

1) Family number: 28168778 (US2002018281A)

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Title: COUPLED ELECTROCHROMIC COMPOUNDS WITH PHOTOSTABLE DICATION OXIDATION STATES

**Abstract:** Coupling of anodic electrochromic compounds by a covalent bond or a bridge link which provides for electronic communication between the coupled electrochromic compounds results in coupled electrochromic compounds which exhibit greater stability as well as electrochromic activity that differs from the monomeric electrochromic compounds. Extension of the absorption spectrum into the near-infrared region of the spectrum is frequently observed. The coupled electrochromic compounds are highly suitable for use in electrochromic media used to produce electrochromic devices.

**Classifications:**

**International (IPC 8-9):** B05D5/06 B05D5/12 B23K26/362 B23K26/402 B32B17/06 B32B17/10 B32B7/02 B32B7/14 B60Q1/26 B60R1/02 B60R1/04 B60R1/06 B60R1/07 B60R1/08 B60R1/12 C03C17/36 C09K9/02 C23C14/08 C23C14/18 C23C14/34 C23C14/46 C23C14/58 F16M13/02 G02B1/04 G02B1/10 G02B13/04 G02B27/00 G02B27/14 G02B5/08 G02B5/20 G02B5/26 G02B5/28 G02B7/182 G02F1/00 G02F1/01 G02F1/03 G02F1/061 G02F1/15 G02F1/153 G02F1/155 G02F1/157 G02F1/161 G02F1/163 H05K1/02 H05K3/32 (Advanced/Invention); B60R1/04 B60R1/06 B60R1/08 C23C14/08 C23C14/34 G02F1/1345 G02F1/15 G02F1/155 G02F1/157 G02F1/161 H05K1/03 (Advanced/Non-invention); B05D5/06 B32B7/02 B60R1/06 B60R1/08 B60R1/12 C09K9/02 C23C14/46 G02B1/04 G02B27/00 G02B5/08 G02B5/20 G02B5/26 G02B5/28 G02F1/00 G02F1/01 H05K1/02 H05K3/32 (Core/Invention); H05K1/03 (Core/Non-invention); B60R (Subclass/Invention)

**International (IPC 1-7):** B60R1/08 G02B27/00 G02F1/15 G02F1/153 G02F1/161

**CPC:** B82Y20/00 G02F2202/36 B60R1/1207 B60R2001/123 B60R2001/1284 G02F1/1345 Y10S359/90 F16M13/02 H05K2201/10106 H05K1/0306 H05K1/0274 H05K3/321 H05K2201/0108 H05K2201/10651 H05K2201/2036 H05K2201/2054 G02B27/14 B60R1/084 G02F1/0018 G02B5/0808 B32B17/06 B32B17/10036 B32B17/10174 B32B17/10321 B32B17/10513 B32B2255/205 B32B2605/00 B32B2307/40 B60R1/12 C03C17/36 C03C17/3618 C03C17/3639 C03C17/3663 B60R1/025 B32B2307/202 B32B2307/412 B32B2307/728 B32B2307/73 B32B2605/006 C23C14/34 G02B5/0875 B23K26/362 B23K26/402 G02F1/1533 Y10T29/49002 Y10T428/24355 Y10T428/2495 G02F2203/09 C03C17/3647 C03C17/3649 B60R1/00 B60R1/04 B60R1/083 B60R1/085 B60R2001/1215 B60R2001/1223 B60R2001/1253 B60R2300/108 E06B3/6722 G02F2201/34 G02F1/136204 E06B9/24 G02F1/13439 G02F1/157 G02F1/163 G02F2201/48 B60R1/06 G02F1/155 G02F1/161 B60R1/088 C23C14/086 C23C14/185 C23C14/5833 C23C14/5873 B23K2103/00 B23K2103/50 Y10T29/49826 G02F1/1503 G02F2001/15145 G02F1/153 C09K9/02 G02F2001/1502 G02F1/15

**European:** B32B17/06 B32B17/10C4 B32B17/10E10 B32B17/10E20 B32B17/10E40D64 B60R1/00 B60R1/04 B60R1/06 B60R1/08 B60R1/08G B60R1/08G2 B60R1/08G3 B60R1/08G5 B60R1/12 B82Y20/00 C03C17/36 C03C17/36B320 C03C17/36B339 C03C17/36B352M C09K9/02 C23C14/08L C23C14/18B C23C14/58D2 C23C14/58J E06B3/67F2 G02F1/15 G02F1/153 G02F1/155 G02F1/157 G02F1/15V G02F1/161 G02F1/163 H05K1/02G H05K3/32B L60R1/12A L60R1/12B L60R1/12C L60R1/12D L60R1/12G L60R1/12L L60R300/10X P06B9/24 S02F1/1343B S02F1/1345 S02F1/153B S02F1/155 S02F1/157 S02F1/15B S02F1/15M S02F1/161 S02F1/163 S02F201/34 S02F201/48 S02F202/36 S02F203/02 T05K1/03B T05K201/01A1 T05K201/10D1D T05K201/20F

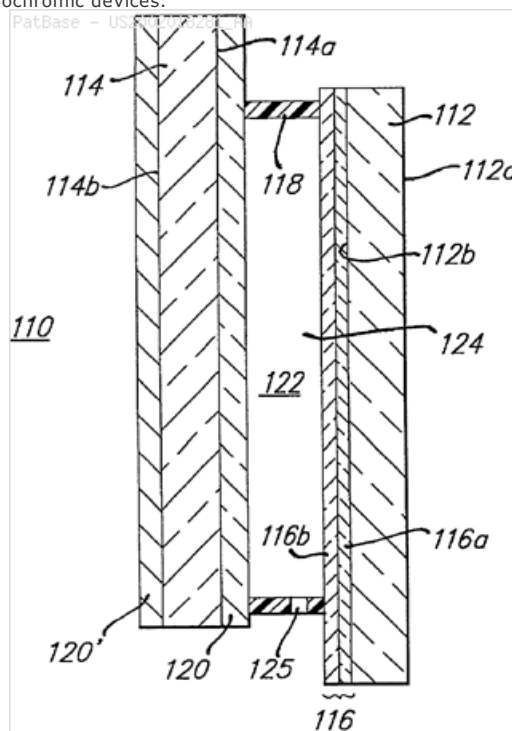
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**JP F-Term:** 2K001 2K001/AA08 2K001/AA10 2K001/BA10 2K001/BA17 2K001/BB29 2K001/BB48 2K001/BB50 2K001/CA04 2K001/CA08 2K001/CA09 2K001/CA34 2K001/CA45 2K001/CA50 2K001/EA20 2K001/FA03 2K001/FA04 2K001/FA08 2K101 2K101/DB04 2K101/DC37 2K101/EB44 2K101/EB47 2K101/EB83 2K101/EC15 2K101/EC54 2K101/EC61 2K101/ED63 2K101/EF03 2K101/EG37 2K101/EG52 2K101/EG54 2K101/EK05 2K101/EK07 2K001/AA05 2K001/AA16 2K001/BB01 2K001/BB41 2K001/DA02 2K001/DA03 2K101/EB01 2K101/EB21 2K101/EH02 2K101/EH03 2K101/EK02 2K101/EK31 2H042 2H042/DA03 2H042/DA12 2H042/DA15 2H042/DB05 2H042/DE01 3D021 3D053 3D053/FF40 3D053/GG01 3D053/GG05 3D053/GG06 3D053/HH40 2H042/DA08 2H042/DA11 2H042/DB01 2H042/DE08 2H048 2H048/FA05 2H048/FA09 2H048/FA24 2H048/GA07 2H048/GA14 2H048/GA32 2H048/GA51 2K001/CA15 2K001/DA04 2K001/DA19 2K001/DA21 2K101/EG65 2K101/EH04 2K101/EH25 2K101/EH36 2K001/BA01 2K001/BB16 2K001/BB35 2K001/CA07 2K001/CA17 2K101/DB31 2K101/DC41 2K101/EB11 2K101/EG51 3C082 2K101/AA22 2K101/DB03 2K101/DC03 2K101/DC52 2K101/EA11 2K101/EC11 2K101/EC72 2K101/EJ11 2K101/DA01 2K101/DD02 2K101/EB05 2K101/EC52 2K101/EE02 2K101/EG01 2K101/EG05 3D053/FF16 3D053/HH14 3D053/MM41 2K101/EB71 2K101/EE01 2K101/EJ21 2K101/EJ31 2K101/DB05 2K101/DC53 2K101/EH05 2K101/DD01 2K101/EB12 2K101/EB41 2K101/EC25 2K101/ED01 2K101/ED41 2K101/EG26 2K101/EG27 2K101/EG31 2K101/EH41 2K101/EJ14 3D053/FF03 3D053/HH38

**JP F-Index:** G02F1/15/501 G02F1/15/502 G02F1/15/505 G02F1/155 G02F1/161 G02F1/157 B60R1/04/Z B60R1/06/Z G02B5/08/A G02B5/08/D G02B5/26 G02B300/182 B82Y20/00 G02F1/15 B60R1/04/D G02F1/153 B60R1/04/B B60R1/04/A

**Family:**

| Publication number | Publication date | Application number | Application date |
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| AU2003272785 AA    | 20040423         | AU20030272785      | 20030929         |
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| CA2522655 C       | 20110802 | CA20042522655   | 20040506 |
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**Probable Assignee:** GENTEX CORP

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**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**2) Family number: 61594139** (US2016031739A)

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**Title:** THERMALLY TEMPERED GLASS AND METHODS AND APPARATUSES FOR THERMAL TEMPERING OF GLASS

**Abstract:** A strengthened glass sheet product as well as process and an apparatus for making the product. The process

comprises cooling the glass sheet by non-contact thermal conduction for sufficiently long to fix a surface compression and central tension of the sheet. The process results in thermally strengthened glass sheets having improved breakage properties.

**Classifications:**

**International (IPC 8-9):** B32B1/00 B32B17/00 B32B17/10 B60J1/00 C03B27/012 C03B27/016 C03B27/04 C03B27/044 C03B27/048 C03B27/052 C03B29/12 C03B29/16 C03B35/14 C03B35/24 C03C17/23 C03C21/00 C03C23/00 C03C27/06 C03C27/12 C03C3/00 C03C3/11 E04C2/54 E06B3/54 E06B3/66 E06B3/663 E06B3/67 G06F3/01 G06F3/041 G09F9/00 (Advanced/Invention)

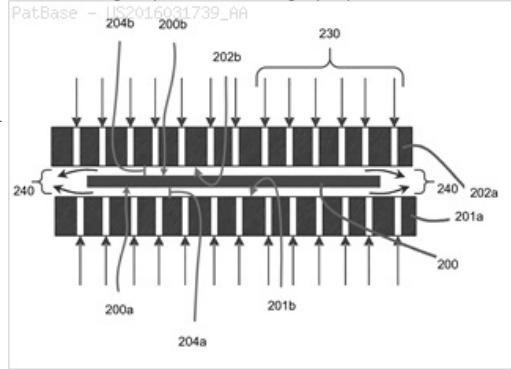
**International (IPC 1-7):** C03B27/016 C03B27/04 C03B27/048 C03B27/052 C03B29/12 C03B29/16 C03B35/24 C03C23/00 C03C3/11 E06B3/54 E06B3/66 E06B3/67

**CPC:** C03B27/0413 C03B27/044 C03B27/04 C03C21/002 C03B27/052 C03B29/16 C03B35/24 C03C3/11 C03B27/012 C03B27/016 C03B27/0526 Y10T428/315 C03C23/007 E06B3/6715 G06F3/041 C03B35/147 B32B17/06 B32B17/10055 B32B17/10137 B32B17/10743 B32B17/10761 B32B17/1077 B32B17/10788 Y02P40/57 E06B3/66304 G06F3/016 B32B17/10302 E04C2/54 E06B3/6612 E06B3/66309 B32B17/10036 B32B17/10091 B32B17/101 B32B17/10752 C03C21/00 B32B2315/08 B32B2605/00 C03C3/078 C03C3/083 C03C3/085 C03C3/087 C03C3/095 E06B3/5409 E06B3/5436 C03B27/048 C03B29/12 C03B27/0404

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| US20160749005 20160728  | US20160749015 20160728  | US20160748993 20160801  |
| WO2016US45022 20160801  |                         |                         |

**Probable Assignee:** CORNING INC

**Assignee(s):** (std): CORNING CO LTD ; CORNING INC

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**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

### 3) Family number: 43227725 (US2009120018A)

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**Title:** SEALED UNIT AND SPACER WITH STABILIZED ELONGATE STRIP

**Abstract:** A sealed unit includes at least two sheets of material separated by a spacer. In one example, a spacer includes an elongate strip having a first longitudinal edge and a second longitudinal edge and defines a plane extending between at least portions of the first and second longitudinal edges. The spacer also includes at least a first stabilizer connected to the elongate strip adjacent the first longitudinal edge. The first stabilizer has a first surface arranged substantially perpendicular to the plane. The first surface is adapted to support the elongate strip against a first sheet of material. Some embodiments include a second stabilizer adapted to support the elongate strip against the second sheet of material.

#### Classifications:

**International (IPC 8-9):** B05D3/12 B21D13/10 B21K23/00 B23P11/00 B23P19/00 B29C47/00 B29C47/02 B29C53/22 B29C65/70 B32B3/00 B32B3/04 B32B37/00 B32B38/04 B32B38/18 B62D39/00 B65H55/04 C03C27/06 E04C2/32 E04C2/54 E04C3/00 E04D1/22 E06B3/00 E06B3/24 E06B3/263 E06B3/273 E06B3/54 E06B3/64 E06B3/66 E06B3/663 E06B3/673 E06B3/677 E06B3/96 E06B5/00 E06B7/00 E06B7/12 E06B7/16 E06B7/23 E06B7/232 (Advanced/Invention); B21D39/03 B23P11/00 E06B3/273 E06B3/663 E06B3/673 (Advanced/Non-invention); B21D13/00 B21K23/00 B32B3/00 B62D39/00 B65H55/00 E04C3/00 E04D1/12 E06B3/66 E06B5/00 E06B7/22 (Core/Invention); E04C2/32 E06B3/663 E06B3/96 (Core/Non-invention)

**International (IPC 1-7):** E06B3/663

**CPC:** E06B3/66304 E06B3/66309 E06B3/66314 E06B3/66323

E06B3/66342 E06B3/66361 E06B3/6733 E06B2003/6639 Y10T29/49623 Y10T156/10 Y10T428/192 Y10T428/24174 Y10T428/24331 Y10T428/24628 Y10T428/2848 E06B3/67373 E06B3/663 E06B3/67313 E06B3/67326 E06B2003/66385 Y10T29/49826 Y10T29/53 Y10T156/12 Y10T156/1348 Y10T156/1788 E06B3/6608 E06B3/26305 E06B3/273 E06B3/5454 E06B3/64 E06B3/6612 E06B3/66366 E06B3/67308 E06B3/67317 E06B7/12 E06B2003/2635 E06B2003/26376 E06B3/26301 E06B3/677 E06B7/16

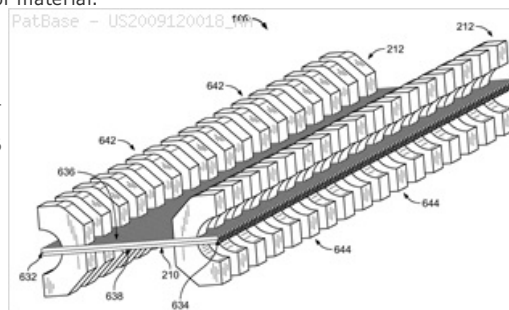
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**US:** 1/1 156/107 156/109 156/191 156/443 156/459 156/468 156/510 156/523 156/574 156/60 156/91 242/160.1 242/176 264/129 264/251 264/252 264/254 264/260 264/261 277/649 277/654 29/428 29/700 29/897.3 29/897.312 296/1.01 427/356 428/119 428/131 428/138 428/174 428/34 428/354 428/58 52/171.3 52/172 52/204.591 52/204.593 52/204.595 52/309.1 52/557 52/745.19 52/786.1 52/786.11 52/786.13 52/788.1 52/852 72/379.6

**JP F-Term:** 2E016 2E016/AA01 2E016/BA01 2E016/CA01 2E016/CB01 2E016/CC02 2E016/FA01 4G061 4G061/AA09

4G061/BA01 4G061/CB02 4G061/CD22 2E016/CB02 2E016/FA02

**JP F-Index:** C03C27/06/101/D E06B3/66/Z E06B3/663/A E06B3/663/E E06B3/667



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| Publication number | Publication date | Application number | Application date |
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| US20100386732P | 20100927 | US20100424545P | 20101217 | EP20110727084  | 20110610 |
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**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

#### 4) Family number: 52405173 (US2015110991A)

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**Title:** LAMINATE, METHOD FOR CUTTING LAMINATE, METHOD FOR PROCESSING LAMINATE, AND DEVICE AND METHOD FOR CUTTING BRITTLE PLATE-LIKE OBJECT

**Abstract:** Provided is a laminate (1) obtained by integrally laminating glass sheets (4) on both surfaces of a resin sheet (2). The glass sheets (4) have a thickness of 300 micro m or less and end surfaces (4a) of the glass sheets (4) are chamfered.

#### Classifications:

**International (IPC 8-9):** B23K26/00 B23K26/02 B23K26/04 B23K26/08 B23K26/10 B23K26/14 B23K26/142 B23K26/38 B23K26/40 B23K26/402 B24B9/08 B28D1/22 B28D5/00 B29C67/00 B32B17/10 B32B3/02 B32B3/30 B32B37/00 B32B37/14 B32B7/12 C03B21/02 C03B33/00 C03B33/02 C03B33/03 C03B33/033 C03B33/04 C03B33/07 C03B33/08 C03B33/09 C03C19/00 C03C27/12 G02F1/13 G02F1/1333 G06F3/041 (Advanced/Invention); C03B33/09 G02F1/1333 (Advanced/Non-invention) **CP:** B23K26/083 B32B17/1099 B32B2250/40 B32B2315/08 B32B2457/20 B32B2457/12 B32B17/10155 C03B33/074 B32B37/14

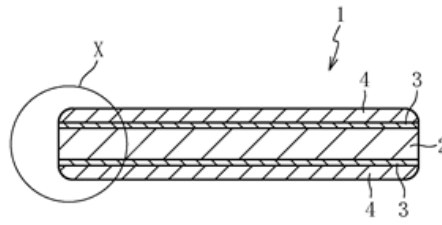
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B23K2103/16 B23K2103/172 B23K2103/50 B23K26/38 B32B17/10  
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**US:** 1/1 156/101 156/250 156/268 156/60 264/400 428/137 428/157  
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**JP F-Term:** 4F100 4F100/AG00 4F100/AK01 4F100/BA03 4F100/BA06  
4F100/DB01 4F100/DB15 4F100/EJ26 4F100/GB48 4F100/YY00  
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PatBase - US2015110991\_AA



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| Publication number | Publication date | Application number | Application date |
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| CN201280023006 | 20120514 | EP20120785092 | 20120514 | JP20120110810 | 20120514 |
| JP20120110813  | 20120514 | JP20120110811 | 20120514 | JP20120110812 | 20120514 |
| WO2012JP62304  | 20120514 | US20130117127 | 20131112 | US20150967851 | 20151214 |

**Probable Assignee:** NIPPON ELECTRIC GLASS CO LTD

**Assignee(s):** (std): ETA MICHIHARU ; HASEGAWA YOSHINORI ; MIWA YOSHIHARU ; MORI HIROKI ; NIPPON ELECTRIC GLASS CO ; NIPPON ELECTRIC GLASS CO LTD ; NODA TAKAYUKI

**Inventor(s):** (std): EDA MICHIHARU ; MIWA YOSHIHARU ; ETA MICHIHARU ; HASEGAWA YOSHINORI ; NODA TAKAYUKI ; MORI HIROKI

**Agent(s):** TETZNER MICHAEL; WENDEROTH LIND AND PONACK LLP; SHIROMURA KUNIIHIKO ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS

**5) Family number: 57789785 (US2014334006A)**

PatBase

**Title:** SCRATCH-RESISTANT ARTICLES WITH A GRADIENT LAYER

**Abstract:** Embodiments of this disclosure pertain to articles that exhibit scratch-resistance and improved optical properties. In some examples, the article exhibits a color shift of about 2 or less, when viewed at an incident illumination angle in the range from about 0 degrees to about 60 degrees from normal under an illuminant. In one or more embodiments, the articles include a substrate, and an optical film disposed on the substrate. The optical film includes a scratch-resistant layer and a refractive index gradient. In one or more embodiments, the refractive index includes a refractive index that increases from a first surface at the interface between the substrate and the optical film to a second surface. The refractive index gradient may be formed from a compositional gradient and/or a porosity gradient.

**Classifications:**

**International (IPC 8-9):** B32B17/06 B32B17/10 B32B27/00 B32B7/02 B32B7/023 B32B9/00 B32B9/04 C03C17/00 C03C17/245 C03C17/34 C03C17/36 C03C21/00 C03C3/091 C03C3/095 C04B35/58 C04B35/597 C23C14/06 C23C14/08 C23C14/10 C23C14/34 G02B1/00 G02B1/02 G02B1/10 G02B1/11 G02B1/111 G02B1/113 G02B1/115 G02B1/116 G02B1/14 G02B27/00 G02B5/04 G02B5/22 G02B5/26 G02B5/28 G09F9/00 (Advanced/Invention);

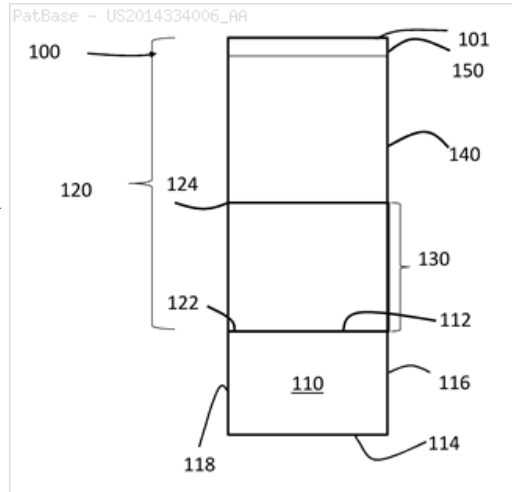
C23C14/00 G02B1/11 G02B1/115 (Advanced/Non-invention)

**CP:** C23C14/34 C04B35/597 C04B35/58 G02B1/02 G02B1/14 G02B1/11 Y10T428/24942 Y10T428/265 Y10T428/31612 G02B1/111 G02B1/116 Y10T428/249921 C23C14/3442 C03C17/3411 C03C17/245 C03C17/3435 C03C2217/78 C03C2217/734 G02B1/113 Y10T428/315 G02B1/10 C03C3/091 C03C21/002 C03C2217/91 C23C14/0036 C23C14/0084 C23C14/0641 C23C14/0676 C23C14/081 C23C14/10 G02B5/22 G02B5/26 G02B1/115 G02B1/105 Y10T428/2495 Y10T428/26 C03C3/095 C03C17/006 C03C17/3657 C03C2217/214 C03C2217/228 C03C2217/29 C03C2217/425 C03C2217/73 C03C2218/154 C03C2218/155 G02B27/0006 G02B1/18 C03C3/083 C03C3/085

**US:** 1/1 204/192.11 204/192.26 359/580 423/327.1 423/385 428/212 428/213 428/217 428/221 428/332 428/336 428/410 428/426 428/427 428/428 428/429 428/432 428/433 428/446 428/448

**JP F-Term:** 2K009/2K009/AA02 2K009/AA15 2K009/BB02 2K009/BB11 2K009/CC03 2K009/DD03 2K009/DD04 4F100/4F100/AA12 4F100/AA13 4F100/AA19 4F100/AA20 4F100/AG00 4F100/AR00 4F100/AT00 4F100/BA02 4F100/BA03 4F100/BA07 4F100/BA10 4F100/BA42 4F100/EH46 4F100/EH66 4F100/JK12 4F100/JN01 4F100/JN06 4F100/JN18 4F100/YY00 4G059/4G059/AA01 4G059/AA11 4G059/AB11 4G059/AC04 4G059/AC16 4G059/EA01 4G059/EA05 4G059/EA12 4G059/EB04 4G059/GA01 4G059/GA02 4G059/GA04 4G059/GA12 5G435/5G435/AA08 5G435/FF01 5G435/HH02 5G435/HH05 5G435/HH20 2K009/AA08 2K009/AA09 2K009/BB01 2K009/CC01 2K009/CC21 2K009/CC24 2K009/CC34 2K009/CC35 2K009/CC42 4F100/AA16 4F100/AA27 4F100/AD05 4F100/AD11 4F100/BA04 4F100/BA05 4F100/DA20 4F100/JK07 4F100/JK09 4F100/JK10 4F100/JN30 4G059/AA08 4G059/EA04 4G059/EA09 4G059/EA11 4G059/EB02 4G059/HB03 5G435/AA01 5G435/AA09 5G435/FF02 5G435/FF03 2H148 2H148/GA03 2H148/GA09 2H148/GA14 2H148/GA28 2K009/CC02 2K009/EE01 4F100/AA06 4F100/AA17 4F100/AA18 4F100/AA21 4F100/AA26 4F100/AA37 4F100/GB41 4F100/JA11 4F100/JD06 4F100/AH06 4F100/AH08 4F100/BA44 2K009/BB04 2K009/BB12 2K009/BB13 2K009/BB14 2K009/BB15 2K009/BB22 2K009/BB23 2K009/BB24 2K009/BB25 2K009/CC06 2K009/CC32 4F100/AA33 4F100/DD07 4F100/JN00 2K009/AA04 2K009/AA05 2K009/AA10

**JP F-Index:** B32B7/02/103 G02B1/115 G02B1/14 C03C17/245/A C03C17/34/Z G09F9/00/302 B32B17/10 C03C21/00/101 G02B1/111 B32B7/02/101 G02B5/28 B32B27/00/B G02B1/11 B32B9/00/A G02B1/113



**Family:**

| Publication number | Publication date | Application number | Application date |
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| US2014335332 AA | 20141113 | US20140331656  | 20140715 |
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| US2014376094 AA | 20141225 | US20140480898  | 20140909 |
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| WO14182639 A1   | 20141113 | WO2014US36872  | 20140506 |
| WO14182640 A1   | 20141113 | WO2014US36873  | 20140506 |
| WO15038835 A1   | 20150319 | WO2014US55282  | 20140912 |
| WO15076914 A1   | 20150528 | WO2014US55281  | 20140912 |

#### Priority:

|                |          |                |          |                |          |
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| US20130820407P | 20130507 | US20130877568P | 20130913 | US20140954767P | 20140318 |
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| US20140267516  | 20140501 | CN201480037881 | 20140506 | CN201480038941 | 20140506 |
| EP20140729793  | 20140506 | WO2014US36873  | 20140506 | WO2014US36872  | 20140506 |
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| JP20170225808  | 20171124 |                |          |                |          |

**Probable Assignee:** CORNING INC

**Assignee(s):** (std): CORNING CO LTD ; CORNING INC

**Assignee(s):** CORNING INC CORNING

**Inventor(s):** (std): PAULSON CHARLES ANDREW ; ADIB KAVEH ; SACHENIK PAUL ARTHUR ; KOCH III KARL WILLIAM ; HART SHANDON DEE ; KOCH KARL WILLIAM III ; BELLMAN ROBERT ALAN ; PRICE JAMES JOSEPH ; PRICE J J ; ROBERT ALAN BELLMAN ; SHANDON DEE HART ; KARL WILLIAM KOCH III ; CHARLES ANDREW PAULSON ; JAMES JOSEPH PRICE ; J J PRICE

**Inventor(s):** KOCH KARL WILLIAM III ELMIRA ; PAULSON CHARLES ANDREW PAINTED POST ; PRICE JAMES JOSEPH CORNING

**Agent(s):** HERNANDEZ YORCK DIPL ING; GREENE SIMON KENNETH; SCOTT MARK ANDREW; ELKINGTON AND FIFE LLP; PAYAL A; JEFFREY A; PATEL PAYAL A

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU

CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN  
IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW  
MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM  
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6) Family number: 30951534 (US2003188881A)

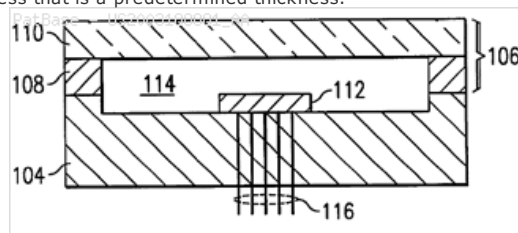
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**Title:** HERMETICALLY SEALED MICRO-DEVICE PACKAGE USING COLD-GAS DYNAMIC SPRAY MATERIAL DEPOSITION

**Abstract:** A method for manufacturing a cover assembly including a transparent window portion and a metallic frame that can be joined to a micro-device package base to form a hermetically sealed micro-device package. A sheet of a transparent material is provided having a window portion defined thereupon, the window portion having finished top and bottom surfaces. A frame-attachment area is prepared on the sheet, the frame-attachment area circumscribing the window portion. A first quantity of powdered metal particles is sprayed onto the prepared frame-attachment area of the sheet using a jet of gas, the gas being at a temperature below the fusing temperature of the metal particles. The jet of gas has a velocity sufficient to cause the metal particles to merge with one another upon impact with the sheet and with one another so as to form an initial continuous metallic coating adhering to the frame-attachment area of the sheet. Successive quantities of powdered metal particles are applied over the initial continuous metallic coating using the jet of gas so as to form a continuous built-up metallic frame incorporating the initial continuous metallic coating as its base and having an overall thickness that is a predetermined thickness.

**Classifications:**

**International (IPC 8-9):** B05D1/12 B05D5/12 B81B7/00 C03C27/06  
E04C2/34 E04C2/54 E06B3/00 E06B3/24 E06B3/26 E06B3/66 E06B3/663  
E06B3/673 E06B3/68 E06B9/01 G01N1/00 G01N1/22 G01N33/00  
G01N33/18 G01N7/00 G06F1/16 H01H H01H47/18 H01L21/00 H01L21/44  
H01L21/52 H01L23/02 H01L23/04 H01L23/28 H01L27/146 H01L31/0203  
H01L31/0232 H01L33/00 H02G3/00 H02G3/08  
H05K5/06 (Advanced/Invention);  
B32B17/00 E06B3/66 E06B3/673 G01N1/24 H01L33/48 (Advanced/Non-  
invention);  
C03C27/06 E04C2/34 E04C2/54 E06B3/04 E06B3/66 G01N1/00  
G01N1/22 G01N33/00 G01N33/18 G01N7/00 H01H47/00  
H01L33/00 (Core/Invention);  
B32B17/00 G01N1/24 (Core/Non-invention);  
G02B H01H (Subclass/Invention)



**International (IPC 1-7):** B05D1/12 B05D5/12 E06B3/26 E06B9/01 E21B49/00 G01N1/24 G01N33/24 G02B G06F1/16 H01H47/18  
H01L21/44 H01L23/02 H01L23/04 H01L23/28 H01L31/0203 H01L33/00 H02G3/08 H05K5/06

**CPC:** G01N1/2294 G01N1/24 G01N33/0047 H01L2924/0002 H01L27/14632 H01L27/14689 H01L33/483 H01L31/0203  
B81C2203/0109 B81C2203/019 B81C1/00293 B81B7/0067 B81B2201/047 B81C1/00269 H01L21/50 H01L23/10 H01L27/14618  
H01L27/14625 H01L27/14683 H01L27/14685 H01L2924/09701 C03C15/00 C03C19/00 C03C27/046 E06B3/6612 E06B3/66304  
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Y02A30/25

**European:** B81B7/00P12 B81C1/00C14B B81C1/00C14C10 B81C5/00U2 B81C5/00U6 C03C15/00 C03C19/00 C03C27/04B4  
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H01L27/146A10 H01L27/146A14 H01L27/146A6 H01L27/146V H01L27/146V2 H01L27/146V6 H01L31/0203 H01L31/0232  
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T01L33/48C Y02B80/24

**US:** 174/52.3 174/52.4 174/522 174/522S 174/533 174/533S 174/535 174/539 174/554 174/564 175/5 175/50 175/59 2/959.21  
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257/E21.500S 257/E23.18 257/E23.180S 257/E31.117 257/E31.117S 257/E31.118 257/E31.118S 257/E31.127 257/E31.127S  
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**JP F-Term:** 2E016/AA01 2E016/BA01 2E016/BA02 2E016/CA01 2E016/CA03 2E016/CB01 2E016/EA01 2E016/EA02 4G061  
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**JP F-Index:** C03C27/06/101/B C03C27/06/101/E C03C27/06/101/H C03C27/06/101/Z E06B3/66/Z

**Family:**

| Publication number | Publication date | Application number | Application date |
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#### Priority:

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| US20050707367P | 20050811 | US20050269140  | 20051108 | US20060381733  | 20060504 |
| US20060381742  | 20060504 | WO2006US17595  | 20060505 | US20070773354  | 20070703 |
| US20070872603  | 20071015 | US20100947691  | 20101116 |                |          |

**Probable Assignee:** ELECTRONICS PACKAGING SOLUTIONS INC

**Assignee(s):** (std): CONKIN J RILEY ; DAVID H STARK ; DAVID STARK ; ELECTRONICS PACKAGING SOLUTION ; ELECTRONICS PACKAGING SOLUTION INC ; STARK DAVID H ; STARK DAVID ; SCHMITT CLIFFORD T ; MCMANUS RICHARD W ; JEWETT PETER D ; HVOC L L C ; FARALLON CONSULTING LLC ; ELECTRONICS PACKAGING SOLUTIONS INC

**Assignee(s):** ASTRAVAC GLASS INC ; HVOC LLC

**Inventor(s):** (std): CONKIN J RILEY ; JEWETT PETER D ; MCMANUS RICHARD W ; SCHMITT CLIFFORD T ; STARK DAVID H ; CONKLIN J R ; STARK DAVID

**Inventor(s):** DAVID H STARK ; SCHMITT CLIFFORD ; MCMANUS RICHARD ; CONKLIN J ; CONKLIN J RILEY ; JEWETT PETER

**Agent(s):** FB RICE; FB RICE PTY LTD; RICHES MCKENZIE AND HERBERT LLP; UEXKUELL AND STOLBERG; DEACONS; SOGA MICHIHARU; HOWISON AND ARNOTT LLP; BLACK LOWE AND GRAHAM PLLC; HOWSON AND ARNOTT LLP

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LC LI LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

## 7) Family number: 30079938 (US2003096106A)

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**Title:** SEGMENTED GLASS LAMINATE

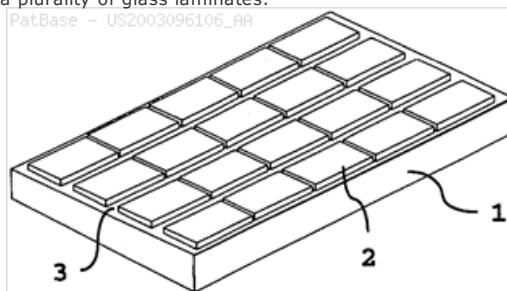
**Abstract:** A flexible laminate is disclosed which comprises a flexible support as a first layer and glass having a thickness in the range from 10 mum to 500 mum as a second layer and wherein the first or the second layer is a non-contiguous, segmented layer. In the embodiment of the Figure, a plastic foil 1 is provided with a plurality of thin adjacent glass segments 2, which are separated by a space 3. The laminate can be provided with functional layers, e.g. using a web coating or printing process, and can then be cut easily in the space between the segments so as to obtain a plurality of glass laminates.

#### Classifications:

**International (IPC 8-9):** B24D15/10 B32B17/06 B32B17/10 B32B27/32 B32B27/36 B32B7/02 B42D15/10 C03C27/00 C03C27/10 C03C27/12 G02B1/11 G02B5/00 G02F1/00 G02F1/13 G02F1/1333 G02F1/1335 G02F1/1337 G02F1/1341 G02F1/1345 G03C1/76 G03C1/795 G03C1/85 G03C1/91 G03C7/00 G03F1/60 G06K19/02 G06K19/04 G06K19/06 G06K19/077 G06K19/10 G06K19/14 G09F9/00 G11B7/24 H01L21/00 H01L23/00 H01L23/48 H01L23/498 H01L23/58 H01L33/00 H01L51/00 H01L51/10 H01L51/42 H01L51/52 H05B33/02 (Advanced/Invention); B32B17/10 B32B7/02 C03C27/10 G02F1/1333 G02F1/1335 G03C1/76 G03C1/85 G03C1/91 H01L51/42 (Advanced/Non-invention); B24D15/00 B32B17/06 B32B27/32 B32B27/36 B32B7/02 B42D15/10 C03C27/00 C03C27/12 G02B1/10 G02B5/00 G02F1/00 G02F1/13 G03C1/76 G03C1/795 G03C1/91 G03C7/00 G06K19/02 G06K19/04 G06K19/06 G06K19/077 G06K19/10 G06K19/14 G09F9/00 G11B7/24 H01L21/00 H01L23/00 H01L23/48 H01L23/58 H01L51/00 H01L51/05 H01L51/50 H05B33/02 (Core/Invention); G02F1/13 G03C1/76 G03C1/85 G03C1/91 H01L51/42 (Core/Non-invention)

**International (IPC 1-7):** B05D5/06 B05D5/12 B24D15/10 B32B1/00 B32B17/06 B32B17/10 B32B23/02 B32B27/36 B32B3/00 B32B31/04 B32B7/02 B42D15/10 C03C17/34 C03C27/10 C03C27/12 D06N7/04 G02B1/11 G02B5/00 G02F1/00 G02F1/1337 G02F1/1345 G03C1/91 G03C7/00 G06K19/06 G06K19/077 G06K19/10 G09F9/00 G11B7/24 H01J1/70 H01J29/18 H01L21/00 H01L21/44

**CPC:** Y10S428/913 Y10S430/146 H01L51/42 G02F2001/133302 H01L27/02 H01L2924/0002 B32B2367/00 G03C1/76 B32B17/10174 B32B27/32 G03C1/7614 G03C1/795 G03C1/7954 G03C1/853 G03C1/91 Y10T428/24355 Y10T428/24752 Y10T428/24769 Y10T428/26 Y10T428/24802 Y10T428/24851 Y10T428/24868 Y10T428/24917 Y10T428/24926 Y10T428/162 Y10T428/164 Y10T428/315 B32B17/10247 B32B17/1033 B32B17/10981 G06K19/06046 G06K19/14 Y10T428/31507



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**European:** B32B17/10C2 B32B17/10C28 B32B17/10C4 B32B17/10E B32B17/10E10 B32B17/10E12 B32B17/10E22 B32B17/10L22  
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T01L51/42 Y02E10/50  
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428/412 428/423.1 428/425.5 428/425.6 428/426 428/428 428/430 428/432 428/433 428/435 428/438 428/441 428/457 428/458  
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**Family:**

| Publication number | Publication date | Application number | Application date |
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#### Priority:

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| KR20007004386 | 20000422 | US20020327066  | 20021224 |                |          |

#### Probable Assignee: INNOLUX CORP

**Assignee(s):** (std): AGFA GEVAERT ; AGFA GEVAERT NAAMLOZE VENNOOTSCHAP ; INNOVATIVE SPUTTERING TECH ; INNOVATIVE SPUTTERING TECHNOL ; GOEDEWEECK RUDI ; CHI MEI OPTOELECTRONICS CORP ; AGFA GEVAERT NV ; CHI MEI OPTOELECTRONICS CORP ; BEKAERT NV SA ; TAHON JEAN PIERRE ; VERLINDEN BARTHOLOMEUS

**Assignee(s):** INNOVATIVE SPUTTERING TECHNOLOGY KARREWEG ; INNOVATIVE SPUTTERING TECHNOLOGY ; N V BEKAERT S A ; N V BEKAERT S A ZWEVEGEM ; VERMEULEN LEON ; LEENDERS LUC ; NV BEKAERT SA ; CHI MEI OPTOELECTRONICS CORP TAINAN ; CHI MEI OPTOELECTRONICS CORP TAINAN ; INNOLUX CORP ; CHIMEI INNOLUX CORP ; AGFA GEVAERT SEPTESTAAT ; BEKAERT BEKAERTSTRAAT NVSA ; AGFA GEVAERT SEPTESTAAT NV ; CHI MEI OPTOELECTRONICS CORPORATION ; AGFA GEVAERT MORTSEL ; AGFA GEVAERT N V

**Inventor(s):** (std): BARTHOLOMEUS VERLINDEN ; GOEDEWEECK RUDI ; HERMANN VAN GOLB ; LEENDERS LUC ; LIEVENS HUGO ; LIPPENS PAUL ; MUYLLE WILFRIED ; TAHON J P ; TAHON JEAN PIERRE ; VAN GORP HERMAN ; VERLINDEN B ; VERLINDEN BART ; VERLINDEN BARTHOLOMEUS ; VERMEIREN JAN ; VERMEULEN L ; VERMEULEN LEO ; VERMEULEN LEON ; VERLINDEN BARTHOLOMEUS B MORT ; RUDI GOEDEWEECK ; LUC LEENDERS ; LEON VERMEULEN ; LEO VERMEULEN ; L VERMEULEN ; JEAN PIERRE TAHON ; J P TAHON ; B VERLINDEN

**Inventor(s):** VERLINDEN BARTHOLOMEUS B 2640 MORTSEL

**Agent(s):** DAVIES COLLISON CAVE ; DAVIES COLLISON CAVE PTY LTD ; BORDEN LADNER GERVAIS LLP ; NARGOLWALLA CYRA ET AL

**Designated states:** AT AU BE CA CH CN CY DE DK ES FI FR GB GR IE IT JP KR LI LU MC NL NO PT SE US

#### 8) Family number: 46627818 (US2010260494A)

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**Title:** CURVILINEAR SENSOR SYSTEM

**Abstract:** Methods and apparatus for a Curvilinear Sensor System are disclosed. The present invention includes a wide variety of generally curved, aspheric or non-planar arrangement of sensors and their equivalents. The curvilinear surfaces, edges or boundaries that define the geometry of the present invention may be continuous, or may be collections or aggregations of many small linear, planar or other segments which are able to approximate a curved line or surface.

#### Classifications:

**International (IPC 8-9):** B23P11/00 B29D11/00 B32B37/14 B32B38/00 C03B37/15 G02B6/255 G03B11/04 G03B13/00 G03B15/00 G03B17/00 G03B17/02 G03B19/00 G03B19/06 G03B29/00 G03B37/00 G03B39/00 G03B7/091 G03B7/093 G03B7/099 H01L27/146 H01L31/09 H01L31/18 H04N3/14 H04N5/217 H04N5/225 H04N5/228 H04N5/232 H04N5/238 H04N5/247 H04N5/262 H04N5/30 H04N5/335 H04N5/369 H04N7/00 H04W88/02 (Advanced/Invention); G03B11/00 H01L27/146 H04N5/225 (Advanced/Non-invention);

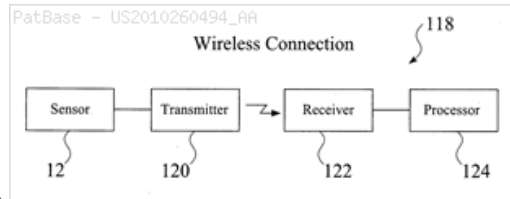
H01L27/146 H04N5/335 (Core/Invention)

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H01L27/14683 H01L27/14605 H04N5/2257 H04N5/23229 H04N5/238  
H04N5/23293 G03B7/093 H04N5/369 G03B17/02 H04N5/23296  
H04N5/23267 H01L2924/0002 H04N5/2254 H01L27/14625 H01L27/14618  
G03B2205/0092 H04N5/2251 H01L27/14623 Y10S901/47 H04N5/23251  
H01L27/14607 H04N5/2253 H01L27/146 H04N5/379 G02B3/0037  
G02B15/00 G02B27/0018 G03B15/00 G03B17/28 H04N5/335 H04N5/345  
H04N5/347 H04N5/349 H04N5/23238 H04N5/3696

**European:** G02B15/00 G02B27/00G G02B3/00A3 G03B15/00 G03B17/00  
G03B17/28 H01L27/146A10 H01L27/146A2B H01L27/146A2P H01L27/146A6 H01L27/146V H04N5/225C H04N5/225C4 H04N5/335  
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**US:** 156/62.8 156/62.800S 216/24 216/24S 264/2.1 264/2.100S 264/2.5 264/2.500S 29/428 29/428S 348/162 348/162S 348/164  
348/164S 348/208.1 348/208.12 348/208.6 348/216.1 348/218.1 348/222.1 348/239 348/239S 348/240.1 348/240.2  
348/240.200P 348/264 348/294 348/294S 348/340 348/36 348/360 348/37 348/373 348/374 348/38 348/39 348/79 348/86  
348/E5.024 348/E5.051 348/E5.085 348/E5.09 348/E5.091 348/E50.51S 348/E50.85S 348/E50.91S 396/268 396/268P 396/439  
396/439S 396/534 396/534S 438/73 65/406 65/406P

**JP F-Term:** 2H002 2H002/GA04 2H019 2H059 2H059/BA07 2H059/BA11 2H059/BA15 2H100 2H100/CC01 2H100/CC07  
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**JP F-Index:** G03B15/00/H G03B15/00/W G03B17/02 G03B37/00/A G03B7/091 H04N5/225/D H04N5/225/200 H04N5/225/300  
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## Family:

| Publication number | Publication date | Application number | Application date |
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| CA2752491 AA       | 20110812         | CA20102752491      | 20100219         |
| CA2752491 C        | 20150728         | CA20102752491      | 20100219         |
| CA2762725 AA       | 20120628         | CA20112762725      | 20111222         |
| CA2762725 C        | 20150818         | CA20112762725      | 20111222         |
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| EP2422370 A1       | 20120229         | EP20100710881      | 20100219         |
| EP2472580 A2       | 20120704         | EP20110006759      | 20110818         |
| EP2472580 A3       | 20120801         | EP20110006759      | 20110818         |
| EP2472580 B1       | 20160803         | EP20110006759      | 20110818         |
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| EP2472581 A3       | 20120801         | EP20110007020      | 20110829         |
| EP2472582 A2       | 20120704         | EP20110007021      | 20110829         |
| EP2472582 A3       | 20120815         | EP20110007021      | 20110829         |
| JP2012235450 A2    | 20121129         | JP20120063453      | 20120321         |
| JP2012518356 T2    | 20120809         | JP20110550645T     | 20100219         |
| JP2015128292 A2    | 20150709         | JP20140262049      | 20141225         |
| JP5404818 B2       | 20140205         | JP20110550645T     | 20100219         |
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| KR20150077287 A    | 20150707         | KR20140160282      | 20141117         |
| US2010260494 AA    | 20101014         | US20100655819      | 20100106         |
| US2012159996 AA    | 20120628         | US20110135402      | 20110630         |
| US2012162483 AA    | 20120628         | US20100930165      | 20101228         |
| US2012242882 AA    | 20120927         | US20110065477      | 20110321         |
| US2013019448 AA    | 20130124         | US20120507969      | 20120808         |
| US2013278818 AA    | 20131024         | US20120506485      | 20120419         |
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| US2014111680 AA    | 20140424         | US20130987697      | 20130820         |
| US2014118526 AA    | 20140501         | US20120694152      | 20121030         |
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| US2015189140 AA    | 20150702         | US20130998980      | 20131227         |
| US2016013244 AA    | 20160114         | US20140120929      | 20140709         |
| US2016021303 AA    | 20160121         | US20140120986      | 20140718         |
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| US8654215 BB       | 20140218         | US20100930165      | 20101228         |
| US8754983 BB       | 20140617         | US20120507969      | 20120808         |
| US8836805 BB       | 20140916         | US20120507674      | 20120717         |
| US8957992 BB       | 20150217         | US20110065477      | 20110321         |
| WO10094929 A1      | 20100826         | WO2010GB00298      | 20100219         |

## Priority:

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| US20090208456P | 20090223 | US20100655819 | 20100106 | WO2010GB00298 | 20100219 |
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| EP20110006759  | 20110818 | CA20112762725 | 20111222 | US20120506485 | 20120419 |
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| JP20140262049  | 20141225 |               |          |               |          |

**Probable Assignee:** POWELL STEPHEN DAVID

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**Assignee(s):** BARTON JR  
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**Inventor(s):** SUTTON GARY EDWIN LA JOLLA

**Agent(s):** MILTONS IP PI; PRINZ AND PARTNER; PRINZ AND PARTNER MBB; THOMAS NGIACCHERINI; THOMAS N; THOMAS NELLO; THOMAS NELLO GIACCHERINI; POWELL WILLIAMS ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

## 9) Family number: 59068964 (US2016214889A)

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**Title:** ION EXCHANGE PROCESSES AND CHEMICALLY STRENGTHENED GLASS SUBSTRATES RESULTING THEREFROM

**Abstract:** A method of performing ion exchange of a thin, flexible glass substrate having an average thickness equal to or less than about 0.3 mm to chemically strengthen the glass substrate is disclosed. The chemically strengthened glass substrate comprises a first compressive stress layer having a first depth of layer, and a second compressive stress layer having a second depth of layer, the first and second stress layers being separated by a layer of tensile stress. A laminated article comprising the chemically strengthened glass substrate is also described.

### Classifications:

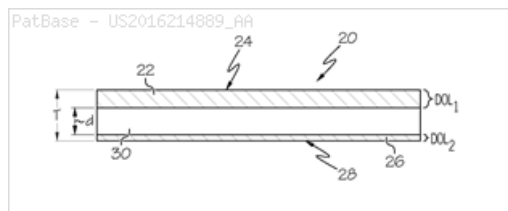
**International (ipc 8-9):** B32B17/06 B32B17/10 C03B27/03 C03C17/32 C03C21/00 C03C27/04 C03C27/12 C03C3/076 C03C3/078 C03C3/083 C03C3/085 C03C3/087 C03C3/089 C03C3/091 C03C3/093 C03C3/095 C03C4/18 C03C4/20 (Advanced/Invention)

**CPC:** C03C4/20 B32B2307/50 B32B17/061 C03C21/002 B32B17/10137 B32B17/06 C03C3/076 C03C3/089 C03C3/091 C03C3/093 C03C3/083 C03C3/085 C03C3/087 C03C3/078 C03C3/095 C03C4/18 B32B17/064

**US:** 428/213

**JP F-Term:** 4G059 4G059/AA01 4G059/AA08 4G059/AB01 4G059/AB09 4G059/AC16 4G059/HB03 4G059/HB13 4G059/HB14 4G061 4G061/AA02 4G061/AA03 4G061/AA04 4G061/AA11 4G061/AA27 4G061/AA28 4G061/BA01 4G061/BA02 4G061/BA03 4G061/CA02 4G061/CA05 4G061/CB16 4G061/CD02 4G061/CD18 4F100 4F100/AB01 4F100/AB09 4F100/AG00 4F100/AK01 4F100/BA03 4F100/BA10 4F100/EJ01 4F100/EJ41 4F100/EJ82 4F100/EJ94 4F100/EK01 4F100/EK04 4F100/EK06 4F100/EK13 4F100/GB41 4F100/GB71 4F100/GB90 4F100/JK05 4F100/JK13 4F100/JK17 4F100/YY00 4G059/AB06 4G059/FA07 4G059/FB08 4G059/HB23 4G061/AA25 4G061/CA03 4G061/CB04

**JP F-Index:** C03C21/00/101 C03C27/12/Q B32B17/06 C03C17/32/C C03C27/04/D



### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN105814004 A      | 20160727         | CN201480067958     | 20141013         |
| EP3057915 A2       | 20160824         | EP20140793366      | 20141013         |
| JP2016538233 T2    | 20161208         | JP20160547989T     | 20141013         |
| JP2019001713 A2    | 20190110         | JP20180155244      | 20180822         |
| JP6392363 B2       | 20180919         | JP20160547989T     | 20141013         |
| KR20160071427 A    | 20160621         | KR20167012434      | 20141013         |
| TW201524929 A      | 20150701         | TW20140135390      | 20141013         |
| TW201840491 A      | 20181116         | TW20180124604      | 20141013         |
| TWI633073 B        | 20180821         | TW20140135390      | 20141013         |
| US2016214889 AA    | 20160728         | US20140026691      | 20141013         |
| US2017226007 AA    | 20170810         | US20170497668      | 20170426         |
| WO15057552 A2      | 20150423         | WO2014US60241      | 20141013         |
| WO15057552 A3      | 20150716         | WO2014US60241      | 20141013         |
| WO15057552 A9      | 20160428         | WO2014US60241      | 20141013         |

### Priority:

US20130890530P 20131014 JP20160547989T 20141013 US20140026691 20141013  
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JP20180155244 20180822

**Probable Assignee:** CORNING INC

**Assignee(s):** (std): CORNING CO LTD ; CORNING INC

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**Inventor(s):** GARNER SEAN M ; MICHAEL LESLEY SORENSEN

**Agent(s):** SCHEUERMANN ERIK; ABLE KEVIN M

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

## 10) Family number: 54344458 (US2014342954A)

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**Title:** MODIFICATION OF SURFACES FOR FLUID AND SOLID REPELLENCY

**Abstract:** Articles, methods of making, and uses for modifying surfaces for liquid repellency are disclosed. The liquid repellent surfaces comprise a surface comprising an anchoring layer. The anchoring layer, which forms an immobilized molecular anchoring layer on the surface, has a head group that is covalently linked to, or adsorbed onto, the surface and a functional group. The functional group of the treated surface has an affinity for a lubricating layer, which is applied to the treated surface. The anchoring layer and replenishable lubricating layer are held together by non-covalent attractive forces. Together, these layers form an ultra-repellant slippery surface that repels certain immiscible liquids and prevents adsorption, coagulation, and surface fouling by components contained within.

#### Classifications:

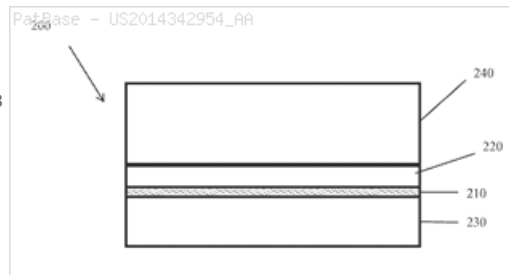
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**CPC:** A61L29/14 A61L33/0041 A61L33/0094 A61L2400/18 A61L2420/02 A61L2420/06 B05D1/60 B05D7/02 A61L15/42 A61L15/50 A61L33/04 C09D5/1656 C10M2213/0623 C10M2229/0415 C10N2230/06 C10N2250/18 B05D3/104 B08B17/065 A61F13/537 A61F13/15699 A61F13/15617 C10M107/38 C09D171/00 A61F2013/8455 B32B7/12 B32B3/26 B32B3/263 B32B27/08 B32B27/322 B32B27/283 B32B5/16 B05D3/0218 B05D3/12 B05D1/36 B32B37/24 B32B37/1284 B32B38/0012 B32B38/0004 B32B38/06 B32B37/0038 B32B2255/10 B32B2264/102 B32B2307/746 B32B2307/754 B32B2457/12 B32B2535/00 B32B2590/00 B32B2556/00 B32B2419/04 B32B2419/06 B32B2405/00 B32B2551/00 B32B2419/00 B32B2037/243 B32B2037/1246 B32B2038/002 B32B2038/0016 C03C17/001 B65D25/14 C03C2217/76 C03C2218/31 B08B17/06 A61L29/06 C10M105/76 C09D5/1693 Y10T156/10 Y10T428/24322 Y10T428/24364 B05D3/107 B05D5/086 C09D5/1681 Y10T428/24355 A61L29/08 B05D5/08 C09D7/61 C10M177/00 C10M2213/0606 C10N2280/00 C23C18/04 C23C18/1216 C23C18/1254 C23C18/1295 C09J7/203 C09J2427/005 C09J2483/006 Y10T428/24997

**US:** 141/1 156/280 156/329 156/60 205/137 206/524.3 210/502.1 210/634 216/37 427/2.1 427/2.24 427/299 427/301 427/309 427/314 427/331 427/355 427/372.2 428/137 428/141 428/142 428/312.8 508/100 508/107 604/378

**JP F-Term:** 4C081 4C081/AC06 4C081/AC08 4C081/BA02 4C081/BA03 4C081/CE11 4C081/DC03 4C081/EA06 4C081/EA14

**JP F-Index:** A61L29/00/Z A61L29/08 A61L29/12 A61L31/00/Z A61L31/08 A61L31/12 A61L33/00/T A61L33/00/110 A61L33/04



#### Family:

| Publication number | Publication date | Application number | Application date |
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| WO2013US21056  | 20130110 | US20130414207  | 20130712 | US20130414592  | 20130712 |

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WO2013US50403 20130712 WO2013US50396 20130712 WO2013US50343 20130712  
US20130414684 20130712 WO2013US50402 20130712 US20150414207 20150112  
AU20170201081 20170217 US20180025589 20180702

**Probable Assignee:** PRESIDENT AND FELLOWS OF HARVARD COLLEGE

**Assignee(s):** (std): HARVARD COLLEGE ; PRESIDENT AND FELLOWS OF HARVARD COLLEGE ; PRESIDENTS AND FELLOWS OF HARVARD COLLEGE

**Assignee(s):** US DEPARTMENT OF ENERGY ; PRESIDENT AND FELLOWS OF HARVARD COLLEGE CAMBRIDGE ; WATERHOUSE ANNA ; WATTERS ALEXANDER L ; PRESIDENT AND FELLOWS OF HARVARD COLLEGE17 QUINCY STREETCAMBRIDGEMA02138US ; KIM PHILSEOK ; LESLIE DANIEL C ; SUPER MICHAEL ; INGBER DONALD ; AIZENBERG JOANNA ; AIZENBERG MICHAEL

**Inventor(s):** (std): AIZANBERG JOANNA ; AIZENBERG JOANNA ; AIZENBERG MICHAEL ; AIZERBERG MICHAEL ; ALZENBERG JOANNA ; ALZENBERG JOANNA J ; ALZENBERG MICHAEL ; ALZENBERG MICHAEL M ; DUNN STUART ; HATTON BENJAMIN ; INGBER DONALD ; INGBER DONALD D ; KIM PHIL SEOK ; KIM PHILSEOK ; KIM PHILSEOK P ; LESLIE DANIEL C ; SHILLINGFORD CICELY ; SUNNY STEFFI ; SUPER MICHAEL ; LESLIE DANIEL C DC ; SUPER MICHAEL M ; UTECH STEFANIE ; UZAN OKTAY ; UZUN OKTAY ; VOGEL NICOLAS ; WANG DECHENG ; WATERHOUSE ANNA ; WATERHOUSE ANNA A ; WATTERS ALEXANDER L ; WATTERS ALEXANDER L AL ; WONG TAK SING ; YAO XI

**Inventor(s):** WATTERS ALEXANDER L MELROSE ; WATTERS ALEXANDER LUS ; WATERHOUSE ANNA CAMBRIDGE ; WATERHOUSE ANNAUS ; WATERHOUS E ANNA ; SUPER MICHAELUS ; LESLIE DANIEL CUS ; SUPER MICHAEL LEXINGTON ; LESLIE DANIEL C BROOKLINE ; KIM PHILSEOKUS ; KIM PHILSEOK ARLINGTON ; INGBER DONALDUS ; INGBER DONALD BOSTON ; ALZENBERG MICHAEL BOSTON ; ALZENBERG JOANNA BOSTON ; AIZENBERG MICHAELUS ; AIZENBERG JOANNAUS

**Agent(s):** DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; TORYS LLP; HERNANDEZ YORCK DIPL ING; HGF LTD; CLT PATENT AND TRADEMARK HK LTD; TANAKA MITSUO; YAMAZAKI HIROSHI; WILMER CUTLER PICKERING HALE AND DORR LLP; WILMER CUTLER PICKERING HALE AND DOOR LLP; SCOZZAFAVA MARY ROSE ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

#### 11) Family number: 59511017 (US2015165563A)

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**Title:** STACKED TRANSPARENT MATERIAL CUTTING WITH ULTRAFAST LASER BEAM OPTICS, DISRUPTIVE LAYERS AND OTHER LAYERS

**Abstract:** A method of laser drilling, forming a perforation, cutting, separating or otherwise processing a material includes focusing a pulsed laser beam into a laser beam focal line, and directing the laser beam focal line into a workpiece comprising a stack including at least: a first layer, facing the laser beam, the first layer being the material to be laser processed, a second layer comprising a carrier layer, and a laser beam disruption element located between the first and second layers, the laser beam focal line generating an induced absorption within the material of the first layer, the induced absorption producing a defect line along the laser beam focal line within the material of the first layer. The beam disruption element may be a beam disruption layer or a beam disruption interface.

#### Classifications:

**International (IPC 8-9):** B23K26/00 B23K26/06 B23K26/364 B23K26/38 B23K26/382 B23K26/40 B23K26/402 B23K26/53 B28D5/00 B32B17/00 C03B33/00 C03B33/02 C03B33/04 C03B33/07 C03B33/08 C03B33/09 C03C15/00 C03C17/23 G02F1/15 G02F1/153

H05K5/03 (Advanced/Invention);

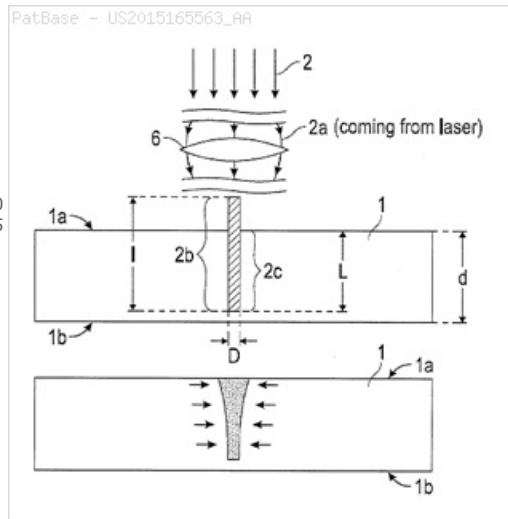
B23K103/00 C03B33/04 (Advanced/Non-invention)

**CPC:** B32B17/00 C03B33/0222 C03B33/04 C03B33/091 B23K26/53 G02F1/1533 G02F1/1523 C03C17/23 C03C2217/219 C03C2218/328 H05K5/03 C03B33/00 C03B33/078 C03B33/082 C03C15/00 B32B2457/20 Y02P40/57 B23K26/009 B23K26/0622 B23K26/382 B23K26/40 B23K26/55 B23K26/57 B23K26/359 B23K2103/172 B23K2103/54 B23K2103/50 B23K26/38 B23K26/402 C03B33/02

**US:** 428/220 428/34 428/426 65/102 65/105 65/112 65/29.1 65/31

**JP F-Term:** 3C069 3C069/AA01 3C069/AA03 3C069/BA08 3C069/BB01 3C069/CA06 3C069/CA11 3C069/EA01 3C069/EA05 4E168 4E168/AD12 4E168/AD18 4E168/AE02 4E168/CB03 4E168/CB07 4E168/CB17 4E168/CB18 4E168/DA02 4E168/DA03 4E168/DA04 4E168/DA23 4E168/DA32 4E168/DA37 4E168/DA42 4E168/DA46 4E168/EA12 4E168/EA13 4E168/EA14 4E168/EA19 4E168/EA23 4E168/JA13 4E168/JA14 4E168/JA27 4E168/JB03 4E168/KA04 4G015/FA06 4G015/FB01 4G015/FC10 4G015/FC14

**JP F-Index:** B23K26/53 B28D5/00/Z C03B33/09



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN106457476 A      | 20170222         | CN201480075653     | 20141211         |
| EP3083512 A2       | 20161026         | EP20140824650      | 20141211         |
| JP2017502901 T2    | 20170126         | JP20160538632T     | 20141211         |
| KR20160101064 A    | 20160824         | KR20167019198      | 20141211         |
| TW201531365 A      | 20150816         | TW20140144120      | 20141217         |
| TW201823831 A      | 20180701         | TW20170134567      | 20171006         |
| TWI649149 B        | 20190201         | TW20140144120      | 20141217         |
| US2015165563 AA    | 20150618         | US20140530457      | 20141031         |
| US2017023841 AA    | 20170126         | US20160288071      | 20161007         |
| WO15094898 A2      | 20150625         | WO2014US69714      | 20141211         |

|               |          |               |          |
|---------------|----------|---------------|----------|
| WO15094898 A3 | 20151015 | WO2014US69714 | 20141211 |
| WO18067928 A1 | 20180412 | WO2017US55533 | 20171006 |

# Priority:

US20130917092P 20131217 US20140022896P 20140710 US20140530457 20141031  
WO2014US69714 20141211 US20160288071 20161007

**Probable Assignee:** CORNING INC

**Assignee(s):** (std): CORNING CO LTD ; CORNING INC ; VIEW INC

**Inventor(s):** (std): MANLEY ROBERT GEORGE ; MARJANOVIC SASHA ; N GOM MOUSSA ; PASTEL DAVID ANDREW ; PIECH GARRETT ANDREW ; TSUDA SERGIO ; WAGNER ROBERT STEPHEN ; WILCOX CHAD MICHAEL

**Agent(s):** GREENE SIMON KENNETH; BRAY KEVIN L; BARRON JASON A

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

## 12) Family number: 47453505 (US2012038964A)

PatBase

**Title:** MIRROR ASSEMBLY FOR VEHICLE

**Abstract:** A vehicular rearview mirror assembly includes a mirror casing, a reflective element and a mounting assembly for adjustably mounting the mirror assembly at a portion of the equipped vehicle. The reflective element has a front surface and a rear surface and a perimeter edge about its periphery and extending between the front and rear surfaces. The front surface generally faces a driver of the vehicle when the mirror assembly is normally mounted in the equipped vehicle. The rear surface of the reflective element may be attached to an attachment surface of an attachment plate or of the mirror casing to secure the reflective element relative to the mirror casing. The perimeter edge of the reflective element may be exposed and viewable by the driver of the vehicle when the reflective element is attached to the attachment surface and when the mirror assembly is normally mounted in the equipped vehicle.

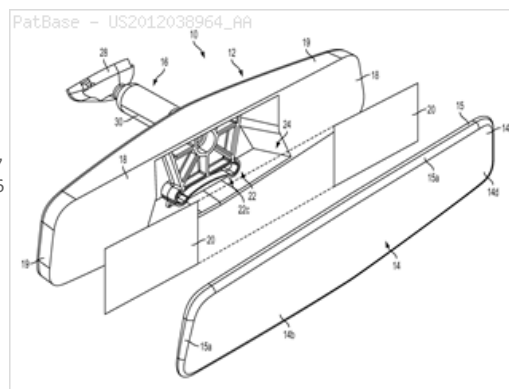
### Classifications:

**International (IPC 8-9):** B24B13/00 B24B49/00 B24B9/00 B24B9/02 B24B9/08 B60R1/00 B60R1/04 B60R1/08 B60R1/12 C03C17/06 G02B5/08 G02B7/182 G02F1/01 G02F1/03 G02F1/15 G02F1/153 G02F1/157 G02F1/161 G02F1/19 (Advanced/Invention); B24B13/00 B24B51/00 B24B9/02 G02B5/08 G02F1/161 (Advanced/Non-invention)

**CPC:** B60R1/12 B60R1/1207 G02B5/08 G02B7/182 G02F1/153 G02F1/157 G02F1/161 C03C17/06 B24B9/08 C03C2217/25 C03C2218/31 B60R1/086 B24B51/00 B60R2001/1223 G02B5/04 G02F1/1338 B24B9/02 B24B13/00 B24B49/00 G02F1/163 B60R1/088 B60R1/04

**European:** B60R1/04 B60R1/08G4 B60R1/08G5

**US:** 340/425.5 340/815.4 359/245 359/245S 359/265 359/265P 359/267 359/833 359/871 359/871S 359/872 359/872S 359/883 362/494 362/514 427/58 451/44 451/5



### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN102460234 A      | 20120516         | CN201080028490     | 20100422         |
| CN102460234 B      | 20140625         | CN201080028490     | 20100422         |
| CN102648113 A      | 20120822         | CN201080055557     | 20101007         |
| CN102648113 B      | 20150527         | CN201080055557     | 20101007         |
| DE602010016119 D1  | 20140626         | DE201060016119T    | 20100422         |
| DE602010034103 D1  | 20160728         | DE201060034103T    | 20101007         |
| EP2422227 A1       | 20120229         | EP20100767749      | 20100422         |
| EP2422227 A4       | 20121003         | EP20100767749      | 20100422         |
| EP2422227 B1       | 20140514         | EP20100767749      | 20100422         |
| EP2485921 A1       | 20120815         | EP20100822656      | 20101007         |
| EP2485921 A4       | 20130313         | EP20100822656      | 20101007         |
| EP2485921 B1       | 20160615         | EP20100822656      | 20101007         |
| ES2473969 T3       | 20140708         | ES20100767749T     | 20100422         |
| ES2586107 T3       | 20161011         | ES20100822656T     | 20101007         |
| KR20120099671 A    | 20120911         | KR20127011770      | 20101007         |
| US2012038964 AA    | 20120216         | US20100265613      | 20100422         |
| US2012236388 AA    | 20120920         | US20100498597      | 20101007         |
| US2013321940 AA    | 20131205         | US20130964136      | 20130812         |
| US2015175074 AA    | 20150625         | US20150641813      | 20150309         |
| US2017043721 AA    | 20170216         | US20160338779      | 20161031         |
| US8508831 BB       | 20130813         | US20100265613      | 20100422         |
| US8730553 BB       | 20140520         | US20100498597      | 20101007         |
| US8976439 BB       | 20150310         | US20130964136      | 20130812         |
| US9481303 BB       | 20161101         | US20150641813      | 20150309         |
| US10189407 BB      | 20190129         | US20160338779      | 20161031         |
| WO10124064 A1      | 20101028         | WO2010US32017      | 20100422         |
| WO11044312 A1      | 20110414         | WO2010US51741      | 20101007         |

### Priority:

US20090172022P 20090423 US20090187112P 20090615 US20090249300P 20091007  
US20090261839P 20091117 EP20100767749 20100422 WO2010US32017 20100422  
US20100265613 20100422 EP20100822656 20101007 US20100498597 20101007  
WO2010US51741 20101007 WO2012US51741 20101007 US20110265613 20111021  
US20130964136 20130812 US20150641813 20150309 US20160338779 20161031

**Probable Assignee:** MAGNA MIRRORS OF AMERICA INC

**Assignee(s):** (std): BAUR MICHAEL J ; DE WIND DARRYL P ; DEWIND DARRYL P ; MAGNA MIRRORS OF AMERICA INC ; PERKINS TIMOTHY G ; RAWLINGS DONALD S ; UKEN JOHN T

**Assignee(s):** MAGNA MIRRORS OF AMERICA INC HOLLAND

**Inventor(s):** (std): BAUR MICHAEL J ; PERKINS TIMOTHY G ; DEWIND DARRYL P ; DE WIND DARRYL P ; DE WIND DARRYL ; RAWLINGS DONALD ; UKEN JOHN ; RAWLINGS DONALD S ; UKEN JOHN T

**Inventor(s):** DEWIND DARRYL P WEST OLIVE ; UKEN JOHN T JENISON ; DE WIND DARRYL P WEST OLIVE ; RAWLINGS DONALD S CALEDONIA

**Agent(s):** WUESTHOFF AND WUESTHOFF PATENTANWAELTE PARTG MBB; FLEUCHAUS AND GALLO PARTNERSCHAFT MBB; COYLE PHILIP AIDAN; CARPINTERO MARIO; PONS ANGEL; GARDNER LINN BURKHART AND FLORY LLP; HONIGMAN MILLER SCHWARTZ AND COHN LLP; VAN DYKE GARDNER LINN AND BURKHART LLP AND ITS INDIVIDUAL ATTORNEYS PRIMARILY TIMOTHY A FLORY; FLORY TIMOTHY A

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

### 13) Family number: 64288821 (US2018154615A)

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**Title:** GLASS LAMINATE WITH PANE HAVING GLASS-GLASS LAMINATE STRUCTURE

**Abstract:** A glass laminate includes a first pane having a glass-glass laminate structure, a second pane, and an interlayer disposed between the first pane and the second pane and including a polymeric material.

**Classifications:**

**International (IPC 8-9):** B32B17/06 B32B17/10 B32B37/08 B32B37/12 B32B7/02 C03B15/10 C03B17/06 C03C21/00 C03C27/12 (Advanced/Invention)

**CPC:** B32B17/10266 B32B17/10743 B32B2309/105 B32B37/08

B32B2605/006 B32B17/10137 B32B17/10036 B32B17/10091

B32B17/10247 B32B17/10761 B32B17/1077 B32B17/10788

**JP F-Term:** 4F100 4F100/AG00 4F100/AK01 4F100/BA03 4F100/BA06

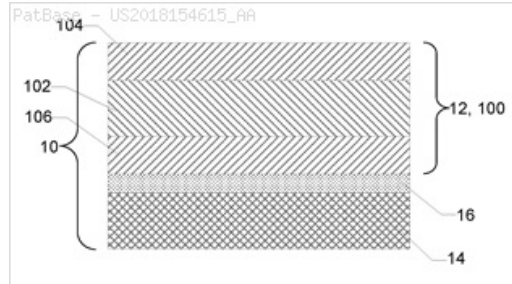
4F100/GB07 4F100/GB31 4F100/GB41 4F100/JA06 4F100/JK05

4F100/JK09 4F100/YY00 4G059 4G059/AA01 4G059/AC16 4G059/HB03

4G061 4G061/AA04 4G061/BA01 4G061/BA02 4G061/CD02 4G061/CD03

4G061/CD18

**JP F-Index:** B32B17/10 C03C21/00/101 C03C27/12/Z



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN107848267 A      | 20180327         | CN201680044311     | 20160601         |
| EP3302968 A1       | 20180411         | EP20160729437      | 20160601         |
| JP2018526303 T2    | 20180913         | JP20170563084T     | 20160601         |
| KR20180015713 A    | 20180213         | KR20187000059      | 20160601         |
| TW201704009 A      | 20170201         | TW20160117238      | 20160601         |
| US2018154615 AA    | 20180607         | US20160578128      | 20160601         |
| WO16196546 A1      | 20161208         | WO2016US35151      | 20160601         |

**Priority:**

US20150169834P 20150602 US20150256842P 20151118 WO2016US35151 20160601  
US20160578128 20160601

**Probable Assignee:** CORNING INC

**Assignee(s):** (std): CORNING CO LTD ; CORNING INC

**Inventor(s):** (std): DOHN PAUL BENNETT ; VADDI BUTCHI REDDY ; VENKATARAMAN NATESAN ; GOLYATIN VLADISLAV YURYEVICH ; GOLYATIN VIADISLAV YURYEVICH

**Agent(s):** SCHEUERMANN ERIK; HOOD MICHAEL A

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

### 14) Family number: 64890492 (US2018200995A)

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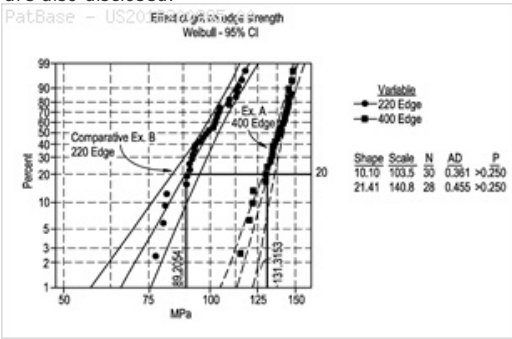
**Title:** STRENGTHENED ASYMMETRIC GLASS LAMINATES

**Abstract:** Embodiments of a laminate including a first glass ply having first and second opposing surfaces defining a first edge having a first thickness, a second glass ply having third and fourth opposing surfaces defining a second edge having a second thickness that is less than the first thickness, and a polymer layer disposed between the second surface of the first glass ply and the third surface of the second glass ply are disclosed. In one or more embodiments, the first edge comprises any one of a roughness Ra of less than about 1300 nm and a root mean square (RMS) roughness of less than about 1700 nm, as measured

along an area of about 0.5 square millimeters (mm2). In some embodiments, the first edge is substantially free of conchoidal fractures having a major dimension greater than 20 micrometers, as measured along an area of 0.60 square micrometers. Vehicles including such laminates and methods for forming such laminates are also disclosed.

**Classifications:**

**International (IPC 8-9):** B32B17/10 B32B7/02 C03C19/00 C03C27/12 (Advanced/Invention)  
**CPC:** B32B17/1055 B32B2307/412 B32B2315/08 B32B2605/08 B32B2605/00 B32B7/02 B32B17/10036 B32B17/10137 B32B17/10155 B32B17/10293 B32B17/10568  
**JP F-Term:** 3D127 4G059 4G059/AA01 4G059/AB03 4G059/AC03 4G059/AC16 4G059/BB00 4G061 4G061/AA02 4G061/CB03 4G061/CB19 4G061/CB20 4G061/CD03 4G061/CD18  
**JP F-Index:** B60J1/00/H C03C19/00 C03C27/12/R



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN107848268 A      | 20180327         | CN201680045059     | 20160728         |
| EP3328645 A1       | 20180606         | EP20160748244      | 20160728         |
| JP2018531203 T2    | 20181025         | JP20180504662T     | 20160728         |
| KR20180034586 A    | 20180404         | KR20187005640      | 20160728         |
| US2018200995 AA    | 20180719         | US20160748407      | 20160728         |
| WO17023673 A1      | 20170209         | WO2016US44415      | 20160728         |

**Priority:**

US20150199660P 20150731      US20160748407 20160728      WO2016US44415 20160728

**Probable Assignee:** CORNING INC

**Assignee(s):** (std): CORNING CO LTD ; CORNING INC  
**Inventor(s):** (std): MOORE MICHAEL JOHN ; WILCOX CHAD MICHAEL  
**Agent(s):** EPPING HERMANN FISCHER; PATEL PAYAL A

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

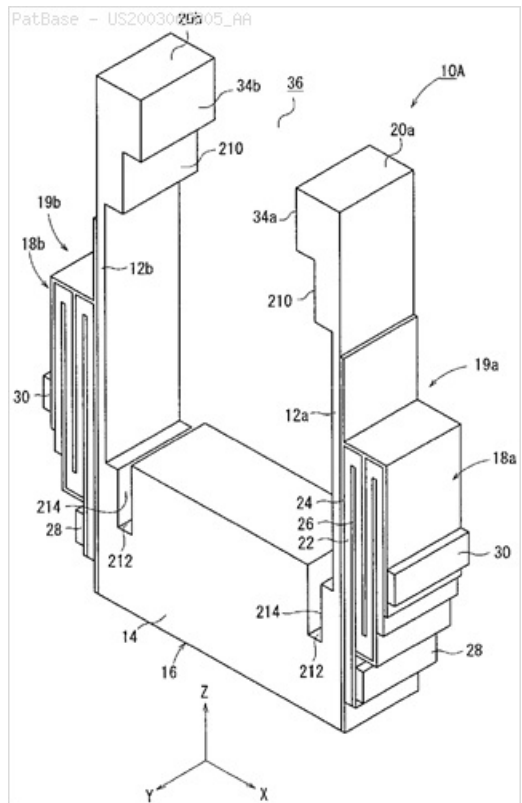
**15) Family number: 28435854 (US2003062805A)** © PatBase

**Title:** PIEZOELECTRIC/ELECTROSTRICTIVE DEVICE

**Abstract:** A piezoelectric/electrostrictive device includes a ceramic substrate having a pair of mutually opposing thin plate sections, a fixed section for supporting the thin plate sections, and movable sections disposed at ends of the pair of thin plate sections. The piezoelectric/electrostrictive device has a portion of each the movable sections opposed to the fixed section, the portion being formed in a stepped form so that respective attachment surfaces are provided with steps. Cutouts (cutaways) are formed at portions of an inner wall of the fixed section near the thin plate sections. Further, steps are provided on inner walls of the cutouts disposed on the sides of the thin plate sections.

**Classifications:**

**International (IPC 8-9):** B32B18/00 C03B29/00 H01L41/04 H01L41/08 H01L41/083 H01L41/09 H01L41/18 H01L41/187 H01L41/22 H01L41/24 H02N2/00 H04R17/00 H04R17/10 (Advanced/Invention); H01L41/04 (Advanced/Non-invention)  
**International (IPC 1-7):** H01L41/08 H01L41/083 H01L41/09 H01L41/18 H01L41/187 H01L41/22 H02N2/00  
**CPC:** H01L41/0831 H01L41/0472 H01L41/314 H01L41/0946 Y10T29/42 Y10T29/49005 Y10T29/49798 Y10T156/1043 Y10T156/1044 Y10T428/252  
**European:** H01L41/083 H01L41/09G H01L41/314 H01L41/39  
**US:** 156/221 156/222 156/89.12 29/25.35 29/417 29/594 310/311 310/311P 310/321 310/324 310/328 310/328P 310/330 310/331 310/331P 310/332 310/332P 310/367 310/367S 427/100 428/325 428/325S  
**JP F-Term:** 5F050 5H680 5H681 5H681/AA12 5H681/BC00 5H681/DD23 5H681/DD37 5H681/DD39 5H681/DD95 5H681/EE10 5H681/FF12 5H681/FF17 5H681/GG01 5H681/GG02 5H681/GG20 5H681/GG21 5H681/GG22 5H681/GG23 5H681/GG25 5H681/GG41 5H681/GG42 5H681/GG43  
**JP F-Index:** H01L41/08/C H01L41/08/S H01L41/18/101/B H01L41/18/101/C H01L41/18/101/D H01L41/18/101/Z H01L41/22/Z H01L41/338 H02N2/00/B



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| JP2003142746 A2    | 20030516         | JP20020182063      | 20020621         |
| JP4038400 B2       | 20080123         | JP20020182063      | 20020621         |
| US2003062805 AA    | 20030403         | US20020236864      | 20020906         |
| US2003062806 AA    | 20030403         | US20020236865      | 20020906         |
| US2003067250 AA    | 20030410         | US20020236866      | 20020906         |
| US2004251786 AA    | 20041216         | US20040862596      | 20040607         |
| US2005093402 AA    | 20050505         | US20040013555      | 20041216         |
| US2006119221 AA    | 20060608         | US20060328386      | 20060109         |
| US2006170306 AA    | 20060803         | US20060376859      | 20060316         |
| US6858971 BB       | 20050222         | US20020236865      | 20020906         |
| US6897600 BB       | 20050524         | US20020236864      | 20020906         |
| US7015626 BB       | 20060321         | US20040013555      | 20041216         |
| US7062825 BB       | 20060620         | US20040862596      | 20040607         |
| US7069630 BB       | 20060704         | US20020236866      | 20020906         |
| US7141916 BB       | 20061128         | US20060376859      | 20060316         |
| US7180226 BB       | 20070220         | US20060328386      | 20060109         |

#### Priority:

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| US20010322185P | 20010911 | JP20020182063 | 20020621 | US20020236864 | 20020906 |
| US20020236866  | 20020906 | US20020236865 | 20020906 | US20040862596 | 20040607 |
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**Probable Assignee:** NGK INSULATORS LTD

**Assignee(s):** (std): NGK INSULATORS LTD

**Inventor(s):** (std): IKEDA KOJI ; SHIBATA KAZUYOSHI ; TAKAHASHI FUMITAKE

**Agent(s):** BURR AND BROWN

**16) Family number: 58643807** (US2016207290A)

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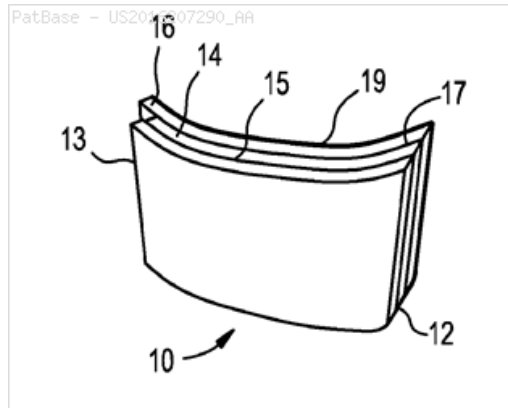
**Title:** THIN GLASS LAMINATE STRUCTURES

**Abstract:** A laminate structure having a first glass layer, a second glass layer, and at least one polymer interlayer intermediate the first and second glass layers. In some embodiments, the first glass layer can be comprised of a strengthened glass having first and second surfaces, the second surface being adjacent the interlayer and chemically polished and the second glass layer can be comprised of a strengthened glass having third and fourth surfaces, the fourth surface being opposite the interlayer and chemically polished and the third surface being adjacent the interlayer and having a substantially transparent coating formed thereon. In another embodiment, the first glass layer is curved and the second glass layer is substantially planar and cold formed onto the first glass layer to provide a difference in surface compressive stresses on the surfaces of the second glass layer.

#### Classifications:

**International (IPC 8-9):** B32B17/06 B32B17/10 B32B37/10 B32B37/18  
B60J1/00 C03B27/04 C03C15/00 C03C21/00  
C03C27/12 (Advanced/Invention)

**CPC:** B32B17/10174 B32B17/10761 B32B17/10119 B32B17/10743  
B32B17/1077 B32B17/10788 B32B17/10366 B32B37/182 B32B2398/00  
B32B2315/08 B32B2307/412 B32B2307/558 B32B17/10036  
B32B17/10091 B32B17/10137 B32B17/10146 B32B2605/006 B32B17/064  
B32B17/06 B32B37/10 B32B2329/06  
**US:** 428/215  
**JP F-Term:** 3D127 4G059 4G059/AA01 4G059/AC16 4G059/BB04  
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4G015 4G015/CA02 4G015/CB01 4G015/CC00 4G059/BB14 4G059/HB14  
4G059/HB23 4G061/AA15 4G061/AA25 4G061/CB03  
**JP F-Index:** B60J1/00/H C03C15/00/Z C03C21/00/101 C03C27/12/R  
C03B27/04



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN105705330 A      | 20160622         | CN201480059991     | 20140828         |
| CN109624445 A      | 20190416         | CN201811504717     | 20140828         |
| EP3038827 A2       | 20160706         | EP20140762187      | 20140828         |
| JP2016530204 T2    | 20160929         | JP20160537845T     | 20140828         |
| JP2019038741 A2    | 20190314         | JP20180172186      | 20180914         |
| JP6431069 B2       | 20181128         | JP20160537845T     | 20140828         |
| KR20160046889 A    | 20160429         | KR20167007845      | 20140828         |
| US2016207290 AA    | 20160721         | US20140915437      | 20140828         |
| WO15031594 A2      | 20150305         | WO2014US53122      | 20140828         |
| WO15031594 A3      | 20150723         | WO2014US53122      | 20140828         |

#### Priority:

US20130871602P 20130829 CN201480059991 20140828 JP20160537845T 20140828  
WO2014US53122 20140828 US20140915437 20140828

**Probable Assignee:** CORNING INC

**Assignee(s):** (std): CORNING CO LTD ; CORNING INC

**Inventor(s):** (std): ZHANG CHUNHE ; FRISKE MARK STEPHEN ; EARLY KINTU ODINGA X ; HART SHANDON DEE ; HU GUANGLI ;  
CLEARY THOMAS MICHAEL ; MARCELLUS BRENNIA ELIZABETH

**Agent(s):** GREENE SIMON KENNETH; HARDEE RYAN T

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU  
CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN  
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MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM  
SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

#### 17) Family number: 63731834 (US2016297169A)

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**Title:** LAMINATED PLATE

**Abstract:** There is provided a laminated plate including a first plate being curved in a first curved shape, a second plate having a second shape, the second shape being different from the first curved shape, and an inter mediate film bonding the first plate and the second plate; wherein a first corner edge of the laminated plate does not include a fold.

#### Classifications:

**International (IPC 8-9):** B32B17/10 B32B3/26 B32B3/28 B32B7/12

B60J1/00 B60J1/17 C03C27/12 (Advanced/Invention)

**CPC:** B32B3/28 B32B7/12 B60J1/17 B32B2250/02 B32B2307/412

B32B2605/08 B32B17/10119 B32B17/10137 B32B17/10036

B32B17/10293 B32B3/08 B32B2250/03 B32B2250/40

**US:** 428/174

**JP F-Term:** 3D127 4F100 4F100/AG00 4F100/AK23 4F100/BA03

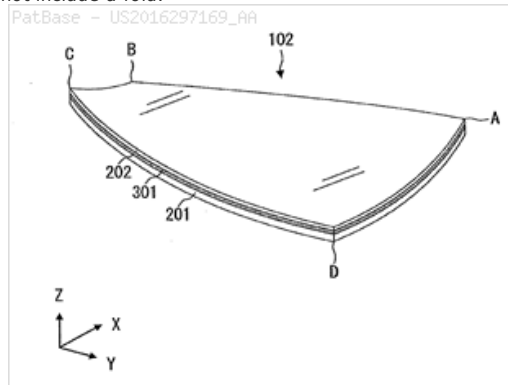
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4G061/BA02 4G061/CB03 4G061/CB16 4G061/CB18 4G061/CD03

4G061/CD18

**JP F-Index:** B32B17/10 B32B3/26 B60J1/00/J C03C27/12/R



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN106045338 A      | 20161026         | CN201610207710     | 20160405         |
| EP3078488 A1       | 20161012         | EP20160000778      | 20160405         |
| JP2016199457 A2    | 20161201         | JP20160040210      | 20160302         |
| US2016297169 AA    | 20161013         | US20160083850      | 20160329         |

#### Priority:

JP20150079414 20150408 JP20160040210 20160302

**Probable Assignee:** AGC INC

**Assignee(s):** (std): ASAHI GLASS CO LTD

**Assignee(s):** N A ; AGC INC

**Inventor(s):** (std): NAGANO TAKUYA ; NOTSU KEIJI ; KONDO TSUBASA ; ORIMO YOSHINORI ; KATOU SATOSHI ; TANIGUCHI MASAHICO ; KEIJI NOTSU ; TSUBASA KONDO ; YOSHINORI ORIMO ; TAKUYA NAGANO ; MASAHICO TANIGUCHI ; SATOSHI KATOU ; KATO SATOSHI ; NOZU KEIJI ; KONDO TASUKU

**Agent(s):** MUELLER BORE AND PARTNER PATENTANWAELTE PARTG MBB; ITOH TADAHICO; ITOH TADASHIGE

**Designated states:** AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

18) Family number: 50818035 (US2013164483A) PatBase

Title: APPLIANCE FASCIA AND MOUNTING THEREFORE

**Abstract:** A thin lightweight glass fascia for appliances. The fascia may be a seamless shaped glass fascia for an appliance, such as a glass fascia that wraps around at least two opposing edges of an appliance. The glass fascia may seamlessly incorporate a display or control panel under the fascia. A mounting arrangement that facilitates quick fascia removal and replacement may be provided. The fascia may be a chemically-strengthened glass sheet having a thickness of less than 2.0 mm, and a near-surface region under a compressive stress, wherein the compressive stress (CS) at a surface of the first glass sheet is greater than 300 MPa and extends to a depth of layer of at least 20 micrometers.

**Classifications:**

**International (ipc 8-9):** B32B17/00 B32B17/10 B32B3/00 B32B3/04 C03C21/00 C03C3/091 C03C3/093 F25D23/02 G02F1/1333 G06F3/041 (Advanced/Invention)

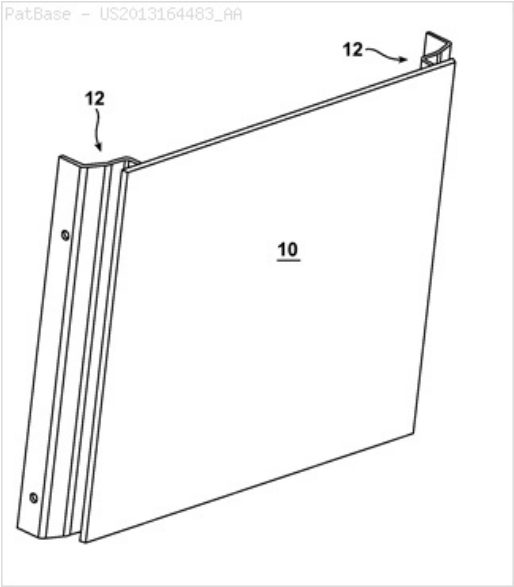
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**European:** B32B17/10C30B B32B17/10C4 B32B17/10E16 C03C21/00 F25D23/02

**US:** 1/1 428/174 428/220 428/337 428/68 428/77

**JP F-Term:** 2H189 2H189/AA16 2H189/HA02 2H189/LA02 4G059 4G059/AA01 4G059/AA08 4G059/AC16 4G059/HB03 4G059/HB14 4G062 4G062/AA01 4G062/BB06 4G062/CC10 4G062/DA06 4G062/DB03 4G062/DB04 4G062/DC01 4G062/DC02 4G062/DC03 4G062/DC04 4G062/DD01 4G062/DE01 4G062/DF01 4G062/EA01 4G062/EA02 4G062/EA03 4G062/EA04 4G062/EA10 4G062/EB01 4G062/EB02 4G062/EB03 4G062/EB04 4G062/EC01 4G062/EC02 4G062/EC03 4G062/ED01 4G062/ED02 4G062/ED03 4G062/EE01 4G062/EE02 4G062/EE03 4G062/EF01 4G062/EG01 4G062/FA01 4G062/FA10 4G062/FB01 4G062/FC01 4G062/FC02 4G062/FC03 4G062/FD01 4G062/FE01 4G062/FE02 4G062/FF01 4G062/FG01 4G062/FH01 4G062/FJ01 4G062/FK01 4G062/FL01 4G062/FL02 4G062/GA01 4G062/GA10 4G062/GB01 4G062/GC01 4G062/GD01 4G062/GE01 4G062/HH01 4G062/HH03 4G062/HH05 4G062/HH07 4G062/HH09 4G062/HH11 4G062/HH13 4G062/HH15 4G062/HH17 4G062/HH20 4G062/JJ01 4G062/JJ03 4G062/JJ05 4G062/JJ07 4G062/JJ10 4G062/KK01 4G062/KK03 4G062/KK05 4G062/KK07 4G062/KK10 4G062/MM01 4G062/MM27 4G062/NN33 4G062/NN34 5B068 5B068/AA32

**JP F-Index:** C03C21/00/101 C03C3/091 C03C3/093 G02F1/1333 G06F3/041/350/A G06F3/041/400 G06F3/041/460 G06F3/041/495 G06F3/041/662



**Family:**

| Publication number | Publication date | Application number | Application date |
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| CN103201230 A      | 20130710         | CN201180053973     | 20110913         |
| CN103201230 B      | 20160713         | CN201180053973     | 20110913         |
| EP2616404 A2       | 20130724         | EP20110760928      | 20110913         |
| JP2013539742 T2    | 20131028         | JP20130529261T     | 20110913         |
| JP5839620 B2       | 20160106         | JP20130529261T     | 20110913         |
| KR101895086 B1     | 20180904         | KR20137008809      | 20110913         |
| KR20130103525 A    | 20130923         | KR20137008809      | 20110913         |
| TW201235325 A      | 20120901         | TW20110133045      | 20110914         |
| TWI547457 B        | 20160901         | TW20110133045      | 20110914         |
| US2013164483 AA    | 20130627         | US20110822132      | 20110913         |
| US9339993 BB       | 20160517         | US20110822132      | 20110913         |
| WO12037094 A2      | 20120322         | WO2011US51355      | 20110913         |
| WO12037094 A3      | 20120823         | WO2011US51355      | 20110913         |

**Priority:**

US20100382714P 20100914 US20100418103P 20101130 WO2011US51355 20110913

US20110822132 20110913

**Probable Assignee:** CORNING INC

**Assignee(s):** (std): CITES JEFFREY S ; CITES JEFFREY SCOTT ; CORNING CO LTD ; CORNING INC ; ROSENBLUM STEVEN S ; WILDEMAN GEORGE F ; WILDEMAN GEORGE FRANCIS

**Inventor(s):** (std): CITES JEFFREY S ; WILDEMAN GEORGE F ; ROSENBLUM STEVEN S ; CITES JEFFREY SCOTT ; WILDEMAN GEORGE FRANCIS

**Agent(s):** ANDERSON JAMES EDWARD GEORGE; RYAN T; WATSON BRUCE P

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LR LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY

**19) Family number: 31047639** (US4283216A)

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**Title:** Producing glass sheets of required curved shape

**Abstract:** A glass sheet is suspended from a series of tongs which grip the upper margin of the sheet and apply individual forces at the gripping locations at least some of which have components acting out of the plane of the sheet. The magnitude and direction of each of said forces is selected to ensure that the suspended sheet, when at forming temperature, adapts towards a predetermined curved shape. The sheet may be bent with the forces acting at the gripping points before and/or after bending, and the sheet adopts the required curved shape when it is sufficiently stiffened to be influenced by the remanent forces applied at the gripping points.

**Classifications:**

**International (IPC 8-9):** A44C17/00 B23K26/00 B23K26/18 B28D5/00  
B41M5/24 B44B5/00 B44B7/00 B60J1/00 B65D27/36 C03B13/06  
C03B15/18 C03B23/03 C03B23/031 C03B27/052 C03B35/20 G09C5/00  
G09F3/00 H01S3/10 (Advanced/Invention);  
B23K26/18 (Advanced/Non-invention);

A44C17/00 B23K26/00 B23K26/18 B41M5/24 B44B5/00 B44B7/00  
B60J1/00 B65D27/00 C03B13/00 C03B15/00 C03B23/02 C03B27/00  
C03B35/00 G09C5/00 G09F3/00 H01S3/10 (Core/Invention)

**International (IPC 1-7):** A44C17/00 B23K26/00 B23K26/18 B24B9/16  
B28D5/00 B41M5/24 B44B3/00 B44B5/00 B44C1/22 B60J1/00 B65D27/36  
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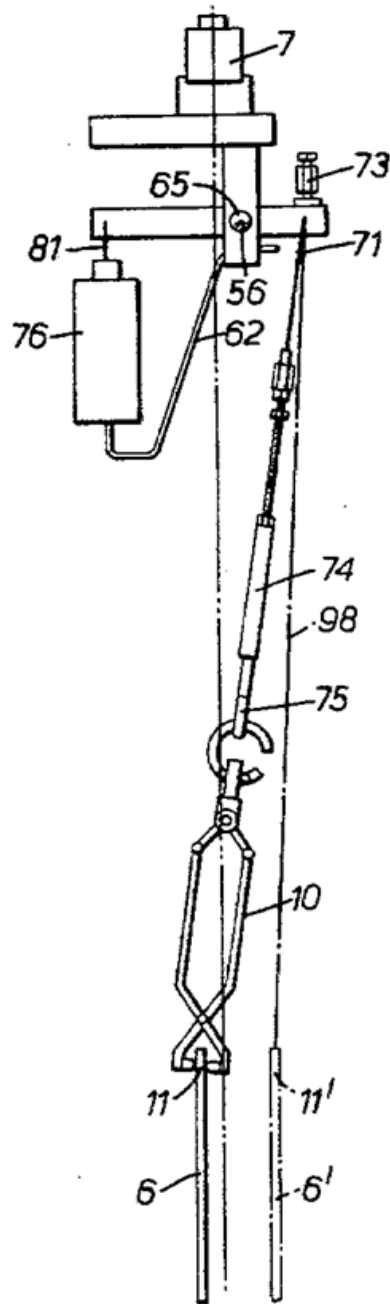
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65/287 65/290

**JP F-Term:** 4E068 4E068/AB00 4E068/AB01 4E068/AB02 4E068/AJ01  
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**JP F-Index:** B23K26/00/B B23K26/18 B65D27/36

PatBase - US4283216\_A

**Family:**

| Publication number | Publication date | Application number | Application date |
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| AT19017 E          | 19860415         | AT19810110279T     | 19811209         |
| AU197953510 A1     | 19800619         | AU19790053510      | 19791205         |
| AU198283868 A1     | 19831124         | AU19820083868      | 19820520         |
| AU526687 B2        | 19830127         | AU19790053510      | 19791205         |

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| AU553408 B2   | 19860717 | AU19820083868  | 19820520 |
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| CS212249 B2   | 19820326 | CS19790008649  | 19791211 |
| DD147660 A5   | 19810415 | DD19790217545  | 19791211 |
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| DE2949559 C2  | 19880225 | DE19792949559  | 19791210 |
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| DK526979 A    | 19800612 | DK19790005269  | 19791211 |
| EP0054840 A2  | 19820630 | EP19810110279  | 19811209 |
| EP0054840 A3  | 19821020 | EP19810110279  | 19811209 |
| EP0054840 B1  | 19860409 | EP19810110279  | 19811209 |
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| ES493411 A0   | 19810716 | ES19800493411  | 19800715 |
| ES8101025 A1  | 19801201 | ES19790486789  | 19791211 |
| ES8106118 A1  | 19810716 | ES19800493411  | 19800715 |
| FI65767 B     | 19840330 | FI19790003870  | 19791211 |
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| FR2444010 B1  | 19821203 | FR19790030182  | 19791210 |
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| GB2038312 B2  | 19821117 | GB19790041963  | 19791205 |
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| GR74049 B     | 19840606 | GR19790160718  | 19791211 |
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| NO147415 B    | 19821227 | NO19790003987  | 19791207 |
| NO147415 C    | 19830406 | NO19790003987  | 19791207 |
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| SE437510 B    | 19850304 | SE19790010154  | 19791210 |
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| SE7910154 A   | 19800612 | SE19790010154  | 19791210 |
| SE7910154 L   | 19800612 | SE19790010154  | 19791210 |
| SG8790612 A   | 19871023 | SG19870090612  | 19870728 |
| SU1120922 D   | 19841023 | SU19792858652  | 19791210 |
| SU1179918 A3  | 19850915 | SU19833532552  | 19830105 |
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| US4283216 A   | 19810811 | US19790102228  | 19791210 |
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| ZA8107935 A   | 19830727 | ZA19810007935  | 19811116 |

ZW24179 A 19810701 ZW19790000241 19791204

**Priority:**

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GB19790041963 19791205 MX19790180446 19791211 US19800220195 19801223  
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AU19820083868 19820520 BR19820003191 19820531 KR19850003631U 19850401  
KR19850003631 19850401 IN1985DE00698 19850822

**Probable Assignee:** KAPLAN AND SONS LAZARE

**Assignee(s):** (std): KAPLAN AND SONS LAZARE ; LAZARE KAPLAN INC ; LAZARE KAPLAN AND SONS INC ; KAPLAN AND SONS LAZARE INC ; TRIPLEX SAFETY GLASS CO ; TRIPLEKS SEJFTI GLAS KOMPANI L ; TRIPLEX SAFETY GLASS COO LTD ; TRIPLEX SALEYT GLASS CO L ; TRIPLEX SAFETY ; TORIPURETSUKUSU SEEFUTEI GLASS CO LTD ; RAZARE KAPURAN ENDO SANZU INC ; TORIPURETSUKUSU SEEFUTEI GURASU CO LTD ; TRIPLEX SAFETY GLASS CO LTD GB ; TRIPLEX SAFETY GLASS CY LTD ; TRIPLEX SAFETY GLASS COMPANY LIMITED TE KINGS NORT ; TRIPLEX SAFETY GLASS ; TRIPLEKS SEJFTI GLAS KOMPANI FA LTD ; TRIPLEX SAFETY GLASS COMPANY LIMITED ; TRIPLEX SAFETY GLASS CO LTD ; TRIPLEX SALEYT GLASS COMPANY LIMITED ; TRIPLEX SALEYT GLASS COMPANY L

**Assignee(s):** TRIPLEKS SEJFTI GLAS KOMPANI LIMITED FIRMA ; TRIPLEX SAFETY GLASS COMPANY LIMITED TE KINGS NORTON GROOT BRITTANNIE ; TRIPLEX SALEYT GLASS CO LTD ; TRIPLEX SAFETY GLASS COMPANY LTD ; TRIPLEX SAFETY GLASS CO LTD BIRMINGHAM GB ; LAZARE KAPLAN AND SONS INC A CORP OF NY ; NUSSENBAUM JOSEPH ; KAPLAN GEORGE R ; LAZARE KAPLAN AND SONS INC 10019 NEW YORK N Y US ; LAZARE KAPLAN AND SONS ; BRERETON PAUL A ; GRESSER HERBERT D ; GROUP II MFG ; GROUP II MFG LTD A CORPOF NY

**Inventor(s):** (std): BEANTRAGT NICHTNENNUNG ; BRERETON P ; BRERETON P A ; BRERETON PA ; BRERETON PAUL A ; BRERETON PAUL ARTHUR ; FRESSER HERBERT DAVID ; GEORGE R KAPLAN ; HERBERT D GRESSER ; JOOJI KAPURAN ; JOSEFU NATSUSENBAUMU ; JOSEPH NUSSENBAUM ; KAPLAN GEORGE ; P A BRERETON ; POL ARTUR BRERETON GB ; POORU AASAA BURERETON ; PAUL ARTHUR BRERETON ; NUSSENBAUM JOSEPH ; NUSSEN BAUM JOSEPH ; KAPLAN GEORGE RENE ; KAPLAN GEORGE R ; JIYOFU NATSUSENBAUMU ; JIYOOJI KAPURAN ; HOORU AASAA BURERETON ; HAABAATO DEI GURESAA ; GRESSER HERBERT DAVID ; GRESSER HERBERT D ; GRESSER HERBERT ; GEORGE KAPLAN ; BRERETON POL ARTUR

**Inventor(s):** BRERETON PAUL A GB ; NUSSENBAUM JOSEPH NEW YORK NEW YORK 10011 US ; KAPLAN GEORGE PORT CHESTER NEW YORK 10573 US ; VERZICHT DES ERFINDEURS AUF NENNUNG ; GRESSER D ; GRESSER D HERBERT PLAINVIEW NEW YORK 11803 US

**Agent(s):** CLEMENT HACK AND CO; PHILLIPS ORMONDE FITZPATRICK; MEREDITH AND FINLAYSON; GOWLING LAFLEUR HENDERSON LLP; REINHOLD COHN AND PARTNERS

**Designated states:** AT BE CH DE FR GB IT LI LU NL SE

**20) Family number: 48343508 (US2011045172A)**

PatBase

**Title:** METHOD OF FORMING A MIRRORED BENT CUT GLASS SHAPE FOR VEHICULAR EXTERIOR REARVIEW MIRROR ASSEMBLY

**Abstract:** A method of forming a mirrored bent cut glass shape includes bending a flat sheet of glass to establish a curved sheet of glass. A machine vision system determines a surface profile of the curved sheet of glass, and a computer numerical controlled cutting tool is positioned at the curved sheet of glass and its cutting wheel is maintained at or close to 90 degrees to the tangential plane of the curved sheet of glass. At least one of (a) the cutting wheel and (b) the curved sheet of glass is controlled in three dimensions to cut a bent cut glass shape from the curved sheet of glass, and such controlling is, at least in part, responsive to the surface profile of the curved sheet of glass. A mirror reflector is established at a surface of the bent cut glass shape to form a mirrored bent cut glass shape.

**Classifications:**

**International (IPC 8-9):** B05D5/12 B26D7/14 B32B17/10 B60R1/08 C03B23/023 C09K9/02 G02B5/08 G02B7/182 G02F1/15

G02F1/153 (Advanced/Invention);

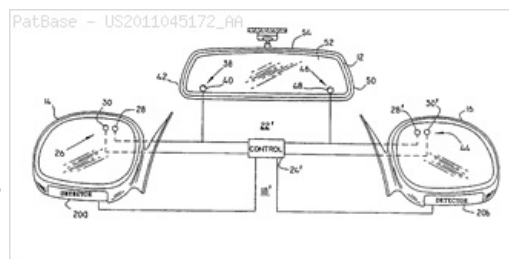
G02F1/155 (Advanced/Non-invention)

**CPC:** B32B17/10036 B32B17/06 B32B17/10697 B60Q1/2665 B60R1/088 B60R1/1207 C09K9/02 C09K2211/1007 C09K2211/1011 C09K2211/1014 C09K2211/1029 C09K2211/1033 C09K2211/1037 G02F1/15 G02F1/155 G02F2001/1502 G02F2201/58 G02F2202/022 Y10T428/24785 Y10T428/26 Y10T83/0419 Y10T428/31551 Y10T428/31649 Y10T428/31678 Y10T428/31935 G02F1/1503 G02F1/15165 G02F2001/15145 G02F2001/1518

**European:** B32B17/06 B32B17/10C4 B32B17/10G14 B60Q1/26J2

B60R1/08G5 B60R1/12A C09K9/02 G02F1/15 M09K211/10B2 M09K211/10B4 M09K211/10B6 M09K211/10D4B M09K211/10D4B2 M09K211/10D4B4 S02F1/155 S02F1/15B S02F1/15F S02F1/15M S02F1/15N S02F1/15V S02F201/58 S02F202/02B

**US:** 359/267 359/844 359/872 427/108 427/108P 65/106 83/17 83/17S



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2011045172 AA    | 20110224         | US20100910479      | 20101022         |
| US8164817 BB       | 20120424         | US20100910479      | 20101022         |

**Priority:**

US19940238521 19940505 US19950429643 19950427 US19970824501 19970326  
US19970957027 19971024 US19980381856 19980326 WO1998US05570 19980326  
US20000381856 20000127 US20010954285 20010918 US20020197679 20020716  
US20040954233 20041001 US20040971456 20041022 US20050244182 20051006  
US20070653254 20070116 US20070957755 20071217 US20080061795 20080403  
US20090614812 20091109 US20100910479 20101022

**Probable Assignee:** DONNELLY CORP

**Assignee(s):** (std): AGRAWAL ANOOP ; ALLEMAND PIERR MARC ; DONNELLY CORP ; DORNAN CRAIG A ; LYNAM NIAL R ; VARAPRASAD DESARAJU V ; ZHAO MINGTANG

**Inventor(s):** (std): AGRAWAL ANOOP ; LYNAM NIAL R ; VARAPRASAD DESARAJU V ; ALLEMAND PIERR MARC ; ZHAO MINGTANG ; DORNAN CRAIG ALLEN ; DORNAN CRAIG A

**Agent(s):** VAN DYKE GARDNER LINN AND BURKHART LLP; GARDNER LINN BURKHART AND FLORY LLP

**Title:** LIGHT-RESPONSIVE THIN GLASS LAMINATES

**Abstract:** Embodiments of this disclosure pertain to a laminate including a first substrate, an interlayer and a light responsive material disposed on the first substrate, and a second substrate disposed on the interlayer. The laminate may be complexly curved. The light responsive material may include any one or more of an electrochromic material, a photochromic material, a suspended particle material, a micro-blind material and a liquid crystal material. In one or more embodiments, the laminate comprises a display unit disposed between the first and second substrate. Methods for forming the laminate are also disclosed.

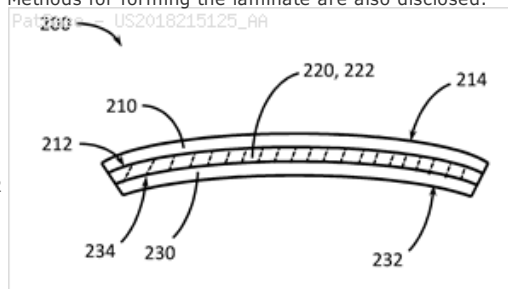
**Classifications:**

**International (IPC 8-9):** B32B17/00 B32B17/10 B32B27/00 C03B27/012 C03C21/00 C03C27/12 (Advanced/Invention)

**CPC:** B32B17/10743 B32B17/10137 C03C21/002 B32B17/10752 B32B17/10935 B32B2329/06 B32B2331/04 B32B2369/00 B32B2375/00 B32B2457/202 B32B2457/204 B32B2457/206 B32B17/10495 B32B17/10036 B32B17/10119 B32B17/10486 B32B17/10504 B32B17/10513 B32B17/10532 B32B17/10761 B32B17/1077 B32B17/10788 B32B2457/20 Y10T428/1059 Y10T428/1077 Y10T428/1082

**JP F-Term:** 4F100 4F100/AG00 4F100/AK01 4F100/AK23 4F100/AK45 4F100/AK51 4F100/AK68 4F100/AT00 4F100/BA03 4F100/BA06 4F100/BA10 4F100/EJ50 4F100/GB41 4F100/JA04 4F100/JB16 4F100/JN30 4G015 4G015/CA02 4G015/CB01 4G059 4G059/AA01 4G059/HB13 4G059/HB14 4G059/HB23 4G061 4G061/AA22 4G061/AA31 4G061/BA02 4G061/BA03 4G061/CB03 4G061/CB19 4G061/CD03 4G061/DA29

**JP F-Index:** B32B17/00 B32B27/00/J C03B27/012 C03C21/00/101 C03C27/12/D C03C27/12/F C03C27/12/Z



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN107743443 A      | 20180227         | CN201680032619     | 20160601         |
| EP3302967 A1       | 20180411         | EP20160729436      | 20160601         |
| JP2018526302 T2    | 20180913         | JP20170562618T     | 20160601         |
| KR20180014753 A    | 20180209         | KR20177037277      | 20160601         |
| US2018215125 AA    | 20180802         | US20160578385      | 20160601         |
| WO16196531 A1      | 20161208         | WO2016US35130      | 20160601         |

**Priority:**

US20150169755P 20150602 US20160578385 20160601 WO2016US35130 20160601

**Probable Assignee:** CORNING INC

**Assignee(s):** (std): CORNING CO LTD ; CORNING INC

**Inventor(s):** (std): GAHAGAN KEVIN THOMAS

**Agent(s):** EPPING HERMANN FISCHER; PATEL PAYAL A

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**Title:** Laser apparatus

**Abstract:** A laser apparatus has a phase regulator for regulating phase of output laser beam is provided, in which a full reflection portion of an output mirror is made partially reflective and a relative optical length thereof to a non-reflection portion of the output mirror is regulated by a relative thickness thereof. In one aspect of the invention, a coating provided on a center portion of an inner surface of an output mirror of a resonator comprises a partially reflective coating and a phase difference between laser beam portions passing through the center portion and a surrounding portion is regulated by a thin membrane having same refraction index as that of a matrix of the output mirror and provided between the matrix and a coating on either surface of the output mirror.

**Classifications:**

**International (IPC 8-9):** C03C14/00 G02B27/09 G02B5/30 G02F1/01 H01S3/034 H01S3/05 H01S3/06 H01S3/08 H01S3/0915 H01S3/093

H01S3/101 H01S5/00 (Advanced/Invention);

H01S3/092 (Advanced/Non-invention);

C03C14/00 G02B27/09 G02B5/30 G02F1/01 H01S3/03 H01S3/05

H01S3/06 H01S3/08 H01S3/0915 H01S3/101 H01S5/00 (Core/Invention);

H01S3/0915 (Core/Non-invention)

**International (IPC 1-7):** G02B27/00 G02B5/30 G02F1/01 H01S3/00

H01S3/03 H01S3/05 H01S3/06 H01S3/08 H01S3/091 H01S3/0915

H01S3/093 H01S3/10 H01S3/101 H01S3/18

**CPC:** G02B27/09 G02B27/0927 G02B27/0983 H01S2301/20 H01S3/08059

C03C14/004 C03C2214/04 H01S3/08063 H01S3/034 H01S3/0602

H01S3/0615 H01S3/08081 H01S3/092 H01S3/093 H01S3/08068

**European:** C03C14/00D G02B27/09 G02B27/09C G02B27/09E3C

G02B27/09H G02B27/09S3C H01S3/034 H01S3/06A H01S3/08R2

H01S3/08R4 H01S3/08U H01S3/093 M03C214/04 T01S3/06A9

T01S3/08R2 T01S3/08R4 T01S3/08U T01S3/092 T01S301/20

**US:** 372/103 372/108 372/9 372/95 372/99

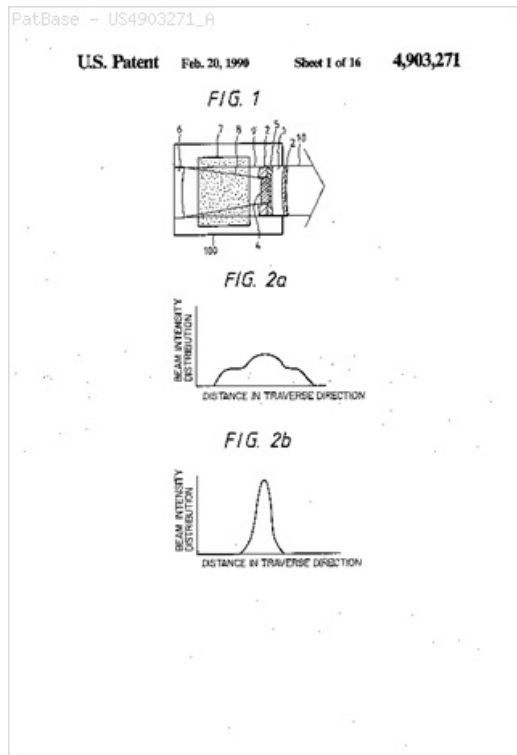
**JP F-Term:** 2H049 2H049/BA06 2H049/BB61 2H049/BC21 2H079

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5F072/AA05 5F072/JJ03 5F072/JJ04 5F072/JJ08 5F072/KK04 5F072/KK05

5F072/KK26 5F072/SS04 5F072/YY06 5F172 5F172/AD05 5F172/CC02

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5F072/JJ06 5F072/JJ20 5F072/KK06 5F072/KK16 5F172/AE03 5F172/EE02  
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5F073/DA31 5F073/EA18 5F172/EE14 5F173 5F173/AB33 5F173/AB71  
5F173/AB78 5F173/AH02 5F173/AL04 5F173/AL21 5F173/AP87  
5F173/AR14 5F173/AR68 5F173/MC15 5F173/MF28 5F173/MF29  
**JP F-Index:** G02F1/01/Z H01S3/08 H01S3/08/Z H01S3/091/J  
H01S3/0915 H01S3/05 H01S3/18 H01S5/00



#### Family:

| Publication number | Publication date | Application number | Application date |
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| DE3764783 D1       | 19901011         | DE19873764783      | 19871208         |
| DE3879547 D1       | 19930429         | DE19883879547      | 19880603         |
| DE3879547 T2       | 19930923         | DE19883879547T     | 19880603         |
| EP0271809 A1       | 19880622         | EP19870118176      | 19871208         |
| EP0271809 B1       | 19900905         | EP19870118176      | 19871208         |
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| JP1073686 A2       | 19890317         | JP19870230715      | 19870914         |
| JP1140784 A2       | 19890601         | JP19870299369      | 19871127         |
| JP1152777 A2       | 19890615         | JP19870312523      | 19871210         |
| JP1152778 A2       | 19890615         | JP19870312524      | 19871210         |
| JP1154578 A2       | 19890616         | JP19870313314      | 19871211         |
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| JP1918858 C3       | 19950407         | JP19870312524      | 19871210         |
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| JP2087640 C3       | 19960902         | JP19920228931      | 19920827         |
| JP2104525 C3       | 19961106         | JP19870299369      | 19871127         |
| JP2526946 B2       | 19960821         | JP19870312523      | 19871210         |
| JP2568555 B2       | 19970108         | JP19870139438      | 19870603         |
| JP2660335 B2       | 19971008         | JP19870100782      | 19870423         |
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| JP64025121 A2      | 19890127         | JP19870181186      | 19870722         |
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| JP64073686 A2      | 19890317         | JP19870230715      | 19870914         |
| JP7105545 B4       | 19951113         | JP19920228931      | 19920827         |

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| KR910002229 B1                  | 19910408             | KR19870013766                  | 19871203             |
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| US5058123 A                     | 19911015             | US19890432357                  | 19891108             |

**Priority:**

|                        |                        |                        |
|------------------------|------------------------|------------------------|
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| JP19870139438 19870603 | JP19870181186 19870722 | JP19870183678 19870724 |
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**Probable Assignee:** MITSUBISHI ELECTRIC CORP

**Assignee(s):** (std): MITSUBISHI ELECTRIC CORP ; MITCHIBISHI ELECTRIC CO ; MITSBISHI ELECTRIC CORP

**Assignee(s):** MITSUBISHI DENKI K K ; MITSUBISHI DENKI KK ; MITSUBISHI DENKI KABUSHIKI KAISHA ; MITSUBISHI DENKI KABUSHIKIKAISHA ; MITSUBISHI DENKI KABUSHIKIGAISHA ; MITSUBISHI DENKI K K TOKIO TOKYO JP

**Inventor(s):** (std): DANAGGA MASAYAGGI ; KIYUUBA KAZUKI ; KUBA KAZUKI MITSUBISHI DENKI K ; MYOI YASUHIKO MITSUBISHI DENKI ; NAI YASUTO ; TANAKA MASAARI MITSUBISHI DENK ; YAGI SHIGEORI ; YASUI GOGI ; YASUI KOJI MITSUBISHI DENKI KA ; YAGI SHIGENORI MITSUBISHI DENK ; KUZUMOTO MASAKI ; YASUI KOJI ; YASUI KIMIHARU ; YASHI GOGI ; YAGI SIGENORI ; YAGI SHIGENORI ; TANAKA MASAARI ; MYOI YASUHIKO ; MOI YASHITO ; KUBA KAZUKI ; GUZMOTO MASAGI ; GUBA GAZGI ; DANAGA MASAAGI ; YASUI KOJI MITSUBISHI DENKI K ; KUSUMOTO MASAKI ; KUZUMOTO MASAKI MITSUBISHI DEN

**Inventor(s):** KUZUMOTO MASAKI MITSUBISHI DENKI KK ; KUZUMOTO MASAKI MITSUBISHI DENKI KABUSHIKI KAISHA ; KUZUMOTO MASAKI MITSUBISHI DENKI KABUSHIKI K... ; KUZUMOTO MASAKI MITSUBISHI DENKI K K ; KUBA KAZUKI MITSUBISHI DENKI KABUSHIKI KAISHA ; KUBA KAZUKI MITSUBISHI DENKI KABUSHIKI K... ; MYOI YASUHIKO MITSUBISHI DENKI KABUSHIKI... ; MYOI YASUHIKO MITSUBISHI DENKI KABUSHIKI KAISHA ; TANAKA MASAARI MITSUBISHI DENKI KABUSHIKI... ; TANAKA MASAARI MITSUBISHI DENKI KABUSHIKI KAISHA ; TANAKA MASAARI MITSUBISHI DENKI K K ; YAGI SHIGENORI MITSUBISHI DENKI KABUSHIKI KAISHA ; YAGI SHIGENORI MITSUBISHI DENKI KABUSHIK... ; YAGI SHIGENORI MITSUBISHI DENKI K K ; KUBA KAZUKI MITSUBISHI DENKI KABUSHIKI K AMAGASAKI ; YASUI KOJI MITSUBISHI DENKI KABUSHIKI KAISHA ; YASUI KOJI MITSUBISHI DENKI KABUSHIKI KAI... ; YASUI KOJI MITSUBISHI DENKI K K ; YAGI SHIGENORI MITSUBISHI DENKI KABUSHIK AMAGASAKI ; YAGI SHIGENORI MITSUBISHI DENKI K K ; YASUI KOJI MITSUBISHI DENKI KABUSHIKI KAI AMAGASAK ; YASUI KOJI MITSUBISHI DENKI KK ; TANAKA MASAARI MITSUBISHI DENKI KABUSHIKI AMAGASAK ; MYOI YASUHIKO MITSUBISHI DENKI KABUSHIKI AMAGASAKI ; KUZUMOTO MASAKI MITSUBISHI DENKI KABUSHIKI K AMAGA ; TANAKA MASAARI MITSUBISHI DENKI KK ; KUBA KAZUKI MITSUBISHI DENKI KABUSHIKI K AMAGASAKI HYOGO JP

**Designated states:** DE FR GB IT

**23) Family number: 62337862 (US2017341491A)**

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**Title:** WINDSHIELD

**Abstract:** A windshield the invention is a windshield on which an information acquisition device that emits and/or receives light to acquire information from an outside of a vehicle can be arranged, and the windshield includes a glass sheet in which at least a portion is curved and on which a mask layer that blocks a field of vision from the outside of the vehicle is laminated, at least one opening being formed in the mask layer, an attachment member in which at least a portion is fixed at a position corresponding to the mask layer on the glass sheet and to which the information acquisition device can be attached, and a path member having a recessed portion for forming a path through which the information acquisition device emits and/or receives light between the path member and the glass sheet when the attachment member is fixed to the mask layer.

**Classifications:**

**International (IPC 8-9):** B32B17/10 B60J1/00 B60J1/02 B60R1/00

B60R11/02 B60R11/04 C03C17/04 (Advanced/Invention)

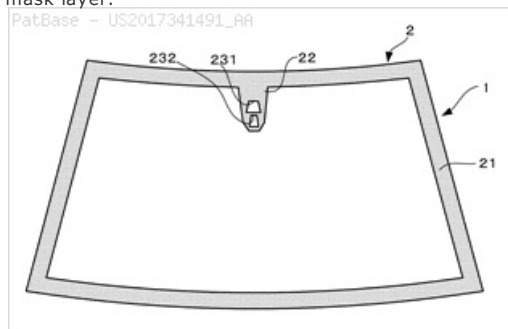
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B32B17/10036 B60R11/02 B60R11/04 B32B17/10761 B32B2250/03

B32B17/10788

**JP F-Term:** 3D021 3D127

**JP F-Index:** B60J1/00/H B60R1/00/A



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
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| EP3216655 A1       | 20170913         | EP20150857524      | 20150830         |
| EP3216655 A4       | 20180620         | EP20150857524      | 20150830         |
| JP2016088493 A2    | 20160523         | JP20150089887      | 20150424         |
| JP6480249 B2       | 20190306         | JP20150089887      | 20150424         |
| US2017341491 AA    | 20171130         | US20150524175      | 20150830         |
| WO16072136 A1      | 20160512         | WO2015JP74554      | 20150830         |

**Priority:**

|                        |                        |                        |
|------------------------|------------------------|------------------------|
| JP20140224346 20141104 | JP20150089887 20150424 | WO2015JP74554 20150830 |
|------------------------|------------------------|------------------------|

**Probable Assignee:** NIPPON SHEET GLASS CO LTD

**Assignee(s):** (std): NIPPON SHEET GLASS CO LTD  
**Assignee(s):** NIPPON SHEET GLASS CO  
**Inventor(s):** (std): NAKAGAWA MASAFUMI  
**Agent(s):** WEBSTER JEREMY MARK; TACHIBANA KENJI; TANAKA JUNYA; YAMADA IICHIRO ET AL  
**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

24) Family number: 41143461 (US2008024867A)

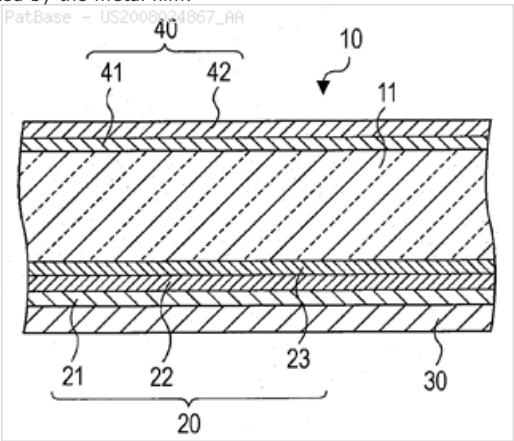
© PatBase

**Title:** ANTIREFLECTION FILM, METHOD FOR HEATING METAL FILM, AND HEATING APPARATUS

**Abstract:** There is provided an antireflection film capable of reliably preventing light (or laser light), which is incident on a glass substrate and which reaches a metal film, from being reflected by the metal film. The antireflection film provided between a metal film having a complex refractive index represented by  $N_M = n_M - i.k_m$  and a glass substrate having a refractive index  $N_G$  includes, from the metal film side: (A) a first dielectric layer having a refractive index  $N_1$ ; (B) a second dielectric layer provided on the first dielectric layer and having a refractive index  $N_2$ ; and (C) a third dielectric layer provided on the second dielectric layer and having a refractive index  $N_3$ , in which  $N_1 < N_M$ ,  $N_1 > N_G$ ,  $N_2 < N_G$ , and  $N_3 > N_G$  hold. Accordingly, light which is incident on the glass substrate and which reaches the metal film is prevented from being reflected by the metal film.

**Classifications:**

**International (IPC 8-9):** C03C17/36 C03C23/00 C23C14/06 C23C28/00 G02B1/10 G02B1/11 (Advanced/Invention); C23C14/06 C23C28/00 (Advanced/Non-invention); C03C17/36 C03C23/00 C23C14/06 C23C28/00 G02B1/10 (Core/Invention)  
**CPC:** C03C17/36 C03C17/3621 C03C17/3628 C03C17/3649 C03C2217/734 G02B1/115  
**European:** C03C17/36 C03C17/36B330 C03C17/36B334 C03C17/36B344 G02B1/11D2 M03C217/734  
**US:** 359/585 359/586 359/586P 359/589  
**JP F-Term:** 2K009 2K009/AA06 2K009/BB02 2K009/CC03 2K009/CC06 2K009/CC14 2K009/DD03 2K009/FF02 4G059 4G059/AA01 4G059/AC04 4G059/DA09 4G059/DB01 4G059/DB04 4G059/EA01 4G059/EA04 4G059/EA05 4G059/EA09 4G059/EB01 4G059/EB02 4G059/EB03 4G059/EB04 4G059/EB05 4G059/EB06 4G059/EB07  
**JP F-Index:** C03C17/36 C03C23/00/D G02B1/10/A G02B1/115



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| EP1882678 A1       | 20080130         | EP20070014789      | 20070727         |
| JP2008032949 A2    | 20080214         | JP20060205518      | 20060728         |
| KR101388570 B1     | 20140423         | KR20070074418      | 20070725         |
| KR20080011071 A    | 20080131         | KR20070074418      | 20070725         |
| US2008024867 AA    | 20080131         | US20070782395      | 20070724         |
| US8693099 BB       | 20140408         | US20070782395      | 20070724         |

**Priority:**

JP20060205518 20060728

**Probable Assignee:** JAPAN DISPLAY WEST INC

**Assignee(s):** (std): EGUCHI NAOYA ; JAPAN DISPLAY WEST INC ; KAWASHIMA TOSHITAKA ; KUBOTA SHIGEO ; OHSAKO JUNICHI ; SONY CORP ; TATSUKI KOICHI

**Inventor(s):** (std): EGUCHI NAOYA ; KAWASHIMA TOSHITAKA ; KUBOTA SHIGEO ; OHSAKO JUNICHI ; OSAKO JUNICHI ; TATSUKI KOICHI

**Agent(s):** BELL BOYD AND LLOYD LLP; K AND L GATES LLP

**Designated states:** AL BA DE GB HR MK NL YU

25) Family number: 33892386 (US2006266408A)

© PatBase

**Title:** CONCENTRATOR SOLAR PHOTOVOLTAIC ARRAY WITH COMPACT TAILORED IMAGING POWER UNITS

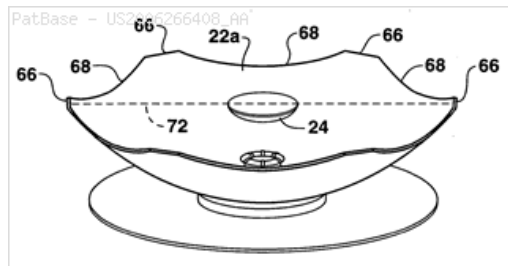
**Abstract:** Solar panels and assembled arrays thereof include a collection of relatively compact, high-capacity power units. Optical components of each power unit include a front window or surface glazing, a primary mirror, secondary mirror and receiver assembly. Primary and secondary mirrors are defined by respective perimeters, at least a portion of which may be substantially coplanar and in contact with the front window. Some primary mirrors are configured with a perimeter of alternating full and truncated sections, and are curved to a base portion forming a pilot hole therein. Receiver assembly mechanical components include an alignment tube for mating with the primary mirror's pilot hole and for housing a photovoltaic solar cell. A base plate provided adjacent to the alignment tube serves to radiate heat emitted by the solar cell, and in some embodiments an additional heat sink provides further passive cooling. A tapered optical rod also provided within the receiver assembly directs received sunlight to the solar cell where electrical current is generated.

**Classifications:**

**International (IPC 8-9):** C03B23/035 C03B25/12 F24J2/00 F24J2/10 F24J2/13 F24J2/14 F24S23/70 F24S23/72 F24S23/74 G02B26/08

G02B27/10 G02B5/10 H01L21/00 H01L23/49 H01L23/49S H01L31/00  
H01L31/024 H01L31/042 H01L31/048 H01L31/052 H01L31/18  
H02N6/00 (Advanced/Invention);  
C03B23/02 C03B25/00 F24J2/06 G02B26/08 G02B27/10 H01L21/00  
H01L23/48 H01L31/00 H01L31/024 H01L31/042 H01L31/048 H01L31/052  
H01L31/18 H02N6/00 (Core/Invention)  
**CPC:** Y02E10/50 G02B19/0028 G02B19/0033 G02B19/0042 G02B5/09  
Y02E10/44 H01L2224/49175 C03B23/0357 Y02E10/42 H01L31/052  
H01L31/024 Y02E10/40 Y02E10/52 Y10T29/49117 Y10T428/24479  
H01L31/18 H01L31/048 F24S23/12 F24S23/79 F24S23/00 F24S23/71  
F24S23/82 F24S2023/86 F24S2023/872 F24S2025/011 F24S2025/6004  
F24S2023/833 F24S2023/874 F24S23/70 F24S40/50 H01L31/0547  
G02B19/0023

**European:** C03B23/035B3 F24J2/06 F24J2/06F F24J2/10 F24J2/10D F24J2/12 F24J2/18 F24J2/46B20 G02B17/06N3 G02B5/09  
H01L31/048 H01L31/052 H01L31/052B H01L31/18 R24J2/10A6 R24J2/10D R24J2/10L R24J2/10P4 R24J2/10P6 R24J2/46P12  
R24J2/52P4 T01L31/024 Y02E10/40 Y02E10/42 Y02E10/44 Y02E10/50 Y02E10/52  
**US:** 126/569 126/684 126/684S 126/689 136/246 136/256 136/259 257/E21.001 257/E21.001S 257/E31.001 257/E31.001S  
29/825 29/825S 359/619 359/619S 359/853 427/123 427/123S 428/156 428/156P 438/64 438/64S 65/104 65/104S 65/287  
65/287S



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2008345216 AA    | 20090709         | AU20080345216      | 20081222         |
| CN102027601 A      | 20110420         | CN200880121409     | 20081222         |
| EP2223346 A2       | 20100901         | EP20080868275      | 20081222         |
| US2006266408 AA    | 20061130         | US20050138666      | 20050526         |
| US2007089778 AA    | 20070426         | US20060638793      | 20061214         |
| US2009056790 AA    | 20090305         | US20080263462      | 20081101         |
| US2009114213 AA    | 20090507         | US20080021238      | 20080128         |
| US2009114265 AA    | 20090507         | US20080175456      | 20080718         |
| US2009117332 AA    | 20090507         | US20080044939      | 20080308         |
| US2009159122 AA    | 20090625         | US20080250034      | 20081013         |
| US2009159128 AA    | 20090625         | US20080046152      | 20080311         |
| US8063300 BB       | 20111122         | US20050138666      | 20050526         |
| WO06130520 A2      | 20061207         | WO2006US20588      | 20060526         |
| WO06130520 A3      | 20090416         | WO2006US20588      | 20060526         |
| WO09058603 A1      | 20090507         | WO2008US80553      | 20081020         |
| WO09059261 A1      | 20090507         | WO2008US82169      | 20081101         |
| WO09086294 A2      | 20090709         | WO2008US87998      | 20081222         |
| WO09086294 A3      | 20091022         | WO2008US87998      | 20081222         |

#### Priority:

|                |          |                |          |                |          |
|----------------|----------|----------------|----------|----------------|----------|
| US20050138666  | 20050526 | US20060638793  | 20061214 | US20070985215P | 20071103 |
| US20070985200P | 20071103 | US20070016314P | 20071221 | US20070016314  | 20071221 |
| US20080021238  | 20080128 | US20080044939  | 20080308 | US20080046152  | 20080311 |
| US20080175456  | 20080718 | US20080250034  | 20081013 | US20080263462  | 20081101 |
| WO2008US87998  | 20081222 |                |          |                |          |

**Probable Assignee:** H2GO INC

**Assignee(s):** (std): HORNE STEPHEN J ; HORNE STEPHEN JOHN ; SOLFOCUS INC ; MCDONALD MARK ; MILBOURNE MICHAEL ; SHOOK GILL ; PRATHER ERIC ; ELLSWORTH JASON ; FIRESTONE STUART M ; H2GO INC ; CONLEY GARY D ; YOUNG PETER ; TIAN JING

**Assignee(s):** CPV SOLAR LLC C O HARPER CONSTRUCTION CO INC ; SILICON VALLEY BANK ; NEW ENTERPRISE ASSOCIATES 12 PARTNERSHIP COLLATERAL AGENT AS LTD ; GOLD HILL CAPITAL 2008 LP ; NEW ENTERPRISE ASSOCIATES 12 PARTNERSHIP COLLATERA

**Inventor(s):** (std): HORNE STEPHEN J ; HORNE STEPHEN JOHN ; YOUNG PETER ; TIAN JING ; SHOOK GILL ; PRATHER ERIC ; MILBOURNE MICHAEL ; MCDONALD MARK ; LUDOWISE MICHAEL J ; FIRESTONE STUART M ; ELLSWORTH JASON ; CHAN HING WAH ; CONLEY GARY D ; ERIC PRATHER ; GILL SHOOK ; BAILEY DARREL

**Inventor(s):** CONLEY GARY ; HORNE STEPHEN

**Agent(s):** MALLESONS STEPHEN JAQUES ; KING AND WOOD MALLESONS ; MINTER ELLISON ; FINNIE PETER JOHN ; DORITY AND MANNING PA ; MUELLER LAW OFFICE PC ; BUCKLEY MASCHOFF AND TALWALKAR LLC ; MUELLER HEATHER ET AL ; TALWALKAR NANDU A

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**26) Family number: 44129674** (US2011097572A)

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**Title:** PROCESS FOR PRODUCTION OF LAMINATED GLASS INTERLEAVED WITH PLASTIC FILM AND LAMINATED GLASS INTERLEAVED WITH PLASTIC FILM

**Abstract:** According to the present invention, there is provided a production process of a plastic film-inserted laminated glass, the plastic film-inserted laminated glass having a laminated film in which a plastic film of 30 to 200 micro m in thickness is sandwiched between two resin intermediate films and two glass plates, the process including at least the following three steps: a step 1 for forming a laminate in which the glass plate, the resin intermediate film, the plastic film, the resin intermediate film and the glass plate are laminated together in order of mention; a step 2 for degassing the formed laminate; and a step 3 for bonding the degassed laminate by pressing and heating, wherein the steps 1 and 2 are performed under conditions that the temperature of working atmosphere and the temperatures of the plastic film and resin intermediate films fall within a range of 10 to 25 degrees centigrade

**Classifications:**

**International (IPC 8-9):** B32B17/10 B32B37/02 B32B37/14 B60J1/00 C03C27/00 C03C27/12 (Advanced/Invention); B32B17/06 B60J1/00 C03C27/12 (Core/Invention); B32B17/10 (Core/Non-invention)

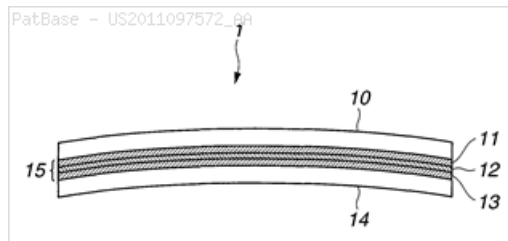
**CPC:** B32B17/10036 B32B17/10 B32B17/10174 B32B17/10761 B32B17/10788 B32B17/10935 B32B17/10954 Y10T428/26

**European:** B32B17/10 B32B17/10C4 B32B17/10E10 B32B17/10G28 B32B17/10G36 B32B17/10L16F B32B17/10L16K

**US:** 156/104 156/104S 428/332 428/332P

**JP F-Term:** 3D127 4G061 4G061/AA13 4G061/AA21 4G061/BA02 4G061/CB05 4G061/CB16 4G061/CB19 4G061/CD02 4G061/CD03 4G061/CD18 4G061/DA30 4G061/DA38 4F100 4F100/AA21/D 4F100/AG00/A 4F100/AG00/E 4F100/AH06/E 4F100/AK01/B 4F100/AK01/C 4F100/AK01/D 4F100/BA05 4F100/BA06 4F100/CC00/E 4F100/EC03/C 4F100/JA03/C 4F100/JG05/D 4F100/JK07/C 4F100/JK12/E 4F100/JN01 4F100/JN06/D 4F100/JN18/D 4F100/YY00 4F100/YY00/C 4G061/AA04

**JP F-Index:** B60J1/00/J C03C27/12/K C03C27/12/L B32B17/10



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN102066281 A      | 20110518         | CN200980122706     | 20090527         |
| CN102066281 B      | 20141001         | CN200980122706     | 20090527         |
| EP2298707 A1       | 20110323         | EP20090766508      | 20090527         |
| EP2298707 A4       | 20130227         | EP20090766508      | 20090527         |
| JP2009298661 A2    | 20091224         | JP20080156116      | 20080616         |
| JP2010013311 A2    | 20100121         | JP20080174436      | 20080703         |
| TW201012642 A      | 20100401         | TW20090118384      | 20090603         |
| US2011097572 AA    | 20110428         | US20090997169      | 20090527         |
| WO09154060 A1      | 20091223         | WO2009JP59673      | 20090527         |

#### Priority:

JP20080156116 20080616 JP20080174436 20080703 WO2009JP59673 20090527

**Probable Assignee:** CENTRAL GLASS CO LTD

**Assignee(s):** (std): TAKAMATSU ATSUSHI ; YONEKURA MASAOKI ; IZUTANI KENSUKE ; NAKAMURA ISAO ; SAKAMOTO HIROMICHI ; CENTRAL GLASS CO LTD

**Assignee(s):** CENTRAL GLASS COMPANY LIMITED ; CENTRAL GLASS COMPANY LIMITEDJP ; CENTRAL GLASS COMPANY LIMITED ; CENTRAL GLASS CO ; YONEKURA MASAOKI ; SAKAMOTO HIROMICHI ; NAKAMURA ISAO ; TAKAMATSU ATSUSHI ; IZUTANI KENSUKE

**Inventor(s):** (std): TAKAMATSU ATSUSHI ; YONEKURA MASAOKI ; SAKAMOTO HIROMICHI ; IZUTANI KENSUKE ; NAKAMURA ISAO ; IZUMIYA KENSUKE ; ISAO NAKAMURA ; HIROMICHI SAKAMOTO ; ATSUSHI TAKAMATSU ; MASAOKI YONEKURA ; KENSUKE IZUTANI

**Inventor(s):** YONEKURA MASAOKI ; SAKAMOTO HIROMICHI ; NAKAMURA ISAO ; TAKAMATSU ATSUSHI ; IZUTANI KENSUKE

**Agent(s):** MANITZ FINSTERWALD AND PARTNER GBR; HASHIMOTO TAKESHI ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

#### 27) Family number: 46546743 (US2011287229A)

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**Title:** LAMINATED GLASS WITH PLASTIC FILM INSERT

**Abstract:** In a laminated glass, a plastic film is sandwiched between two sheets of resin intermediate film, and an infrared reflective film is formed in the plastic film by alternatively laminating resin films of different refractive indexes. The plastic film on which the infrared reflective film is formed meets any of the following conditions: (A) thermal shrinkage of 0.5 to 3 percent in the 90 through 150 degrees centigrade temperature range, (B) modulus of elasticity in the range of 30 through 2000 MPa in a temperature range of 90 through 150 degrees centigrade, and (C) a rate of elongation of the plastic film of 0.3 percent or less when 10N tensile force per 1 m width of the plastic film is exerted in the 90 through 150 degrees centigrade temperature range. This laminated glass is a curved infrared ray reflective laminated glass, with high transmissivity to visible light, high reflectivity in the infrared ray region, excellent insulating effect, and will transmit various electromagnetic waves.

#### Classifications:

**International (IPC 8-9):** B32B1/00 B32B17/06 B32B17/10 B32B3/00 C03C27/12 E06B5/00 (Advanced/Invention); B32B17/06 C03C27/12 E06B5/00 (Core/Invention)

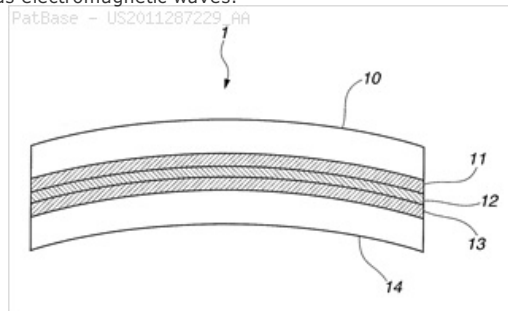
**CPC:** B32B17/10036 B32B17/10 Y10T428/24628 B32B2367/00 B32B17/10449

**European:** B32B17/10 B32B17/10C4

**US:** 428/174 428/174P 428/426

**JP F-Term:** 2E039 2E039/AB07 2E039/AB08 4G061 4G061/AA20 4G061/AA21 4G061/BA01 4G061/CB03 4G061/CB16 4G061/CD02 4G061/CD18

**JP F-Index:** C03C27/12/K E06B5/00/B



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN102307824 A      | 20120104         | CN201080006883     | 20100204         |
| DE602010025059 D1  | 20150716         | DE201060025059T    | 20100204         |

|                 |          |               |          |
|-----------------|----------|---------------|----------|
| EP2394971 A1    | 20111214 | EP20100738581 | 20100204 |
| EP2394971 A4    | 20121212 | EP20100738581 | 20100204 |
| EP2394971 B1    | 20150603 | EP20100738581 | 20100204 |
| JP2010180089 A2 | 20100819 | JP20090024409 | 20090205 |
| JP5707669 B2    | 20150430 | JP20090024409 | 20090205 |
| US2011287229 AA | 20111124 | US20100142967 | 20100204 |
| US9012015 BB    | 20150421 | US20100142967 | 20100204 |
| WO10090250 A1   | 20100812 | WO2010JP51587 | 20100204 |

**Priority:**

JP20090024409 20090205 EP20100738581 20100204 WO2010JP51587 20100204

**Probable Assignee:** CENTRAL GLASS CO LTD

**Assignee(s):** (std): CENTRAL GLASS CO LTD ; IZUTANI KENSUKE ; TAKAMATSU ATSUSHI ; SAKAMOTO HIROMICHI ; NAKAMURA ISAO

**Assignee(s):** CENTRAL GLASS CO LTD UBE SHI ; CENTRAL GLASS COMPANY LIMITED ; CENTRAL GLASS COMPANY LTD

**Inventor(s):** (std): TAKAMATSU ATSUSHI ; SAKAMOTO HIROMICHI ; IZUTANI KENSUKE ; NAKAMURA ISAO ; KENSUKE IZUTANI ; ATSUSHI TAKAMATSU ; HIROMICHI SAKAMOTO ; ISAO NAKAMURA ; IZUMIYA KENSUKE

**Agent(s):** MANITZ FINSTERWALD AND PARTNER GBR; CROWELL AND MORING LLP; HASHIMOTO TAKESHI ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**28) Family number: 49169202 (US2013004719A)**

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**Title:** GLASS PANEL WITH LOW LEVELS OF GHOST IMAGES

**Abstract:** The present invention relates to: a laminated glass panel comprising two sheets of glass connected by an adhesive interlayer, characterized in that in at least one direction, the thickness of the adhesive interlayer is sequentially increasing and decreasing or decreasing and increasing, a transport vehicle, building or any structure including this laminated glass panel, two methods for manufacturing this laminated glass panel comprising the preparation, by extrusion or by thermoforming, respectively, of an adhesive interlayer having a non-constant thickness, and its use for a land, air or sea transport vehicle, in particular as a windshield, rear window, side window or automobile roof, for buildings, street furniture, interior design, electrical home appliances, and electronics.

**Classifications:**

**International (IPC 8-9):** B29C47/00 B29C51/00 B32B17/06 B32B17/10 B32B3/00 B32B7/12 B60J1/00

C03C27/12 (Advanced/Invention);

C03C27/12 (Advanced/Non-invention)

**International (IPC 1-7):** B32B17/10 B60J1/00 C03C27/12

**CPC:** B23B17/10761 B32B17/10036 B32B17/10568 B32B17/10761 Y10T428/24479 Y10T428/24488 Y10T428/24521

Y10T428/24612 B32B2605/006

**European:** B32B17/10C4 B32B17/10G28 B32B17/10G2B

**US:** 264/176.1 264/319 428/156 428/157 428/161 428/172 428/426

**JP F-Term:** 4G061 4G061/AA04 4G061/AA25 4G061/BA01 4G061/BA02 4G061/CB03 4G061/CB16 4G061/CD02 4G061/CD03 4G061/CD18

**JP F-Index:** C03C27/12/Z

**Family:**

| Publication number | Publication date | Application number | Application date |
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| BR112012016402 A2  | 20180925         | BR20121116402      | 20101220         |
| CN102781664 A      | 20121114         | CN201080065066     | 20101220         |
| EA022935 B1        | 20160331         | EA20120090594      | 20101220         |
| EA201290594 A1     | 20121228         | EA20120090594      | 20101220         |
| EP2519407 A1       | 20121107         | EP20100807628      | 20101220         |
| FR2954729 A1       | 20110701         | FR20100051076      | 20100216         |
| FR2954729 B1       | 20130215         | FR20100051076      | 20100216         |
| FR2954730 A1       | 20110701         | FR20090059695      | 20091231         |
| FR2954730 B1       | 20111230         | FR20090059695      | 20091231         |
| FR2967998 A1       | 20120601         | FR20100059915      | 20101130         |
| FR2967998 B1       | 20121130         | FR20100059915      | 20101130         |
| IN06043CN2012 A    | 20131129         | IN2012CN06043      | 20120710         |
| IN302647 B         | 20181109         | IN2012CN06043      | 20120710         |
| JP2013516375 T2    | 20130513         | JP20120546485T     | 20101220         |
| KR20120105044 A    | 20120924         | KR20127020049      | 20101220         |
| KR20180014230 A    | 20180207         | KR20187002716      | 20101220         |
| MX2012007697 A1    | 20120912         | MX20120007697      | 20101220         |
| MX345006 B         | 20170113         | MX20120007697      | 20101220         |
| US2013004719 AA    | 20130103         | US20100520016      | 20101220         |
| US8859080 BB       | 20141014         | US20100520016      | 20101220         |
| WO11080464 A1      | 20110707         | WO2010FR52815      | 20101220         |

**Priority:**

FR20090059695 20091231 FR20100051076 20100216 FR20100059915 20101130  
WO2010FR52815 20101220

**Probable Assignee:** SAINT GOBAIN GLASS FRANCE

**Assignee(s):** (std): LE MOAL SIMON ; MARGUERITE CEDRIC ; SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; THELLIER HERVE ; SAINT GOBAIN SA

**Inventor(s):** (std): MOAL SIMON LE ; SIMON LE MOAL ; HERVE THELLIER ; CEDRIC MARGUERITE ; THELLIER HERVE ; LE MOAL SIMON ; MARGUERITE CEDRIC

**Inventor(s):** MARGUERITE CDRIC ; THELLIER HERV

**Agent(s):** RIBEAUDEAU MARION CHRISTINE; SAINT GOBAIN RECHERCHE; KAWAGUTI AND PARTNERS; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT LLP

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**29) Family number: 15973808** (US6797396B)

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**Title:** WRINKLE RESISTANT INFRARED REFLECTING FILM AND NON-PLANAR LAMINATE ARTICLES MADE THEREFROM

**Abstract:** A birefringent dielectric multilayer film that reflects in a wavelength region of interest, and preferably reflects at least 50 percent of light in a band at least 100 nm wide, preferably positioned between wavelengths from about 700 nm to about 2000 nm. The film is heat set to render the film capable of shrinking to conform without substantial wrinkling to a substrate having a compound curvature. The film may be laminated to form a wide variety of non-planar articles.

**Classifications:**

**International (IPC 8-9):** B29C55/02 B32B1/00 B32B17/10 B32B37/10 B32B7/02 B60J1/00 C03C27/12 G02B5/26 G02B5/28 (Advanced/Invention); B29L7/00 B29L9/00 G02B5/28 (Advanced/Non-invention); B29C55/02 B32B17/06 B32B7/02 G02B5/26 G02B5/28 (Core/Invention)

**International (IPC 1-7):** B29C55/02 B29L7/00 B29L9/00 B32B17/10 B32B27/08 B32B27/16 B32B27/30 B32B27/36 B32B7/02 G02B5/10 G02B5/26 G02B5/28

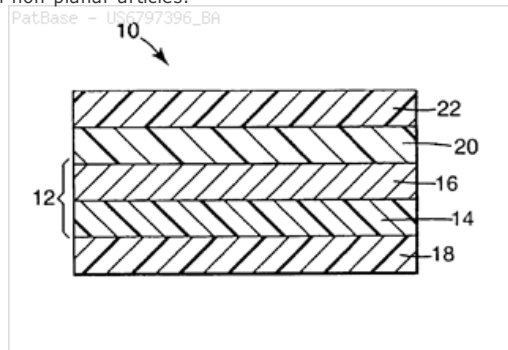
**CPC:** Y10S428/91 B32B17/10761 B32B17/10 B32B17/10009 B32B17/10036 B32B17/10174 Y10T428/31616 Y10T428/31645 Y10T428/31786 Y10T428/31797

**European:** B32B17/10 B32B17/10C B32B17/10C4 B32B17/10E10 B32B17/10G28

**US:** 359/359 359/485.04 359/485.07 359/487 359/489.15 359/494 359/577 359/580 359/584 359/586 359/589 359/601 428/426 428/430 428/441 428/480 428/483 428/910

**JP F-Term:** 2H048 2H048/FA04 2H048/FA12 2H048/FA24 2H048/GA05 2H048/GA19 2H048/GA33 2H148 2H148/FA04 2H148/FA12 2H148/FA24 2H148/GA05 2H148/GA19 2H148/GA33 4F100 4F100/AK25/B 4F100/AK25/D 4F100/AK42/A 4F100/AK42/C 4F100/AK42/E 4F100/AL01/A 4F100/AL01/B 4F100/AL01/C 4F100/AL01/D 4F100/AL01/E 4F100/BA05 4F100/BA06 4F100/BA08 4F100/BA10/A 4F100/BA10/E 4F100/GB32 4F100/JG05 4F100/JN06 4F100/JN18 4F210 4F210/AA21/E 4F210/AA24 4F210/AA26/E 4F210/AG01 4F210/AG03 4F210/AH73 4F210/AR06 4F210/AR11 4F210/QA02 4F210/QC06 4F210/QG01 4F210/QG15 4F210/QG18 4F210/QW07 3D127 4F100/AG00 4F100/AG00/A 4F100/AG00/E 4F100/AK01/C 4F100/AK23/B 4F100/AK23/D 4F100/AR00/C 4F100/EJ17 4F100/EJ42 4F100/EJ50 4F100/EJ97 4F100/JN00 4G061 4G061/AA02 4G061/AA03 4G061/AA04 4G061/AA06 4G061/AA11 4G061/AA20 4G061/AA27 4G061/AA28 4G061/BA01 4G061/BA02 4G061/CA02 4G061/CB03 4G061/CB06 4G061/CB16 4G061/CB19 4G061/CD03 4G061/CD12 4G061/CD18 4G061/DA10 4G061/DA23 4G061/DA28 4G061/DA32 4G061/DA38 4G061/DA46

**JP F-Index:** B29C55/02 B29L7/00 B29L9/00 B32B7/02/103 G02B5/26 G02B5/28 B32B1/00 B32B1/00/Z B32B17/10 B32B31/20 B32B37/10 B60J1/00/H C03C27/12/C C03C27/12/K C03C27/12/L



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2001263009 AA    | 20011224         | AU20010263009      | 20010508         |
| AU200163009 A1     | 20011224         | AU20010063009      | 20010508         |
| AU200163009 A5     | 20011224         | AU20010063009      | 20010508         |
| EP1287390 A2       | 20030305         | EP20010937256      | 20010508         |
| JP2004503402 T2    | 20040205         | JP20020510267T     | 20010508         |
| JP2011225445 A2    | 20111110         | JP20110104540      | 20110509         |
| JP5607574 B2       | 20141015         | JP20110104540      | 20110509         |
| KR20030012874 A    | 20030212         | KR20027016727      | 20010508         |
| US6797396 BA       | 20040928         | US20000590924      | 20000609         |
| WO0196104 A2       | 20011220         | WO2001US14872      | 20010508         |
| WO0196104 A3       | 20020718         | WO2001US14872      | 20010508         |

**Priority:**

US20000590924 20000609 JP20020510267 20010508 JP20020510267T 20010508  
WO2001US14872 20010508

**Probable Assignee:** 3M CO

**Assignee(s):** (std): 3M CO ; 3M CO MINNESOTA MINING AND MFG COMPANY ; 3M INNOVATIVE PROPERTIES CO ; THREE M INNOVATIVE PROPERTIES CO ; THREE M INNOVATIVE PROPERTIES

**Assignee(s):** 3M INNOVATIVE PROPERTIES COMPANY

**Inventor(s):** (std): BOETTCHER JEFFREY A ; LIU JOE ; RUFF ANDREW T ; MORTENSON DAVID K ; LIU YAOQI J ; KRANZ HEATHER K ; KOSTER BRIAN L

**Inventor(s):** JOE LIU ; JEFFREY A BOETTCHER ; ANDREW T RUFF

**Agent(s):** NISHIYAMA MASAYA; ISHIDA TAKASHI; TSURUTA JUNICHI; HIGUCHI SOTOJI; FUKUMOTO TSUMORU; AOKI ATSUSHI; KOGA TETSUJI

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EE ES FI FR GA GB GD GE GH GM GN GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

**Title:** VERBUNDGLAS, VERGLASUNGSELEMENT UND VERFAHREN ZU DEREN HERSTELLUNG, UND VERWENDUNG DES VERBUNDGLASES

**Abstract:** Source: DE102006042538B4 [DE] Verbundglas (10), das umfasst: – ein erstes Dickglas (1), das eine Dicke von mindestens 2,1 mm aufweist, – ein zweites Dickglas (5), das eine Dicke von mindestens 2,1 mm aufweist, – ein erstes Duennglas (3, 3a, 3b), das eine Dicke kleiner oder gleich 1,5 mm aufweist, und – Verbundmaterial (2, 4, 6), mit dem das erste Dickglas (1), das zweite Dickglas (5) und das erste Duennglas (3, 3a, 3b) miteinander verbunden sind, wobei – das erste Dickglas (1) gehärtetes Natron-Kalk-Glas umfasst, und – das erste Duennglas (3, 3a, 3b) mindestens eine funktionalisierte Oberfläche (3-1, 3-2, 3a-1, 3a-2, 3b-1, 3b-2) aufweist, die eine Beschichtung trägt und/oder eine strukturelle und/oder chemische Modifizierung aufweist, dadurch gekennzeichnet, dass – das erste Duennglas (3, 3a, 3b) zwischen dem ersten und zweiten Dickglas (1, 5) angeordnet ist.

**Classifications:**

**International (IPC 8-9):** B32B17/10 C03C27/12 (Advanced/Invention); B32B17/06 C03C27/12 (Core/Invention)

**CPC:** B32B17/10091 B32B17/10137 B32B17/10036 B32B17/10045

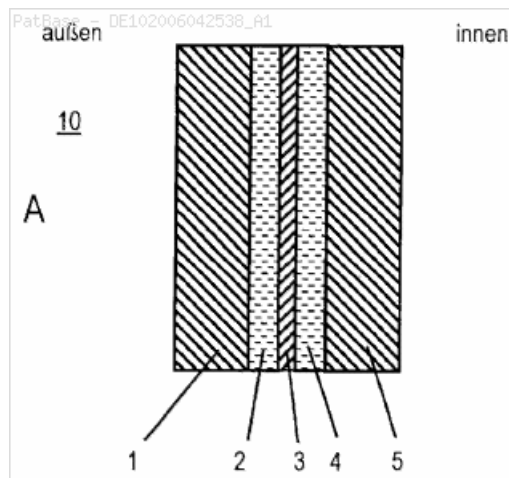
B32B17/10055 B32B17/10174 B32B17/1055 B32B17/10889

B32B17/10981 C03C17/00 C03C27/10

**European:** B32B17/10C4 B32B17/10C4B B32B17/10C4B4

B32B17/10E10 B32B17/10G B32B17/10L14 B32B17/10L22 C03C17/00

C03C27/10



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE102006042538 A1  | 20080327         | DE200610042538     | 20060911         |
| DE102006042538 B4  | 20110714         | DE200610042538     | 20060911         |

**Priority:**

DE200610042538 20060911

**Probable Assignee:**

FUTECH GMBH

**Assignee(s):** (std):

FUTECH GMBH

**Inventor(s):** (std):

JAEGER STEFFEN

**Title:** PANE ARRANGEMENT WITH PANE WITH LOW-E COATING AND CAPACITIVE SWITCHING REGION

**Abstract:** A pane arrangement having a pane with an inner surface and an outer surface, a low-E coating arranged on the inner surface of the pane. The pane arrangement having a coating-free first partition line formed in the low-E coating. A capacitive switching region is electrically isolated from a surrounding region of the low-E coating. The surrounding region surrounds the capacitive switching region in sections. The capacitive switching region has a contact region, a supply line region and a first connection region. The supply line region electrically connects the contact region to the first connection region. A coating-free second partition line is formed in the low-E coating. The surrounding region is electrically isolated from an outer region of the low-E coating. The outer region surrounds the surrounding region. A capacitive sensor electronics system is electrically connected to the first connection region of the capacitive switching region and to the surrounding region by a second connection region.

**Classifications:**

**International (IPC 8-9):** B32B17/10 B60J1/00 C03C17/34 E06B3/67

E06B9/24 G02B5/08 H03K17/96 H05K1/03 (Advanced/Invention);

H03K17/96 (Core/Invention)

**CPC:** H03K2217/960755 H03K2217/960765 E06B9/24 G02F1/15

B32B2255/20 B32B2307/202 B32B2307/412 B32B2315/08 B32B2329/06

B32B2419/00 B32B2457/208 B32B2605/08 B60J3/007 E06B2009/2417

G02F1/172 H03K2217/96015 H03K17/962 B32B17/10036 B32B17/10183

B32B17/10211 B32B17/10293 B32B17/10761

**JP F-Term:** 2E016 2E016/AA07 2E016/BA01 2E016/CA01 2E016/CB01

2E016/CC01 2E016/EA05 2E016/GA02 2H042 2H042/DA01 2H042/DA12

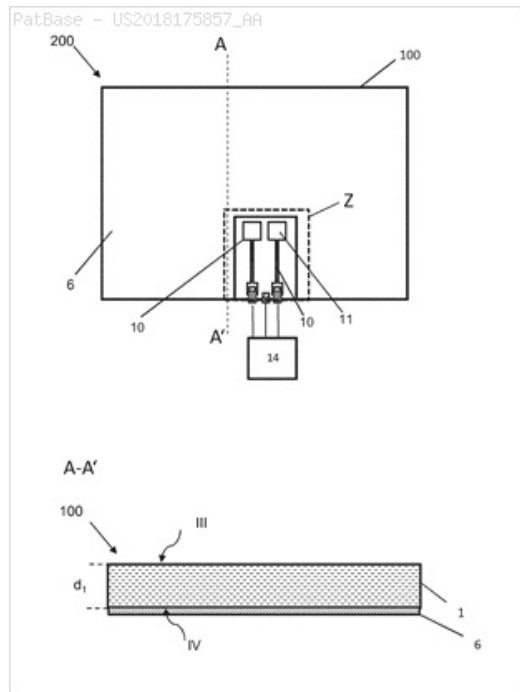
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4G059/EA02 4G059/EA03 4G059/EA05 4G059/EA12 4G059/EB01

4G059/GA02 4G059/GA04 4G059/GA12

**JP F-Index:** B60J1/00/H C03C17/34/Z E06B3/67/A G02B5/08



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| BR112017026760 A2  | 20180821         | BR20171126760      | 20160818         |
| CA2993741 AA       | 20180125         | CA20162993741      | 20160818         |
| CN106664089 A      | 20170510         | CN201680001762     | 20160818         |
| EP3338367 A1       | 20180627         | EP20160757609      | 20160818         |
| ID201808276 A      | 20180803         | ID2018PID01185     | 20160818         |
| IN201737044103 A   | 20180824         | IN201737044103     | 20171208         |
| JP2018537697 T2    | 20181220         | JP20180508710T     | 20160818         |
| KR20180033212 A    | 20180402         | KR20187004012      | 20160818         |
| MX2018001949 A1    | 20180619         | MX20180001949      | 20160818         |
| TH183467 A         | 20190207         | TH20181000918      | 20160818         |
| US2018175857 AA    | 20180621         | US20160739691      | 20160818         |
| WO17029384 A1      | 20170223         | WO2016EP69660      | 20160818         |

#### Priority:

EP20150181324 20150818 TH20181000918 20160818 WO2016EP69660 20160818

**Probable Assignee:** SAINT GOBAIN GLASS FRANCE

**Assignee(s):** (std): SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA

**Assignee(s):** BAUERLE PASCAL ; DROSTE STEFAN ; WEBER PATRICK ; SCHMALBUCH KLAUS

**Inventor(s):** (std): BAUERLE PASCAL ; SCHMALBUCH KLAUS ; WEBER PATRICK ; DROSTE STEFAN ; PATRICK WEBER ; STEFAN DROSTE ; KLAUS SCHMALBUCH ; PASCAL BAUERLE

**Agent(s):** GOUDREAU GAGE DUBUC ; LAVERY DE BILLY LLP ; OBERMAIR CHRISTIAN EGBERT ; IR MIGNI MYRIASANDRA SH MIP MSEL MM ; MORITA HIROSHI ; GEBAUER DIETER

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

#### 32) Family number: 61604972 (US2017210661A)

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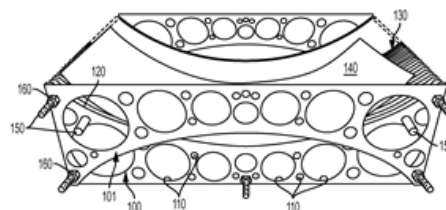
**Title:** GLASS SHAPING APPARATUS AND METHODS

**Abstract:** Disclosed are apparatuses for shaping a glass structure, the apparatuses having a plurality of rib members, each rib member comprising at least one void and at least one shaping edge; and at least one support member. The apparatuses can further comprise a shaping member and/or a guide member and/or a shaping groove. Also disclosed herein are methods for shaping a glass structure, the methods comprising positioning the glass structure on a shaping apparatus and heating the glass structure to shape the glass structure.

#### Classifications:

**International (IPC 8-9):** C03B23/025 C03B23/03 C03B23/035 C03B40/00 (Advanced/Invention)

**CPC:** C03B23/03 C03B23/0357 C03B40/005 Y02P40/57 C03B23/035 C03B23/0252 C03B23/0256

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN107074616 A      | 20170818         | CN201580053096     | 20150731         |
| EP3174836 A1       | 20170607         | EP20150747947      | 20150731         |
| US2017210661 AA    | 20170727         | US20150329710      | 20150731         |
| WO16019209 A1      | 20160204         | WO2015US43032      | 20150731         |

**Priority:**

US20140032100P 20140801      US20150329710 20150731      WO2015US43032 20150731

**Probable Assignee:** CORNING INC

**Assignee(s):** (std): CORNING CO LTD ; CORNING INC

**Inventor(s):** (std): POISSY STEPHANE ; VANOTTI CLAUDE JACQUES JULIEN ; TANGUY RONAN ; FREDHOLM MICHELE MARIE LOUISE ; DELAUTRE PAUL LOUIS FLORENT ; DANNOUX THIERRY LUC ALAIN

**Agent(s):** EPPING HERMANN FISCHER; PATEL PAYAL A

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**33) Family number: 57310280 (US2016002098A)**

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**Title:** SUBSTRATE COATED WITH A LOW-E MULTILAYER

**Abstract:** A material including a substrate coated on at least some of at least one of its faces with a thin-film multilayer including at least two films based on a transparent electrically conductive oxide, the films being separated by at least one dielectric intermediate film the physical thickness of which is at most 50 nm, no metal films being deposited between the films based on a transparent electrically conductive oxide, the multilayer furthermore including at least one oxygen barrier film above that film based on a transparent electrically conductive oxide which is furthest from the substrate, each film based on a transparent electrically conductive oxide possessing a physical thickness comprised in a range extending from 20 to 80 nm.

**Classifications:**

**International (IPC 8-9):** B32B17/06 B32B17/10 B32B7/02 B32B9/00 C03B23/023 C03B25/02 C03B27/012 C03C17/34 C03C17/3417 C08J7/00 C23C14/35 C23C14/58 E06B9/24 (Advanced/Invention); C03C17/34 C08J7/00 (Core/Invention)

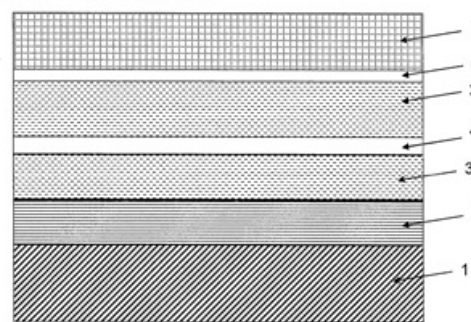
**CPC:** C03B25/025 C03B27/012 C03B23/0235 C23C14/35 C23C14/5806 C23C14/5813 C03C2218/156 C03C17/3417 C03C17/3435 C03C2217/94 C03C2217/948 C03C2218/32 B32B17/10201 B32B17/10761 B32B17/1077

**US:** 204/192.22 428/216 65/60.2

**JP F-Term:** 2E043 3D127 4F100 4F100/AA12 4F100/AA13 4F100/AA17 4F100/AA19 4F100/AA20 4F100/AA21 4F100/AA22 4F100/AA24 4F100/AA25 4F100/AA27 4F100/AA28 4F100/AA33 4F100/AG00 4F100/BA05 4F100/BA10 4F100/EH66 4F100/EJ41 4F100/EJ98 4F100/GB07 4F100/GB32 4F100/JD03 4F100/JD10 4F100/JG01 4F100/JG05 4F100/JM02 4F100/JN01 4F100/JN06 4G059 4G059/AA01 4G059/AC06 4G059/EA01 4G059/EA02 4G059/EA03 4G059/EA04 4G059/EA05 4G059/EA07 4G059/EA12 4G059/EB04 4G059/GA02 4G059/GA04 4G059/GA12

**JP F-Index:** B32B17/06 B32B9/00/A B60J1/00/H C03C17/34/Z E06B9/24/Z

PatBase - US2016002098\_AA

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| BR112015019816 A2  | 20170718         | BR20151119816      | 20140225         |
| CA2902130 AA       | 20150821         | CA20142902130      | 20140225         |
| CN105026330 A      | 20151104         | CN201480010838     | 20140225         |
| CN105026330 B      | 20181109         | CN201480010838     | 20140225         |
| CO7570443 A2       | 20160408         | CO20150196984      | 20150824         |
| EA029723 B1        | 20180531         | EA20150091585      | 20140225         |
| EA201591585 A1     | 20151230         | EA20150091585      | 20140225         |
| EP2961711 A1       | 20160106         | EP20140713175      | 20140225         |
| FR3002534 A1       | 20140829         | FR20130051729      | 20130227         |
| FR3002534 B1       | 20180413         | FR20130051729      | 20130227         |
| ID201700386 A      | 20170127         | ID2015P0005246     | 20140225         |
| IN07129DN2015 A    | 20160101         | IN2015DN07129      | 20150813         |
| JP2016515950 T2    | 20160602         | JP20150559539T     | 20140225         |
| KR20150123241 A    | 20151103         | KR20157022884      | 20140225         |

|                 |          |               |          |
|-----------------|----------|---------------|----------|
| MX2015010827 A1 | 20151203 | MX20150010827 | 20140225 |
| TH177409 A      | 20180705 | TH20151004866 | 20140225 |
| US2016002098 AA | 20160107 | US20140770269 | 20140225 |
| US9950951 BB    | 20180424 | US20140770269 | 20140225 |
| WO14131980 A1   | 20140904 | WO2014FR50392 | 20140225 |

**Priority:**

FR20130051729 20130227 WO2014FR50392 20140225

**Probable Assignee:** SAINT GOBAIN GLASS FRANCE

**Assignee(s):** (std): SAINT GOBAIN ; SAINT GOBAIN SA

**Assignee(s):** HAGEN JAN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN GLASS FRANCE SA ; STERNCHUSS JULIETTE

**Inventor(s):** (std): HAGEN JAN ; JAN HAGEN ; JULIETTE STERNCHUSS ; STERNCHUSS JULIETTE

**Agent(s):** Goudreau Gage Dubuc; Lavery de Billy LLP; Margarita Castellanos Abondano; Princivalle Xavier Edmond Nicolas; Saint Gobain Recherche; IR Migni Myriasandra MIP MSEL; Aoki Atsushi; Koga Tetsuji; Ishida Takashi; Pillsbury Winthrop Shaw Pittman LLP

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**34) Family number: 1957264 (US4402579A)**

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**Title:** CONTACT-LENS CONSTRUCTION

**Abstract:** The invention contemplates integral lens-and-haptic structure and a technique of making the same, using sheet material as the only ingredient of the ultimate product, which may be an intraocular implant or for extraocular (i.e., cornea-contact) application. The sheet material is of substantially the ultimate thickness of the lens, and may be of optical-quality glass or of a transparent plastic which is inert to body fluids. Suitably coordinated masking and etching steps determine the contour of the ultimate central circular lens as well as the thickness and fenestration detail of the ultimate thin flexible haptic formations which are integral with and extend radially outward of the lens blank. Lens-surface curvature may be developed before or after haptic formation.

**Classifications:**

**International (IPC 8-9):** A61F2/16 B29C39/00 B29C61/00 B29C69/00 B29D11/00 B29D11/02 G02C7/00 G02C7/04 (Advanced/Invention); A61F2/16 B29C39/00 B29C61/00 B29C69/00 B29D11/00 G02C7/00 G02C7/04 (Core/Invention)

**International (IPC 1-7):** A61F1/16 A61F1/24 B29C17/08 B29D11/00 B44C1/22 C03C15/00 C03C25/06 C23C1/00 G02C7/02 G02C7/04 G03F7/00

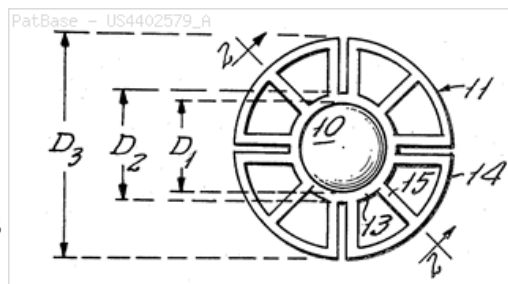
**CPC:** A61F2/145 G02C7/04 A61F2002/1681 G02C7/02 B29D11/00009 G02C7/049 B29D11/023 G02C2202/16 A61F240/001 A61F2/16

**European:** A61F2/16 B29D11/00C B29D11/02B G02C7/04M S02C202/16

**US:** 156/630 156/643 156/645 156/646 156/650 156/652 156/659.1 156/661.1 156/663 156/668 204/129.35 204/129.65 216/26 216/47 216/63 216/67 216/80 216/99 3/13 351/159.02 351/160R 430/321 623/6.4 623/6.57

**JP F-Term:** 2H006 2H006/BA00 2H006/BC07 2H006/XX24 2H006/XX29 4F002 4F002/LA63 4F011 4F011/DA63 4F011/DA79 4F012 4F012/XX00 4F204 4F204/AD04 4F204/AH74 4F204/EW02 4F204/EW21 4F204/FA01 4F204/FB01 4F213 4F213/AA21 4F213/AA24 4F213/AA29 4F213/AA33 4F213/AA34 4F213/AA40 4F213/AD04 4F213/AH74 4F213/WA15 4F213/WA54 4F213/WA63 4F213/WA85 4F213/WB01

**JP F-Index:** B29C39/00/X B29C69/00 B29D11/00 G02C7/00 G02C7/04



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CA1192069 A1       | 19850820         | CA19820408299      | 19820728         |
| DE3228352 A1       | 19830331         | DE19823228352      | 19820729         |
| FR2510768 A1       | 19830204         | FR19820013266      | 19820729         |
| FR2510768 B1       | 19860829         | FR19820013266      | 19820729         |
| GB2105866 A1       | 19830330         | GB19820021671      | 19820727         |
| GB2105866 B2       | 19850509         | GB19820021671      | 19820727         |
| JP1036922 B4       | 19890803         | JP19820131328      | 19820729         |
| JP58065412 A2      | 19830419         | JP19820131328      | 19820729         |
| US4402579 A        | 19830906         | US19810288217      | 19810729         |
| US4450593 A        | 19840529         | US19810319622      | 19811109         |
| US4466858 A        | 19840821         | US19820441097      | 19821112         |
| US4473434 A        | 19840925         | US19830508931      | 19830629         |

**Priority:**

US19810288217 19810729 US19810319622 19811109 CA19820408299 19820728  
US19820441097 19821112 US19830508931 19830629

**Probable Assignee:** LYNELL MEDICAL TECHNOLOGY INC

**Assignee(s):** (std): LYNELL MED TECH INC ; RAINERU MEDEIKARU TEKUNOROJII ; RAINERU MEDICAL TEKUNOROJII IN

**Assignee(s):** STAAR SURGICAL CO INC ; RAINERU MEDICAL TEKUNOROJII INC ; RAINERU MEDEIKARU TEKUNOROJII INC ; LYNELL MEDICAL TECHNOLOGY INC ; POLER A US CITIZEN ; POLER STANLEY ; COOPER COMPANIES INC

**Inventor(s):** (std): POLER STANLEY ; SUTANREI POORAA

**Inventor(s):** STANLEY POLER ; SUTANREI HOORAA

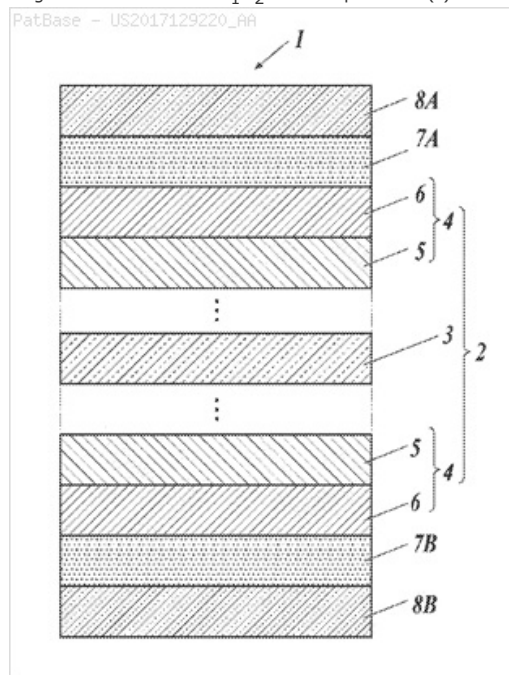
**Agent(s):** SMART AND BIGGAR

**Title:** FILM FOR LAMINATED GLASS, AND LAMINATED GLASS

**Abstract:** Provided is a film for laminated glass, the film exhibiting satisfactory in-plane uniformity when processed into a laminated glass, and excellent processing suitability for a glass having a curved surface. Provided is also a laminated glass provided with the film for laminated glass. The film for laminated glass of the present invention is a film for laminated glass, which has a resin film; and an optically functional layer containing a polymer on at least one surface of the resin film, and in which the heat shrinkage rate ( $S_1$ ) of the film for laminated glass and the heat shrinkage rate ( $S_2$ ) of the resin film obtainable after the films are left to stand for 30 minutes in an environment at 130 degrees centigrade are respectively adjusted so as to satisfy the following expression (I) in a direction in the plane as well as a direction orthogonal thereto:  $0.60 \leq S_1 S_2 \leq 0.98$  Expression (I):

**Classifications:**

**International (IPC 8-9):** B32B17/10 B32B27/00 B32B27/18 B32B3/28 B32B7/02 C03C27/12 (Advanced/Invention)  
**CPC:** B32B17/10779 B32B3/28 B32B2255/10 B32B2255/20 B32B2307/416 B32B2307/736 B32B2605/08 B32B17/10036 B32B17/10201 B32B17/10871 B32B2307/418 B32B5/02 B32B7/12 B32B23/04 B32B23/08 B32B23/20 B32B27/08 B32B27/18 B32B27/281 B32B27/304 B32B27/32 B32B27/325 B32B27/36 B32B27/42 B32B2250/03 B32B2250/40 B32B2255/26 B32B2255/28 B32B2262/062 B32B2264/02 B32B2264/10 B32B2264/102 B32B2264/104 B32B2307/30 B32B2307/412 B32B2307/518 B32B2307/732 B32B2605/006  
**JP F-Term:** 4F100 4F100/AA17 4F100/AA20 4F100/AA21 4F100/AG00 4F100/AK01 4F100/AK21 4F100/AK25 4F100/AK42 4F100/AK69 4F100/BA02 4F100/BA03 4F100/BA05 4F100/BA07 4F100/BA10 4F100/CA18 4F100/DE01 4F100/EJ38 4F100/GB32 4F100/JA03 4F100/JA07 4F100/JB09 4F100/JD10 4F100/JL01 4F100/JN00 4F100/JN06 4F100/JN18 4F100/YY00 4G061 4G061/AA02 4G061/AA03 4G061/AA04 4G061/AA06 4G061/AA11 4G061/AA20 4G061/AA27 4G061/AA28 4G061/BA01 4G061/BA02 4G061/CA02 4G061/CB03 4G061/CB16 4G061/CD02 4G061/CD03 4G061/CD18 4G061/DA10 4G061/DA14 4G061/DA23 4G061/DA32 4G061/DA38 4G061/DA46  
**JP F-Index:** B32B17/10 B32B27/00/B B32B27/18/Z B32B7/02/106 C03C27/12/F C03C27/12/L



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| JP2015182639 A1    | 20170420         | JP20160523524T     | 20150527         |
| US2017129220 AA    | 20170511         | US20150314748      | 20150527         |
| WO15182639 A1      | 20151203         | WO2015JP65187      | 20150527         |

**Priority:**

JP20140112433 20140530 WO2015JP65187 20150527

**Probable Assignee:** KONICA MINOLTA HOLDINGS INC

**Assignee(s):** (std): KONICA MINOLTA HOLDINGS INC ; KONICA MINOLTA INC

**Inventor(s):** (std): TAKA YUKAKO

**Agent(s):** KOYO INT PATENT FIRM

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

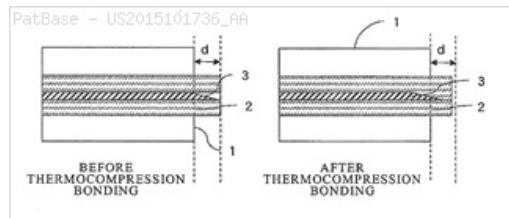
**Title:** METHOD OF MANUFACTURING LAMINATED GLASS FOR VEHICLE

**Abstract:** A method of manufacturing a vehicle laminated glass according to the present invention includes: stacking a thermal insulating film between two resin intermediate films; stacking these films between two curved glass plates, thereby forming a stacked body; degassing the stacked body; and, after the degassing, thermocompression bonding the stacked body by pressing and heating up to a maximum temperature of 120 to 150 degrees centigrade, wherein: the thermal insulating film has a heat shrinkage of 0.9 to 5 percent in a temperature range of 120 to 150 degrees centigrade; the resin intermediate film is larger in area than the glass plates; and the stacked body is formed such that an edge part of the resin intermediate film protrudes outwardly by 1 mm or more from edges of the glass plates. It is possible by this method to prevent an appearance defect in the thermal insulating film throughout the entire circumference of the laminated glass.

**Classifications:**

**International (IPC 8-9):** B60J1/00 C03C27/10 C03C27/12 (Advanced/Invention)  
**CPC:** C03C27/10 B32B17/10761 B32B17/10788 B32B17/10871  
**US:** 156/104

**JP F-Term:** 3D127 4G061 4G061/AA02 4G061/AA03 4G061/AA04 4G061/AA11 4G061/AA20 4G061/AA27 4G061/AA28 4G061/BA01 4G061/BA02 4G061/CA02 4G061/CB03 4G061/CB16 4G061/CB18 4G061/CB19 4G061/CD02 4G061/CD03 4G061/CD18 4G061/DA10 4G061/DA14 4G061/DA23 4G061/DA28 4G061/DA29 4G061/DA32 4G061/DA40 4G061/DA46 4G061/DA56  
**JP F-Index:** B60J1/00/J C03C27/12/H C03C27/12/K C03C27/12/L



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| JP2016064965 A2    | 20160428         | JP20140206900      | 20141008         |
| US2015101736 AA    | 20150416         | US20140510765      | 20141009         |

#### Priority:

JP20130213131 20131010 JP20140190690 20140919

**Probable Assignee:** CENTRAL GLASS CO LTD

**Assignee(s):** (std): CENTRAL GLASS CO LTD

**Inventor(s):** (std): IBI KENTARO ; IZUMIYA KENSUKE ; IZUTANI KENSUKE ; MORI NAOYA ; NISHIYAMA SATOSHI

#### 37) Family number: 28816049 (US2003157211A)

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**Title:** METHOD FOR PRODUCING ASPHERICAL STRUCTURE, AND ASPHERICAL LENS ARRAY MOLDING TOOL AND ASPHERICAL LENS ARRAY PRODUCED BY THE SAME METHOD

**Abstract:** A method for producing an aspherical structure according to the invention includes the steps of: forming a layer on a surface of a substrate so that the layer exhibits an etching rate distribution in a direction perpendicular to the surface of the substrate; forming a mask having a predetermined opening shape on the surface of the layer; and etching the layer to thereby form at least one aspherical concave portion. When each concave portion is used as a molding tool so that a resin with which the concave portion is filled is solidified and removed from the concave portions an aspherical lens array can be formed accurately.

#### Classifications:

**International (ipc 8-9):** B29C33/38 B29C39/10 B29C39/26 B29C43/02 B29D11/00 C03C15/00 C03C17/02 G02B27/30 G02B3/00 G02B3/02 (Advanced/Invention);

B29L11/00 (Advanced/Non-invention); B29C33/38 B29C39/10 B29C39/26 B29C43/02 B29D11/00 C03C15/00 C03C17/02 G02B3/00 G02B3/02 (Core/Invention)

**International (ipc 1-7):** B29C33/38 B29C39/10 B29C39/26 B29C45/26 B29D11/00 B29L11/00 C03C15/00 G02B13/18 G02B27/30 G02B3/00 G02B3/02 G02B3/04

**CPC:** Y10S425/808 B29C33/3835 B29C43/021 B29C43/52 B29D11/00278 B29D11/00365 B29L2011/0016 C03C15/00 C03C17/02 C03C2218/33

**European:** B29C33/38F B29C43/02B B29D11/00C6 B29D11/00C9 C03C15/00 C03C17/02 L29C43/52 L29L11/00C M03C218/330

**US:** 216/24 249/134 249/134S 264/1.1 264/1.100S 264/2.5 264/219 264/219S 264/25 425/471 425/471P 425/808

**JP F-Term:** 2K010 4F202 4F202/AA44 4F202/AD04 4F202/AG03 4F202/AH74 4F202/CA01 4F202/CB01 4F202/CB11 4F202/CC10 4F202/CD18 4F202/CD24 4F204 4F204/AA44 4F204/AD04 4F204/AG03 4F204/AH74 4F204/EA03 4F204/EA04 4F204/EB01 4F204/EB11 4F204/EK17 4F204/EK18 4F204/EK24 4F202/AH75 4F202/AJ09 4F202/CA30 4F202/CD06 4F202/CK11

**JP F-Index:** B29C33/38 B29C39/10 B29C39/26 B29L11/00 G02B3/00/A G02B3/02

PatBase - US2003157211\_AA

Patent Application Publication Aug. 21, 2003 Sheet 1 of 18 US 2003/0157211 A1

FIG. 1

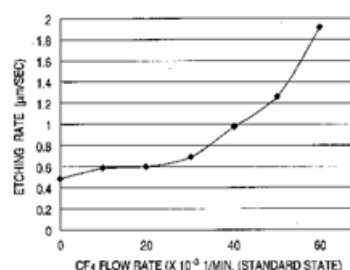
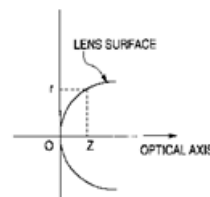


FIG. 2



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CA2416746 AA       | 20030718         | CA20032416746      | 20030120         |
| EP1329432 A1       | 20030723         | EP20030000691      | 20030117         |
| JP2003211462 A2    | 20030729         | JP20020009395      | 20020118         |
| JP2003276030 A2    | 20030930         | JP20020087039      | 20020326         |
| JP3885631 B2       | 20070221         | JP20020087039      | 20020326         |
| TW200302355 A      | 20030801         | TW20030101174      | 20030117         |
| US2003157211 AA    | 20030821         | US20030346053      | 20030117         |
| US7329372 BB       | 20080212         | US20030346053      | 20030117         |

#### Priority:

JP20020009395 20020118

JP20020087039 20020326

CA20032416746 20030120

**Probable Assignee:** NIPPON SHEET GLASS CO LTD

**Assignee(s):** (std): NIPPON SHEET GLASS CO LTD

**Assignee(s):** NIPPON SHEET GLASS COMPANY LIMITED ; TSUNETOMO KEIJI ; HAMANAKA KENJIRO ; HASHIMOTO TAKAHIRO ; KITAKA SHIGEO ; NAGATA HIDESHI ; NIPPON SHEET GLASS CO

**Inventor(s):** (std): HAMANAKA KENJIRO ; HASHIMOTO TAKAHIRO ; KIKKO SHIGEO ; KITAKA SHIGEO ; NAGATA HIDESHI ; TSUNETOMO KEIJI

**Agent(s):** RICHES MCKENZIE AND HERBERT LLP; WHITHAM CURTIS CHRISTOFFERSON AND COOK PC

**Designated states:** AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT SE SI SK TR

**38) Family number: 41151579** (US2008022722A)

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**Title:** METHODS FOR CONTINUOUSLY MANUFACTURING CRYSTALLIZED GLASS CURVED PANELS AND PIPES

**Abstract:** Methods for continuously manufacturing crystallized glass curved panels and pipes. The crystallized glass flat panel can be reformed by re-heating process. The method includes a reforming bed in the tunnel furnace that helps the flat panel to deform during transition. Three different reforming bed designs and processes are invented to produce convex and concave curved panels and pipes. In producing the pipe, both surfaces of the opening edges of the open pipe will be liquefied to liquid glass, even the pre-existing crystal structure. A roller squeezer will squeeze both edges together tightly, so they will be fusion bonded together. The closed pipe will be crystallized again so the crystals can grow between the bonding edges. The crystallized glass panel are made from crystallizable glass consist essentially of  $\text{SiO}_2$  -  $\text{Al}_2\text{O}_3$  -  $\text{CaO}$  or  $\text{SiO}_2$  -  $\text{Al}_2\text{O}_3$  -  $\text{CaO}$  -  $\text{ZnO}$ , or alike.

**Classifications:**

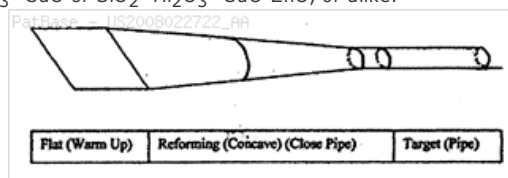
**International (IPC 8-9):** C03B23/02 C03B23/05 C03B23/057 C03B27/01 C03B27/012 (Advanced/Invention);

C03B23/00 C03B23/02 C03B27/00 (Core/Invention)

**CPC:** C03B23/0254 C03B23/0256 C03B23/24 C03B32/02

**European:** C03B23/025B2 C03B23/025C C03B23/24 C03B32/02

**US:** 65/17.1 65/33.1 65/36



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2008022722 AA    | 20080131         | US20050306308      | 20051222         |

**Priority:**

US20050306308 20051222

**Probable Assignee:** HSUEH CHI FU TITO

**Assignee(s):** (std): HSUEH CHI FU TITO

**Inventor(s):** (std): HSUEH CHI FU TITO

**Agent(s):** CHI-FU TITO HSUEH; CHI FU TITO HSUEH

**39) Family number: 58071712** (US2016146993A)

© PatBase

**Title:** DIELECTRIC MULTILAYER COATING FILM

**Abstract:** An object of the present invention is to provide a dielectric multilayer coating film with high weather-resistant adhesion. The dielectric multilayer coating film includes a dielectric multilayer coating having a stack of high and low refractive index layers; and a hard coat layer, wherein at least one of the high and low refractive index layers contains a compound with photocatalytic activity, and when the dielectric multilayer coating is divided into two halves along its thickness direction, there is a difference of 0.1 percent to less than 10 percent between the volume shrinkage of the half distal to the hard coat layer and the volume shrinkage of the hard coat layer.

**Classifications:**

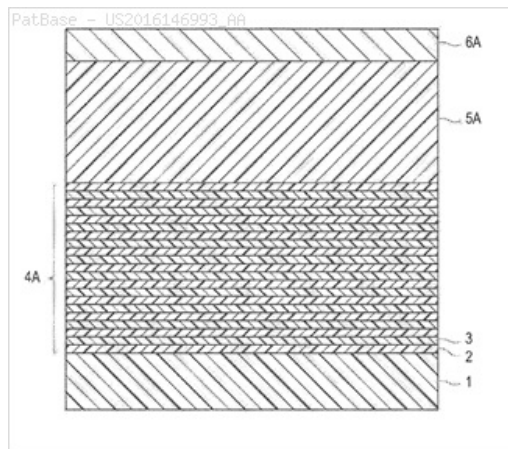
**International (IPC 8-9):** B32B17/10 B32B7/02 C03C17/32 C03C27/12 G02B1/14 G02B5/28 (Advanced/Invention)

**CPC:** B32B2307/202 G02B1/14 G02B5/281 G02B5/283 G02B5/285 G02B1/18

**US:** 359/359 359/580

**JP F-Term:** 2H148 2H148/CA00 2H148/CA04 2H148/CA12 2H148/CA24 2H148/CA27 2H148/GA04 2H148/GA09 2H148/GA14 2H148/GA24 2H148/GA27 2H148/GA33 2K009 2K009/AA15 2K009/BB02 2K009/BB24 2K009/CC03 2K009/CC24 2K009/DD02 2K009/DD05 2K009/DD06 2K009/EE05 4F100 4F100/AA17 4F100/AG00 4F100/AR00 4F100/BA05 4F100/BA06 4F100/BA10 4F100/BA26 4F100/CA06 4F100/CA07 4F100/GB07 4F100/GB32 4F100/JD09 4F100/JD10 4F100/JG05 4F100/JK07 4F100/JK12 4F100/JL04 4F100/JL09 4F100/JN18 4F100/YY00 4G059 4G059/AA01 4G059/AC06 4G059/AC07 4G059/AC22 4G059/FA19 4G059/FA27 4G059/FB08 4G061 4G061/AA02 4G061/AA03 4G061/AA04 4G061/AA06 4G061/AA10 4G061/AA11 4G061/AA20 4G061/AA27 4G061/AA28 4G061/BA01 4G061/BA02 4G061/CA02 4G061/CB03 4G061/CB16 4G061/CD02 4G061/CD03 4G061/CD18 4G061/DA10 4G061/DA14 4G061/DA23 4G061/DA32 4G061/DA38 4G061/DA46

**JP F-Index:** B32B17/10 B32B7/02/103 B32B7/02/104 C03C17/32/C C03C27/12/K C03C27/12/L G02B1/14 G02B5/28



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| JP2014199990 A1    | 20170223         | JP20150522794T     | 20140610         |
| US2016146993 AA    | 20160526         | US20140897419      | 20140610         |

|               |          |               |          |
|---------------|----------|---------------|----------|
| WO14199990 A1 | 20141218 | WO2014JP65363 | 20140610 |
|---------------|----------|---------------|----------|

**Priority:**

JP20130125800 20130614 WO2014JP65363 20140610

**Probable Assignee:** KONICA MINOLTA HOLDINGS INC

**Assignee(s):** (std): KONICA MINOLTA HOLDINGS INC ; KONICA MINOLTA INC

**Inventor(s):** (std): KONUMA TARO ; KUMAGAI TAKENORI ; MASUDA HARUKA

**Agent(s):** HATTA AND ASSOCIATES

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU  
CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN  
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MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN  
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