(54) Title: SHOCK ABSORBER HAVING A PRESSURIZED GAS COMPARTMENT

(57) Abstract: A shock absorber (100) has a structure defining a gas compartment (200) within the shock absorber reservoir compartment (122). The gas compartment (200) is pressurized with gas to a pressure beyond atmospheric pressure. The structure may include a bladder which (202) separates the fluid and gas in the shock from one another, thereby preventing the fluid from becoming aerated during operation of the shock absorber (100). The bladder (202) also functions to retain the gas within the reservoir (122). As a result, the shock absorber (100) can be mounted in any orientation. Because the shock absorber is pressurized beyond atmospheric pressure, the shock absorber (100) provides a "spring assist" to the main suspension spring, thereby improving vehicle cornering and the "patch contact" of the vehicle's tire with the road.
Published:
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
22 January 2004

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

A. CLASSIFICATION OF SUBJECT MATTER

IPC - Field 3.03
US CL - 388, 288, 215, 388.22

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 388/398, 315, 392.15, 392.19, 392.20

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>US 3,874,485 A (SMITH) 01 April 1975, see the entire document.</td>
<td>1-20</td>
</tr>
<tr>
<td>Y</td>
<td>US 3,945,663 A (DUCETT) 23 March 1976, see the entire document.</td>
<td>1-20</td>
</tr>
<tr>
<td>Y</td>
<td>US 4,560,042 A (SELL et al.) 24 December 1985, see the entire document.</td>
<td>1-20</td>
</tr>
<tr>
<td>Y</td>
<td>US 4,310,077 A (WHITESIDE) 12 January 1982, see the entire document.</td>
<td>1-20</td>
</tr>
<tr>
<td>Y</td>
<td>US 5,234,084 A (BELL) 10 August 1993, see the entire document.</td>
<td>1-20</td>
</tr>
<tr>
<td>Y</td>
<td>US 5,458,219 A (ANDERSON) 17 October 1995, see the entire document.</td>
<td>1-20</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C. See patent family annex.

Date of the actual completion of the international search
10 FEBRUARY 2003

Name and mailing address of the ISA
US Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231
Facsimile No. (703) 305-3200

Date of mailing of the international search report
4 NOV 2003

Authorized officer
CHRIS SCHWARTZ
Telephone No. (703) 305-0576
**INTERNATIONAL SEARCH REPORT**

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>US 6,076,814 A (GRUNDEI) 20 June 2000, see the entire document.</td>
<td>1-20</td>
</tr>
</tbody>
</table>