

#### Search history

- Search FT=((windshield\* or windscreen\* or laminat\* or glaz) and (glass\*)) (Results 350797)  
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- Search PN=(CO20170013388) (Results 1)  
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- Search fn=(70158351) (Results 1)  
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- Search fn=(70158351) (Results 1)  
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- Search [SP]: \*\*\* warning: ocr data - may be incomplete \*\*\*\*\* please email the publication number to patbase@rws.com of any affected text for review \*\*\*la presente invencion es proporcionar un vidrio laminado para automotores que tiene un area de oscurecimiento producida al crear el oscurecimiento despues del calentamiento y curvado del vidrio, aplicando un inserto delgado sustancialmente opaco a al menos una de las superficies de la capa adhesiva de plastico intermedia, laminas 20 delgadas o capas de vidrio en o cerca del campo de vision de la camara que posteriormente sirve como el oscurecimiento en lugar de imprimir y cocer una frita de esmalte sobre el vidrio.esto da como resultado un laminado que posee una calidad optica superior, una mayor 25 resistencia y una menor probabilidad de rotura en comparacion a un laminado con un oscurecimiento de banda negra.inventores nombres nacionalidad direccion mario arturo mannheim astete peruana av. guillermo dansey 1996, cercado de lima, peru charles stephen voeltzel norteamericana av. guillermo dansey 1846, cercado de lima, lima, peru laura granados caro colombiana av. guillermo dansey 1846, cercado de lima, lima, peru andres fernando sarmiento santos colombiana av. guillermo dansey 1846, cercado de lima, lima, peru elena k. mendoza carranza peruana av. guillermo dansey 1846, cercado de lima, lima, peru, campo de la invencion 5 la presente invencion esta dirigida a un laminado para automotores que posee un oscurecimiento en la camara que proporciona un campo de vision con calidad optica y resistencia superiores, asi como el metodo usado para crear dicho laminado.10 antecedentes de la invencion los oscurecimientos de banda negra comunmente se imprimen en vidrios laminados y templados de seguridad para automotores. estos oscurecimientos tienen multiples requisitos funcionales y esteticos. el oscurecimiento debe ser sustancialmente opaco. esto es 15 necesario para evitar que el adhesivo, utilizado para montar el vidrio en el vehiculo, se vea desde el exterior del vehiculo y para proteger el adhesivo de los efectos nocivos de los rayos ultravioleta. el oscurecimiento ademas sirve esta misma funcion a los componentes unidos a la superficie interior del vidrio. en vidrios con aclimatacion y recubiertos, el oscurecimiento se utiliza para ocultar el borde del revestimiento, las barras colectoras, los 5 10 15 20 25 30 cables y cualquier otro elemento que perjudique la apariencia del vehiculo. ademas, el oscurecimiento posee el requisito estetico adicional de tener un color negro oscuro y una apariencia brillante y reflectante. debe durar la vida util del vidrio, sin desvanecerse, derramarse, tener una reduccion en la adhesion o fallar de otra manera.los oscurecimientos generalmente se imprimen en la superficie del numero cuatro 104 del vidrio en el interior del vehiculo, pero a veces son impresos alternativamente en la superficie numero dos 102 del vidrio.las oscuraciones historicamente han sido negras. una de las razones de esto proviene de las limitaciones impuestas por las fritas ceramicas. es dificil producir fritas, en colores que no sean negros, que tengan la durabilidad necesaria y para los cuales el color se pueda replicar de manera fiable de ejecucion a ejecucion. la otra razon es que se puede usar un oscurecimiento negro con cualquier color de pintura.las fritas de esmalte negro estan compuestas de pigmentos, un soporte, aglutinantes y vidrio finamente molido. a veces se agregan otros materiales para mejorar ciertas propiedades: el templado al fuego, antiadherencia, resistencia quimica, etc. la frita negra se aplica al vidrio mediante un proceso de serigrafia o impresion por inyeccion de tinta antes de calentar y curvar. durante el proceso de curvado, el vidrio finamente molido en la frita se suaviza y se funde con la superficie del vidrio. se dice que la frita esta "cocida" cuando esto ocurre. esto es muy similar al proceso utilizado para aplicar acabados de esmalte en accesorios de bano, ceramica, porcelana y electrodomesticos.los metales y muchos otros tipos de materiales tienen una maxima resistencia a la tension punto en el cual el material fallara. sin embargo, con vidrio solo podemos especificar una probabilidad de rotura para un valor dado de tension. mirando el vidrio a nivel molecular, esperamos que la fuerza sea muy alta. de hecho, lo que encontramos en la practica es que el vidrio tiene una resistencia a la compresion muy alta, como se esperaba, pero una resistencia a la traccion muy baja.5 10 15 20 25 30 para un conjunto dado de probetas de vidrio, con carga identica, el punto de falla a primera vista podria parecer una variable aleatoria. de hecho, el punto de fluencia sigue una distribucion de weibull y la probabilidad de rotura se puede calcular como una funcion de tension, duracion, area de superficie, defectos superficiales y el modulo del vidrio.a simple vista, el vidrio flotado parece estar casi perfecto. cualquier defecto que pueda estar presente tan pequeno que no sea visible. pero, en realidad, a nivel microscopico, la superficie parece aspera y se puede ver que esta salpicada de defectos. cuando el vidrio se coloca en tension, estos defectos superficiales tienden a abrirse y expandirse, lo que eventualmente conduce a la falla. por lo tanto, el vidrio laminado para automotores casi siempre falla en tension. incluso cuando no esta en tension, los defectos superficiales reaccionan con la humedad del ambiente y lentamente "crecen" con el tiempo. este fenomeno se conoce como crecimiento lento de grietas. como resultado, el vidrio se debilita a medida que envejece.una frita negra cocida aumenta los defectos superficiales. esto se puede ver si el pigmento negro de un oscurecimiento negro cocido se disuelve quimicamente. la superficie del vidrio tendra un aspecto mate, similar al vidrio arenado o grabado quimicamente. la apariencia mate se debe al sinnumero de defectos superficiales presentes en el vidrio fundido. esto hace que la superficie sea mas debil aumentando la probabilidad de rotura.las pruebas han demostrado que el vidrio con frita negra falla a un nivel de tension que es sustancialmente mas bajo que el vidrio que no tiene frita negra. otro problema surge de los gradientes termicos que ocurren durante el proceso de curvado. como era de esperar, la frita negra absorbe mas calor radiante que el vidrio transparente. el calor radiante es la fuente de calor predominante utilizada para curvar vidrio. las areas de frita negra del vidrio se calientan mas que las areas claras adyacentes. con el vidrio como un mal conductor de calor, pueden surgir gradientes en decenas de grados centigrados en una distancia corta.este alto gradiente termico abrupto en la superficie da como resultado distorsion optica y un alto residual a lo largo del borde interior de la banda negra. esto se conoce como la linea de "grabacion" en la industria. lo cual se puede ver a menudo a lo largo de los margenes 5 10 15 20 25 30 del oscurecimiento negro encontrados a lo largo de los bordes de la mayoria de los parabrisas.las oscuraciones utilizadas con los sistemas de camara montada en vidrio se ven forzadas a disenar una "zona de amortiguacion" 15 entre el borde del campo de vision de la camara 16 y el borde de la frita negra 8 para excluir la linea de grabacion. este es un arreglo requerido debido a las limitaciones de la frita negra. lo ideal seria no tener esta zona de amortiguacion 15 ya que un amplio oscurecimiento reduce el campo de vision del conductor y la luz natural que entra al vehiculo.un metodo utilizado para abordar el problema de la linea de grabacion es el desvanecimiento de puntos. comenzando en el borde solido interno de la pintura negra, se pintan filas de puntos cada vez mas pequenos en el vidrio. este es el mismo principio que se usa en la impresion en escala de grises. esto reduce la tasa de cambio en la temperatura de la superficie, distribuyendola sobre un area mas amplia. el desvanecimiento de puntos tambien ayuda a ocultar la distorsion. sin embargo, en algunas partes, incluso un amplio desvanecimiento de puntos no es suficiente para eliminar toda la distorsion. un amplio desvanecimiento de puntos tambien puede no ser posible dependiendo del tamano de la abertura y los requisitos reglamentarios para la vision del conductor. los patrones de desvanecimiento de puntos tambien son indeseables ya que aumentan el costo de produccion del laminado.otro problema es la falta de coincidencia de la superficie. un laminado se compone de al menos dos capas de vidrio. la frita se aplica tipicamente a solo una de las capas de vidrio.esto puede dar como resultado una ligera diferencia en la forma de las superficies. cuando las dos superficies se fuerzan entre si durante la laminacion, la falta de coincidencia produce tension residual en el laminado y distorsion optica.incluso con estos inconvenientes, el area del parabrisas con oscurecimiento de banda negra ha aumentado en los ultimos anos.5 10 15 20 25 30 a medida que el contenido electronico de los vehiculos modernos ha aumentado, el area del parabrisas, cerca del centro superior, se ha llenado cada vez mas. antes se encontraba proporcionado de tan solo el espejo retrovisor, ahora encontramos una amplia gama de equipos electronicos montados en esta ubicacion.el uso de camaras, que requieren un amplio campo de vision y un alto nivel de claridad optica, tambien esta creciendo a un ritmo acelerado con la introduccion de vehiculos con varios niveles de capacidad de operacion autonoma. la resolution de las camaras tambien esta aumentando a un ritmo igualmente rapido. tipicamente, estas deben ser montadas en el parabrisas, en el area del limpiador. las primeras aplicaciones iniciales fueron para vision nocturna. hoy e (Results 3)
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Search RF=(Tinted\_Insert) (Results 11)

8:

**Title:** SUN VISOR WITH TINTED INSERT

**Abstract:** A sun visor having a tinted insert and a tinted extension. The visor may include slidable covers for covering the tinted insert and for making the visor appear like a regular sun visor. The visor of this construction allows for maximum visibility and protection from the sun for users of various heights.

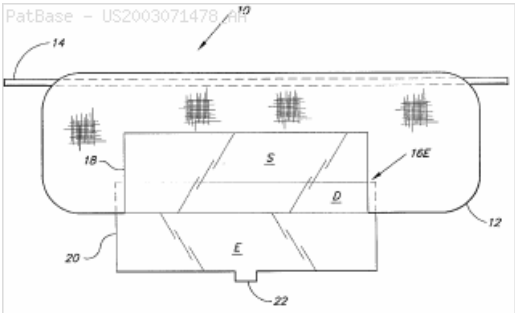
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**International (IPC 1-7):** B60J3/02 B60J3/04

**CPC:** B60J3/0208

**European:** B60J3/02B1

**US:** 296/97.2 296/97.8 296/972 296/978



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2003071478 AA    | 20030417         | US20010977690      | 20011016         |
| US6565140 BB       | 20030520         | US20010977690      | 20011016         |

**Priority:**

US20010977690 20011016

**Probable Assignee:**

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**Assignee(s):**

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

WELLS DAVID E

**Title:** HERMETIC ENCAPSULATION OF ORGANIC, ELECTRO-OPTICAL ELEMENTS

**Abstract:** To achieve an increased service life of organic, electro-optical elements, the invention provides a process for producing them which comprises the steps of: providing a substrate (3), applying a first conductive layer (13), applying at least one layer (15) which includes at least one organic, electro-optical material, applying a second conductive layer (17), and the step of depositing at least one layer (7, 71, 72,..., 7 N) with a vitreous structure.

**Classifications:**

**International (IPC 8-9):** B05D5/06 B29B7/00 B32B17/06 B32B17/10 B32B3/00 B32B33/00 B32B9/00 B81B7/00 B81C1/00 B81C3/00 C03B19/00 C03B19/02 C03C14/00 C03C15/00 C03C17/02 C03C17/34 C03C27/02 C03C3/089 C03C3/091 C03C4/12 C08J7/04 C23C14/00 C23C14/10 C23C14/24 C23C16/44 C23C8/00 G02B3/00 G02F1/1339 H01J1/62 H01L21/02 H01L21/027 H01L21/283 H01L21/30 H01L21/306 H01L21/3065 H01L21/31 H01L21/3105 H01L21/311 H01L21/312 H01L21/316 H01L21/44 H01L21/4763 H01L21/48 H01L21/50 H01L21/56 H01L21/768 H01L23/00 H01L23/02 H01L23/10 H01L23/12 H01L23/15 H01L23/29 H01L23/31 H01L23/48 H01L23/498 H01L23/532 H01L23/58 H01L23/66 H01L51/00 H01L51/50 H01L51/52 H01P11/00 H05B33/04 H05B33/10 H05B33/24 H05B33/26 H05B33/28 H05H1/24 H05K1/03 H05K3/46 (Advanced/Invention); H01L21/02 H01L23/498 H05K3/28 (Advanced/Non-invention); B32B9/00 B81C1/00 B81C3/00 C03B19/00 C03C14/00 C03C15/00 C03C17/02 C03C17/34 C03C27/00 C03C4/00 C23C14/10 G02B3/00 H01J1/00 H01L21/02 H01L21/70 H01L23/00 H01L23/02 H01L23/12 H01L23/28 H01L23/48 H01L51/50 H01P11/00 H05B33/04 H05B33/10 H05B33/24 H05B33/26 (Core/Invention); H01L23/48 H05K3/28 (Core/Non-invention); B81C (Subclass/Invention)

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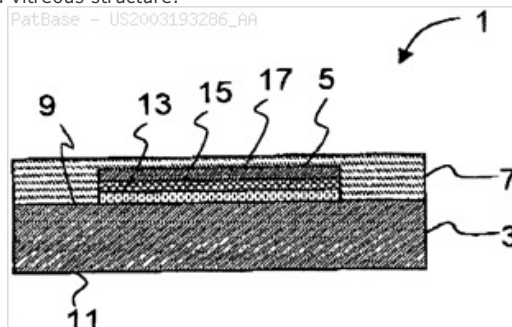
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**US:** 257/528 257/528P 257/730 257/734 257/734S 257/758 257/758S 257/798 257/E21.244 257/E21.245 257/E21.275 257/E21.275S 257/E21.28 257/E21.280S 257/E21.499 257/E21.499S 257/E21.502 257/E21.502S 257/E21.503 257/E21.576 257/E21.576S 257/E21.577 257/E21.577S 257/E21.589 257/E21.589S 257/E23.011 257/E23.011S 257/E23.077 257/E23.077S 257/E23.118 257/E23.118S 257/E23.127 257/E23.193 257/E23.193S 313/504 313/504P 313/504S 313/506 313/506P 313/509 313/512 427/282 427/282S 427/497 427/504 427/569 427/569S 427/585 427/585S 427/64 427/64S 427/66 428/209 428/209P 428/408 428/408P 428/409 428/409S 428/41.7 428/426 428/426S 428/432 428/432P 428/432S 428/542.8 428/542.800S 428/690 428/701 428/701S 428/916 438/106 438/106P 438/108 438/108P 438/127 438/127P 438/381 438/381S 438/455 438/455S 438/456 438/612 438/612S 438/613 438/613S 438/622 438/622S 438/670 438/670S 438/694 438/778 438/780 445/25 501/55 501/65 501/65S 501/66 501/66S

**Family:**

| Publication number | Publication date | Application number | Application date |
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| DE50315272 D1   | 20150611 | DE20035015272  | 20030523 |
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| EP1518275 B1    | 20150506 | EP20030735449  | 20030523 |
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| IL164301 A0     | 20051218 | IL20040164301  | 20040927 |
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| US2006030074 AA | 20060209 | US20050511557 | 20050526 |
| US2006051584 AA | 20060309 | US20050511488 | 20050526 |
| US2006177963 AA | 20060810 | US20050511558 | 20050524 |
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| US7268486 BB    | 20070911 | US20020231966 | 20020830 |
| US7326446 BB    | 20080205 | US20050511315 | 20050412 |
| US7396741 BB    | 20080708 | US20050511557 | 20050526 |
| US7495348 BB    | 20090224 | US20050511558 | 20050524 |
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| WO03086958 A3   | 20040212 | WO2003EP03873 | 20030415 |
| WO03087423 A1   | 20031023 | WO2003EP03872 | 20030415 |
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| WO03088340 A2   | 20031023 | WO2003EP03884 | 20030415 |
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| WO03088347 A2   | 20031023 | WO2003EP03907 | 20030415 |
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| WO03088354 A3   | 20040325 | WO2003EP03881 | 20030415 |
| WO03088370 A2   | 20031023 | WO2003EP03883 | 20030415 |
| WO03088370 A3   | 20040617 | WO2003EP03883 | 20030415 |
| WO03100846 A2   | 20031204 | WO2003EP05414 | 20030523 |
| WO03100846 A3   | 20040318 | WO2003EP05414 | 20030523 |
| WO03100859 A2   | 20031204 | WO2003EP05415 | 20030523 |
| WO03100859 A3   | 20050120 | WO2003EP05415 | 20030523 |
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**Priority:**

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| DE20022005830U  | 20020415 | DE20021022609  | 20020523 | DE20021022958 | 20020523 |
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| DE20021052787 U | 20021113 | DE20021052787  | 20021113 | DE20031001559 | 20030116 |
| WO2003EP03872   | 20030415 | WO2003EP00038  | 20030415 | EP20030746297 | 20030415 |
| WO2003EP03882   | 20030415 | WO2003EP03884  | 20030415 | WO2003EP03881 | 20030415 |
| WO2003EP03883   | 20030415 | WO2003EP03907  | 20030415 | WO2003EP03873 | 20030415 |
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| WO2003EP00054   | 20030523 | JP20040508402T | 20030523 | WO2003EP05414 | 20030523 |
| WO2003EP05415   | 20030523 | KR20047016391  | 20041013 | WO2003EP03884 | 20041013 |
| WO2003EP03872   | 20041015 | WO2003EP03881  | 20041015 | KR20047018973 | 20041123 |
| US20070881962   | 20070730 |                |          |               |          |

**Probable Assignee:** SCHOTT GLAS

**Assignee(s):** (std): CARL ZEISS STIFTUNG TRADING SCHOTT GLAS AS ; FRITZ OLIVER ; LEIB JUERGEN ; SCHOTT GLAS ; OTTERMANN CLEMENS ; MUND DIETRICH ; POMMEREHNE JOERN ; SCHOTT AG ; LEIB JURGEN ; MUND DIETRICK ; SCHOTT AG INSULET CORP ; OTTERMAN CLEMENS ; ZEISS STIFTUNG ; SCHOTT INSULET CORP AG ; BIECK FLORIAN

**Assignee(s):** CARL ZEISS STIFTUNG ; CARL ZEISS STIFTUNG TRADING AS SCHOTT GLAS ; POMMEREHNE JORN ; MUND DIPL PHYS DIETRICH

**Inventor(s):** (std): OTTERMAN CLEMENS ; POMMEREHNE JORN ; MUND DIPL PHYS DIETRICH ; JURGEN LEIB ; JORN POMMEREHNE ; POMMEREHNE JOERN ; OTTERMANN CLEMENS ; OLIVER FRITZ ; MUND DIETRICK ; MUND DIETRICH ; LEIB JUERGEN ; JOERN POMMEREHNE ; FRITZ OLIVER ; DIETRICH BIECK FLORIAN LEIB JU ; CLEMENS OTTERMANN ; BIECK FLORIAN ; LEIB JURGEN ; JUERGEN LEIB ; FLORIAN BIECK ; DIETRICH MUND

**Inventor(s):** BIECK FLORIAN LEIB JUERGEN MUND DIETRICH

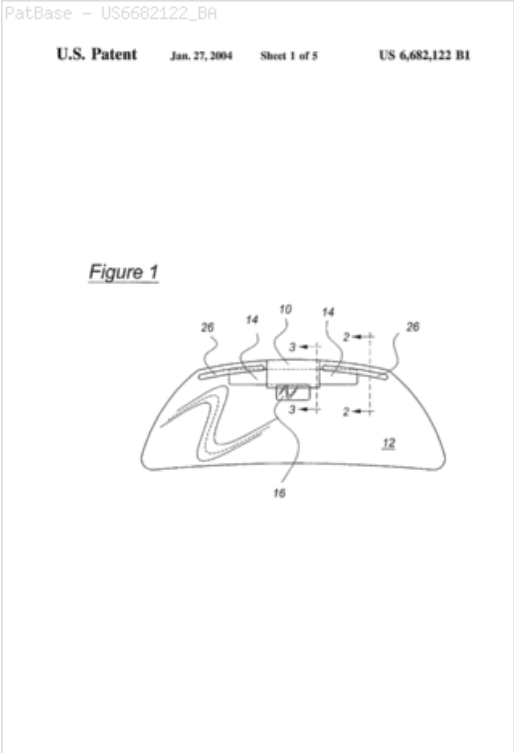
**Agent(s):** KIRBY EADES GALE BAKER; BLUMBACH ZINNGREBE PATENT U RECHTSANWAELTE; HERDEN ANDREAS F; BLUMBACH - ZINNGREBE; BLUMBACH ZINNGREBE; MOTOMIYA TERUHISA; FUJINO IKUO; TAKANASHI NORIMICHI; UBUKATA KAZUO; KATO NOBUAKI; OCHI TAKAO; OKABE MASAO; USUI SHINICHI; OKABE YUZURU; ASAHU NOBUMITSU; OHLANDT GREELEY RUGGIERO AND PERLE LLP; CHARLES N J RUGGIERO OHLANDT GREELEY RUGGIERO AND PERLE LLP

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ 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 NI NL NO NZ OM PH PL PT RO RU SC SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**Title:** Supplemental sun visor system for automotive vehicle

**Abstract:** A sun visor system for a vision unit of an automotive vehicle includes a sliding carrier visor having a stowed position within a headliner of a vehicle and a deployed position running laterally along a portion of the vision unit between a rearview mirror mounted to the vision unit and the headliner. Laterally extending insert visors may be independently deployed from the carrier visor so as to increase the area of a vision unit, such as a windshield, being protected from glare by the present visor system.

**Classifications:**  
**International (IPC 8-9):** B60J3/02 (Advanced/Invention);  
B60J3/02 (Core/Invention)  
**International (IPC 1-7):** B60J3/00  
**CPC:** B60J3/0208  
**European:** B60J3/02B1  
**US:** 296/97.4 296/97.8



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US6682122 BA       | 20040127         | US20020065821      | 20021122         |

**Priority:**  
US20020065821 20021122

**Probable Assignee:** FORD GLOBAL TECHNOLOGIES INC

**Assignee(s):** (std): FORD GLOBAL TECH LLC ; FORD GLOBAL TECHNOLOGIES LLC

**Assignee(s):** FORD MOTOR CO ; FORD GLOBAL TECHNOLOGIES INC

**Inventor(s):** (std): PROKHOROV DANIL V

**Title:** OPTICAL FILTERING AND ELECTROMAGNETIC ARMOURING STRUCTURE

**Abstract:** An optical filtering/electromagnetic screening structure for being joined to at least one transparent substrate, especially made of glass. The structure includes at least two plastic sheets and including, or intended to be joined to the sheets, a conducting electromagnetic screening element. At least one sheet is made of a thermoplastic, the other sheet constitutes a sheet for covering the conducting element or the thermoplastic sheet, and either one or both of the two sheets incorporate at least one mineral pigment or at least one organic dye to produce, in respect of the structure, an orange filter for light of wavelength centered on 590 nm.

**Classifications:**

**International (IPC 8-9):** B32B17/10 C09K19/00 G02B26/00 G09F9/00 H05K9/00 (Advanced/Invention);

G02B1/04 G02B5/20 H05K9/00 (Advanced/Non-invention);

B32B17/06 C09K19/00 G02B26/00 G09F9/00

H05K9/00 (Core/Invention)

**International (IPC 1-7):** G02B1/04 G02B26/00 G02B5/20 H01J1/52 H05K H05K9/00

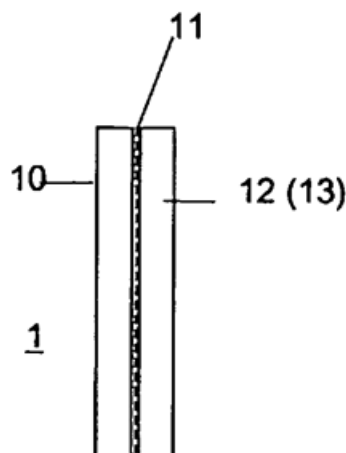
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G02B5/281 H01J11/44 H01J2211/446

**European:** B32B17/10C B32B17/10E10 H05K9/00B1B H05K9/00M H05K9/00M5B

**US:** 174/381 174/389 174/392 428/1.26

PatBase - US2006008597\_AA

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
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| AU2003274209 AH    | 20040225         | AU20030274209      | 20030730         |
| CN100342766 C      | 20071010         | CN20038018745      | 20030730         |
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| FR2843273 B1       | 20040917         | FR20020009925      | 20020805         |
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| TWI281040 B        | 20070511         | TW20030121206      | 20030801         |
| US2006008597 AA    | 20060112         | US20050523028      | 20050810         |
| US7459641 BB       | 20081202         | US20050523028      | 20050810         |
| WO04016053 A2      | 20040219         | WO2003FR02416      | 20030730         |
| WO04016053 A3      | 20040408         | WO2003FR02416      | 20030730         |

**Priority:**

FR20020009925 20020805      FR20030004636 20030414      WO2003FR02416 20030730

**Probable Assignee:** SAINT GOBAIN GLASS FRANCE

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

**Assignee(s):** SAINT-GOBAIN GLASS FRANCE ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN GLASS FRANCE  
COURBEVOIE

**Inventor(s):** (std): GEORGES ZADGOUN ; ZADGOUN GEORGES ; ZAGDOUN GEORGES

**Inventor(s):** GEORGES ZAGDOUN

**Agent(s):** SAINT GOBAIN RECHERCHE; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT PC

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK  
DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ 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 NI NL NO NZ OM PG PH PL PT RO  
RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**Title:** LAMINATED DECORATIVE STRIP AND METHOD FOR PRODUCING A LAMINATED DECORATIVE STRIP

**Abstract:** The invention relates to a laminated strip, in particular a decorative strip, comprising an upper layer (12) consisting of metal, preferably aluminium, whose upper face (22) is embossed with a structure in relief (18) and whose underside (24) is fixed to a reinforcement layer (14) consisting of plastic. During the production of the strip, the reinforcement layer (14) and the protective layer (16) are applied after the structure in relief (18) has been embossed on the upper layer (12).

**Classifications:**

**International (IPC 8-9):** B32B15/08 B32B15/20 B32B17/10  
B32B19/02 B32B27/36 B32B3/00 B32B3/10 B32B3/28 B32B3/30  
B32B33/00 B32B37/15 B32B38/06 B44B5/00 B44C1/14 B44C1/24  
B44C3/02 B60R13/00 B60R13/02 B60R13/04

G09F3/02 (Advanced/Invention);

B32B37/15 B32B38/06 B44C1/14 B60R13/00 B60R13/04

G09F3/02 (Advanced/Non-invention);

B32B15/08 B32B15/20 B32B17/06 B32B19/00 B32B27/36 B32B3/00

B32B3/10 B32B3/30 B32B33/00 B32B37/14 B32B38/06 B44B5/00 B44C1/00 B44C3/00 B60R13/00 B60R13/02 B60R13/04

G09F3/02 (Core/Invention);

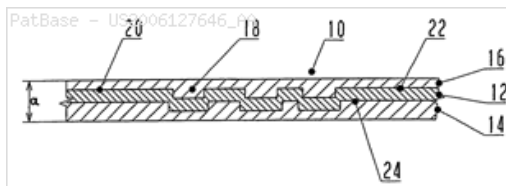
B32B37/14 B32B38/06 (Core/Non-invention)

**International (IPC 1-7):** B21H B29C47/02 B32B15/08 B32B27/28 B32B27/30 B32B27/32 B32B27/34 B32B31/12 B32B31/30  
B44B5/00 B44C1/14 B60R13/00 B60R13/02 B60R13/04 G09F3/02

**CPC:** Y10T428/24612 Y10T428/24917 B32B3/28 B32B15/08 B32B17/10018 B32B27/36 B32B37/153 B32B38/06 B32B2311/24  
B32B2451/00 B44B5/00 B60R13/02 Y10T29/302 Y10T156/1023 B44C1/14 B60R13/00 B60R13/04 B32B3/02 B32B7/12  
B32B15/20 B32B2305/08 B32B2307/412

**European:** B32B15/08 B32B17/10C2 B32B27/36 B32B3/28 B32B38/06 B44B5/00 B44C1/14 B60R13/00 B60R13/02  
B60R13/04 L32B31/30 L32B31/24 L32B37/15B L32B38/06 L32B451/00

**US:** 156/209 29/17.3 427/210 427/264 427/270 427/275 427/276 427/277 427/287 427/327 427/355 427/409 428/172  
428/172P 428/209 428/209P 72/46



**Family:**

| Publication number | Publication date | Application number | Application date |
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| AT459487 E         | 20100315         | AT20040018211T     | 20040113         |
| DE10300919 A1      | 20040722         | DE20031000919      | 20030113         |
| DE202004021384 U1  | 20071213         | DE200420021384U    | 20040113         |
| DE20300435 U1      | 20040603         | DE20032000435U     | 20030113         |
| DE502004007050 D1  | 20080619         | DE200450007050T    | 20040113         |
| DE502004010866 D1  | 20100415         | DE200450010866T    | 20040113         |
| EP1587694 A2       | 20051026         | EP20040701588      | 20040113         |
| EP1587694 B1       | 20080507         | EP20040701588      | 20040113         |
| EP1587694 B2       | 20160817         | EP20040701588      | 20040113         |
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| EP1880869 B1       | 20100303         | EP20070018211      | 20040113         |
| EP1880869 B2       | 20180613         | EP20070018211      | 20040113         |
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| ES2301963 T5       | 20161027         | ES20040701588T     | 20040113         |
| ES2338472 T3       | 20100507         | ES20070018211T     | 20040113         |
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| IN216058 B         | 20080307         | IN2005KN01576      | 20050808         |
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| JP4723471 B2       | 20110713         | JP20060500556T     | 20040113         |
| KR101182627 B1     | 20120917         | KR20057012901      | 20040113         |
| KR20050103470 A    | 20051031         | KR20057012901      | 20040113         |
| US2006127646 AA    | 20060615         | US20050541676      | 20050708         |
| US2010021705 AA    | 20100128         | US20090535884      | 20090805         |
| US8968826 BB       | 20150303         | US20040541676      | 20040113         |
| WO04062831 A2      | 20040729         | WO2004EP00169      | 20040113         |
| WO04062831 A3      | 20050113         | WO2004EP00169      | 20040113         |

**Priority:**

|                 |          |                |          |               |          |
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| DE20031000919   | 20030113 | DE20032000435U | 20030113 | EP20040701588 | 20040113 |
| DE200420021384U | 20040113 | WO2004EP00169  | 20040113 | US20050541676 | 20050708 |
| US20090535884   | 20090805 |                |          |               |          |

**Probable Assignee:** SAMVARDHANA MOTHERSON INNOVATIVE AUTOSYSTEMS AND CO BV KG

**Assignee(s):** (std): KUNSTOFF TECHNIK SCHERER AND TRIER ; REISSENWEBER DIRK ; KUNSTSTOFF TECHNIK SCHERER AND TRIER GMBH AND CO KG ; SAMVARDHANA MOTHERSON INNOVATIVE AUTOSYSTEMS AND CO BV KG ; KUNSTSTOFF TECHNIK SCHERER AND T

**Assignee(s):** KUNSTSTOFF TECHNIK SCHERER AND TRIER GMBH ; KUNSTSTOFF TECHNIK SCHERER AND TRIER GMBH AND CO K ; SAMVARDHANA MOTHERSON INNOVATIVE AUTOSYSTEMS BV AND CO KG ; KUNSTSTOFF TECHNIK SCHERER AND TRIER GMBH AND CO ; KUNSTSTOFF TECHNIK SCHERER AND TRIER GMBH AND CO KG ; KUNSTSTOFF TECHNIK SCHERER AND AMP TRIER GMBH AND AMP CO KG

**Inventor(s):** (std): REISENWEBER DIRK ; REISENWEBER DIRK

**Agent(s):** PRECHTEL JOERG ET AL; WEICKMANN AND WEICKMANN PARTMBB; PRECHTEL JOERG; LEHMANN MARIA ISABEL; ROTHWELL FIGG ERNST AND MANBECK PC

**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 KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**Title:** PROTECTIVE LAMINATE FOR WINDSHIELDS

**Abstract:** Protective laminate films protect an underlying windshield from damage due to impacting rocks and other debris. The laminate films generally include a substrate having a scratch resistant coating and an adhesive layer on opposing surfaces thereof. Each layer is transparent such that, when applied to a windshield, the laminate film does not impact a driver's visibility. Each layer may also be flexible so that the laminate films can be molded to a curved windshield. Generally, the scratch resistant coating protects the laminate films from scratching or other damage from impacting debris or from windshield wipers. The substrate provides structural integrity to the laminate films and may provide some impact dispersion. The adhesive layer, in addition to adhering the laminate films to the windshield, may also provide significant impact resistance that protects the windshield from cracks or chips due to impacting rocks or other debris.

**Classifications:**

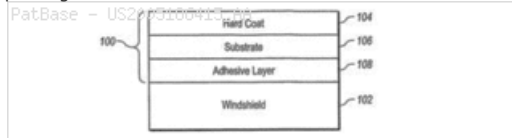
**International (IPC 8-9):** B32B15/04 B32B17/10 B32B27/30 B32B27/36 B32B27/40 B32B3/00 B32B37/00 B32B37/06 B32B7/02 B32B7/12 B60J1/00 B60J1/20 C09J7/02 (Advanced/Invention); B32B15/04 B32B27/30 B32B27/36 B32B27/40 B32B3/00 B32B37/06 B32B7/12 B60J1/00 (Core/Invention); B32B (Subclass/Invention)

**International (IPC 1-7):** B32B15/04 B32B27/30 B32B27/36 B32B27/40

**CPC:** B60J1/2094 B32B27/365 B32B17/10009 B32B2367/00 C09J2433/00 C09J2467/006 Y10T156/10 Y10T428/14 Y10T428/1476 Y10T428/24628 Y10T428/24942 Y10T428/24959 Y10T428/265 Y10T428/266 Y10T428/27 Y10T428/28 Y10T428/2839 Y10T428/2843 Y10T428/2848 Y10T428/2852 Y10T428/31507 Y10T428/31551 Y10T428/31786 Y10T428/31855 Y10T428/31935 C09J7/29

**European:** B32B17/10C C09J7/02K9F L32B367/00 M09J433/00 M09J467/00S

**US:** 156/272.2 156/60 156/60S 156/84 156/84S 156/87 156/99 296/84.1 296/84.100 296/84.100P 296/95.1 428/174 428/174P 428/212 428/214 428/214P 428/219 428/219S 428/220 428/220S 428/336 428/336S 428/337 428/337S 428/340 428/343 428/343S 428/352 428/352S 428/353 428/353S 428/354 428/354S 428/355.00RS 428/355R 428/40.1 428/41.8 428/412 428/423.1 428/423.100 428/480 428/500 428/522

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2005186415 AA    | 20050825         | US20040993619      | 20041119         |
| US2008174140 AA    | 20080724         | US20070939441      | 20071113         |
| US2008206522 AA    | 20080828         | US20080111537      | 20080429         |
| US2011256368 AA    | 20111020         | US20110167412      | 20110623         |
| US2014322472 AA    | 20141030         | US20140330269      | 20140714         |
| US7992917 BB       | 20110809         | US20070939441      | 20071113         |
| US8172300 BB       | 20120508         | US20110167412      | 20110623         |
| US9023162 BB       | 20150505         | US20080111537      | 20080429         |
| WO05051644 A2      | 20050609         | WO2004US39157      | 20041120         |
| WO05051644 A3      | 20051103         | WO2004US39157      | 20041120         |
| WO05051644 C1      | 20051208         | WO2004US39157      | 20041120         |

**Priority:**

|                         |                         |                         |
|-------------------------|-------------------------|-------------------------|
| US20030523633P 20031120 | US20030523966P 20031120 | US20030523966P 20031121 |
| US20040552784P 20040312 | US20040993619 20041119  | US20070939441 20071113  |
| US20080111537 20080429  | US20110167412 20110623  | US20140330269 20140714  |

**Probable Assignee:** CLEARPLEX CORP

**Assignee(s):** (std): MCCORMICK CHRIS E ; PLUMB KEVIN A ; STRONG BRENT A ; RIDGES MIKE D ; SMITH JEFF ; STRONG A B ; STRONG A BRENT ; CLEARPLEX CORP

**Assignee(s):** MADICO INC ; WORKMAN NYDEGGER

**Inventor(s):** (std): STRONG BRENT A ; STRONG A BRENT ; STRONG A B ; SMITH JEFF ; RIDGES MIKE D ; PLUMB KEVIN A ; MCCORMICK CHRIS E ; MCCORMICK CHRIS

**Inventor(s):** PLUMB KEVIN ; RIDGES MIKE ; STRONG A

**Agent(s):** JOHN C STRINGHAM WORKMAN NYDEGGER; WORKMAN NYDEGGER

**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 KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**Title:** LAMINATED GLASS FOR VEHICLE

**Abstract:** The present invention provides, in a HUD device employing a high-functional windshield such as a sound-insulation glass having a multi-layer interlayer, a windshield for a vehicle which does not produce double images and has excellent visibility without deteriorating functionality of the windshield. In a laminated glass having a multi-layer interlayer having a wedge-shaped thickness profile sandwiched by glass sheets, the multi-layer interlayer has layers having different hardness, the thickness of first resin layers having high hardness is at least 0.3 mm in a region within 400 mm from a lower side, which prevents the generation of optical distortion of the laminated glass and efficiently prevents double display images.

**Classifications:**

**International (IPC 8-9):** B32B17/06 B32B17/10 B32B27/30 B32B3/00 B60J1/00 B60J1/02 B60K35/00 C03C27/00 C03C27/10 C03C27/12 G02B27/01 G02B27/02 G02B5/00 (Advanced/Invention); C03C27/00 C03C27/10 C03C27/12 G02B27/01 (Advanced/Non-invention);

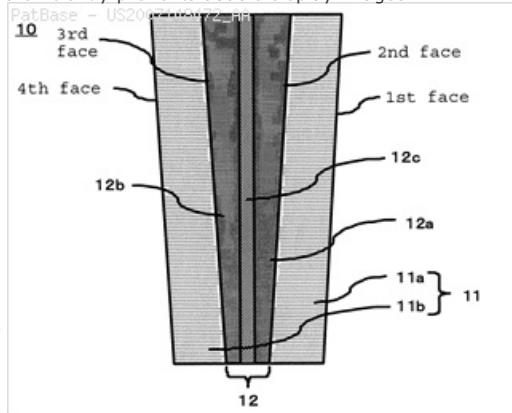
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G02B27/01 (Core/Non-invention)

**CPC:** Y10T428/24802 Y10T428/24851 Y10T428/24926 Y10T428/25 B32B17/10036 B32B17/10761 B32B17/10981 Y10T428/31634 B32B17/10559 B32B17/10633 B32B2250/03

**European:** B32B17/10C4 B32B17/10G28 B32B17/10G2B B32B17/10L22

**US:** 428/195.1 428/201 428/210 428/323 428/426 428/426P 428/438



**Family:**

| Publication number | Publication date | Application number | Application date |
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| CN101038349 A      | 20070919         | CN200610172006     | 20061226         |
| CN103786391 A      | 20140514         | CN201410090248     | 20061226         |
| CN103786391 B      | 20160831         | CN201410090248     | 20061226         |
| DE602006034602 D1  | 20130418         | DE200660034602T    | 20061219         |
| EP1800855 A1       | 20070627         | EP20060026345      | 20061219         |
| EP1800855 B1       | 20130220         | EP20060026345      | 20061219         |
| JP2007223883 A2    | 20070906         | JP20060229348      | 20060825         |
| KR101334563 B1     | 20131128         | KR20060133805      | 20061226         |
| KR20070068291 A    | 20070629         | KR20060133805      | 20061226         |
| US2007148472 AA    | 20070628         | US20060611965      | 20061218         |
| US8075983 BB       | 20111213         | US20060611965      | 20061218         |

**Priority:**

JP20050372291 20051226 JP20060016407 20060125 JP20060229348 20060825  
EP20060026345 20061219 CN200610172006 20061226

**Probable Assignee:** ASAHI GLASS CO LTD

**Assignee(s):** (std): ASAHI GLASS CO LTD ; KURIHARA KAZUYUKI ; MASAKI YUUJI

**Assignee(s):** N A ; AGC INC ; ASAHI GLASS CO ; ASAHI GLASS COMPANY LIMITED ; ASAHI GLASS COMPANY LTD

**Inventor(s):** (std): KAZUYUKI MASAKI YUUJI KURIHARA ; MASAKI YUUJI ; MASAKI YUJI ; KURIHARA KAZUYUKI

**Inventor(s):** MASAKI YUUJI C O ASAHI GLASS CO LTD ; KURIHARA KAZUYUKI C O ASAHI GLASS CO LTD ; MASAKI YUUJI KURIHARA KAZUYUKI

**Agent(s):** MUELLER BORE AND PARTNER PATENTANWAELE PARTG MBB; Müller-Boré &, Partner Patentanwälte; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT PC; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT LLP

**Designated states:** AL BA BE DE FR GB HR MK YU

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

**Abstract:** It is an object of the present invention to provide an interlayer film for a laminated glass excellent in a sound-insulating property, which is preferably usable for a head up display and the like wherein a driver can look at the front view and an instrument display simultaneously without requiring to look down, and to provide a laminated glass. The present invention is directed to interlayer film for a laminated glass, which comprises at least a pair of protection layers and a sound-insulating layer sandwiched between the pair of the protection layers, and which has a wedge shape as a cross-sectional shape, a wedge angle  $\theta$  of 0.1 to 0.7 mrad, the maximum thickness of 2000  $\mu\text{m}$  or thinner, and the minimum thickness of 400  $\mu\text{m}$  or thicker, the minimum thickness of the sound-insulating layer being 20  $\mu\text{m}$  or thicker.

**Classifications:**

**International (IPC 8-9):** B32B17/06 B32B17/10 B32B27/00 B32B27/06 B32B27/08 B32B27/18 B32B27/30 B32B27/42 B32B3/00 B32B3/26 B32B7/02 B60J1/00 B60J1/02 B60K35/00 C03C27/12 E04B1/74 E04B1/82 E04B1/88 E04B9/00 G02B27/01 G10K11/162 G10K11/168 (Advanced/Invention);

B60J1/00 G02B27/01 G10K11/168 (Advanced/Non-invention); B32B17/06 B60J1/00 C03C C03C27/12 E04B1/74 (Core/Invention)

**International (IPC 1-7):** B60J1/00 C03C C03C27/12

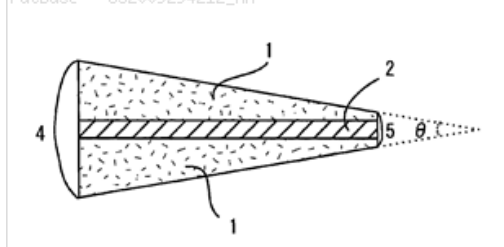
**CPC:** B32B17/10036 B32B17/10761 B32B17/10853 G02B27/01 G02B2027/0121 Y10T428/24479 Y10T428/24612 Y10T428/24967 E04B1/88 B32B17/06 B32B27/06 B32B27/30 B32B2307/102 B32B2457/20 B32B17/10568 B32B27/08 B32B27/306

Y10T428/31627 Y10T428/3163 B32B27/42 G10K11/168 B32B2307/412 B32B2605/08 G02B2027/012 G02B27/0101 B32B3/263 B32B17/10

**European:** B32B17/10G28 B32B17/10G2B B32B17/10L10B2B2 G02B27/01 G02B27/01A S02B27/01A4A1

**US:** 1/1 181/286 181/289 181/290 428/156 428/156P 428/172 428/215 428/426 428/436 428/437

PatBase - US2009294212\_AA



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| BRPI0711462 A2     | 20111108         | BR2007PI11462      | 20070511         |
| CA2646038 AA       | 20080916         | CA20072646038      | 20070511         |
| CA2646038 C        | 20140708         | CA20072646038      | 20070511         |
| CN101443287 A      | 20090527         | CN200780017250     | 20070511         |
| CN101443287 B      | 20130102         | CN200780017250     | 20070511         |
| CN102515572 A      | 20120627         | CN201110327834     | 20070511         |
| CN102515572 B      | 20150204         | CN201110327834     | 20070511         |
| CN102976637 A      | 20130320         | CN201210456938     | 20070511         |
| CN102976637 B      | 20160330         | CN201210456938     | 20070511         |
| EP2017237 A1       | 20090121         | EP20070743194      | 20070511         |
| EP2017237 A4       | 20120307         | EP20070743194      | 20070511         |
| EP2017237 B1       | 20170621         | EP20070743194      | 20070511         |
| EP3208247 A1       | 20170823         | EP20170163846      | 20070511         |
| IN03688KN2008 A    | 20090220         | IN2008KN03688      | 20080909         |
| JP2007132777 A1    | 20090924         | JP20070531504T     | 20070511         |
| JP2014037347 A2    | 20140227         | JP20130202431      | 20130927         |
| JP2014231472 A2    | 20141211         | JP20140136909      | 20140702         |
| JP2016164119 A2    | 20160908         | JP20160041091      | 20160303         |
| JP2017210405 A2    | 20171130         | JP20170128934      | 20170630         |
| JP5576019 B1       | 20140820         | JP20070531504T     | 20070511         |
| JP5782084 B2       | 20150924         | JP20130202431      | 20130927         |
| JP6223292 B2       | 20171101         | JP20140136909      | 20140702         |
| KR101408392 B1     | 20140617         | KR20087024790      | 20070511         |
| KR20090010952 A    | 20090130         | KR20087024790      | 20070511         |
| MX2008012558 A1    | 20081014         | MX20080012558      | 20070511         |
| RU2008148968 A     | 20100620         | RU20080148968      | 20070511         |
| RU2432331 C2       | 20111027         | RU20080148968      | 20070511         |
| TH98172 A          | 20090910         | TH20071002326      | 20070511         |
| US2009294212 AA    | 20091203         | US20070883177      | 20070511         |
| US2011094825 AA    | 20110428         | US20110983376      | 20110103         |
| US2012003428 AA    | 20120105         | US20110230400      | 20110912         |
| US2014178651 AA    | 20140626         | US20140193458      | 20140228         |
| US2015258747 AA    | 20150917         | US20150715774      | 20150519         |
| US2016341960 AA    | 20161124         | US20160226261      | 20160802         |
| US7886871 BB       | 20110215         | US20070883177      | 20070511         |
| US8033360 BB       | 20111011         | US20110983376      | 20110103         |
| US8695756 BB       | 20140415         | US20110230400      | 20110912         |
| US9067386 BB       | 20150630         | US20140193458      | 20140228         |
| US9427932 BB       | 20160830         | US20150715774      | 20150519         |
| WO07132777 A1      | 20071122         | WO2007JP59759      | 20070511         |

**Priority:**

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| JP20060134200  | 20060412 | JP20060134200 | 20060512 | WO2007JP59759 | 20070507 |
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**Probable Assignee:** SEKISUI CHEMICAL CO LTD

**Assignee(s):** (std): MIYAI JIRO ; SEKISUI CHEMICAL CO LTD ; SEKISUI KEMIKAL KO LTD

**Assignee(s):** SEKISUI CHEMICAL CO LTD4-4, NISHITEMMA 2-CHOMEKITA-KU, OSAKA-SHI530-8565OSAKAJP ; SEKISUI KEMIKAL KO ; SEKISUI CHEM CO LTD ; SEKISUI CHEMICAL CO

**Inventor(s):** (std): JIRO MIYAI ; MIYAI JIRO ; MIJAI DZIRO  
**Inventor(s):** MIYAI JIROJP  
**Agent(s):** RICHES MCKENZIE AND HERBERT LLP; HOFFMANN EITLE; YASUTOMI YASUO; MOROTA KATSUYASU;  
SUGHRUE MION PLLC; CONNOLLY BOVE LODGE AND HUTZ LLP; NOVAK DRUCE CONNOLLY BOVE AND  
QUIGG LLP; POLSINELLI PC  
**Designated states:** AE AG AL AM 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 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  
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**Title:** LAMINATED WINDSHIELD GLASS

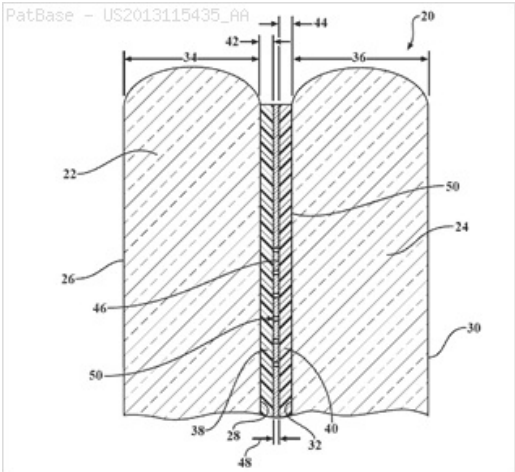
**Abstract:** A laminated glass assembly includes an annealed outer glass panel and an inner glass panel. A first Polyvinyl Butyral (PVB) layer is disposed adjacent the outer glass panel, and a second PVB layer is disposed adjacent the inner glass panel. A polymeric film layer of Polyethylene Terephthalate (PET) is disposed between the first PVB layer and the second PVB layer. The outer glass panel, the first PVB layer, the polymeric film layer, the second PVB layer and the inner glass panel are bonded together to form the laminated glass assembly. The polymeric film layer may include a deformation control mechanism, such as scoring, cuts or perforations disposed therein, to alter a mechanical elongation characteristic of the polymeric film layer.

**Classifications:**

**International (IPC 8-9):** B32B17/10 B32B3/00 B32B7/02 B60J1/02 C03C27/12 (Advanced/Invention)

**CPC:** B32B17/10761 B32B17/10036 B60J1/02 Y10T428/2495 Y10T428/26 Y10T428/31645

**US:** 428/213 428/332 428/441



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN103086617 A      | 20130508         | CN201210427931     | 20121031         |
| DE102012219950 A1  | 20130508         | DE201210219950     | 20121031         |
| US2013115435 AA    | 20130509         | US20110289037      | 20111104         |

**Priority:**

US20110289037 20111104

**Probable Assignee:** GM GLOBAL TECHNOLOGY OPERATIONS LLC

**Assignee(s):** (std): GM GLOBAL TECH OPERATIONS INC ; HAGEN THOMAS D ; WALTERS GARY L

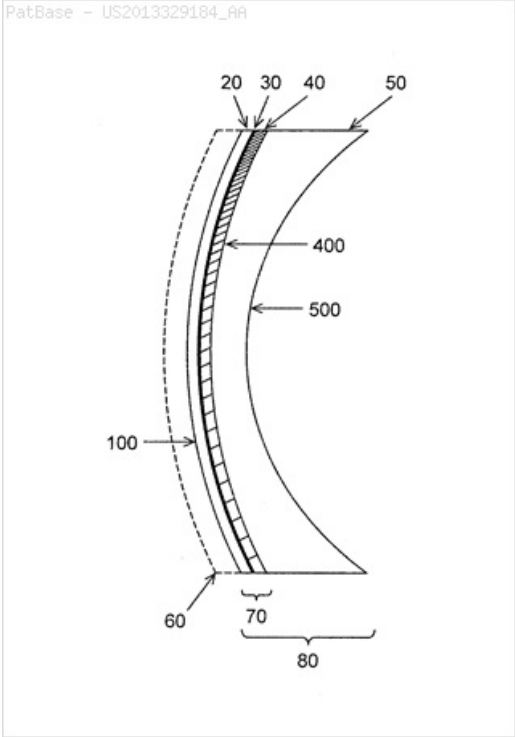
**Assignee(s):** WILMINGTON TRUST CO ; GM GLOBAL TECHNOLOGY OPERATIONS LLC ; GM GLOBAL TECHNOLOGY OPERATIONS LLC N D GES D STAATES DELAWARE ; GM GLOBAL TECHNOLOGY OPERATIONS LLC N D GES DSTAATES DELAWARE

**Inventor(s):** (std): HAGEN THOMAS D ; WALTERS GARY L

**Title:** TINTED POLYCARBONATE OPHTHALMIC LENS PRODUCT AND METHOD OF MANUFACTURE

**Abstract:** The present invention describes ophthalmic lens products comprising a multilayer wafer and an injection-molded polycarbonate inner portion. The multilayer wafer includes a dyed, photochromic or polarized layer between a tinted inner layer and an outer polymeric layer. The inner layer may be solid or gradient-tinted. The polycarbonate inner portion of the lens product is directly fused to the tinted inner layer of the multilayer wafer during injection molding. The invention further describes a method to produce a gradient-tinted polarized polycarbonate eyewear lens product by obtaining a multilayer wafer having an outer layer, an inner polycarbonate layer, and a polarized layer between the inner and outer layers, applying a gradient tint to the wafer's inner layer, placing the gradient tinted wafer within an injection-molding cavity, and injecting molten polycarbonate directly against the wafer's gradient-tinted layer to form the inner portion of the lens product and to fuse it to the wafer.

**Classifications:**  
**International (IPC 8-9):** G02B1/08 G02C7/02 G02C7/10 G02C7/12 (Advanced/Invention)  
**CPC:** G02C7/12 G02C7/102 G02C7/105 B29D11/00644 B29D11/00653 B29D11/00009  
**US:** 264/1.32 351/159.56 351/159.57 351/159.61 351/159.62 351/159.64 351/159.66



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2013329184 AA    | 20131212         | US20120492601      | 20120608         |
| US8651660 BB       | 20140218         | US20120492601      | 20120608         |

**Priority:**

US20120492601 20120608

**Probable Assignee:** YOUNGER MFG CO DBA YOUNGER OPTICS

**Assignee(s):** (std): AMBLER DAVID MARK ; BARZAK ADAM AHMAD ; MCKENZIE ANDREW JOHN ; YOUNGER MFG ; YOUNGER MFG CO DBA YOUNGER OPTICS

**Assignee(s):** YOUNGER MFG CO

**Inventor(s):** (std): MCKENZIE ANDREW JOHN ; BARZAK ADAM AHMAD ; AMBLER DAVID MARK

**Agent(s):** SHEPPARD MULLIN RICHTER AND HAMPTON LLP

**Title:** GLASS FILM LAMINATE, METHOD OF MANUFACTURING THE SAME, AND METHOD OF MANUFACTURING GLASS FILM

**Abstract:** A glass film laminate includes a carrier glass including a rough surface, a smooth surface surrounding the rough surface, the rough surface having a relatively large surface roughness and the smooth surface having a relatively small surface roughness, and a passage rough surface connected to the rough surface; and a glass film laminated on the rough surface and the smooth surface of the carrier glass.

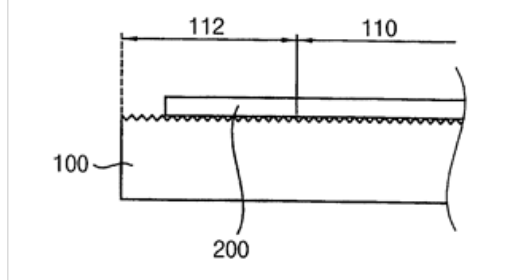
**Classifications:**

**International (IPC 8-9):** B32B17/06 B32B17/10 B32B3/00 B32B3/30 B32B38/00 B32B38/10 B32B7/02 B32B7/06 C03C17/28 (Advanced/Invention)

**CPC:** B32B3/30 B32B38/10 B32B7/06 B32B17/06 B32B2315/08 Y10T428/24355

**US:** 156/153 216/36 428/141

PatBase - US2015004364\_AA



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| KR20150001006 A    | 20150106         | KR20130073537      | 20130626         |
| US2015004364 AA    | 20150101         | US20140264085      | 20140429         |
| US9669597 BB       | 20170606         | US20140264085      | 20140429         |

**Priority:**

KR20130073537 20130626

**Probable Assignee:** SAMSUNG DISPLAY CO LTD

**Assignee(s):** (std): SAMSUNG DISPLAY CO LTD

**Assignee(s):** SAMSUNG DISPLAY CO

**Inventor(s):** (std): KIM JONG SEONG ; KIM YOUNG BAE ; LEE JONG HWAN

**Agent(s):** LEE AND MORSE PC