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(54) Improved monovane vacuum pump

(57) A vacuum pump (10) for use in automotive applications having a casing (12) defining a chamber (14), a rotor (26) rotatably mounted within the chamber (14) and a vane (40) slidably mounted in a slot (32) on the rotor (26). The vane (40) is formed from a single piece of material having a planar centre portion (42) and curved

ends (44) where the curved ends (44) are turned towards one another. Each curved end (44) has a contact portion which contacts the chamber wall (18), the contact portion being intermediate the centre portion (42) and the tip of said single piece of material distal to the centre portion (42).

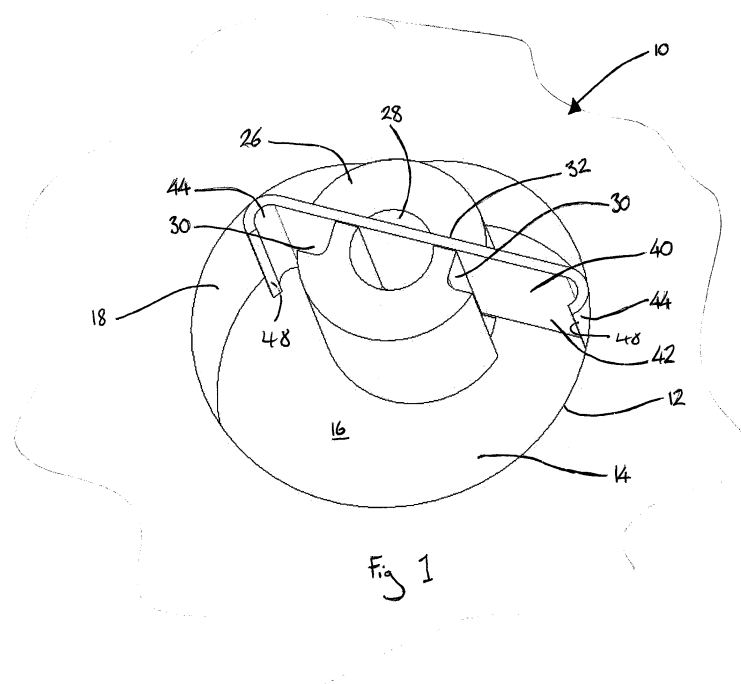


Fig 1

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EUROPEAN SEARCH REPORT

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| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|--|--|---|---|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
| X | WO 2006/056162 A1 (LUK AUTOMOBILTECH GMBH & CO KG [DE]; HILTEMANN ULRICH [DE]; SCHULZ HAN) 1 June 2006 (2006-06-01) | 1,2,7-11 | INV. F04C18/344 |
| Y | * page 3, paragraph 4 - page 4, paragraph 2 * | 3-6 | |
| Y | * figures 1,2 * | | |
| Y | ----- EP 1 666 707 A1 (SHARUDENKO ANDREY YURIEVICH [RU]; SHARUDENKO OLGA MIKHAYLOVNA [RU]) 7 June 2006 (2006-06-07) | 3-6 | |
| A | * paragraph [0038] * | 1 | |
| A | ----- DE 10 2006 016242 B3 (JOMA HYDROMECHANIC GMBH [DE]) 20 September 2007 (2007-09-20) | 1-5,7-11 | TECHNICAL FIELDS SEARCHED (IPC) F04C |
| A | * paragraph [0018] * | | |
| A | * figures 1,2 * | | |
| A | ----- AT 505 061 A1 (TCG UNITECH SYSTEMTECHNIK GMBH [AT]) 15 October 2008 (2008-10-15) | 1,7-11 | |
| | * page 4, paragraph 3 - page 5, paragraph 1 * | | |
| | * figures 1-10 * | | |
| | * page 5, paragraphs 3,4 * | | |
| | ----- | | |
| The present search report has been drawn up for all claims | | | |
| Place of search Munich | | Date of completion of the search 29 May 2013 | Examiner Lange, Christian |
| CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | | | |

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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29-05-2013

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|--|--|
| WO 2006056162 A1 | 01-06-2006 | DE 112005002687 A5 EP 1825146 A1 WO 2006056162 A1 | 09-08-2007 29-08-2007 01-06-2006 |
| EP 1666707 A1 | 07-06-2006 | AU 2003304463 A1 EP 1666707 A1 RU 2241129 C1 US 2006204392 A1 WO 2005024203 A1 | 29-03-2005 07-06-2006 27-11-2004 14-09-2006 17-03-2005 |
| DE 102006016242 B3 | 20-09-2007 | DE 102006016242 B3 EP 1952026 A1 WO 2007118503 A1 | 20-09-2007 06-08-2008 25-10-2007 |
| AT 505061 A1 | 15-10-2008 | NONE | |