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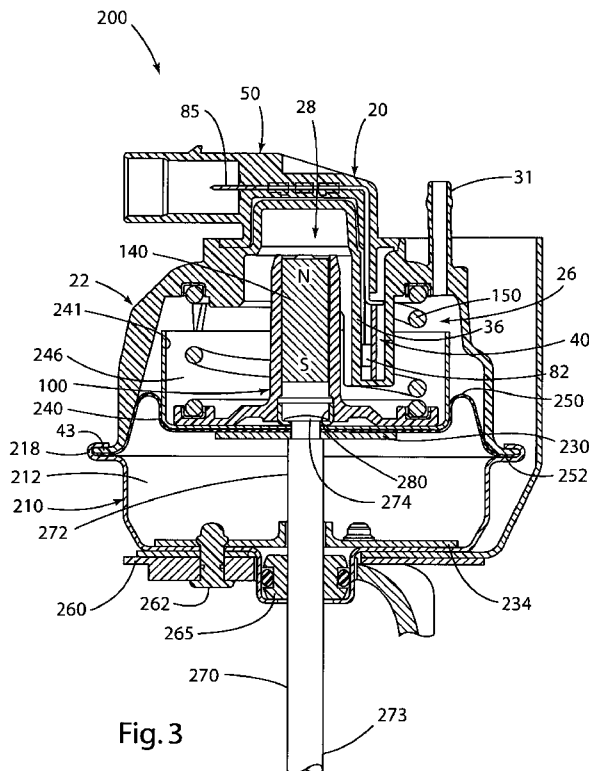
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[Continued on next page]

(54) Title: LINEAR POSITION SENSOR



(57) Abstract: A sensor used to sense the position of an attached movable object. The sensor can be mounted to a pneumatic actuator. The sensor includes a housing that has a pair of cavities or pockets separated by a wall. A magnet carrier is positioned within one of the cavities and a magnet is coupled to the magnet carrier. The magnet carrier is coupled to the moveable object. A magnetic sensor is positioned in the other of the cavities. The magnetic sensor generates an electrical signal that is indicative of a position of the movable object.

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(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG). **Published:**

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

**(88) Date of publication of the international search report:**  
22 October 2009

## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2008/013276A. CLASSIFICATION OF SUBJECT MATTER  
INV. G01D5/14

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)  
G01D

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

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

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 738 892 A (MEISTER JACK B [US]) 23 October 1996 (1996-10-23) claims 1,10; figures 10-14	1-5
X	US 5 270 645 A (WHEELER MARK [US] ET AL) 14 December 1993 (1993-12-14) claims 1,2; figure 2	1-5
X	US 5 177 370 A (MEISTER JACK B [US]) 5 January 1993 (1993-01-05) claim 1; figures 3,7	1-5



Further documents are listed in the continuation of Box C.



See patent family annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \* & \* document member of the same patent family

Date of the actual completion of the international search

18 May 2009

Date of mailing of the international search report

14/08/2009

Name and mailing address of the ISA/

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2008/013276

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see annex

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5

A sensor with a housing with 2 cavities and a wall separating said cavities with a magnet in one cavity and a magnetic sensor in the other  
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2. claims: 6-13

A sensor with a magnet coupled to a magnetic carrier in a first pocket and a magnetic sensor in a second pocket  
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3. claims: 14-20

An actuator with a housing with a chamber and a piston mounted in the chamber  
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No <b>PCT/US2008/013276</b>
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Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
EP 0738892	A	23-10-1996	CA 2173648 A1 DE 69616134 D1 DE 69616134 T2	18-10-1996 29-11-2001 06-06-2002
US 5270645	A	14-12-1993	NONE	
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