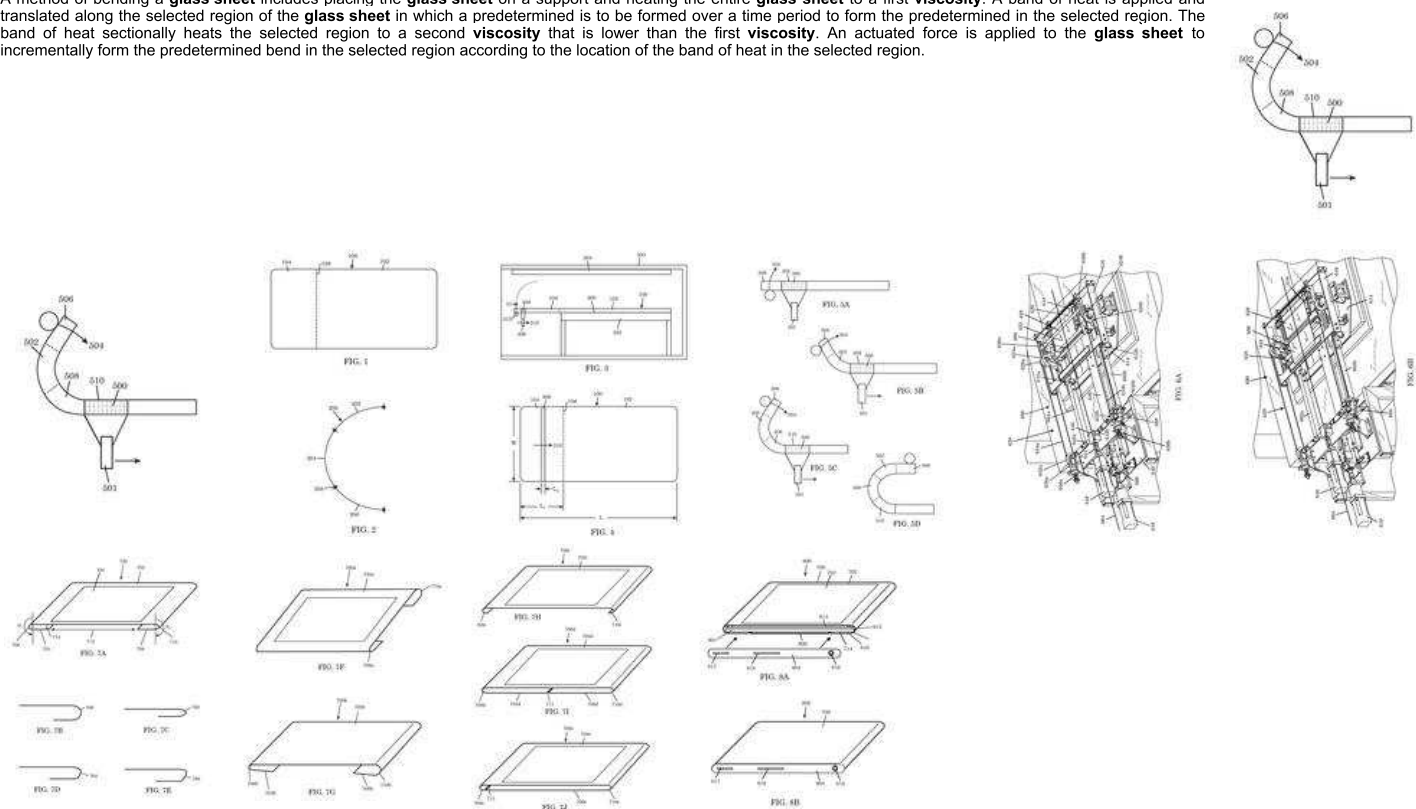
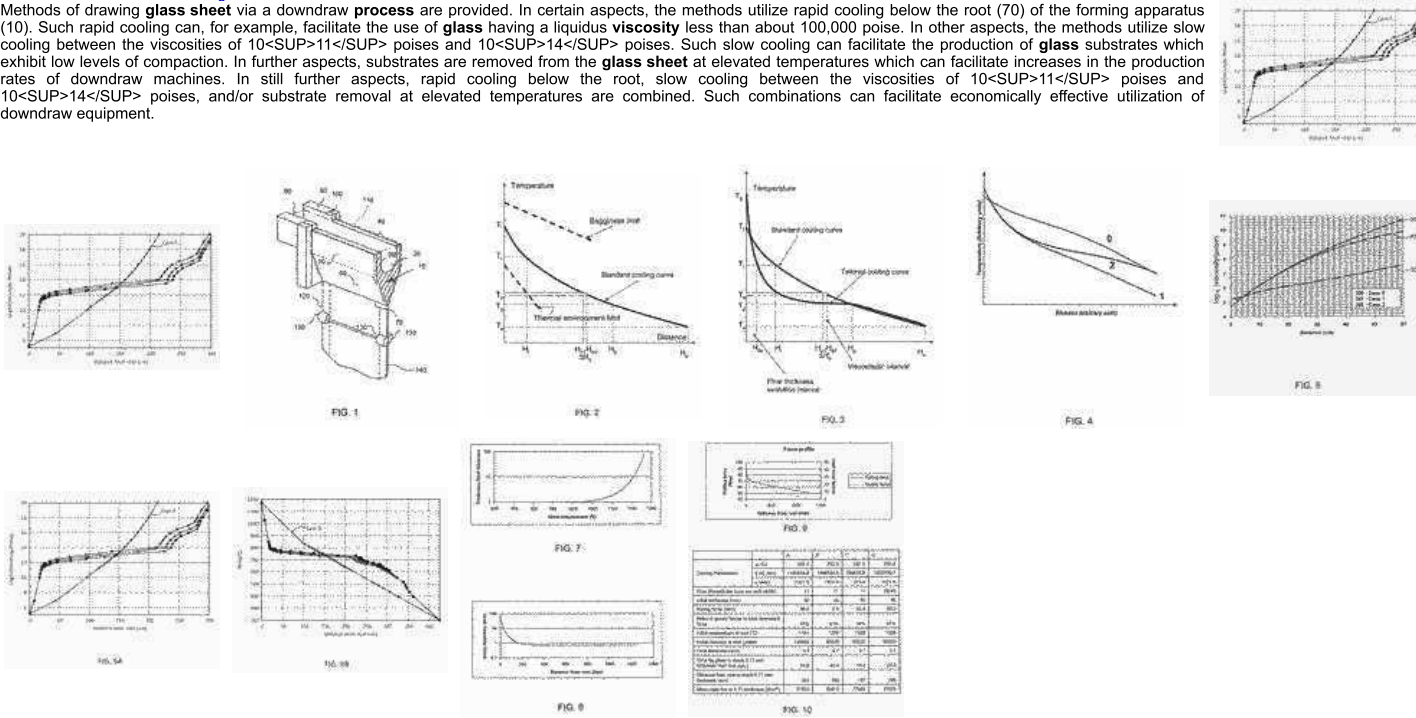


A method of bending a **glass sheet** includes placing the **glass sheet** on a support and heating the entire **glass sheet** to a first **viscosity**. A band of heat is applied and translated along the selected region of the **glass sheet** in which a predetermined is to be formed over a time period to form the predetermined in the selected region. The band of heat sectionally heats the selected region to a second **viscosity** that is lower than the first **viscosity**. An actuated force is applied to the **glass sheet** to incrementally form the predetermined bend in the selected region according to the location of the band of heat in the selected region.



Methods of drawing **glass sheet** via a downdraw **process** are provided. In certain aspects, the methods utilize rapid cooling below the root (70) of the forming apparatus (10). Such rapid cooling can, for example, facilitate the use of **glass** having a liquidus **viscosity** less than about 100,000 poise. In other aspects, the methods utilize slow cooling between the viscosities of 10¹¹ poises and 10¹⁴ poises. Such slow cooling can facilitate the production of **glass** substrates which exhibit low levels of compaction. In further aspects, substrates are removed from the **glass sheet** at elevated temperatures which can facilitate increases in the production rates of downdraw machines. In still further aspects, rapid cooling below the root, slow cooling between the viscosities of 10¹¹ poises and 10¹⁴ poises, and/or substrate removal at elevated temperatures are combined. Such combinations can facilitate economically effective utilization of downdraw equipment.



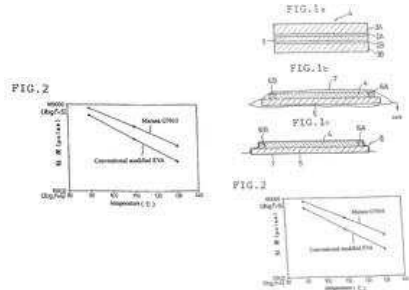
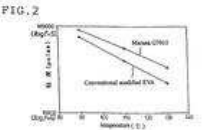
The invention relates to thin **sheet glass** having a high refractive index (nd), a combination of layers comprising said thin **sheet glass**, a method for producing the thin **sheet glass**, and the uses thereof. The thin **sheet glass** of the invention can be processed in a flat-**glass** production method but nevertheless has the optical properties of classic optical **glass**. The thin **sheet glass** of the invention is highly transparent, resistant to crystallization, chemically stable, and has a high refractive index. The **viscosity**-temperature behavior thereof is adapted to the production **process** in flat-**glass** production methods.



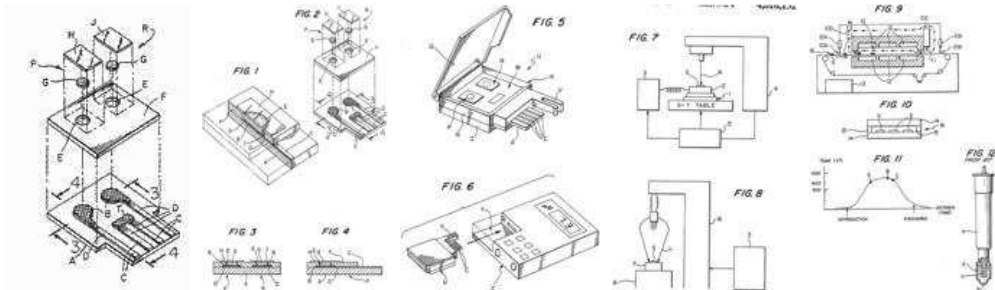
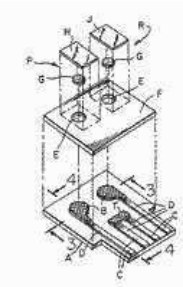
The invention relates to thin **sheet glass** having a high refractive index (nd), a combination of layers comprising said thin **sheet glass**, a method for producing the thin **sheet glass**, and the uses thereof. The thin **sheet glass** of the invention can be processed in a flat-**glass** production method but nevertheless has the optical properties of classic optical **glass**. The thin **sheet glass** of the invention is highly transparent, resistant to crystallization, chemically stable and has a high refractive index. The **viscosity**-temperature behavior thereof is adapted to the production **process** in flat-**glass** production methods.



Laminated **glass** is prepared for high quality dimmer **glass** having uniform bonding without local stress. **Glass** plates (3A, 3B) and a dimmer film (1) are laminated with interlayers (2A, 2B) therebetween to make a laminated body (4), and the laminated body (4) is heated by immersing it into hot liquid. The interlayers (2A, 2B) are of modified ethylene-vinyl acetate copolymer interlayers having the gradient of a temperature/**viscosity** line from -0.0097 to -0.01188 DEG C<-1> in a range between 90 and 130 DEG C in a graph where the temperature is plotted as the abscissa and the common logarithm of the **viscosity** is plotted as the ordinate. <IMAGE>



A **glass** electrode having a **sheet** type shape and being open toward an upper surface side is described. This **sheet** type **glass** electrode provides together with a **sheet** type reference electrode a **sheet** type composite electrode wherein the **glass** electrode and the reference electrode are placed side by side under the condition that they are open toward an upper surface side. This **sheet** type **glass** electrode comprises a substrate (10) formed of a material having a sufficiently high electrical insulating property, an electrode (D) comprising an internal electrode portion (B) and a lead portion (C) stuck to an upper surface thereof, a support layer (F) formed of a material having a sufficiently high electrical insulating property which is provided with a hole (E) at a place corresponding to said internal electrode portion (B) being formed on the upper surface of said substrate (A) under the condition that said lead portion (C) and its circumference are exposed, said hole (E) in the support layer (F) being tightly filled with a gelatinized internal solution (G) and a flat plate-like ion-response **glass** membrane (H) which is fixedly mounted on the upper surface of said support layer (F) along a circumference thereof by the use of adhesives (I) having a sufficiently high electrical insulating property so that a lower surface thereof may be closely stuck to an upper surface of said gelatinized internal solution (G).



10.

Thin laminated glass for windscreen

FR3012072

2013-10-23

SAINT GOBAIN GLASS*

2015-04-24

2015-04-24

The invention relates to laminated glazing comprising at least an outer **sheet** of **glass**, an inner **sheet** of **glass** and a polymer separator arranged between the two sheets of **glass**, wherein the inner **sheet** has a maximum thickness of 1.5 mm, and the outer **sheet** of **glass** has a different chemical composition from that of the inner **sheet**, the difference between the temperatures Tp1 and Tp2 being lower than 80°C, the temperature Tp1 being defined as the average between the upper annealing temperature and the softening temperature of the outer **sheet** of **glass**, and the temperature Tp2 being defined as the average between the upper annealing temperature and the softening temperature of the inner **sheet** of **glass**.

Al₂O₃

2-3%

Al₂O₃

2-3%

B₂O₃

0-5%

Al₂O₃

0-5%

Al₂O₃

2-3%

B₂O₃

10-15%

11.

Process for producing glass bar

WO2007052708

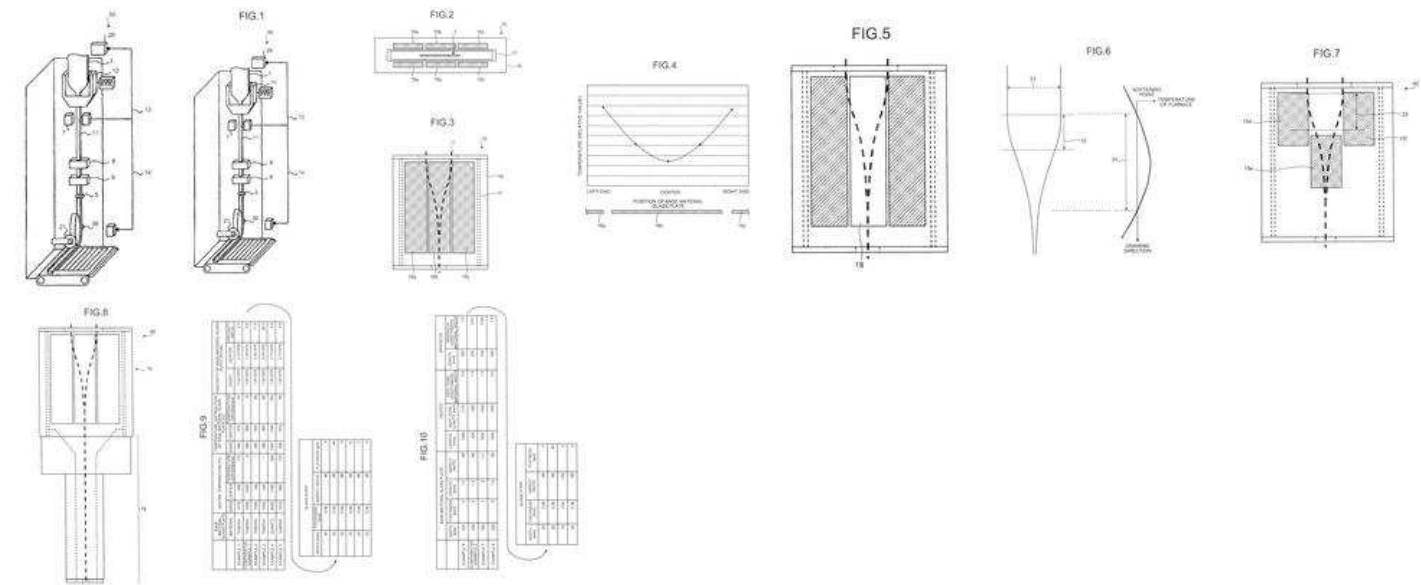
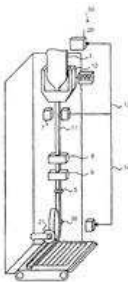
2005-11-01

FURUKAWA ELECTRIC*

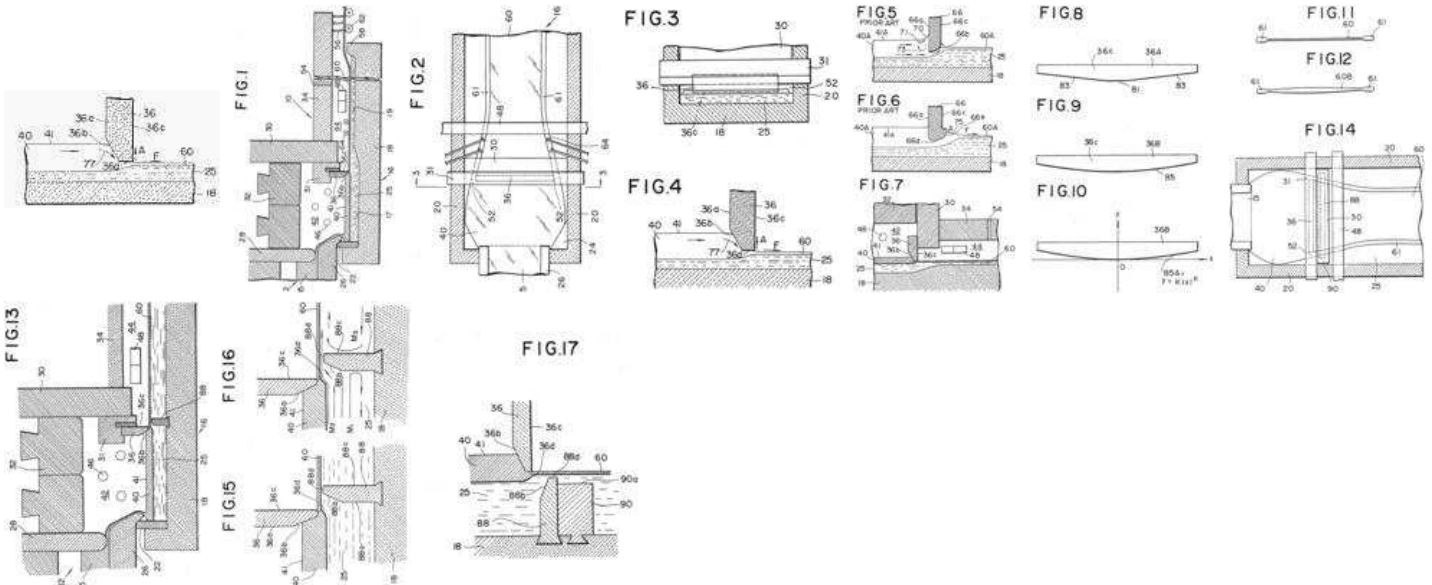
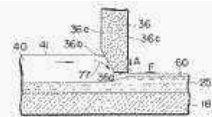
2007-05-10

2007-05-10

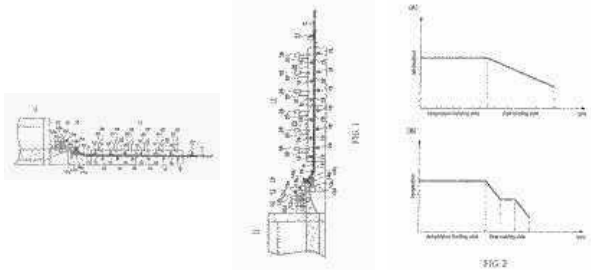
A **process** for **glass** bar production which comprises a heating/drawing step in which a base **sheet glass** is heated and softened in a heating furnace and drawn into a desired thickness to form a **glass** bar, wherein in the heating/drawing step, the base **sheet glass** is heated so that the **sheet glass** has a valley-shaped temperature distribution **curve** in the width direction. This can be accomplished by heating with, for example, a heater comprising a non-heating part located in a position corresponding to the width-direction center of the base **sheet glass** and a heating part disposed at each side of the non-heating part. Due to this, when a base **sheet glass** is heated and softened in a heating furnace and drawn into a desired thickness to form a **glass** bar, a thin rod-form **glass** bar having excellent flatness can be produced.



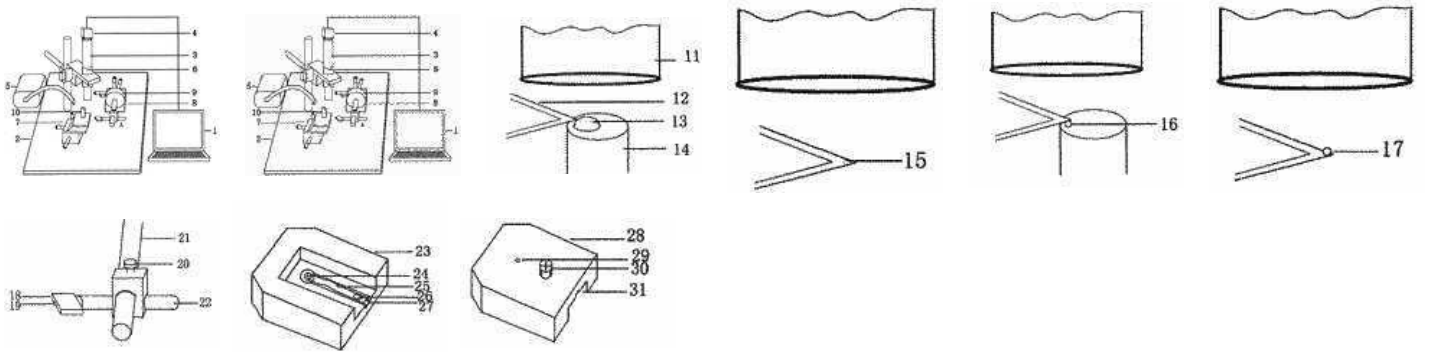
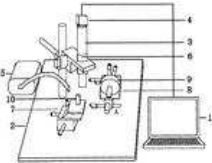
In a method of forming a thin **sheet glass** by the float **process**, a thin layer of molten **glass** is formed by making molten **glass** flow through a sluice formed on the surface of a molten metal bath, and the **glass** layer is drawn lengthways of the bath to further reduce its thickness and advance while its upper surface is exposed to a cooled atmosphere. The sluice is a vertically narrow gap between the surface of the molten metal and a lower end face of a wall extending above and transversely of the molten metal bath. By shaping a lower end portion of this wall and avoiding particularly heating the molten **glass** in the vicinity of the sluice, it has become possible to obtain defectless **sheet glass** thinner than one millimeter.



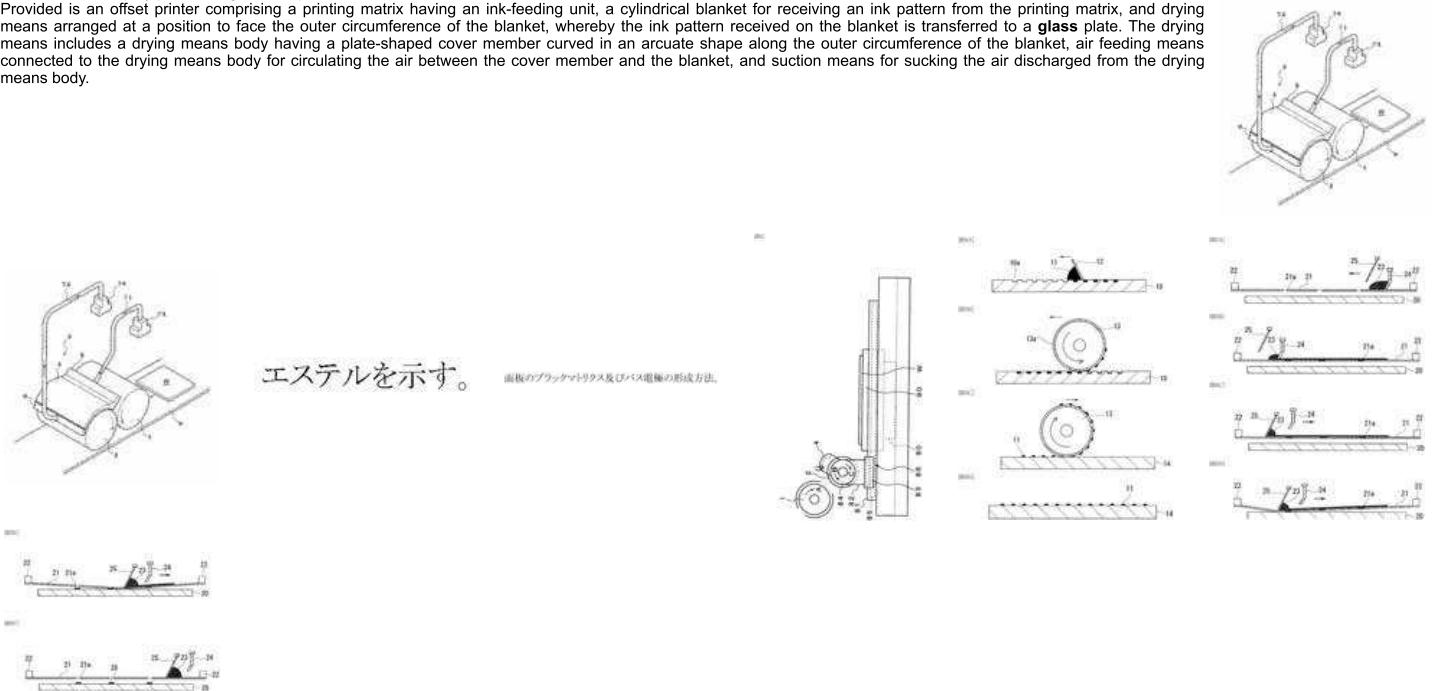
One objective of the present invention was to provide a method of continuously forming crystallized **glass**, so as to reduce the thermal treatment time necessary for crystallizing a belt-shaped **glass** plate; and to provide an apparatus of continuously forming crystallized **glass**, so as to shorten the thermal treatment zone necessary for crystallizing a belt-shaped **glass** plate. A method of continuously forming crystallized **glass** according to the present invention includes: a melting step of melting a raw **glass** material to obtain molten **glass**; a shaping step of rolling the molten **glass** to form a belt-shaped **glass** plate; a crystallizing step of retaining the belt-shaped **glass** plate at a temperature necessary for nuclei formation and crystal growth, thereby forming nuclei and crystallizing the belt-shaped **glass** plate to a belt-shaped crystallized **glass** plate, and then slowly cooling the belt-shaped crystallized **glass** plate; and a cutting step of cutting the belt-shaped crystallized **glass** plate.



The invention discloses a method and a device for preparing a colloid probe, and relates to the probe technology. The colloid probe is prepared by adopting a three-dimensional translation stage to bi-directionally move and adjust the relative positions of a micro cantilever probe and colloid grains or optical adhesive droplets, carrying the micro cantilever probe through a rotary stage and a cross rod rack, adjusting the inclination angle of the micro cantilever probe and sticking the colloid grains to the back of the tip of a probe micro cantilever by using optical adhesive. The method and the device is suitable for preparing the colloid grain probe which uses an atomic force microscope to detect an interaction **process** of the grains and the surface (grains) so as to acquire a grain-surface (grain) acting force **curve**. The method and the device are characterized by simple and quick probe preparation operation, and strong practicability, and are suitable for batch manufacturing in a laboratory.

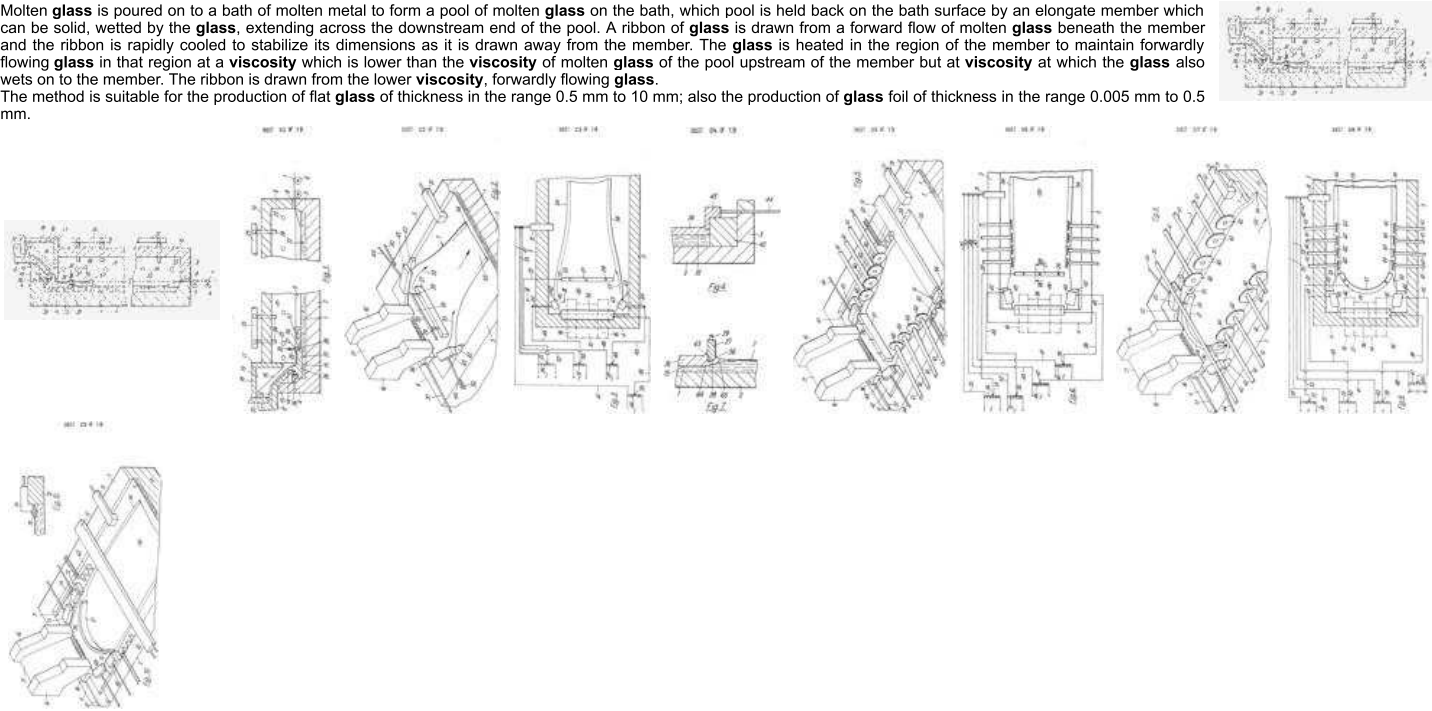


Provided is an offset printer comprising a printing matrix having an ink-feeding unit, a cylindrical blanket for receiving an ink pattern from the printing matrix, and drying means arranged at a position to face the outer circumference of the blanket, whereby the ink pattern received on the blanket is transferred to a **glass** plate. The drying means includes a drying means body having a plate-shaped cover member curved in an arcuate shape along the outer circumference of the blanket, air feeding means connected to the drying means body for circulating the air between the cover member and the blanket, and suction means for sucking the air discharged from the drying means body.

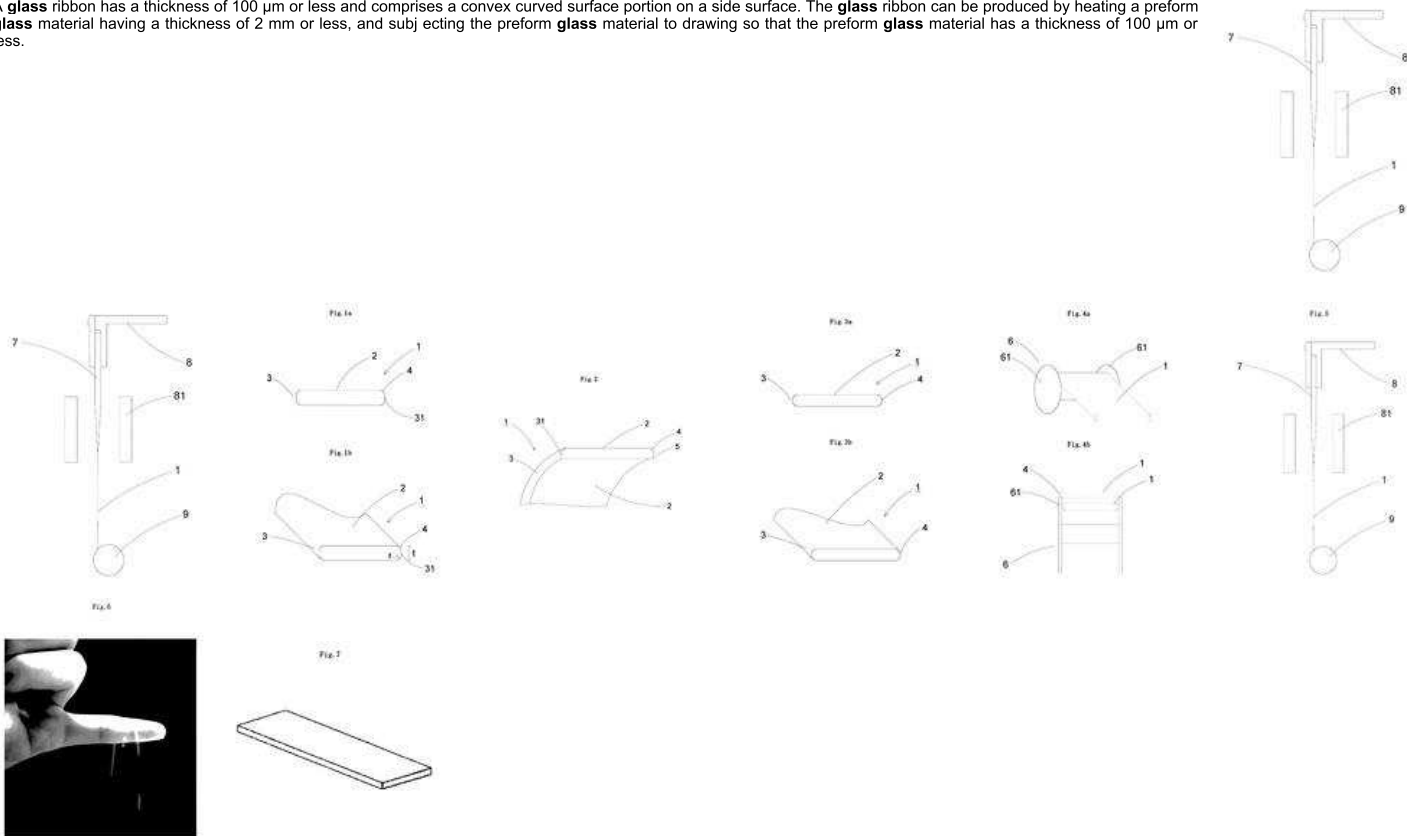


エステルを示す。 面板のブラックマトリクス及びバス電極の形成方法。

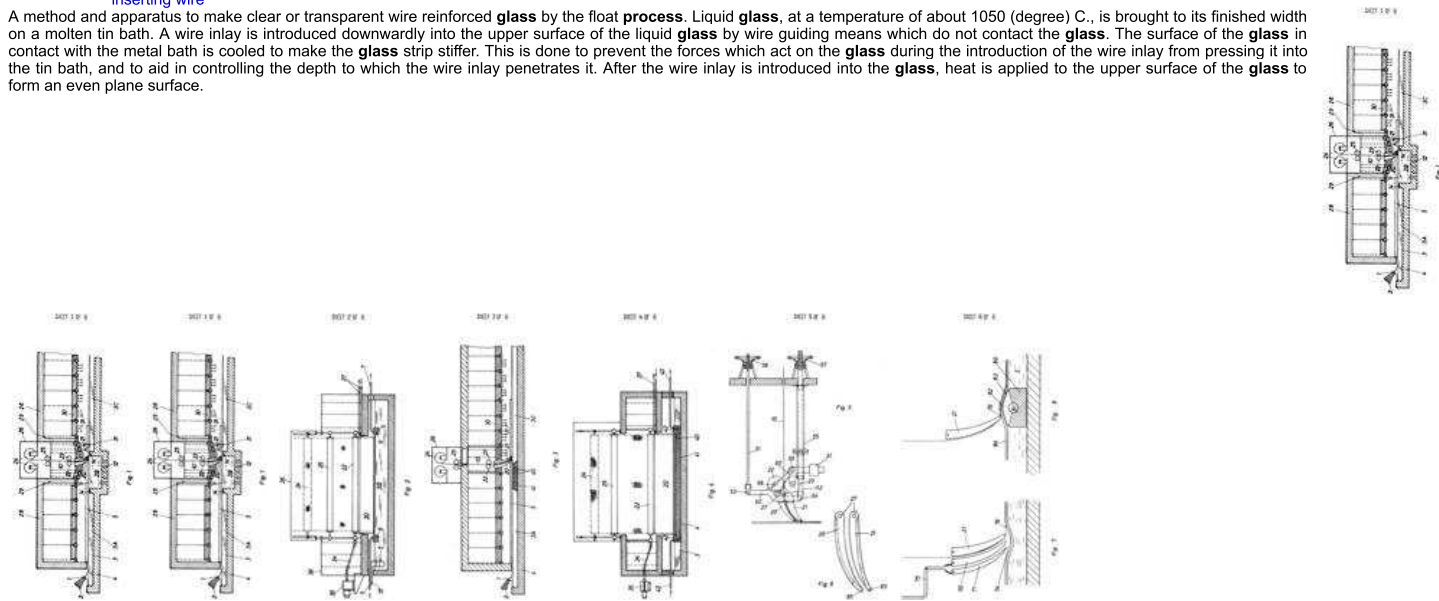
Molten **glass** is poured on to a bath of molten metal to form a pool of molten **glass** on the bath, which pool is held back on the bath surface by an elongate member which can be solid, wetted by the **glass**, extending across the downstream end of the pool. A ribbon of **glass** is drawn from a forward flow of molten **glass** beneath the member and the ribbon is rapidly cooled to stabilize its dimensions as it is drawn away from the member. The **glass** is heated in the region of the member to maintain forwardly flowing **glass** in that region at a **viscosity** which is lower than the **viscosity** of molten **glass** of the pool upstream of the member but at **viscosity** at which the **glass** also wets on to the member. The ribbon is drawn from the lower **viscosity**, forwardly flowing **glass**. The method is suitable for the production of flat **glass** of thickness in the range 0.5 mm to 10 mm; also the production of **glass** foil of thickness in the range 0.005 mm to 0.5 mm.



A **glass** ribbon has a thickness of 100 μm or less and comprises a convex curved surface portion on a side surface. The **glass** ribbon can be produced by heating a preform **glass** material having a thickness of 2 mm or less, and subjecting the preform **glass** material to drawing so that the preform **glass** material has a thickness of 100 μm or less.



A method and apparatus to make clear or transparent wire reinforced **glass** by the float **process**. Liquid **glass**, at a temperature of about 1050 (degree) C., is brought to its finished width on a molten tin bath. A wire inlay is introduced downwardly into the upper surface of the liquid **glass** by wire guiding means which do not contact the **glass**. The surface of the **glass** in contact with the metal bath is cooled to make the **glass** strip stiffer. This is done to prevent the forces which act on the **glass** during the introduction of the wire inlay from pressing it into the tin bath, and to aid in controlling the depth to which the wire inlay penetrates it. After the wire inlay is introduced into the **glass**, heat is applied to the upper surface of the **glass** to form an even plane surface.



A method of applying a coating solution onto an upper surface of a **glass** plate that is transported in a substantially horizontal attitude, according to the first aspect of the present invention, the method including the steps of transporting the **glass** plate into a coating chamber, and opening the plurality of coating nozzles which are positioned in a row at constant intervals therebetween along a curved shape of the upper surface of the **glass** plate in a width direction of the **glass** plate perpendicular to the direction of transporting the **glass** plate by the nozzle position adjusting means and the nozzle height adjusting means, to thereby inject the coating solution when the coating nozzles are located in a region of the upper surface of the **glass** plate which extends from the leading edge of the **glass** plate to the rear edge of the **glass** plate.

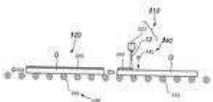


FIG.1

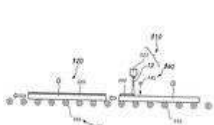


FIG.2

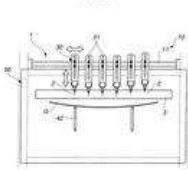


FIG.3

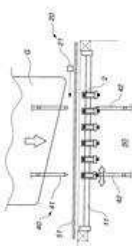


FIG.4



FIG.5

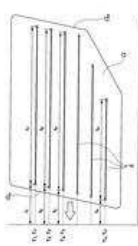


FIG.6

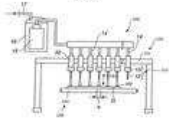


FIG.8

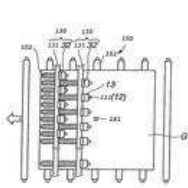
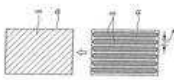


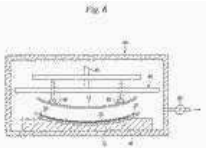
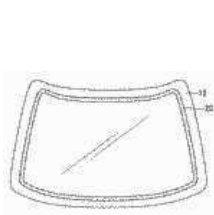
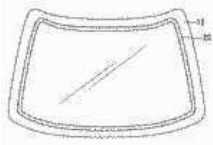
FIG.9



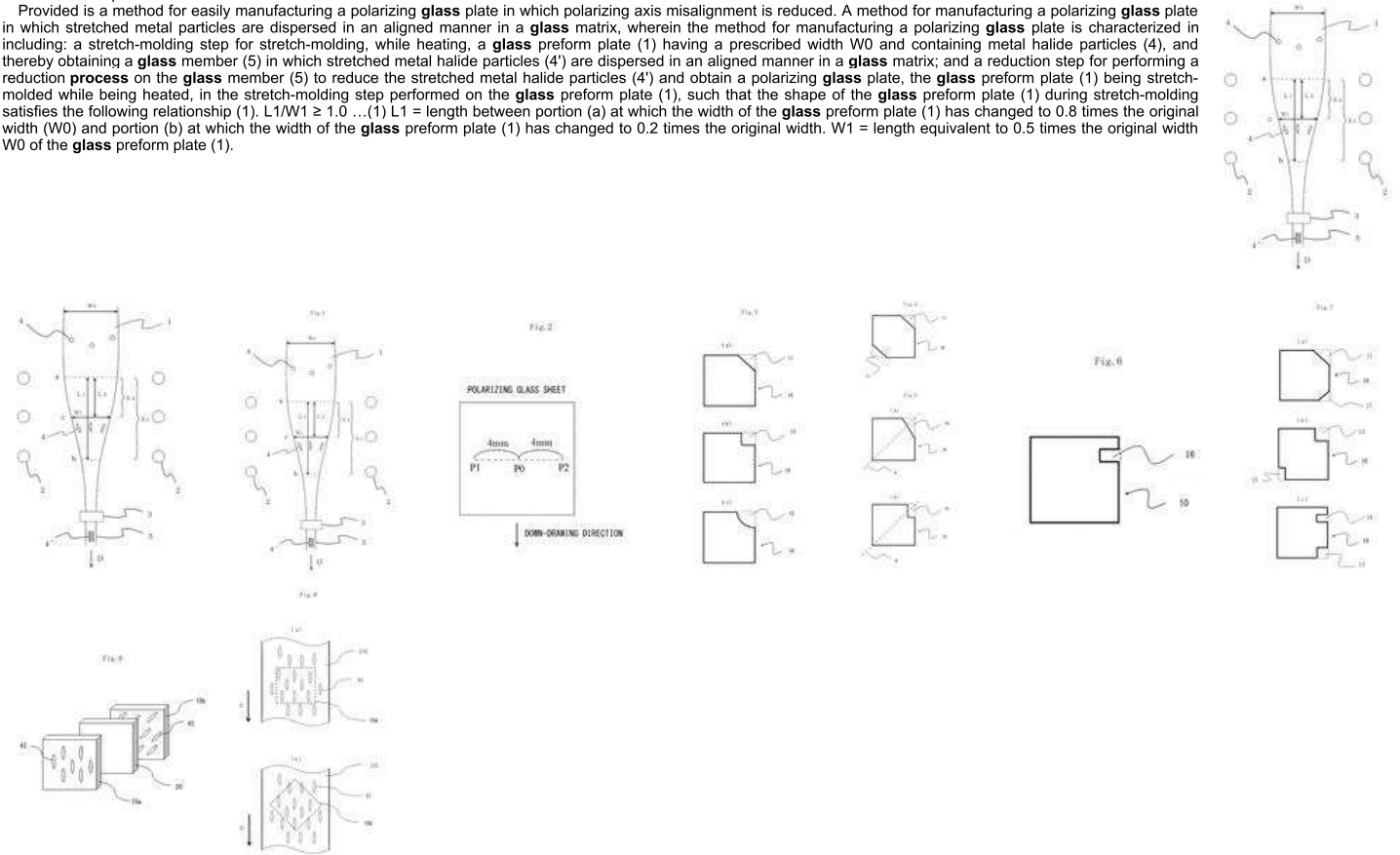
FIG.11



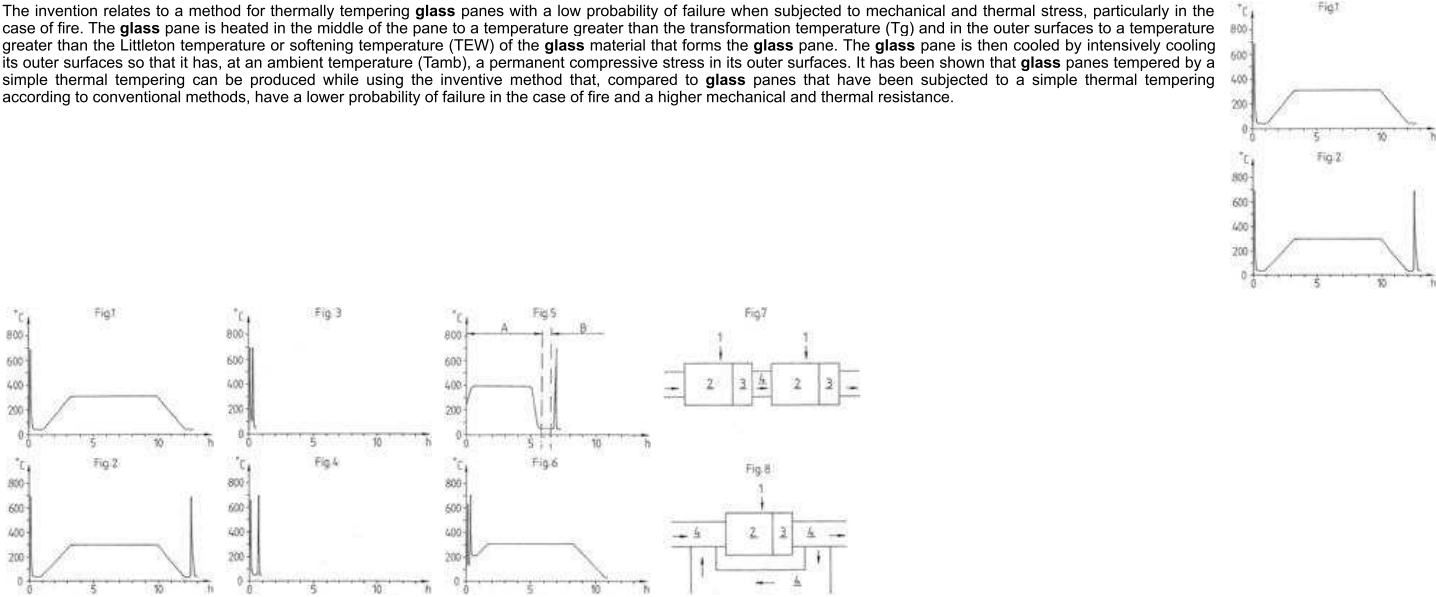
The present invention relates to a **process** for manufacturing a window material for vehicles, the window material including a curved **glass** plate, a curved resin plate provided at a side of a concave surface of the curved **glass** plate and curving along a shape of the curved **glass** plate, a resin layer sandwiched between the curved **glass** plate and the curved resin plate, and a sealing portion surrounding a periphery of the resin layer, the **process** including the following steps (a1) to (d1): (a1) a step of applying a liquid curable resin composition for sealing portion formation to a periphery of a concave surface of a curved **glass** plate to form an uncured sealing portion; (b1) a step of supplying a liquid curable resin composition for resin layer formation to a region surrounded by the uncured sealing portion; (c1) a step of laminating a curved resin plate on the liquid curable resin composition for resin layer formation under a reduced-pressure atmosphere of 100 Pa or less such that a convex surface of the curved resin plate faces a side of the curable resin composition for resin layer formation, thereby obtaining a laminate in which an uncured resin layer comprising the curable resin composition for resin layer formation is sealed by the curved **glass** plate, the curved resin plate and the uncured sealing portion; and (d1) a step of curing the uncured sealing portion and the uncured resin layer in a state that the laminate is placed under a pressure atmosphere of 50 kPa or more.



Provided is a method for easily manufacturing a polarizing glass plate in which polarizing axis misalignment is reduced. A method for manufacturing a polarizing glass plate in which stretched metal particles are dispersed in an aligned manner in a glass matrix, wherein the method for manufacturing a polarizing glass plate is characterized in including: a stretch-molding step for stretch-molding, while heating, a glass preform plate (1) having a prescribed width W0 and containing metal halide particles (4), and thereby obtaining a glass member (5) in which stretched metal halide particles (4') are dispersed in an aligned manner in a glass matrix; and a reduction step for performing a reduction process on the glass member (5) to reduce the stretched metal halide particles (4') and obtain a polarizing glass plate, the glass preform plate (1) being stretch-molded while being heated, in the stretch-molding step performed on the glass preform plate (1), such that the shape of the glass preform plate (1) during stretch-molding satisfies the following relationship (1). $L1/W1 \geq 1.0 \dots (1)$ L1 = length between portion (a) at which the width of the glass preform plate (1) has changed to 0.8 times the original width (W0) and portion (b) at which the width of the glass preform plate (1) has changed to 0.2 times the original width. W1 = length equivalent to 0.5 times the original width W0 of the glass preform plate (1).



The invention relates to a method for thermally tempering glass panes with a low probability of failure when subjected to mechanical and thermal stress, particularly in the case of fire. The glass pane is heated in the middle of the pane to a temperature greater than the transformation temperature (Tg) and in the outer surfaces to a temperature greater than the Littleton temperature or softening temperature (TEW) of the glass material that forms the glass pane. The glass pane is then cooled by intensively cooling its outer surfaces so that it has, at an ambient temperature (Tamb), a permanent compressive stress in its outer surfaces. It has been shown that glass panes tempered by a simple thermal tempering can be produced while using the inventive method that, compared to glass panes that have been subjected to a simple thermal tempering according to conventional methods, have a lower probability of failure in the case of fire and a higher mechanical and thermal resistance.



23.

Process for producing low-reflection glass plate and low-reflection glass plate

WO2004067465

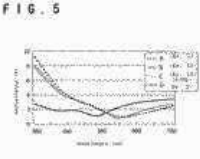
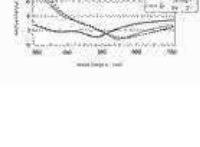
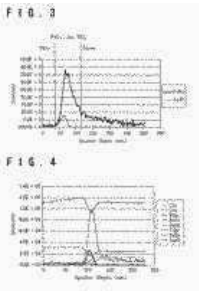
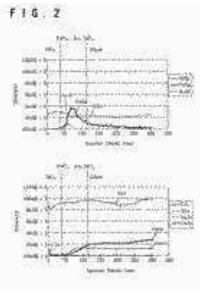
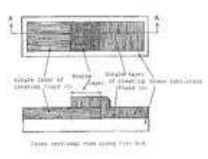
2004-01-22

ASAHI GLASS*
MITSUBOSHI BELTING*

2004-08-12

2004-08-12

The present invention provides a low reflection glass plate which has an effect of reducing reflectance against light even at an incident angle of 60 DEG sufficiently, in high yield. <??>A process for producing a low reflection glass plate, characterized by the use of a treating fluid (1) comprising a resin B1, fine gold particles, an organic metal compound of at least one metal (M1) selected from the group consisting of iron, titanium and zirconium, and an organic solvent, and an treating fluid (2) comprising a film-forming compound, a resin B2 having the same thermal decomposition temperature as the resin B1 or a higher thermal decomposition temperature than the resin B1, wherein said process comprises applying the treating fluid (1) on the surface of a transparent glass substrate, followed by drying at a temperature of from 50 to 250 DEG C to remove the organic solvent, further applying the treating fluid (2), followed by drying at from 50 to 250 DEG C to remove the organic solvent, and then baking the treated transparent glass substrate at a temperature of from 400 to 800 DEG C. <IMAGE>



24.

Apparatus for extruding a profile onto the periphery of a glazed surface

F1910905

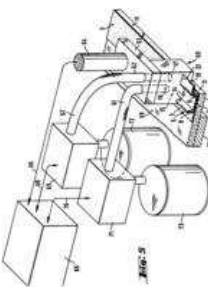
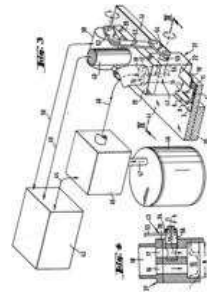
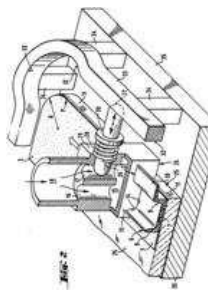
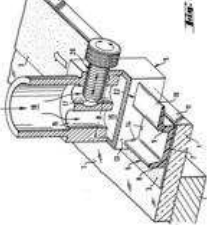
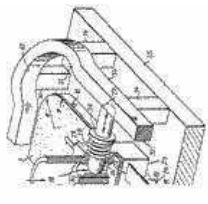
1990-02-26

CRONILS GERD
SAINT GOBAIN GLASS
SAINT GOBAIN VITRAGE*

1991-02-25

1991-02-25

In order to extrude onto a motor-vehicle glazing panel a seal (6) placed at the periphery (11) of its surface (25) which comprises a lip (10) for the centring and the sealing of the positioned glazing panel, a two-channel nozzle (16,17) is used. ...<??>The channel (17) serves for the extrusion of the peripheral lip (10). It comprises an obturating device (26) which enables the flow rate of material from the channel to be regulated. The regulating of the obturator (26) is carried out as a function of the radii of curvature (R) of the perimeter of the glazing panel. ...<IMAGE>...



25.

Methods of bonding hardware to vehicular glass

CA2987921

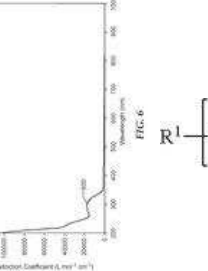
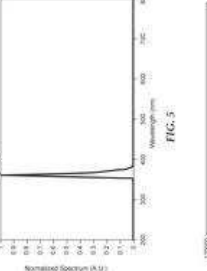
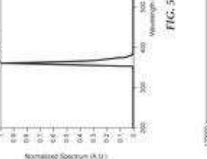
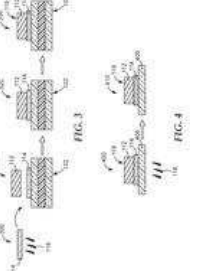
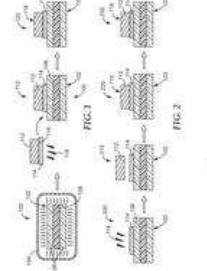
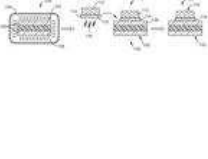
2016-06-01

3M*

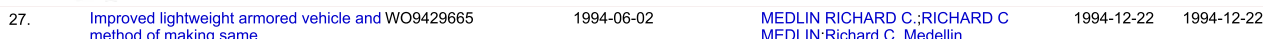
2016-12-08

2016-12-08

Methods of bonding hardware to glass and other substrates are provided that do not require use of primers, mixing, fixturing, or autoclaving. These methods include the steps of disposing an adhesive layer on a bonding surface of either the hardware or the vehicular glass, the adhesive layer comprising a curable composition that is dimensionally stable at ambient conditions; either before or after disposing the adhesive layer on the bonding surface, irradiating the adhesive layer with ultraviolet radiation to initiate curing of the curable composition; placing the hardware so as to be bonded to the vehicular glass by the adhesive layer; and allowing the adhesive layer to cure. <IMAGE>



$$R^1 \left[OCH_2 - \begin{array}{c} \diagup \quad \diagdown \\ \quad \quad O \end{array} \right]_n$$



An improved lightweight armored vehicle (1) and cost effective method of retrofitting standard automobiles to make them lightweight armored vehicles is disclosed. Metal caps (133, 350) fit about laminated windows (131, 358) to protect the laminated edges from stress, moisture and atmosphere and fit within the standard automobile's original window frame (135, 362). Prefabricated rigidly formed lightweight opaque armor (19, 21) is molded to closely fit within the standard automobile. The armor is designed for cost effective on-site manufacture of components and cost effective installation procedures to produce an affordable lightweight armored vehicle.

