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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, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, 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, SA, SC,

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- with international search report (Art. 21(3))
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(54) **Title:** LIGHTING DEVICES WITH LIGHT GUIDE PLATES AND DISPLAY DEVICES COMPRISING THE SAME

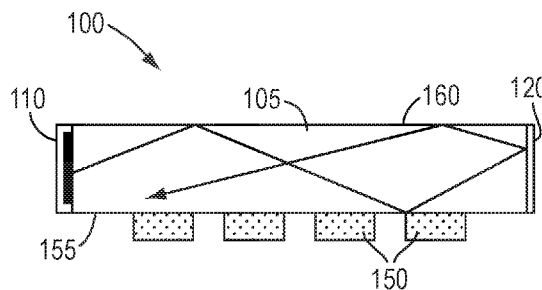


FIG. 1D

(57) **Abstract:** Disclosed herein are lighting devices (100) comprising a light guide plate (105) comprising a first edge (115) and a first major surface (155) optionally comprising a plurality of light extraction features (150); at least one light source (110) coupled to the first edge (115); and at least one edge reflector (120) disposed along at least a portion of an edge of the light guide plate (105). Lighting devices comprising a plurality of such light guide plates (105) are also disclosed herein. Display devices comprising such lighting devices are further disclosed.



**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/US2016/066258

A. CLASSIFICATION OF SUBJECT MATTER  
INV. G02F1/13357 F21V8/00  
ADD.  
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)  
G02F G02B

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)  
EPO-Internal, WPI Data, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2007 122971 A (SHARP KK) 17 May 2007 (2007-05-17)	1,2,4-8, 20-24, 26-30, 34-36
Y	paragraph [0018] - paragraph [0033]; figures 1-4 paragraph [0066] - paragraph [0070]; figure 15	3,25
Y	----- JP 2011 175941 A (STANLEY ELECTRIC CO LTD) 8 September 2011 (2011-09-08) abstract; figure 5 paragraph [0029] - paragraph [0030]; figure 12 -----	3,25

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 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  
**10 August 2017**

Date of mailing of the international search report  
**17/10/2017**

Name and mailing address of the ISA/  
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2016/066258

## 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 all searchable 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.:  
  
1-8, 20-30, 34-36

### 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: 1-8, 20-30, 34-36

A lighting device comprising a light guide plate with a first edge coupled to at least one light source, and at least one edge reflector disposed along at least a portion of an edge of the light guide plate, wherein the first edge comprises a chamfer adjoining two side edges and the at least one light source is coupled to the chamfer (see claims 3 and 25).

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2. claims: 9-11, 31-33

A lighting device comprising a light guide plate with a first edge coupled to at least one light source, and at least one edge reflector disposed along at least a portion of an edge of the light guide plate, wherein the light guide plate is made of a glass having a low colour shift.

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3. claims: 12-19

A lighting device comprising a light guide plate with a first edge coupled to at least one light source, and at least one edge reflector disposed along at least a portion of an edge of the light guide plate, wherein the lighting device further comprises at least one additional light guide plate positioned in overlying registration with the at least one light source. NB: The subject-matter of claim 19 ("splitting apparatus") has been grouped with that of claims 12-18 ("additional light guide plate") since its only specific application is related to the presence of the "additional light guide plate" as defined in claim 12 (see the description, paragraph 34).

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2016/066258

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2007122971	A	17-05-2007	NONE
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JP 2011175941	A	08-09-2011	NONE
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