



(43) International Publication Date
17 January 2013 (17.01.2013)

- (51) International Patent Classification:
G03B 21/56 (2006.01)
- (21) International Application Number:
PCT/US2012/046793
- (22) International Filing Date:
13 July 2012 (13.07.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/507,574 13 July 2011 (13.07.2011) 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, 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, 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, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- with amended claims and statement (Art. 19(1))

(88) Date of publication of the international search report:
14 March 2013

Date of publication of the amended claims and statement: 10 May 2013

(54) Title: METHOD AND APPARATUS FOR JOINING SCREEN MATERIAL FOR MINIMAL OPTICAL DISTORTION

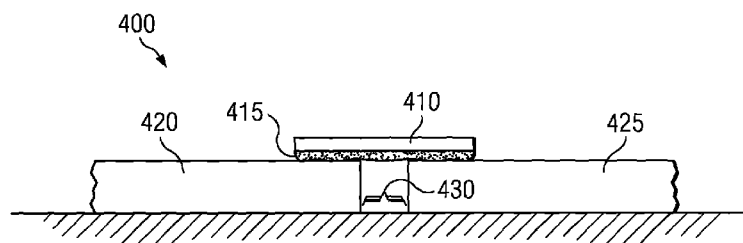


FIG. 4

(57) Abstract: The present disclosure describes a manufacturing method for seaming materials. The process may be suitable for manufacturing high performance projection screens using a number of methods including, but not limited to, conventional (convert-before-coating) methods, or convert-after-coating methods. An objective of the present disclosure is to identify a process which may substantially minimize distortion of the local surface normal in the vicinity of the join.

AMENDED CLAIMS

received by the International Bureau on 21 March 2013 (21.03.2013)

1. A method for joining materials, comprising:
 - locating a first edge of a first piece of material adjacent to a first edge of a second piece of material to create a seam; and
 - locating a first side of a third piece of material adjacent to the seam, wherein the distortion of the local surface normal in the vicinity of the seam is substantially minimized.
2. The method for joining materials of claim 1, wherein the first and second piece of material are substrates with a first side coated with optically functional material.
3. The method for joining materials of claim 1, wherein the first and second pieces of material are relatively high tensile modulus substrates.
4. The method for joining materials of claim 1, wherein locating a first side of a third piece of material adjacent to the seam, further comprises adhering the third piece of material adjacent to the seam by using an adhesive.
5. The method for joining materials of claim 2, wherein the third piece of material is adhered to the first and second pieces of material on the second side opposite the first side coated with optically functional material.
6. The method for joining materials of claim 4, wherein the adhesive exhibits low to substantially zero wicking through the seam to the optically functional material.

7. The method for joining materials of claim 4, wherein the adhesive is a curable adhesive.
8. The method for joining materials of claim 7, wherein the curable adhesive is cured with UV radiation.
9. The method for joining materials of claim 7, wherein the adhesive exhibits minimal shrinkage when cured.
10. The method for joining materials of claim 7, wherein the adhesive is a PSA adjacent to the third piece of material.
11. The method for joining materials of claim 1, wherein the first and second pieces of material and the third piece of material are the same material.
12. A projection screen comprising:
 - a first substrate located proximate to a second substrate to form a join; and
 - a backer adhered adjacent to the join such that the optical effect of the distortion of the local surface normal in the vicinity of the seam is less than a just noticeable difference.
13. The projection screen of claim 12, wherein each of the first and second substrate further comprise a first side coated with an optically functional material.
14. The projection screen of claim 12, wherein the first and second substrates are relatively high tensile modulus substrates.
15. The projection screen of claim 13, wherein the backer is adhered to the first and second substrates on a second side opposite the first side coated with the optically functional material.

16. The projection screen of claim 13, wherein the backer is adhered to the first and second substrates by way of an adhesive that exhibits low to substantially zero wicking through the seam to the optically functional material.
17. The projection screen of claim 16, wherein the adhesive is a UV curable adhesive.
18. The projection screen of claim 17, wherein the adhesive exhibits minimal shrinkage when cured.
19. A method for forming a projection screen, comprising: registering a second piece of substrate to a first piece of substrate to create a seam; and applying a backer strip, wherein the backer strip has sufficient tack to substantially secure the backer strip to the first and second piece of substrate approximately at the seam, further wherein distortion of the local surface normal in the vicinity of the seam is substantially minimized.
20. The method for forming a projection screen of claim 19, wherein applying the backer strip further comprises employing a UV cure to the backer strip.

STATEMENT UNDER PCT ARTICLE 19(1)

In response to the International Search Report mailed on 22 January 2013, Applicants amend the present Application as explained herein. Claims 1-20 were originally filed in the present International Application. By the present Amendment under Article 19, claims 6, 10-11, and 15-17 have been amended and replaced with claims bearing the same numbers. All other claims remain unchanged.

Applicants respectfully submit replacement sheets 24-26 that set forth all pending claims 1-20 as presently amended. A marked-up copy of the Replacement Sheets 24-26 is

also included to reflect the present Amendment to the claims. Applicant respectfully requests amendment of the pending claims in the manner set forth in the attached replacement sheets. Should the Examiner have any questions or concerns regarding the present Amendment, the Examiner is invited to contact the undersigned Attorney of Record, using the contact information provided below.