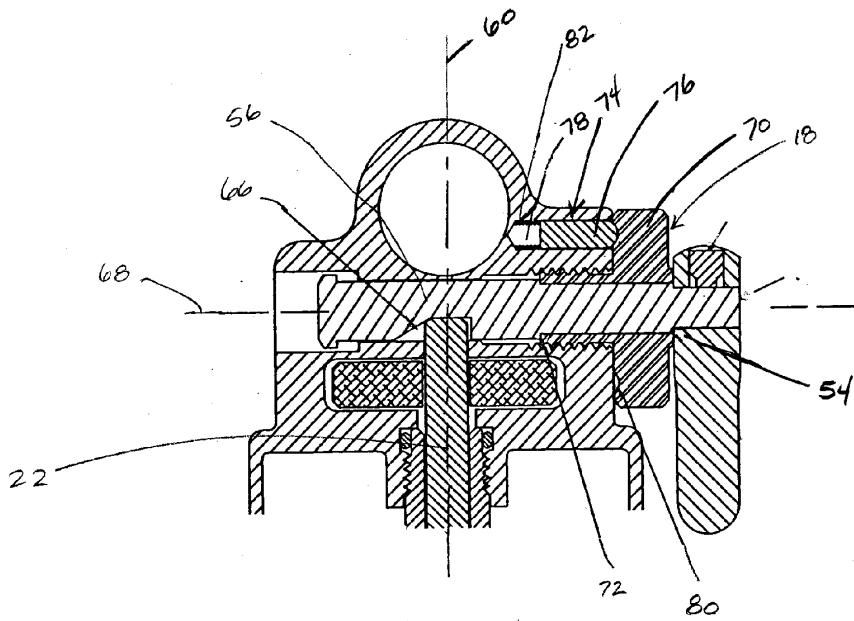


FIG. 4b

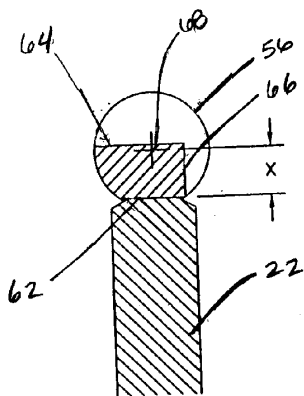


Fig. 5a

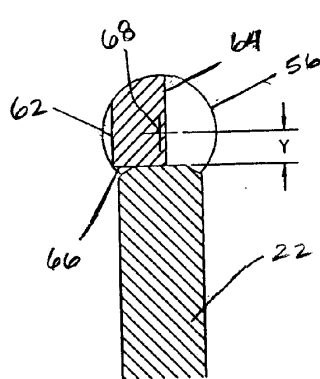


Fig. 5b

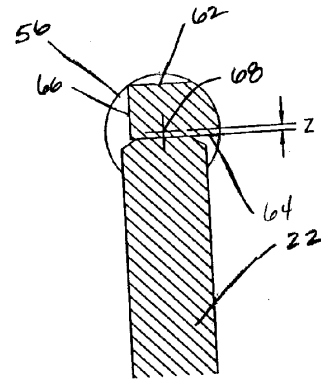


Fig. 5c

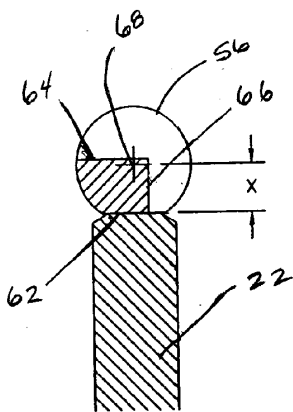


Fig. 6a

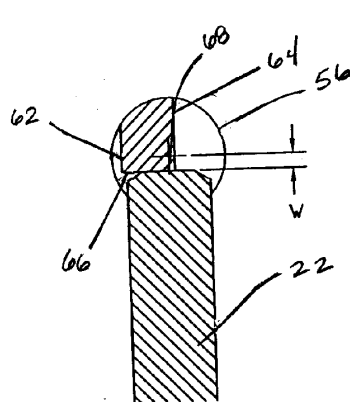


Fig. 6b

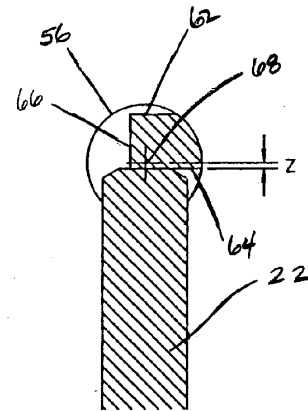


Fig. 6c

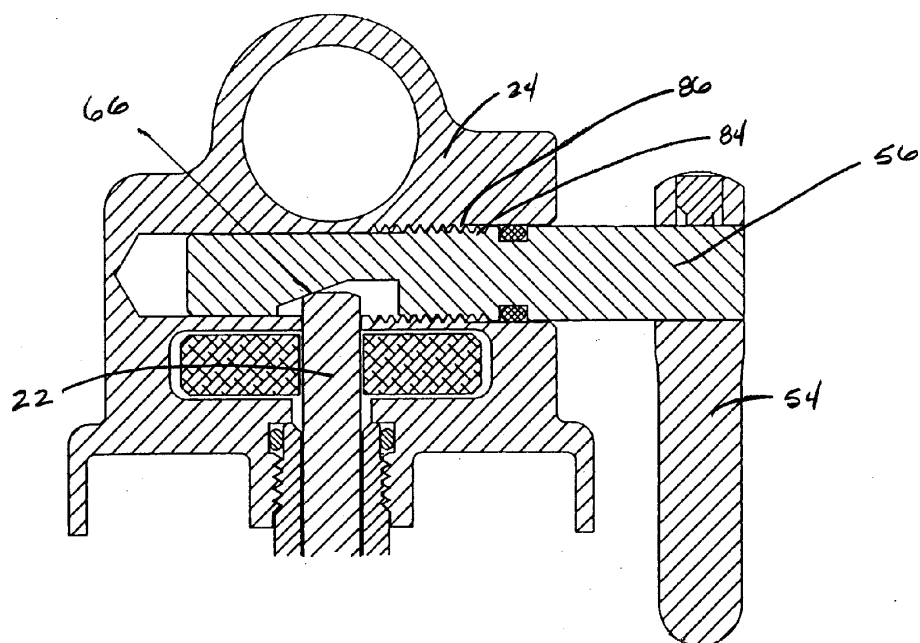


FIG. 7a

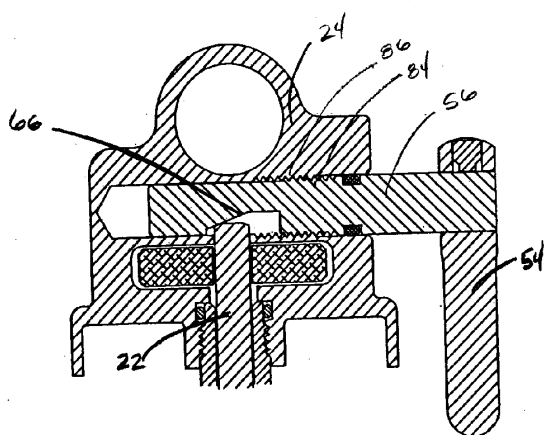


FIG. 7b

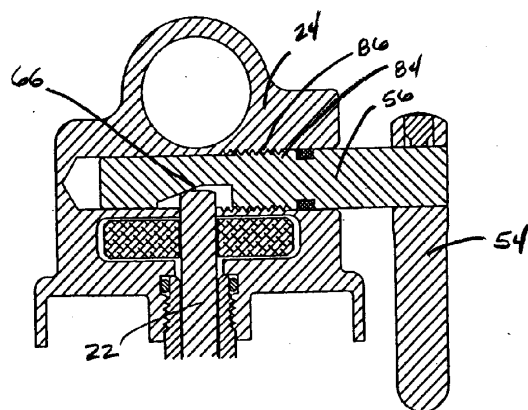


FIG. 7c

