



(51) International Patent Classification:
F24J 2/06 (2006.01) *F24J 2/40* (2006.01)
F24J 2/38 (2014.01)

(21) International Application Number:
PCT/US2013/048267

(22) International Filing Date:
27 June 2013 (27.06.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/666,827 30 June 2012 (30.06.2012) US

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(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC,
SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

[Continued on next page]

(54) Title: LIGHT SOURCE SENSING AND POINTING POSITION-ENCODED OPTICAL PROXY

(57) Abstract: The present invention is directed to systems, devices and meth-
ods utilizing a proxy device that indicates directional aspects of redirected
light from a corresponding light redirecting element by the position of one or
more redirected light beams in one or more directions or coordinates on such a
proxy device. The position characteristics of light redirected from the proxy
device correlate to the aim of the light redirecting element associated with the
proxy. This allows the proxy information to be used to accurately determine
and control the aim of the light redirecting element.

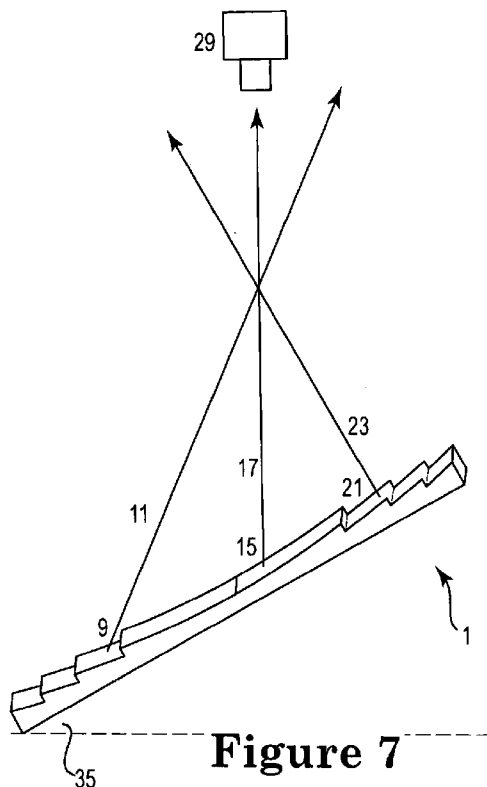


Figure 7



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

— *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))*

Published:

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

(88) Date of publication of the international search report:

20 March 2014

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US13/48267

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - F24J 2/06, 2/38, 2/40 (2014.01)

USPC - 126/573, 574, 578

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) Classification(s): F24J 2/06, 2/38, 2/40 (2014.01)

USPC Classification(s): 356/141.1, 142, 143; 250/206.1; 126/573, 574, 575, 578

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)

MicroPatent (US Granted, US Applications, EP-A, EP-B, WO, JP, DE-G, DE-A, DE-T, DE-U, GB-A, FR-A); DialogPro (Derwent, INSPEC, NTIS, PASCAL, Current Contents Search, Dissertation Abstracts Online, Inside Conferences); IP.com; IEEE.com; Google Scholar, mirror, heliostat, aim, viewpoint, camera, proxy, spot, point

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/0263709 A1 (NORMAN, R. et al.) October 21, 2010. Figures 2A-2C, 3C, 5A-J, 7 F, 10G and 11A-12A, paragraphs [0634]-[0678], [0796]-[0803], [0853], [0977]-[0979], [0997]-[1043].	1-3, 47-72
P, X	WO 2012/125748 A2 (JOHNSON, R. et al.) September 20, 2012; entire document.	1-3, 47-72
P, X	WO 2012/125751 A2 (HINES, B. et al.) September 20, 2012; entire document.	1-3, 47-72
A	US 2011/0155119 A1 (HICKERSON, K. et al.) June 30, 2011; abstract, figures 1 and 3A-C, paragraphs [0008]-[0009], [0019]-[0027].	1-3, 47-72

☐ Further documents are listed in the continuation of Box C.

* 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 application or patent 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

9 January 2014 (09.01.2014)

Date of mailing of the international search report

24 JAN 2014

Name and mailing address of the ISA/US

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P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

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PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US13/48267

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.: 4-46
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 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.:

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.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US13/48267

-***-Continued from Box III-***-

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 fee must be paid.

Group I: Claims 1-3, 47, and 48 are directed toward a heliostat system comprising a plurality of heliostats, a light redirecting element, incident sunlight, at least one optical proxy, at least one viewpoint, aim of the light, a control system, position characteristics of light, and at least one target.

Group II: Claims 49-72 are directed toward a positional optical proxy for use as an indicator of angular positioning of a light redirecting element, the positional optical proxy comprising an optical surface, a first surface portion, a first direction, a visual indication, a function of angular position of the proxy, an observing device, a second surface portion, a second direction, redirected light, movements, angular positional information, and impingement of the optical proxy by light.

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.

The common technical features of Groups I and II are at least a light redirecting element, optical proxy, and position characteristics of light. These common features are disclosed by US 2011/0155119 A1 to Hickerson et al. (hereinafter Hickerson). Hickerson discloses a light redirecting element (heliostat 110 with mirror 112, figure 1, paragraphs [0008]-[0009], [0019]-[0027]), optical proxy (camera 116, figure 1, paragraphs [0008]-[0009], [0019]-[0027]), and position characteristics of light (camera 116 (proxy device) captures an image of bright spots corresponding the sun and receiver 150 (position characteristics of light on the proxy device as sensed from at least one view point), abstract, figures 1 and 3A-C, paragraphs [0008]-[0009], [0019]-[0027]).

Since the common technical feature is previously disclosed by the Hickerson reference, this common feature is not special and so Groups I and II lack unity.