

1) Family number: 7637002 (US4185986A)

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Title: Apparatus for handling glass sheets during shaping and cooling

Abstract: This invention relates to apparatus for handling glass sheets during shaping and cooling, and in particular to a ring-like member having stop means spaced upstream of an outline supporting surface conforming to and slightly inside the periphery of a bent glass sheet supported thereon to define a position for engaging the trailing edge of the glass sheet while conveying the latter in a downstream direction from a shaping station to a cooling station. The ring-like member has a pair of downstream end portions that are transversely spaced from one another to provide a clearance space to permit the ring-like member to begin to return in an upstream direction to the shaping station before the shaped glass sheet is transferred to a position completely downstream of the ring-like member.

Classifications:

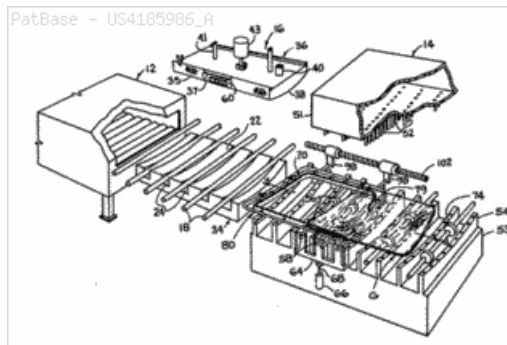
International (IPC 8-9): C03B23/03 C03B27/044
C03B35/20 (Advanced/Invention)

International (IPC 1-7): C03B23/02 C03B27/00

CPC: C03B23/03 C03B27/0404 C03B27/0445 C03B35/202
C03B2225/02

European: C03B23/03 C03B27/044B2 C03B27/04A C03B35/20B
M03B225/02

US: 65/273 65/286 65/287 65/348



Family:

Publication number	Publication date	Application number	Application date
US4185986 A	19800129	US19780954693	19781025

Priority:

US19780954693 19781025

Probable Assignee:

PPG INDUSTRIES INC

Assignee(s): (std):

PPG INDUSTRIES INC

Assignee(s):

PPG IND INC

Inventor(s): (std):

FRANK ROBERT G

2) Family number: 54911016 (US2015104618A)

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Title: CERAMIC COLOR PASTE, CERAMIC COLOR, GLASS HAVING CERAMIC COLOR, AND MANUFACTURING METHOD THEREOF

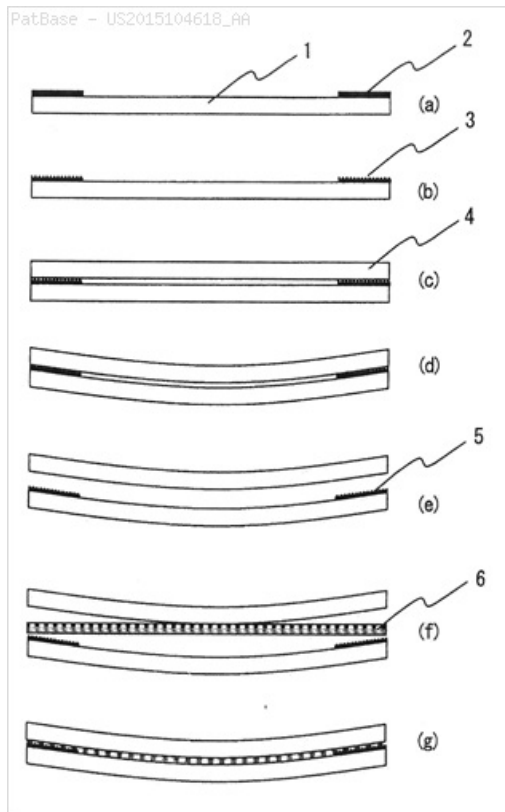
Abstract: The present invention relates to a ceramic color paste containing a glass frit, a vehicle, a heat-resistant pigment and a large-diameter heat-resistant particle, in which the large-diameter heat-resistant particle has a particle size larger than the average thickness of a dried coating film for forming a ceramic color.

Classifications:

International (IPC 8-9): C03B23/023 C03B23/025 C03B23/03
C03B40/033 C03C17/00 C03C17/04 C03C17/25 C03C27/10
C03C27/12 C03C8/04 C03C8/16 C03C8/22
C03C8/24 (Advanced/Invention)

CPC: B32B17/10036 B32B17/10348 B32B17/10935 B32B17/10761
B32B17/10889 C03C8/24 C03B23/03 C03C17/25 C03C2207/00
C03C2204/04 C03C2217/23 C03C2217/42 C03C2217/77
C03C2217/72 C03B23/0252 Y10T428/24628 Y02P40/57 C03C8/22
C03C17/007 C03C17/04 C03C2217/452 C03C2217/485 C03B40/033
C03C8/16

US: 428/174 501/15 65/60.5

**Family:**

Publication number	Publication date	Application number	Application date
■ CN104220390 A	20141217	CN201380017914	20130313
■ EP2832704 A1	20150204	EP20130769996	20130313
■ EP2832704 A4	20160406	EP20130769996	20130313
■ EP2832704 B1	20190724	EP20130769996	20130313
■ JP2013146264 A1	20151210	JP20140507646T	20130313
■ JP6153514 B1	20170628	JP20140507646T	20130313
■ KR20140148397 A	20141231	KR20147027144	20130313
■ US2015104618 AA	20150416	US20130388952	20130313
■ WO13146264 A1	20131003	WO2013JP56991	20130313

Priority:

JP20120077760 20120329 WO2013JP56991 20130313

Probable Assignee: MITSUBOSHI BELTING LTD**Assignee(s):** (std): MITSUBOSHI BELTING LTD**Inventor(s):** (std): HAYASHI YOKO ; KURODA KOTARO ; SUZUKI MASAFUMI**Agent(s):** MUELLER BORE AND PARTNER PATENTANWALTE PARTG MBB; MUELLER BORE AND PARTNER PATENTANWALTE PARTG MBB; KUWATA MITSUO; KUWATA MITSUO 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

3) Family number: 92017 (US3563721A)

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Title: GLASS SHEET SUPPORTING PRESS BENDING AND CONVEYING APPARATUS

Abstract: 1,241,118. Bending and conveying glass sheets. LIBBEY-OWENS-FORD CO. 16 May, 1969 [24 May, 1968], No. 25063/69. Heading C1M. Apparatus for bending glass sheet, e.g. to form vehicle windscreens, comprising an upper, stationary mould member 11 and a movable, lower mould member 12, e.g. of the ring type, in which a glass sheet is bent by raising the lower mould member by means of the ram 29 and guide members 28 so that a heat-softened glass sheet resting on conveyor rolls 17 against the stop 36 is raised and bent partially by sagging under its own weight and partially under the influence of the upper mould member, is characterized by having conveyor rolls 17 constructed with an outer sleeve 39 with a cover 46 (asbestos or fibre glass) which fits loosely over the driving shaft 38 in which it is in single line contact only so that, when a glass sheet abuts against the stop 36, slippage occurs between the roll and the driving shaft, thus reducing the distorting forces exerted on the glass sheet.

Classifications:

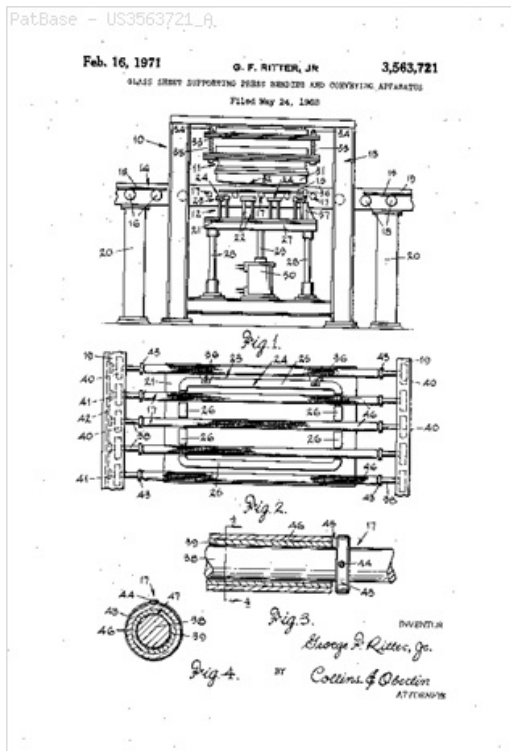
International (IPC 8-9): C03B23/03 C03B35/18 (Advanced/Invention); C03B23/02 C03B35/00 (Core/Invention)

International (IPC 1-7): B65G39/02 C03B23/02 C03B23/03 C03B35/00 C03B35/18 C03C23/00

CPC: C03B23/03 C03B35/181 C03B2225/02

European: C03B23/03 C03B35/18 C03B35/18A M03B225/02

US: 65/273 65/275 65/289

**Family:**

Publication number	Publication date	Application number	Application date
BE733451 A	19691103		19690522
DE1926090 A1	19691204	DE19691926090	19690521
ES367594 A1	19710416	ES19690367594	19690523
FR2009278 A1	19700130	FR19690016984	19690523
GB1241118 A	19710728	GB19690025063	19690516
IE33412 B	19740626	IE19690000678	19690516
IE33412 L	19691124	IE19690000678	19690516
LU58701 A	19690829		19690522
NL6907888 A	19691126	NL19690007888	19690522
US3563721 A	19710216	US19680731998	19680524

Priority:

US19680731998 19680524

Probable Assignee: LOF GLASS INC**Assignee(s):** (std): LIBBEY OWENS FORD CO ; LIBBEY OWENS FORD GLASS CO**Assignee(s):** LOF GLASS INC ; LIBBEY OWENS FORD COMPANY ; LIBBEY OWENS FORD GLASS**Inventor(s):** (std): RITTER GEORGE F JR ; FREDERICK RITTER JUN GEORGE**Inventor(s):** FREDERICK RITTER JUN ; GEORGE F RITTER JR**4) Family number: 92018 (US3554724A)**

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Title: METHOD AND APPARATUS FOR BENDING GLASS SHEETS**Abstract:** ABSTRACT OF THE DISCLOSURE

Method and apparatus for bending glass sheets in which a flat sheet of glass, heated to bending temperature, is supported horizontally above a primary mold member having a shaping surface of the curvature corresponding to the sheet when bent. The mold member is moved upwardly to lift the sheet, whereupon the sheet will settle into contact with the shaping surface of the mold under the influence of forces resulting from the inertia of the sheet and from gravity. A secondary mold member, mounted above the primary mold member, is provided to engage certain spaced portions only on the edges of the sheet which tend to curl upward as inertial forces $2g$ cause the center of the sheet to sag to insure that these portions will be pressed into conformity with the primary mold member.

Classifications:**International (IPC 8-9):** C03B23/02 C03B23/025

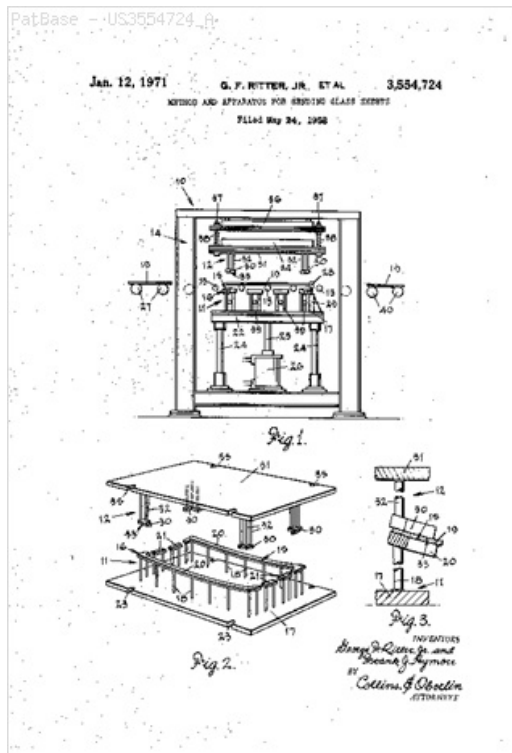
C03B23/03 (Advanced/Invention);

C03B23/02 (Core/Invention)

International (IPC 1-7): C03B23/00 C03B23/02 C03B23/025

C03B23/03

CPC: C03B23/0256 C03B23/03 C03B2225/02**European:** C03B23/025C C03B23/03 M03B225/02**US:** 65/107 65/287

**Family:**

Publication number	Publication date	Application number	Application date
AU196955308 A1	19701203	AU19690055308	19690520
AU206955308 A1	19701203	AU19690055308	19690520
BE733452 A	19691103		19690522
DE1926091 A1	19700115	DE19691926091	19690521
DE1926091 B2	19781130	DE19691926091	19690521
DE1926091 C3	19790802	DE19691926091	19690521
ES367593 A1	19710416	ES19690367593	19690523
FR2009305 A1	19700130	FR19690017087	19690523
GB1255209 A	19711201	GB19690025546	19690520
IE33096 B	19740320	IE19690000687	19690519
IE33096 L	19691124	IE19690000687	19690519
LU58702 A	19690829		19690522
NL6907890 A	19691126	NL19690007890	19690522
US3554724 A	19710112	US19680731973	19680524

Priority:

US19680731973 19680524

Probable Assignee: LOF GLASS INC**Assignee(s):** (std): LIBBEY OWENS FORD CO ; LIBBEY OWENS FORD GLASS CO**Assignee(s):** LOF GLASS INC ; LIBBEY OWENS FORD CO TOLEDO OHIO V ST A ; LIBBEY OWENS FORD COMPANY ; LIBBEY OWENS FORD GLASS**Inventor(s):** (std): JOSEPH HYMORE FRANK ; FREDERICK RITTER JUN GEORGE ; HYMORE FRANK JOSEPH ; RITTNER JUN GEORGE FREDERICK ; HYMORE FRANK J ; RITTER GEORGE F JR**Inventor(s):** HYMORE FRANK JOSEPH OREGON ; RITTNER JUN GEORGE FREDERICK TOLEDO ; GEORGE FREDERICK RITTER JR AND FRANK JOSEPH WYMORE ; RITTNER JUN ; FREDERICK RITTER JUN ; FRANK J HYMORE ; GEORGE F RITTER JR**5) Family number: 1374021 (US4197108A)**

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Title: Slotted glass sheet shaping mold

Abstract: This invention relates to shaping glass sheets and particularly to a mold capable of shaping glass sheets having many different outline shapes but bent to the same radius of curvature. Such molds have dimensions larger than those of a family of windows of a given radius of curvature but different outline shapes. Such molds need not be removed or replaced until such time as production requirements call for bent windows having a different radius of curvature. A specific embodiment of this invention is provided with a series of transversely extending grooves that extend completely across the entire width of the shaping mold and have sufficient width and depth to permit clearance for raising the mold above a horizontal path of glass sheet travel defined by spaced conveyor rolls. The grooves have a maximum width of one inch (25.4 millimeters) and are separated by a minimum distance approximating the width of said grooves. The shaping mold is preferably constructed of an alumino-silica cement with a smooth upper shaping surface that does not mar hot glass sheets.

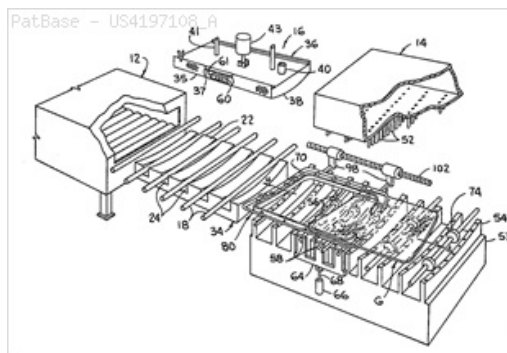
Classifications:

International (IPC 8-9): C03B23/023 C03B23/03 C03B23/035 C03B27/044 C03B35/14 C03B35/16 C03B35/20 (Advanced/Invention); C03B23/02 C03B27/00 C03B35/00 (Core/Invention)

International (IPC 1-7): C03B13/08 C03B23/02 C03B23/023 C03B23/03 C03B23/035 C03B27/00 C03B27/04 C03B35/00 C03B35/02 C03B35/16 F27B7/14

CPC: C03B23/03 C03B27/0417 C03B27/0442 C03B35/145 C03B35/202 C03B23/0302 C03B40/005

European: C03B23/03 C03B23/03B C03B27/044B C03B27/04C



Family:

Publication number	Publication date	Application number	Application date
AU197951621 A1	19800529	AU19790051621	19791009
AU517528 B2	19810806	AU19790051621	19791009
BE879598 A	19800424	BE19790197792	19791024
BR7906707 A	19800624	BR19790006707	19791018
CA1146358 A1	19830517	CA19790335886	19790918
DE2942738 A1	19800430	DE19792942738	19791023
DE2942738 C2	19820603	DE19792942738	19791023
ES485314 A1	19800516	ES19790485314	19791024
FR2439752 A1	19800523	FR19790024821	19791005
FR2439752 B1	19850628	FR19790024821	19791005
GB2035292 A1	19800618	GB19790036907	19791024
GB2035292 B2	19821110	GB19790036907	19791024
IT1119399 A	19860310	IT19790069049	19791019
IT7969049 A0	19791019	IT19790069049	19791019
JP1118877 C3	19821028	JP19790137538	19791024
JP55060032 A2	19800506	JP19790137538	19791024
JP57011850 B4	19820306	JP19790137538	19791024
MX152888 A	19860627	MX19790179760	19791024
US4197108 A	19800408	US19780954696	19781025
US4272274 A	19810609	US19790078627	19790925

Priority:

US19780954696 19781025 CA19790335886 19790918 US19790078627 19790925

Probable Assignee: PPG INDUSTRIES INC

Assignee(s): (std): IND PPG INC ; PPG IND INC ; PPG INDUSTRIES INC

Assignee(s): PPG INDUSTRIES ; PPG INC IND ; PPG IND OHIO INC ; PPG INDUSTRIES INC 15222 PITTSBURGH PA US ; INDUSTRIES PPG INC ; POSNEY RICHARD V ; CANONACO RUDY ; FRANK ROBERT G

Inventor(s): (std): CANONACO R ; CANONACO ROBERT ; CANONACO RUDY ; CANONACO ROBERT GEORGE FRANK R ; FRANK R ; FRANK ROBERT GEORGE ; FRANK R G ; POSNEY R V ; FRANK ROBERT G ; POSNEY RICHARD V ; POSNEY R ; GEORGE FRANK RUDY ; POSNEY RICHARD VALENTINE ; ROBAATO JIYOOJI FURANKU ; RICHIAADO BARENTAIN POSUNII ; RUDEI KANONAKO ; ROBERT GEORGE FRANK ; RICHARD VALENTINE POSNEY ; RUDY CANONACO

Inventor(s): R G FRANK ; R V POSNEY ; R CANONACO ; V POSNEY RICHARD ; G FRANK ROBERT ; CANONACO RUDY CHESWICK PA

Agent(s): COLLISON AND CO; GOWLING LAFLEUR HENDERSON LLP

6) Family number: 67244021 (WO17179382A1)

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Title: LAMINATED GLASS AND PRODUCTION METHOD THEREFOR

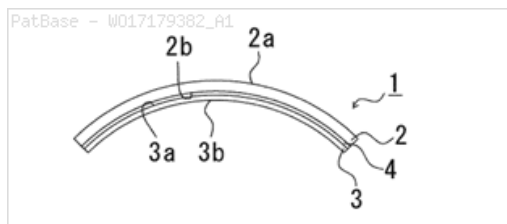
Abstract: This laminated glass 1 comprises: a first glass sheet 2; a second glass sheet 3; and an intermediate film 4 between the first glass sheet 2 and the second glass sheet 3. The laminated glass 1 is characterized in that: the second glass sheet 3 is thinner than the first glass sheet 2; the first glass sheet 2 is bent and formed so as to have a first curvature radius R1; the intermediate film 4 is present on a concave surface 2b side of the first glass sheet 2; and the first glass sheet 2 and the second glass sheet 3 are adhered through the intermediate film 4 in a state that a convex curvature reduction amount t3 from the first curvature radius R1 of the first glass sheet 2 is less than a convex curvature increase amount t6 of the second glass sheet 3.

Classifications:

International (IPC 8-9): B60J1/00 C03B23/03

C03C27/12 (Advanced/Invention)

CPC: B60J1/00 C03B23/03



Family:

Publication number	Publication date	Application number	Application date
JP2017190271 A2	20171019	JP20160082001	20160415
WO17179382 A1	20171019	WO2017JP11490	20170322

Priority:

JP20160082001 20160415

Probable Assignee: NIPPON ELECTRIC GLASS CO
Assignee(s): (std): NIPPON ELECTRIC GLASS CO
Assignee(s): NIPPON ELECTRIC GLASS CO LTD
Inventor(s): (std): NAKANE SHINGO ; NODA TAKAYUKI
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 KE KG KH KM KN KP KR KW 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

7) Family number: 4208023 (US5388432A) © PatBase

Title: Covering for bending forms and improved bending method utilizing same
Abstract: A covering made of heat-resistant fibers for tools in contact with glass heated to beyond their softening point, in particular, for bending/tempering tools which are themselves heated in excess of the softening points of the glass sheets, is composed partially of metal fibers and partially of ceramic fibers.
Classifications:
International (IPC 8-9): C03B23/023 C03B23/03 C03B27/00 C03B40/00 (Advanced/Invention); C03B23/02 C03B27/00 C03B40/00 (Core/Invention)
International (IPC 1-7): C03B23/023 C03B23/02300 C03B23/025 C03B23/03 C03B27/00 C03B27/004 C03B27/004 C03B27/04 C03B40/00 C03B40/00 C04B35/14 C04B35/14000 C04B35/68 C04B35/68000 C04B35/76 C04B35/76000 D03D15/00 D03D15/00 D03D15/02 D03D15/02000 D03D15/12 D03D15/12000 D04B1/14 D04B1/14000 D04B7/16
CPC: C03B23/023 C03B23/03 C03B27/00 C03B40/005
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US: 57/238 57/244 66/202

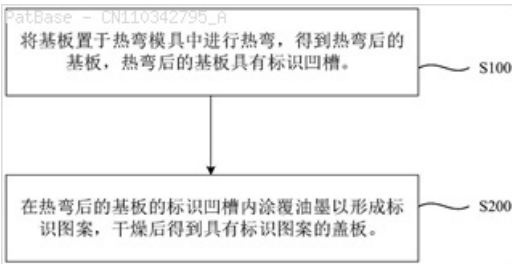
Family:

Publication number	Publication date	Application number	Application date
DE69213790 D1	19961024	DE19926013790T	19920225
DE69213790 D1	19961024	DE19926013790	19920225
DE69213790 T2	19970410	DE19926013790T	19920225
EP0502756 A1	19920909	EP19920400475	19920225
EP0502756 B1	19960918	EP19920400475	19920225
ES2094312 T3	19970116	ES19920400475T	19920225
FR2673424 A1	19920904	FR19910002514	19910301
FR2673424 B1	19931203	FR19910002514	19910301
JP3465019 B2	20031110	JP19920044303	19920302
JP4338123 A2	19921125	JP19920044303	19920302
US5388432 A	19950214	US19920844436	19920302

Priority:
FR19910002514 19910301
Probable Assignee: SAINT GOBAIN SA
Assignee(s): (std): SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN VITRAGE ; SAINT GOBAIN BITORAAJIYU INTER ; SAINT GOBAIN VITRAGE INT ; SAINT GOBAIN SA
Assignee(s): SAINT GOBAIN BITORAAJIYU INTERNATL ; SAINT GOBAIN VITRAGE INTERNAL ; SAINT GOBAIN VITRAGE INTERNATIONAL ; SAINT GOBAIN VITRAGE LES MIROIRS COURBEVOIE FR
Inventor(s): (std): LESAGE JEAN LUC ; JEAN LUC LESAGE ; JIYANNRUKU RESAAJIYU ; GY RENE ; RENE GY ; RENE JII
Inventor(s): GY RENE F 93250 VILLEMOMBLE FR ; LESAGE JEAN LUC F 60200 COMPIEGNE FR
Agent(s): SAINT GOBAIN RECHERCHE
Designated states: BE CH DE ES FR GB IT LI LU

8) Family number: 76221023 (CN110342795A) © PatBase

Title: HOT BENDING DIE, COVER PLATE, PREPARATION METHOD OF COVER PLATE AND MOBILE COMMUNICATION DEVICE
Abstract: The invention relates to a hot bending die, a cover plate, a preparation method of the cover plate and a mobile communication device. The preparation method of the cover plate comprises the steps that a substrate is placed in the hot bending die for hot bending to obtain a hot-bent substrate, and the hot-bent substrate is provided with a marking groove, wherein the hot bending die comprises a concave die and a convex die, the concave die is provided with a cavity, the convex mold is provided with a boss of which the shape is matched with the shape of the cavity, a protruding marking part is formed on the boss, and the marking groove is formed in the marking part; and the interior of the marking groove is coated with ink, and the marking groove is dried to obtain a cover plate with a marking pattern. The special hot bending die is adopted to prepare and obtain the mobile communication device substrate with a marking groove and a marking pattern formed in the marking groove, the marking pattern is not worn and peeled off during use, the outer surface of the substrate is flat and smooth and more attractive, and good user experience is achieved.
Classifications:
International (IPC 8-9): C03B23/03 C03C17/28 C03C17/34 H04M1/02 (Advanced/Invention)
CPC: C03B23/03 C03C17/28 C03C17/34 H04M1/0283



Family:

Publication number	Publication date	Application number	Application date
CN110342795 A	20191018	CN201910703641	20190731

Priority:

CN201910703641 20190731

Probable Assignee: WG TECH JIANGXI CO LTD

Assignee(s): (std): WG TECH JIANGXI CO LTD

Assignee(s): WG TECH JIANGXI CO

Inventor(s): (std): ZHANG XUN ; YI WEIHUA ; XU BINBIN ; ZHENG FANGPING

9) Family number: 77432024 (CN110723896A)

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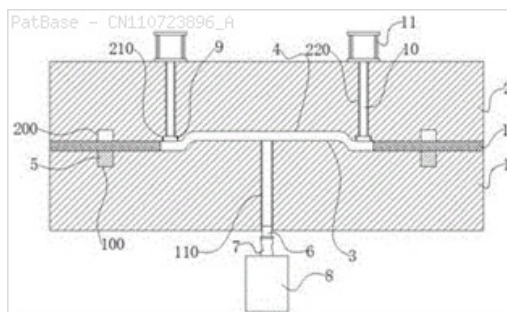
Title: HOT BENDING DEVICE FOR 3D CURVED GLASS

Abstract: The invention discloses a hot bending device for 3D curved glass. The device comprises a lower mold base and an upper mold base; the extrusion assembled and installed upper mold base matched with the lower mold base is arranged on the lower mold base, the middle positions of the top end surface of the lower mold base and the bottom end surface of the upper mold base are respectively provided with a lower convex platform and an upper concave cavity with an integrated structure, the two side edges of the lower convex platform and the upper concave cavity are respectively a lower curved side edge and an upper curved side edge, grooves are symmetrically arranged in two sides, located at the bottom end surface of the upper mold base, of the exterior of the upper curved side edge, a pressure block is installed in each arranged groove, the upper mold base is provided with telescopic rod channels communicating with the grooves, an extended telescopic rod is inserted in each arranged telescopic rod channel, the bottom end of each extended telescopic rod is fixedly connected to one corresponding pressure block, and the top end of each extended telescopic rod is installed in a cavity of an air cylinder. By adopting the technical solution, the curved side edge of the glass is tightly attached to the lower curved side edge and the upper curved side edge, so that the device realizes the precision operation of hot-bent glass forming, and is beneficial to improving the production and processing efficiency.

Classifications:

International (IPC 8-9): C03B23/03 (Advanced/Invention)

CPC: C03B23/03



Family:

Publication number	Publication date	Application number	Application date
CN110723896 A	20200124	CN201910967559	20191012

Priority:

CN201910967559 20191012

Probable Assignee: LUAN LAIYANG ELECTRONIC TECH CO LTD

Assignee(s): (std): LUAN LAIYANG ELECTRONIC TECH CO LTD

Assignee(s): LUAN RHENIUM YANG ELECTRONIC TECHNOLOGY CO LTD ; LU AN LAIYANG ELECTRONIC TECHNOLOGY CO

Inventor(s): (std): BAI YAOCHENG

10) Family number: 7263026 (US4883526A)

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Title: METHOD AND APPARATUS FOR SHAPING AND CONVEYING GLASS SHEETS

Abstract: A process and apparatus for conveying formed, heated glass sheets from a glass forming station, through a glass tempering station, to a Lehr, utilizes a shuttle ring conforming in outline and elevation to the marginal edges of the glass sheet. The shuttle ring receives the glass sheet from the lower shaping mold, by the relative downward vertical movement of the lower shaping mold away from the upper shaping mold. The glass sheet thus deposited on and supported by the shuttle ring is transported through the tempering station to the Lehr.

Classifications:

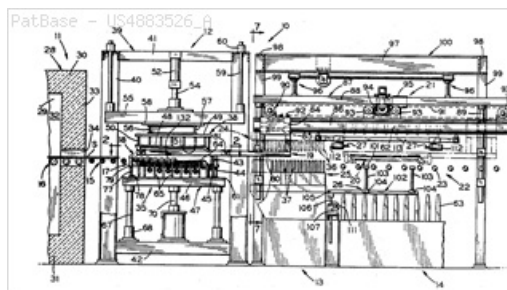
International (IPC 8-9): B65G17/12 B65G47/52 B65G47/88 B65G47/90 B65G59/00 C03B23/023 C03B23/03 C03B27/044 C03B29/08 C03B35/16 C03B35/20 (Advanced/Invention); B65G47/52 B65G47/88 B65G47/90 B65G59/00 (Advanced/Non-invention); B65G47/52 B65G47/88 B65G47/90 B65G59/00 C03B23/02 C03B27/00 C03B29/00 C03B35/00 (Core/Invention)

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AT139755 E	19960715	AT19900905812T	19900321
AU199053571 A1	19901105	AU19900053571	19900321

AU622789 B2	19920416	AU19900053571	19900321
BRPI9006277 A	19910806	BR1990PI06277	19900321
CA2005008 AA	19900930	CA19892005008	19891208
CA2005008 C	19980630	CA19892005008	19891208
CN1022313 C	19931006	CN19901001833	19900330
CN1047665 A	19901212	CN19901001833	19900330
CZ152190 A3	19990113	CS19900001521	19900328
CZ9001521 A3	19990113	CS19900001521	19900328
DD293102 A5	19910822	DD19900339099	19900327
DE69027563 D1	19960801	DE19906027563	19900321
DE69027563 D1	19960801	DE19906027563T	19900321
DE69027563 T2	19970213	DE19906027563T	19900321
EP0417251 A1	19910320	EP19900905812	19900321
EP0417251 A4	19910821	EP19900905812	19900321
EP0417251 B1	19960626	EP19900905812	19900321
ES2020056 AF	19910716	ES19890004374	19891227
FI905880 A0	19901129	FI19900005880	19901129
FI93343 B	19941215	FI19900005880	19901129
FI93343 C	19950327	FI19900005880	19901129
HU213488 B	19970728	HU19900002921	19900321
HU57169 A2	19911128	HU19900002921	19900321
HU9002921 A0	19910328	HU19900002921	19900321
JP3505082 T2	19911107	JP19900505524T	19900321
KR19920700166 A	19920219	KR19900702536	19901129
KR19927000166 A	19920219	KR19900702536	19900321
MX171380 B	19931020	MX19890018539	19891130
PL166361 B1	19950531	PL19900284554	19900330
PL284554 A1	19910211	PL19900284554	19900330
RU2092460 C1	19971010	SU19904831889	19900321
TR25552 A	19930501	TR19900000305	19900328
US4883526 A	19891128	US19890331258	19890330
WO9011973 A1	19901018	WO1990US01529	19900321
YU47221 B	19950131	YU19900000595	19900327
YU59590 A	19920528	YU19900000595	19900327
ZA8909030 A	19900829	ZA19890009030	19891127

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