(57) Abstract: A seal assembly which acts as a piston in a vehicle power steering unit, includes a casing (68) and an elastomeric seal body (70). The seal is affixed to a rack by a tail (84) that is swaged into a groove (86) and by a locking ring (86) received in a groove (92) in a flange and a groove (90) in the rack. The seal comprises two oppositely facing lips (72, 74) and a lip body bonded to a radial flange. The seal assembly has a nose portion (96), which engages an auxiliary seal (34) and seats it in a counterbore. The nose portion can be separate or integral with the seal casing.
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.
A. CLASSIFICATION OF SUBJECT MATTER
   IPC(7) : F16J 1/10; F16J 15/22
   US CL. : 277/437; 92/84
   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. : 277/437, 436,551, 924,925; 92/84, 128

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: steering, piston, swaged, retaining ring, snap ring, lip.

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 5,014,399 A (KOCSDIS et al) 14 May 1991 (14.05.1991), entire document.</td>
<td>1, 2, 18, and 22</td>
</tr>
<tr>
<td>A</td>
<td>US 5,421,591 A (KATZENSTEINER) 06 June 1995 (06.06.1995), entire document.</td>
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<td>A</td>
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<td>1-22</td>
</tr>
<tr>
<td>A</td>
<td>US 2,808,302 A (BOWERMAN) 01 October 1957 (01.10.1957), entire document.</td>
<td>1-22</td>
</tr>
</tbody>
</table>

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

* Special categories of cited documents:
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Date of the actual completion of the international search
23 June 2003 (23.06.2003)
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Date of mailing of the international search report
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Form PCT/ISA/210 (second sheet) (July 1998)