

1) Family number: 11405080 (US5274406A)

© PatBase

Title: IMAGE PROJECTING DEVICE

Abstract: An image projecting device includes structure for correcting the distortion of an image and/or the defocusing of an image, which will be caused in a situation in which the optical axis of a projection lens is inclined with respect to a screen. The device includes a screen positioned along a predetermined plane, a source for emitting light which forms an optical image on the screen, with the optical axis of the source and the screen plane being inclined with respect to each other so that they are not optically normal with respect to each other, and a reflecting surface for reflecting light from the source towards the screen along a separate optical axis. The reflecting surface is optically positioned between the screen and the source and has a predetermined three-dimensional shape which is adapted to correct for trapezoidal distortion of the optical image projected onto the screen.

Classifications:

International (IPC 8-9): G02B13/18 G02B17/08 G02B27/00 G02B5/10 G03B21/00 G03B21/10 G03B21/28 H04N5/74 (Advanced/Invention); H04N17/00 (Advanced/Non-invention); G02B13/18 G02B17/08 G02B27/00 G02B5/10 G03B21/00 G03B21/10 G03B21/28 H04N5/74 (Core/Invention); H04N17/00 (Core/Non-invention)

International (IPC 1-7): G02B13/18 G02B5/10 G03B21/00 G03B21/10 G03B21/28

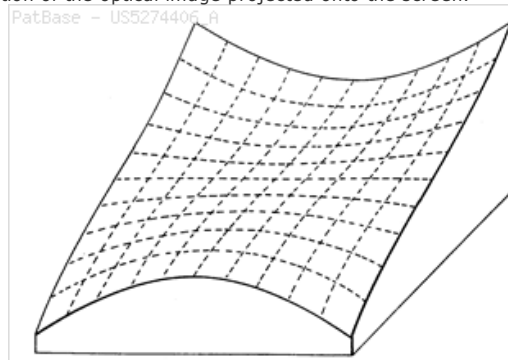
CPC: G02B17/0852 G02B17/08 G03B21/10 G03B21/147 G03B21/28 H04N9/31 H04N9/3185

European: G02B17/08 G02B17/08F G02B27/00K G03B21/00 G03B21/10 H04N9/31 H04N9/31S3

US: 11 348/E05.137 348/E09.025 348/E9.025 353/69 353/70 353/98

JP F-Term: 2H042 2H042/DD04 2H042/DD09 2H042/DE00 2H087 2H087/KA06 2H087/KA07 2H087/LA01 2H087/PA04 2H087/PA19 2H087/PB06 2H087/QA02 2H087/QA07 2H087/QA14 2H087/QA21 2H087/QA26 2H087/QA32 2H087/QA41 2H087/QA46 2H087/TA01 2H087/TA03 2H087/TA06 2K003 2K103 2K103/AA06 2K103/AA17 2K103/AB07 2K103/AB08 2K103/BC05 2K103/CA20 2K103/CA76 2K203

JP F-Index: G02B13/18 G02B5/10/A G03B21/10/Z G03B21/28



Family:

Publication number	Publication date	Application number	Application date
JP1257834 A2	19891013	JP19870335674	19871229
JP2986103 B2	19991206	JP19870335674	19871229
US5274406 A	19931228	US19910793543	19911118

Priority:

JP19870335674 19871229 US19880291955 19881229 US19910656686 19910219
US19910793543 19911118

Probable Assignee: ASAHI OPTICAL CO LTD

Assignee(s): (std): ASAHI OPTICAL CO LTD

Assignee(s): ASAHI KOGAKU KOGYO KABUSHIKI KAISHA ; ASAHI KOGAKU KOGYO KK

Inventor(s): (std): TEJIMA YASUYUKI ; YOSHIDA KAZUSHI ; SHIRAYANAGI MORIYASU ; YOSHIDA KAZUJI

Inventor(s): SHIRAYANAGI MORYASU

2) Family number: 28831221 (US2003156431A)

© PatBase

Title: ILLUMINATION DEVICE

Abstract: Illumination devices comprising a light source and a light fiber are reported. The light fiber is optically coupled to the light source such that at least a portion of the light emitted from the light source impinges on the input end of the light fiber. The light fiber comprises an elongate polymeric core having an input end for receiving light from a light source, an output end for emitting light transmitted through the core, and a lateral surface extending along a longitudinal axis of the core between the input end and the output end. The light fiber includes a light-emitting region including at least one optical element that directs light traveling through the light fiber out of at least a portion the lateral surface of the light fiber in a direction generally transverse to the longitudinal axis. A continuous outer cladding layer comprising a polymeric material having a lower index of refraction than the core extends over the lateral surface of the core and the optical elements.

Classifications:

International (IPC 8-9): F21V8/00 G02B6/00

G02B6/02 (Advanced/Invention);

F21V8/00 G02B6/00 G02B6/02 (Advanced/Non-invention);

F21V8/00 G02B6/00 (Core/Invention)

International (IPC 1-7): F21V8/00 G02B6/00 G02B6/02

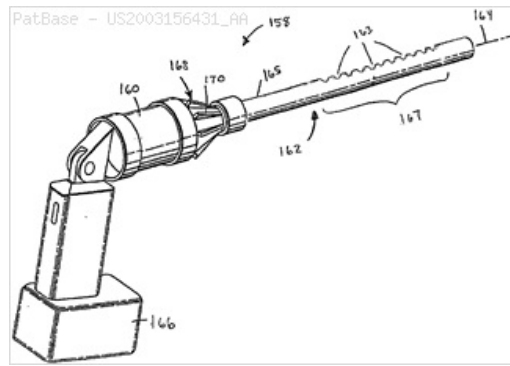
CPC: Y10S385/901 G02B6/001

European: G02B6/00L4L

US: 362/551 362/577 362/582 385/123 385/901

JP F-Term: 2H038 2H038/BA42 3K044

JP F-Index: F21V8/00/L F21V8/00/M F21V8/00/210 F21V8/00/250 G02B6/00/326 G02B6/00/331



Family:

Publication number	Publication date	Application number	Application date
AU2002346712 AA	20030724	AU20020346712	20021211
BRPI0215311 A	20041221	BR2002PI15311	20021211
CA2472191 AA	20040629	CA20022472191	20021211
CN1610848 A	20050427	CN20028026446	20021211
EP1461647 A1	20040929	EP20020784782	20021211
JP2005514648 T2	20050519	JP20030558555T	20021211
KR20040072687 A	20040818	KR20047010317	20021211
US2003156431 AA	20030821	US20010039970	20011231
US6799880 BB	20041005	US20010039970	20011231
WO03058301 A1	20030717	WO2002US39608	20021211

Priority:

US20010039970 20011231 WO2002US39608 20021211

Probable Assignee: 3M CO

Assignee(s): (std): 3M CO ; 3M INNOVATIVE PROPERTIES CO ; GOZUM JOHN E ; REID THOMAS J ; UHL GERALD L

Assignee(s): 3M INNOVATIVE PROPERTIES COMPANY

Inventor(s): (std): UHL GERALD L ; REID THOMAS J ; GOZUM JOHN E

Inventor(s): JOHN E GOZUM ; THOMAS J REID ; GERALD L UHL

Agent(s): SMART AND BIGGAR

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 NL NO NZ OM PH PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW

3) Family number: 48434387 (US2012154591A)

© PatBase

Title: IMAGING AND DISPLAY SYSTEM FOR VEHICLE

Abstract: A vehicular imaging and display system includes a rear backup camera at a rear portion of a vehicle, a video processor for processing image data captured by the rear camera, and a video display screen responsive to the video processor to display video images. During a reversing maneuver of the equipped vehicle, the video display screen displays video images captured by the rear camera. During forward travel of the equipped vehicle, the video display screen is operable to display images representative of a portion of the field of view of the rear camera to display images representative of an area sideward of the equipped vehicle responsive to at least one of (a) actuation of a turn signal indicator of the vehicle, (b) detection of a vehicle in a side lane adjacent to the equipped vehicle and (c) a lane departure warning system of the vehicle.

Classifications:

International (IPC 8-9): B60R1/00 B60R1/04 B60R1/08 B60R1/12 G02B5/08 G02F1/1335 G08G1/0962 G08G1/16 H04N7/18 (Advanced/Invention);

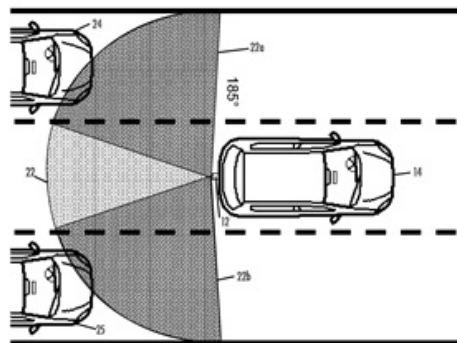
B60R1/12 H04N7/18 (Advanced/Non-invention)

CPC: B60R1/00 B60R1/04 B60R2001/1215 B60R2001/1253 B60R2300/70 B60R2300/802 B60R2300/806 B60R2300/8066 G08G1/09623 G08G1/09626 G08G1/167 H04N7/181 B60R1/08 H04N7/183

European: B60R1/00 L60R1/12G L60R300/70 L60R300/80E L60R300/80R

US: 1/1 340/903 348/148 348/148P 348/E7.085 348/E70.85S 349/11

PatBase - US2012154591_AA



Family:

Publication number	Publication date	Application number	Application date
DE602010023108 D1	20150423	DE201060023108T	20100831
EP2473871 A1	20120711	EP20100814347	20100831
EP2473871 A4	20130227	EP20100814347	20100831

EP2473871 B1	20150311	EP20100814347	20100831
ES2538827 T3	20150624	ES20100814347T	20100831
US2012154591 AA	20120621	US20100393384	20100831
US2015251602 AA	20150910	US20150719446	20150522
US2018050640 AA	20180222	US20170784228	20171016
US2018354423 AA	20181213	US20180105162	20180820
US2019270410 AA	20190905	US20190413694	20190516
US9041806 BB	20150526	US20100393384	20100831
US9789821 BB	20171017	US20150719446	20150522
US10053012 BB	20180821	US20170784228	20171016
US10300856 BB	20190528	US20180105162	20180820
WO11028686 A1	20110310	WO2010US47256	20100831

Priority:

US20090238861P	20090901	US20090238862P	20090901	US20100351513P	20100604
EP20100814347	20100831	US20100393384	20100831	WO2010US47256	20100831
US20120393384	20120229	US20150719446	20150522	US20170784228	20171016
US20180105162	20180820	US20190413694	20190516		

Probable Assignee: MAGNA ELECTRONICS INC

Assignee(s): (std): BAUR MICHAEL J ; BLANK RODNEY K ; LARSON MARK L ; LYNAM NIAL R ; MAGNA ELECTRONICS INC ; MAGNA MIRRORS OF AMERICA INC

Assignee(s): MAGNA MIRRORS OF AMERICA INC HOLLAND

Inventor(s): (std): BLANK RODNEY K ; LARSON MARK L ; LYNAM NIAL R ; BAUR MICHAEL J

Agent(s): COHAUSZ AND FLORACK PATENT U RECHTSANWAELTE PARTNERSCHAFTSGESELLSCHAFT MBB; COYLE PHILIP AIDAN; CARPINTERO MARIO; GARDNER LINN BURKHART AND FLORY LLP; HONIGMAN MILLER SCHWARTZ AND COHN LLP; HONIGMAN LLP; FLORY TIMOTHY A

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

4) Family number: 28615431 (US2004252284A)

© PatBase

Title: IMAGE DISPLAY SYSTEM

Abstract: An image display system includes transmission means 10 provided with a light emitting body 11 for emitting light, a parabolic mirror 12 for reflecting the light emitted out of the light emitting body 11 and for emitting the light as substantially-parallel light, a converging lens 13 for converging the parallel light from the parabolic mirror 12, and a light valve 14 for providing image information to the light converged by the converging lens 13 and for emitting the light, projective optical means 20 provided with a refractive optical lens 21 for projecting the light from the transmission means 10 and a convex mirror 22 for reflecting the light from the refractive optical lens 21 by using a reflecting surface thereof having negative power and for enlarging and projecting the reflected light, and display means 30 for receiving the light from the projective optical means 20 by way of a receiving surface 30A thereof and for displaying an image based on the image information on an image display screen 30B thereof, the transmission means 10 being placed away from an optical axis 23 of the projective optical means 20 and the transmission means 10 being placed between a front surface of the display means 30 and a rear surface of the projective optical means 20.

Classifications:

International (IPC 8-9): G02B27/18 G02B5/32 G03B21/00 G03B21/10 G03B21/14 G03B21/22 G03B21/28 G03B21/56 G03B21/60 G03B21/62 H04N5/74 (Advanced/Invention); G03B21/10 (Advanced/Non-invention); G02B27/18 G02B5/32 G03B21/00 G03B21/14 G03B21/22 G03B21/28 G03B21/56 G03B21/60 G03B21/62 H04N5/74 (Core/Invention)

International (IPC 1-7): G02B27/18 G03B21/00 G03B21/10 G03B21/22 G03B21/28 G03B21/62 H04N5/74

CPC: G03B21/10

European: G03B21/10

US: 353/77 353/78 353/99 359/15 359/457 359/460

JP F-Term: 2H021 2H021/BA22 2H021/BA26 2H021/BA28 2H099 2H199

2K003 2K103 2K103/AA14 2K103/AA17 2K103/AA25 2K103/AB01 2K103/AB05 2K103/AB07 2K103/BC01 2K103/BC05 2K103/BC24 2K103/BC39 2K103/CA14 2K103/CA15 2K203 2K203/FA62 2K203/FA83 2K203/FB02 2K203/FB09 2K203/GB30 2K203/GC05 2K203/GC20 2K203/GC22 2K203/GC23 2K203/GC30 2K203/HA04 2K203/HA56 2K203/HB22 2K203/HB24 2K203/HB28 2K203/MA07 2K203/MA32 5C058 5C058/AB06 5C058/BA08 5C058/EA01 5C058/EA12 5C058/EA13 5C058/EA26 5C058/EA36

JP F-Index: G02B27/18/Z G03B21/00/E G03B21/10/Z G03B21/28 G03B21/62 H04N5/74/F

PatBase - US2004252284_AA

Patent Application Publication Dec. 16, 2004 Sheet 1 of 13 US 2004/0252284 A1

FIG.1

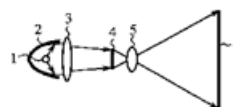
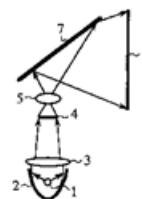


FIG.2



Family:

Publication number	Publication date	Application number	Application date
CA2463245 AA	20040407	CA20022463245	20021107

CN1311289 C	20070418	CN20028003563	20021107
CN1484779 A	20040324	CN20028003563	20021107
EP1452907 A1	20040901	EP20020780046	20021107
JP2003149744 A2	20030521	JP20010345118	20011109
KR20040018327 A	20040303	KR20037009179	20021107
TW200300221 A	20030516	TW20020132932	20021108
TW548507 B	20030821	TW20020132932	20021108
US2004252284 AA	20041216	US20040492853	20040416
US2007058228 AA	20070315	US20060555998	20061102
US7163297 BB	20070116	US20040492853	20040416
US7237908 BB	20070703	US20060555998	20061102
WO03040824 A1	20030515	WO2002JP11626	20021107

Priority:

JP20010345118 20011109 WO2002JP11626 20021107 US20040492853 20040416
US20060555998 20061102

Probable Assignee: MITSUBISHI DENKI KK

Assignee(s): (std): MITSUBISHI ELECTRIC CORP ; SHIKAMA SHINSUKE ; SUZUKI HIROSHI ; TERAMOTO KOHEI ; WADAKA SHUSO

Assignee(s): MITSUBISHI DENKI KK

Inventor(s): (std): SUZUKI HIROSHI ; TERAMOTO KOHEI ; SHIKAMA SHINSUKE ; WADAKA SHUSO ; WADAKA SHUZO ; HIROSHI SUZUKI ; KOHEI TERAMOTO ; SHUSO WADAKA ; SHUSO SUZUKI HIROSHI TERAMOTO

Inventor(s): SUZUKI HIROSHI TERAMOTO KOHEI WADAKA SHUSO

Agent(s): KIRBY EADES GALE BAKER; BIRCH STEWART KOLASCH AND BIRCH; BIRCH STEWART KOLASCH AND BIRCH LLP

Designated states: AT BE BG CA CH CN CY CZ DE DK EE ES FI FR GB GR IE IT KR LI LU MC NL PT SE SK TR US

5) Family number: 33058460 (US2006120099A)

© PatBase

Title: MULTIPLE LIGHT SOURCE ILLUMINATION FOR IMAGE DISPLAY SYSTEMS

Abstract: A method for transmitting light in an image display system includes generating a first cone of light from a first light source. The first cone of light includes a plurality of light beams. A first portion of the first cone is projected in an illumination path. A second portion of the first cone is projected at a surface of a reflector. The second portion of the first cone is reflected to project the second portion of the first cone in the illumination path. The first and second portions of the first cone are received at an entrance of an integrator rod. The second portion of the first cone increases the intensity of light received by the integrator rod.

Classifications:

International (IPC 8-9): F21V7/04 G02B27/09 G02B27/18 G02B6/00

G03B21/28 G05D25/00 (Advanced/Invention);

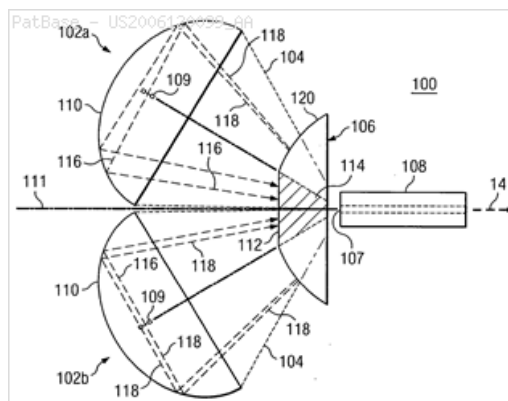
G02B27/09 G02B27/18 (Advanced/Non-invention);

F21V7/00 G02B27/09 G02B27/18 G03B21/28 G05D25/00 (Core/Invention)

CPC: G02B27/0994 G02B6/0006

European: G02B27/09E5 G02B27/09S5

US: 353/94 353/99 362/242 362/298 362/343 362/551 362/552 362/552P



Family:

Publication number	Publication date	Application number	Application date
CN101115953 A	20080130	CN200580047725	20051206
EP1828675 A1	20070905	EP20050848906	20051206
EP1828675 A4	20130327	EP20050848906	20051206
KR100928366 B1	20091123	KR20077015428	20051206
KR20070087642 A	20070828	KR20077015428	20051206
US2006120099 AA	20060608	US20040005863	20041206
US7364326 BB	20080429	US20040005863	20041206
WO06124070 A1	20061123	WO2005US44057	20051206

Priority:

US20040005863 20041206 WO2005US44057 20051206 WO2005US44057 20070705

Probable Assignee: TEXAS INSTRUMENTS INC

Assignee(s): (std): DEWALD DUANE S ; PENN STEVEN M ; TEXAS INSTRUMENTS INC

Inventor(s): (std): DEWALD DUANE S ; PENN STEVEN M

Inventor(s): PENN STEVEN ; DEWALD DUANE

Agent(s): TEXAS INSTRUMENTS INC; BRADY III WADE JAMES; TELECKY JR FREDERICK J; WADE JAMES; FREDERICK J

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

6) Family number: 48235615 (US2012265416A)

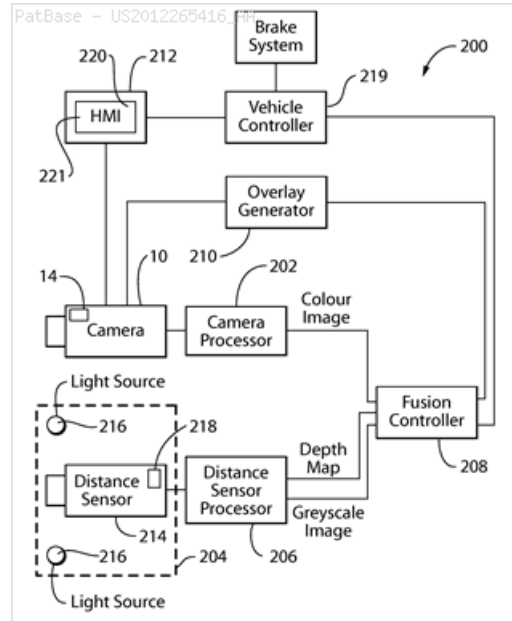
© PatBase

Title: VEHICULAR CAMERA WITH ON-BOARD MICROCONTROLLER

Abstract: In one aspect of the invention, a vehicular camera is provided, comprising a lens, a housing, an imager and a microcontroller that is capable of handling certain functions, such as applying overlays to images received by the imager, dewarping the image and/or providing different viewing modes.

Classifications:

International (IPC 8-9): B60R1/00 B60T7/12 B60W30/09 B62D15/02
G06F17/10 G06F7/00 G06K9/64 G08G1/16 G09G5/00 H04N5/232
H04N5/357 H04N7/00 H04N7/18 (Advanced/Invention);
G09G5/14 (Advanced/Non-invention)
CPC: B60R1/00 B60R2300/305 B62D15/0295 G09G5/14 G09G2340/125
G09G2380/10 H04N5/23293 B60W30/09 B60W2420/42 B60R2300/105
B60R2300/806 G08G1/168 H04N5/232 H04N5/3572
European: B60R1/00 G08G1/16P H04N5/232V L60R300/30M1
S09G340/12V S09G380/10 S09G5/14
US: 1/1 348/148 348/38 348/E5.024 348/E7.085 701/1 701/70



Family:

Publication number	Publication date	Application number	Application date
US2012265416 AA	20121018	US20100384673	20100727
US2017057500 AA	20170302	US20160349011	20161111
US2019054918 AA	20190221	US20180166325	20181022
US9495876 BB	20161115	US20100384673	20100727
US10106155 BB	20181023	US20160349011	20161111
WO11014497 A1	20110203	WO2010US43363	20100727

Priority:

US20090228659P 20090727	US20100384673 20100727	WO2010US43363 20100727
US20120384673 20120627	US20160349011 20161111	US20180166325 20181022

Probable Assignee: MAGNA ELECTRONICS INC

Assignee(s): (std): GEBAUER DUANE W ; GIBSON JOEL S ; LU YUESHENG ; MAGNA ELECTRONICS INC ; SHRINER RICHARD D ; MILLER PATRICK A

Inventor(s): (std): SHRINER RICHARD D ; GEBAUER DUANE W ; MILLER PATRICK A ; LU YUESHENG ; GIBSON JOEL S

Agent(s): GARDNER LINN BURKHART AND FLORY LLP; HONIGMAN MILLER SCHWARTZ AND COHN LLP; BRANDT KERSTIN B ET AL

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

7) Family number: 30108642 (US2001050758A)

© PatBase

Title: IMAGE DISPLAY DEVICE AND ADJUSTMENT FOR ALIGNMENT

Abstract: A refracting optical lens 15 is provided to project light from transmitting means onto a convex mirror 16 to correct for pincushion distortion of the convex mirror 16.

Classifications:

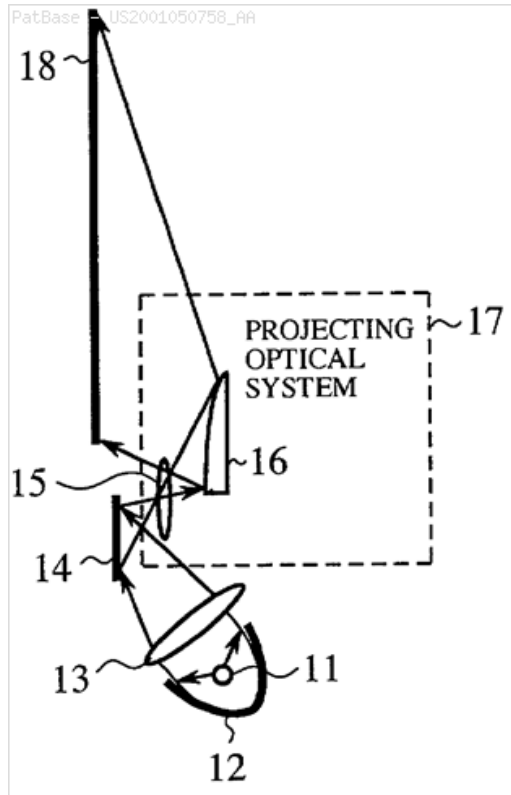
International (IPC 8-9): G02B13/16 G02B13/18 G02B17/00 G02B17/08
G02B27/00 G02B27/14 G02B27/18 G02B3/08 G02B5/09 G02B7/02
G02B7/09 G02B7/18 G02B7/28 G02B7/36 G03B21/00 G03B21/10
G03B21/14 G03B21/22 G03B21/28 H04N5/74 (Advanced/Invention);
G02B27/18 H04N17/00 H04N9/12 (Advanced/Non-invention);
G02B13/16 G02B13/18 G03B21/00 G03B21/10 (Core/Invention)
International (IPC 1-7): G02B13/16 G02B13/18 G02B17/00 G02B17/08
G02B27/18 G02B3/08 G02B7/02 G02B7/09 G02B7/28 G02B7/36

G03B21/00 G03B21/10 G03B21/14 G03B21/22 G03B21/28 H04N5/74
CPC: G03B21/16 G03B21/53 G02B5/09 G02B7/181 G02B7/28 G02B13/16
G02B13/18 G02B17/002 G02B17/08 G02B17/0852 G02B17/086
G02B27/0025 G02B27/18 G03B21/10 G03B21/28 H04N5/74 H04N5/7458
H04N9/12 H04N9/3141 H04N9/3147 H04N9/317 H04N9/3194
European: G02B13/16 G02B13/18 G02B17/00A G02B17/08 G02B17/08F
G02B17/08M1 G02B27/00K G02B27/18 G02B5/09 G02B7/18T G02B7/28
G03B21/10 G03B21/28 H04N5/74 H04N9/31R7 H04N9/31T1 T04N17/00P
T04N5/74M6 T04N9/12 T04N9/31R T04N9/31R3

US: 348/750 348/E05.137 348/E05.142 348/E05.143 348/E05.144
348/E09.012 348/E5.137 348/E5.142 348/E5.143 348/E5.144
348/E51.37S 348/E51.42S 348/E51.43S 348/E51.44S 348/E9.012
348/E90.12S 353/69 353/69P 353/70 353/70P 353/74 353/74S 353/77
353/77P 353/77S 353/78 353/78P 353/98 353/98S 359/631 359/631P
359/726 359/730

JP F-Term: 2H044 2H044/AC01 2H044/AC04 2H044/AH01 2H044/AH05
2H044/AH11 2H044/AH18 2H051 2H051/AA09 2H051/BA44 2H051/BA47
2H051/CD12 2H051/CD21 2H051/CD30 2H087 2H087/KA06 2H087/KA07
2H087/RA05 2H087/RA12 2H087/RA13 2H087/TA01 2H087/TA03
2H087/TA06 2H087/UA01 2H099 2H151 2H151/AA09 2H151/BA44
2H151/BA47 2H151/CD12 2H151/CD21 2H151/CD30 2H199 2K003 2K1010
2K103 2K103/AA05 2K103/AA07 2K103/AA14 2K103/AA17 2K103/AA18
2K103/AA25 2K103/AB07 2K103/AB08 2K103/BC03 2K103/BC05
2K103/BC22 2K103/BC23 2K103/BC26 2K103/BC27 2K103/BC28
2K103/BC35 2K103/BC44 2K103/BC50 2K103/CA03 2K103/CA06
2K103/CA08 2K103/CA18 2K103/CA20 2K103/CA26 2K103/CA29
2K103/CA32 2K103/CA34 2K103/CA47 2K103/CA49 2K103/CA50
2K103/CA54 2K103/CA69 2K103/CA75 2K103/CA76 2K103/DA01
2K103/DA13 2K103/DA24 2K103/DA28 2K203 2K203/FA02 2K203/FA25
2K203/FA43 2K203/FA62 2K203/FA83 2K203/FA93 2K203/FB02
2K203/GC02 2K203/GC03 2K203/GC05 2K203/GC20 2K203/GC22
2K203/HA03 2K203/HA04 2K203/HA67 2K203/HA68 2K203/HA73
2K203/HA99 2K203/HB25 2K203/HB26 2K203/MA07 2K203/MA23
2K203/MA32 5C058 5C058/BA23 5C058/BA27 5C058/BA35 5C058/EA12
5C058/EA13 2H087/PA05 2H087/PA06 2H087/PA07 2H087/PA08
2H087/PA09 2H087/PA18 2H087/PA20 2H087/PB07 2H087/PB08
2H087/PB09 2H087/PB10 2H087/PB11 2H087/PB12 2H087/QA12
2H087/QA17 2H087/QA21 2H087/QA22 2H087/QA25 2H087/QA26
2H087/QA37 2H087/QA39 2H087/QA41 2H087/QA45 2H087/QA46
2H087/RA35 2K103/AA01 2K103/BA01 2K103/BB01 2K103/BB05 2K103/BC30 2K103/BC45 2K103/CA10 2K103/CA12
2K103/CA45 2K103/CA53 2K103/CA55 2K103/DA20 2K203/FA32 2K203/FA42 2K203/FA95 2K203/GC12 2K203/HB22 2K203/KA72

JP F-Index: G02B13/18 G02B17/08/A G02B27/18/Z G02B3/08 G02B7/02/C G02B7/02/F G02B7/11/D G02B7/11/H G02B7/11/P
G02B7/28/H G02B7/28/P G02B7/36 G03B21/00/D G03B21/00/E H04N5/74/A G02B13/16 G03B21/00/F G03B21/10/Z



Family:

Publication number	Publication date	Application number	Application date
CA2377245 AA	20011212	CA20012377245	20010322
CA2377245 C	20050517	CA20012377245	20010322
CA2492875 AA	20011115	CA20012492875	20010322
CN1235078 C	20060104	CN20018001225	20010322
CN1380989 A	20021120	CN20018001225	20010322
EP1203977 A1	20020508	EP20010915715	20010322
EP1203977 A4	20030903	EP20010915715	20010322
IL147035 A0	20020814	IL20010147035	20010322
JP2002207168 A2	20020726	JP20010040739	20010216
JP2004133483 A2	20040430	JP20030413598	20031211
JP3727543 B2	20051214	JP20010040739	20010216
JP4731808 B2	20110727	JP20030413598	20031211
KR100449133 B1	20040918	KR20027000368	20020110
KR20020041803 A	20020603	KR20027000368	20010322
TW496999 B	20020801	TW20010105157	20010306
US2001050758 AA	20011213	US20010852031	20010510
US2004046944 AA	20040311	US20030639425	20030813
US2005083491 AA	20050421	US20040969078	20041021
US2006098294 AA	20060511	US20050235247	20050927
US2007201009 AA	20070830	US20070797175	20070501
US6631994 BB	20031014	US20010852031	20010510
US6824274 BB	20041130	US20030639425	20030813
US6994437 BB	20060207	US20040969078	20041021
US7230774 BB	20070612	US20050235247	20050927
US7572014 BB	20090811	US20070797175	20070501
WO0186340 A1	20011115	WO2001JP02304	20010322

Priority:

JP20000137602	20000510	JP20000241757	20000809	JP20000273723	20000908
JP20000313652	20001013	JP20000345571	20001113	JP20010040739	20010216
CA20012377245	20010322	CA20012492875	20010322	WO2001JP02304	20010322
US20010852031	20010510	US20030639425	20030813	JP20030413598	20031211
US20040969098	20041020	US20040969078	20041021	US20050235247	20050927
US20070797175	20070501				

Probable Assignee: MITSUBISHI DENKI KK

Assignee(s): (std): MITSUBISHI DENKI KK ; MITSUBISHI ELECTRIC CORP ; SHIKAMA SHINSUKE ; SUZUKI HIROSHI ;
TERAMOTO KOHEI ; SUZUKI JIRO

Assignee(s): MITSUBISHI DENKI K K ; MITSUBISHI DENKI K USHIKI KAISHA AB

Inventor(s): (std): SUZUKI HIROSHI ; TERAMOTO KOHEI ; SUZUKI JIRO ; SHIKAMA SHINSUKE ; HIROSHI SUZUKI ; KOHEI TERAMOTO ; JIRO SUZUKI ; JIRO SUZUKI HIROSHI TERAMOTO K SHINSUKE SHIKAMA ; SUZUKI HIROSHI TERAMOTO KOHEI SUZUKI JIRO

Agent(s): KIRBY EADES GALE BAKER; BIRCH STEWART KOLASCH AND BIRCH; BIRCH STEWART KOLASCH AND BIRCH LLP

Designated states: AT BE CA CH CN CY DE DK ES FI FR GB GR IE IL IT KR LU MC NL PT SE TR

8) Family number: 51365798 (US2012162427A)

© PatBase

Title: VISION DISPLAY SYSTEM FOR VEHICLE

Abstract: A vision display system for a vehicle includes a plurality of cameras having exterior fields of view, a first display screen disposed in an interior rearview mirror assembly of the vehicle, and a second display screen disposed at or in a console or instrument panel of the vehicle. The cameras include a rearward viewing camera, a forward viewing camera, a driver side viewing camera and a passenger side viewing camera. The second display screen has a diagonal dimension that is greater than a diagonal dimension of the first display screen. The first display screen is operable to display images captured by the rearward viewing camera during a reversing maneuver of the vehicle and the second display screen displays a surround view image formed as a composite image derived from image data captured by the rearward, forward, driver side and passenger side viewing cameras during a reversing maneuver of the vehicle.

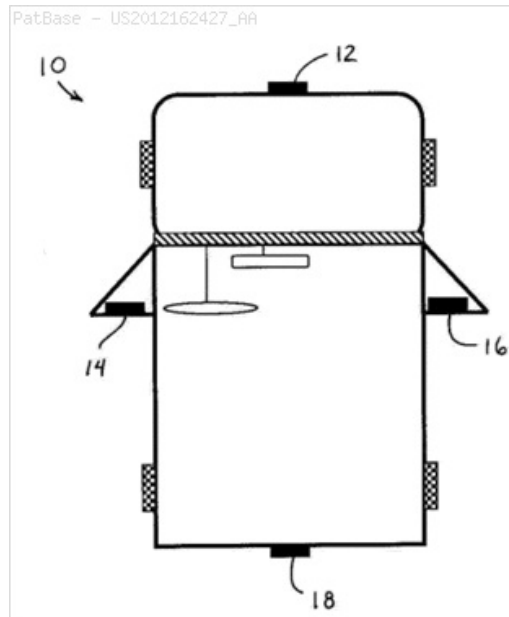
Classifications:

International (IPC 8-9): B60R1/00 B60R11/04 B62D15/02 H04N5/225 H04N5/232 H04N5/247 H04N5/374 H04N7/18 H04N9/47 (Advanced/Invention)

CPC: B60R1/00 B60R2300/70 B62D15/0295 H04N7/18 B60R11/04 B60R2300/20 B60R2300/607 B60R2300/802 G06T2210/22 H04N5/2251 H04N5/23238 H04N5/23293 H04N5/23296 H04N5/247 H04N5/374 H04N7/181 H04N7/188

European: B60R1/00 B62D15/02K2 H04N7/18 L60R300/70

US: 1/1 348/148 348/148P 348/38 348/E7.085 348/E70.85S



Family:

Publication number	Publication date	Application number	Application date
US2012162427 AA	20120628	US20110333337	20111221
US2016159283 AA	20160609	US20160042664	20160212
US2017028920 AA	20170202	US20160295057	20161017
US2017182945 AA	20170629	US20170460666	20170316
US2018009380 AA	20180111	US20170675920	20170814
US2019100142 AA	20190404	US20180203965	20181129
US2019337453 AA	20191107	US20190458392	20190701
US9264672 BB	20160216	US20110333337	20111221
US9469250 BB	20161018	US20160042664	20160212
US9598014 BB	20170321	US20160295057	20161017
US9731653 BB	20170815	US20170460666	20170316
US10144352 BB	20181204	US20170675920	20170814
US10336255 BB	20190702	US20180203965	20181129
US10486597 BA	20191126	US20190458392	20190701
US10589678 BA	20200317	US20190693504	20191125

Priority:

US20100426328P	20101222	US20110452816P	20110315	US20110466138P	20110322
US20110333337	20111221	US20160042664	20160212	US20160295057	20161017
US20170460666	20170316	US20170675920	20170814	US20180203965	20181129
US20190458392	20190701	US20190693504	20191125		

Probable Assignee: MAGNA MIRRORS OF AMERICA INC

Assignee(s): (std): LYNAM NIAL R ; MAGNA ELECTRONICS INC ; MAGNA MIRRORS OF AMERICA INC

Inventor(s): (std): LYNAM NIAL R

Agent(s): GARDNER LINN BURKHART AND FLORY LLP; HONIGMAN MILLER SCHWARTZ AND COHN LLP; HONIGMAN LLP

Title: REAR PROJECTION DISPLAY

Abstract: The ultra-thin rear projection display device described herein includes a wide angle lens system and one or more planar mirrors that are parallel to a screen on which an image is to be displayed. In one embodiment, the screen that has multiple groove angles to provide better illumination than screens with a single groove angle.

Classifications:

International (IPC 8-9): G02B27/01 G02B13/00 G02B13/04 G02B13/06 G02B13/16 G02B13/18 G02B13/24 G02B17/00 G02B17/02 G02B17/08 G02B21/14 G02B21/28 G02B26/08 G02B27/00 G02B27/02 G02B27/18 G02B3/08 G02F1/1335 G03B21/00 G03B21/06 G03B21/10 G03B21/14 G03B21/16 G03B21/18 G03B21/20 G03B21/22 G03B21/26 G03B21/28 G03B21/56 G03B21/60 G03B21/62 H04N5/64 H04N5/74

H04N9/31 (Advanced/Invention);

G02B13/06 H04N17/00 (Advanced/Non-invention);

G02B13/04 G02B13/16 G02B13/18 G02B13/24 G02B17/00 G02B26/08 G02B27/01 G02B27/18 G03B21/00 G03B21/06 G03B21/10 G03B21/14 G03B21/26 G03B21/56 G03B21/60 G03B21/62 H04N5/64

H04N5/74 (Core/Invention)

International (IPC 1-7): G02B1/00 G02B13/18 G02B17/00 G02B21/36 G02B23/00 G02B27/01 G02B27/02 G02B3/02 G02B3/08 G03B21/00 G03B21/06 G03B21/14 G03B21/28 G03B21/56 G03B21/60 G03B21/62

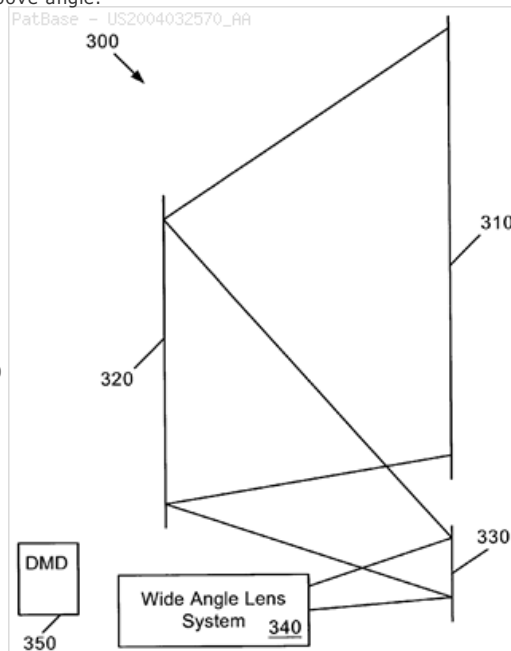
CPC: G02B3/08 G03B21/602 G03B21/625 G03B21/62 H04N5/7408 H04N5/7416 G03B21/56 G03B21/142 H04N9/3141 G03B21/58 G03B37/00 G02B13/06 G02B13/16 G02B17/08 G03B21/06 G03B21/10 G03B21/14 G03B21/60 G02B13/0095 G02B13/04 G02B17/008 G02B17/0852 G02B17/0896 G02B27/0025 G03B21/005 G03B21/145 G03B21/147 G03B21/28 H04N9/317

European: G02B13/04 G02B13/06 G02B13/16 G02B17/08 G02B3/08 G03B21/06 G03B21/10 G03B21/14 G03B21/28 G03B21/56 G03B21/60 G03B21/60B G03B21/62 G03B21/62B H04N5/74M H04N9/31R S02B13/06 T04N17/00P T04N5/74D

US: 1/1 348/747 348/836 348/E05.138 348/E05.139 348/E05.143 348/E5.138 348/E5.139 348/E5.143 348/E5.143 349/57 353/102 353/102P 353/122 353/37 353/52 353/66 353/69 353/69P 353/7 353/70 353/70P 353/70S 353/77 353/78 353/79 353/99 359/363 359/433 359/434 359/434P 359/449 359/454 359/455 359/457 359/457P 359/459 359/460 359/460P 359/504 359/708 359/728 359/742 359/742S 359/749 359/753 359/753S 57/102 57/69 57/77 57/78

JP F-Term: 2H021 2H021/BA22 2H041 2H041/AA13 2H041/AB14 2H041/AB38 2H041/AC06 2H087 2H087/KA06 2H087/KA07 2H087/TA04 2H141 2H141/MB24 2H141/MB29 2H141/MB63 2H141/ME01 2H141/ME03 2H141/ME09 2H141/ME25 2H141/MG04 2H141/MZ16 2K103 2K103/AA04 2K103/AA05 2K103/AA07 2K103/AA14 2K103/AA17 2K103/AA25 2K103/AB07 2K103/BC03 2K103/BC23 2K103/CA01 2K103/CA20 2K103/CA47 2K203 2K203/FA22 2K203/FA24 2K203/FA25 2K203/FA62 2K203/FA83 2K203/GC05 2K203/GC20 2K203/GC22 2K203/HA03 2K203/HB22 2K203/MA32 2H021/BA03 2H087/KA01 2H087/LA03 2H087/LA27 2H087/PA06 2H087/PA08 2H087/PA14 2H087/PA18 2H087/PA19 2H087/PB07 2H087/PB09 2H087/PB16 2H087/QA02 2H087/QA03 2H087/QA06 2H087/QA07 2H087/QA17 2H087/QA21 2H087/QA22 2H087/QA26 2H087/QA32 2H087/QA34 2H087/QA41 2H087/QA45 2H087/QA46 2H087/RA05 2H087/RA12 2H087/RA13 2H087/RA32 2H087/RA41 2H087/RA42 2H141/MA12 2H141/MD20 2H141/ME30 2H141/MF11 2H141/MF21 2H141/MF26 2H141/MF28 2H141/MG09 2K103/AA16 2K103/AB08 2K103/CA15 2K103/CA26 2K103/CA76 2K203/FA02 2K203/FB02 2K203/GB02 2K203/GC02 2K203/GC19 2K203/HB25 2K203/MA07 2H021/BA02 2H021/BA04 2K010 2K103/AB10 2K203/FA82 2K203/FB09 2K203/GC03 2K203/HA68 2K203/HA83 5C058 5C058/BA27 5C058/EA02 5C058/EA12 5C058/EA33 5C058/EA34 5C058/EA42 2H087/TA01 2K103/AA06 2K103/CA12 2K103/CA14 2K203/FB03 2K203/GB47 2K203/GB62 2K203/HA75 2K203/HB19 2K203/HB23 2K103/CA75 2K203/GA03 2K203/GA04 2K203/GA14 2K203/GA20 2K203/HA62 2K203/HA82 2K203/HB08 2K203/MA21 2K103/BC51 2K103/CA46 2K203/FB04 2K203/GB08 2K203/GB30 2K203/GC04 2H087/LA01 2H087/TA03 2K103/AB04 2K103/CA38 2K203/HB13 2K203/MA40 5C058/EA26 2H087/RA47 2K203/FA32 2K203/GC09 2K203/HB07 2K203/HB14 2K203/MA01

JP F-Index: G02B17/00/Z G02B26/08/E G02B26/08/J G03B21/10/Z G03B21/62 G02B13/04/D G02B13/18 G02B13/24 G03B21/00/E G03B21/00/F G03B21/00/Z G03B21/60/Z G02B13/16 G02B3/08 G03B21/00/D H04N5/74/A H04N5/74/C G03B21/14/Z G03B21/602 G02B13/00 G03B21/14/D

**Family:**

Publication number	Publication date	Application number	Application date
AU2003257050 AA	20040303	AU20030257050	20030730
AU2003257050 AH	20040303	AU20030257050	20030730
AU2003261290 AA	20040303	AU20030261290	20030729
AU2003261290 AH	20040303	AU20030261290	20030729
CN1692297 A	20051102	CN20038024093	20030730
CN1692297 B	20101013	CN20038024093	20030730
CN1742228 A	20060301	CN20038024094	20030729
CN1742228 B	20100929	CN20038024094	20030729
CN1926466 A	20070307	CN200580006577	20050105
CN1926466 B	20110525	CN200580006577	20050105
CN1926466 A	20070307	CN200580006576	20050105
CN1926466 B	20120516	CN200580006576	20050105
CN1969230 A	20070523	CN200580019198	20050413
CN1969230 B	20100505	CN200580019198	20050413
DE602005034686 D1	20120809	DE200560034686T	20050413
EP1552334 A2	20050713	EP20030788294	20030730
EP1552334 A4	20091209	EP20030788294	20030730
EP1552334 B1	20181003	EP20030788294	20030730
EP1579270 A2	20050928	EP20030788290	20030729
EP1579270 A4	20090311	EP20030788290	20030729
EP1702238 A2	20060920	EP20050705150	20050105
EP1702238 A4	20070411	EP20050705150	20050105
EP1702238 B1	20160629	EP20050705150	20050105
EP1702239 A2	20060920	EP20050705153	20050105
EP1702239 A4	20091028	EP20050705153	20050105

EP1735660 A1	20061227	EP20050733721	20050413
EP1735660 A4	20090107	EP20050733721	20050413
EP1735660 B1	20120613	EP20050733721	20050413
EP3091385 A1	20161109	EP20160176151	20050105
EP3091386 A1	20161109	EP20160176152	20050105
EP3091386 B1	20190911	EP20160176152	20050105
JP2006504120 T2	20060202	JP20040529208T	20030729
JP2006523318 T2	20061012	JP20040529212T	20030730
JP2007525700 T2	20070906	JP20060549400T	20050105
JP2007532981 T2	20071115	JP20070508560T	20050413
JP2013061685 A2	20130404	JP20120279272	20121221
JP2014095912 A2	20140522	JP20130265059	20131224
JP2015129955 A2	20150716	JP20150026216	20150213
JP2017083867 A2	20170518	JP20160250502	20161226
JP5266642 B2	20130821	JP20060549400T	20050105
JP5978121 B2	20160824	JP20120279272	20121221
JP6354830 B2	20180711	JP20160250502	20161226
TW200403450 A	20040301	TW20030121095	20030801
TW200405955 A	20040416	TW20030121093	20030801
TWI278654 B	20070411	TW20030121095	20030801
TWI290259 B	20071121	TW20030121093	20030801
US2004032570 AA	20040219	US20020222083	20020816
US2004032653 AA	20040219	US20020222050	20020816
US2004047037 AA	20040311	US20030640156	20030812
US2004212881 AA	20041028	US20040753965	20040106
US2004218268 AA	20041104	US20030693615	20031023
US2004223123 AA	20041111	US20040825732	20040415
US2004227990 AA	20041118	US20040753755	20040106
US2004233394 AA	20041125	US20040825837	20040415
US2004257539 AA	20041223	US20040754093	20040106
US2004257652 AA	20041223	US20040753985	20040106
US2005001990 AA	20050106	US20040903966	20040730
US2005275811 AA	20051215	US20050137702	20050524
US2006245055 AA	20061102	US20060457117	20060712
US2006290897 AA	20061228	US20060463572	20060809
US2007014005 AA	20070118	US20060462976	20060807
US2007146652 AA	20070628	US20060639872	20061215
US2008130106 AA	20080605	US20050280072	20051115
US2009244701 AA	20091001	US20090480533	20090608
US2015042965 AA	20150212	US20140526086	20141028
US2016070158 AA	20160310	US20150942568	20151116
US2016341943 AA	20161124	US20160226377	20160802
US2016342075 AA	20161124	US20160226283	20160802
US2019113726 AA	20190418	US20180230336	20181221
US6804055 BB	20041012	US20030640156	20030812
US6896375 BB	20050524	US20020222083	20020816
US7009765 BB	20060307	US20020222050	20020816
US7088507 BB	20060808	US20030693615	20031023
US7088509 BB	20060808	US20040753965	20040106
US7090354 BB	20060815	US20040825732	20040415
US7102820 BB	20060905	US20040753985	20040106
US7140735 BB	20061128	US20040903966	20040730
US7150537 BB	20061219	US20040754093	20040106
US7175287 BB	20070213	US20040825837	20040415
US7253954 BB	20070807	US20060457117	20060712
US7341353 BB	20080311	US20040753755	20040106
US7413312 BB	20080819	US20060463572	20060809
US7545586 BB	20090609	US20050280072	20051115
US7567380 BB	20090728	US20050137702	20050524
US7777949 BB	20100817	US20060462976	20060807
US8081377 BB	20111220	US20090480533	20090608
US9217912 BB	20151222	US20060639872	20061215
US9429826 BB	20160830	US20150942568	20151116
US9733459 BB	20170815	US20140526086	20141028
WO04017101 A2	20040226	WO2003US23883	20030730
WO04017101 A3	20040812	WO2003US23883	20030730
WO04017136 A2	20040226	WO2003US23692	20030729
WO04017136 A3	20050728	WO2003US23692	20030729
WO05040912 A1	20050506	WO2004US34891	20041022
WO05067621 A2	20050728	WO2005US00372	20050105
WO05067621 A3	20060302	WO2005US00372	20050105
WO05067621 C2	20060518	WO2005US00372	20050105
WO05067622 A2	20050728	WO2005US00373	20050105
WO05067622 A3	20060309	WO2005US00373	20050105
WO05067623 A2	20050728	WO2005US00375	20050105
WO05067623 A3	20060309	WO2005US00375	20050105

Priority:

US20020222050	20020816	US20020222083	20020816	WO2003US23692	20030729
WO2003US23883	20030730	US20030640156	20030812	US20030693615	20031023
US20040753965	20040106	US20040753985	20040106	US20040753755	20040106
US20040754093	20040106	US20040825732	20040415	US20040825837	20040415
US20040903966	20040730	EP20050705150	20050105	JP20060549400	20050105
JP20120279272	20050105	JP20060549400T	20050105	JP20150026216	20050105
WO2005US00375	20050105	WO2005US00372	20050105	EP20050733721	20050413
WO2005US12828	20050413	US20050137702	20050524	US20050280072	20051115
US20060457117	20060712	US20060462976	20060807	US20060463572	20060809
US20060639872	20061215	US20090480533	20090608	US20140526086	20141028
JP20150026216	20150213	US20150942568	20151116	US20160226377	20160802
US20160226283	20160802	JP20160250502	20161226	US20180230336	20181221

Probable Assignee: INFOCUS CORP

Assignee(s): (std): GOHMAN JEFFREY A ; PETERSON MARK DAVID ; GOHMAN JEFFREY ALAN ; INFOCUS CORP ; PETERSON MARK D ; IN FOCUS CORP ; ENGLE T SCOTT ; SEIKO EPSON CORP

Assignee(s): GLAESS DAVID ; GOHMAN JEFF ; PETERSON MARK ; INFOCUS CORP WILLSONVILLE ; RPX CORP ; INFOCUS 27700 B SW PARKWAY AVENUEWILSO CORPNV ; INFOCUS 27700B SW PARKWAY AVENUEWILSO CORPNV

Inventor(s): (std): ENGLE T SCOTT ; GOHMAN JEFFREY A ; ALAIN GOHMAN JEFFREY ; ALAN GOHMAN JEFFREY ; DAVID PETERSON MARK ; GOHMAN JEFF ; PETERSON MARK ; PETERSON MARK DAVID ; SCOTT T ENGLE ; MARK D PETERSON ; PETERSON MARK D GOHMAN JEFFREY ; PETERSON MARK D ENGLE SCOTT T ; PETERSON MARK DAVID GOHMAN JEFFREY ALAN ; MARK DAVID PETERSON ; JEFFREY ALAIN GOHMAN ; JEFFREY ALAN GOHMAN ; ALAN PETERSON MARK DAVID GOHMA ; ENGLE SCOTT T ; GLAESS DAVID ; PETERSON MARK D ; GOHMAN JEFFREY ALAN ; ENGLE T S ; GOHMAN JEFFREY ALAIN

Inventor(s): GOHMAN JEFFREY ; GOHMAN JEFFREY A HILLSBORO ; ENGLE T

Agent(s): LORENZ SEIDLER GOSSEL RECHTSANWAELTE PATENTANWAELTE PARTNERSCHAFT MBB ; HGF LTD ; HOFFMANN EITL ; THOMA MICHAEL ; KOLISCH HARTWILL PC ; ALLEMAN HALL MCCOY RUSSELL AND TUTTLE LLP ; TOWNSEND AND TOWNSEND AND CREW LLP ; OLIFF PLC

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM 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 SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

10) Family number: 63717899 (US2017363940A)

© PatBase

Title: PROJECTION LENS, PROJECTOR, AND METHOD OF PREVENTING IMAGE DETERIORATION THEREOF

Abstract: A projection lens includes: first to fifth lenses; a light shielding ring; an aperture stop; and a lens barrel. The light shielding ring is rotated in a circumferential direction of the lens barrel by a rotation mechanism. In a case where an image forming panel is shifted with respect to an optical axis of the projection lens, a part, through which the light passes, is biased in the projection lens, whereby temperature distribution occurs in the lens barrel in the direction perpendicular to the optical axis. The thermal deformation of the high temperature side of the lens barrel due to the temperature distribution is greater than that on the low temperature side. The respective lenses may be tilted due to thermal deformation. By rotating the light shielding ring through the rotation mechanism, the temperature increases uniformly in the circumferential direction of the light shielding ring.

Classifications:

International (IPC 8-9): G02B13/16 G02B27/00 G02B7/02 G03B21/00 G03B21/14 G03B21/16 G03B21/20 G03B5/08 H04N5/74 H04N9/31 (Advanced/Invention)

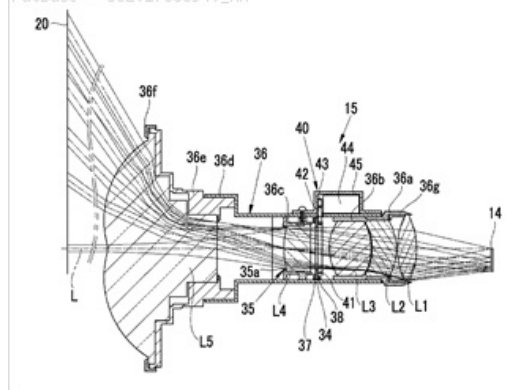
CPC: H04N9/3141 G02B13/16 G02B27/0068 G03B21/16 G02B7/02 H04N5/74 G02B7/028 G03B21/005 G03B21/142 G03B21/2033 H04N9/3144

US: 1/1 359/642

JP F-Term: 2H044 2H044/AD01 2H044/AG01 2H044/AJ04 2K005 2K203 2K203/FA02 2K203/FA23 2K203/FA32 2K203/FA44 2K203/GB20 2K203/GC02 2K203/GC04 2K203/GC20 2K203/HA53 2K203/HB09 2K203/HB22 2K203/HB24 2K203/HB25 2K203/HB26 2K203/LA04 2K203/LA46

JP F-Index: G02B7/02/D G02B7/02/H G02B7/02/Z G03B21/14/Z G03B21/16 G03B5/08

PatBase - US2017363940_AA



Family:

Publication number	Publication date	Application number	Application date
CN207198536 U	20180406	CN201690000607U	20160315
JP2016158374 A1	20180111	JP20170509520T	20160315
JP6448769 B1	20190109	JP20170509520T	20160315
US2017363940 AA	20171221	US20170696686	20170906
US10281806 BB	20190507	US20170696686	20170906
WO16158374 A1	20161006	WO2016JP58098	20160315

Priority:

JP20150070816 20150331 WO2016JP58098 20160315 US20170696686 20170906

Probable Assignee: FUJIFILM HOLDINGS CORP

Assignee(s): (std): FUJI PHOTO FILM CO LTD ; FUJIFILM CORP ; FUJIFILM HOLDINGS CORP

Inventor(s): (std): CHINO HIRONOBU ; KAYANO HIRONOBU

Agent(s): KYORITSU INST; BIRCH STEWART KOLASCH AND BIRCH LLP; NAKASHIMA JUNKO ET AL

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

11) Family number: 34403959 (US2007097337A)

PatBase

Title: IMAGE DISPLAY APPARATUS

Abstract: An image display apparatus 100 that displays an image using a light modulated according to an image signal includes a projection optical system 90 that includes a projection lens 20, a first mirror 30 that reflects a light from the projection lens 20, and a second mirror 40 that widens an angle of a light from the first mirror 30 by reflecting the light, and projects the light modulated according to the image signal from an optical engine unit 10; a third mirror 50 that reflects a light from the projection optical system 90; and a screen 50 that transmits a light from the third mirror 50. The projection lens 20 and the second mirror 40 are arranged in such a manner that an optical axis of the projection lens 20 substantially matches an optical axis of the second mirror 40, and shift the light from the optical engine unit 10 to a specific side from the optical axis of the projection lens 20. It is possible to cause a light to travel accurately, to display an image, in a thin structure with a small non-display section adjacent to a screen.

Classifications:

International (IPC 8-9): G03B21/00 G02B13/18 G02B17/08 G02F1/13 G02F1/1335 G03B21/10 G03B21/14 G03B21/28 G03B21/62 H04N5/74 (Advanced/Invention); G02F1/13 G03B21/10 (Advanced/Non-invention); G02B13/18 G02B17/08 G02F1/13 G03B21/00 G03B21/10 G03B21/14 G03B21/28 G03B21/62 H04N5/74 (Core/Invention)

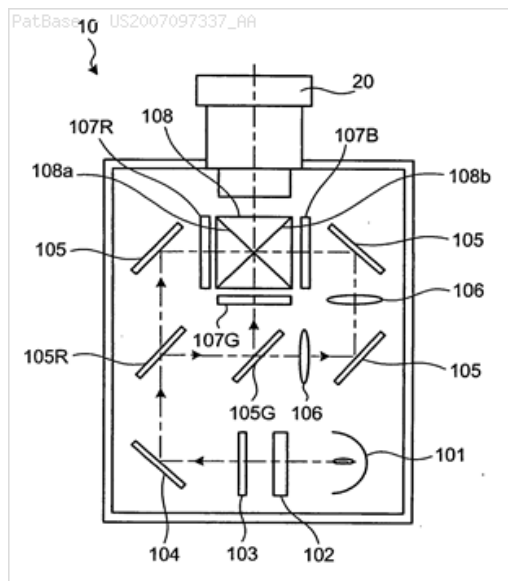
CPC: G03B21/28 G02B17/08 G02B17/0852 G03B21/62 G03B21/10 G02B17/08 G02B17/08F G03B21/10 G03B21/28 G03B21/62

European: G02B17/08 G02B17/08F G03B21/10 G03B21/28 G03B21/62

US: 348/ E9.025 348/ E9.027 348/202 348/41 348/744 348/781 348/782 348/93 348/94 348/E9.025 348/E9.027 348/E90.25 348/E90.27 353/100 353/101 353/119 353/12 353/33 353/37 353/47 353/48 353/50 353/64 353/66 353/70 353/71 353/73 353/74 353/75 353/77 353/81 353/82 353/98 353/99 353/99P 359/358 359/460 359/629 359/630 359/631 359/632 359/633 359/634 359/635 359/636 359/637 359/638 359/639 359/640 359/834 359/857 359/861

JP F-Term: 2K103 2K103/AA01 2K103/AA11 2K103/AA17 2K103/AA25 2K103/AB07 2K103/BC03 2K103/BC05 2K103/BC23 2K103/CA06 2K103/CA20 2K103/CA26 2K103/CA47 2K103/CA76 2K203 2K203/FA03 2K203/FA23 2K203/FA34 2K203/FA43 2K203/FA62 2K203/FA83 2K203/FB02 2K203/GB12 2K203/GC02 2K203/GC05 2K203/GC09 2K203/GC19 2K203/GC20 2K203/GC22 2K203/GC23 2K203/GC25 2K203/HA03 2K203/HA04 2K203/HA56 2K203/HB22 2K203/HB23 2K203/HB25 2K203/HB28 2K203/HB30 2K203/KA73 2K203/MA01 2K203/MA05 2K203/MA07 2K203/MA21 2K203/MA32 2K203/MA35 5C058 5C058/EA01 5C058/EA12 5C058/EA13 5C058/EA32 2K103/AA05 2K103/CA45 2K203/FB07 2K203/KA07 2H087 2H087/KA06 2H087/KA07 2H087/LA01 2H087/RA05 2H087/TA01 2H087/TA04 2H087/TA06 2H091 2H191 2H191/FA11 2H191/FA31 2H191/FA56 2H191/FA58 2H191/FA81 2H191/FA96 2H191/FD01 2H191/FD32 2H191/LA11 2H191/MA13 2H291 2H291/FA11 2H291/FA31 2H291/FA56 2H291/FA58 2H291/FA81 2H291/FA96 2H291/FD01 2H291/FD32 2H291/LA11 2H291/MA13 2K103/AA07 2K103/AA14 2K103/AB08 2K103/BA03 2K103/BC01 2K103/BC19 2K103/BC24 2K103/BC50 2K103/CA01 2K103/CA08 2K103/CA10 2K103/CA28 2K103/CA29 2K103/CA40 2K203/FB09 2K203/GC10 2K203/HB13 2K203/KA72

JP F-Index: G03B21/10/Z H04N5/74/A G03B21/28 G02B13/18 G02B17/08/Z G02F1/1335 G03B21/14/Z



Family:

Publication number	Publication date	Application number	Application date
CN101160548 A	20080409	CN200680012896	20061020
EP1862850 A1	20071205	EP20060812100	20061020
EP1862850 A4	20101103	EP20060812100	20061020
JP2007046506 A1	20090423	JP20070541066T	20061020
JP2007249171 A2	20070927	JP20060290810	20061026
JP2010015180 A2	20100121	JP20090240105	20091019
JP4438867 B1	20100324	JP20070541066T	20061020
JP4438867 B2	20100324	JP20070541066T	20061020
JP4725668 B2	20110713	JP20090240105	20091019
KR100899493 B1	20090527	KR20077023931	20061020
KR20070118126 A	20071213	KR20077023931	20071018
TW200722900 A	20070616	TW20060138703	20061020
US2007097337 AA	20070503	US20060583072	20061019
US2010315606 AA	20101216	US20100805757	20100818
US7841728 BB	20101130	US20060583072	20061019
US7984994 BB	20110726	US20100805757	20100818
WO07046506 A1	20070426	WO2006JP320971	20061020

Priority:

JP20050305312	20051020	JP20060039303	20060216	JP20060195186	20060718
US20060583072	20061019	JP20070541066	20061020	JP20070541066T	20061020
WO2006JP320971	20061020	JP20060290810	20061026	WO2006JP320971	20071018
JP20090240105	20091019	US20100805757	20100818		

Probable Assignee: SEIKO EPSON CORP

Assignee(s): (std): SEIKO EPSON CORP

Inventor(s): (std): YONEKUBO MASATOSHI ; MORIKUNI EIJI ; SAKAI TOSHIHIKO ; KAMIJIMA SHUNJI ; UEJIMA SHUNJI ;
MORIKUNI HIDETOKI ; EIJI MORIKUNI ; MASATOSHI YONEKUBO ; TOSHIHIKO SAKAI ; SHUNJI KAMIJIMA

Agent(s): OLIFF AND BERRIDGE PLC

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 GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM
KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MY MZ NA NE NG NI NL NO
NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US
UZ VC VN ZA ZM ZW