

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 1712 PCT	FOR FURTHER ACTION		See item 4 below
International application No. PCT/US2007/014269	International filing date (<i>day/month/year</i>) 15 June 2007 (15.06.2007)	Priority date (<i>day/month/year</i>) 07 November 2006 (07.11.2006)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant KEY SAFETY SYSTEMS, INC.			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Date of issuance of this report 12 May 2009 (12.05.2009)
Facsimile No. +41 22 338 82 70	Authorized officer Simin Baharlou e-mail: pt09.pct@wipo.int

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To: DRAYER, LONNIE R. KEY SAFETY SYSTEMS, INC. 5300 ALLEN K. BREED HIGHWAY LAKELAND FL 33811-1130 USA
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Date of mailing (day/month/year) 10 JANUARY 2008 (10.01.2008)



Applicant's or agent's file reference 1712 PCT	FOR FURTHER ACTION See paragraph 2 below
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International application No. PCT/US2007/014269	International filing date (day/month/year) 15 JUNE 2007 (15.06.2007)	Priority date(day/month/year) 07 NOVEMBER 2006 (07.11.2006)
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International Patent Classification (IPC) or both national classification and IPC <i>G01D 5/12(2006.01)i, G01B 7/00(2006.01)i</i>
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Applicant KEY SAFETY SYSTEMS, INC. et al
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1. This opinion contains indications relating to the following items:
- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application
2. **FURTHER ACTION**
- If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.
- If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.
3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Date of completion of this opinion 10 JANUARY 2008 (10.01.2008)	Authorized officer JUNG, JIN SOO Telephone No. 82-42-481-8283	
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US2007/014269

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of :
 - the international application in the language in which it was filed
 - a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:
 - a. type of material
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material
 - on paper
 - in electronic form
 - c. time of filing/furnishing
 - contained in the international application as filed.
 - filed together with the international application in electronic form.
 - furnished subsequently to this Authority for the purposes of search.
4. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-7</u>	YES
	Claims	<u>NONE</u>	NO
Inventive step (IS)	Claims	<u>1-7</u>	YES
	Claims	<u>NONE</u>	NO
Industrial applicability (IA)	Claims	<u>1-7</u>	YES
	Claims	<u>NONE</u>	NO

2. Citations and explanations :

1. Citations

Reference is made to the following documents:

D1: US 6553840 B2
D2: US 7088095 B1
D3: US 5475304 A
D4: US 5936400 A

D1 relates to a linear displacement sensor which has a capacitive transducer having a flexible diaphragm disposed in a housing which also slidingly mounts a plunger movable toward and away from the diaphragm.

D2 relates to a magnetic linear displacement sensor which includes a Hall transducer element having a sensor plate surface and at least one magnet.

D3 relates to a giant magnetoresistant displacement sensor which includes at least one layered structure.

D4 relates to a displacement sensor employing a magnetoresistive effect laminate structure consisting of a bottom ferromagnetic layer, a middle non-magnetic layer, and a top softer magnetic layer.

2. Novelty and Inventive Step

Independent claim 1 of the present application relates to a linear displacement sensor comprising: four spaced apart magnets arranged symmetrically positioned to form four corners of a rectangle, which rectangle defines two diagonals, which meet to define a center point, and an axis of symmetry passing through the center point and bisecting angles defined by the diagonals, each magnet having portions facing the axis of symmetry; each magnet having a pole facing the axis of symmetry, wherein magnets lying on the same diagonal have identical poles facing the axis of symmetry, and magnets symmetrically positioned with respect to the axis of symmetry have opposed poles; and a magnetic field strength sensor arranged for relative movement substantially along the axis of symmetry with respect to the four magnets.

(Continued on Supplemental Sheet.)

**WRITTEN OPINION OF THE
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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of :

Box No. V.

None of the documents disclose the following features of claim 1 of the present application: the magnetic field strength sensor arranged for relative movement substantially along the axis of symmetry with respect to the four magnets; and the each magnet having a pole facing the axis of symmetry, wherein magnets lying on the same diagonal have identical poles facing the axis of symmetry, and magnets symmetrically positioned with respect to the axis of symmetry have opposed poles. Accordingly, claim 1 is not anticipated by the prior art, nor obvious to a person skilled in the art. Therefore, claim 1 is considered to be novel and to involve an inventive step under PCT Article 33(2) and (3).

Claims 2-7 are dependent on claim 1, and consequently they are also considered to be novel and to involve an inventive step under PCT Article 33(2) and (3).

3. Industrial Applicability

The inventions claimed in claims 1-7 can be made and used in the industry concerned. Therefore, said claims meet the requirements of PCT Article 33(4).