

Search history

Search SFT=((frame AND rib* AND (module OR parts) AND (coupl* OR engage# OR attach*) AND wing AND (channel OR path)) and PD<20151218
1: and IC=(B61D17* OR B61F1*) (Results 14)

Search SFT=((frame W5 (link* OR conect*)) NEAR bogie) and PD<20151218 and IC=(B61D17* OR B61F1*) (Results 15)
2:

Search PN=(EP2722246) (Results 1)
3:

Search fn=(65747312:60 or 52589962:60 or 51110112:60 or 54553707:50 or 52122131:50 or 40936912:50 or 22762838:50 or 65371627:40 or
4: 61909056:40 or 60159557:40 or 59291113:40 or 58451974:40 or 57259708:40 or 56529682:40 or 56088186:40 or 53422018:40 or
51110110:40 or 45940437:40 or 43272313:40 or 10649852:40 or 67146069:30 or 66862782:30 or 66770866:30 or 66518937:30 or
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17114985:30 or 16944537:30 or 14367835:30 or 13293814:30) (Results 100)

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39027832 or 6449311 or 39027832 or 21108145 or 21108145 or 21192799 or 20879077 or 22777332) (Results 25)

Search FT=((railway OR railroad) near (car OR vehicle OR structure)) and PD<20151218 and IC=(B61D17* OR B61F1*) (Results 6289)
6:

Search 6 AND (FT = sleep* W5 beam) (Results 42)
7:

Search 6 AND (FT = (sleep* OR center) W5 (beam OR frame)) (Results 335)
8:

Search 8 AND (FT = rib AND (wing OR tail)) (Results 0)
9:

Search 8 AND (FT = rib*) (Results 62)
10:

Search 10 AND (FT = channel OR path OR cavity) (Results 27)
11:

Search 8 AND (FT =hollow) (Results 82)
12:

Search 12 AND (FT = rib*) (Results 26)
13:

Title: **Railway** freight **car**

Abstract: Source: US4864938A A **railway car** comprises a center sill with a crossbearer, webs and end bolsters extending across thereof. A light side stiffener interconnects the projecting ends of said webs and spans between the bolster and the crossbearer. A shear plate covers a trapezoidal end frame extending from the bolster. The frame includes inclined braces buttressing a pair of cantilevered brackets projecting toward and horizontally overlapping similar brackets of the adjacent car.

Classifications:

International (IPC 8-9): B61D17/04 B61D3/06 B61D3/10 B61D3/12 B61D3/20 B61D45/00 B61F1/02 B61F1/08 B61F5/04 B61G5/00 (Advanced/Invention);

B61D17/04 B61D3/00 B61D45/00 B61F1/00 B61F5/02

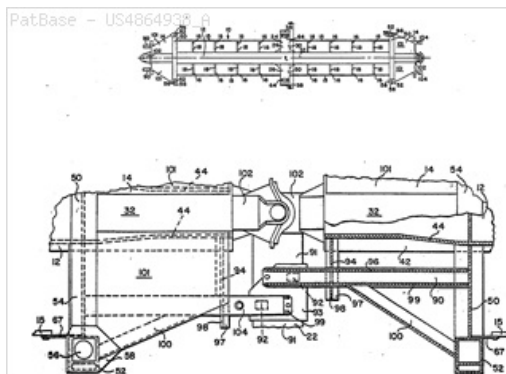
B61G5/00 (Core/Invention)

International (IPC 1-7): B61D17/04 B61D3/06 B61D3/10 B61D3/20 B61D45/00 B61F1/02 B61F1/08 B61F5/04

CPC: Y02T30/34 B61D3/10 B61F1/02 B61D3/12 B61G5/00

European: B61D3/10 B61D3/12 B61F1/02 B61G5/00 Y02T30/34

US: 105/4.1 105/411 105/416 105/421 410/52



Family:

Publication number	Publication date	Application number	Application date
AU198818356 A1	19890504	AU19880018356	19880624
AU626795 B2	19920813	AU19880018356	19880624
CA1293155 A1	19911217	CA19880565089	19880426
US4864938 A	19890912	US19870139221	19871229
US4917019 A	19900417	US19890353167	19890512

Priority:

CA19880565089 19880426 US19870114175 19871028 US19870145175 19871028
US19890353167 19890512 US19870139221 19871229

Probable Assignee: TRN BUSINESS TRUST A DELAWARE BUSINESS TRUST

Assignee(s): (std): TRINITY IND INC

Assignee(s): TRINITY IND INC A CORP OF DE ; TRINITY INDUSTRIES INC ; TRN BUSINESS TRUST A DELAWARE BUSINESS TRUST ; HESCH HAROLD E ; PRZYBYLINSKI PHILLIP G ; SELLBERG ROBERT P ; TRINITY IND

Inventor(s): (std): HESCH HAROLD E ; PRZYBYLINSKI PHILLIP G ; SELLBERG ROBERT P

Inventor(s): HAROLD E HESCH ; ROBERT P SELLBERG ; PHILLIP G PRZYBYLINSKI

Agent(s): MCFADDEN FINCHAM; OSLER HOSKIN AND HARCOURT LLP

Title: Car body of railway rolling stock and method for fabricating car body

Abstract: Source: US5287814A A car body of railway rolling stock suitable for use for passenger cars or electric passenger cars and easy to fabricate at a low material cost. An underframe constituting the car body comprises a center underframe produced at light-alloy extruded shapes and an end underframe produced of a ferrous material, and a roof framing, a side framing and an end framing which constitute the car body are composed of outer plate members produced of a ferrous material and frame members produced of a ferrous material.

Classifications:

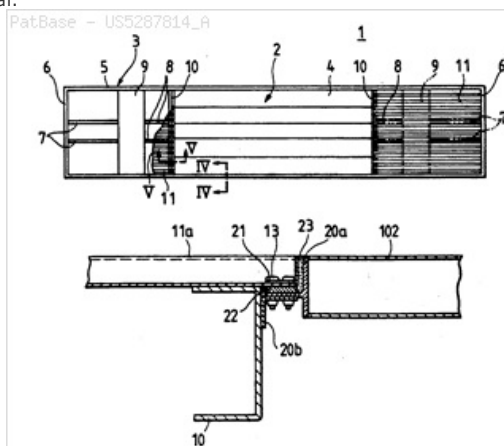
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International (IPC 1-7): B61D17/00 B61D17/04

CPC: B61D17/04 B61D17/041 B61D17/043 B61D17/10 Y02T30/34

European: B61D17/04 B61D17/04A B61D17/04B B61D17/10 Y02T30/34

US: 105/418 105/419 105/422



Family:

Publication number	Publication date	Application number	Application date
DE69021113 D1	19950831	DE19906021113	19900411
DE69021113 T2	19960404	DE19906021113T	19900411
EP0392828 A2	19901017	EP19900303922	19900411
EP0392828 A3	19911030	EP19900303922	19900411
EP0392828 B1	19950726	EP19900303922	19900411
ES2076308 T3	19951101	ES19900303922T	19900411
JP3050063 A2	19910304	JP19900096444	19900413
US5287814 A	19940222	US19920921586	19920730

Priority:

JP19890092876 19890414 JP19900096444 19900413 US19920921586 19920730
US19900508695 19900413 US19910745169 19910815

Probable Assignee: HITACHI LTD

Assignee(s): (std): HITACHI LTD

Inventor(s): (std): MASAI KENTARO ; OHMURA KEIJI ; OKAMOTO SEIICHI ; OKUNO SUMIO ; OMURA KEIJI

Inventor(s): OKUNO SUMIO KUDAMATSU SHI YAMAGUCHI KEN JP ; OKAMOTO SEIICHI KUDAMATSU SHI YAMAGUCHI KEN JP ; OHMURA KEIJI KUDAMATSU SHI YAMAGUCHI KEN JP ; MASAI KENTARO KUDAMATSU SHI YAMAGUCHI KEN JP

Designated states: DE ES FR GB IT

Title: Method of manufacturing a vehicle structure

Abstract: Source: US5669999A A method for producing **vehicle structures** such as **railway** coach bodies includes winding layers and integral annular frame elements of like material. The resulting body is free of metal can include additional longitudinal stiffening elements inserted between the annular frame elements. Windows covered by protective foils are installed in an insulating layer between the wound layers during the winding process. At the conclusion of the winding process, the portions of the inner and outer wound layers covering the windows are removed and the window openings are finished by inserting a reinforcing frame on the outer wound layer and an angle frame on the inner wound layer.

Classifications:

International (IPC 8-9): B29C53/58 B61D17/00 B61D17/04

B62D29/04 (Advanced/Invention);

B29C53/00 B61D17/00 B62D29/00 (Core/Invention)

International (IPC 1-7): B29C53/58 B60R B61D B61D1/00

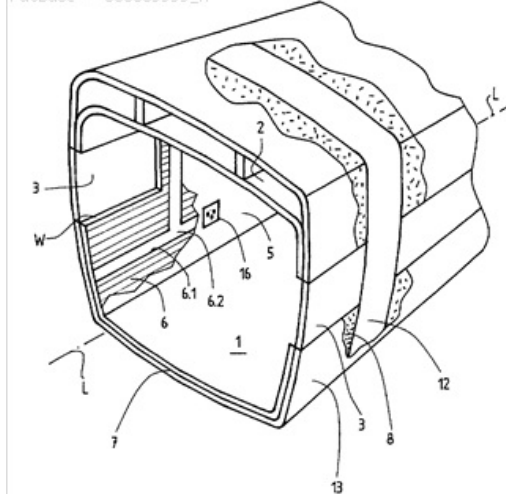
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CPC: B29C53/583 B61D17/005 B62D29/04

European: B29C53/58C B61D17/00B B62D29/04

US: 105/396 105/397 156/169 156/173 296/901

PatBase - US5669999_R



Family:

Publication number	Publication date	Application number	Application date
AT188422 E	20000115	AT19950107900T	19950524
AU199520591 A1	19951221	AU19950020591	19950609
AU685612 B2	19980122	AU19950020591	19950609
CA2150893 AA	19951215	CA19952150893	19950602
DE59507553 D1	20000210	DE19955007553	19950524
EP0687611 A1	19951220	EP19950107900	19950524
EP0687611 B1	20000105	EP19950107900	19950524
FI952870 A	19951215	FI19950002870	19950612
FI952870 A0	19950612	FI19950002870	19950612
JP7329778 A2	19951219	JP19950147425	19950614
NO305232 B1	19990426	NO19950002319	19950613
NO952319 A	19951215	NO19950002319	19950613
NO952319 A0	19950613	NO19950002319	19950613
US5669999 A	19970923	US19950489500	19950612

Priority:

CA19952150893 19950602 CH19940001871 19940614

Probable Assignee: INVENTIO AG

Assignee(s): (std): INVENTIO AG

Assignee(s): INVENTIO AG HERGISWIL ; INVENTIO AKTIENGESELLSCHAFT ; OESCH GUIDO ; STETTLER ANDREAS ; ANDEREGG KURT

Inventor(s): (std): ANDEREGG DIPL ING ETH ; ANDEREGG KURT ; ANDEREGG KURT DIPL ING ETH ; ANDOREASU SUTETSUTORAA ; KURUTO ANDEREGU ; OESCH GUIDO ; STETTLER ANDREAS ; STETTLER ANDREAS DIPL ING ; STETTLER DIPL ING ; GUIDO OESHIYU

Inventor(s): KURT ANDEREGG ; ANDREAS STETTLER ; GUIDO OESCH

Agent(s): WATERMARK PATENT AND TRADE MARKS ATTORNEYS; WATERMARK INTELLECTUAL PROPERTY PTY LTD; RICHES MCKENZIE AND HERBERT LLP; KAWAGUCHI YOSHIO

Designated states: AT BE CH DE DK ES FR GB IT LI PT SE

Title: Railroad hopper car underframe transition casting

Abstract: Source: US5762003A A railroad hopper car for carrying loads of commodities comprises spaced trucks and a car body supported on the spaced trucks. The car body includes an underframe having a center sill, with discharge openings, the center sill in the area of the discharge openings toward the loaded commodities having surfaces sloped toward the discharge openings. The underframe has members connecting the car body to the spaced trucks. These members have shapes distinct from the shape of the center sill. The car body further includes transition members between the center sill and underframe members connecting the car body to the spaced trucks. The transition members along the center sill are sized and shaped to fit with the center sill, and the transition members along the underframe members are sized and shaped to fit with the underframe members. The transition members transition between the center sill and underframe members, allowing the center sill to have sloped surfaces while the underframe members have other shapes. The described structure has the advantages, among others, of eliminating bulky structures, such as center sill hoods, to provide sloped surfaces to center sills, and eliminating flat topped sills. Loaded commodities in increased volumes and weights discharge past sloped upper surfaces of center sills, combining the best of the eliminated structures and flat topped center sills without added structures.

Classifications:

International (IPC 8-9): B61D17/00 B61D7/00

B61F1/02 (Advanced/Invention);

B61D7/00 B61F1/00 (Core/Invention)

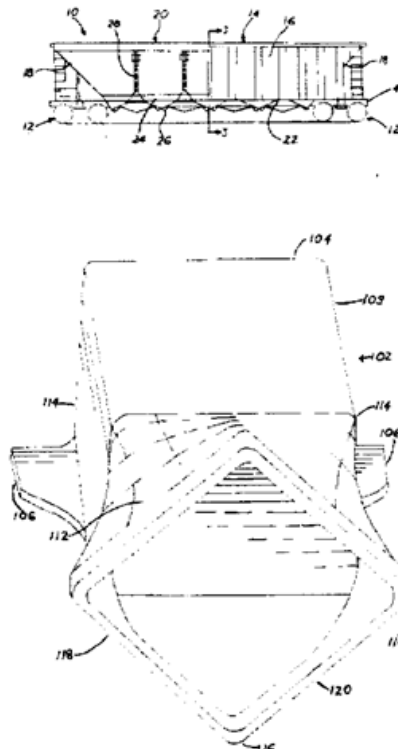
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CPC: B61D7/00 B61F1/02

European: B61D7/00 B61F1/02

US: 105/247 105/251 105/416

PatBase - US5762003_A



Family:

Publication number	Publication date	Application number	Application date
AU199862767 A1	19980909	AU19980062767	19980213
AU735191 B2	20010705	AU19980062767	19980213
CA2281667 AA	19990823	CA19982281667	19980213
CA2281667 C	20050111	CA19982281667	19980213
CN1091702 C	20021002	CN19988003786	19980213
CN1251555 A	20000426	CN19988003786	19980213
US5762003 A	19980609	US19970805997	19970224
WO9836957 A1	19980827	WO1998US02680	19980213
ZA9801473 A	19980824	ZA19980001473	19980223

Priority:

US19970805997 19970224 WO1998US02680 19980213

Probable Assignee: COLUMBUS STEEL CASTINGS CO

Assignee(s): (std): BUCKEYE STEEL CASTINGS CO ; BUCKYE STEEL CASTINGS CO

Assignee(s): BSC NEWCO INC UNDER NAME OF BUCKEYE STEEL CASTINGS CO ; COLUMBUS STEEL CASTINGS CO ; RAIL CASTINGS CORP ; CANADIAN IMP ; ZERO MFG ; WELLS FARGO BANK NATIONAL ASSOCIATION ; PNC BANK NATIONAL ASSOCIATION AGENT AS ; CANADIAN IMP BANK OF COMMERCE NEW YORK AGENCY ADMI ; ZERO MFG INC ; DOWNES JOHN R ; MCCLURG CARL D ; CANADIAN IMP BANK OF COMMERCE NEW YORK AGENCY ADMINISTRATIVE AGENT AS ; PRIVATE EQUITY OPPORTUNITIES LP ; BSC ACQUISITION INC ; BSC NEWCO INC ; BUCKEYE STEEL CASTINGS COMPANY ; BSC ACQUISITION INC ; BSC NEWCO INC UNDER NAME OF BUCKEYE STEEL CASTINGS ; ABLECO FINANCE LLC AS COLLATERAL AGENT ; ABLECO FINANCE LLC COLLATERAL AGENT AS ; BANK OF AMERICA NATIONAL ASSOCIATION ; BANKAMERICA BUSINESS CREDIT INC

Inventor(s): (std): DOWNES JOHN R ; MCCLURG CARL D ; MCCLURY KARL D

Inventor(s): KARL D MCCLURY ; JOHN R DOWNES ; CARL D MCCLURG

Agent(s): DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; SMART AND BIGGAR

Designated states: AU CA CN MX

Title: **Hollow** extruded frame member for friction stir welding

Abstract: Source: US2001023566A End portions of face plates 111 and 112 of a frame member 110 are connected by a **rib** 116A. To protrusion chips 117b1 and 117b2 end portions of face plates 101 and 102 of another frame member 100 are overlapped. The corners between the **rib** 116A and the rear faces of the face plates 111 and 112 are in the form of a convex circular arc 131 which protrudes into a **hollow** portion 119 of the frame member 110. Both end portions of the circular arc 131b1 are connected to the **rib** 116A and the face plates 111 and 112 by two smooth recessed circular arcs 132b1 and 133b1. Accordingly, since a flow-out of metal does not occur from this portion, the cross-section can be small and a light weight structure can be obtained. A structural body formed of **hollow** frame members which are joined by friction stir welding provides a light weight structure.

Classifications:

International (IPC 8-9): B21C23/14 B23K20/12 B23K33/00 B23K9/00 B61D17/04 F16B5/08 F16S1/02 F16S3/00

F16S3/02 (Advanced/Invention);

B23K20/12 B23K9/00 F16S3/00 (Advanced/Non-invention);

B61D17/04 F16B5/00 F16S1/00 F16S3/00 (Core/Invention)

International (IPC 1-7): B21C23/14 B23K20/12 B23K9/00

B61D17/04 E04B2/08 E04B2/18 E04B2/32 E04B2/46 E04B5/10

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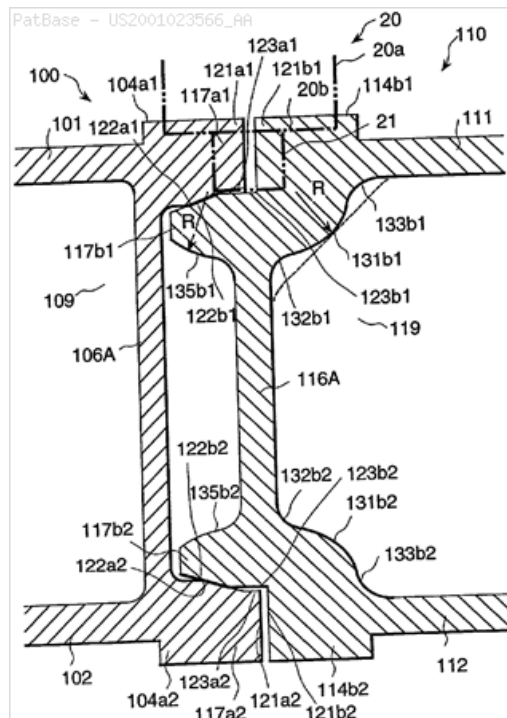
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European: B21C23/14B2 B23K20/12E B23K33/00 L23K201/04B

US: 228/112.1 52/314 52/542.4 52/580 52/592.1 52/592.100P

52/592.4 52/638 52/638P 52/650.3 52/650.300S 52/731.2 52/731.3

52/731.6 52/732.1 52/732.2 52/848



Family:

Publication number	Publication date	Application number	Application date
AU199933197 A1	19991223	AU19990033197	19990607
AU719660 B2	20000511	AU19990033197	19990607
DE69929854 D1	20060420	DE19996029854	19990616
DE69929854 T2	20061005	DE19996029854T	19990616
EP0985483 A2	20000315	EP19990304679	19990616
EP0985483 A3	20030402	EP19990304679	19990616
EP0985483 B1	20060215	EP19990304679	19990616
JP2000000681 A2	20000107	JP19980168016	19980616
JP3420502 B2	20030623	JP19980168016	19980616
KR100567979 B1	20060405	KR19990022219	19990615
KR20000006186 A	20000125	KR19990022219	19990615
US2001023566 AA	20010927	US20010875173	20010607
US2001023567 AA	20010927	US20010875174	20010607
US2003056459 AA	20030327	US20020286887	20021104
US6250037 BA	20010626	US19990332009	19990614
US6494011 BB	20021217	US20010875173	20010607
US6691484 BB	20040217	US20020286887	20021104

Priority:

JP19980168016 19980616 US19990332009 19990614 US20010875173 20010607
US20010875174 20010607 US20020286887 20021104

Probable Assignee: HITACHI LTD

Assignee(s): (std): HITACHI LTD ; KASADO KIKAI KOGYO KK ; SATOU AKIHIRO

Assignee(s): KAWASAKI TAKESHI ; EZUMI MASAKUNI ; FUKUYORI KAZUSIGE ; FUKUYORI KAZUSIGE

Inventor(s): (std): FUKUYORI KAZUSIGE ; KAWASAKI TAKESHI ; KAWASAKI TAKESHI ; HUKUYORI KAZUSIKE ; FUKUYORI KAZUSIGE ; EZUMI MASAKUNI ; SATOU AKIHIRO ; SATO AKIHIRO ; FUKUYORI KAZUNARI ; ESUMI MASAKUNI

Inventor(s): MASAKUNI EZUMI ; KAZUSIGE FUKUYORI ; AKIHIRO SATOU ; TAKESHI KAWASAKI

Agent(s): DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; OGAWA KATSUO

Designated states: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

Title: Car body with body framework

Abstract: Source: US6224144B On a car body with a car body framework 1, for ease of assembly and effective utilization of space, in the vicinity of the side wall structure of each body framework field 7, a partial side wall element 8 is inserted that projects into the space between the corresponding frames 6.

Classifications:

International (ipc 8-9): B61D17/04 B61D17/08

B62D31/02 (Advanced/Invention);

B61D17/04 B62D31/00 (Core/Invention)

International (ipc 1-7): B60J7/00 B61D B61D1/00 B61D1/04

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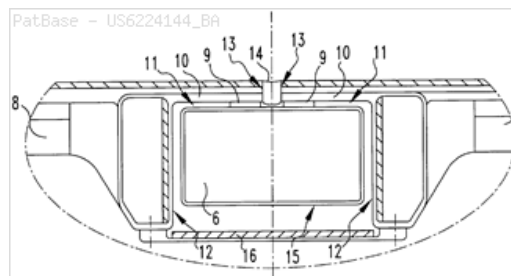
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European: B61D17/04B2 B61D17/08 B62D31/02

US: 105/397 296/178 296/181 296/191 296/193.04 296/197

296/203.03 296/29



Family:

Publication number	Publication date	Application number	Application date
DE19844811 A1	20000413	DE19981044811	19980930
DE19844811 B4	20050804	DE19981044811	19980930
DE59912487 D1	20051006	DE19995012487	19990507
EP0990572 A2	20000405	EP19990109031	19990507
EP0990572 A3	20010314	EP19990109031	19990507
EP0990572 B1	20050831	EP19990109031	19990507
HU222127 B1	20030428	HU19990002947	19990901
HU9902947 A0	19991129	HU19990002947	19990901
HU9902947 AB	20000928	HU19990002947	19990901
HU9902947 AC	20010528	HU19990002947	19990901
IL131692 A0	20010319	IL19990131692	19990901
IL131692 A1	20040831	IL19990131692	19990901
NO322180 B1	20060821	NO19990004730	19990929
NO994730 A	20000331	NO19990004730	19990929
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Priority:

DE19981044811 19980930 DE19995012487 19990507

Probable Assignee: DAIMLERCHRYSLER RAIL SYSTEMS GMBH

Assignee(s): (std): ABB DAIMLER BENZ TRANSP ; ABB DAIMLER BENZ TRANSP ATION ; ABB DAIMLER BENZ TRANSP TECH ; ABB DAIMLER BENZ TRANSP TECHNO ; DAIMLER CHRYSLER AG ; DAIMLERCHRYSLER RAIL SYSTEMS ; BOMBARDIER TRANSP GMBH ; DAIMLERCHRYSLER RAIL SYSTEMS GMBH

Assignee(s): DAIMLERCHRYSLER RAIL SYSTEMS GMBH BERLIN ; ABB DAIMLER BENZ TRANSPORTATION TECHNOLOGY GMBH ; DAIMLERCHRYSLER AG ; BOMBARDIER TRANSPORTATION GMBH ; ABB DAIMLER BENZ TRANSPORTATION GMBH

Inventor(s): (std): KOCH TOBIAS ; VEIT SALOMON EMIL

Agent(s): EITAN PEARL LATZER AND COHEN ZEDEK

Designated states: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

Title: FRICTION STIR WELDING METHOD

Abstract: Source: US2002027154A A raised portion 32 is provided on an upper face of an end portion of a plate 31 which forms one side of a frame member 30. An end portion of a plate 41 of another frame member 40 is abutted with the plate 31 of the frame member 30. The frame members 30 and 40 are aluminum alloy extruded frame members and the directions of extrusion of the two frame members are orthogonal. A welding padding is carried on an upper face of the plate 41 of the frame member 40. Under this condition, a rotary tool is inserted from above and a friction stir welding is carried out. Accordingly, the padding serves the same function on the plate 41 as the raised portion 32 on the plate 31, so that a good welding can be carried out.

Classifications:

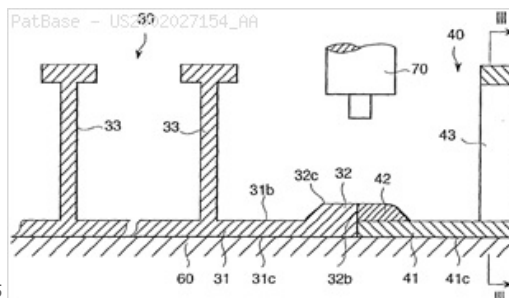
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F16S1/02 (Advanced/Invention);
B23K103/10 B23K20/12 (Advanced/Non-invention);
B23K20/12 B23K33/00 B23K9/04 B61D17/00
B61D17/04 (Core/Invention)

International (IPC 1-7): B23K20/02 B23K20/12 B23K31/02
B23K9/04 B32B15/00 B61D17/00 B61D17/04 B62D25/04 F16S1/02

CPC: B23K20/122 Y10T428/12493 B23K33/00 B23K20/1265
B23K2201/045 B23K2201/26 B23K20/12

European: B23K20/12 B23K20/12E B23K20/12E8 B23K33/00
L23K201/04B L23K201/26

US: 228/112.1 228/112.100P 228/2.1 228/2.100S 296/146.5 428/615



Family:

Publication number	Publication date	Application number	Application date
AU199950113 A1	20000413	AU19990050113	19990923
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AU733140 B2	20010510	AU19990050113	19990923
CN100441357 C	20081210	CN200510118709	19990929
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CN1139454 C	20040225	CN19991020570	19990929
CN1249979 A	20000412	CN19991020570	19990929
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CN1483546 A	20040324	CN20031047644	19990929
CN1762638 A	20060426	CN200510118709	19990929
DE69933978 D1	20061228	DE19996033978	19990928
DE69933978 T2	20070614	DE19996033978T	19990928
EP0992314 A2	20000412	EP19990307638	19990928
EP0992314 A3	20020821	EP19990307638	19990928
EP0992314 B1	20061115	EP19990307638	19990928
JP2000167677 A2	20000620	JP19990259893	19990914
JP2005177865 A2	20050707	JP20050082405	20050322
JP3732688 B2	20060105	JP19990259893	19990914
KR100616581 B1	20060828	KR19990041764	19990929
KR20000023529 A	20000425	KR19990041764	19990929
US2002027154 AA	20020307	US20010927549	20010813
US2003000996 AA	20030102	US20020231070	20020830
US2003000997 AA	20030102	US20020231287	20020830
US6315187 BA	20011113	US19990404651	19990924
US6471112 BB	20021029	US20010927549	20010813
US6733900 BB	20040511	US20020231287	20020830
US6777107 BB	20040817	US20020231070	20020830

Priority:

JP19980274618 19980929 JP19990259893 19990914 JP20050082405 20050322
US19990404651 19990924 US20010927549 20010813 US20020231070 20020830
US20020231287 20020830

Probable Assignee: HITACHI LTD

Assignee(s): (std): HIDACHI SEISAKUSHYO CO LTD ; HITACHI KASADO KIKAI CO LTD ; HITACHI LTD ; SATOU AKIHIRO

Assignee(s): EZUMI MASAKUNI ; FUKUYORI KAZUSIGE ; HIDACHI SEISAKUSHYO CO

Inventor(s): (std): AKIHIRO SATO ; AKIHIRO SATOU ; EKADO MASAKUNI ; ESUMI MASAKUNI ; EZUMI MASAKUNI ;
FUKUYORI ISSEI ; FUKUYORI KAZUNARI ; FUKUYORI KAZUSIGE ; ISSEI FUKUYORI ; KAZUSIGE
FUKUYORI ; MASAKUNI EKADO ; MASAKUNI EZUMI ; SATO AKIHIRO ; SATOU AKIHIRO ; KAZUSIGE
SATOU AKIHIRO EZUMI M ; HUKUYORI GASHIGE ; EZMI MASAKUNI

Inventor(s): SATOU AKIHIRO EZUMI MASAKUNI FUKUYORI KAZUSIGE

Agent(s): DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD

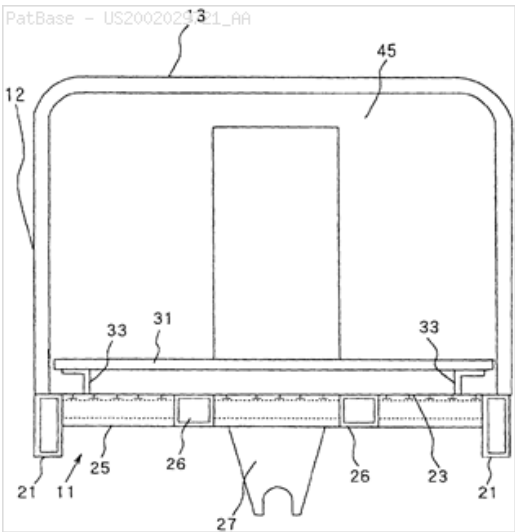
Designated states: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

Title: **Railway car**

Abstract: Source: US2002029721A The floor of a passenger cabin in a **railway car** is mounted on a base plate 23 of an underframe 11 via plural common joists 33, 34. The vibration of the truck is transmitted via a center pin 27, a bolster 25, center sills, a base plate 23, and common joists 33, 34 to the floor 31, thereby vibrating the floor. Out of the common joists 33 and 34, the common joists 34 that are positioned near the width-direction-center of the car body do not extend beyond the center sill 25 toward the longitudinal end of the car body. This arrangement reduces the vibration of the floor 31 positioned at the longitudinal end portion of the car body.

Classifications:

International (IPC 8-9): B61D17/00 B61D17/10 B61F1/00 B61F1/14 B61F17/10 (Advanced/Invention); B61D17/00 (Advanced/Non-invention); B61D17/00 B61D17/04 B61F1/00 (Core/Invention)
International (IPC 1-7): B60N5/00 B61D17/00 B61D17/10 B61D37/00 B61F1/00 B61F1/14 B61F17/10
CPC: B61D17/10
European: B61D17/10
US: 105/329.1



Family:

Publication number	Publication date	Application number	Application date
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JP2002154430 A2	20020528	JP20010171262	20010606
JP3563045 B2	20040908	JP20010171262	20010606
KR100494301 B1	20050613	KR20010053133	20010831
KR20020020839 A	20020316	KR20010053133	20010831
TW548217 B	20030821	TW20010121031	20010827
US2002029721 AA	20020314	US20010945688	20010905
US6651567 BB	20031125	US20010945688	20010905

Priority:

JP20000280132 20000911 JP20000280133 20000911 JP20010171262 20010606

Probable Assignee: HITACHI LTD

Assignee(s): (std): MAKINO KAZUHIRO ; MASAI KENTARO ; MUTO DAISUKE ; SHIGEYAMA MASAOKI ; TAKEICHI MICHIFUMI ; HITACHI LTD

Assignee(s): HITACHILTD

Inventor(s): (std): KAZUHIRO MAKINO ; KENTARO MASAI ; KENTARO TAKEICHI MICHIFUMI MAK ; MICHIFUMI TAKEICHI ; TAKEICHI MICHIFUMI ; SHIGEYAMA MASAOKI ; MUTO DAISUKE ; MASAI KENTARO ; MAKINO KAZUHIRO ; TAKEICHI MICHIFUMI

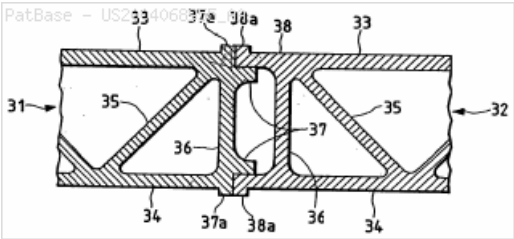
Inventor(s): TAKEICHI MICHIFUMI MAKINO KAZUHIRO MASAI KENTARO

Title: FRICTION STIR WELDING **HOLLOW** FRAME MEMBER

Abstract: Source: US2004068955A This invention provides a configuration of a joint that allows a satisfactory welded joint to be formed with reduced deformation of the joint region when two-face structures (panels) are friction-welded end to end. The panels 31, 32 each have two substantially parallel plates 33, 34 and a third member 35 connecting the two plates 33, 34. The end portions of the plates 33, 34 of one panel 32 are friction-welded to the end portions of the plates 33, 34 of the other panel 32. At least one of the panels has a plate 36 at its end for connecting the plates 33 and 34 and has a rigidity to support a pressing force produced during the friction welding.

Classifications:

International (IPC 8-9): B23K20/12 B23K33/00 B32B3/06 B32B3/12 B61D17/04 E04C2/54 F16B11/00 F16B5/08 (Advanced/Invention); B23K101/04 (Advanced/Non-invention)
International (IPC 1-7): E04C2/34
CPC: B61D17/043 B23K20/122 B23K20/123 B23K20/126 B23K33/00 B23K33/004 B23K2201/045 E04C2/08 E04C2/36 E04C2/543 Y10T403/478 Y10T428/12 Y10T428/1234 Y10T428/12375 Y10T428/12382 Y10T428/12493 Y10T428/192 Y10T428/24777
European: B23K20/12E B23K20/12E2 B23K20/12E6F B23K33/00 B23K33/00B B61D17/04B E04C2/08 E04C2/36 E04C2/54B L23K201/04B
US: 228/112.1 52/578 52/578S 52/582.1 52/588.1 52/790.1 52/790.100P 52/793.1



Family:

Publication number	Publication date	Application number	Application date
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Priority:

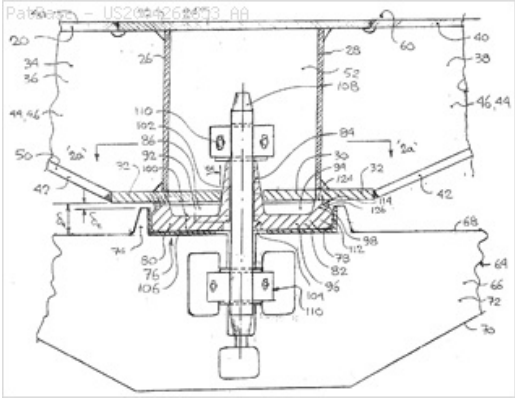
JP19960062491 19960319 US20030600613 20030623 US19970820231 19970318

Probable Assignee: AOTA KINYA
Assignee(s): AOTA KINYA ; ISHIMARU YASUO ; TAKENAKA TSUYOSHI
Inventor(s): (std): AOTA KINYA ; ISHIMARU YASUO ; TAKENAKA TSUYOSHI

Title: CENTER PLATE ASSEMBLY FOR A RAIL ROAD CAR

Abstract: Source: US2004261653A A **railroad car** body has a longitudinally extending center sill, and a main bolster extending transversely relative to the center sill. A center plate is mounted under the center sill at the intersection of the center sill and the main bolster. The center plate seats in the center plate bowl of a truck that supports the rail road car body for rolling motion along the rail road tracks. The center plate is a casting that has a round peripheral wall that seats entirely within the center plate bowl. None of the center plate extends beyond the round peripheral wall, and none of the center plate overhangs the peripheral upstanding steel ring of the center plate bowl wall. The center plate has a continuous circumferential welding fillet relief such as may tend more easily to permit automated welding. The center plate has a **hollow**, upstanding truncated central cone member for accommodating a king pin. The truncated cone stands taller than the rim. A keying fitting is mounted adjacent to the central cone to discourage angular mis-orientation of the lateral center plate edge reliefs.

Classifications:
International (IPC 8-9): B61D17/00 B61F1/08 B61F5/16 (Advanced/Invention); B61F5/02 (Core/Invention)
International (IPC 1-7): B61D17/00 B61F1/08 B61F3/00 B61F5/00
CPC: B61F5/16
European: B61F5/16
US: 105/189 105/199.4



Family:

Publication number	Publication date	Application number	Application date
CA2433701 AA	20041227	CA20032433701	20030627
US2004261653 AA	20041230	US20030608218	20030630
US6915746 BB	20050712	US20030608218	20030630

Priority:

CA20032433701 20030627 US20030608218 20030630

Probable Assignee:

RONSCO INC

Assignee(s): (std):

COSLOVI ILARIO A ; RONSCO INC

Inventor(s): (std):

COSLOVI ILARIO A

Agent(s):

MCCARTHY TETRAULT LLP

Title: RAILCAR WITH DISCHARGE CONTROL SYSTEM

Abstract: Source: US2005056185A A railcar with discharge control system is disclosed. In one embodiment, a **railway car** includes an underframe and at least one hopper for transporting lading. The **railway car** further including the underframe including a center sill which defines in part a longitudinal axis of the **railway car**. A discharge opening formed proximate to a lower portion of the hopper. A respective door assembly pivotally mounted adjacent to the discharge opening to control the flow of lading from the hopper. The door assembly operable for movement between a first, closed position and a second, open position relative to the discharge opening. A discharge control system operable to move the door assembly between the first position and the second position. The discharge control system operably moves generally longitudinally along the axis of the **railway car** to move the door assemblies between the first, closed position and the second, open position.

Classifications:

International (IPC 8-9): B61D17/20 B61D3/00 B61D7/00 B61D7/02 B61D7/18 B61D7/24 B61D7/26 B61D7/28

B61D7/30 (Advanced/Invention);

B61D17/04 B61D7/00 (Core/Invention)

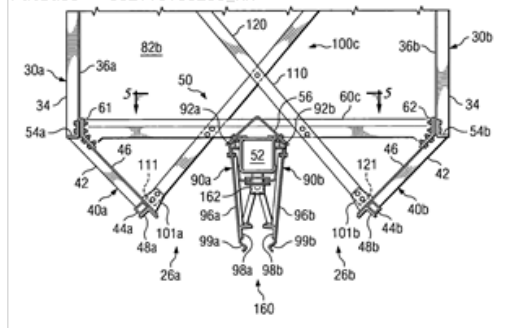
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CPC: B61D7/02 B61D7/28 B61D7/24

European: B61D7/02 B61D7/24 B61D7/28

US: 105/10 105/240 105/247 105/248 105/248S 105/280 105/280S 105/286 105/307

PatBase - US2005056185_AA

**Family:**

Publication number	Publication date	Application number	Application date
AU2004268995 AA	20050310	AU20040268995	20040825
AU2004268995 BB	20100429	AU20040268995	20040825
AU2010201130 AA	20100415	AU20100201130	20100323
AU2010201130 BB	20110519	AU20100201130	20100323
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AU2010201131 BB	20110512	AU20100201131	20100323
CA2534146 AA	20060130	CA20042534146	20040825
CA2534146 C	20120508	CA20042534146	20040825
CN101830232 A	20100915	CN201010181286	20040825
CN101830232 B	20140827	CN201010181286	20040825
CN1842457 A	20061004	CN200480024606	20040825
CN1842457 B	20110330	CN200480024606	20040825
IN00734DN2006 A	20070817	IN2006DN00734	20060213
IN267638 B	20150731	IN2006DN00734	20060213
MXPA06002179 A1	20060522	MX2006PA02179	20040825
RU2006105341 A	20071010	RU20060105341	20040825
RU2380251 C2	20100127	RU20060105341	20040825
US2005056185 AA	20050317	US20040926370	20040825
US2006032396 AA	20060216	US20050182975	20050715
US2006185552 AA	20060824	US20060381687	20060504
US2007079726 AA	20070412	US20060548492	20061011
US2007084378 AA	20070419	US20060550098	20061017
US2008236438 AA	20081002	US20080138146	20080612
US2010275811 AA	20101104	US20100816203	20100615
US7051661 BB	20060530	US20040926370	20040825
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US7681507 BB	20100323	US20060381687	20060504
US7735426 BB	20100615	US20060550098	20061017
US7891304 BB	20110222	US20080138146	20080612
US8915194 BB	20141223	US20100816203	20100615
WO05021350 A1	20050310	WO2004US27519	20040825

Priority:

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WO2004US27519	20040825				

Probable Assignee: TRINITY IND INC

Assignee(s): (std): BARRY ROBERT J ; CENCER ROBERT J ; CREIGHTON GEORGE S ; FETTERMAN BRUCE D ; FETTERMAN D B ; FETTERMAN D BRUCE ; HERZOG JOHN C ; SINDELAR JOSEPH M ; TRINITY IND INC ; TRN BUSINESS TRUST ; TRINITY INDUSTRIES INC ; TRINITI INDASTRIZ INK

Assignee(s): TRN INC ; TRINITY IND

Inventor(s): (std): BARRY ROBERT J ; BRUCE D FETTERMAN ; BRUCE FETTERMAN D ; CENCER ROBERT J ; CREIGHTON GEORGE S ; FETTERMAN BRJUS D ; FETTERMAN BRUCE D ; FETTERMAN D B ; FETTERMAN D BRUCE ; GEORGE S CREIGHTON ; HERZOG JOHN C ; HERZOG JOHN C FETTERMAN D B CE ; JOHN C HERZOG ; JOSEPH M SINDELAR ; KHERZOG DZHON S ; KREJTON DZHORDZH S ; ROBERT J CENCER ; SENSER ROBERT DZH ; SINDELAR DZHOEF M ; SINDELAR JOSEPH M

Inventor(s): BARRY ROBERT ; SINDELAR JOSEPH ; ROBERT JAMES CENCER ; JOSEPH MICHAEL SINDELAR ; JOHN CHARLES HERZOG ; HERZOG JOHN C FETTERMAN D B CENCER ROBERT J SINDEL ; GEORGE SCOTT CREIGHTON ; HERZOG JOHN ; FETTERMAN D ; DONLAD BRUCE FETTERMAN ; DR BRUCE FETTERMAN ; CREIGHTON GEORGE ; CENCER ROBERT

Agent(s): PIZZEYS; PIZZEYS PATENT AND TRADE MARK ATTORNEYS PTY LTD; KIRBY EADES GALE BAKER;
BAKER BOTTS LLP

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