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- (71) **Applicant:** CORNING INCORPORATED [US/US]; 1 Riverfront Plaza, Corning, New York 14831 (US).
- (72) **Inventors; and**
- (71) **Applicants :** ETIENNE, Michael [HT/US]; 146 High Road, Corning, New York 14830 (US). GOLLIER, Jacques [BE/US]; 114 Weston Lane, Painted Post, New York 14870 (US). NOLAN, Daniel Aloysius [US/US]; 10762 Skyline Drive, Corning, New York 14830 (US).
- (74) **Agent:** ABLE, Kevin M; Corning Incorporated, SP-TI-3-1, Intellectual Property Department, Corning, New York 14831 (US).

- (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, KM, 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.
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- Published:**
- 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))

[Continued on next page]

(54) **Title:** DISPLAY DEVICE USING DIRECTIONAL BACKLIGHTING

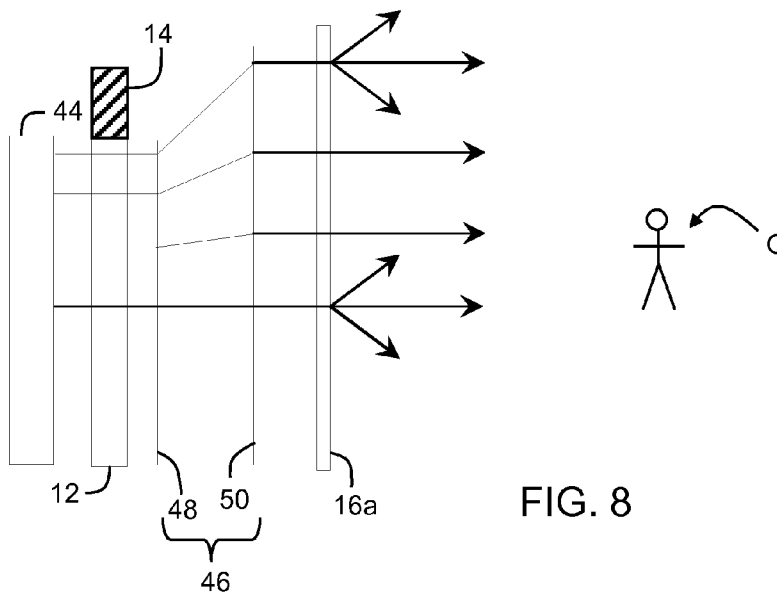


FIG. 8

(57) **Abstract:** A display device comprises, between a diffusing member (16a) and a directional backlight (44), a display panel (12) and a bezel (14), whereby the half angle divergence of light from the backlight (44) does not exceed 15°. An image expander (46) expands a displayed image to conceal the bezel (14).

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31 October 2013

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER INV. G02F1/1333 G02F1/1335 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		
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		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 432 961 A (SCREEN TECHNOLOGY LTD [GB]) 6 June 2007 (2007-06-06)	1,2
Y	page 6, line 9 - page 8, line 15; figures 1-4	3,4
Y	----- US 2007/206148 A1 (HARA ZENICHIRO [JP] ET AL) 6 September 2007 (2007-09-06) paragraph [0047]; figure 12	3,4
Y	----- US 2012/027399 A1 (YEATES KYLE H [US]) 2 February 2012 (2012-02-02) paragraphs [0001], [0029] - [0031]	3,4
E	----- WO 2013/055852 A1 (CORNING INC [US]; ETIENNE MICHAEL [US]; GOLLIER JACQUES [US]; NOLAN DA) 18 April 2013 (2013-04-18) paragraphs [0062] - [0115]; figures 1-4,6,13,19,20,24,25	1-4
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<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> 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	"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	
"E" earlier application or patent but published on or after the international filing date	"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	
"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)	"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	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"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 22 May 2013	Date of mailing of the international search report 26/08/2013	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Smid, Albert	

INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 2013/055853 A1 (CORNING INC [US]; ETIENNE MICHAEL [US]; GOLLIER JACQUES [US]; NOLAN DA) 18 April 2013 (2013-04-18) paragraphs [0049] - [0088]; figures 1-4,6,26,27 -----	1-4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/029757

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.:

1-4

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: 1-4

display cover plate (16) of diffusing member (16a) comprises glass

2. claims: 5-7

display cover plate (16) of diffusing member (16a) has an absorbing layer (60) comprising an array of transparent regions

3. claims: 8-10

diffusing member (16a) comprises diffusive particles (82) distributed within a substrate

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/029757

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2432961	A	06-06-2007	EP 2186084 A1 19-05-2010
			GB 2432961 A 06-06-2007
			US 2009322794 A1 31-12-2009
			WO 2007063274 A1 07-06-2007

US 2007206148	A1	06-09-2007	JP 2007233160 A 13-09-2007
			US 2007206148 A1 06-09-2007

US 2012027399	A1	02-02-2012	AU 2011282730 A1 21-02-2013
			CN 103097981 A 08-05-2013
			EP 2598968 A2 05-06-2013
			KR 20130041275 A 24-04-2013
			US 2012027399 A1 02-02-2012
			WO 2012015960 A2 02-02-2012

WO 2013055852	A1	18-04-2013	TW 201319685 A 16-05-2013
			TW 201319686 A 16-05-2013
			WO 2013055852 A1 18-04-2013
			WO 2013055853 A1 18-04-2013

WO 2013055853	A1	18-04-2013	TW 201319685 A 16-05-2013
			TW 201319686 A 16-05-2013
			WO 2013055852 A1 18-04-2013
			WO 2013055853 A1 18-04-2013
