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— *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))*

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— *with international search report (Art. 21(3))*

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 14/26594

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G01J 1/04 (2015.01)

CPC - G01J 1/0214; H04N 5/2252; H04N 5/2254; H04N 2005/2

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)

IPC(8): G01J 1/04 (2015.01)

CPC: G01J 1/0214; H04N 5/2252; H04N 5/2254; H04N 2005/2

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

USPC: 348/164; 250/339.03,339.04, 370.15; IPC(8): G01J 1/04 (2015.01)

CPC: G01J 1/0214; H04N 5/2252; H04N 5/2254; H04N 2005/2255; H01L 31/09 (keyword limited; terms below)

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

Patbase; Google Scholar; Google Patents

Search terms used: Camera housing; radiation; window; shutter; shield; detector

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2007/0120058 A1 (BLACKWELL et al.) 31 May 2007 (31.05.2007), entire document, especially; para [0062], [0067], [0069], [0070], [0073], [0151].	1, 2, 6-8, 12 ----- 9-11, 13
X --- Y	US 6,144,031 A (HERRING et al.) 07 November 2000 (07.11.2000), entire document, especially; col. 7, in 15-21, 59-62; col. 9, in 28-38; 50-64.	1, 3-5 ----- 9-11
Y	US 2009/0084956 A1 (GAT) 02 April 2009 (02.04.2009), entire document, especially; para [0056], [0094].	13
A	US 6,515,285 B1 (MARSHALL et al.) 04 February 2003 (04.02.2003), entire document, especially; Abstract; col 1, in 41-43, col 7, in 11-51, col 14, in 13-39, col 15, in 16-35.	1-13

 Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search

02 January 2015 (02.01.2015)

Date of mailing of the international search report

21 JAN 2015

Name and mailing address of the ISA/US

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 14/26594

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:
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: claims 1-13: drawn to an apparatus comprising a camera housing, detector to measure radiation, a window, and a shield coupled to the window operable to block radiation from impinging on the detector.

Group II: claims 14-21: drawn to a method for calibrating a thermal imaging device comprising: imaging a scene on a detector, providing a shield to shield the detector from non-scene radiation, operating the detector at a first ambient temperature, gathering data representative of an output signal associated with the detector and first detector temperature associated with the first ambient temperature operating the detector at a second ambient temperature; gathering second data representative of an output signal associated with the detector and a second detector temperature associated with the second ambient temperature and calibrating the thermal imaging device to compensate for infrared radiation from the shield.

-- see extra sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying 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.:
1-13

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.

Continuation of Box No. III: -- Observations where unity of invention is lacking

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Special technical features:

Group I requires a camera housing, and a window, not found in the other groups.

Group II requires a calibration method including an imaging step, operating the detector at a first ambient temperature, gathering data representative of an output signal associated with the detector and first detector temperature associated with the first ambient temperature operating the detector at a second ambient temperature; gathering second data representative of an output signal associated with the detector and a second detector temperature associated with the second ambient temperature and calibrating the thermal imaging device to compensate for infrared radiation from the shield, not found in the other groups.

Shared Features:

The only technical features shared by Groups I and II that would otherwise unify the groups are a thermal or radiation detector, a shield operable to shield the detector from non-scene radiation and wherein compensation means are provided to compensate for effects of radiation emitted by the shield.

However, these shared technical features do not represent a contribution over prior art, because the shared technical features are disclosed by US 6,515,285 B1 to Marshall et al. (hereinafter 'Marshall') 04 February 2003 (04.02.2003), which discloses a thermal or radiation detector (Abstract, col 1, ln 41-43), a shield operable to shield the detector from non-scene radiation (col 14, ln 13-39) and wherein compensation means are provided to compensate for effects of radiation emitted by the shield (col 7, ln 11-51, col 14, ln 13-39, col 15, ln 16-35).

As the shared technical features were known in the art at the time of the invention, they cannot be considered special technical features that would otherwise unify the groups.

Groups I and II therefore lack unity under PCT Rule 13 because they do not share a same or corresponding special technical feature.