



New connection on: : 12-05-2018 : 18:38:01 - Last disconnection on: : 12-05-2018 : 18:38:01

V 4.0.0.44358(LP,U,linux) (Rev:43856 2017-04-27 09:03:29 +0200#(D201802)) (RPM D201802)

Welcome to EPOQUE Rebuild under the Production Environment

[EPODOC: SS 2] ..fi EPODOC

 Database: EPODOC

[EPODOC: SS 2] structure AND (beam OR bar OR stick) AND (node OR edge) AND (square OR cube)

Results in EPODOC 855

[SS 3] ..v

[EPODOC: SS 3] structure AND (beam OR bar OR stick) AND (node OR edge OR corner) AND (square OR cube) AND (8 OR eight)

Non-existent or invalid SS number(s).

- Check with the command ..HI. When searching for numbers, use quotes e.g. "4" W WHEEL? *ERROR*
(-100803)

[SS 3] structure AND (beam OR bar OR stick) AND (nod+ OR edge OR corner OR trapez+) AND (square OR cube OR) AND ("8" OR "4")

An expression is expected. *ERROR*(-101305)

[SS 3] structure AND (beam OR bar OR stick) AND (nod+ OR edge OR corner OR trapez+) AND (square OR cube OR) AND ("8" OR "4")

An expression is expected. *ERROR*(-101305)

[SS 3] structure AND (beam OR bar OR stick) AND (nod+ OR edge OR corner OR trapez+) AND (square OR cube OR)

An expression is expected. *ERROR*(-101305)

[SS 3] structure

Results in EPODOC 6.330.742

[SS 4] structure AND (beam OR bar OR stick) AND (nod+ OR edge OR corner OR trapez+)

Results in EPODOC 28.598

[SS 5] structure AND (beam OR bar OR stick) AND (nod+ OR edge OR corner OR trapez+ OR join) AND (square OR Cube) AND ("8" OR "4")

Results in EPODOC 220

[SS 6] ..v

[EPODOC: SS 6] ..v

[EPODOC: SS 6] ..li



1/220 © EPODOC / EPO

PN - [CN206786720U](#) U 20171222

PR - CN20172567762U 20170519

AP - CN20172567762U 20170519

DT - I

PA - GUANGDONG MIDEA KITCHEN APPLIANCES MFG CO LTD; MIDEA GROUP CO LTD

TI - Fire that fire covered **structure**, gas -cooker covers subassembly, gas -cooker

AB - The utility model discloses a fire covers the **structure**, the fire of gas -cooker covers subassembly and gas -cooker, the outer wall of this fire lid **structure** is formed with ring channel (2), the ring channel for radial lead to the groove and will anger cover the **structure** and splits into top cap (1) and the angering of below of top and cover body (3), pass through a plurality of splice bars (4) fixed connection of the circumference interval arrangement of **edge** ring channel between the inner wall that the fire cover body and the inner wall of top cap, radial logical slot part between two adjacent splice bars forms to flash hole (6). The utility model discloses a fire covers the **structure** and has substituted the method that drills out the flash hole among the prior art through the drill bit, but through the **square** flash hole of splice **bar** in order to separate into the ring channel several. A plurality of flash holes are cut apart into because the one shot forming casting obtains the splice **bar** with the ring channel of cutting to a series of problems that this novel processing mode had avoided prior art to bring through drill bit drilling, processing that consequently can a completed number flash hole to the machining efficiency of flash hole has been improved.

2/220 © EPODOC / EPO

PN - [CN206704001U](#) U 20171205

PR - CN20172562935U 20170519

AP - CN20172562935U 20170519

DT - I

PA - XIAMEN KING LONG UNITED AUTOMOTIVE IND CO LTD; SHANGHAI BAOSTEEL STEEL CO LTD

TI - Clod wash seat fixed profile of passenger train

AB - The utility model discloses a clod wash seat fixed profile of passenger train, the arbitrary longitudinal section of section **bar** main part is " 6 " font, and this section **bar** main part includes rectangular **square** tube and pterygoid lamina, rectangular **square** tube and pterygoid lamina be by a belted steel integrated into one piece, and rectangular **square** tube upper end **edge** has an arc and combines the section, the pterygoid lamina by the arc combines the section laterad to extend bending type one - tenth. The utility model discloses a clod wash seat fixed profile by belted steel integrated into one piece, substitutes much more original welded **structure**, can adopt accurate roll -in and laser welding process, overcomes the difficulty of super high - strength steel in the welding of roll -in section **bar**, realizes that product thickness is reduced to 2.0mm's attenuate effect by 4.0mm, realizes lightweight and functional integration, has light in weight, characteristics that intensity is high.

3/220 © EPODOC / EPO

PN - [CN206457929U](#) U 20170901

PR - CN201621304682U 20161201

AP - CN201621304682U 20161201

DT - I

PA - UNIV SHANDONG SCIENCE & TECH

TI - Power consumption type shakes back from **beam** column **node** that restores to throne

AB - The utility model belongs to the building **structure** field relates to a power consumption type shakes back from **beam** column **node** that restores to throne, including girder steel (1) and **square** steel tubular column (2), girder steel (1) be connected through prestress wire (3) and angle steel (9) with **square** steel tubular column (2), girder steel (1) tip about both sides be equipped with reinforcing plate (10) respectively, **square** steel tubular column (2) be close to the roof **beam** side and be equipped with fill plate (7), be equipped with steel sheet (5) back to the roof **beam** side, prestress wire (3) pass steel sheet (5) of **square** steel tubular column (2) and post side, with anchor assembly (4) anchor outside steel sheet (5) of post side. Angle steel (9) be connected with girder steel (1) and **square** steel tubular column (2) respectively through screw rod (11) and nut (12). Angle steel (9) and fill plate (7), reinforcing plate (10) between be equipped with rubber pad (8). **Square** steel tubular column (2) are inside to be equipped with stiffening rib (6) with reinforcing plate eminences such as (10). The utility model discloses improve the anti -seismic performance of **node**, under seismic action, utilized rubber pad, angle steel improvement power consumption ability, utilized the prestress wire to realize shaking the back from the function that restores to the throne.

4/220 © EPODOC / EPO

PN - [CN206418592U](#) U 20170818

PR - CN2017287988U 20170123

AP - CN2017287988U 20170123

DT - I

PA - DINGZHOU AODA STEEL STRUCTURE TECH CO LTD

TI - Steel house frame

AB - The utility model relates to a steel house frame, its **structure** includes stand and crossbeam, through connecting piece and fastener fixed connection between the tip of crossbeam and the tip of stand, locating hole and connecting hole have all been seted up to the connecting piece on every lateral wall of **square** body, the locating hole be the circular port, and the hole heart of locating hole is equal to the distance on body both sides arris **edge**, the connecting hole is the **bar** hole, and it sets up quantity and is 2~4, and the hole heart of connecting hole is on the summit of the **square** at the kong xinwei center of use locating hole, and two locating holes of hole heart line on the diagonal of **square** are parallel to each other two the locating hole mutually perpendicular s of hole heart line in the length of side of **square**. The utility model discloses a connecting piece carries out fixed connection to the stand of room frame with the crossbeam, and connection **structure** is simple, design benefit, connection are convenient, can save the engineering time greatly in being applied to building of steel house frame with it, improve the efficiency of construction, the degree of difficulty is under construction in the reduction, improve construction quality.

5/220 © EPODOC / EPO

PN - [JP2017066755](#) A 20170406

PR - JP20150193993 20150930

AP - JP20150193993 20150930

DT - I

FI - E04B1/98&P; E04B5/02&T; E04B5/43&H

FT - 2E001/DF06; 2E001/EA06; 2E001/FA13; 2E001/GA12; 2E001/HF16; 2E001/KA05; 2E001/LA11

PA - DAIWA HOUSE IND

TI - SLAB FIXING **STRUCTURE**

AB - PROBLEM TO BE SOLVED: To provide a slab fixing **structure** in which a vibration damper is used in a proper place with little fluctuation in the vertical direction of a fixing part, and thereby the transmission of sound can be made difficult between upper and lower floors while reducing weight by thinning the thickness of a precast slab.SOLUTION: This slab fixing **structure** is applied when fixed to a **beam** assembly 3 constituted of two girders 1 being parallel to each other and two small beams 2 disposed perpendicular to the girders 1 between these two girders 1 while overlapping 4-sides of the end **edge** of a precast slab 4 of a planar shape **square** on the two girders 1 and two small beams 2, respectively. A vibration damper 11 is provided between the two girders 1 and two small beams 2 and the precast slab 4. The two girders 1 and two small beams 2 are joined with the precast slab 4 on neutral axes O1, O2 of the precast slab 4.SELECTED DRAWING: Figure 1

6/220 © EPODOC / EPO

PN - [CN205776255U](#) U 20161207

PR - CN20162646622U 20160627

AP - CN20162646622U 20160627

DT - I

PA - SUNYOUNG CONSTRUCTION GROUP CO LTD

TI - Lattice column turns to positioner under condition of concealing

AB - The utility model provides a lattice column turns to positioner under condition of concealing, it is strengthened **structure (4)**, is rotated lever (5) by post muscle (3), **corner** post (2), anti sliding sash (1), level constituteing, its center pillar muscle (3) adopt **4** quadrates to arrange all rebar manufacturing of long 2m diameter 22mm, **corner** post (2) adopt the welding at equal long 30cm's the **4** 12 bugle steel works in **4** post muscle bottoms, anti sliding sash adopts the welding at **4** piece outside diameter 25mm rebar manufacturing in the angle steel, the level is strengthened **structure (4)** and is adopted the welding **4** post muscle outsides, **4** of every 40cm evenly distributed with it the preparation of vertically **square** steel **stick** form, it fixes at the top that is in diagonal position angle muscle (3) through the lantern ring (6) wherein to rotate lever (5), whole device satisfies the angle steel external dimensions and is less than lattice column inside dimension 2cm, when inserting lattice column inside with the device, the outside anti sliding sash of angle steel can prevent that the device from further gliding into in the lattice column, rotate through rotating the afterburning device that makes of lever, the lattice column rotates below driving, adjust the position of lattice column.

7/220 © EPODOC / EPO

PN - [CN205822472U](#) U 20161221

PR - CN20162778602U 20160724

AP - CN20162778602U 20160724

DT - I

PA - UNIV EAST CHINA JIAOTONG

TI - Side's side's of overlapping cavity intermediate layer steel core concrete column and girder steel connected **node**

AB - The utility model provides a side's side's of overlapping cavity intermediate layer steel core concrete column and girder steel connected **node**, is including the **square** side of overlapping cavity intermediate layer outer steel pipe (1), interior steel pipe (2), concrete (3), girder steel (**4**), end plate (5), floor (6), high strength bolt (7) constitution. Adopt high strength bolt connect respectively the last lower flange outside along web orientation welding floor, further guarantee roof **beam** and the reliable of end plate and be connected to have the simple **structure**, it does all can to pass makes clear, the advantage such as convenient of constructing.

8/220 © EPODOC / EPO

PN - [CN205726810U](#) U 20161123

PR - CN20162524385U 20160527

AP - CN20162524385U 20160527

DT - I

PA - XI'AN QISHENG PREC SHEET METAL CO LTD

TI - Hem section **bar**

AB - The utility model discloses a hem section **bar**, it contains the cross -section for **square** configuration's mount (1), first locating rack (2) and second locating rack (3) are do not outwards extended perpendicularly in mount (1) two adjacent side punishment, first locating rack (2) or second locating rack (3) cross -section be right **trapezoid structure**, the topside is located the one side near mount (1) on it, is the hypotenuse of first locating rack (2) 70 with the contained angle of the hypotenuse of second locating rack (3) 85, mount (1) and first locating rack (2) between be provided with first basin (8). The utility model discloses simple **structure**, convenient to use uses and can reduce the cost of manufacturing and the maintenance cost of using enterprise's later stage so that the inside modularization installation of rack does benefit to the module production on the rack.

9/220 © EPODOC / EPO

PN - [JP2016191300](#) A 20161110

PR - JP20150068367 20150330

AP - JP20160067460 20160330

DT - I

FI - E04B1/30&K; E04B1/58&505P

FT - 2E125/AA04; 2E125/AA14; 2E125/AB01; 2E125/AB12; 2E125/AB16; 2E125/AC01; 2E125/AG03; 2E125/AG31; 2E125/AG41; 2E125/AG45; 2E125/AG48; 2E125/BA02; 2E125/BB09; 2E125/BB18; 2E125/BB19; 2E125/BB34; 2E125/BB37; 2E125/BD01; 2E125/BD06; 2E125/BE07; 2E125/BE08; 2E125/BF01; 2E125/CA83; 2E125/CA90

PA - DAIWA HOUSE IND

TI - REINFORCED CONCRETE COLUMN/STEEL **BEAM JOINT STRUCTURE**

AB - PROBLEM TO BE SOLVED: To provide a reinforced concrete column/steel **beam** joint **structure** which can rigidly **join** a reinforced concrete column being a lower floor column and a steel **beam** at favorable workability.SOLUTION: A reinforced concrete column/steel **beam** joint **structure** joins an upper end of a lower floor column composed of a reinforced concrete column 1 and a steel **beam** 3. A joint pipe **4** which is wider than the steel **beam** 3 in width, and more slender than the lower floor column is arranged at the upper end of the lower floor column. The joint pipe **4** may be **square** and round. An end face of the steel **beam** 3 is joined to a side face of the joint pipe **4**. Upper and lower diaphragms 5, 5 positioned at heights of upper and lower flanges 3a, 3a of the steel **beam** 3 are arranged at the joint pipe **4**.SELECTED DRAWING: Figure 2

10/220 © EPODOC / EPO

PN - [CN205531033U](#) U 20160831

PR - CN20162219420U 20160322

AP - CN20162219420U 20160322

DT - I

PA - CHINA CONSTRUCTION SENVENTH ENG BUREAU INSTALLATION ENG CO LTD

TI - A support piece for steel **bar** support rod

AB - The utility model belongs to the building engineering field relates to a support piece for steel **bar** support rod. Support piece is **trapezoidal** hexahedron, the support piece top respectively is equipped with recess 1, the bottom is equipped with recess 2, openly be

equipped with long **square** groove 3 back symmetry is equipped with recess **4** to support piece. The utility model discloses simple **structure**, the preparation is easy, convenient operation, the support piece who makes can be according to the clearance adjustment between the reinforcing **bar**, through highly guaranteeing of control supporting shoe, the built -in fitting of concrete placement still can be regarded as to the supporting shoe simultaneously, has improved reinforced concrete's intensity.

11/220 © EPODOC / EPO

- PN - [CN205445298U](#) U 20160810
- PR - CN201521129770U 20151229
- AP - CN201521129770U 20151229
- DT - I
- PA - TIANJIN TIANPENG CONSTRUCTION FACILITIES CO LTD
- TI - Novel section **bar** for building
- AB - The utility model provides a novel section **bar** for building, including the levorotation material body, the right profile body, the left side looks fixed connection of levorotation material body right side and the right profile body, logical chamber has been seted up including the **square** frame body at **square** frame its length direction of internal **edge** to the levorotation material body, lead to the intracavity and establish by giving sound insulation, **square** frame **4** external corners punishment do not be equipped with support piece under upper left support piece, the left side, upper right support piece and right under support piece, upper left support piece and a left side down support piece, upper left support piece and upper right support piece, a left side support piece and the right side all be equipped with the mounting groove between the support piece under support piece, upper right support piece and the right side down, be equipped with the cavity in every support piece and personally experience sth. Part of the body, the levorotation material is personally experienced sth. Part of the body, the right profile body **structure** is the same. The beneficial effects of the utility model are that the logical chamber, the cavity body and the sound insulating cavity body that set up respectively for it gives sound insulation effectually, the mounting groove that is equipped with on a left side, the right profile body, conveniently connect part such as nylon hinge, handle, elastic fastening piece and be convenient for the installation, integrate the aluminium alloy, more convenient.

12/220 © EPODOC / EPO

- PN - [CN205444917U](#) U 20160810
- PR - CN201521126422U 20151229
- AP - CN201521126422U 20151229
- DT - I
- PA - THE THIRD CONSTRUCTION CO LTD OF CHINA CONSTRUCTION FIFTH ENG BUREAU
- TI - High low grade separator of concrete
- AB - The utility model discloses a high low grade separator of concrete, including **4** spinal branch seat (1), every support (1) by one **square** steel (2) and welding two reinforcing **bar** (3) of one side of **square** steel (2) constitutes and two reinforcing **bar** (3) and **square** steel (2) between leave the clearance, adoption bolt or steel **bar** connection constitution support (**4**) between two both ends of **4** spinal branch seat (1) align the

concatenation by the one end of long curb plate (6), splint (7) and short curb plate (8) and constitute in a plurality of template strip (5), template strip (5), long curb plate (6) the card of template strip (5) go into in the clearance of leaving between reinforcing **bar** (3) and **square** steel (2) just reinforcing **bar** (3) the long curb plates of entering (6) and short curb plate (8) between the space. The utility model provides a high -rise **beam** column **node** concrete grade not not for the moment, **beam** column **node** concrete strength grade is difficult to the quality common fault guaranteed, simultaneously with old and useless template changing waste into valuables, low cost, preparation convenience, simple **structure**, dependable performance can have enough to meet the need utilization, easy operation, practicality greatly, green, can use widely in a large number.

13/220 © EPODOC / EPO

- PN - [CN205037927U](#) U 20160217
- PR - CN20152828703U 20151026
- AP - CN20152828703U 20151026
- DT - I
- PA - UNIV CHINA THREE GORGES CTGU
- TI - Sample prescription investigation and sample frame
- AB - The utility model provides a sample prescription investigation and sample frame, includes horizontal pole, L type fixation clamp, traction rope connection spare and round **bar**, L type fixation clamp both ends head all is equipped with the interface, and L type fixation clamp **corner** is equipped with the draw -in groove, and the horizontal pole passes through interface end to end, constitutes the **square** frame **structure**, and 4 root circle poles pass the draw -in groove respectively and constitute the support chassis, and at least a pair of traction rope connection spare sets up and the position is relative on the horizontal pole. The utility model provides a pair of sample prescription investigation and sample frame through setting up detachable horizontal pole, L type fixation clamp, traction rope connection spare and round **bar**, can satisfy sample frame sample accuracy, convenient to detach and basic function such as equipment, convenient to carry on the one hand, still can carry out the precision measurement to community's cover degree, many degree in complicated topography region or the fixed area, improves the application scope of sample frame.

14/220 © EPODOC / EPO

- PN - [CN205024847U](#) U 20160210
- PR - CN20152752152U 20150928
- AP - CN20152752152U 20150928
- DT - I
- PA - UNIVSHENYANGJIANZHU
- TI - Wood **structure** building post and post connected **node structure**
- AB - The utility model relates to a wood **structure** building post and post connected **node structure**, its middle standing pillar and stand are connected by the steel connecting piece, the steel connecting piece comprises **square** steel sheet and 4 root circle reinforcing **bar** vertical welding, respectively there are 4 circular embeddings mouths at the both ends of stand, glue with the engineering between stand and the steel

connecting piece and reinforce, the utility model discloses glue the connection that replaces tenon fourth of the twelve earthly branches realization wood **structure** building post and post with steel connecting piece and engineering, joint strength, the bending resistance of **node** improve than mortise -tenon joint by a wide margin, are particularly useful for large -scale timber **structure** and connect, **node** simple **structure**, component easily realize mechanized production, the **node** simple installation, construction speed is fast, and the cost of manufacture is low.

15/220 © EPODOC / EPO

PN - [CN204938705U](#) U 20160106
 PR - CN20152536196U 20150723
 AP - CN20152536196U 20150723
 DT - I
 PA - WUXI INST TECHNOLOGY
 TI - Round steel mount
 AB - The utility model discloses a round steel mount, it contains by **square** steel each other welding support (1) formed, and this support (1) whole is the isosceles **trapezoid** column **structure**, is equipped with the opening on base on it (11), and this opening internal fixation has resilient means (2), the both sides face mirror image welding of support (1) has support frame (3), support fang gang (4) in support (1) between adjacent lower base (12) and waist limit (13) there be the welding. The utility model discloses simple **structure**, convenient to use, the reinforcing **bar** that will prefabricate place resilient means in proper order and go up the back, because resilient means has stronger ductility, can make the reinforcing **bar** pocket become the shape of a sub - circular to be convenient for more lift by crane, stopped the steel cable and popped out the phenomenon of hurting sb. 's feelings when the in -process tightens up lifting by crane.

16/220 © EPODOC / EPO

PN - [CN204850692U](#) U 20151209
 PR - CN20152549059U 20150727
 AP - CN20152549059U 20150727
 DT - I
 PA - STATE GRID SHANXI ELECTRIC POWER COMPANY DATONG POWER SUPPLY COMPANY
 TI - Prevent wind net
 AB - The utility model provides a prevent wind net, including frame (1), glass steel mesh inlayer (2), **trapezoidal** wave fine -grained board (3), glass steel mesh outer (4), flat steel **bar** (5), first bolt (6), rivet (7) and second bolt (9), its characterized in that, frame (1) the **square structure** of enclosing for channel -section steel welding, **trapezoidal** wave fine -grained board (3) press from both sides to form the prevent wind net body unanimous with frame (1) appearance between glass steel mesh inlayer (2) and glass steel mesh outer (4), the prevent wind net body pass through second bolt (9) fixed mounting all around on the channel -section steel of frame (1) periphery. The utility model provides a prevent wind net simple **structure**, installation maintain conveniently, can the modularization prefabricated, install on the steel basis.

17/220 © EPODOC / EPO

PN - [JP2015207341](#) A 20151119

PR - JP20120189742 20120830

AP - JP20120189742 20120830

DT - I

CCI - [B60L11/126](#) ; [B60L11/14](#) ;
[B60L11/1864](#) ; [B60L11/1877](#) ;
[B60L11/1879](#) ; [B60L11/1887](#) ;
[H01M2/1077](#) ; [H01M2/1083](#)

CCA - [Y02T10/7077](#) ; [Y02T10/7005](#) ;
[Y02T10/7241](#) ; [Y02T10/7061](#) ;
[Y02T90/34](#) ; [Y02T10/6217](#) ;
[H01M2/1094](#) ; [B60L2200/12](#) ;
[B60L2210/30](#) ; [B60L2210/40](#) ;
[B60L2270/145](#) ; [H01M2220/20](#)

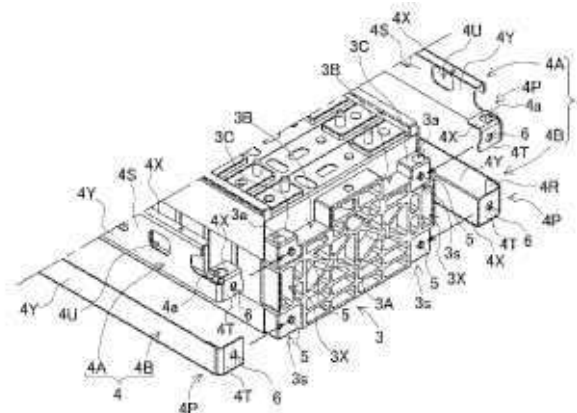
FI - H01M2/10&E; H01M2/10&S

FT - 5H040/AA03; 5H040/AS01;
5H040/AS05; 5H040/AS07;
5H040/AT02; 5H040/AT06;
5H040/AY04; 5H040/AY10;
5H040/CC14; 5H040/CC20;
5H040/CC34; 5H040/CC59;
5H040/DD08; 5H040/JJ03;
5H040/NN03

PA - SANYO ELECTRIC CO

TI - POWER UNIT, ELECTRIC VEHICLE
WITH POWER UNIT, AND POWER
STORAGE DEVICE

AB - PROBLEM TO BE SOLVED: To
efficiently perform assembly
work.SOLUTION: A power unit
includes: a battery laminate 2
which is formed by laminating a
plurality of **square** batteries 1; a
pair of end plates 3 disposed in
both ends of the battery laminate
2; and a bind **bar 4** of which both
the end portions are connected
to the end plates 3 and which is
formed by fixing the plurality
of **square** batteries 1 while
pressurizing them in a direction
of lamination. In the bind **bar 4**,
connecting parts 4P provided in
both ends are connected to



corners of the end plates 3 and further, the connecting part 4P of the bind **bar 4** connects a horizontal part 4X and a vertical part 4Y at the right angle to obtain an L-shaped cross-sectional shape and connects an end face plate 4T covering an outer side face of the end plate **4** to edges of the horizontal part 4X and the vertical part 4Y. Further, in the end plate 3, a locking protrusion 5 is provided in the **corner** opposite to the end face plate 4T and in the bind **bar 4**, a locking hole 6 for locking the locking protrusion 5 is opened on the end face plate 4T and the connecting part 4P is connected to the end plate 3 in a lock **structure**.

18/220 © EPODOC / EPO

- PN - [CN204780854U](#) U 20151118
- PR - CN20152502151U 20150713
- AP - CN20152502151U 20150713
- DT - I
- PA - TANG DEGEN
- TI - Novel hold drain **bar**
- AB - The utility model discloses a novel hold drain **bar**. Include by the cross linkage strip with erect the latticed base plate that the mutual uniformly cross of connecting strip connected to form, be equipped with the catch basin at the **node** of base plate and the lower extreme that lies in the base plate, the net of base plate then forms the wash port, the opening of this catch basin up and with the upper surface intercommunication of base plate, the high homogeneous phase of every catch basin etc. Overlap joint spare and the overlap joint knot is connected at being equipped with all around of base plate and base plate border. The utility model discloses every **square** metre of **4** kilograms of left and right sides of can impounding of novel hold drain **bar** after the improvement, the displacement can reach per hour 5 cubes of left and right sides, greatly reduced the formation of waterlogging, through the improvement of **structure** after, the compressive resistance has increased by 2 times on the ordinary compressive resistance basis of holding the drain **bar** in market, and construction requirements and normal service requirement when having satisfied the back filling prevent to destroy.

19/220 © EPODOC / EPO

- PN - [CN105041014](#) A 20151111
- PNFP - CN105041014B B 20180213

PR - CN20151478325 20150806

AP - CN20151478325 20150806

DT - I

CT - || STSE (A)
[JPH07310452](#) A 19951128 [Y] (YKK ARCHITECTURAL)
[Y] 1-9
* 说明书第[0005]-[0016]段及附图1-3 *;
[CN2685431Y](#) Y 20050316 [Y] (MINXIA ALUMINIUM INDUSTRY CHAN [CN])
[Y] 1-9
* 说明书第1页第14行至第2页第29行及附图1-3 *;
[JP2005105714](#) A 20050421 [A] (SHIKOKU CHEM, et al)
[A] 1-9
* 全文 *;
[CN2811436Y](#) Y 20060830 [Y] (LIANYUNGANG JARI TOOLING TECHN [CN])
[Y] 1-9
* 说明书第2页第5行至第12行及附图 *;
[CN201610648U](#) U 20101020 [A]
[A] 1-9
* 全文 *;
[CN202450803U](#) U 20120926 [A] (HAIBO LU)
[A] 1-9
* 全文 *

PA - (A)
LI PENGFEI

TI - (A)
Method for manufacturing novel double-column side-pulling type parking shed

AB - (A)
The invention discloses a method for manufacturing a novel double-column side-pulling type parking shed. The method comprises following steps: (1) the parking shed employs novel double columns; (2) the parking shed employs a side-pulling type **structure**; (3) a main **beam** of the parking shed is additionally provided with a main **beam** steel lining; and (4) the parking shed employs a novel drainage system. The parking shed is characterized in that the double columns have cuboid structures and are internally provided with cavities; a column steel lining is additionally arranged on the inner wall of each cavity; a **square** steel plate and an aluminum alloy plate which are used for dispersing the force and enhancing the column strength are oppositely arranged on the upper and lower parts of each cavity; each column is provided with multiple reinforcement ribs; a frame and the columns are fixedly connected through frame and column **corner** connectors; the side-pulling type parking shed comprises pull bars on the two sides and fixedly connected to the double columns; the double pull bars are connected to the double columns and the frame; the steel lining is additionally arranged on the inner wall of the main **beam**; a sealing washer is arranged between a decontamination port sealing cap and a two-way band decontamination port bend of the drainage system; a drainage joint is internally provided with a sealing gasket; and the inner end of the connection of a transverse joint and a vertical joint of the two-way band decontamination port bend is tapered. According to the invention, the parking shed is high in wind and snow resistance, is firm in **structure**, is low in noise, has good drainage performance, and has a long service lifetime.

20/220 © EPODOC / EPO

- PN - [CN104775556](#) A 20150715
- PNFP - CN104775556B B 20170811
- PR - CN20151179811 20150416
- AP - CN20151179811 20150416
- DT - I
- CT - || STSE (A)
[CN201546355U](#) U 20100811 [A] (BEIJING JANGHO CURTAIN WALL CO)
[A] 1-6
* 全文 *;
[CN101845858](#) A 20100929 [YX] (EAST CHINA ARCHITECTURAL DESIGN & RES INST CO LTD)
[Y] 2
* 说明书第[0023]-[0025]段及附图1-2 *
[X] 1,3-6;
[CN201874127U](#) U 20110622 [A] (SUZHOU KELIDA BUILDING DECORATION ENGINEERING CO LTD)
[A] 1-6
* 全文 *;
[KR20110009011U](#) U 20110922 [A]
[A] 1-6
* 全文 *;
[CN202401626U](#) U 20120829 [Y] (SHENYANG YUANDA AL ENG CO LTD)
[Y] 2
* 说明书第[0005]-[0011]段及附图1-3 *
- PA - (A)
DONGFANG DECORATION DESIGN ENGINEERING CO LTD OF CHINA CONSTRUCTION THIRD ENGINEERING BUREAU
- TI - (A)
Large-span glass curtain wall steel column connecting system
- AB - (A)
The invention discloses a large-span glass curtain wall steel column connecting system, which comprises a main body **structure** (3). The large-span glass curtain wall steel column connecting system is characterized by also comprising a steel vertical column (1) and an aluminum alloy transverse **beam** (2), wherein the upper part of the steel vertical column (1) is connected with the main body **structure** (3) through a bidirectional movable hinging seat (4), and the aluminum alloy transverse **beam** (2) is horizontally and vertically welded and fixedly arranged on the steel support column (1) through a steel **square** tee (5). The large-span glass curtain wall steel column connecting system has the advantages that by utilizing a large-span curtain wall **structure** system built by a T-shaped rod, the indoor space is more transparent, and the large-area light collecting requirement is met; by arranging the hinging connecting **node**, the rigidity and strength requirements of the curtain wall stress are met.

21/220 © EPODOC / EPO

- PN - [CN204315923U](#) U 20150506

PR - CN20142790762U 20141212

AP - CN20142790762U 20141212

DT - I

PA - TIANJIN RES INST ELECTRIC SCIENCE CO LTD; TIANJIN TIANCHUAN ELECTRIC CONTROL POWER DISTRIB CO LTD

TI - Novel 45-degree wing angle G section **bar** switchgear body

AB - The utility model relates to a novel 45-degree wing angle G section **bar** switchgear body; a main frame of the switchgear is a **square** frame **structure** formed by four pillars and up-down **8** crossbeams; the pillar uses reinforced opening section **bar**; the crossbeam uses 45-degree wing angle G section **bar**; the section **bar** opening faces inwards; connecting portions of the three use metal sheet three-way connector for frame mounting; positioning holes and indenting countersinks of the pillars and a metal sheet three-way connector and positioning holes and indenting countersinks of the crossbeams and the metal sheet three-way connector are fixed and positioned, and pillar clamp ports and the crossbeams are positioned, thus fixing the pillars and the crossbeams; the pillars and crossbeams are uniformly provided with function module squares and round holes; the switchgear body employs 20mm module reinforced opening section **bar** and 45-degree wing angle G section bars; compared with normal 25mm module in the market, the switchgear is more compact in design and higher in utilization rate; a short **edge** central axis of the section **bar** is respectively provided with squares and round holes (5.3 in diameter), a distance is 1/2 of module, and the **square** holes and round holes are arranged at intervals.

22/220 © EPODOC / EPO

PN - [CN204275911U](#) U 20150422

PR - CN20142738734U 20141202

AP - CN20142738734U 20141202

DT - I

PA - HENAN QUNYING MACHINE MANUFACTURE CO LTD

TI - Scraping device of barrel mixer

AB - The utility model discloses a scraping device of a barrel mixer. The scraping device mainly comprises a large **beam** (1), cutter bars (2) and a cutter **bar** locking plate (3), wherein the large **beam** is parallel to the axis of a barrel of the barrel mixer and stretches out of two ends of the barrel to be fixed on two end seats, a plurality of cutter bars are fixedly installed on the large **beam**, a gap between each cutter **bar** and the inner wall of the barrel of the barrel mixer is adjustable, scraping cutters (4) are integrated with the cutter bars in a welding manner, an inner hole of the cutter **bar** locking plate is in a straight-**edge square** shape, and the cooperated position between the cutter **bar** and the cutter **bar** locking plate is correspondently in a straight-**edge square** shape. The scraping device is reasonable in **structure** design, materials stuck in the barrel can be thoroughly cleared, the problem that materials are stuck in the barrel of the mixer can be fundamentally solved, the load of an original driver cannot be increased, the materials can be cleared without stopping the machine, the continuity in production can be guaranteed, the materials stuck on the inner wall of the mixer do not need to be manually cleared, the labor intensity of workers can be alleviated, the service life of a liner plate inside the mixer can be prolonged. The device has

characteristics of simplicity in production, convenience in replacement of the scraping cutter, safety, reliability, labor conservation and high working efficiency.

23/220 © EPODOC / EPO

PN - [JP2015021287](#) A 20150202

PNFP - JP5968837B B2 20160810

PR - JP20130150298 20130719

AP - JP20130150298 20130719

DT - I

FI - E04B1/26&G; E04B1/58&505L

FT - 2E125/AA04; 2E125/AA14; 2E125/AB16; 2E125/AC23; 2E125/AC24; 2E125/AG03; 2E125/AG16; 2E125/AG43; 2E125/BB09; 2E125/BB18; 2E125/BB22; 2E125/BC09; 2E125/BD01; 2E125/BE08; 2E125/BF08; 2E125/CA05; 2E125/CA13; 2E125/EA01

PA - (A)
MISAWA HOMES CO

TI - (A)
COLUMN-BEAM JOINING STRUCTURE

AB - (A)
PROBLEM TO BE SOLVED: To provide a column-**beam** joining **structure** capable of accurately installing a **beam** on a column.SOLUTION: Connection members 10, 11 and 12 for joining the **square** cylindrical column 2 and the **beam 4** comprise column-**beam** joining hardware 10 arranged in a crossing part on an extension line of the column 2 and the **beam 4**, **beam** joining hardware 12 joined to a side surface of the column-**beam** joining hardware 10 and longitudinal positioning means for positioning a position in the longitudinal direction of the **beam** joining hardware 12. The **beam** joining hardware 12 is also constituted of a receiving part 13b provided in the four-**corner** parts of a side surface, four **beam** joining box-shaped hardware 27 and four connection members 28 and 29, and the longitudinal positioning means comprises a projection member 15a projectingly provided outside on a lower end part side surface of the column-**beam** joining hardware 10 and a cutout recess 12a cut out and formed in a lower part of the connection member 28 provided in at least a lower end part of the **beam** joining hardware 12 and engaging so as to be placed from above on the projection member 15a.

24/220 © EPODOC / EPO

PN - [CN104179252](#) A 20141203

PR - CN20131210192 20130523

AP - CN20131210192 20130523

DT - I

CT - || STSE (A)
[CN201236387Y](#) Y 20090513 [A] (XIANGMING LI [CN])
[A]
[CN201050117Y](#) Y 20080423 [A] (CHENGANG SHE [CN])
[A]
[CN101672123](#) A 20100317 [A] (CHANGJUN SHEN)
[A]

[CN202493050U](#) U 20121017 [X] (ARCHITECTURAL ENG RES INST THE GENERAL LOGISITIC DEPT PLA)

[X]

[WO2007048836](#) A1 20070503 [A] (FERRIERE CHRISTIAN [FR])

[A]

[CN203256897U](#) U 20131030 [R] (ZHANG LIANHUA)

[R]

- PA - ZHANGLIANHUA
- TI - Low-cost earthquake-resistant bedroom frame
- AB - The invention aims at providing a low-cost earthquake-resistant bedroom frame. The low-cost earthquake-resistant bedroom frame is reasonable in design, simple in **structure**, low in cost, high in construction speed, rich in sense of art, comfortable to reside and use and not limited by height; wall bodies and a top layer can be formed by any building material. The low-cost earthquake-resistant bedroom frame is characterized in that universal bearings (2) are arranged in the four lower corners of a strengthened frame (1); the strengthened frame (1) is placed at the lower end of a frame (6); **square** supports (3) are placed on the middle part of the frame (6); glass windows (4) are placed in included angles of a *-shaped support (5); a top **beam** (7) is arranged at the top ends of standing posts (8); the standing posts (8) are placed on the middle part of the upper top of the frame (6); sun-proof and rain-sheltering top layers (9) are placed on the upper part of the top **beam** (7), are connected with the front **edge** and the rear **edge** of the frame (6) and extend outwards.

25/220 © EPODOC / EPO

PN - [CN203741999U](#) U 20140730

PR - CN20142122266U 20140319

AP - CN20142122266U 20140319

DT - I

PA - CHINA CONSTR 7TH ENG DIVISION CORP LTD

TI - Fabricated building corbel-free concrete **beam** steel column connecting **node**

AB - The utility model relates to a fabricated building corbel-free concrete **beam** steel column connecting **node** which comprises a **square** steel concrete column (1), a reinforced concrete superposed **beam** (2) and a concrete layer (3). Core penetrating reinforcing steel bars (4) are arranged in the **square** steel concrete column (1). Main bars (5) are arranged in the reinforced concrete superposed **beam** (2). The core penetrating reinforcing steel bars (4) and the main bars (5) are connected through sleeves (6), so that the reinforced concrete superposed **beam** (2) is arranged on the **square** steel concrete column (1) and the concrete layer (3) covers the contact portion of the **square** steel concrete column and the reinforced concrete superposed **beam**. According to the fabricated building corbel-free concrete **beam** steel column connecting **node**, a connecting mode between a steel **structure** and different reinforced concrete materials is provided, the **structure** is simple, the **node** is convenient and quick to install, shearing resistance is high, connection is firm, and durability is better.

26/220 © EPODOC / EPO

PN - [CN203755896U](#) U 20140806

PR - CN20132881672U 20131231

AP - CN20132881672U 20131231

DT - I

PA - HUNAN JINHAI STEEL STRUCTURE CO LTD

TI - Novel steel-**structure** door pocket

AB - The utility model relates to a green and environmental protection building device, in particular to a novel steel-**structure** door pocket of a door of a plant. Due to the irrationality in design and **structure**, a current steel-**structure** door pocket has the following defects that 1, the design **structure** is complex, and the steel content is high; 2, the manufacturing and installing difficulties are large; 3, a piece is easily deformed, and the quality is difficult to ensure; 4, the manufacturing cost is high. The novel steel-**structure** door pocket which is provided by the technical scheme of the utility model consists of rectangular **square** pipes, rectangular **beam** columns and **edge** covering steel plates; the novel steel-**structure** door pocket is characterized in that a rectangular frame is manufactured by using the rectangular **square** pipes according to a needed width and a needed height of the door pocket, the middle part of the rectangular frame is reinforced by using a plurality of short rectangular **square** pipes, L-shaped door pocket standard components are formed by splicing and fixing the rectangular **square** pipes at one side of the rectangular frame and the corresponding sides of the rectangular **beam** columns, the door pocket is then made by splicing the standard components according to requirements, and galvanized steel plates are adopted as the **edge** covering steel plates at the outer part of the door pocket for covering edges.

27/220 © EPODOC / EPO

PN - [CN203733034U](#) U 20140723

PR - CN20132840824U 20131219

AP - CN20132840824U 20131219

DT - I

PA - SHENZHEN SUNG WORLD ELECTRONIC CO LTD

TI - Tablet computer based on Bluetooth communication system

AB - The utility model discloses a tablet computer based on a Bluetooth communication system. A display screen is arranged on a main board in a stacked mode to form an integrity, and the display screen and the main board are placed in a cavity formed by buckling a surface shell to a bottom shell. The tablet computer further comprises a plug-type Bluetooth headset (5) and a headset socket (8) matched with the plug-type Bluetooth headset; the headset socket is arranged in a side **edge** of the surface shell; the plug-type Bluetooth headset (5) comprises a headset body (53), a handle (51) and a **square-bar**-shaped inserting column (54), the handle (51) is arranged at the upper end of the headset body, the **square-bar**-shaped inserting column (54) is arranged at the lower end of the headset body, and two opposite sides of the lower end of the inserting column are respectively provided with a clamping groove (52); the headset socket is provided with a socket body, and the plug-type Bluetooth headset is inserted into the socket body; two buckles (81) matched with the clamping grooves are arranged in the headset socket. According to the tablet computer based on the Bluetooth communication system, the Bluetooth headset is ingeniously integrated in a case,

the **structure** is simple, and the tablet computer is convenient to use.

28/220 © EPODOC / EPO

- PN - [CN203382385U](#) U 20140108
- PR - CN20132365817U 20130625
- AP - CN20132365817U 20130625
- DT - I
- PA - TAIAN HAIYUAN AUTOMATION EQUIPMENT CO LTD
- TI - Stabilizing device of **trapezoid** lifting appliance
- AB - The utility model discloses a stabilizing device of a **trapezoid** lifting appliance. The stabilizing device comprises two straight pipes (2) with beveled edges, a straight pipe (3) with a cross **edge** and a connecting plate (1), wherein the straight pipes (2), the straight pipe (3) and the connecting plate (1) are fixedly connected to form a **trapezoid** frame, the connecting plate (1) and the straight pipe (3) with the cross **edge** serve as a wide **edge** and a narrow **edge** of the **trapezoid** frame respectively, the connecting plate (1) is fixed on a cross **beam** of the equipment lifting appliance, and the straight pipe (3) with the cross **edge** is connected with a movement track by a track connecting plate (4). The three straight pipes and the connecting plate are fixedly connected to form the **trapezoid** frame **structure** based on the characteristic of triangular stability, and the **trapezoid** frame **structure** is fixed between the movement track and the equipment cross **beam**, therefore, the running stability of the equipment is greatly improved, the service life of the equipment is prolonged, the probability of fault occurrence is reduced, and the working efficiency is improved; furthermore, a support is mainly made of **square** pipes, so that the stabilizing device has the characteristics of light weight, high strength, less possibility of bending, simplicity in machining and the like, and is very practical.

29/220 © EPODOC / EPO

- PN - [CN203272374U](#) U 20131106
- PR - CN20132303536U 20130530
- AP - CN20132303536U 20130530
- DT - I
- CCI - [A47C19/20](#)
- PA - DENGJIANSHENG
- TI - Support connecting device and bedstead with same
- AB - The utility model relates to a support connecting device. The support connecting device comprises a vertical **beam** (1) which is of a **square structure**, and a transverse **beam** (2), wherein at least one buckle position (3) is arranged on the **corner** of the vertical **beam** in a blanking mode, a piece of angle iron (4) which is arranged vertically is connected to the end portion of the transverse **beam**, spring bolts (5) are arranged on the corners of the angle iron (4) in an inward stamping mode, an opening of each spring bolt is downward, a lock is connected with the buckle position in a buckled mode, and at least two buckle positions (3) which are matched with the spring bolts (5) of the angle iron (4) are arranged on the corners of the vertical **beam** (1) in the blanking mode from top to bottom. The utility model further relates to a bedstead with the support

connecting device. The bedstead with the support connecting device comprises four vertical beams (1) arranged on the four corners, front transverse beams (2-0), rear transverse beams (2-1), left transverse beams (2-2) and right transverse beams (2-3), wherein the front transverse beams (2-0), the rear transverse beams (2-1), the left transverse beams (2-2) and the right transverse beams (2-3) are connected with the four vertical beams (1), and the two ends of each transverse **beam** are respectively provided with the angle iron which is provided with the spring bolts and are in matched connection with each buckle position of each vertical **beam** (1). According to the **structure**, the support connecting device and the bedstead with the support connecting device are firm in connection and convenient to disassemble and assemble.

30/220 © EPODOC / EPO

PN - [CN103251190](#) A 20130821
 PR - CN2012137843 20120220
 AP - CN2012137843 20120220
 DT - I
 PA - NANTONG TUOPU PLASTIC PRODUCTS CO LTD
 TI - Waterproof handbag making method
 AB - The invention discloses a waterproof handbag making method. The method comprises the following steps: 1, selecting a hardboard having a **square edge** of 10cm, and respectively coating the right side and the wrong side of the hardboard with glue; 2, covering plastic films on the right side and the wrong side of the hardboard to **stick** the plastic films and the hardboard together; 3, cutting the hardboard, and stitching to form a bag; and 4, respectively punching two holes at the upper portions of the bag, and respectively stringing strings to obtain a waterproof handbag. The waterproof handbag has the advantages of convenient making, simple **structure**, low cost, and very good waterproof performance.

31/220 © EPODOC / EPO

PN - [CN103192419](#) A 20130710
 PNFP - CN103192419B B 20150121
 PR - CN20131111166 20130402
 AP - CN20131111166 20130402
 DT - I
 CT - || STSE (A)
[CN102554956](#) A 20120711 [Y] (SHANXI ELECTRIC POWER CO JINZHONOG POWER SUPPLY BRANCH)
 [Y]
[CN201941037U](#) U 20110824 [Y] (CHENLEI HUO, et al)
 [Y]
[CN201532853U](#) U 20100721 [A] (TIANJIN BAILI NIUTAIKE ELECTRICAL APPLIANCE SCIENCE AND TECHNOLOGY CO LTD)
 [A]
[CN202572470U](#) U 20121205 [A] (MAINTENANCE BRANCH OF CHONGQING ELECTRIC POWER COMPANY, et al)
 [A]

[JPS55175097U](#) U 19801215 [A]

[A]

[CN201519981U](#) U 20100707 [A] (SHIJIAZHANG POWER SUPPLY CO)

[A]

[CN203110007U](#) U 20130807 [R] (STATE GRID CORP CHINA, et al)

[R] 2

- PA - (A B)
STATE GRID CORP CHINA; TANGSHAN POWER SUPPLY COMPANY OF JINBEI ELECTRIC POWER COMPANY LTD
- TI - (A B)
Fixed-angle chamfering method and special tool of **square** rubber **bar**
- AB - (A)
The invention relates to a fixed-angle chamfering method and a fixed-angle chamfering special tool of a **square** rubber **bar** and belongs to the technical field of overhauls of power supply transformers. The technical scheme is that the fixed-angle chamfering special tool of the **square** rubber **bar** includes a base (1), two vertical plates (8) which are arranged in parallel, a press plate (5), a support plate (7) and a pressing lead screw (4), wherein the two vertical plates which are arranged in parallel form a groove **structure** (3), the width of the groove **structure** is matched with that of the **square** rubber **bar**, the height of each of the vertical plates is larger than that of the **square** rubber **bar**, the two parallel-arranged vertical plates are metal plates, the side edges of the two vertical plates are all an inclined plane (3) with an angle of 20-30 degrees, and the side **edge** length, the angle and the height of the two vertical plates are completely the same. The fixed-angle chamfering special tool of the **square** rubber **bar** is simple in operation, easy to master, guarantees the tight sealing and the overhaul quality, greatly avoids secondary reworking caused by man-made reasons, and reduces the workload of staff; and greatly increases the working efficiency due to the fact that the work which needs one hour to complete can be done only in 20 minutes now.

32/220 © EPODOC / EPO

PN - [CN203008192U](#) U 20130619

PR - CN20122670539U 20121208

AP - CN20122670539U 20121208

DT - I

PA - JI ZHIGANG

TI - Invisible suspended ceiling supporting and illuminating **structure**

AB - The utility model discloses an invisible suspended ceiling supporting and illuminating **structure**. The invisible suspended ceiling supporting and illuminating **structure** comprises a **beam** and support feet. The **beam** is welded or fixed on the feet through rivets. The support feet are arranged in an inclined angle place of a house suspended ceiling and adjacent walls, and a stale support **structure** of the house suspended ceiling is formed. Two sides of the **beam** are parallel to the suspended ceiling, one side of the two sides of the **beam** is tightly pasted on the suspended ceiling, and round holes or **square** holes with a diameter of 3 millimeters are formed in the other side of the **beam** at intervals of 80 centimeters. Wires are arranged in the hollow inner portion of the **beam**, and 8-watt energy-saving lamps are distributed and arranged in the round holes or the **square** holes. The **beam**, the support feet and the

house suspended ceiling are sprayed by decorative paints with the same band and the same color. The invisible suspended ceiling supporting and illuminating **structure** has the advantages of being ingenious in design and simple in used materials and solving the problem that the house suspended ceiling sinks or the **edge** of the house suspended ceiling crakes after the house suspended ceiling is hung for a plurality of days or a plurality of months. Due to the fact that the wires are distributed in the inner portion of the horizontal pipe and the energy-saving lamp is arranged in the horizontal pipe, the invisible suspended ceiling supporting and illuminating **structure** possesses multiple purposes and is convenient to implement and apply.

33/220 © EPODOC / EPO

- PN - [CN202926013U](#) U 20130508
- PR - CN20122397889U 20120811
- AP - CN20122397889U 20120811
- DT - I
- PA - ZHONGSHAN SPARK METAL INDUSTRY CO LTD
- TI - Small angle opening **square** core column type dead bolt body with center distance adjustable
- AB - The utility model relates to a small angle opening **square** core column type dead bolt body with the center distance adjustable. The small angle opening **square** core column type dead bolt body with the center distance adjustable is composed of a distance adjustment sheet, a distance adjustment sheet clamp spring, a tail board rivet, a clamp board, a sliding block, a sliding block spring and a tail board. The distance adjustment sheet and the clamp board conduct downward movement until an upper hook head and a lower hook head of the clamp board are hooked in a front groove or a rear groove of a dead bolt board hook, and the installation distance is changed from 60mm to 70mm. The small angle opening **square** core column type dead bolt body with the center distance adjustable is novel in design, reasonable in **structure**, reliable in adjustment and convenient to use. The small angle opening **square** core column type dead bolt body with the center distance adjustable comprises components such as a circular **corner** lining board (1a) and a dead bolt (2) and is characterized in that the clamp board (22) is assembled in the sliding block (20) and the tail board (19), the distance adjustment sheet (18) is assembled on the tail board (19), a hook **bar** (22-3) at the upper end of the clamp board (22) coats the upper end of the tail board (19) and extends out of a rectangular hole (18-2) of the adjustment sheet (18). A pressing clamp board (22) enables the upper hook head and the lower hook head (22-4) of the clamp board (22) to be hooked and clamped into a first groove (5-1) or a second groove (5-2) of the dead bolt board hook (5).

34/220 © EPODOC / EPO

- PN - [CN202858465U](#) U 20130410
- PR - CN20122467369U 20120913
- AP - CN20122467369U 20120913
- DT - I
- PA - SUN SHUWEI
- TI - Double-purpose stool

AB - The utility model relates to a double-purpose stool. The double-purpose stool comprises a supporting rod (1), a supporting rod (2), a supporting rod (3), a supporting rod (4), connecting rods (5), a **square** stool surface (6) and canvas belts (7), wherein through holes are formed in the middle of each of the supporting rod (1) and the supporting rod (2), and the supporting rod (1) and the supporting rod (2) are movably fixed through a drift bolt; one end of each of two connecting rods (5) is connected with the lower end of the supporting rod (3) and the lower end of the supporting rod (4) respectively; the supporting rod (3) and the supporting rod (4) are positioned on two sides of the supporting rod (1) and the supporting rod (2) respectively; and the other ends of the two connecting rod (5) are movably connected with each other through a drift bolt. The upper ends of the four supporting rods are connected with each **corner** of the **square** stool surface (6) through plug pins. The double-purpose stool has the advantages of reasonable design, simple **structure**, strong applicability, can be used as a stool or a walking **stick**, and is convenient to carry.

35/220 © EPODOC / EPO

PN - [CN102966210](#) A 20130313

PR - CN20121522566 20121208

AP - CN20121522566 20121208

DT - I

PA - JI ZHIGANG

TI - Invisible suspended ceiling supporting and lighting **structure**

AB - The invention discloses an invisible suspended ceiling supporting and lighting **structure**. The **structure** comprises a cross **beam** and a supporting foot, wherein the cross **beam** is welded or riveted and fixed on the supporting foot; the supporting foot is arranged at the included angle position of a house suspended ceiling and the adjacent wall to form a stable supporting **structure** of the house suspended ceiling; one of the two sides, parallel with the suspended ceiling, of the cross **beam** clings to the suspended ceiling; round holes or **square** holes with the diameter of 3 cm are formed on the other side at the intervals of 80 cm; a lead is distributed in the hollow inside of the cross **beam**; 8-watt energy-saving lamps are distributed in the round holes or **square** holes; and the cross **beam**, the supporting foot and the house suspended ceiling are coated with decorative paint with the same brand and the same color. The invisible suspended ceiling supporting and lighting **structure** is clever in design, adopts simple materials and solves the problem that the house suspended ceiling sinks or the **edge** of the house suspended ceiling cracks after the house suspended ceiling is suspended for a few days or months. The lead and the energy-saving lamps are arranged in the cross **beam**, so the invisible suspended ceiling supporting and lighting **structure** has multiple purposes and is convenient to implement and convenient to use.

36/220 © EPODOC / EPO

PN - [CN202771322U](#) U 20130306

PR - CN20122430077U 20120828

AP - CN20122430077U 20120828

DT - I

PA - NANNING AUTO DIGITAL TECHNOLOGY CO LTD

TI - **Bar-edge** aluminum panel for server

AB - The utility model discloses a **bar-edge** aluminum panel for a server. The **bar-edge** aluminum panel for the server comprises a rectangular panel (5), wherein the size of the **bar-edge** aluminum panel is identical to that of a front panel of a matched server, three small circular holes are formed on the right bottom side of the front face of the rectangular panel (5), the three holes are respectively two server signal light embedding holes (1) and a server switch button hole (2), edges (3) are arranged on the front face of the rectangular panel (5), and a hollow fillet **square structure** (4) and a screw position are arranged on the back face of the rectangular panel (5). The **bar-edge** aluminum panel for the server is a server panel which supplies protective functions for a server such as drop resistance and collision avoidance, and has the advantages of being practical, attractive, economical, and simple to install, and can be applied in a server outer shell.

37/220 © EPODOC / EPO

PN - [CN202710063U](#) U 20130130

PR - CN20122290409U 20120620

AP - CN20122290409U 20120620

DT - I

PA - MCC5 GROUP CORP LTD SHANGHAI

TI - Leveling staff or measuring **bar** bubble correcting device

AB - A leveling staff or measuring **bar** bubble correcting device comprises an adjusting base, an aluminum alloy **square** steel support, a laser plumb aligner and a laser **beam** sighting receiving target. The leveling staff or the measuring **bar** bubble correcting device is characterized in that the adjusting base comprises a floor fixing plate (1), a bidirectional jogging mechanism (2) and a translation fixing seat (3). The bottom end of the aluminum alloy **square** steel support (6) is fixedly installed in a clamp block of the **edge** of the translation fixing seat (3), and the laser **beam** sighting receiving target (9) is arranged at the top end of the aluminum alloy **square** steel support (6). The laser plumb aligner (4) is installed, fastened on a forcing aligning screw in the middle of the translation fixing seat (3), and the wire between the central mark of the laser **beam** sighting receiving target (9) and the forcing aligning screw is parallel to the central line of the aluminum alloy **square** steel support (6). The leveling staff or the measuring **bar** bubble correcting device is simple in **structure** and convenient to manufacture and has the advantages of improving working efficiency by three to four times and improving correcting precision by three times.

38/220 © EPODOC / EPO

PN - [CN202535745U](#) U 20121121

PR - CN20122114174U 20120325

AP - CN20122114174U 20120325

DT - I

PA - WUHU RUICHUANG GENERAL MACHINERY MFG CO LTD

TI - Device for connecting conveying box of combine-harvester

AB - The utility model relates to a device for connecting a conveying box of a combine-harvester. A concave hanging groove (3) is welded on the upper **edge** of the lower end of the conveying box (4) and is in buckling fit with a rectangular cross **beam** (2) at the rear end of a header (1); a bottom **square** tube (5) is welded on the lower **edge** of the rear end of the header (1) and is in supporting fit with an L-shaped top **beam** (7) which is welded at the bottom of the conveying box (4); the bottom **square** tube (5) and the top **beam** (7) are connected fixedly by virtue of bolts (6). In installation, the hanging groove (3) is firstly buckled into the rectangular cross **beam** (2); the conveying box (4) is put down slowly; meantime, the top **beam** (7) and the bottom **square** tube (5) are in flat contact; and finally, the bolts (6) are used for fixing. The beneficial effects of the device has the beneficial effects that the assembly efficiency and quality are obviously improved and compared with the original **structure**, three bolts (6) are utilized for connecting the header (1) and the conveying box (4) instead of 12 bolts, locating is facilitated to improve the assembly efficiency, the detaching is convenient, and maintenance is favorable.

39/220 © EPODOC / EPO

PN - [CN202526434U](#) U 20121114

PR - CN2012273973U 20120227

AP - CN2012273973U 20120227

DT - I

PA - ANHUI WENDING MACHINERY CO LTD

TI - Seat slewing mechanism of handicapped mobility scooter

AB - A seat slewing mechanism of a handicapped mobility scooter comprises a **square** tube (1), a rotating handle (2), a rotating rod (3), a base board (4), a transmission **bar** limited block (5), a support (6), a sleeve (7), a circular boss (8), a locking screw(9), a fixture block (10), a torsional spring (11), a pattern card (12), a seat foot tube (13) and a seat rotating shaft (14). The support (6) is welded on the base board (4), the rotating rod (3) is inserted in holes of two lateral plates of the support (6), the sleeve (7) is sleeved on the rotating rod (3) which drives the sleeve (7) to rotate through the locking screw(9), the fixture block (10) and the torsional spring (11) are arranged on the sleeve (7), a plurality of grooves are manufactured on the periphery of the outer **edge** of the pattern card (12), and the fixture block (10) is clamped in a certain groove of the outer **edge** of the pattern card (12). The rotating handle (2) is pulled to rotate a seat to enable the fixture block (10) to be clamped in different grooves of the pattern card (12) to enable the seat to stop at different positions, and the fracture surface of the fixture block (10) is a **trapezoid** with big top and small bottom so that the fixture block (10) can be firmly clamped in the grooves of the pattern card (12). The seat slewing mechanism is simple in **structure**, flexible in rotation, reliable in location, free of swaying and free of noise.

40/220 © EPODOC / EPO

PN - [KR101186116B](#) B1 20120927

PR - KR20110034576 20110414

AP - KR20110034576 20110414

DT - I

CNOI - [A01K61/60](#)

CCA - [Y02A40/81](#)
 PA - SON MIN HO [KR]
 TI - FLOAT USING SEA-**STRUCTURE**FOR SEA FARM
 AB - PURPOSE: A floating body for a marine **structure** of a fish farm is provided to enable users to easily assemble the floating body, and to improve the strength and the durability of the marine **structure**. CONSTITUTION: A floating body for a marine **structure** of a fish farm includes a **square** bottom plate(3), plural horizontal bars(**4**), plural vertical bars(5), and plural outer frames(6). The bottom plate includes plural through-holes and plural anti-slipping protrusions on the upper side. The horizontal bars are horizontally installed on the lower side of the bottom plate. The vertical bars are vertically installed on the lower side of the horizontal **bar** with the predetermined interval. The outer frames are installed on the **edge** of the bottom plate. The bottom plate, the horizontal and vertical bars, and the outer frames are produced with a synthetic resin material.

41/220 © EPODOC / EPO

PN - [TW201223486](#) A 20120616
 PR - TW20100142905 20101209
 AP - TW20100142905 20101209
 DT - I
 PA - LIN YUAN-MIN [TW]
 TI - Paper model house's **structure** of **beam** and pillar
 AB - This paper model house's **structure** of **beam** and pillar include **4** sets of pillar, which a set of pillar contain 2 pieces same die cut sheet, and **8** pieces **beam** with same die cut sheet. The pillar set is a reciprocal buckling for each other, **4** sets of pillar are the house's **4 corner**. Then add the **beam** and buckled with the pillar, a house basic **structure** is finished. It is a **square** unit, it can be extend by horizontals and verticals. The unit can be changed as customer's need by change the size of pillar and **beam**, several unit build a villa, summer house etc., and the mounting of wall is easy to furring. The Decorations work of wall and window are quickly when the units were combined and build. The **structure** which we designed is steady not easy topple. Because the **beam** and pillar easy to mount and just 2 different die cut, save cost of time and expense. The mass productions are available.

42/220 © EPODOC / EPO

PN - [US8253932](#) B1 20120828
 PR - US20100819410 20100621
 AP - US20100819410 20100621
 DT - *
 CT - [US4632563](#) A []; [US5532813](#) A []
 CCI - [G01N21/41](#)
 CCA - [G01N2021/4113](#)
 PA - COLE WALTER P [US]; US ARMY [US]
 TI - Laser and **corner cube** refractive-index **structure** parameter system

AB - A near-IR laser laser-and-**corner cube** system for determining the refractive-index **structure** parameter by providing the return power of the retroreflected laser **beam** from the **corner cube**, which return power correlates to the refractive-index **structure** parameter. The system is economical, physically containing only (1) the laser which emits a near-IR wavelength output **beam**, (2) a 50/50 splitter, to receive back the retroreflected return **beam** from the **corner cube** along the same optical axis as the output **beam**, in a monostatic configuration; (3) the target **corner cube**; (4) a receiving focus lens; (5) a spectral filter and (6) a power meter to provide the monostatic measurement of the return power. Critically the ratio of the area of the **corner cube** to that of the receiving focus lens is at least 1:2, to obtain meaningful power measurements-to correlate to pre-calculated refractive-index **structure** parameters.

43/220 © EPODOC / EPO

PN - [JP2012140781](#) A 20120726

PNFP - JP5421236B B2 20140219

PR - JP20100293336 20101228

AP - JP20100293336 20101228

DT - I

CT - || STSE (A)
[JP2004270320](#) A 20040930 [] (NIPPON STEEL CORP)

FI - E04B1/58&G; E04H9/02&321B; F16F15/04&A; F16F7/00&A

FT - 2E125/AA04; 2E125/AA14; 2E125/AA33; 2E125/AB01; 2E125/AB16; 2E125/AC15; 2E125/AC16; 2E125/AG03; 2E125/AG45; 2E125/BB04; 2E125/BC05; 2E125/BD01; 2E125/BE08; 2E125/BF01; 2E125/CA90; 2E125/EA25; 2E139/AA01; 2E139/AC19; 2E139/AC33; 2E139/BA17; 2E139/BD14; 3J048/AA01; 3J048/AC05; 3J048/BD08; 3J048/EA38; 3J066/AA26; 3J066/BA10

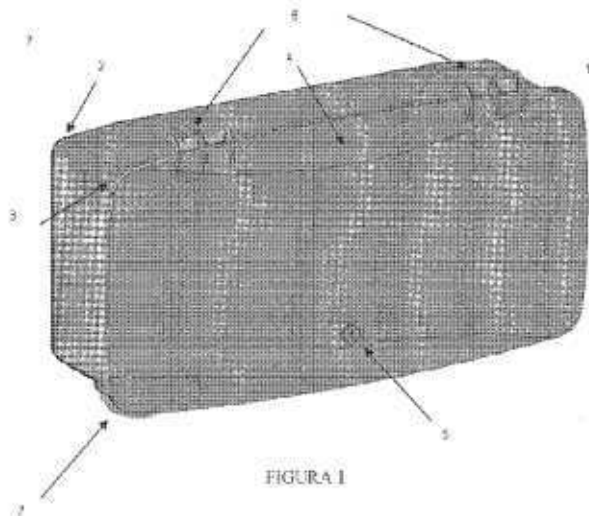
PA - (A)
DAITO TRUST CONSTRUCTION CO LTD

TI - (A)
VIBRATION CONTROL **STRUCTURE**FOR BUILDING WALL SECTION

AB - (A)
PROBLEM TO BE SOLVED: To provide a vibration control **structure** for a building wall section allowing for effective use of attenuation performance of a vibration control member.SOLUTION: In a vibration control **structure** for a building wall section which has **square** steel pipe columns 1 and a steel **beam** 2, the **square** steel pipe columns 1 are arranged with flat surfaces of pipe walls thereof inclined at 45° to a direction of a column row, a brace 3 is diagonally installed between the neighboring **square** steel pipe columns 1, and a vibration control member 4 is positioned in a middle portion of the brace 3. Because the **square** steel pipe columns 1 are inclined at 45°, the vibration control **structure** enables gusset plates 12 and 13 connecting the brace 3 and the **square** steel pipe columns 1 to be fixed to **corner** sections of **square** cross sections of the **square** steel pipe columns 1 in diagonal directions by welding. Because axial force from the brace 3 is transferred as in-plane force of the **square** steel pipe column, the vibration control **structure** has less risk of an out-of-plane deformation of the **square** steel pipe columns or cracking of a welded connection portion of the gusset

plate associated with the deformation. Thus, attenuation performance of the vibration control member can be effectively utilized with the reduced risk that the rigidity at a side of the **square** steel pipe column inhibits the attenuation performance of the vibration control member.

- 44/220** © EPODOC / EPO
- PN - [WO2012106792](#) A1 20120816
- PR - BR2011PI00222 20110211
- AP - WO2012BR00028 20120210
- DT - *; Rep
- CT - |BR| ISR (A1)
[BRMU8702180U](#) U 20081104
 [A] (ELO SIST S E TECNOLOGIA LTDA [BR]);
[US4616177](#) A 19861007
 [A] (MCCLAIN JAMES E [US], et al);
[EP0420650](#) A2 19910403
 [A] (JAPAN ENGINE VALVE MFG [JP]);
[US2004027040](#) A1 20040212
 [A] (DERR ANDREAS [DE], et al)
- CCI - [H02B1/03](#) ; [H02B1/42](#)
- CCA - [H02B1/056](#)
- PA - LIGHT SERVICOS DE ELECTRICIDADE S A [BR]; CAS TECNOLOGIA S A [BR]; INSTITUTODE TECNOLOGIA PARA O DESENVOLVIMENTO LACTEC [BR]; FUNDACAO CPQD CT PESQUISA E DESENVOLVIMENTO EM TELECOMUNICACOES [BR]; TOLEDO FABIO DE OLIVEIRA [BR]; JACOMETTI WELSON REGIS [BR]; SCHULTZ CRHISTIAN [BR]; PURIM CARLOS ADEMAR [BR]; RIBEIRO REGINALDO MATIAS [BR]; MARTINS JOSE ANTONIO [BR]
- TI - CABINET FOR MOUNTING ELECTRIC ENERGY METERS FOR CENTRALISED MEASUREMENT
- AB - A cabinet for mounting electric energy meters for centralised measurement comprises a box (2) in the shape of a **cube** with rounded corners and having at one end a flat **edge** (3); a front cover (4) that fits into the



flat **edge** (3) of the box (2) with a safety lock (5) and is attached by means of top hinges (6); a double fastening strap (**8**) arranged on the rear side of the box (2) that forms the cabinet (1) for fastening the cabinet (1) to a post or another outer **structure**; fastening devices (12) for mounting electric energy meters (9) and the cabinet monitor (10), an internal clamp (11) for preventing illicit removal of the electric energy meters (9) and cabinet monitor (10); an optical bus **bar** (13) and optical LEDs (14) for identifying each electric energy meter (9) suitably mounted in the cabinet (1); a cable inlet (7) for the input terminal (17) that comprises a cover (18) with a clamp (19) and a cable outlet (20) from the cabinet (1); phase blades (15) and neutral blades (16).

45/220 © EPODOC / EPO

PN - [CZ303335](#) B6 20120801

PNFP - CZ20110448 A3 20120801

PR - CZ20110000448 20110722

AP - CZ20110000448 20110722

DT - I

CT - || STSE (B6)

[EP2237004](#) A1 20101006 [] (DE PASQUALE GIORGIO [IT], et al)

[EP2066015](#) A2 20090603 [] (GOEDBLOED MARTIJN [NL], et al)

[WO2006111465](#) A1 20061026 [] (ECKSTEIN GERALD [DE], et al)

[XP031894729](#) A 00000000 []

[XP031978137](#) A 00000000 []

[XP011301266](#) A 00000000 []

[XP004562115](#) A 00000000 []

[XP031456474](#) A 00000000 []

[XP031455750](#) A 00000000 []

CTNP - || STSE (B6)

[] XP031894729 Othman Sidek;et al.: Design and simulation of SOI-MEMS electrostatic vibration energy harvester for micro power generation, Electrical, Control and Computer Engineering (INECCE), 2011 International Conference, Pg.

207-212, 21.06.2011

- [] XP031978137 Takafumi Suzuki; et al.: Novel vibration-driven micro-electrostatic induction energy harvester with asymmetric multi-resonant spring, Sensors, 2010 IEEE, Piscataway, NJ, USA, Pg. 1161-1164, 01.11.2010
- [] XP011301266 Torres E O; Rincon-Mora G A: A 0.7- μ m BiCMOS Electrostatic Energy-Harvesting System IC, IEEE JOURNAL OF SOLID-STATE CIRCUITS, PISCATAWAY, NJ, USA, Vol. 45, Nr. 2, Pg 483-496, 01.02.2010
- [] XP004562115 Mitcheson P D; et al.: MEMS electrostatic micropower generator for low frequency operation, SENSORS AND ACTUATORS A, ELSEVIER SEQUOIA S.A., LAUSANNE, CH, Vol. 115, Nr. 2-3, Pg. 523-529, 21.09.2004
- [] XP031456474 Hohlfeld D; et al.: System-level modeling and simulation of a frequency-tunable electrostatic energy harvester, Thermal, Mechanical and Multi-Physics simulation and Experiments in Microelectronics and Microsystems, Pg.1-7, 26.04.2009
- [] XP031455750 A M Paracha, et al.: A bidirectional vibration powered electric energy generator based on electrostatic transduction using In-Plane Overlap Plate (IPOP) mechanism, Design, Test, Integration&Packaging of MEMS/MOEMS, Pg. 300-303, 01.04.2009
- [] Janicek, V., Husak, M.: Wide Range Layout Optimization of Energy Microgenerator In Electronic Devices and Systems, IMAPSCS International Conference 2010, Brno, Vol. 1, Pg. 115-120, 2010

PA - (A3 B6)
CESKU VYSOKU UCENI TECHNICKU V PRAZE FAKULTA ELEKTROTECHNICKA [CZ]

TI - (A3)
MWMS capacitor **structure** of electrostatic generator
- (B6)
Structure of electrostatic generator MEMS capacitor

AB - (B6)
Structure of electrostatic generator MEMS capacitor of the present invention comprises a rod shaped fixed electrode (3) and a movable electrode (2), which engage in rest position in each other and a micro weight. The **structure** is made on a single substrate of **square** form. In the middle of the substrate, there is disposed a **square** formation (1) forming at the same time the micro weight. Identical movable electrodes (2) are bound to each side of the **square** formation, while fixed electrodes (3) being fixedly coupled via an electrically non-conducting intermediate layer with the substrate and insulated therefrom are located opposite to the movable electrodes (2). An electrically insulated mechanical stop (5) being fixedly coupled with the substrate is performed at tops of the **square** formation (1) from each side thereof. One top of a spring suspension (4) is attached to the top of the **square** formation (1), while the opposite top thereof is attached to a **square** formation forming contacts (6) of the movable electrode (2) and being fixedly mechanically coupled via an electrically non-conducting layer with the substrate and forms an outer **corner** of the whole **structure**. Said spring suspension (4)

is comprised of a regularly repeating broken **structure** of a **beam** filling up the area between both point of its attaching and an area of both the movable electrode (2) and the fixed electrode (3). The fixed electrodes (3) are provided with second contacts (7) disposed arbitrary in the surface of the fixed electrode (3).

46/220 © EPODOC / EPO

PN - [CN202221381U](#) U 20120516
 PR - CN20112325194U 20110901
 AP - CN20112325194U 20110901
 DT - I
 PA - ANHUI JIANGHUAI AUTOMOBILE CO
 TI - Rollover prevention device for high-speed driving operation performance test of a commercial vehicle
 AB - The utility model relates to a rollover prevention device for high-speed driving operation performance test of a commercial vehicle, comprising a riding bolt (1), a **square** steel tube (2), a U-shaped steel (3), a reinforced plate (4), a wheel axle (5) and a wheel assembly (6). An outer frame of a support frame is in isosceles **trapezoid** and formed by connecting upper, lower **square** steel tubes (2) with different lengths and left, right symmetrical waist U-shaped steels (3) by bolts. Two wheel axles (5) are respectively arranged on outer sides of lower segments of the two U-shaped steels (3). Two wheel assemblies (6) are respectively mounted on flange disk surfaces of the wheel axles (5) by bolts. The **structure** of the rollover prevention device is simple and the rollover prevention device is conveniently used without changing the **structure** of the test vehicle. The rollover prevention device reasonably uses the features of a sole **bar structure** and is mounted and fixed on the sole **bar** by the riding bolt and the **structure** is reliable. When performing the high-risk test, the rollover prevention device effectively protects the safety of the test vehicle and the personnel.

47/220 © EPODOC / EPO

PN - [CN102235030](#) A 20111109
 PNFP - CN102235030B B 20121205
 PR - CN20101154935 20100426
 AP - CN20101154935 20100426
 DT - I
 CT - (A)
[CN1877036](#) A []; [CN1877037](#) A [];
[CN200964645Y](#) Y []; [CN201433490Y](#) Y [];
[WO9322520](#) A1 []; [KR100950091B](#) B1 []
 PA - (A)
 UNIV HUNAN; UNIV GUIZHOU; NANJING HYDRAULIC RES INST NHRI
 - (B)
 UNIV HUNAN; UNIV GUIZHOU; NANJING HYDRAULIC RES INST
 TI - (A B)
 Extra-large-span cross-section-variable pre-stressed normally placed evacuating quadrangular pyramid space grid and manufacturing method thereof

AB

- (A)

The invention discloses an extra-large-span cross-section-variable pre-stressed normally placed evacuating quadrangular pyramid space grid and a manufacturing method thereof, wherein pre-stressed space trusses (2) are arranged at about 1/3 parts of two sides of a normally placed evacuating cross-section-variable bi-layer grid (1) along an x direction and a y direction, and the bottom chord of each pre-stressed space truss (2) is provided with a steel cable steering support rack (5); the upper end of a support **node** (6) of each pre-stressed space truss (2) is provided with a steel cable support steel frame (7), and the outer side of the upper part of a frame column (3) is provided with a horizontal stay **bar** (8); and one end of the pre-stressed steel cable (4) slopes downwards to the span centre around the top end of the steel cable support steel frame (7) and the other end of the pre-stressed steel cable (4) is fixed on the lower part of the frame column (3) after bypassing a fixed pulley on the end part of the horizontal stay **bar** (8). The extra-large-span cross-section-variable pre-stressed normally placed evacuating quadrangular pyramid space grid disclosed by the invention is applied to **square** or rectangular extra-large-span (L is greater than or equal to 120m and smaller than or equal to 180m) roofs and has the advantages of low steel consumption, simple **structure**, low manufacturing and installing cost, excellent mechanical property, and the like.

48/220 © EPODOC / EPO

PN - [FR2977144](#) A1 20130104

PNFP - FR2977144 B1 20140808

PR - FR20110055942 20110701

AP - FR20110055942 20110701

DT - *; Rep

CT - || STSE (A1)

[WO9414388](#) A1 19940707 [X] (BRUSCHELLI PAOLO [IT])

[X] 1-3,7,10

* page 6, lines 17-28; figures 1,2,9-12 *;

[US2002142265](#) A1 20021003 [XI] (WEISSMAN BERNARD [US])

[X] 1-3,7,10,12,13

* paragraphs [0098] , [0104]; figures 2,20,73 *

[I] 11,14-16;

[WO2006082610](#) A2 20060810 [XYI] (CITO MARIO [IT], et al)

[X] 1,6,8,10,12-14

* page 4, line 22 - page 5, line 6 *

* page 6, lines 7-18 *

* page 9, lines 2-6; figures 1-10; claim 17 *

[Y] 4

[I] 15,16;

[US2008118892](#) A1 20080522 [XI] (ADAMS CURTIS [US])

[X] 1,7,9-11,14,16

* paragraphs [0039] , [0040] , [0043]; figures 2,7 *

[I] 15;

[US6129730](#) A 20001010 [Y] (BONO FRANK S [US], et al)

[Y] 4

* column 3, lines 5-15; figures 2-4 *;
[FR2945204](#) A1 20101112 [X] (SCORTECCI GERARD [FR])
[X] 1,2,5
* page 5, lines 11-15,22-25 *
* page 6, lines 20-26; figure 2 *

CCI - [A61C8/0022](#) ; [A61C8/0048](#) ; [A61C1/084](#)
CCA - [A61C8/0074](#)
PA - (A1 B1)
EUROTEKNIKA [FR]
TI - (A1)
Implant for implantation of dental prosthesis in bone **structure** of completely edentulous jaw of person to be treated, has top part comprising thread coating with implant **bar**, where implant possesses diameter ranging between specific values
AB - (A1)
The implant has a bottom part (21) comprising a thread coating with a bone **structure**, where diameter of the implant preferably ranges from 2.7 mm to 2.8 mm. A top part (22) has a thread coating with an implant **bar**. The thread of the bottom part has teeth of triangular and/or **trapezoidal** cross section, and the thread of the top part has teeth of **square** cross section. An intermediate part (23) between the bottom and top parts comprises progressive evolution of the threads from one section to the other section. The bottom and top parts are arranged on a cylindrical rod with constant diameter. An independent claim is also included for a kit for implantation of dental prosthesis.

49/220 © EPODOC / EPO

PN - [CN201984880U](#) U 20110921
PR - CN2011265806U 20110315
AP - CN2011265806U 20110315
DT - I
CCA - [Y02W30/821](#)
PA - BAOSHENG SCI & TECH INNOVATION
TI - Classification and identification cable
AB - The utility model discloses a classification and identification cable which belongs to the technical field of cables and comprises a cable core and a sheath on the cable core. The classification and identification cable is characterized in that: a classification and identification convex longitudinal **bar** is arranged on the sheath; the cross section of the convex longitudinal **bar** is semicircular or **square** or rectangular or **trapezoidal** or triangular; the longitudinal direction of the convex longitudinal **bar** has a discontinuous or continuous extension **structure**; and the convex longitudinal **bar** is 0.8-2.0mm wide and 0.1-0.2mm high. Through the classification and identification cable, the special cables (such as fireproof cables) and the common cables can be identified fast and accurately, the cables wrapped by different types of cable materials can be identified and the environmental-friendly cables and the traditional cables also can be identified. The classification and identification cable is simple in **structure**, easy for production, simple and practicable.

50/220 © EPODOC / EPO

PN - [KR20110068415](#) A 20110622

PNFP - KR101081553B B1 20111108

PR - KR20090125360 20091216

AP - KR20090125360 20091216

DT - I

CNOI - (A)
[G01N3/02](#) ; [G01N3/08](#)

CNOA - (A)
[G01N2203/0017](#) ; [G01N2203/0019](#)

PA - (A)
KOREA AEROSPACE RES INST [KR]

TI - (A B1)
TENSION AND COMPRESSION COUPON TESTER USING FOUR-**BAR** LINKAGE

AB - (A)
PURPOSE: A tension and compression test piece tester using a **4**-joint link is provided to reduce the manufacturing cost by having no necessity of additional mechanical composition as an operating device by attractive force using a jack screw.
CONSTITUTION: A tension and compression test piece tester using a **4**-joint link comprises: a **structure** supporter(100) fixed to the bottom; a link member coupled in the **square** shape including a portion of the **structure** supporter on the upper part of the **structure** supporter and coupled with each **corner** to be rotatable; a length adjustment device coupled to be rotatable between the most adjacent corners to the other side of the **structure** supporter among two corners of the link member; and a test piece fixture(400) coupled to the **corner** of the link member located on the upper part of the **structure** supporter and the **corner** located diagonally and spaced out from the center of the diagonal line not to be contact with each other.

51/220 © EPODOC / EPO

PN - [CN201845542U](#) U 20110525

PR - CN20102605475U 20101102

AP - CN20102605475U 20101102

DT - I

PA - YAN YU

TI - Light music stand

AB - A light music stand comprises a supporting seat (1), a supporting rod (2) and a music score placing table (3), wherein a **square** music score placing stand (6) is connected with the music score placing table (3), a slide way is arranged at the inner **edge** of each of the four sides of the music score placing stand (6) respectively, and a longitudinal **beam** (4) and a horizontal **beam** (5) are arranged in the slide ways. Two clips (7) are arranged at the upper **edge** of the music score placing stand (6). The supporting rod (2) is a telescopic rod comprising small sections which are continuously arrayed and overlapped. The light music stand has lighter and simpler **structure** and lighter weight, can be better fixed in any convenient position, can better fix a music score, and is convenient, practical, light and flexible.

52/220 © EPODOC / EPO

- PN - [CN201843024U](#) U 20110525
- PR - CN20102600519U 20101105
- AP - CN20102600519U 20101105
- DT - I
- PA - LUOYANG SHUANGRUI RUBBER & PLASTIC TECHNOLOGY CO LTD
- TI - Middle rubber plate **structure** for elastic limit plate
- AB - The utility model relates to a rubber plate, in particular to a middle rubber plate **structure** for an elastic limit plate, comprising a rubber plate (4) body, the rubber plate (4) has a **square structure**, a plurality of support columns (1) are arranged on the surface of the upper part of the rubber plate (4) with the **square structure**, an external supporting **bar** (2) surrounding the support columns (1) is arranged at the outer **edge** of the surface of the upper part of the rubber plate (4), and the support columns (1) are arranged at intervals, so as to realize the purposes of closing the dust and ensuring the compression capacity. On the basis of keeping the vibration attenuation of an original rubber plate bedding layer, the deformation curve nonlinearity of the rigidity of the limit plate formed by a steel plate and the rubber plate is enhanced by additionally arranging the supporting **bar** at the periphery of the support column **structure** at one side surface of the rubber plate and in the support column **structure**, so as to improve the rigidity regulating capacity and further improve the running safety of trains.

53/220 © EPODOC / EPO

- PN - [CN201841280U](#) U 20110525
- PR - CN20102504173U 20100819
- AP - CN20102504173U 20100819
- DT - I
- PA - GUOQIANG HU; ZHI SHUANGLIN; GAO JIANGANG
- TI - Mechanically clamped periphery shaving lathe tool
- AB - The utility model relates to a mechanically clamped periphery shaving lathe tool, which comprises a blade, a shim, a screw with an eccentric cylinder, a cylindrical tool **bar** and a **square** elastic tool holder. The cylindrical tool **bar** is mounted in a hole of the **square** elastic tool holder, the blade is arranged on a tool mounting groove surface of the cylindrical tool **bar**, the blade is parallel to the axis of a lathe and forms a 20-degree front angle and two 8-degree rear angles on two sides with the lathe, toothed-shaped pitches which are meshed with each other are arranged between the bottom surface of the blade and the shim, the bottom surface of the blade and the shim are tightly pressed on the tool mounting groove surface of the cylindrical tool **bar** by the screw with an eccentric cylinder, and when a main cutting **edge** rotates clockwise for an angle ranging from 70 degrees to 75 degrees, the **square** elastic tool holder and the cylindrical tool **bar** are tightly pressed into a tool rest together by the aid of a tool rest screw. The value of the front angle of the mechanically clamped periphery shaving lathe tool is increased, arc radius r of the cutting **edge** is reduced, the cutting **edge** is sharper and can be used for shaving a shaving layer of the periphery of a part with outer diameter ranging from 0.02mm to 0.05mm, and the roughness of the surface of the part can range from Ra 1.6 micrometers to Ra 0.8 micrometers. The lathe tool is simple in **structure**, low in manufacturing cost, convenient in assembly and disassembly and

high in machining precision of parts.

54/220 © EPODOC / EPO

PN - [CN201799697U](#) U 20110420
PR - CN20092285435U 20091227
AP - CN20092285435U 20091227
DT - I
PA - TAIZHOU HENGYUAN BUILDING MATERIALS MACHINERY CO LTD
TI - Rotating blade of high-strength steel **bar** cutting-off machine
AB - The utility model discloses a rotating blade of a high-strength steel **bar** cutting-off machine, which comprises a blade body (1), and is characterized in that the cross section of the blade body (1) adopts a regular polygon, and a cutting **edge** (2) is arranged at the center of every side surface of the blade body (1). The cross section of the blade body adopts a regular polygon, especially a **square** and has a symmetrical **structure**, and the cutting edges are symmetrically arranged, as a result, even a group of symmetrical cutting edges are damaged, the other group of symmetrical cutting edges can be adopted, thereby greatly prolonging the service life of the blade body, greatly improving the utilization rate (the blade can be used at least **8** times), and greatly reducing the processing cost.

55/220 © EPODOC / EPO

PN - [JP2011006998](#) A 20110113
PNFP - JP4864119B B2 20120201
PR - JP20090154086 20090629
AP - JP20090154086 20090629
DT - I
FI - E01C9/08&Z; E02D17/20&103B; E04G21/24&A
FT - 2D044/DB08; 2D051/AB03; 2D051/AF02; 2D051/AG03; 2D051/DA02; 2D051/DA18; 2D051/DA20; 2D051/DB01; 2D051/DB15; 2D051/DC01; 2D051/DC09
PA - (A)
MAXSTONE KK
TI - (A)
CONNECTION **STRUCTURE** FOR CONNECTING MATS FOR COVERING CONSTRUCTION SURFACE
AB - (A)
PROBLEM TO BE SOLVED: To provide a connection **structure** for connecting mats for covering a construction surface, which easily provides a two-piece mat or a four-piece mat by easily cutting off a mat on a vertical centerline or a lateral centerline, or lines parallel to these lines without interfering with the connectors of the mats. SOLUTION: This connection **structure** for connecting mats for covering a construction surface includes connection bars 5 extending between the **corner**-forming sides 3' 4' of a **square** mat 1 for covering a construction surface. First and second connection joints 6, 7 are provided to the respective ends of the connection **bar** 5. The first connection joint 6 is disposed at the **corner**-formation side 3', and the second connection joint 7 is disposed at the **corner**-formation side 4'. A connector **8** formed by the connection **bar** 5 and the

first and second connection joints 6, 7 is disposed in a **square** compartment area partitioned by the lateral centerline C2 and the vertical centerline C1 of the mat 1 for covering a construction surface, and the mat 1 for covering a construction surface is connected to the adjacent mat 1 for covering a construction surface by the first and second connection joints 6, 7.

56/220 © EPODOC / EPO

- PN - [CN201685254U](#) U 20101229
- PR - CN20102199440U 20100519
- AP - CN20102199440U 20100519
- DT - I
- PA - CHENGXI SHIPYARD CO LTD
- TI - Combined cross-rib broach storage box
- AB - The utility model relates to a combined cross-rib broach storage box, which is used for storing broaches for repairing and manufacturing boats, and comprises a wooden inner container (1), a cross rib (2), an outer casing (3), an upper cover (4), a hinge (5) and a carrying **bar** (6). The wooden inner container (1) is in a **square structure**, the cross rib (2) is inlaid into the wooden inner container (1), the externally mounted outer casing (3) is arranged outside the wooden inner container (1) in a matching manner and made of a delta 2mm black iron sheet, the upper cover (4) is arranged on the top of the outer casing (3), the flip type upper cover (4) is connected with the top **edge** of the outer casing (3) by the aid of the hinge (5), and the carrying **bar** (6) is arranged at the outer **edge** of the outer casing (3). The combined cross-rib broach storage box can store a plurality of broaches, and is light, handy, convenient and practical.

57/220 © EPODOC / EPO

- PN - [CN201669808U](#) U 20101215
- PR - CN20102207500U 20100526
- AP - CN20102207500U 20100526
- DT - I
- PA - JINGTANG ZHONG; KAI ZHONG
- TI - Frame-type tile bevel **edge** cutting machine
- AB - The utility model discloses a frame-type tile bevel **edge** cutting machine, which comprises a cutting machine, a support bracket and a tile fixing frame. The support bracket is of a **square** shape and consists of front and rear cross beams, left and right longitudinal beams and a supporting foot. The left and right longitudinal beams are respectively provided with first U-shaped grooves of which openings are toward the front cross **beam**. The two first U-shaped grooves are connected by a first sliding rod. Both ends of the first sliding rod are respectively fixed on the first U-shaped grooves on the left and right longitudinal beams. A first shaft sleeve is fixedly connected on a supporting seat of the cutting machine. The first shaft sleeve is sleeved on the first sliding rod. The tile fixing frame comprises second longitudinal beams which are respectively positioned below the left and right longitudinal beams, two second sliding rods connected with the two second longitudinal beams and left and right tile clips connected on the second sliding rods by second shaft sleeves. The bottom ends of the tile clips are also provided with clamping device for fixing a tile. Compared with the

prior art, the frame-type tile bevel **edge** cutting machine has the advantages of simple **structure**, convenient use, low production cost and efficiency improvement by 3 to 4 times than manual **edge** cutting mode.

58/220 © EPODOC / EPO

PN - [CN201669227U](#) U 20101215
PR - CN20102180181U 20100427
AP - CN20102180181U 20100427
DT - I
PA - SHANGHAI RES INST CHINA POST GROUP
TI - Switch of automatic letter sorting equipment
AB - The utility model relates to a switch, belonging to the field of automatic letter sorting equipment. The switch of the letter sorting equipment comprises a switching leaf door (2) and a leaf door rotation control device which are fixed on a **square** shaft (1). The switch of the letter sorting equipment is characterized in that the leaf door rotation control device comprises a bidirectional **corner** motor (3) and a rotation oscillating **bar** (4) driven by a motor (3), the rotation oscillating **bar** (4) is fixed on the **square** shaft (1) and rotates by taking the **square** shaft (1) as the axle center, and the switching leaf door (2) is driven to rotate through driving the **square** shaft (1). In the utility model, the switch adopts the rotation of the bidirectional **corner** motor to drive the synchronous rotation of the switching leaf door so as to realize switching, in addition, since the rotation is controlled by the motor, the torque conversion is fast and symmetrical so that the action speed of the switch is improved with symmetrical switching time and accurate switching action. In addition, the switch has simple **structure**, simple and convenient installation and debugging, and greatly improves the operating efficiency.

59/220 © EPODOC / EPO

PN - [CN101852013](#) A 20101006
PNFP - CN101852013B B 20110323
PR - CN20101176467 20100519
AP - CN20101176467 20100519
DT - I
CT - (A)
[CN101270610](#) A []; [US7165361](#) B2 [];
[WO9415045](#) A1 []; [DE19521788](#) A1 [];
[CN2769414Y](#) Y []
PA - (A B)
SHANDONG DEJIAN GROUP CO LTD; SHANDONG LIAOCHENG CONSTRUCTION GROUP CO LTD
TI - (A B)
Truss end connecting device and use method
AB - (A)
The invention relates to a truss end connecting device and a use method, relating to construction equipment and a use method. The connecting device comprises a main body in a variable-diameter cylindrical **structure**, the top of the main body is provided

with a top splint, a skidproof rubber pad is arranged in a **square** groove of the top splint, a corbel is arranged at the mid-upper part of the main body and provided with a reinforcing plate, a reinforcing ring is arranged at the outer border of the main body, a variable-diameter steel tube between the corbel and the top splint is an upper top cylinder, the part below the corbel is a lower sleeve the lower end of which is provided with a gasket and an adjusting nut, an adjusting bolt enters the lower sleeve through the nut and the gasket, and a bottom liner plate is arranged at the lower end of the adjusting bolt. The use method of the device comprises the following steps of: (1) arranging the truss end connecting device between an upper wing **edge** and a lower wing **edge** of a steel **beam**; (2) inserting the adjusting bolt into the lower sleeve below the corbel, tightly screwing the adjusting nut so that the top splint and the bottom liner plate on the upper top cylinder tightly abut against the upper wing **edge** and the lower wing **edge** of the steel **beam**; (3) fixing columns at both ends of a template truss (14) on the corbel; (4) vertically arranging and fixing a panel-supporting batten on the truss along the truss, laying the panel and the reinforced steel bars, pouring concrete and maintaining; and (5) loosening the adjusting nut and dismounting a template bracket and a template.

- (B)

The invention relates to a truss end connecting device and a use method, relating to construction equipment and a use method. The connecting device comprises a main body in a variable-diameter cylindrical **structure**, the top of the main body is provided with a top splint, a skidproof rubber pad is arranged in a **square** groove of the top splint, a corbel is arranged at the mid-upper part of the mainbody and provided with a reinforcing plate, a reinforcing ring is arranged at the outer border of the main body, a variable-diameter steel tube between the corbel and the top splint is an upper top cylinder, the part below the corbel is a lower sleeve the lower end of which is provided with a gasket and an adjusting nut, an adjusting bolt enters the lower sleeve through the nut and the gasket, and a bottom liner plate is arranged at the lower end of the adjusting bolt. The use method of the device comprises the following steps of: (1) arranging the truss end connecting device between an upperwing **edge** and a lower wing **edge** of a steel **beam**; (2) inserting the adjusting bolt into the lower sleeve below the corbel, tightly screwing the adjusting nut so that the top splint and the bottom liner plate on the upper top cylinder tightly abut against the upper wing **edge** and the lower wing **edge** of the steel **beam**; (3) fixing columns at both ends of a template truss (14) on the corbel; (4) vertically arranging and fixing a panel-supporting batten on the truss along the truss, laying the panel and the reinforced steel bars, pouring concrete and maintaining; and (5) loosening the adjusting nut and dismounting a template bracket and a template.

60/220 © EPODOC / EPO

PN - [KR20100093188](#) A 20100825

PR - KR20090012259 20090216

AP - KR20090012259 20090216

DT - I

PA - YANG KYUNG HO [KR]

TI - PREFABRICATED **STRUCTURE** USING **SQUARE** TYPE **BAR**

AB - PURPOSE: A fabricated **structure** using an angular hollow **bar** is provided to prevent the

loss of components during transportation and storage, since inner and outer connector bodies are joined by an elastic band. CONSTITUTION: A fabricated **structure**(1) using an angular hollow **bar** comprises an angular hollow **bar**, a 3-way connection member(3), a 4-way connection member(4), and a 5-way connection member(5). The angular hollow **bar** has a **square** section and is hollow. The angular hollow **bar** is formed with a fitting groove(21) concavely pitted inwards. The fitting groove is formed along the longitudinal direction of the angular hollow **bar**. A protrusion is projected from the opening of the fitting groove in the direction to face each other. The 3-way connection member is positioned at the **edge** of the fabricated **structure**. The 3-way connection member connects the angular hollow **bar** in three ways.

61/220 © EPODOC / EPO

- PN - [JP2010053563](#) A 20100311
- PR - JP20080218508 20080827
- AP - JP20080218508 20080827
- DT - I
- FI - E04B1/24&G; E04B1/58&508S
- FT - 2E125/AA04; 2E125/AA14; 2E125/AB01; 2E125/AB16; 2E125/AC15; 2E125/AC16; 2E125/AG03; 2E125/AG04; 2E125/AG48; 2E125/AG49; 2E125/CA90
- PA - KOBE STEEL LTD
- TI - **STRUCTURE**AND METHOD FOR JOINING COLUMN AND **BEAM**TOGETHER
- AB - PROBLEM TO BE SOLVED: To provide a **structure** for joining a column and a **beam** together, which has sufficient strength in comparison with the strength of the **beam** undergoing the action of bending moment, in a steel building, which is superior in handleability and transportability by virtue of a small size of an overhang portion, and which can be applied to a lateral column and a **corner** post.
- SOLUTION: In the **structure** for joining the column and the **beam** together, the H-shaped cross-section **beam** 2 is joined to the outer periphery of the **square** column 1 in an orthogonal direction, and outer diaphragms 3a and 3b are joined to mounting portions of upper and lower **beam** flanges 2a and 2b of the H-shaped cross-section **beam** 2, respectively. The outer diaphragms 3 are joined onto the outer peripheries of three sides including two sides 1a and 1b, to which the H-shaped cross-section **beam** 2 is joined, among four sides of the **square** column 1, and another side 1c, respectively. Inner diaphragms 4 corresponding to the height positions of the outer diaphragms 3 are joined to the inner peripheral sides of three sides including the two sides 1a and 1b, to which the H-shaped cross-section **beam** 2 is joined, of the **square** column 1, and one side 1d to which the outer diaphragm 3 is not joined, respectively.
- COPYRIGHT: (C)2010,JPO&INPIT

62/220 © EPODOC / EPO

- PN - [CN201399976Y](#) Y 20100210
- PR - CN2009284975U 20090415
- AP - CN2009284975U 20090415
- DT - I
- PA - YEZHI HE

TI - Multifunctional book clip

AB - A multifunctional book clip is characterized in that a **square** baseplate seat (1) is included, wherein one short **edge** of the baseplate seat (1) is the bottom **edge** of a vertical isosceles right triangular plate (2), a shaft (3) parallel to the baseplate seat (1) is fixedly connected with the tip of the triangular plate (2) in the vertical direction, a pair of **square**-shaped **bar**-type pressure levers (4) are connected with the shaft (3) through springs, the **bar**-type pressure levers (4) in a two-winged **structure** are symmetrical to each other with the shaft (3) as the center, two edgings of the pressure levers (4) parallel to the shaft (3) are sleeved by a rubber sleeve (5) respectively, and the other end of the shaft (3) is connected with a bookmark line. The utility model provides a small and practical multifunctional book clip which can avoid the self-closing of books during reading and writing; and the book clip is provided with the bookmark line for marking the progress. The book clip has the advantages of extreme small size, low cost and wide application.

63/220 © EPODOC / EPO

PN - [JP2009221768](#) A 20091001

PNFP - JP5031628B B2 20120919

PR - JP20080068751 20080318

AP - JP20080068751 20080318

DT - I

CT - (A)
[JPH11336021](#) A []; [JPH08158341](#) A [];
[JP2007056583](#) A []; [JP2008014083](#) A []

FI - E01D15/24; E01D19/12; E02B3/06

FT - 2D059/AA11; 2D059/AA14; 2D059/AA17; 2D059/BB15; 2D059/DD16; 2D059/GG55;
2D118/AA28; 2D118/BA03; 2D118/CA03; 2D118/FA08

PA - (A)
SHEGU KYORYO KENKYUSHO KK

TI - (A)
PIER **STRUCTURE**UNIT, PIER **STRUCTURE**, AND CONSTRUCTION METHOD OF PIER

AB - (A)
PROBLEM TO BE SOLVED: To provide a pier, a pier constitutive body constituting the pier, and a construction method of the pier dispensing with timbering work at sea, facilitating transportation and construction work, shortening a construction period, low in manufacturing and construction cost and having high rigidity and earthquake resistance and furthermore high durability.

- SOLUTION: This pier **structure** unit 2 is composed of a slab unit 60 arranged in an internal area 80 formed by at least four steel pipe piles 4 arranged in **square** shape, and composed of an approximately **square** hard support plate part 5 and a reinforcement constitutive body 12 comprising a plurality of reinforcement groups; and a hard covering member **beam** unit 70 including each **beam** member 90 arranged between two steel pipe piles 81 adjacent to each other, and covering the **beam** member 90. One **edge** part 51 of the hard support plate part 5 of the slab unit 60 and a longitudinal **edge** part 52 of the **beam** unit 70 are joined to each other in parallel along the arranged direction of the two steel pipe piles 4 adjacent to each other.

- COPYRIGHT: (C)2010,JPO&INPIT

64/220 © EPODOC / EPO

PN - [CN201324823Y](#) Y 20091014
PR - CN20082157103U 20081215
AP - CN20082157103U 20081215
DT - I
PA - NINGBO L K TECHNOLOGY CO LTD [CN]
TI - Fixed die plate of large-sized cold-chamber die casting machine
AB - The utility model relates to a fixed die plate of a large-sized cold-chamber die casting machine. The plate body is **square**, tie **bar** mounting holes (2) are arranged on four corners of the plate body, upper portions of the left side and the right side of the plate body are equipped with hanging lugs (3), the bottom **edge** of the plate body is equipped with supporting legs (5), and fixing holes (4) of a tongue-and-groove board and a supporting rod are arranged on joint positions of the supporting legs (5) and the bottom **edge** of the plate body. The utility model is simple in **structure**, the hanging lugs can bring convenience for lifting in the processing, assembling and transporting process of a die adjusting plate and can lock a die well to guarantee the die not to loose, and the design of a middle groove reduces the weight of the fixed die plate, which meets the requirement of casting technique.

65/220 © EPODOC / EPO

PN - [CN201324822Y](#) Y 20091014
PR - CN20082157102U 20081215
AP - CN20082157102U 20081215
DT - I
PA - NINGBO L K TECHNOLOGY CO LTD [CN]
TI - Moving die plate of large-scale cold-chamber die-casting machine
AB - The utility model relates to a moving die plate of a large-scale cold-chamber die-casting machine. The plate body is **square**, upper portions of the left side and the right side of the plate body are equipped with hanging lugs (1), the bottom **edge** of the plate body naturally extends to form a supporting base (6), tie **bar** mounting holes (2) are arranged on four corners of the plate body, the top **edge** and the bottom **edge** of the plate body are equipped with hinge lugs (3), and the middle of the plate body is equipped with mounting holes (4) of an ejector pin and a copper screw and ejector rod holes (5). The utility model is simple in **structure**, and the hanging lugs can bring convenience for lifting in the processing, assembling and transporting process of a die adjusting plate, and can lock a die well to guarantee the die not to loose.

66/220 © EPODOC / EPO

PN - [CN201324821Y](#) Y 20091014
PR - CN20082157101U 20081215
AP - CN20082157101U 20081215
DT - I

PA - NINGBO L K TECHNOLOGY CO LTD [CN]
 TI - Die adjusting plate for large-scale cold-chamber die casting machine
 AB - The utility model relates to a die adjusting plate for a large-scale cold-chamber die-casting machine. The plate body is **square**, four corners of the plate body are in round angle transition, upper portions of the left side and the right side of the plate body are equipped with hanging lugs (1), the middle of the plate body is equipped with a fixing table (4), a crosshead guide rod fixing hole is arranged on the fixing table (4), the lower portion of the plate body is equipped with supporting legs (6), tie **bar** holes (2) are arranged on the positions of the four corners, and hinge lugs (3) are mounted on the upper **edge** and the lower **edge** of the plate body. The utility model is simple in **structure**, the hanging lugs can bring convenience for lifting in the processing, assembling and transporting process of the die adjusting plate and can lock a die well and guarantees the die not to loose, and the design of a middle groove reduces the weight of the die adjusting plate, which meets the requirement of the casting technique.

67/220 © EPODOC / EPO

PN - [CN201292576Y](#) Y 20090819
 PR - CN20082134604U 20080903
 AP - CN20082134604U 20080903
 DT - I
 PA - XUECHAO HUO [CN]
 TI - Connecting piece between light steel **structure** house **beam** and column
 AB - The utility model relates to a connection part for beams and columns, which comprises a fixed-connection slot 1 of column connection, two convex sliding ways 2, four screw holes 3 of the fixed-connection slot, a **beam** connection part 4, two concave sliding chutes 5, four screw holes 6 of the **beam** connection part and a buckling table 7 of **beam** connection, wherein the two convex sliding ways are respectively arranged on the internal side wall of the fixed-connection slot 1 of column connection, the four screw holes 3 of the fixed-connection slot are arranged on the convex sliding ways 2 in two sets, the two concave sliding chutes 5 are respectively arranged on the outer side wall of the **beam** connection part 4, the four screw holes of the **beam** connection part are arranged on the concave sliding chute 5 in two sets, and the buckling table 7 of **beam** connection is a protruded **square** frame on the outer **edge** of the **beam** connection part and is used for clamping a light steel **square beam**. The utility model has the characteristics of rapid installation, stable connection, and the like, and can realize the rapid on-site installation of the building of a light steel **structure**.

68/220 © EPODOC / EPO

PN - [CN201236486Y](#) Y 20090513
 PR - CN2008242269U 20080804
 AP - CN2008242269U 20080804
 DT - I
 PA - NANTONG HERO CONSTRUCTION INST [CN]
 TI - Lever-type ejection mechanism
 AB - The utility model provides a lever type ejection mechanism. Holes with combined

circular conical lever type ejection mechanism surface and cylindrical surface are formed on the template; and the circular conical surface is positioned in a position which is on the template and contact with the concrete. A countersunk head screw falls in the circular conical surface hole and the end surface of the countersunk head screw is consistent with the plane surface of the template; a nut arranged on the other surface of the countersunk head screw which extends out of the template fix the countersunk head screw on the template; a round hole is formed at the other end of the countersunk head screw; the round **bar** end of the long **edge** of a **square** round **bar** passes through the round hole on the countersunk head screw, and a tray is connected to the round **bar** end of the short **edge** of the **square** round **bar**; the tray is in contact with the cast concrete; and a handle is mounted at the end part of the long **edge** round **bar** of the **square** round **bar**. When demoulding is conducted, the handle is pulled downwards, and the template is taken out from the cast concrete wall body through utilizing the lever principle. The ejection mechanism with the **structure** can be installed in the number of 4 to 40 at the periphery of the template. The application of the lever type ejection mechanism has the advantages that the template is easy to demould and the template as well as the cast concrete layer surface can not be damaged.

69/220 © EPODOC / EPO

PN - [CN201222915Y](#) Y 20090422
 PR - CN20082125094U 20080718
 AP - CN20082125094U 20080718
 DT - I
 PA - SHENGJIN LIN [CN]
 TI - Quick rubber-tapping knife tool and knife blade
 AB - The utility model discloses a quick tapping knife and a cutter blade thereof. The quick tapping knife comprises a knife rest (1) and a compacting **bar** (5). A tapping port (4) is formed on one side of the knife rest. A locking sheet (2) is arranged on the inclined plane of the tapping port. A rigid positioning rid slipper (3) is fixedly connected on the knife rest. A raised compacting block (7) is arranged on the compacting **bar** (5). The inclined angle of the compacting block is equal to that of the inclined plane of the tapping port. The cutter blade (8) is a **square** steel sheet with a cutting **edge** at the front end of the steel sheet. An outward bulge (9) is formed on one lateral **edge** of the cutting **edge**. The part of the cutting **edge** at the part of the outward bulge extends upwards to form an inverted L-shaped **structure**. The quick tapping knife and the cutter blade thereof have the advantages of simple **structure**, low manufacturing cost and convenient use; can quickly tap the rubber tree with a predetermined cutting depth, avoid the complicated sharpening treatment before tapping since the cutting blade is disposable; and are easy-to-use tools for rubber tappers.

70/220 © EPODOC / EPO

PN - [WO2009103170](#) A1 20090827
 PR - DE20082003359U 20080223
 AP - WO2008CH00541 20081217
 DT - **
 CT - [EP] ISR (A1)

[DE20314260U](#) U1 20031113 [Y] (VISPLAY INTERNAT AG MUTTENZ [CH])

[Y] 1-3

* figures 5A,9B *;

[US4973796](#) A 19901127 [A] (DOUGHERTY RUSSELL [US], et al)

[A] 1

* abstract *;

[DE202006001900U](#) U1 20060330 [YD] (VISPLAY INTERNAT AG MUTTENZ [CH])

[YD] 1-3

* the whole document *;

[DE20213047U](#) U1 20021114 [AD] (VISPLAY INTERNAT AG MUTTENZ [CH])

[AD] 1

* the whole document *

- CCI - [A47F5/0892](#) ; [E04B9/006](#) ; [E04B9/064](#) ; [E04B9/183](#) ; [E04B9/241](#)
- PA - VISPLAY INT AG [CH]; WALTER HERBERT [DE]; MARTIN WEMER [DE]
- TI - SUSPENSION DEVICE FOR DISPLAYING GOODS, COMPRISING A HORIZONTALLY ARRANGED PROFILED **BEAM**
- AB - The invention relates to a suspension device for displaying goods, comprising a horizontally arranged profiled **beam** (1). Said profiled **beam** (1) is fastened to a supporting **structure** (69) by means of ceiling supports (6) and comprises a current-leading profile (2) in its interior, which is accessible via a lower access (19) in the profiled **beam** (1) by means of an adapter (30) for tapping current. A grid of slots (11) is arranged in the profiled **beam** (1) and primary supports (7) with hook elements (701) which are inserted via the lower access (19) can be suspended therein. The primary supports (7) can be used to fasten secondary supports (8) which in turn can be coupled to tertiary supports (9). Every support (7-9) can be used to suspend or place articles to be displayed. The grid of slots (11) is arranged in a first cross-rib (10) of the profiled **beam** (1), the lower access (19) terminating at the first cross-rib (10). The current-leading profile (2) is positioned on one side of the lower access (19). A **corner** connector (4) is used to **join** the corners of two meeting secondary supports (8) that consist of hollow **square** profiles.

71/220 © EPODOC / EPO

PN - [RU2006133364](#) A 20080327

PNFP - RU2338794 C2 20081120

PR - RU20060133364 20060919

AP - RU20060133364 20060919

DT - I

PA - (C2)
OSKOL SKIJ EHLEKTROMETALLURGIC [RU]

TI - (C2)
BAR OUT OF MEDIUM CARBON CHROMIUM CONTAINING STEEL FOR COLD DIE FORGING

AB - (C2)
FIELD: metallurgy. ^ SUBSTANCE: invention refers to **bar** of 15-32 mm diameter used for fabrication of ball pins by method of cold die forging. To increase forging and cutability characteristics of parts a **bar** is fabricated out of steel containing wt %: C - 0.38-0.45, Mn - 0.60-0.90, Si - 0.05-0.40, Cr - 0.90-1.20, S - 0.020-0.040, Mo - 0.005-0.30, Ca - 0.001-

0.010, N - 0.005-0.015, O₂ - 0.001-0.015, As - 0.0001-0.03, Sn - 0.0001-0.02, Pb - 0.0001-0.01, Zn - 0.0001-0.005, iron and impurities at the ratio of $(As+Sn+Pb+5xZn) \leq 0.07$, $O_2/Ca=1/4.5$, $Ca/S \geq 0.065$, at that the **bar** is made continuous cast and hot-rolled, it has fine dispersed ferrite-pearlite **structure** and dimension of actual grain 5-9 points, the depth of carbon free layer not more, than 1.5% from diameter to the side, value of cold shrinkage not more, than 1/3 of height, non-metallic inclusions of sulphides with oxide coating, pointed oxides, stripped oxides, fragile silicates, plastic silicates, non-deformed silicates not more than 3.5 points in each kind of inclusions, on macrostructure it has central porosity, pointed non-uniformity, liquation **square** and sub-shrinking liquation not more, than 3 points in each kind, liquation strips not more, than 1 point. Mechanical properties are σ_{mat} not more, than 730 Mpa, δ not less, than 14%, Ψ less, than 45%, hardenability on hardness of a sample at end hardening at the distance of 1.5 mm from the end 53-61 HRC, cutability for value of wear of back **edge** of cutter h3 not more, than 0.20 mm at cutting path L-1320 m. ^ EFFECT: upgraded mechanical properties. ^ 4 cl, 2 ex

72/220 © EPODOC / EPO

PN - [RU2006133365](#) A 20080327

PNFP - RU2338793 C2 20081120

PR - RU20060133365 20060919

AP - RU20060133365 20060919

DT - I

PA - (C2)
OSKOL SKIJ EHLEKTROMETALLURGIC [RU]

TI - (C2)
BAR OUT OF MEDIUM ALLOYED STEEL FOR COLD DIE FORGING

AB - (C2)
FIELD: metallurgy. ^ SUBSTANCE: invention refers to production of **bar** of 12-36 mm diameter for cold die forging of parts. To facilitate rational conditions of cold die forging simultaneously upgrading process plasticity and viscosity **bar** is produced out of steel containing wt %: C 0.37-0.43, Mn 0.70-1.00, Si 0.17-0.37, Ni 0.40-0.70, Cr 0.40-0.60, Mo 0.15-0.25, S 0.005-0.035, P 0.005-0.035, N 0.005-0.015, O₂ 0.001-0.015, As 0.0001-0.03, Sn 0.0001-0.02, Pb 0.0001-0.01, Zn 0.0001-0.005, iron and impurities at maintaining the ratio: $(As+Sn+Pb+5xZn) \leq 0.07$; $0.60 \leq (C+Mn/6)+(Cr+Mo)/5 \leq 0.76$, at that a **bar** has uniform spheroidising **structure**, containing of not less, than 60% of grain pearlite, dimension of actual grain 5-10 points, non-metallic inclusions for sulphides, oxides, and nitrides not more, than 3 points in each kind, macrostructure for central porosity, pointed non-uniformity, liquation **square**, sub-shrinking liquation not more, than 3 points in each kind, liquation strips not more, than 1 point, σ_{mat} not more, than 660 Mpa, δ not less, than 15%, Ψ less, than 55%, hardenability on hardness of a sample at end hardening at the distance of 1.5 mm from the end 43-58 HRC, at the distance 5.0 mm from the end 40-55 HRC at the distance 9.0 from the end 38-54 HRC, cutability for value of wear of back **edge** of cutter h3 not more, than 0.40 mm at cutting path L-1320 m, cold shrinkage not less, than 1/3 of **bar** height. ^ EFFECT: facilitating rational conditions of cold die forging of parts at simultaneous upgrading of process plasticity and viscosity. ^ 4 cl, 2 ex

73/220 © EPODOC / EPO

PN - [US4416097](#) A 19831122

PR - US19770851965
19771116; US19760659836
19760220

AP - US19770851965 19771116

DT - *

CT - [DE2338208](#) A1 []; [FR929841](#) A [];
[FR935892](#) A []; [IT453363](#) A [];
[GB187202613](#) A []; [GB184561](#) A
[];
[US211291](#) A []; [US902204](#) A [];
[US1070572](#) A []; [US1295919](#) A [
];
[US2031194](#) A []; [US2585051](#) A [
];
[US2877506](#) A []; [US3362739](#) A [
];
[US3452498](#) A []; [US3478482](#) A [
];
[US3547472](#) A []; [US3722704](#) A [
];
[US3906665](#) A []; [US3992834](#) A [
]

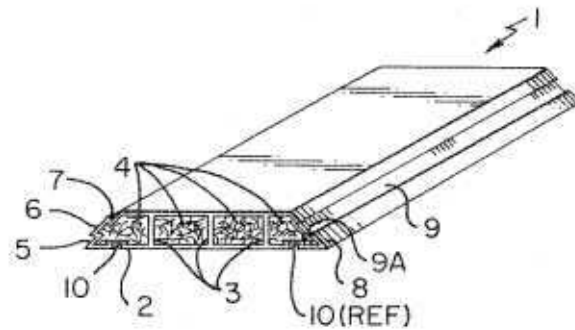
CCI - [E04B2/70](#) ; [E04C2/40](#) ; [E04C3/29](#)

CCA - [E04F2201/0123](#)

PA - WEIR RICHARD L

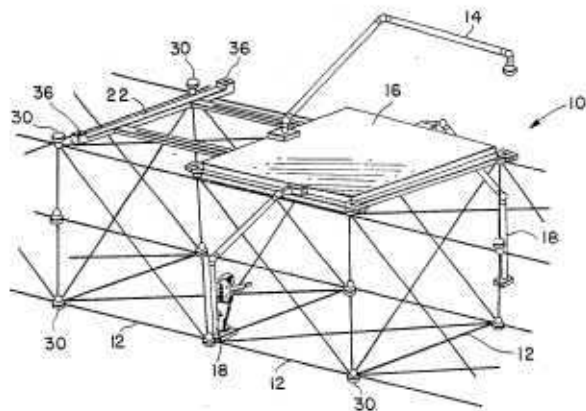
TI - Universal **beam** construction
system

AB - This application discloses a
system of construction that uses
as its main component, a flat
panel member similar to a
standard 2x8 timber with both
edges beveled at a 45 DEG angle
in opposite directions with an
interlocking female recess in one
of the 45 DEG sections and an
interlocking male extrusion on
the opposing 45 DEG section.
These components may be
assembled to provide: (1) a
straight narrow wall by
reversing adjacent panels and
sliding male extrusions and
female recesses together, (2)
assembly of two adjacent panels



to form an angle by sliding male extrusion and female recess together without reversing the sections, (3) forming a U channel by sliding three sections together in a similar manner, (4) sliding four sections together in a similar manner to form a **square**, hollow **beam** section. For **beam** assembly purposes, identical matching female type grooves are provided in the outer face of the basic panel toward either **edge** of the outer face so that the beams, when assembled together, may be locked in alignment by double male splines which are inserted in the adjacent female grooves at assembly. Walls, floors, ceiling and roofs of a building as well as interior walls and drape walls, may thus be fabricated from a single component and the double male spline insert. Horizontal **beam** section will be used at header and footer levels of vertical wall sections for post stressing and chases for wiring harnesses and plumbing assemblies. Insulated thru wall ducting is provided throughout the **structure**.

74/220 © EPODOC / EPO
 PN - [US4685535](#) A 19870811
 PR - US19850760799 19850731
 AP - US19850760799 19850731
 DT - *
 CT - [US1798070](#) A []; [US3063514](#) A [];
[US3072217](#) A []; [US3176792](#) A [];
[US3384201](#) A []; [US3400502](#) A [];
[US3741143](#) A []; [US3774719](#) A [];
[US3817384](#) A []; [US3825096](#) A []



];
[US3910439](#) A []; [US4020921](#) A [
];
[US4095670](#) A []; [US4121690](#) A [
];
[SU419606](#) A1 []

- CCI - [B64G9/00](#)
- PA - NASA [US]
- TI - Mobile remote manipulator vehicle system
- AB - A mobile remote manipulator system 10 is disclosed for assembly, repair and logistics transport on, around and about a space station **square** bay truss **structure**. The vehicle is supported by a **square** track arrangement supported by guide pins integral with the space station truss **structure** 12 and located at each truss **node** 40. Propulsion is provided by a central push-pull drive mechanism 20 that extends out from the vehicle one full structural bay over the truss and locks drive rods 38 into the guide pins 30. The draw **bar** is now retracted and the mobile remote manipulator system is pulled onto the next adjacent structural bay. Thus, translation of the vehicle is "inchworm" style. The drive **bar** can be locked onto two (2) guide pins while the extendable draw **bar** is within the vehicle and then push the vehicle away one bay providing bi-directional push-pull drive. The track switches 28 allow the vehicle to travel in two (2) orthogonal directions over the truss **structure** which coupled with the bi-directional drive, allow movement in four (4) directions on one plane. The top layer of this tri-layered vehicle is a logistics platform 16. This

platform is capable of 360 degrees of rotation and will have two (2) astronaut foot restraint platforms 18 and a space crane 14 integral.

75/220 © EPODOC / EPO

PN - [US2006050281](#) A1 20060309

PNFP - US7242508 B2 20070710

PR - FI20030000214
20030212; WO2004FI00064
20040211

AP - US20050542156 20050712

DT - **

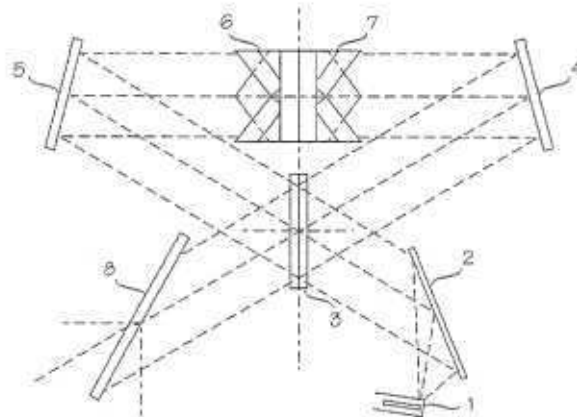
CT - || STSE (B2)
[US2006278830](#) A1 20061214 [
] (NISHIZAWA SEIZI [JP], et al)
- || R141 (A1)
[US6504613](#) B1 [];
[US5459572](#) A [];
[US6141101](#) A [];
[US4881814](#) A [];
[US2006278830](#) A1 []

CCI - [G01J3/108](#) ; [G01J3/453](#)

PA - (B2)
GASMET TECHNOLOGIES OY [FI]

TI - (A1 B2)
Infrared modulator for
spectrometer

AB - (A1 B2)
The invention relates to an
infrared modulator for
spectrometer. It comprises a
light source (1), a **beam** splitter
(2) for splitting the light from
the source into two beams, a
first plane mirror (4) for
directing the light of the
first **beam**, a second plane
mirror (5) for directing the light
of the second **beam**, a first **cube**
corner mirror (7) for turning the
light back to the first plane
mirror (4), and a second **cube**
corner mirror (6) for turning the
light back to the second plane



mirror (5). The first and second **cube corner** mirrors (6, 7) are arranged on a common optic axis to reflect into opposite directions and movable back and forth in the direction of said optic axis. According to the invention, the **beam** splitter (3) and the first and second plane mirrors (4, 5) are supported by the same support **structure** formed by one uniform material piece.

76/220 © EPODOC / EPO

PN - [RO116181](#) B1 20001130

PR - DE1996149871 19961202

AP - RO19970002215 19971202

DT - I

CCI - [B60P3/20](#) ; [B65D88/745](#) ; [B65D90/06](#)

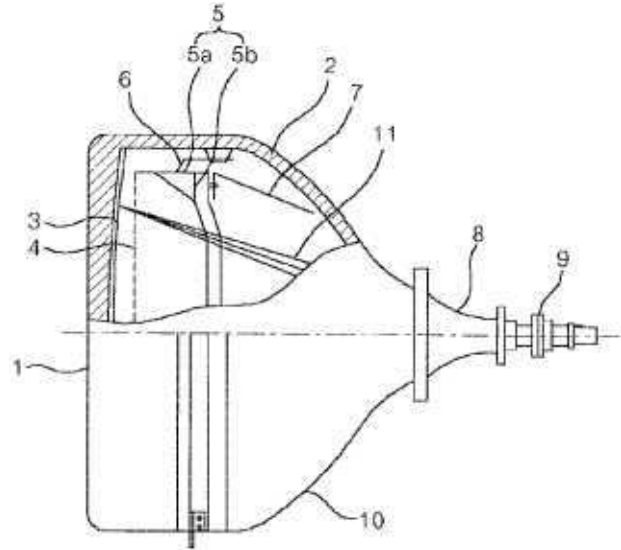
PA - GRAAFF GMBH IK [DE]

TI - HIGH CAPACITY COOLING CONTAINER

AB - The invention relates to a high capacity cooling container having an inner space (6) confined by a front wall (1), some doors (2), side walls (3), a ceiling plate (4) and a bottom plate (5), whose bottom plate with a sandwich-like **structure** is provided with channels (7) for the rapid circulation of the cooling air, said channels comprising T-shaped or hollow- profile grids (8) arranged on an upper plate (9) covering the bottom plate (5) which is in a face-to-face relationship with a lower **beam** (11) of the door (2) which confines a door **square** (10) at the lower side, said plate (5) being provided with a downwards oriented slope (12), the cooling container being provided in its four lower corners (15), with **corner** reinforcements (16), which are provided with downwards oriented bevels (18) in the areas (17) oriented to the side walls (3), said bottom plate (5) having a compact construction made from beams (21 and 22) located therein and embedded in a rigid foam (23); the upper plate (9) covering the bottom plate (5) being provided with strip profiles (25) or T-profiles (26) at its lower side (24), said front wall (1) being represented by a cooling device with the air outlet orifices arranged so as to form an air deflection (31), said front wall (1) and doors (2) having vertical edges (34, 35) forming channels for the cooling air flow, said bottom plate (5) being equipped with at least one automatic device (41) to drain the sweating water coming out from the storage space (6) and to prevent the ingress of water or dirt from outside.

77/220 © EPODOC / EPO

PN - [KR20030010096](#) A 20030205
 PR - KR20010044872 20010725
 AP - KR20010044872 20010725
 DT - I
 CCI - [H01J29/06](#)
 PA - LG PHILIPS DISPLAYS KOREA [KR]
 TI - EXTERNAL MAGNETIC FIELD SHIELD **STRUCTURE** FOR COLOR CATHODE RAY TUBE
 AB - PURPOSE: An external magnetic field shield **structure** for a color cathode ray tube is provided to maintain a color purity by improving **structure** of inner shield assembly and optimizing magnetic characteristics of each component of inner shield assembly. CONSTITUTION: A frame assembly(5) includes a main frame(5a) where a shadow mask(4) is fixed, and a sub frame(5b) fixed to the main frame so as to apply a tension force to the shadow mask. An inner shield assembly(70) includes a main body(71) arranged in rear of the frame assembly, and which shields interior of the funnel; a **square** frame-shaped **beam** shield(72) coupled to the front end of the main body; and a front portion(73) extended forward from each **edge** of the **beam** shield in such a manner that the front portion covers the shadow mask and the frame assembly. The **beam** shield and the front portion are formed integrally with each other, and the main body is coupled to the **beam** shield and the front portion by fixing pins(75).



78/220 © EPODOC / EPO

PN - [KR20010074092](#) A 20010804
 PR - KR20010008276 20010214
 AP - KR20010008276 20010214

DT - I

CNOI - [B65G7/12](#) ; [E02B13/00](#)

PA - HWANG WOON HUN [KR]

TI - EQUIPMENT FOR INSTALLING U-SHAPED CONCRETE WATERWAY PIPE FOR AGRICULTURE

AB - PURPOSE: An installation equipment for a U-shaped concrete waterway pipe is provided to be easily lifted by a worker in simple **structure** and to prevent the hand of the worker from being injured with easy operation. CONSTITUTION: An iron plate(1) is produced in a U-shaped to be a U-shaped waterway pipe lifting equipment. One end of the equipment is long extended with a round **stick**(2). Due to the round **stick**, the equipment prevents a waterway pipe(7) from being damaged when hitting on the waterway pipe. The other end of the equipment installs a **square stick**(3) to be easily hung on a protrusion(8) attached to the **edge** of the waterway pipe. An iron **stick**(4) is attached to the bent portion of the equipment and punched to be strung. A string(6) connects two equipments through holes(5) of the iron **stick** and lifts the equipments. Then, the round **stick** and the **square stick** hit on the waterway pipe and tightly contacts with the waterway pipe by the load of the waterway pipe. Furthermore, the **square stick** is hung on the protrusion when the waterway pipe is lifted.

79/220 © EPODOC / EPO

PN - [JP2008111271](#) A 20080515

PNFP - JP5129947B B2 20130130

PR - JP20060294753 20061030

AP - JP20060294753 20061030

DT - I

FI - E04G3/00&K; E04G5/04&F

PA - (A)
KYANPEKKUSU KOGYO KK

TI - (A)
CATCH CLAMP OF SCAFFOLD FIXING DEVICE

AB - (A)
PROBLEM TO BE SOLVED: To provide a catch clamp of a scaffold fixing device, which can positively clamp an H-section steel, and can easily and quickly detach the same.
- SOLUTION: According to the **structure** of the catch clamp, a pair of clamp bodies **4**, **5** having recesses **4A**, **5A** formed therein, respectively, into which an **edge** of a flange of the H-section steel as a steel frame of a building is fitted, are mounted on a **square** columnar flat **bar 2** which has an anchor nut **3** fixed to one **edge** thereof and has a necessary length, such that the recesses **4A**, **5A** face each other. One **4** of the pairing clamp bodies **4**, **5** is fixed to one end of the flat **bar 2** and the other one **5** is made movable along a lengthwise direction of the flat **bar 2**. Further the movable clamp body **5** can be fixed and unfixed to/from predetermined location by an adequate engaging means.
- COPYRIGHT: (C)2008,JPO&INPIT

80/220 © EPODOC / EPO

PN - [JP2007182694](#) A 20070719

PNFP - JP4621594B B2 20110126

PR - JP20060001293 20060106

AP - JP20060001293 20060106

DT - I

CT - || STSE (A)
[JP2001003381](#) A 20010109 [] (MIZUSHIMA TEKKOSHO KK);
[JP2001262893](#) A 20010926 [] (NIPPON CHUTETSUKAN KK);
[JPH0860688](#) A 19960305 [] (HOKUSEI KOGYO KK)

FI - E02D29/14&A

FT - 2D047/BB02; 2D147/BB02

PA - (A)
HOKUSEI KOGYO KK

TI - (A)
LOCKING **STRUCTURE** OF COVER FOR UNDERGROUND **STRUCTURE**

AB - (A)
PROBLEM TO BE SOLVED: To suppress the axial runout of a blocking plate provided in a pressable manner at an opening of a cover body, to prevent the blocking plate from staying in the pressed-down state without returning to its original state in a locking **structure** of a cover for an underground **structure** .
- (A)
SOLUTION: The locking **structure** 5 of the cover for the underground **structure** comprises a lock body 6 pivoted in a swingable manner to a lower part of the opening provided at a peripheral **edge** part of the cover body, and a blocking mechanism 7 mounted in a pressable manner to the lock body 6 to block the opening. The blocking mechanism 7 has the blocking plate 7a blocking the opening, a **square bar** 7b hangingly provided under the blocking plate 7a, and a washer 9 mounted to a lower end 7c of the **square bar** 7b. The lock body 6 comprises a casing **8** having a through hole 8a through which the blocking mechanism 7 slides. Contact parts between the blocking mechanism 7 and the casing **8** are only an internal contact part between the **square bar** 7b of the blocking mechanism 7 and the through hole 8a in the upper part of the casing **8**, which is formed in **square** shape through which the **square bar** 7b is slidable, and an internal contact part between the washer 9 and the through hole 8a in the lower part of the casing **8**, which is formed in shape through which the washer 9 is slidable.
- (A)
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81/220 © EPODOC / EPO

PN - [JP2007177403](#) A 20070712

PNFP - JP4754347B B2 20110824

PR - JP20050373872 20051227

AP - JP20050373872 20051227

DT - I

FI - E04B1/30&E; E04B1/58&508N

FT - 2E125/AA04; 2E125/AA14; 2E125/AC06; 2E125/AC16; 2E125/BB02; 2E125/BC09; 2E125/BD01; 2E125/BE02; 2E125/BF01; 2E125/CA06; 2E125/CA13; 2E125/CA82

- PA - (A)
NIPPON STEEL CORP; KAJIMA CORP
- TI - (A)
STRUCTUREFOR TENSION-JOINING CONCRETE-FILLED **SQUARE** STEEL-PIPE COLUMN
AND **BEAM** TOGETHER BY USING HIGH TENSION BOLT
- AB - (A)
PROBLEM TO BE SOLVED: To provide a **structure** for tension-joining a concrete-filled **square** steel-pipe column and a **beam** together by using a high tension bolt, which employs a joint metal and the high tension bolt, and which can raise the highest proof stress of a joint by efficiently increasing the rigidity and tensile proof stress of the joint through the use of a simple **structure**.
- SOLUTION: In the **structure** for tension-joining the concrete-filled **square** steel-pipe column and the **beam** together by using the high tension bolt 3, both side parts of the joint metal for joining the **beam 4** to the **square** steel-pipe column 1 are tension-joined to a part near a **corner** part of the column 1 by using the high tension bolt 3; tension resisting and reinforcing members (a through-bolt 5 and the high tension bolt with an anchor function) with a shank for being embedded in concrete 6 inside the column 1 are inserted/fastened into the area, between the high tension bolt 3 and a tension joint, of the joint metal; and the concrete 6 is filled into/solidified in the column 1.
- COPYRIGHT: (C)2007,JPO&INPIT

82/220 © EPODOC / EPO

- PN - [JP2007056611](#) A 20070308
- PNFP - JP4695461B B2 20110608
- PR - JP20050245435 20050826
- AP - JP20050245435 20050826
- DT - I
- CCA - [Y02A20/106](#) ; [Y02A20/108](#)
- FI - E03B11/14; E03B3/02&Z; E03B3/03&B; E03F1/00&Z
- FT - 2D063/AA01
- PA - (A)
TAKIRON CO
- TI - (A)
FILLER AND FILLING **STRUCTURE**FOR UNDERGROUND WATER TANK
- AB - (A)
PROBLEM TO BE SOLVED: To provide a filler and a filling **structure** for an underground water tank of excellent work efficiency attaining firm connection between **beam** bodies without using a connecting piece and hardly causing deformation and collapse of the piled-up filler.
- (A)
SOLUTION: The filler comprises cylindrical columns 2 provided with large-diameter lower end fitting ports and small-diameter upper end fitting ports; semi-cylindrical columns 3 formed in laterally bisected shape of the cylindrical column; quarter-cylindrical columns 4 formed in longitudinally and laterally quadrisected shape of the cylindrical column; and the **square beam** bodies 1. A large diameter annular groove 1a

and a small diameter annular groove for fitting the lower end fitting port and upper end fitting port of the cylindrical columns 2 are formed in the upper face and lower face of the **beam** body 1, and a large diameter quarter annular groove 1b formed by quadrisecting the large diameter annular groove and a small diameter quarter annular groove formed by quadrisecting the small diameter annular groove are formed in the upper face and lower face of a **corner** part of the **beam** body. In the filling **structure**, the respective lower end fitting ports and upper end fitting ports of the cylindrical columns 2, semi-cylindrical columns 3 and quarter cylindrical columns 4 are fitted to the large diameter annular grooves, small diameter annular grooves, large diameter quarter annular grooves and small diameter quarter annular grooves of the longitudinally and laterally arranged **beam** bodies to alternately pile up the respective cylindrical columns and **beam** bodies.

- (A)

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83/220 © EPODOC / EPO

PN - [JP2007032014](#) A 20070208

PNFP - JP4674717B B2 20110420

PR - JP20050214316 20050725

AP - JP20050214316 20050725

DT - I

FI - E04B1/18&E; E04H1/04&B; E04H1/06; E04H9/02&301

FT - 2E139/AA01; 2E139/AC19; 2E139/AC43; 2E139/AC62; 2E139/AC67; 2E139/BA01; 2E139/BA14; 2E139/BD13; 2E139/BD22

PA - (A)
SHIMIZU CONSTRUCTION CO LTD

TI - (A)
PLANE **STRUCTURE** OF BUILDING

AB - (A)
PROBLEM TO BE SOLVED: To provide a plane **structure** of a building applicable even to a change in future usability by simultaneously securing a large space and a small scant space.

- SOLUTION: An objective building is a medium and high-rise building having a **square** plane of a 3*3 span, and is used as a head office building. Respective floors having the **square** plane are composed of a girder 4 arranged in a well curb shape in a plan view, an outer peripheral **beam** 6 arranged in an outer peripheral part and a **beam** 7 arranged between the girders 4 and 4 or between the girder 4 and the outer peripheral **beam** 6. The girder 4 is particularly supported by an outer pillar 2 and a center pillar 1 except for a **corner** pillar 3, and constitutes a well curb frame. The span length is equalized, and the center pillar 1 is arranged only on one diagonal line of the **square** plane. A core part 5 for arranging an elevator and a stairs room is respectively added to a central part of one side Sx and Sy in the orthogonal two directions X and Y of the **square** plane, and a seismic response control damper is arranged in the respective core parts 5 for improving aseismic performance of the building.

- COPYRIGHT: (C)2007,JPO&INPIT

84/220 © EPODOC / EPO

- PN - [JP2006348577](#) A 20061228
- PR - JP20050175956 20050616
- AP - JP20050175956 20050616
- DT - I
- CT - [JPH0442407Y](#) Y2 []; [JPH0386893U](#) U [];
[JPS3630634Y](#) Y1 []; [JPS4613174Y](#) Y1 [];
[JPS518581Y](#) Y2 []; [JPS50130807U](#) U [];
[JPS51156609U](#) U []; [JPS5551925Y](#) Y2 [];
[JPS5689819U](#) U []; [JPH11190085](#) A [];
[JPS5040006U](#) U []; [JPS4859526U](#) U [];
[JPS5082809U](#) U []; [JPS57176592U](#) U [];
[JPH0220333Y](#) Y2 []; [JP2001003512](#) A []
- FI - E04B1/98&X
- FT - 2E001/DG02; 2E001/DH37; 2E001/FA06; 2E001/FA10; 2E001/FA71; 2E001/FA73;
2E001/GA55; 2E001/HA03; 2E001/HB02; 2E001/HB03; 2E001/HC01; 2E001/HC02;
2E001/HD01; 2E001/HD13; 2E001/HF16
- PA - ILC KK
- TI - BASE-ISOLATED **CORNER** MEMBER
- AB - PROBLEM TO BE SOLVED: To provide a base-isolated **corner** member which can release distortion caused by an earthquake to a recessed **corner** or a projected **corner** of a furnished surface, to thereby ease cracking or compressive deformation of the furnished surface.
- SOLUTION: The base-isolated **corner** member is arranged along a boundary of **square** boards **4, 4'** arranged on wall surfaces 2, 2' of a structural body 1 of a building via furring strips 3. According to the **structure** of the base-isolated **corner** member, a channel **bar** 5 consisting of a large-width inside thin plate 5', a small-width outside thin plate 5'', and a groove bottom thin plate 5a is fitted onto an external **edge 4''** of each of the boards **4, 4'**, and a cushioning material 6 is interposed between the groove bottom thin plate 5a and the external **edge 4''**, followed by bringing an external surface of the inside thin plate 5' or the outside thin plate 5'' into contact with an external surface of the groove bottom thin plate 5a, to thereby define the projected **corner 8** or the recessed **corner 8'**.
- COPYRIGHT: (C)2007,JPO&INPIT

85/220 © EPODOC / EPO

- PN - [JP2006249798](#) A 20060921
- PNFP - JP3914238B B2 20070516
- PR - JP20050068580 20050311
- AP - JP20050068580 20050311
- DT - I
- FI - E03F5/06&Z; E04B5/02&J; E04C2/42; E04C2/42&G; E04F11/18
- FT - 2D063/CB07; 2E101/FF00; 2E101/JJ13; 2E162/BA02; 2E162/BA03; 2E301/FF00;
2E301/JJ13

- PA - (A)
NAKAO GIKEN KOGYO KK
- TI - (A)
GRATING-LATTICED PANEL
- AB - (A)
PROBLEM TO BE SOLVED: To improve qualitative stability, and to improve workability, by forming main member two groups and a connecting member 5 into an assembling **structure** dispensing with welding processing, in a grating-like panel 1 of a **square** grating body for arranging and fixing the connecting member 5 parallel to a side frame member 3 in the middle in the longitudinal direction of the main member two groups, by framing and fixing the main member two groups juxtaposed at a required pitch by a side frame member 3 by vertically setting the belt width direction of a belt material.
- SOLUTION: This connecting member 5 is formed into a **structure** arranged and fixed by pitch fixing bars 6A and 6B for arranging a main member fixing slot 9 at a required pitch for fitting the hole **edge** of a connecting locking hole 8 of respective web plates of the main member two groups and a lock **bar** 7 pressingly set in a back part of its pitch fixing bars 6A and 6B.
- COPYRIGHT: (C)2006,JPO&NCIPI

86/220 © EPODOC / EPO

- PN - [JP2006161278](#) A 20060622
- PR - JP20040349732 20041202
- AP - JP20040349732 20041202
- DT - I
- FI - E02D27/00&D; E02D27/12&Z; E04B1/24&R
- FT - 2D046/AA17; 2D046/CA04; 2D046/CA08
- PA - SHIMIZU CONSTRUCTION CO LTD
- TI - **STRUCTURE**FOR JOINING PILE AND COLUMN TOGETHER
- AB - PROBLEM TO BE SOLVED: To realize a foundation with one column and one pile, which can reduce a construction period and a construction cost, and which can also be applied to the pile with a small diameter.
- SOLUTION: A pile head part 2a of the pile 2 is inserted, by a pile diameter D of 1.0D-1.5 D, into a rectangular column-like concrete footing 3, the longitudinal direction of which is a vertical direction. Anchor bolts 4 etc., the head parts of which are exposed from a top surface 3a of the concrete footing 3, are embedded around the pile head parts 2a almost up to a bottom part of the concrete footing 3 in parallel with the pile head part 2a. The anchor bolts 4 etc. are arranged in a **square** shape in a plane-cross-section view at predetermined intervals around the pile head part 2a, and a hoop **bar** 5 is wound around the anchor bolts 4 etc. almost throughout the length of the anchor bolt 4 etc. A base plate 1a is welded to a bottom surface of a steel-frame column 1; and a head part of the anchor bolt 4 is inserted into a hole provided at the peripheral **edge** of the base plate 1a, and screwed into a nut 8, so that the steel-frame column 1 can be fixed onto the concrete footing 3.
- COPYRIGHT: (C)2006,JPO&NCIPI

87/220 © EPODOC / EPO

- PN - [JP2006132258](#) A 20060525
- PNFP - JP4329080B B2 20090909
- PR - JP20040325122 20041109
- AP - JP20040325122 20041109
- DT - I
- FI - E04B1/30&C; E04C3/22; E04C3/293
- FT - 2E163/FA12; 2E163/FD52; 2E163/FF12; 2E163/FF17
- PA - (A)
SHIMIZU CONSTRUCTION CO LTD
- TI - (A)
REINFORCED CONCRETE **BEAM**
- AB - (A)
PROBLEM TO BE SOLVED: To provide a reasonable **structure** of a reinforced concrete **beam** capable of sufficiently increasing shearing resistance.
- SOLUTION: Concrete 2 is filled in a steel pipe 1 having a shearing reinforcing function against a short time shearing force, main reinforcements 3 are arranged in the concrete, and shearing reinforcements 4 having only the shearing reinforcing function against a long time shearing force are arranged around the main reinforcements or the shearing reinforcements are eliminated at all by applying a fire resistant coating on the outer surface of the steel pipe. The steel pipe used is of a pipe having a **square** closed section. A depositing hole 5 for depositing and filling the concrete is formed in the upper surface of the steel pipe, and slab joining reinforcements 6 are inserted into the steel pipe through the depositing hole and fixed in the concrete, or a steel pipe of **square** groove in cross section is used, lip parts bent outward is formed at the upper **edge** parts on both right and left side faces thereof, stud dowels are engraved therein, and reinforcements to stop the opening of the steel pipe are disposed between right and left studs.
- COPYRIGHT: (C)2006,JPO&NCIPI

88/220 © EPODOC / EPO

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- PR - JP20040298413 20041013
- AP - JP20040298413 20041013
- DT - I
- FI - E04B2/94
- FT - 2E002/NA01; 2E002/NB06; 2E002/PA04; 2E002/PA07; 2E002/RA03; 2E002/RB01; 2E002/SA01; 2E002/TA00; 2E002/WA01; 2E002/WA19; 2E002/XA01; 2E002/XA03; 2E002/XA18
- PA - CLION CO LTD
- TI - RULER ANGLE CONNECTION **STRUCTURE** FOR MOUNTING AERATED LIGHTWEIGHT CONCRETE PANEL
- AB - PROBLEM TO BE SOLVED: To provide a ruler angle connection **structure** for mounting an ALC panel, which facilitates arrangement/formation thereof by using ordinary members

in the construction field, and exhibits sufficient panel strength/construction accuracy even if a mounting portion of the ALC panel is located at a portion at which the ruler angle is interrupted by a **square** column arranged at an intermediate portion of a **beam**, and to provide a ruler angle connecting method.

- SOLUTION: In implementation of the ruler angle connection **structure**, there is provided a joint member 10 having an almost U shape in a plan view and consisting of an L-shaped cross sectional joint plate 11, and a pair of flat bars 12. Each of the flat bars 12 has part of a side **edge** thereof secured to an **edge** of the joint plate 11, and has a side **edge** other than the secured one protrude from a bottom of the joint plate to form a protrusion 13. Then the joint member thus formed is arranged at the interrupted portion of the ruler angle **8** in parallel with the same, and a bottom of the protrusion 13 of each flat **bar** 12 is rigidly welded onto a **beam** **4** and/or a side **edge** of the protrusion 13 of each flat **bar** 12 is rigidly welded to a front surface of the **square** column 3.
- COPYRIGHT: (C)2006,JPO&NCIPI

89/220 © EPODOC / EPO

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- PR - JP20040196154 20040702
- AP - JP20040196154 20040702
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- FI - E04B1/24&L; E04B1/58&508S
- FT - 2E125/AA04; 2E125/AA14; 2E125/AB01; 2E125/AB16; 2E125/AC15; 2E125/AC16; 2E125/AG20; 2E125/BE10; 2E125/CA90
- PA - NAKAJIMA STEEL PIPE CO LTD
- TI - **SQUARE** STEEL-PIPE COLUMN AND STEEL SKELETON **STRUCTURE** USING **SQUARE** STEEL-PIPE COLUMN
- AB - PROBLEM TO BE SOLVED: To provide a **square** steel-pipe column, simply and easily obtaining the constitution where a panel zone forming part is reinforced.
 - SOLUTION: In a panel zone forming part Z of a long **square** steel-pipe column 2, diaphragms 3 hot formed like a **square** ring are respectively externally fitted to a plurality of parts in the longitudinal direction of the steel pipe, and connected **4** by welding. The panel zone forming part can simply and easily construct the **square** steel-pipe column increased in thickness by the diaphragms by sharply decreasing the working man-hour without cutting and welding the long **square** steel-pipe, so that the **square** steel-pipe column where a joint part of a **beam** material is reinforced can be obtained at a remarkably lowered cost. The diaphragms are hot-formed like a **square** ring, whereby the radius of curvature of the inner surface of each **corner** part is made a little larger than the radius of curvature of the outer surface of the **corner** part of the long **square** steel-pipe, that is, freely varied according to the radius of curvature of the outer surface, thereby obtaining the diaphragm having the radius of curvature of the inner surface most suitable for the radius of curvature of the outer surface, so that it is possible to provide a stable **square** steel-pipe column and simplify the quality control.
- COPYRIGHT: (C)2006,JPO&NCIPI

90/220 © EPODOC / EPO

- PN - [JP2005353287](#) A 20051222

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 AP - JP20040169461 20040608
 DT - I
 FI - H05B33/04; H05B33/10; H05B33/14&A
 FT - 3K007/AB11; 3K007/AB18; 3K007/BB01; 3K007/DB03; 3K007/FA02; 3K107/AA01;
 3K107/BB01; 3K107/CC21; 3K107/CC23; 3K107/CC43; 3K107/CC45; 3K107/EE42;
 3K107/EE55; 3K107/FF15; 3K107/GG06; 3K107/GG07; 3K107/GG37
 PA - HITACHI DISPLAYS LTD
 TI - ORGANIC EL ELEMENT AND ITS MANUFACTURING METHOD
 AB - PROBLEM TO BE SOLVED: To provide an organic EL element relatively easily obtainable without forming an uneven part on the surface of a substrate and allowing the size of the frame thereof to be decreased even by the organic EL element itself, and to provide its manufacturing method.
 - SOLUTION: This organic EL element is provided with a **square** organic EL substrate 21 having an organic EL **structure** stacked and formed in a luminescent area 4 on one surface, and a sealing plate 2 covering the luminescent area of the organic EL substrate, and composed by sticking the organic EL substrate and the sealing plate to each other by a sealing material 3. When the sealing material 3 is applied over all the circumference of the sealing plate 2, the application quantity of the sealing material in its **corner** is set smaller than that at its side to **stick** it, whereby the width (b) of the **corner** of the sealing material 3 after sticking it is set smaller than the width B of the side (B<b).
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PN - [JP2005307695](#) A 20051104
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 PR - JP20040129932 20040426
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 DT - I
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 FT - 3J048/AA02; 3J048/AA03; 3J048/BA11; 3J048/BC04; 3J048/BC07; 3J048/BE03;
 3J048/BG04; 3J048/EA38
 PA - (A)
 SHIMIZU CONSTRUCTION CO LTD
 TI - (A)
 FLOOR BASE ISOLATION **STRUCTURE**
 AB - (A)
 PROBLEM TO BE SOLVED: To provide a floor base isolation **structure** provided with an inexpensive base isolation device allowing easy replacement and preventing height of a floor surface from being changed.
 - SOLUTION: A floor slab 2 having a **square** shape when viewed in a plane is put on a **beam** 1 stretched between columns 5 and 5 and made of H-steel, and the floor slab 2 can slide on the **beam** 1 in the horizontal direction. The floor slab 2 and the **beam** 1 are mutually connected by a rubber band 3 like a **bar** or a belt plate made of natural

rubber. One end of the rubber band 3 is fixed to a protruding part 2a provided in a **corner** angle part on a lower face of the floor slab 2 and protruding downward, and the other end is fixed to a side face 1a in a central part of the **beam** 1. A friction member 4 made of polytetrafluoroethylene is bonded on an upper face of the **beam** 1 to adjust friction damping force when the floor slab 2 moves horizontally and prevent noise caused when it moves. A clearance 6 is provided in a connection part of the floor slab 2 and the column 5 to prevent collision of the floor slab 2 against the column 5 when the floor slab 2 moves in the horizontal direction.

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92/220 © EPODOC / EPO

PN - [JP2005299190](#) A 20051027

PNFP - JP4225941B B2 20090218

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AP - JP20040115962 20040409

DT - I

FI - E01C11/24; E01C3/06; E01C5/18; E03F3/04&A

FT - 2D051/AA02; 2D051/AA03; 2D051/AC05; 2D051/AD07; 2D051/AG03; 2D051/AG13; 2D051/CA02; 2D051/CA06; 2D051/CA07; 2D051/DA07; 2D051/DB01; 2D051/DB04; 2D051/DB20; 2D051/DC09; 2D063/BA00

PA - (A)
OBAYASHI ROAD CORP; AICHI TIRE INDUSTRY CO LTD; SHOWA TSUSHO CO LTD

TI - (A)
DRAIN MATERIAL FOR PAVEMENT

AB - (A)
PROBLEM TO BE SOLVED: To provide a drain material for pavement easily imparting a drain function in a longitudinal direction along a side **edge structure** of drainable pavement with simple constitution and by a simple construction method.
- SOLUTION: This drain material for pavement is formed by bonding aggregate with a maximum grain size of 4-6 mm containing 30 wt% or more of a soft elastic material with a heat resistant temperature of 150[deg.]C or higher, using a thermosetting resin binder, and provided with **square bar** shape of quadrangular cross section with a through hollow part 11 at the center part, wherein the porosity of a body part 15 around the through hollow part 11 is 20-50%. An impervious sheet material 18 is continuously stuck in U-shaped cross-sectional shape across three side faces with two **corner** parts 16 of quadrangular cross section interposed. The soft elastic material is rubber chips obtained by crushing a waste tire preferably formed of diene-based rubber, and the resin binder is preferably urethane-based resin.

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93/220 © EPODOC / EPO

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G01P3/44&Z; H01H59/00

FT - 3C081/AA13; 3C081/BA01; 3C081/BA07; 3C081/BA44; 3C081/BA46; 3C081/BA48;
3C081/EA02; 3C081/EA23

PA - MATSUSHITA ELECTRIC WORKS LTD

TI - CAPACITANCE TYPE MOVABLE **STRUCTURE**

AB - PROBLEM TO BE SOLVED: To increase the displacement amount of a mass part without enlarging the whole size.

- SOLUTION: A **beam** part 3 is formed in narrow and thin strip shape, and its shape from the thickness direction view of the mass part 2 is formed in a **square** spiral shape with one outer end connected to an **edge** facing a recess 2a of the mass part 2 and with the other inner end connected to a support part 4 disposed in the recess 2a. Consequently, although the share rate of a disposed region of a pair of **beam** parts 3 to the whole movable **structure** 1 is relatively low compared with a conventional example, the displacement amount of the mass part 2 can be increased by extending the length dimension of the **beam** parts 3.

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PN - [JP2005054508](#) A 20050303

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PR - JP20030288130 20030806

AP - JP20030288130 20030806

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FT - 2E002/NA01; 2E002/NB02; 2E002/NC01; 2E002/PA01; 2E002/QA00; 2E002/QB01;
2E002/QC03; 2E002/SA01; 2E002/SA02; 2E002/WA02; 2E002/WA19; 2E002/XA01;
2E002/XA05; 2E002/XA09; 2E002/XA16; 2E002/XA18

PA - (A)
SHIMIZU CONSTRUCTION CO LTD

TI - (A)
WALL SUPPORTING **STRUCTURE**

AB - (A)
PROBLEM TO BE SOLVED: To obtain high rigidity without impairing the appearance from both inside and outside of a building in a simple **structure**.

- SOLUTION: A wall supporting **structure** is provided with a vertical **beam** material 5 between a plurality of horizontally juxtaposed vertical cable materials 2, and lessens a cross section area of a member supporting the wall body 1 by suppressing deformation of the wall face for wind with the vertical **beam** material and reducing reaction force of the vertical cable material 2 even when constructing a large wall face since the **corner** parts of a plurality of vertically and horizontally juxtaposed wall body 1 are supported with a support member 3 fixed on the vertical cable material 2 and the vertical **beam** material 5. In addition, a horizontal cable material 4 is fixed on the vertical **beam** material 5 to stop buckling of the vertical **beam** material 5. The support means 3 is fixed on the horizontal cable material 4 to improve support force of the wall body 1. A

rib material 7 and a **square** steel material 8 are provided along the longitudinal direction of the vertical **beam** material 5 to stop buckling of the vertical **beam** material 5. The vertical cable material 2, the horizontal cable material 4 and the vertical **beam** material 5 are arranged along a joint part 1a of the wall body 1 to improve the appearance from the indoor side and the outdoor side of the wall body 1 made of glass.

- COPYRIGHT: (C)2005,JPO&NCIPI

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PN - [JP2004339781](#) A 20041202

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AP - JP20030137269 20030515

DT - I

FI - E04B5/52&N; E04B5/52&W; E04B9/00&L; E04B9/00&T

PA - (A)
SEKISUI HOUSE KK

TI - (A)
CEILING **STRUCTURE**

AB - (A)
PROBLEM TO BE SOLVED: To solve the problems of being impossible to conventionally use a structural material as a decorative **beam**, and requiring diversification of a habitable space, in a house building using a gypsum board.
- (A)
SOLUTION: The rod **edge** 11 and the **square edge** 9 are composed of a backing member 2 arranged in close contact in the ceiling 12, and having a side view substantially C-shaped fitting part 2a in a lower part, a similarly side view substantially C-shaped groove body 3 fitted with the fitting part 2a, and a rod body 4 for containing the groove body 3 in an upper part. At least one of the fitting part 2a and the groove body 3 is formed of an elastic body.
- (A)
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AP - JP20030128094 20030506

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FI - E04B5/55&G; E04B5/57&F; E04B5/58&B; E04B5/58&J; E04B5/58&Q; E04B9/14&D; E04B9/18&B; E04B9/18&K; E04B9/18&P; E04B9/24&C

PA - TOSHIBA LIGHTING & TECHNOLOGY

TI - CEILING **STRUCTURE**

AB - PROBLEM TO BE SOLVED: To provide a ceiling **structure** easy in installation, a change, and transfer of an equipped apparatus, by realizing the ceiling **structure** as the latticed ceiling superior in aseismatic performance for a building having no ceiling slab.

- SOLUTION: A plurality of ceiling battens receivers **4** mutually arranged in parallel by crossing a ceiling backing material, are suspended and held by the ceiling backing material composed of a purlin and a steel frame. A plurality of main bars (a first ceiling joist material) **6** with the ceiling board support **edge** arranged on the lower side of the receivers **4**, are crossed with, connected to, and supported by the battens **4**. A plurality of cross bars (a second cradling material) **8** with the ceiling board support **edge** arranged on the lower side of the battens **4**, are crossed with, and supported by a **bar** **6**. A plurality of small bars (a third ceiling joist material **9**) with the ceiling board support **edge** arranged on the lower side of the battens **4**, are crossed with, and supported by a **bar** **8**. A **square** ceiling board **10** is dropped in a **square** opening **20** partitioned by the respective bars **6**, **8**, and **9** combined in a grid shape, and the four peripheries of this ceiling board are placed without being fixed to the respective ceiling edges.
- COPYRIGHT: (C)2005,JPO&NCIPI

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FI - E04B1/24&L; E04B1/58&508S

FT - 2E125/AA02; 2E125/AA03; 2E125/AA04; 2E125/AA12; 2E125/AA13; 2E125/AA14; 2E125/AB01; 2E125/AB16; 2E125/AC14; 2E125/AC15; 2E125/AC16; 2E125/BB01; 2E125/BB22; 2E125/BD01; 2E125/BE08; 2E125/CA90; 2E125/EA33

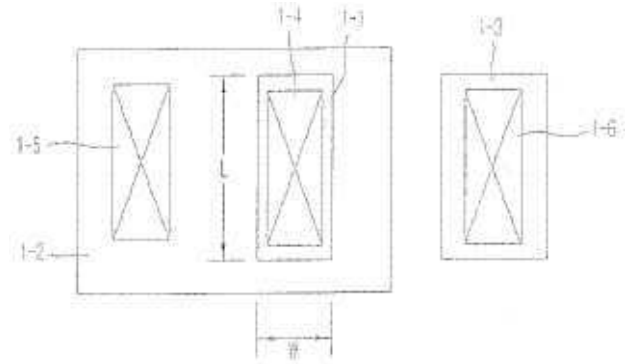
PA - (A)
HITACHI METALS LTD

TI - (A)
DIAPHRAGM

- AB - (A)
- PROBLEM TO BE SOLVED: To provide a diaphragm capable of constructing a column-**beam** joint **structure** excellent in reliability and relatively easily obtaining various dimensions and shapes and suitably satisfying demand for a wide variety of production.
- SOLUTION: The diaphragm **1** is provided with a joint part **2** having a **square** joint hole **4** through which a **square** steel pipe column can pass and four projected parts **3** forming 90 degrees with each other on the same plane at the outer periphery of the joint part **2**. The joint part **2** and four projected parts **3** are formed by a steel plate with a uniform thickness. The inner peripheral face **2a** of the joint **2** constituting the **square** joint hole **4** is formed to be orthogonal to the obverse **2b** and reverse **2d** of the joint part **2**. The **corner** part **2c** of the inner peripheral face **2a** forms respectively a smooth recessed curved face.
 - COPYRIGHT: (C)2005,JPO&NCIPI

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PN - [JP2003133327](#) A 20030509
 PR - KR20010065209 20011022
 AP - JP20020303745 20021018
 DT - I
 CCI - [H01L29/732](#) ; [H01L29/0692](#) ;
[H01L29/0804](#)
 FI - H01L29/72&Z
 FT - 5F003/AP00; 5F003/BE90;
 5F003/BF01
 PA - ASB INC
 TI - BIPOLAR TRANSISTOR
 AB - PROBLEM TO BE SOLVED: To
 reduce manufacturing cost by
 reducing element area in given
 operating frequency and output
 electric power, while satisfying
 the requirements for the element
 having high output and high
 operating frequency. SOLUTION:
 To increase values (**edge**
 length/area) of the
 planar **structure** of an emitter
 and improve the current drive
 capacity of the emitter, an
 emitter planar **structure** 2-1 is
 formed of a **bar**-like polygonal
 main axis (trunk) 2-3 and a
 plurality of polygonal branches
 2-4 connecting with the main
 axis 2-3. For example, when the
 planar **structure** is formed of
 a **square** main axis and a
 plurality of **square** branches, A, B
 and D all become 2 [μ]m
 respectively, and when C is 4
 [μ]m, W is 10 [μ]m and L
 becomes 22 [μ]m.



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 AP - JP20020240331 20020821
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 FT - 2E125/AA04; 2E125/AA14; 2E125/AB16; 2E125/AC16; 2E125/AG03; 2E125/AG43;

2E125/AG57; 2E125/BB02; 2E125/BB09; 2E125/BB18; 2E125/BB22; 2E125/BB24;
2E125/BB37; 2E125/BC08; 2E125/BD01; 2E125/BE05; 2E125/BE07; 2E125/BE08;
2E125/BF04; 2E125/BF08; 2E125/CA03; 2E125/CA14; 2E125/EA33

- PA - JFE STEEL KK
- TI - JOINT **STRUCTURE** OF STEEL PIPE POST AND STEEL PIPE **BEAM**
- AB - PROBLEM TO BE SOLVED: To provide the joint **structure** of a steel pipe post and a steel pipe **beam** provided with a relatively light joint fitting for a post/**beam** joint part which can reduce a cost.
- SOLUTION: In this **structure** for joining steel pipe beams 10 and 15 having end plates 11 and 16 and having a **square** cross section to the joint fitting 2 having a **square** cross section and provided at a steel pipe post 1 with bolts, the joint fitting 2 is formed thick in each **corner** 3 and formed with a plurality of first screw holes **4** in the vertical direction of the corners 3 of a pair of opposite surfaces, and formed with a plurality of second screw holes 5 in the vertical direction of the corners 3 of the other pair of opposite surfaces, while displacing from the first screw holes **4** in the vertical direction. Bolt insert holes are formed in the end plates 11 and 16 on both sides of the steel beams 10 and 15, corresponding to the first screw holes **4** or the second screw holes 5 of the joint fitting 2.
- COPYRIGHT: (C)2004,JPO

100/220 © EPODOC / EPO

- PN - [JP2001164805](#) A 20010619
- PNFP - JP3487823B B2 20040119
- PR - KR19990028639U 19991210
- AP - JP20000365267 20001130
- DT - I
- CCI - [E05B27/0078](#)
- CCA - [E05B27/0017](#) ; [E05B27/0082](#) ; [E05B17/007](#) ; [Y10T70/7616](#) ; [Y10T70/7605](#) ; [Y10T70/7881](#)
- FI - E05B27/10
- PA - (A)
JUNGU KYUU KIMU
- TI - (A)
STRUCTURE OF LOCK
- AB - (A)
PROBLEM TO BE SOLVED: To provide a lock having a slide **bar** for locking or unlocking a body constituting a lock with a rotator and a slide pin for operating the slide **bar** which are strong and smoothly operable. SOLUTION: In this lock 1 comprising a body 2 having a slide **bar** locking groove 6 formed on the sideward inside thereof and a rotator 3 having a slide **bar** entrance groove 7 formed on the sideward outside thereof, a slide **bar** **8** having a linear inside surface is elastically provided thereon, about five **square** slide pin holes 9 having circular recessed parts 10 on each **edge** are formed so as to be right-angled to the slide **bar** entrance groove 7, and **square** slide pins 15 having recessed grooves 13 and projections 14 formed so that the positions are mutually varied are fitted to the slide pin holes 9, respectively, so that the recessed groove 13 side is

partially exposed to the slide **bar** entrance groove 7, and the projection 14 is exposed to an open groove 12.

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PN - [JP2002129653](#) A 20020509

PNFP - JP3602429B B2 20041215

PR - JP20000320353 20001020

AP - JP20000320353 20001020

DT - I

FI - E04B1/30&H; E04B1/30&K

PA - (A)
TAISEI CORP

TI - (A)
REINFORCED CONCRETE COLUMN AND JOINT PART **STRUCTURE** OF THE COLUMN AND STEEL **BEAM**

AB - (A)
PROBLEM TO BE SOLVED: To realize higher rigidity and bearing force than a column of reinforced concrete construction, to facilitate work execution and to reduce a steel frame quantity compared with a concrete filled steel pipe column to improve economy in a reinforced concrete column formed by surrounding the outer periphery of the column of reinforced concrete construction with steel plates, and the joint part **structure** of the column and a steel **beam**. SOLUTION: The outer periphery is surrounded in **square** cylindrical shape by steel plates 2, and a plurality of (for instance, twelve) main reinforcements 3 are disposed inside along the circumference. A hoop reinforcement 5 is spirally disposed at the main reinforcements 3. One or more (for instance, one) main reinforcement 4 is disposed at each of four **corner** parts, and concrete 6 is placed to constitute the reinforced concrete column 1. A horizontal stiffener extending outward from the steel plate 2 is integrally provided at the steel plate 2, at a connecting position to the steel **beam** and in a position facing the upper and lower part flange of the steel **beam**, and the horizontal stiffener and the upper and lower part flanges of the steel **beam** are jointed to each other.

102/220 © EPODOC / EPO

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AP - JP20000235455 20000803

DT - I

FI - E04B1/16&P; E04B1/30&K; E04B1/58&508F; E04B1/58&508S

FT - 2E125/AA04; 2E125/AA14; 2E125/AB01; 2E125/AB13; 2E125/AB16; 2E125/AC04; 2E125/AC07; 2E125/AC15; 2E125/AC16; 2E125/AC26; 2E125/AC29; 2E125/AC30; 2E125/AG03; 2E125/AG04; 2E125/AG12; 2E125/AG41; 2E125/AG43; 2E125/BB01; 2E125/BB08; 2E125/BB09; 2E125/BB12; 2E125/BB22; 2E125/BB30; 2E125/BB31; 2E125/BD01; 2E125/BE02; 2E125/BE08; 2E125/BE10; 2E125/BF04; 2E125/CA01; 2E125/CA06; 2E125/CA13; 2E125/CA14; 2E125/CA90

PA - (A)
KAJIMA CORP

TI - (A)
STRUCTUREFOR COLUMN-**BEAM** JOINT PART

AB - (A)
PROBLEM TO BE SOLVED: To provide a **structure** for a column-**beam** joint part, allowing the column-**beam** joining part to be tightened by enabling stress from shape steel for a **beam** to be reliably transferred to the whole of an SRC column (a CFT column) and preventing the stress from being concentrated only on the joint part between the shape steel for a column and the shape steel for the **beam**. SOLUTION: A flange 5a of a joining metallic material 5 joined to a flange 3a (one **edge** on one side of the **square** steel tube of the CFT column) on one side of the shape steel 3 for the SRC column 2 is joined to the flange 3a (one **edge** on the other side of the **square** steel tube) on the other side of the shape steel 3 by a long high-strength bolt 7 (a PC steel **bar** and a high-strength threaded **bar**). Additionally, the stress transferred from the shape steel **4** for the **beam** through the metallic material 5 is transferred into the SRC column 2 from the section contacting concrete 2a between the one-side flange 3a and the other-side flange 3a by means of the bolt 7 for the purpose of reducing the stress transferred directly from the shape steel **4** to the flange 3a of the shape steel 3 through the metallic material 5.

103/220 © EPODOC / EPO

PN - [JP2002045545](#) A 20020212

PR - JP20000233361 20000801

AP - JP20000233361 20000801

DT - I

FI - A63F7/02&326D

FT - 2C088/DA15; 2C088/EA15

PA - NITTO ISLAND KEY KK

TI - ASSEMBLY **STRUCTURE**OF GLASS DOOR FRAME OF PACHINKO MACHINE

AB - PROBLEM TO BE SOLVED: To assembly a sash **bar** in a specific shape in the shape of a **square** frame without performing any complex machining. SOLUTION: A pair of glass slide frame sides 2 where a pair of recessed grooves 2b are connected via a protrusion 2a in an inverse recessed type are arranged oppositely, one end 2c of the glass slide frame sides 2 is fitted to a recessed large groove frame side 3 having a fitting recessed groove 3a having nearly the same width at right angle, the protrusion 2a of the other end 2d of the glass slide frame side 2 is fitted to a recessed small groove frame **4** having a fitting recessed groove 4a having nearly the same width at right angle for composing a **square** frame, one side 5a of an L-type connection piece 5 is inserted into bottom parts 3c and 4c of each of fitting recessed grooves 3a and 4a of the recessed large groove frame side 3 and the recessed small groove frame side **4** near each **corner edge** part of the **square** frame so that the other side 5b comes into contact with the outer surface of the bottom parts 3c and 4c of the other side 5b, one side 5a of the connection piece 5 is brought into contact with a front F or a rear R of the end parts 2c and 2d of the protrusion 2a, and at the same time, one side 5a of the connection piece 5 is connected to the projection 2a by a rivet.

104/220 © EPODOC / EPO

PN - [JP2001262691](#) A 20010926
PR - JP20000079780 20000322
AP - JP20000079780 20000322
DT - I
FI - E04B1/16&K; E04B1/30&K; E04C3/36
FT - 2E163/FA02; 2E163/FF12; 2E163/FF17
PA - YUKIMURA NORIE
TI - CORE COLUMN AND COMPOSITE COLUMN HAVING THE SAME
AB - PROBLEM TO BE SOLVED: To provide a core column and a composite column having the same, capable of constructing a building not only having the ability to obtain about the same span as an SRC construction and a CFT **structure** but also more excellent in structural strength and constructibility than a high-rise RC construction at approximately the same costs as the RC construction. SOLUTION: The core column 1 serving as a column-like member buried in the core part of an RC column is constituted of a long PCa concrete member 1a and a steel material 1b annexed to the external surface of the member 1a. The steel material 1b is constituted of a combination of either a channel steel **8** or an angle **bar** 1b' and either a connection belt 1b'' or a truss **bar** 9. The channel steel **8** or the angle **bar** 1b' is disposed at the **corner** part of the **square** columnar PCa concrete member 1a, and pieces of the channel steel **8** or the angle bars 1b', which are adjacent, are connected by the connection belt 1b'' or the truss **bar** 9.

105/220 © EPODOC / EPO

PN - [JPH10183768](#) A 19980714
PNFP - JP3161987B B2 20010425
PR - JP19960357998 19961227
AP - JP19960357998 19961227
DT - I
FI - E04B1/343&B; E04H6/02&E
PA - (A)
NIKKO KINZOKU KK
TI - (A)
ASSEMBLY TYPE **STRUCTURE**
AB - (A)
PROBLEM TO BE SOLVED: To provide an assembly type **structure** side wall parts of which is divided into an upper part and a lower part and can be easily connected, excellent in strength and efficiency of assembly work. SOLUTION: This **structure** 1 is constituted of a **square** corrugated plate in which a **trapezoidal** crest part and a bottom part are connected alternatively like waves is bent in a U-shape to form a roof part and a side wall part 6 integrally. In this case, the side wall part 6 consists of an upper side wall 6a and a lower side wall 6b obtained by dividing it into these two parts, end fringe members 7, **8** are attached to a lower end of the upper side wall 6a and an upper end of the lower side wall 6b, respectively, and end parts of a horizontal **beam** 13 provided in the **structure** are engaged with connection members 10 which are arranged between the

end fringe member 7 and the end fringe member 8 and connect both end fringe member, respectively.

106/220 © EPODOC / EPO

PN - [JPH10211501](#) A 19980811
PR - DE1996154063 19961223
AP - JP19970351139 19971219
DT - I
CCI - [B21B1/026](#) ; [B21B1/466](#)
CCA - [B21B1/04](#) ; [B21B13/22](#) ; [Y10T29/49991](#)
FI - B21B1/00&D; B21B1/02&C; B21B1/16&A; B21B1/16&B; B21B1/46&C; B21B13/10&A; B21B13/22; B21B27/02&D; B21B45/00&N; B21J1/02&Z; C21D8/06&A; C21D8/06&Z; C22C38/00&301Y
FT - 4E002/AA07; 4E002/AC12; 4E002/BA01; 4E002/BA02; 4E002/BA04; 4E002/BC05; 4E002/BD02; 4E002/BD08; 4E002/CB01; 4E002/CB08; 4E016/AA04; 4E016/BA01; 4E016/BA08; 4E087/BA14; 4E087/CB01; 4K032/AA05; 4K032/BA02
PA - SCHLOEMANN SIEMAG AG
TI - MANUFACTURE OF STEELBAR PROVIDED WITH **STRUCTURE**WHICH IS REFINED AND/OR COMPRESSED BY FORGING AND ROLLING, AND EQUIPMENT THEREFOR
AB - PROBLEM TO BE SOLVED: To realize manufacture of a product which is compressed to its center part at high productivity and low cost as compared with forging and, moreover, to combine the advantage of rolling and improvement of quality of steel by forging.
SOLUTION: A long size continuously cast material 20 having forgeable steel property, an approximately **square** cross section and sloped **corner** regions are used as raw materials. By forming this continuously cast material 20, by heat for forging not lower than transition temp. and with at least one 2-roll stand 2, 3 and at least one 4-roll stand 5, 7, alternately continuously and so as not to generate twist and, moreover, by comparably slightly elongating a rolled stock, the cast material is subjected to forming process of multiple stages by comparatively very high rolling force and the rolled stock which is compressed to the center part is manufactured.

107/220 © EPODOC / EPO

PN - [JP2000170244](#) A 20000620
PR - JP19980350482 19981209
AP - JP19980350482 19981209
DT - I
FI - E04B1/02&D; E04B1/348; E04B1/98
FT - 2E001/DF07; 2E001/DG01; 2E001/FA03; 2E001/FA11; 2E001/GA42; 2E001/GA46; 2E001/HB02; 2E001/HD11; 2E001/HE01
PA - SEKISUI CHEMICAL CO LTD
TI - WALL TYPE BUILDING
AB - PROBLEM TO BE SOLVED: To reduce floor impact noise by connecting an adjacent floor **structure** of a wall type building by arranging plural floor structures assembled in a **square** shape by a **beam** material in a plane shape via a vibration control material.

SOLUTION: Building units 2, 3, 4, 5 produced in a factory are installed on a building footing 6 at a building site to constitute a unit building 1. Next, the respective units are formed by erecting a wall panel in a plan view U shape on the peripheral **edge** of a floor panel by affixing a floor face material 112 on a frame body assembled in a **square** shape by a **beam** material 111. Next, floor panels of the adjacently arranged second floor units 4, 5 are connected via a vibration control material 7 in a wall panel nonexistent part. Wall panels of the first floor units 2, 3 and the floor panels of the second floor units 4, 5 just above the wall panels are connected via the vibration control material to thereby reduce propagation of floor impact noise generated by one floor panel of the second floor to the adjacent other floor panel as well as to reduce propagation of floor impact noise generated by the floor panel of the second floor to the building units of the first floor.

108/220 © EPODOC / EPO

PN - [JPH09158364](#) A 19970617

PR - JP19950345671 19951207

AP - JP19950345671 19951207

DT - I

FI - E04B1/76&V; E04B1/76&500H; E04B1/80&G; E04B1/80&100A; E04B2/56&601B; E04B2/56&601H; E04B2/56&604D; E04B2/56&605E; E04B2/56&611C; E04B2/56&632B; E04B2/56&632C; E04B2/56&632D; E04B2/56&632H; E04B2/56&645B; E04B2/56&645C

FT - 2E001/AA02; 2E001/AA04; 2E001/AA06; 2E001/AA08; 2E001/AB02; 2E001/AB05; 2E001/AD03; 2E001/AE02; 2E001/AE03; 2E001/AF03; 2E001/BA02; 2E001/BA04; 2E001/DD01; 2E001/EA09; 2E001/FA04; 2E001/GA12; 2E001/GA29; 2E001/GA42; 2E001/GA45; 2E001/GA46; 2E001/GA82; 2E001/HA01; 2E001/HA03; 2E001/HA32; 2E001/HA33; 2E001/HC02; 2E001/HC04; 2E001/HC12; 2E001/HC14; 2E001/HC15; 2E001/HD03; 2E001/HD09; 2E001/JC01; 2E001/JD13; 2E001/KA02; 2E001/LA01; 2E001/LA04; 2E001/LA12; 2E002/EA00; 2E002/EA02; 2E002/EA08; 2E002/FA00; 2E002/FA03; 2E002/FB01; 2E002/FB05; 2E002/FB11; 2E002/FB16; 2E002/JA00; 2E002/JA01; 2E002/JA02; 2E002/JA03; 2E002/JB01; 2E002/MA31; 2E002/MA33; 2E002/MA34

PA - DAIKEN TRADE & INDUSTRY

TI - WALL **STRUCTURE**

AB - PROBLEM TO BE SOLVED: To provide wall **structure** having excellent strength against a quake in the horizontal direction at the time of the generation of an earthquake in the wall **structure** installed to a vertical shaft material such as a column, a stud, etc., and a structural shaft material consisting of a horizontal member such as a sill, a girth, a **beam**, a girder, etc. SOLUTION: A heat-insulating material 5 is laminated beforehand on a rear as leaving the four peripheral sections of an external tabular body 3 while a horizontal lower frame material 6 is fixed onto the lower end face of the heat-insulating material 5, and the heat-insulating material 5 is fitted into a **square** frame-shaped space section 7 formed of right-left vertical shaft materials 1, 1a and upper-lower horizontal members 2, 2a under the state, in which the lower frame material 6 is placed on the lower-side horizontal member 2a. The four peripheral sections of the external tabular body 3 are nailed onto the external side faces of the right-left vertical shaft materials 1, 1a and the upper- lower horizontal members 2, 2a while both-side **edge** sections and upper-lower **edge** sections of an internal tabular body 4 are stretched and

fastened onto the internal side faces of the right-left vertical shaft materials 1, 1a and the upper-side horizontal member 2 and the lower frame material 6 by nailing.

109/220 © EPODOC / EPO

- PN - [JPH07197534](#) A 19950801
- PR - JP19930338330 19931228
- AP - JP19930338330 19931228
- DT - I
- FI - E04B1/18&A; E04B1/34&F
- PA - SHIMIZU CONSTRUCTION CO LTD
- TI - TUBE **STRUCTURE**
- AB - PURPOSE:To constitute a construction which has the outside appearance rich in change, and is highly rigid and can effectively utilize the inside space, at a low cost, by constituting a truss frame **structure** in a tube shape along the outer peripheral surface of the construction, by assembling the pillar member in SRC construction, **beam** in the steel frame construction, and braces, into a truss form. CONSTITUTION:**Corner** pillars 11, 12 and 13 in a steel frame construction or steel- reinforced concrete construction are arranged on both the sides of the **corner** cut surfaces 2a, 3a, and 4a of an upper block 2, intermediate block 3, and a lower block 4. Further, side pillars 14, 15, and 16 are arranged on the side wall surfaces 2b, 3b and 4b. Each inclined pillar for connecting the **corner** pillars and the side pillars in the joint part 5 between the upper block 2 and the intermediate block 3 and the joint part 6 between the intermediate block 3 and the lower block 4 is arranged. Further, a brace 26 in a steel frame **structure** which has a **square**-shaped section and extends aslantly is installed between each pillar member C and the beams 25, 25..., and a truss is constituted with the pitch in plural stages, by the pillar member C, **beam** 25, and the brace 26. Accordingly, along the outer peripheral surface of the construction 1, a tube-shaped truss frame **structure** A having the axis in the vertical direction can be constituted.

110/220 © EPODOC / EPO

- PN - [JPH03199581](#) A 19910830
- PR - JP19890338273 19891228
- AP - JP19890338273 19891228
- DT - I
- CT - [JPS511932](#) A []; [JP63101603B](#) B []
- FI - E04B1/34&H; E04H9/02
- FT - 2E139/AA01; 2E139/AA05; 2E139/AB11; 2E139/AC19; 2E139/AC43; 2E139/BA06; 2E139/BA31; 2E139/BC04; 2E139/BD04; 2E139/BD16; 2E139/BD36
- PA - NIPPON STEEL CORP
- TI - VIBRATION SUPPRESSING DEVICE FOR BUILDING
- AB - PURPOSE:To improve the earthquakeproof performance of a building by arranging a vibration suppressing member between a pillar and both the **edge** parts of the lower chord member of a truss **beam**, tightening the vibration suppressing member by the bracket for the pillar and bolts and generating the viscous resistance when an external force acts on a **structure** . CONSTITUTION:A center member 2 made of H-shaped steel is

inserted into the center part in a steel pipe having a **square** section, and an adhesion preventing film 3 made of mold separating agent, rubber, etc., is applied on the whole periphery of the center member 2, and the center member 2 is charged with concrete 9, and a vibration suppressing member 4 is formed. The vibration suppressing member 4 is arranged between both the **edge** parts of a lower chord member 6 of a truss **beam** 5 and a pillar 7, and a bracket 17 whose basic **edge** part is welded on the pillar 7 and both the **edge** parts of the steel center member 2 are attached with a joint plate 18 and tightened by a bolt 19. When the external force such as the wind power and earthquake acts on a building thus constituted, an adhesion preventing film between the steel center member 2 of the vibration suppressing member 4 and the concrete 9 generates a viscous resistance, and the vibration damping effect is generated. Accordingly, the vibrationproof performance of the building can be improved, and the vibration generated on the **structure** can be speedily damped.

111/220 © EPODOC / EPO

PN - [JPH04203041](#) A 19920723

PR - JP19900334602 19901130

AP - JP19900334602 19901130

DT - I

FI - E04B1/24&L

PA - ASAHI CHEMICAL IND

TI - JOINT **STRUCTURE**BETWEEN STEEL FRAME COLUMN AND **BEAM**

AB - PURPOSE:To sharply reduce fabrication manhours for a column by a method wherein reinforcing plates having a rib plate and a screw hole are attached on the inner surfaces of the column surfaces of a portion where a **square** steel pipe column having length equivalent to length for a plurality of floors and continued in an axial direction with no seam is joined with a **beam** to **join** together the **beam** and the column.
CONSTITUTION:Reinforcing plates 2 attached to the interior of a joint between a **square** steel pipe column 1 having length equivalent to length for two floors and continued in an axial direction with no seam is joined with a **beam** are mounted on the four sides of the **square** steel pipe columns 1. The reinforcing plate 2 has a screw hole 8 and a rib plate 9 is located in a direction extending at right angles with the axis of the column to screw in a bolt 7. The bolt 7 for mounting a **beam** inserted through a bolt insertion hole 16 for mounting a **beam** formed in the column 1 is inserted in a **beam** mounting metal 6 to screw it in a screw hole 8 of the reinforcing plate 2. This constitution enables improvement of a bearing force to the tension and compression of a bolt securing part.

112/220 © EPODOC / EPO

PN - [JPH01169031](#) A 19890704

PNFP - JPH0726435B B2 19950322

PR - JP19870329188 19871225

AP - JP19870329188 19871225

DT - I

FI - E04B1/24&L; E04B1/58&331D; E04B1/58&508S

FT - 2E125/AA04; 2E125/AA14; 2E125/AB01; 2E125/AB16; 2E125/AC15; 2E125/AC16;

	2E125/AG31; 2E125/AG36; 2E125/AG57; 2E125/BB09; 2E125/BB12; 2E125/BB16; 2E125/BB22; 2E125/BB29; 2E125/BB32; 2E125/BB37; 2E125/BC05; 2E125/BC09; 2E125/BD01; 2E125/BE05; 2E125/BF01; 2E125/CA05; 2E125/CA06; 2E125/CA13; 2E125/CA14; 2E125/CA90; 2E125/EA00; 2E125/EA01; 2E125/EA02; 2E125/EB11
PA	- (A) KOKEN SEKKEI KENKYUSHO KK
TI	- (A) STRUCTURE OF STEEL FRAMED COLUMN- BEAM JUNCTION SECTION
AB	- (A) PURPOSE:To transmit stress surely by joining a junction plate fixed at the end section of a steel frame beam by a bolt and a nut along the side face of a square steel pipe column and burying a clearance formed by the curved section of the column and the junction plate with a reinforcing steel material. CONSTITUTION:A square steel pipe column 1, the external surface of a corner of which has a curved section 2, and steel frame beams 3 are joined by using bolts 6 and nuts 7 while junction plates 5 fastened at the end sections of the steel framed beams 3 are positioned along the side face of the square steel pipe column 1. A clearance shaped by the curved section 2 and the junction plates 5 is buried with a reinforcing steel material 8 . Accordingly, the bearing force of bolt junction sections can be ensured while corner sections are not deformed, thus surely transmitting stress over the column and beams from beams.

113/220 © EPODOC / EPO

PN	- JPH05157511 A 19930622
PR	- JP19910324332 19911209
AP	- JP19910324332 19911209
DT	- I
FI	- G01B9/02
FT	- 2F064/AA15; 2F064/BB03; 2F064/DD08; 2F064/EE01; 2F064/FF01; 2F064/GG16; 2F064/GG22; 2F064/GG23; 2F064/GG32; 2F064/GG39; 2F064/HH06
PA	- YOKOGAWA ELECTRIC CORP
TI	- LASER INTERFERENCE TYPE DISPLACEMENT METER
AB	- PURPOSE:To reduce coherent noises in a simple structure by adding 1/2 wave plates respectively between a polarization beam splitter constituting an interferometer part and a fixed corner cube and between the polarization beam splitter and a movable corner cube . CONSTITUTION:1/2 wave plates 13, 14 are adjusted to rotate the polarized light by 45 deg.. The plates 13, 14 are provided between a polarization beam splitter (PBS) 5 of an interferometer part and a fixed corner cube (CC) 6 and between the polarization beam splitter 5 and a movable CC7, respectively. Laser lights of two frequencies orthogonal to each other which are projected from a laser source 1 are divided into a reflecting light and a transmission light by a half mirror 2. The reflecting light is, after passing a polarizing plate 3, received by a photodiode 4 and input to a phase meter 12 as a reference signal. The light of the orthogonal frequency penetrating the half mirror 2 is reflected or passes depending on the polarization by the PBS 5. The plane of polarization of each polarized light is rotated 45 deg. by the plates 13, 14 after passing through the PBS 5. The polarized lights after passing through the plates 13, 14 are reflected by the fixed CC6 and movable CC7 and returned to the PBS5.

114/220 © EPODOC / EPO

PN - [JPH11117379](#) A 19990427
PR - JP19970317578 19971014
AP - JP19970317578 19971014
DT - I
FI - E03F5/04&E
FT - 2D063/CB25
PA - OTA KK
TI - GROOVE COVER SUPPORT FRAME **STRUCTURE** FOR CIRCULAR CHANNEL
AB - PROBLEM TO BE SOLVED: To ensure an effective opening size by a method wherein two L-type steel plates are welded together through a coupling plate so that the rise surfaces of the L-type steel plates are arranged longitudinally in parallel facing each other at the upper part of the opening part of a circular channel, and a **square bar** steels to support the groove cover are formed in parallel to the coupling part between the coupling plate and the L-type steel plate. SOLUTION: L-type steel plates 3 are arranged at the upper part of the opening of a circular channel 1 made of precast concrete such that rise surfaces are positioned facing each other in parallel in a longitudinal direction. A plurality of coupling plates 5 made of a steel plate formed such that the two L-type steel plates 3 are welded with a distance therebetween are arranged at equal interval. A **square bar** steel 6 to support a groove cover 7 is formed in parallel to the upper **edge** of a coupling part of a coupling part between the coupling plate 5 and the L-type steel plate 3. Further, a hole 4 for securely mounting is formed in the lower horizontal plane of the L-type steel plate 3. This constitution ensures the wide effective size of an opening since the **structure** of a holding part for the groove cover 7 to be placed thereon is formed by a comparatively finer **square bar** steel 6. Thus, the effective opening size is increased to a value higher than a narrow opening size.

115/220 © EPODOC / EPO

PN - [JPH10140711](#) A 19980526
PR - JP19960304578 19961115
AP - JP19960304578 19961115
DT - I
FI - E04B2/02&A; E04B2/02&G; E04B2/02&100; E04C1/00&E
PA - ASAHI CHEMICAL IND
TI - STRUCTURAL PLANE UNIT, HALF STRUCTURAL PLANE UNIT, STRUCTURAL PLANE UNIT FOR **CORNER** AND **STRUCTURE** OF STRUCTURAL PLANE AND STRUCTURING METHOD
AB - PROBLEM TO BE SOLVED: To **structure** reasonably a plane of a **structure** such as a floor surface, roof surface or a wall surface. SOLUTION: In each unit A, insertion spaces 5 are formed by core **square** bars 2, 3 and **square** plates 1 by arranging a single or an odd number of the core **square** bars 2, 3 with a regular **square** cross section in a single or multiple rows between two **square** plates 1 with the core **square** bars 2, 3 of each row lined up with a space slightly wider than the length of the side of each core **square bar** 2, 3. Spacer **square** bars 4 are arranged between the rows of core **square** bars 2, 3. The core **square** bars 2, 3 are made to protrude in the height direction of the **square** plates 1.

A structural plane is formed by arranging multiple units A in the length direction of the core **square** bars 2, 3 side by side with joints staggered, inserting the core **square** bars 2, 3 of one unit A into the insertion spaces of the other unit A, and compressing and joining the **square** bars to the **square** plates 1 by driving wedges into the grooves 3b of the core **square** bars 3. An **edge** parallel with the core **square** bars 2, 3 of a structural plane is made straight by arranging a half unit at the **edge** and joining with a plane unit A and in a unit A arranged at an **edge** orthogonal thereto, core **square** bars 2, 3 are cut off.

116/220 © EPODOC / EPO

PN - [JPH09111871](#) A 19970428
 PR - JP19950294706 19951017
 AP - JP19950294706 19951017
 DT - I
 FI - E04B1/24&L; E04B1/58&508S
 FT - 2E125/AA04; 2E125/AA14; 2E125/AB01; 2E125/AB11; 2E125/AB16; 2E125/AC15; 2E125/AC16; 2E125/AC29; 2E125/AG14; 2E125/AG41; 2E125/AG49; 2E125/AG59; 2E125/BB09; 2E125/BB12; 2E125/BB16; 2E125/BB18; 2E125/BB22; 2E125/BB29; 2E125/BC05; 2E125/BC09; 2E125/BD01; 2E125/BE03; 2E125/BE05; 2E125/BF01; 2E125/CA03; 2E125/CA05; 2E125/CA06; 2E125/CA13; 2E125/CA14; 2E125/EA00; 2E125/EA01; 2E125/EA33
 PA - OHBAYASHI CORP
 TI - JOINING **STRUCTURE** OF COLUMN AND **BEAM**
 AB - PROBLEM TO BE SOLVED: To enhance economical efficiency of a column-**beam** joining **structure** by welding stiffening plates to respective surfaces of a **square** steel pipe column, and joining joining plates to be joined to steel frame beams to these stiffening plates by bolts. SOLUTION: Flanges **4** are applied to outside respective surfaces of a **square** steel pipe column 3, and one sides 6 are screwed in female screw holes preformed on a column 3. Next, **edge** parts of the adjacent flanges **4** are welded together. The **square** steel pipe column on which split tees 2 are installed is built up at a job site, and steel frame beams 1 are joined to webs 5 of the split tees 2 by high strength bolts 7. Then, since the **edge** parts **4** of the flanges **4** are welded to each other in the **corner** vicinity of the **square** steel pipe column 3, a load acting on the steel frame beams 1 is transmitted not only to column surfaces on the side joined to the beams 1 but also to the other column surfaces through welding parts **8** and the adjacent flanges **4**.

117/220 © EPODOC / EPO

PN - [JPH10131511](#) A 19980519
 PNFP - JP2893171B B2 19990517
 PR - JP19960291952 19961101
 AP - JP19960291952 19961101
 DT - I
 FI - A62B37/00&A; A62B99/00&A; E04G21/32&A
 FT - 2E184/JA03; 2E184/KA08; 2E184/LA33; 2E184/LA34; 2E186/AA03; 2E186/BA08;

2E186/CA33; 2E186/CA34

PA - (A)
ITO SEISAKUSHO

TI - (A)
SAFETY NET HANGING TOOL FOR BUILDING WORK AND SAFETY NET ATTACHMENT FOR BUILDING WORK

AB - (A)
PROBLEM TO BE SOLVED: To facilitate attaching and detaching working for a horizontally set member by constituting a base into a shape capable of being fitted to the horizontally set member such as a **beam** from above, and providing a hook part locking a net on the base. SOLUTION: A base 1 is made by folding and forming a metallic rectangular- shaped plate into a shape capable of being fitted to a **square** timber 2 as a horizontally set member 2 from above. With regard to a hook part **4**, a short metal rod is twisted and folded in the form of a coil, both of the ends is protruded in the mutually opposite directions respectively, and welded and fixed on both outside parts of the base 1 in the state where both of the **edge** parts are vertically directed. Accordingly, a net can be locked on the hook part **4** by hanging the net **edge** of the net on the **edge** part directed upward of the hook part from above, and the net can be removed by reverse working. Locking and removing working of the net can be easily performed by employing **structure** of the hook part **4**.

118/220 © EPODOC / EPO

PN - [JPH07121959](#) A 19950512

PR - JP19930265261 19931022

AP - JP19930265261 19931022

DT - I

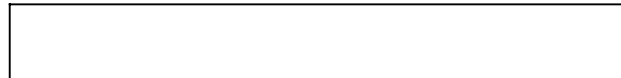
FI - G11B17/028; G11B17/028&Z;
G11B33/12&302Z

FT - 5D001/AA04; 5D001/EE02;
5D001/JJ03; 5D038/CA03;
5D038/EA06; 5D038/EA14;
5D038/GA10; 5D138/RA05;
5D138/RA11; 5D138/SA01;
5D138/SA08; 5D138/TD04;
5D138/TD15

PA - FUNAI ELECTRIC CO

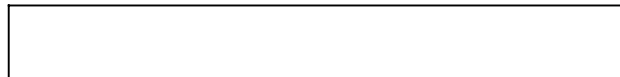
TI - MECHANISM FRAME
REINFORCEMENT **STRUCTURE** OF
DISK PLAYER

AB - PURPOSE: To eliminate the
problem where an operation
failure occurs when a disk
player is used even if vibration
is applied when transporting the
disk player by mounting a
reinforcement member between



the support part of a mechanism frame and the retention part of a cam member. CONSTITUTION: A enclosure body is formed flatly in nearly **square** shape, a cam member 11, a motor 13, a mechanism frame **8**, etc., are provided on the lower surface of a plate-shaped member 2 which is mounted to the enclosure body, and the mechanism frame **8** is retained by a reinforcement member 15. The mechanism frame **8** is thin and long and an engagement protruding part 8c protrudes at the side of a tip 8c and both side parts of a base **edge** 8b are supported by supporting parts 3 and **4** so that they rotate freely via an axial support 3a. In the cam member 11, the protruding part 8c of the frame **8** is engaged to a cam groove 11a and at the same time the protruding part 8c slides within the spiral-shaped groove 11a for moving the frame **8** up and down. A metal **bar** is used for the member 15 and screw insertion holes are provided at both edges 15a and 15b. Then, a slightly bent one **edge** 15a is joined to a plate 7 and the other **edge** 15b is joined to the supporting part 3 by inserting screws into screw insertion holes for erection in nearly parallel with the plate-shaped part 2.

119/220 © EPODOC / EPO
 PN - [JPH1094997](#) A 19980414
 PNFP - JP3893571B B2 20070314
 PR - JP19960253315 19960925
 AP - JP19960253315 19960925
 DT - I
 FI - B26F1/16



FT	- 3C060/AA20; 3C060/BA05; 3C060/BC26; 3C060/BG20
PA	- (A) MIRAI IND
TI	- (A) ROTATION PREVENTING STRUCTURE FOR PUNCHING BLADE
AB	- (A) PROBLEM TO BE SOLVED: To perform the exchanging and mounting operation of a punching blade in safety, by comprising a rotation preventing body for preventing the rotation of the rotary body relatively to the main body, by making the first engagement part installed on a rotary body comprising the punching blade of a punching tool, engaged with the second engagement part installed on the main body of the punching tool. SOLUTION: A pair of through holes 4c are formed on the edge parts opposite to each other, of a rotary body 4 , a pair of inserting parts 9c are formed on the positions opposite to the through holes 4c, of a bottom wall of a cover body 9 integrated with a main body 8 , and the round bar -type detent pins 10 are inserted from the openings of the cover body 9 to the through holes 4c of the rotary body 4 , so that they can be fitted to the inserting parts 9c of the cover body 9. Though the detent pin 10 as a rotation preventing body, is made of a round bar , but a square bar can be also used. Further though the through hole 4c of the rotary body 4 is used as the first engagement part, and the inserting part 9c of the cover body 9 is used as the second engagement part in this case, but

the **structure** in which the detent pin 10 is inserted and engaged, is not necessarily desired, and any thing will do so long as it can prevent the rotation of the rotary body **4** to the main body **8**, and it can be kept at a specific position.

120/220 © EPODOC / EPO

PN - [JPH03111004](#) A 19910510

PNFP - JP2685921B B2 19971208

PR - JP19890249592 19890926

AP - JP19890249592 19890926

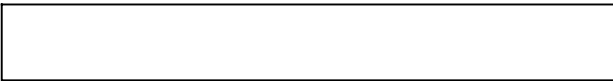
DT - I

FI - A47B97/00&K; E04F19/08&102J

PA - (A)
MATSUSHITA ELECTRIC WORKS
LTD

TI - (A)
STRUCTUREOF CONTAINING UNIT

AB - (A)
PURPOSE:To obtain the **structure** of the containing unit whose external appearance is not spoiled even in the case a **beam** projecting part exists in the ceiling surface by providing a deformable unit consisting of the lower frame formed to match a shape of the **beam** projecting part, and a cover plate notched to match a shape of the **beam** projecting part, and also, fixed to the surface side of the lower frame in a position of the **beam** projecting part. CONSTITUTION:A deformable unit **4** is formed by a cover plate 4a in which a cleat material 4b is fixed to the reverse side in advance, and the lower frame 4c of a **square** shape for supporting a peripheral **edge** part of this cover plate 4a, and at the time of use, it is used by cutting it to match a cross sectional shape of **beam**



projecting parts **8**, 10. As for a shelf unit 3, that which has shallow depth is formed in advance by considering a **beam** projecting part 7. This shelf unit 3 and a body unit 2 are installed along a wall 5. In a job site, dimensions of the **beam** projecting parts **8**, 10 are measured, and the cover plate 4a and the lower frame 4c prepared in accordance therewith are brought to cutting. Subsequently, the cover plate 4a and the lower frame 4c are connected by a fixing tool, and installed between the adjacent shelf units 3. The lower frame 4c is fixed to the shelf unit 3 and the body unit 2. In such a way, a containing unit 1 is completed.

121/220 © EPODOC / EPO

PN - [JPH04128433](#) A 19920428

PR - JP19900247780 19900918

AP - JP19900247780 19900918

DT - I

CT - [JPS55152223](#) A []; [JPS5036327U](#) U []

FI - E02D27/01&102A

FT - 2D046/BA25; 2D046/BA26; 2D046/BA27; 2D046/BA32

PA - MISAWA HOMES CO

TI - CONSTRUCTION METHOD OF FOUNDATION

AB - PURPOSE:To facilitate connection work by erecting columns on the **corner** sections and junction sections of foundation at the same level and bolting both end faces of block structures to the side faces of the columns to form a footing unit at job site. CONSTITUTION:A column 1 comprising a base unit 2 placed on foundation and **square** pole-like supporting area 3 is



formed. Inserts **4** having tap holes 4a in which bolts 11 are screwed are buried in the side face of this supporting area 3 of the column 2 in the upper and lower areas of the column 1. In the next step, the plate part 12 of a block **structure** 10 is formed with its height and width same as those of the supporting area 3 of the column 1 and a housing 14 is buried in a connection end face 10a with its one end face exposed. In the next step, the block **structure** 10 is hung up and moved between the columns 1 to make the connection end face 10a to about on side face of the column 1, and the bolt 11 is screwed in the insert **4**, and a footing unit is formed around reinforcing **bar** 13. This constitution makes it possible to readily connect the block **structure** 10 to the column 1.

122/220 © EPODOC / EPO
 PN - [JPH0969384](#) A 19970311
 PR - JP19950246817 19950831
 AP - JP19950246817 19950831
 DT - I
 FI - H01R12/00; H01R12/55;
 H01R12/62; H01R23/66&A;
 H01R43/00&J; H01R9/07&Z
 FT - 5E023/AA04; 5E023/AA06;
 5E023/AA16; 5E023/BB01;
 5E023/BB08; 5E023/BB22;
 5E023/CC21; 5E023/DD26;
 5E023/EE16; 5E023/FF07;
 5E023/HH01; 5E023/HH08;
 5E023/HH21; 5E077/BB05;
 5E077/BB23; 5E077/BB31;
 5E077/CC10; 5E077/CC21;
 5E077/DD14; 5E077/EE02;
 5E077/HH02; 5E077/HH07;
 5E077/JJ11; 5E077/JJ20;
 5E077/JJ24; 5E123/AB21;



5E123/AB41; 5E123/AC04;
5E123/AC21; 5E123/AC23;
5E123/AC37; 5E123/BA04;
5E123/BA07; 5E123/BA08;
5E123/BB12; 5E123/CC15;
5E123/CD01; 5E123/CD02;
5E123/CD25; 5E123/DB34;
5E123/EA24; 5E123/EA27;
5E123/EA36

- PA - MOLEX INC
- TI - METHOD AND **STRUCTURE** FOR
CONNECTION OF FLAT FLEXIBLE
CABLE TO PRINTED-CIRCUIT
BOARD
- AB - PROBLEM TO BE SOLVED: To
provide a method and
a **structure** for connecting a flat
type flexible cable to a printed
circuit board by which
possibility of connection failure
is eliminated even in the case
tensile force is applied to the flat
type flexible cable and
connection work is carried out
easily. SOLUTION: A cable holder
2 is employed and in the holder
2, the surface of a **square** plate
10 installed in a **square** frame 8
through a bridged **bar** 9 is used
as a supporting part 12 to
support a connection terminal
part 5 of a flat type flexible cable
1. After a connection terminal
part 5 of the flat type flexible
cable 1 is set in the supporting
part 12, a printed circuit board 3
is attached in overlaid state to
the surface 2a of the cable
holder 2. The side **edge** parts of
the connection terminal part 5 is
sandwiched between the
supporting part 12 and a
housing 17 of an electric
connector 16. Also, a contact
part 18 of the electric connector
16 and a conductive part 6 of the
connection terminal part 5 are
fixed while being brought into

contact with each other.

123/220 © EPODOC / EPO

PN - [JP2001065254](#) A 20010313

PR - JP19990245011 19990831

AP - JP19990245011 19990831

DT - I

FI - E06B3/70&B

FT - 2E016/HA10; 2E016/JA04;
2E016/KA05; 2E016/KA06;
2E016/LA01; 2E016/LB15;
2E016/LC07; 2E016/LD02;
2E016/NA02; 2E016/QA01;
2E016/QA13

PA - ISHIDA HIDEO

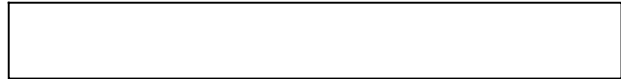
TI - **EDGE STRUCTURE OF PAPERED
SLIDING DOOR**

AB - PROBLEM TO BE SOLVED: To improve appearance of the papered sliding door side **edge** and a butt end surface, and to produce a high-grade feeling by using the cross-sectional L-shaped decorative **edge** for integrally covering the papered sliding door side **edge** of a papered sliding door having a plate door surface and a papered sliding door surface and the butt end surface orthogonal to the papered sliding door surface. SOLUTION: A **square bar** composed of a laminated wood LVL of a lauau material and a poplar material is used as an outer frame 5 of a papered sliding door, and the **edge** of the papered sliding door is fixed in a quadrangular ring shape. While, an **edge** member 3 is a cross-sectional rectangular shape, laminated lumber or MDF is worked, and a part of the reverse is shaven off to form a papered sliding door **edge** part 31 and a butt end surface part 32. A butting plate 4



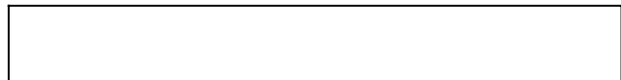
composed of straight grain of Japanese cypress is stuck to a surface by an adhesive, and a V-shaped notch 33 is formed in the reverse center of the **edge** member 3. The **edge** member 3 is bent inside in a place of the notch 33 to form the L-shaped **edge**. The **edge** of the quadrangular ring-shaped outer frame 5 is covered with the L-shaped **edge** integrally with the papered sliding door **edge** 1 and a butt end surface to complete the papered sliding door. Thus, a color and a pattern of the papered sliding door **edge** 1 and the butt end surface 2 are integrally unified to produce a high-grade feeling.

124/220 © EPODOC / EPO
 PN - [JPH0986486](#) A 19970331
 PNFP - JP3212495B B2 20010925
 PR - JP19950243999 19950922
 AP - JP19950243999 19950922
 DT - I
 FI - B63B22/00; B63B35/34&Z;
 B63B35/38&B; B63B35/44&M
 PA - (A)
 HITACHI SHIPBUILDING ENG CO
 TI - (A)
 FLOATING BODY **STRUCTURE**
 AB - (A)
 PROBLEM TO BE SOLVED: To prevent displacement of floating body blocks from each other by a method wherein a floating body **structure** comprises a floating body block group consisting of a plurality of floating body blocks, a protrusion part is formed on the contact surface of one floating body block of the adjoining floating body blocks, and a recessed part fitted in the



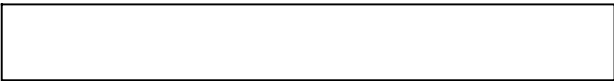
protrusion part is formed in the other. SOLUTION: An ocean raft has a plurality of **beam** members, for example, section steels, spanning between the upper surfaces of a pair of raft bodies 2 and 2 situated with a given distance therebetween. Each raft body 2 comprises a floating body block group wherein a plurality of floating body blocks 3 of, for example, rigid foamed plastic, in the shape of rectangular parallelepiped adjoining in series are fitted in each other by a fit-in means. In this case, a fitting-in means comprises a **square** conical **trapezoidal** protrusion 7 formed on the contact surface of one floating body block 3 of the adjoining floating body blocks 3; and a recessed part **8** formed in a relative shape in the contact surface of the other floating body block 3 and fitted in the protrusion part 7. The floating body blocks 3 are intercoupled through a fastening lever (a tie rod) 5.

125/220 © EPODOC / EPO
 PN - [JP2001065093](#) A 20010313
 PR - JP19990239956 19990826
 AP - JP19990239956 19990826
 DT - I
 FI - E04B1/348&L; E04B5/02&G;
 E04B5/43&J
 PA - SEKISUI CHEMICAL CO LTD
 TI - FLOOR **STRUCTURE** BUILDING
 UNIT AND BUILDING
 AB - PROBLEM TO BE SOLVED: To
 simplify a floor **structure**, to
 improve rigidity, and to reduce
 the vibration of a floor by laying
 a floorboard by welding a floor



joist composed of hat shape steel onto a large **beam** composed of lip channel steel in a building unit. SOLUTION: In a building unit U, a girder 2 composed of lip channel steel is welded to a lower end part of four columns 1 composed of **square** shape steel, a floor joist 3 composed of hat shape steel for forming a lip piece 31 on the downwardly expansively opening **edge** is welded onto it, and the lip piece 31 of the floor joist 3 is fixed to a connecting material 6 composed of angle steel. A floorboard **4** composed of a particle board is laid on an upper surface the floor joist 3 and a floorboard receiving material 5 composed of **square** steel welded to the girder 2 to constitute a floor **structure** F. Thus, the floor **structure** F is formed as a three-layer **structure** of the girder 2, the floor joist 3 and the floorboard **4** to easily control accuracy, rigidity is improved by the floor joist 3 of hat shape steel, and a load of the floorboard **4** is surely transmitted to the girder 2 to reduce vibration of the floor **structure** F.

126/220	© EPODOC / EPO
PN	- JPH1147985 A 19990223
PR	- JP19970238844 19970730
AP	- JP19970238844 19970730
DT	- I
FI	- B23K37/053&E; B23K9/028&Q; B23K9/235&B
FT	- 4E001/AA03; 4E001/CC03; 4E001/CC04; 4E001/DG02; 4E081/BA32; 4E081/DA27; 4E081/EA37
PA	- MORIMOTO YUKIO



- TI - WELDING TOOL FOR SETTING
FLANGE AT RIGHT ANGLE
- AB - PROBLEM TO BE SOLVED: To exactly execute tack welding on the whole circumference in one operation with a supporting holder positioned to a pipe at a right angle and with a flange to be welded closely attached to the supporting holder by arranging a **square bar** which has suitable thickness and length for insertion to the inside of the pipe and has mutual equal distanced parallel **edge** lines standing on each of the sides consisting of **edge** of surfaces so that the three surfaces of a surface and the two opposed surfaces are positioned at right angle on the supporting holder. SOLUTION: A welding flange 5 is put on a pipe 6 to be welded, a tool suitable for the size of the pipe is inserted inside the pipe, and then a push screw **4** is set in a suitable position. The distanced parallel **edge** lines of the **square bar** 1 come to a state that the inside of pipe is spanned with a bridge, and when the push screw **4** is tightened a knocking piece 3 knocks the inside wall of the pipe, and then positions are fixed at three contact points of the two parallel **edge** lines and the knocking piece 3. In consequence, the position of the supporting holder 2 is fixed at a right angle. The flange is closely attached to the supporting holder 2 and the tack welding is executed on the whole circumference in one operation. Further, modifications are practical as well that the knocking piece 3 is replaced with a cam, the tap screw **4** is replaced with a **structure** to

push the knocking piece 3 with a lever, the **square bar** 1 is replaced with a round **bar** whose outer diameter is machined on three surfaces instead.

127/220 © EPODOC / EPO

PN - [JPH0286722](#) A 19900327

PR - JP19880238043 19880922

AP - JP19880238043 19880922

DT - I

CT - || STSE (A)
[JPS55138341](#) A 19801029 [] (HAZAMA GUMI, et al);
[JPS6361265B](#) B2 19881128 [];
[JP53142492B](#) B 00000000 [];
[JPS5626562B](#) B2 19810619 [];
[JPS6174530](#) A 19860416 [] (IWASHITA TORU)

CCA - [Y02A40/81](#) ; [Y02A40/83](#)

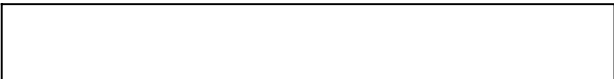
FI - A01K61/00&311; A01K61/70

FT - 2B003/AA01; 2B003/BB02;
2B003/CC03; 2B003/DD01;
2B003/DD02; 2B003/DD03;
2B003/DD04; 2B003/DD06;
2B003/EE01; 2B003/EE03;
2B003/EE04

PA - DOUHOKU HABORO NAMAKON
KOGYO K

TI - **STRUCTURE**FOR CREATING
FISHING GROUND

AB - PURPOSE:To enhance swarming effect of seaweed or fishes and shellfishes by providing leg parts and round hole in base board part made of concrete, inserting **corner** pillars of steel pipe and wood pillars between the steel pillars on upper face of the base board and packing stuffing stone materials in said fence part. CONSTITUTION:Leg parts 2B are vertically set at four corners of lower face of flat and **square** base board part 2A of concrete base 2 and round



hole 2C is vertically opened in the base board part 2A. Fence part inserted on peripheral part in upper face of the base board part 2A is constituted with **corner** pillars 3A made of steel pipe and wood pillars stood at fixed intervals between the **corner** pillars and periphery of the **corner** pillars and wood pillars is rolled and fastened with band iron-shaped steel or round steel **bar**. Stuffing stone materials **4** are packed in said fence part.

128/220 © EPODOC / EPO

PN - [JP2001049807](#) A 20010220

PNFP - JP3499774B B2 20040223

PR - JP19990226365 19990810

AP - JP19990226365 19990810

DT - I

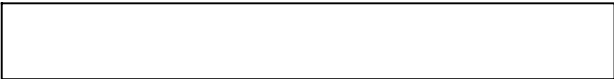
FI - E04D13/03&D; E04D3/00&E; E04D3/32&D

FT - 2E108/AA02; 2E108/AS02; 2E108/AZ01; 2E108/BB04; 2E108/BN06; 2E108/CC01; 2E108/CC09; 2E108/DD05; 2E108/DD18; 2E108/DF00; 2E108/DF11; 2E108/DF18; 2E108/EE02; 2E108/FF05; 2E108/FF11; 2E108/GG02; 2E108/GG05; 2E108/GG08

PA - (A)
AIKOH CO

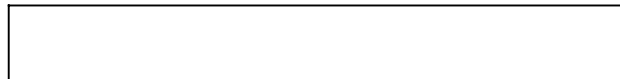
TI - (A)
DOUBLE-LAYER DAY-LIGHTING
ROOF FOR FOLDED PLATE ROOF

AB - (A)
PROBLEM TO BE SOLVED: To prevent drop of dewdrops while maintaining the **structure** of a folded plate roof, by interposing transparent ridge interval retaining materials between ridges of two transparent folded plates which are



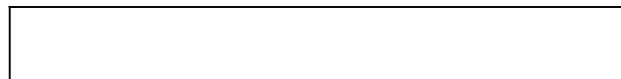
correspondingly corrugated and superposed, combining the two folded plates in one body, and extending drooping edges of the upper folded plate on both sides of the same. SOLUTION: Two correspondingly corrugated transparent folded plates **4**, **5** are arranged so as to be combined in one body such that one of them is superposed on the other at a predetermined interval by **square-bar** type transparent ridge interval retaining members **6** which are interposed between ridges **4a**, **5a** of the respective plates **4**, **5** over the almost entire longitudinal length of the ridges **4a**, **5a**. Then a hollow portion **S** communicating with the outside is formed between the folded plates **4**, **5** at a portion other than the portions where the ridge interval retaining members **6** are disposed. Further, drooping edges **4d**, **4d** extending from the ridges **4a**, **4a** are protruded on both sides of the upper folded plate **4**. By the thermal insulating function of an air layer flowing in the hollow portion **S**, dew condensation on the rear surface of a double-layer lighting roof member is suppressed, and rainwater infiltration from gaps between the drooping **edge** and metal folded plates adjacent thereto on both sides can be prevented.

129/220 © EPODOC / EPO
 PN - [JPH0967861](#) A 19970311
 PR - JP19950225079 19950901
 AP - JP19950225079 19950901
 DT - I
 FI - E04B1/24&L
 PA - NIPPON KOKAN KK



- TI - JOINING **STRUCTURE**BETWEEN
CLOSED CROSS
SECTIONAL **SQUARE** STEEL PIPE
COLUMN AND **BEAM** MATERIAL
- AB - PROBLEM TO BE SOLVED: To
provide a joining **structure**
between a closed cross
section **square** steel pipe column
and a **beam** material which
eliminates the need for a
reinforcing material. SOLUTION:
This invention relates to a
joining **structure** between at **4**
closed cross section **square** steel
pipe column 1 and **beam**
materials 2 and 2' where
the **square** steel pipe column 1
and the **beam** materials 2 and 2'
are joined by way of contact
materials 3 and 3' with one side
bolts **4** and **4'** and the ratio
between the width and the
thickness of the **square** steel pipe
column is specified to range
from 10 to 22. Moreover, the
spacing of the outermost **edge** of
the one side bolts **4-4** and **4'-4'**
in the crosswise direction of the
column is specified to exceed
2/3 of the width of the **square**
steel pipe column.

- 130/220** © EPODOC / EPO
- PN - [JPH0648694](#) A 19940222
- PNFP - JP2638404B B2 19970806
- PR - JP19920218264 19920724
- AP - JP19920218264 19920724
- DT - I
- FI - B66F9/08&Q; B66F9/12&Q
- FT - 3F333/AA02; 3F333/AB13;
3F333/AD01; 3F333/BF03;
3F333/BG03; 3F333/DA02;
3F333/DB08; 3F333/DB10
- PA - (A)
TOYODA AUTOMATIC LOOM
WORKS
- TI - (A)



SIDE ROLLER
MOUNTING **STRUCTURE**FOR LIFT
BRACKET

AB

- (A)

PURPOSE:To prevent a lift bracket from deflection at the time of acting of an uneven load by arranging a side roller for receiving a lateral load of the rollers, mounted on the lift bracket of a forklift, in a condition that the side roller approaches a finger cover to a front end part of the lift bracket.
CONSTITUTION:In a forklift, a pair of upper/lower lift rollers 2 for receiving a longitudinal directional load with front/rear flange internal surfaces of an inner mast **4** serving as a rolling surface are rotatably mounted on an external surface side rearward of a pair of right/left lift brackets 1. An **edge** end upper part of the lift bracket 1 is formed respectively into cut off almost L shape, and upper/lower finger bars 5 formed into an almost right **square** section are secured to these upper/lower almost L-shaped parts 6, to overlap a front single part of the lift bracket 1 with a rear end part of the finger **bar** 5. A pair of upper/lower side rollers 3 for receiving a lateral load of acting on the lift bracket 1 are arranged by utilizing an overlap 7 of the lift bracket 1.

131/220 © EPODOC / EPO

PN - [JPS6444821](#) A 19890217

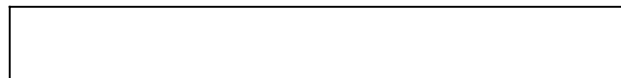
PNFP - JP2534509B B2 19960918

PR - JP19870202350 19870813

AP - JP19870202350 19870813

DT - I

FI - G01G3/14



PA	- (A) YAMATO SCALE CO LTD
TI	- (A) THIN-TYPE WEIGHING MACHINE
AB	- (A) PURPOSE:To obtain a thin-type weighing machine whose sizes are small as a whole, whose components are few in numbers and whose structure is simple, by a method wherein a strain-detecting strain-generating beam having a square or rectangular section is made to project toward the peripheral direction from the corner part of a plate-shaped load transmission platform. CONSTITUTION:Cut grooves 2 are formed in the four corners of a load transmission platform 1 to form strain-generating beams 3-6, and columnar holes 7 are formed through the lateral sides thereof. On the upper surface of the strain-generating beam 3, strain gages 12 and 13 are stuck on both sides of a vertical plane 11 passing the central axis 10 of the columnar hole 7, and also strain gages 14 and 15 are stuck on both sides of the plane 11 on the lower surface of the beam . The strain gages are stuck likewise on the strain-generating beams 4-6 respectively. When a load is applied onto the upper side of a main body component of the platform 1 the strain- generating beams 3-6 are deflected and the strain gages on the upper surface are extended on the outside of the plane 11, while the strain gages on the lower surface are compressed. On the inside of the plane 11, to the contrary, the strain gages on the upper surface are compressed, while the strain gages on the lower

surface are extended.
Accordingly, forming a bridge of these strain gages, an electric output corresponding to the load can be obtained.

132/220 © EPODOC / EPO

PN - [JPH0361433](#) A 19910318

PR - JP19890197456 19890728

AP - JP19890197456 19890728

DT - I

CCA - [Y02A40/252](#)

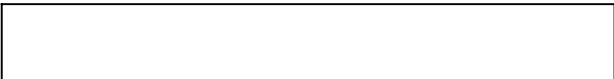
FI - A01G9/14&B; A01G9/14&C

FT - 2B029/BA01; 2B029/BA02;
2B029/BA03; 2B029/BA04;
2B029/BB01; 2B029/BB02

PA - YUKI TADAHIRO

TI - CONNECTING PILLAR IN
GREENHOUSE FOR PROTECTED
HORTICULTURE AND
FOUNDATION OF THE SAME PILLAR

AB - PURPOSE:To make possible to
freely set and change the length
of supporting pillar at building
site with a simple **structure** by
constructing a supporting pillar
with upper pillar, foundation
structural member and
connecting pillar and installing
the connecting pillar between the
upper pillar and the foundation
structural member in freely
expandable and detachable.
CONSTITUTION:Supporting
pillars 10, 11 and 12 are
composed of an upper pillar 14,
foundation structural member
16 and connecting pillar 15. The
upper pillar 14 has a **beam**
installing metallic parts 17
connecting to a **beam 4** in upper
part and through holes 20 for
bolt are pierced on the vicinity
faces of both sides of a
rectangular **edge** 19. The
foundation structural member
16 is composed of piles



obliquely driven in mutually reverse directions through holes pierced on both side of **square** pipe 24 fixed to base plate 26 about intermediate between board end edges and the pipe 24 with an imparting effect of preventing drawing out or side slipping and is buried in a foundation hole 18 dug in ground 7. Upper part of the connecting pillar 15 is inserted into the upper pillar 14 and adjusted to suitable length, then fixed to the upper pillar 14 in clamping with clamping bolt 22 piercing the through hole 20 of the upper pillar, thus lower part of the connecting pillar 15 is fixed to the foundation structural member 16 in connecting with bolt 29 piercing through bolt piercing hole 25 pierced on opposite face of the foundation structural member 16.

133/220 © EPODOC / EPO
 PN - [JPH0348118](#) A 19910301
 PNFP - JP2772678B B2 19980702
 PR - JP19890183194 19890715
 AP - JP19890183194 19890715
 DT - I
 FI - G01C15/00&A; G01C15/00&C;
 G01C15/00&104C;
 G01C21/00&A; G01C21/04;
 G01C21/26&A
 FT - 2F029/AA01; 2F029/AB05;
 2F029/AB11; 2F029/AB13;
 2F029/AC01; 2F029/AC02;
 2F029/AC09; 2F129/AA03;
 2F129/BB15; 2F129/BB19;
 2F129/BB20; 2F129/GG06;
 2F129/HH12; 2F129/HH33
 PA - (A)
 TSUMURA TOSHIHIRO
 TI - (A)



MOVEMENT GUIDING SYSTEM OF MOVING BODY

AB

- (A)

PURPOSE:To obtain a movement guiding system for a moving body in a simple **structure** by obtaining the positional relation between said moving body and a road from the detecting order of the reflecting light of photodetectors and the running distance of said moving body corresponding to the photodetecting time difference of said photodetectors.

CONSTITUTION:**Corner** cubes cc are spaced an optional distance at one side of a road 2.

Each **cube** cc projects the reflecting light with the same angles as the angles of incidence. Meanwhile, two pairs of projectors/photodetectors 3a, 3b are mounted to a moving body 1. These projectors/photodetectors 3a, 3b are mounted to a moving body 1. These projectors/photodetectors 3a, 3b project fan-shaped beams (a), (b), respectively. When the **beam** (a) or (b) strikes the **cube** cc, the reflecting light returns to the projector/photodetector 3a or 3b. An order judging circuit 4 judges which of the projectors/photodetectors 3a, 3b receives the reflecting light earlier, and supplies the result to a processing circuit 6. A running distance sensor 5 calculates the running distance of the moving body 1 corresponding to the photodetecting time difference of the projectors/photodetectors 3a, 3b, with informing the result to the processing circuit 6. The circuit 6 detects the relative

position of the moving body 1 on the basis of the outputs of the circuit 4 and distance sensor 5.

134/220 © EPODOC / EPO

PN - [JP2000002369](#) A 20000107

PR - JP19980181404 19980613

AP - JP19980181404 19980613

DT - I

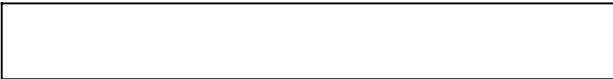
FI - A62C35/58; E03C1/02;
F16L3/24&A

FT - 2D060/AC05; 2E189/CB01;
2E189/CC08; 2E189/CG02;
2E189/CG09; 3H023/AA01;
3H023/AB04; 3H023/AC01;
3H023/AC22; 3H023/AE02

PA - SHOWA CORP KK

TI - SUPPORTING METAL FIXTURE FOR
PIPING

AB - PROBLEM TO BE SOLVED: To
provide a supporting metal
fixture for piping to hold
a **square** pipe to install a
disaster preventing piping and
fix to a T-**bar** in a system ceiling.
SOLUTION: A top plate 4 fitted
with a bolt 15 and a pair of front
legs 6 and rear legs 7 in gate
form in which long **edge** rims 5
are dangled, are formed in a
single piece **structure**, and each
set of front leg 6 and rear leg 7
constitute one pinching part 8
having an opening 9 to be
spread, and beads 11 leading
from the top having a bend 10 to
the bottom are formed on the
surface of the front leg 6 while
linear beads 12 leading from the
top to the bottom are formed on
the surface of the rear leg 7, and
an inward facing pawl 13 is
provided at the bottom of each
leg 6/7. Thus a body 2 of metal
fixture is formed, and a moving
piece 3 installed therein is
equipped integrally with a



guide part 27 having a channel-form section formed from a top plate 20 having a guide hole 21, dangling pieces 23 dangling from the two shorter **edge** rims 22, and riser pieces 25 and 26, and a protrusive piece 28 is provided in the center of each dangling piece 23.

135/220 © EPODOC / EPO

PN - [JPH0465828](#) A 19920302

PR - JP19900178701 19900706

AP - JP19900178701 19900706

DT - I

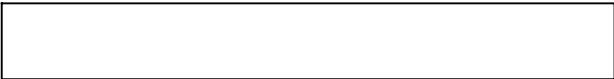
FI - H01L21/304&341C;
H01L21/304&648D

FT - 5F157/AB03; 5F157/AB13;
5F157/AB34; 5F157/CF93;
5F157/DB37

PA - SEIKO EPSON CORP

TI - CARRIER FOR DRAWING/DRYING
PURE WATER

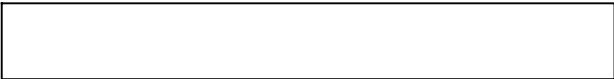
AB - PURPOSE:To leave no water drop on the contact between a substrate and a holding **bar** for the substrate, with simple **structure** by using a round **bar** as the holding **bar** for substrate, and by holding the substrate due to linear contact. CONSTITUTION:A substrate 2 is made possible to be taken in and out of an external frame from the upper direction of a carrier 1 for drawing/drying pure water. Four substrate-holding bars 3 to be adhered to the outer surface of the substrate 2 are installed for preventing from their falling down. In this case, round bars are used for the substrate-holding bars 3. As a result, the contact **4** between the substrate and the substrate-holding bars makes linear contact, and there is no water drop left at the time



of pulling and drying pure water of the substrate 2. The smaller the diameter of each round **bar** is up to the degree that it can resist in terms of stress, the more effective it becomes.

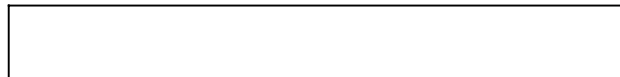
Furthermore, if a round **bar** is used, cost reduction is made possible due to no necessity of special working. The shape of the holding **bar** 3 may be **square**, triangle, or quadrilateral. If the substrate 2 is hold with the use of the **corner** part 7, the effect is as the same as the holding **bar**.

136/220 © EPODOC / EPO
 PN - [JP2000008486](#) A 20000111
 PNFP - JP3395657B B2 20030414
 PR - JP19980178520 19980625
 AP - JP19980178520 19980625
 DT - I
 FI - E04B1/30&K
 PA - (A)
 KAJIMA CORP
 TI - (A)
 JOINT **STRUCTURE** OF
 REINFORCED CONCRETE COLUMN
 AND STEEL FRAME **BEAM**
 AB - (A)
 PROBLEM TO BE SOLVED: To
 improve yield of use material
 and reduce total cost by
 overlapping two unit joining
 steel plates on a part joining the
 flange of a reinforced concrete
 column and a steel frame **beam**
 in the form of a cross to be
 disposed and fixing the **beam**.
 SOLUTION: A joining part steel
 plate 1 is composed of a column
 joining part formed in **square**
 shape as one side equal to a
 joining column width and
 a **trapezoidal beam** joining part
 extended on two opposite sides,
 and a regular circular hole **4** is



drilled in the center part of the column joining part. In the case where beams 6, 6 are joined, the two unit joining steel plate 1 previously drilling column **bar** insertion holes 2a four parts by four parts on the four **corner** part of the column joining part are made orthogonal, disposed at an interval of the size of the **beam structure**, the flange of the **beam** is welded between the **beam** joining parts 3, 3 of the upper and lower joining members, a vertical long rectangular plate 5 is provided in a face in parallel with another face including the axis of the **beam**, and connection with the web of the **beam** is performed. Thereby the yield of use material can be improved, in addition, use of inexpensive electric furnace material is enabled, cutting and drilling can be automatically performed and a cost can be reduced.

137/220 © EPODOC / EPO
 PN - [JP2000008481](#) A 20000111
 PNFP - JP4004644B B2 20071107
 PR - JP19980173139 19980619
 AP - JP19980173139 19980619
 DT - I
 FI - E04B1/24&L; E04B1/38&400Z;
 E04B1/40&Z
 FT - 2E125/AA04; 2E125/AA14;
 2E125/AB16; 2E125/AC16;
 2E125/AG32; 2E125/AG43;
 2E125/BA55; 2E125/BB02;
 2E125/BB22; 2E125/BB31;
 2E125/CA05; 2E125/CA06;
 2E125/CA13; 2E125/CA14;
 2E125/CA51; 2E125/CA91;
 2E125/EA01; 2E125/EA06;
 2E125/EA34
 PA - (A)



DAIWA HOUSE IND

TI

- (A)

BEAM JOINING STRUCTURE
OF **SQUARE**-SHAPED STEEL-PIPE
COLUMN AND JOINING METHOD

AB

- (A)

PROBLEM TO BE SOLVED: To set a nut accurately into a **square**-shaped steel-pipe column easily, and to **join** a **beam** simply and accurately at a low cost by using a normal high-strength bolt.

SOLUTION: A nut holding plate 3, to which a plurality of nuts 4 are installed, is superposed onto the internal surface of the **square**-shaped steel-pipe column 1, and a **beam** end section is connected to the steel-pipe column 1 by bolts screwed into the nuts 4.

Plate mounting holes 9 and tooling holes 10 are formed to the **square**-shaped steel-pipe column 1. Holes to be mounted 11 and positioning guide holes 12 are formed to the nut holding plate 3. Positioning jigs inserted into the tooling holes 10 of the **square**-shaped steel-pipe column 1 can be fitted loose into the positioning guide holes 11.

One ends of the positioning guide holes 12 are constricted gradually, and the plate mounting holes 9 of the **square**-shaped steel-pipe column 1 and the holes to be mounted 11 of the nut holding plate 3 are aligned under the state, in which the positioning jigs are engaged at the constricted ends. The nut holding plate 3 is fitted to the **square**-shaped steel-pipe column by axial clamping tools inserted into the holes to be mounted 11 from the plate mounting holes 9.

138/220 © EPODOC / EPO

PN - [JPH108618](#) A 19980113

PR - JP19960158111 19960619

AP - JP19960158111 19960619

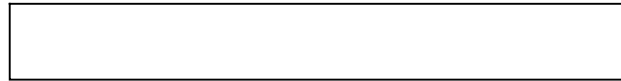
DT - I

FI - E04B1/348&H; E04B5/02&M

PA - MISAWA HOMES CO

TI - FLOOR **STRUCTURE** OF BUILDING UNIT

AB - PROBLEM TO BE SOLVED: To attain the degree of freedom in the orientation of arranging flooring by forming an outer **edge** of floor of **square** shape in plane of two long floor beams and two short floor beams, laying a plurality of floor joints between the two opposite long floor beams, and arranging a second floor joint being parallel to the long floor **beam** while being vertical to a first floor joint. SOLUTION: A frame 2 of a housing unit 1 is formed in a rectangular parallelepiped shape of rigid frame **structure** of four **corner** columns 3, two long floor beams **4**, two short floor beams 5, two long ceiling **beam** 6, two short ceiling beams connecting lower and upper ends of the columns 3 to each other. A plurality of first floor joints 9 are laid at an equal pitch between the two beams **4**, and the ends thereof are connected to the beams **4** through brackets. Second floor joints 11 are arranged between the short floor beams 5 at an equal pitch in the direction vertical to the first floor joints 9. The height of the first joint 9 is larger than that of the second joint 11, and the second joint 11 is fitted into an upward recess 12 formed by cutting the first joint 9. After the



arrangement, the top surfaces of the joints 9, 11 are made same in height.

139/220 © EPODOC / EPO

PN - [JPH0317350](#) A 19910125

PR - JP19890152726 19890615

AP - JP19890152726 19890615

DT - I

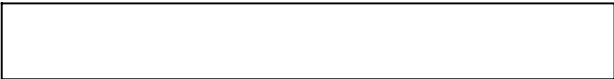
CT - [JPS6132449B](#) B2 [[JP60110535B](#) B []

FI - E04G1/14; E04G1/14&301A; E04G1/26; E04G5/06; E04G5/06&B; E04G5/06&C; E04G5/16&Z

PA - FUKUTADA KOGYO KK

TI - SCAFFOLD FOR BUILDING **STRUCTURE**

AB - PURPOSE:To simplify unloading work, by horizontally protruding a stage for receiving construction members, which receives the members lifted toward the counter side against the **structure** constructed from a required height. CONSTITUTION:A steel scaffold plates **4** are placed, hung on a horizontal **beam 3** between main frames **1, 1** formed by steel vertical posts **2** and a horizontal **beam 3** to define a gate. And a stage **5** for receiving construction members is horizontally protruded to be freely detachable at the counter side of the **structure** at a required height of the scaffold. For the stage **5** for receiving construction members, a plurality of arms **7** are fixed every certain distance in parallel with each other on the face of a **square** frame **6** made of H-shaped steel and the scaffold plates are hung between the arms **7** and also hand rails hung



therebetween are provided at the other three faces than the scaffold. Further, a bracket 9 is protruded at the opposite side to the main frame 1 and a hanging wire 22 is fitted at the opposite **corner** to the bracket 9.

140/220	© EPODOC / EPO	
PN	- JPH10338967 A 19981222	
PNFP	- JP2954548B B2 19990927	
PR	- JP19970150833 19970609	
AP	- JP19970150833 19970609	
DT	- I	
FI	- E04B1/24&L; E04B1/58&508S	
FT	- 2E125/AA04; 2E125/AA14; 2E125/AB01; 2E125/AB16; 2E125/AC14; 2E125/AG03; 2E125/AG31; 2E125/AG41; 2E125/AG45; 2E125/AG56; 2E125/AG57; 2E125/BA35; 2E125/BA44; 2E125/BB08; 2E125/BB19; 2E125/BB22; 2E125/BB30; 2E125/BE01; 2E125/BE07; 2E125/BF04; 2E125/CA05; 2E125/CA06; 2E125/CA13; 2E125/CA14; 2E125/CA82	
PA	- (A) ARTES KK; NIPPON SPLICE SLEEVE KK	
TI	- (A) COLUMN- BEAM JOINT STRUCTURE OF STEEL FRAME STRUCTURE	
AB	- (A) PROBLEM TO BE SOLVED: To easily connect a steel frame beam , by providing joint sleeves at the end of the upper and lower flanges of the steel frame beam and inserting joint bolts at the joint of a steel frame column and inserting the end thereof into the sleeves and charging a grouting material into the sleeves. SOLUTION: When a steel frame beam 2 made from a	

H-shaped sectional member is jointed to both sides of a joint of a **square** steel pipe column 1, a plurality of joint bolts **4** such as a high strength bolt are fitted to the joint of the column 1 so as to horizontally pierce the **join**. And the ends of joint bolts **4** are inserted in the joint sleeves 3 protruded at the ends of the upper and lower flanges 2a of the steel frame **beam** 2. And further, anchorage nuts **8** are screwed in the ends of joint bolts **4** and a grouting material 5 such as mortar is charged into the joint sleeves 3 through charging holes. When the steel frame **beam** 2 is jointed to only one side of the joint, one end of joint bolts **4** is fixed to the side of joint with an anchorage nut 9 and the other end thereof is joined to the joint sleeve 3. In this way, the steel frame **beam** 2 can be easily connected to the column 1.

141/220	© EPODOC / EPO
PN	- JPS6130311 A 19860212
PR	- JP19840150302 19840719
AP	- JP19840150302 19840719
DT	- I
CT	- STSE (A) JPS4836387 A 19730529 []
CCI	- B23C5/2269
FI	- B23C5/20
FT	- 3C022/MM00
PA	- MITSUBISHI METAL CORP
TI	- THROWAWAY TYPE CUTTING TOOL
AB	- PURPOSE:To largely improve rigidity of a tool main body and reduce expenses for the tool by forming the tool main body and members, which contact throwaway tip directly, by



sintered hard alloy.

CONSTITUTION:A head (tool main body) 1, such as a boring **bar** or the like, is fixed to an adapter 2, in a condition of being fitted in a spline, by means of a clamping bolt 3 and is further attached to a spindle through the adapter 2. A throwaway tip **4** is fixed to the outer peripheral part on the tip side of the head 1 by means of a cotter member 5. The tip **4**, formed like a flat board which is nearly **square**, is composed of a basal plate 4a made of super alloy, and tips 4b which are made of super high pressure sintered body and provided on both upper and lower faces of the basal plate 4a, while the peripheral part of the tip 4b is formed as the cutter **edge** 6. Due to the above-mentioned **structure**, rigidity of the tool main body is largely improved and expenses for the tool can be reduced.

142/220 © EPODOC / EPO

PN - [JPH05311924](#) A 19931122

PR - JP19920148615 19920515

AP - JP19920148615 19920515

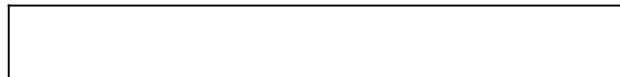
DT - I

FI - E04H9/14&H

FT - 2E139/AA05; 2E139/AB13;
2E139/AC19; 2E139/AC53;
2E139/AD07

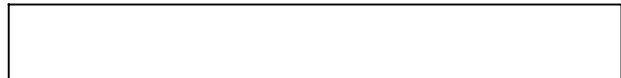
PA - MITSUI CONSTR

AB - PURPOSE:To prevent the vibrations of a building due to the generation of vortexes by disposing a vortex generators each comprising a **bar**-shaped body in specified size at fixed position at the **corner** sections of a long-span roof. CONSTITUTION: The aerodynamic



damping **structure** of the building 1 of a long-span roof is constituted in such a manner that four vortex generators are arranged under the state, in which the vortex generators are projected in the oblique direction from the outer circumferential ends 2a of the roof 2, and connected by connectors 4. The vortex generators 3 are formed in a **bar**-shaped body having a **square** cross section while the width of one side is set to one tenth of the height H of the building and length is made slightly longer than one side of the roof and the vortex generators are disposed at the intervals 2 in size, of one fifth of building height H in the positions of arrangement. When a wind blows from the front of the building, air vortexes are generated near the windward front section of the roof 2, but the generation and growth of the vortexes of building 1 itself are prevented by vortex generators 3a themselves or vortexes generated from the vortex generators, thus obviating the vibrations of building 1 itself.

143/220 © EPODOC / EPO
 PN - [JPH08319720](#) A 19961203
 PNFP - JP2707430B B2 19980128
 PR - JP19950148407 19950524
 AP - JP19950148407 19950524
 DT - I
 FI - E04G21/12&104F
 PA - (A)
 ORIENTAL CONSTR CO LTD
 TI - (A)
 TENSIONING DEVICE FOR PC **BAR**
 AB - (A)
 PURPOSE: To tension a PC **bar** by



easily and surely receiving rotational reaction of a torque wrench. CONSTITUTION: A reaction receiving frame 9 of a reaction receiving member 8 is non-rotationally fitted to a recessed part 2 of non-circular cross section to be formed on the outer side of a concrete **structure** 1. The tip part of a rotation locking plate 20 provided on an electric power wrench 14 is loaded on a reaction receiving support plate 10 integrated with the reaction receiving frame 9, and the side **edge** of the rotation locking plate 20 is locked to a reaction receiving projection provided on the reaction receiving support plate 10. A rotary **square** shaft 19 of the electric power wrench 14 is connected to a stationary nut 7 screwed with a threaded part 6a of a PC **bar** 6 located in the non-circular recessed part 2 through a joint member 16 having engagement **square** holes 15, 15a on each end.

144/220 © EPODOC / EPO
PN - [JPH09302814](#) A 19971125
PR - JP19960141176 19960513
AP - JP19960141176 19960513
DT - I
FI - E04B1/26&F; E04B2/56&602K;
 E04B2/56&611C;
 E04B2/56&643A;
 E04B2/56&651A;
 E04B2/56&651D;
 E04B2/56&651L;
 E04B2/56&651S;
 E04B2/56&652J; E04H9/02&311
FT - 2E002/EB00; 2E002/EB12;
 2E002/FA00; 2E002/FA03;
 2E002/LA00; 2E002/LA01;
 2E002/LA03; 2E002/LB03;
 2E002/LB09; 2E002/LC00;



2E002/LC02; 2E002/MA11;
 2E002/MA12; 2E139/AA01;
 2E139/AB03; 2E139/AC02;
 2E139/AC22; 2E139/AC26;
 2E139/AC32; 2E139/AC66;
 2E139/BD15

- PA - MIYAGAWA YOSHIHARU
- TI - EARTHQUAKE RESISTANT WALL OF WOODEN HOUSE
- AB - PROBLEM TO BE SOLVED: To improve resistance against an earthquake by attaching connection metal fittings to four **corner** parts formed by a groundsill fixed on a concrete foundation, a column erected on it, and a **beam** which connects an upper end of the column and connecting them in the shape of X character by a metal rod.
 SOLUTION: A brace connection metal fitting 5 consisting of a fixing section in an L shape and a connection plate body 7 is attached to a **corner** part of a **square** space 4 formed by a wooden groundsill, a column, and a **beam** by using nails, screws, etc. Next, a metallic rodlike brace 15 constituted by screw- fitting a screw rod 18 in both ends of a pipe 16 in such a manner that it can advance and retract freely is crossed and connected in an X shape between the opposing connection metal fitting 5 and it to stretch them tightly by rotating the pipe 16 and hold their tension. The shape and **structure** of the connection metal fitting 5 can be changed depending on a **structure** of a building, etc. The strength of a wooden house and its resistance against an earthquake are markedly improved owing to the brace 15. Even an unskilled worker can

attach the brace easily.

145/220 © EPODOC / EPO

PN - [JPH06346512](#) A 19941220

PNFP - JP2903945B B2 19990614

PR - JP19930139626 19930610

AP - JP19930139626 19930610

DT - I

FI - E04B1/32&102B; E04B1/342&B;
E04B7/08; E04C3/11;
E04G21/12&104A; E04G21/14

FT - 2E163/FA09; 2E163/FA12;
2E163/FB23; 2E163/FB32;
2E163/FB36; 2E163/FB42;
2E163/FB43; 2E163/FB44;
2E163/FB49; 2E163/GA01;
2E174/AA01; 2E174/BA05;
2E174/DA02; 2E174/DA08;
2E174/DA13; 2E174/DA18;
2E174/DA24; 2E174/EA01

PA - (A)
OHBAYASHI CORP

TI - (A)
LONG SPAN **STRUCTURE** AND ITS
CONSTRUCTION METHOD

AB - (A)
PURPOSE: To properly perform
the tension introduction to a
chord **beam**, thereby preferably
executing lift-up work,
sufficiently ensuring the
structural stability of
a **structure**, and also improving
the safety of construction.
CONSTITUTION: A flat **square** roof
frame 2 is ground-assembled,
main pillars 3 are also
constructed in its **corner** part
positions, and the roof frame 2
is finally lifted up and supported
by the main pillars 3. At this
ground assembling work, chord
girders 6 are radially assembled
from the form center of the roof
frame 2 toward the
respective **corner** parts where
the main pillars 3 are situated.



Chord beams 9 are ground-assembled in triangular roof parts **8** partitioned by the chord girders 6, and the roof finishing work is conducted on the ground to the chord girders 6. A tension is thereafter introduced to chord members 5, **8** of the chord girder 6 and others. Thus, the roof frame 2 is perfectly constructed by the ground assembling work, and in the final stage of the completion, the tension is introduced to the chord members 5, **8**.

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PN - [JPH02311644](#) A 19901227

PNFP - JPH0762371B B2 19950705

PR - JP19890131100 19890524

AP - JP19890131100 19890524

DT - I

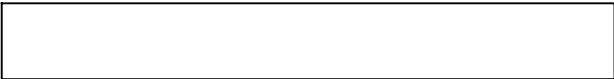
FI - E04B1/26&G; E04C3/14

FT - 2E163/BA12; 2E163/BC02;
2E163/BC23; 2E163/BC31;
2E163/BC38; 2E163/BC41;
2E163/FA12; 2E163/FC02;
2E163/FC23; 2E163/FC31;
2E163/FC38; 2E163/FC41

PA - (A)
TSUCHIYA KEIEI KK

TI - (A)
SYNTHETIC **BEAM** FOR
FRAMEWORK **STRUCTURE**

AB - (A)
PURPOSE:To increase the
strength for a concentrated load
by arranging angular members
between the horizontal members
connecting the part between
stays so as to be superposed at
the upper and lower **edge** parts
and forming a space between the
upper and lower horizontal
beams and carrying out fixation
by bolts. CONSTITUTION:A
foundation base 1 is formed



from long horizontal members 1a and angular members 1b which are interposed by bolts and nuts 3 between the horizontal members 1a. A synthetic **beam 4** is formed from two long horizontal members 4a each of which has a nearly **square** sectional shape and set between stays 2b and 2c by an installation metal fitting 7 and angular members 4b interposed at each certain interval. Further, the angular members 4b set between two horizontal members 4a are arranged so as to be superposed at the **edge** parts in the upper and lower stages and the length in the space between the angular members 4b in the horizontal direction is made constant. Then, after the synthetic **beam 4** is fixed onto the stays 2b and 2c, diagonal bracings 5 are installed. Thus, production cost can be reduced.

147/220 © EPODOC / EPO

PN - [JPH0257303](#) A 19900227

PR - US19880190865 19880506

AP - JP19890113588 19890502

DT - I

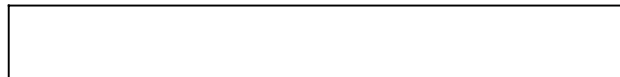
CCI - [B23Q9/0014](#) ; [B27B17/0083](#) ;
[B27B17/14](#) ; [B27G19/003](#) ;
[B28D1/088](#)

FI - B28D1/08

FT - 3C069/AA01; 3C069/BA04;
3C069/BA06; 3C069/BB01;
3C069/BB02; 3C069/BB04;
3C069/CA01; 3C069/CA07;
3C069/DA01; 3C069/DA05;
3C069/DA06; 3C069/EA05

PA - KUTSUSHIYON KATSUTO INC

TI - CHAIN SAW MECHANISM AND
CUTTING METHOD BY CHAIN SAW
MECHANISM



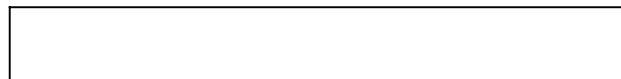
AB - PURPOSE: To provide an easier, quicker and more effective procedure for producing openings in concrete walls without corners by constituting a carriage having an elongated chain **bar** positioned perpendicular to a wall and being within a plane defined by a cutting line, a cutting chain being movable along the chain **bar**, and means for driving the cutting chain along the chain **bar**, a track and the carriage extending to only one side of the plane in a first operative condition of a chain saw assembly. CONSTITUTION: A chain saw comprises a carriage 18, an elongated chain **bar** 16 having means for driving a cutting chain around the **bar** and a chain around the **bar**. The carriage 18 contains means for driving the cutting chain around the chain **bar** and means for driving the carriage 18 along a track **structure** 6. The chain saw 12 is positioned along the track **structure** 6 in the same manner as a circular saw 2 is positioned along the track **structure** 6. The elongated chain **bar** 16 of the chain saw 12 is inserted into a kerf 8. By driving the chain saw upward, the kerf extends to a cutting line 11 at all points through the thickness of the wall but does not extend beyond the cutting line 11, thereby forming a **square corner** cut.

148/220 © EPODOC / EPO
 PN - [JPH04341212](#) A 19921127
 PR - JP19910113264 19910517
 AP - JP19910113264 19910517
 DT - I



FI	- A47B21/00&Z; A47B37/00&505A; G06F1/00&313B; G06F1/16&313B
FT	- 3B064/AL01
PA	- FUJITSU LTD
TI	- STRUCTURE OF MONITORING CONSOLE
AB	- PURPOSE:To offer the console which is considered biotechnologically and whose use convenience is satisfactory, and also, which can be manufactured easily and whose maintenance can be executed easily, with regard to the structure of the monitoring console used for a plant monitoring system, a building management system, etc. CONSTITUTION:A table part A is constituted of a horizontal memo table 4 , an operating part 3. which rises with a gentle incline continuously therefrom, and also, a display part 1 which rises with a large incline continuously therefrom, and on the other hand, the lower structure body B is constituted by a pair of front and rear square -like frame type frames 11 made of a sheet metal, and a pair of beam members 12 for connecting and fixing each corner part of its lower part, as units, and said table part A is placed on the lower structure body B and both of them are fixed.

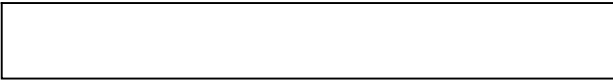
149/220	© EPODOC / EPO
PN	- JPH09291654 A 19971111
PNFP	- JP2898243B B2 19990531
PR	- JP19960105457 19960425
AP	- JP19960105457 19960425
DT	- I



FI	- E04B7/02&511E; E04B7/20&521D; E04D3/00&A; E04D3/00&B
FT	- 2E108/AA02; 2E108/AS02; 2E108/BB04; 2E108/BN06; 2E108/CC01; 2E108/FF03; 2E108/GG15
PA	- (A) KAWATETSU ROOF TEC KK; NAT HOUSE IND
TI	- (A) ROOF STRUCTURE
AB	- (A) PROBLEM TO BE SOLVED: To support corrugated roof boards with a simple structure , by supporting and fixing the corrugated roof boards fitted at a slant at both side of the ridge by the roof beams at the eaves edge side and the support members fixed onto purlins arranged close to each other at both sides of the ridge. SOLUTION: The roof frame 8 of a building 7 is composed of roof beams 2 to support the roof, vertical roof struts 9, and purlins 3. The purlins 3 are put on the vertical roof struts 9 parallelly to the ridge side roof beam 2b and fixed thereto. And support members 4 folded to form a square corrugated-shape bent along the concave and convex shapes on the rear face of the corrugated roof boards 1 are placed on the purlins 3 and fixed thereto. The same support members 4 are also placed on the eaves edge side roof beam 2a. Even the roof inclination is gentle and the span to support the roof boards in the gable direction is long, the roof is stable. Even the corrugated roof boards 1 fitted at a slant at both sides of the ridge are supported

and fixed by the eaves **edge** side roof **beam** 2a and the support member **4** fixed on the purlins 3 closely positioned at both sides of the ridge, the boards can be sufficiently supported.

150/220	© EPODOC / EPO
PN	- JPH08270073 A 19961015
PR	- JP19950097820 19950329
AP	- JP19950097820 19950329
DT	- I
FI	- E04B1/18&A; E04B1/70&B; E04B1/74&P; E04B1/76&200C; F24F7/06&Z
FT	- 2E001/DB01; 2E001/DB02; 2E001/DG01; 2E001/EA09; 2E001/FA02; 2E001/FA17; 2E001/FA21; 2E001/FA34; 2E001/GA66; 2E001/HB02; 2E001/LA01; 2E001/LA11; 2E001/NA03; 2E001/NA04; 2E001/NB01; 2E001/NC01; 2E001/ND00; 2E001/ND01; 2E001/ND21; 2E109/AA08; 2E109/AB13; 2E109/HA00; 2E109/JA03; 2E109/JA04; 2E109/JB01; 2E109/MA04; 3L058/BD00; 3L058/BE08; 3L058/BF05; 3L058/BG05
PA	- TOCHII KOMUTEN KK
TI	- WOOD FRAMEWORK STRUCTURE HOUSING
AB	- PURPOSE: To prevent buckling of a through-column even when strong oscillation of an earthquake is exerted by a method wherein the whole or a part of the through-column forms a steel frame column. CONSTITUTION: The lower part of a steel frame column 1 continuous from a first story to a second story has a main body formed of a straight square pipe material 8 and orthogonal two- way joint members 9A, 9B, and



9C are welded to upper and lower ends and an intermediate. The joint members 9A and 9B for the upper end and the intermediate are formed in the shape of an up U-shape and support a girder 3 and a **beam** 2 made of wood. The joint member 9C for the lower end is formed in a down-U-shape and arranged in such a manner to be fitted in a wood foundation 4 from above and fixed through fastening by means of a bolt. An anchor bolt 11 protruded from a concrete foundation 10 is extended through the joint member 9A through the medium of the foundation 4 and fastened by means of a nut. Further, the joint member 90A for a brace 6 is protruded obliquely downward from the side of the joint member 9A at an upper end, and a joint part 90C for the brace 6 is protruded from the **corner** part between the joint member 9C and the pipe material 8.

151/220 © EPODOC / EPO

PN - [JPH04327621](#) A 19921117

PR - JP19910096922 19910426

AP - JP19910096922 19910426

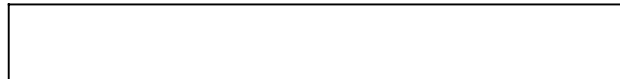
DT - I

FI - E04B1/24&L

PA - SUMITOMO METAL IND

TI - JOINT PART OF **SQUARE**STEEL
PIPE COLUMN AND STEEL **BEAM**
AND JOINT METAL THEREFOR

AB - PURPOSE:To facilitate the
jointing of a **square** steel pipe
column and steel **beam**, reduce
costs and enhance the
preciseness and strength of a
steel **structure** . CONSTITUTION:
Eight pieces of joint metals 3 are
attached to the four corners of



a **square** steel pipe column 1 on the level of upper and lower flanges of a H-section steel **beam** 2. The joint metal 3 comprises vertical part **4** having cross-shaped horizontal section and two pieces of horizontal parts 5 which are perpendicular to each other. A plurality of bolt holes 6 are provided in the part **4** and part 5. The vertical part **4** of the metal 3 is jointed to the **corner** of the column 1 by means of high tension bolts 7 to form belt-shaped reinforcements having required width over the outer surface of the column 1 using the parts **4**. The H-section steel beams 2 which are perpendicular to each other are jointed to two horizontal parts 5 of each of the metals 3 by means of high tension bolts 7.

152/220 © EPODOC / EPO
 PN - [JPH06288003](#) A 19941011
 PR - JP19930076851 19930402
 AP - JP19930076851 19930402
 DT - I
 CT - [JP57190004B](#) B []; [JP51053713B](#)
 B [];
[JPS6480639](#) A []
 FI - E04B1/24&L; E04B1/30&E;
 E04B1/58&508S
 FT - 2E125/AA04; 2E125/AA14;
 2E125/AB01; 2E125/AB12;
 2E125/AB16; 2E125/AC04;
 2E125/AC15; 2E125/AC16;
 2E125/AC29; 2E125/AG04;
 2E125/AG41; 2E125/AG57;
 2E125/BB02; 2E125/BB22;
 2E125/BB34; 2E125/BD01;
 2E125/BE01; 2E125/BF08;
 2E125/CA05; 2E125/CA14
 PA - KAJIMA CORP
 TI - JOINT **STRUCTURE OF SQUARE**
STEEL PIPE COLUMN AND BEAM



AB - PURPOSE: To rationally and securely transform a load, by welding plate members at the upper and lower parts of a steel pipe column and welding a reinforcing rib between the plate members and connecting a **beam** at a bracket on which a vertical rib is welded at the steel pipe column. CONSTITUTION: **Trapezoidal** plate members 2 are welded at the upper and lower parts of the welding part of the upper and lower flanges of a **beam** 5 of a **square** steel pipe column 1, with a distance from each plate. Next a reinforcing rib 3 is welded between two **trapezoidal** plates members 2 along the **edge** of **trapezoidal** plates and the corners of the **square** steel pipe column 1. Next, the **beam** 5 is connected to a bracket where a vertical rib 4 is welded at the position fitting the web of the **beam** 5 of the **square** steel pipe column 1.

153/220 © EPODOC / EPO
 PN - [JPH03275836](#) A 19911206
 PR - JP19900074099 19900323
 AP - JP19900074099 19900323
 DT - I
 CT - [JPH01275818](#) A [
 FI - E04B1/24&L; E04B1/30&E;
 E04B1/38; E04B1/58&508P
 FT - 2E125/AA04; 2E125/AA14;
 2E125/AB01; 2E125/AB16;
 2E125/AC04; 2E125/AC15;
 2E125/AC16; 2E125/AC29;
 2E125/AG03; 2E125/AG04;
 2E125/AG12; 2E125/AG31;
 2E125/AG43; 2E125/AG57;
 2E125/BA02; 2E125/BA23;
 2E125/BB08; 2E125/BB12;
 2E125/BB19; 2E125/BB22;
 2E125/BB25; 2E125/BF05;



2E125/CA05; 2E125/CA13;
2E125/CA14; 2E125/CA26

PA - KAJIMA CORP

TI - **STRUCTURE** OF COLUMN
AND **BEAM** JOINT SECTION

AB - PURPOSE: To make it possible to surely fasten nuts by fixing pipe metal fittings forming female screws on the inside circumferential surface to flanges of a column, and screwing through-bolts into the pipe metal fittings to insert them between the flanges.
CONSTITUTION: Sprit T metal fittings 3 joined to up and down flanges of steel framed beams 2 are made to abut on flanges 1a of a column 1 of a **square** steel pipe, and through-bolts 4 are penetrated between the sprit T metal fittings 3 to fasten. Bolt insertion holes 1b for the through-bolts 4 formed in the flanges 1a of the column 1 are so bored that each diameter of the insertion holes is larger than that of each of the bolts 4, and cylindrical pipe metal fittings 6 having female screws formed on the inside circumferential surface of them are inserted into the insertion holes to **join** them to the column 1 as a unit. According to the constitution, nuts 5 can be surely fastened without giving any deformation.

154/220 © EPODOC / EPO

PN - [JPH07279287](#) A 19951024

PR - JP19940073146 19940412

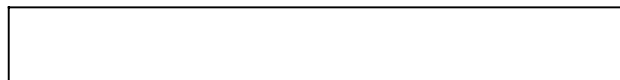
AP - JP19940073146 19940412

DT - I

FI - E04B1/348&H; E04B5/02&M

PA - SEKISUI CHEMICAL CO LTD

TI - SUPPORT **STRUCTURE** FOR
HORIZONTAL MEMBER



AB

- PURPOSE: To eliminate a troublesome positioning work by a method wherein a member for receiving a horizontal member is attached to the lower part of a support member and a lower end of a horizontal member, the lower **corner** of which is cut off, is mounted on the member and an end of the horizontal member is joined to the support member in an abutting manner.

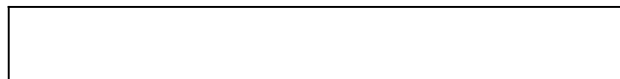
CONSTITUTION: The height of a floor joist 2 is made nearly equal to that of a wooden **beam** 1 and a wooden receiving member 3 is fixed, by means of nails **4**, to the lower part of a surface of the **beam** 1, to which the joist 2 is fixed. Next, a **square** cut-off portion 21 is formed at a lower **corner** of an end of the joist 2 and the height (h) and width (w) of the portion 21 is made nearly equal to that of the member 3. An end surface of the joist 2 is brought into abutment with the surface of the **beam** 1 to which the joist 2 is fixed, and the receiving member 3 is fitted into the portion 21 so that the upper portion of the portion 21 is mounted on the member 3. The nails **4** are driven from the outer side surface opposed to the surface of the **beam** 1 to which the joist 2 is fixed, whereby the end of the joist 2 is fixed to the surface of the **beam** 1 in an abutting manner. As a result, fixing strength of the joist 2 to the **beam** 1 can be sufficiently maintained.

155/220 © EPODOC / EPO

PN - [JPH04306335](#) A 19921029

PNFP - JP2703832B B2 19980126

PR - JP19910070946 19910403



AP - JP19910070946 19910403

DT - I

FI - E04B1/24&L

PA - (A)
NAKAGAWA ATSUSHI

TI - (A)
STRUCTUREFOR JOINTING PART
BETWEEN COLUMN AND **BEAM**

AB - (A)
PURPOSE:To provide a given strength by a method wherein a jointing member is disposed at an inner **corner** part between the flange and the web of a **beam**, a joining plate is arranged astride a portion between the long side of a column and the side of the jointing member, the jointing plate is fixed to the column and the jointing plate, the jointing member, the jointing member, and a **beam** are fixed to each other. CONSTITUTION:Joint members 3 in a shape extending along the surface of a **corner** part are arranged to the upper and lower surfaces and both sides of the inner **corner** part between the flange and the web of a H-steel **beam** 2. A joint plate 4 is arranged astride a portion between the long side of a **square** steel pipe column 1 and the side of the joint member 3. The joint plate 4 is fixed to the **square** steel column 1 and the joint plate 4, the joint member 3, and the H-steel **beam** 2 are fixed to each other by means of bolt nuts.

156/220 © EPODOC / EPO

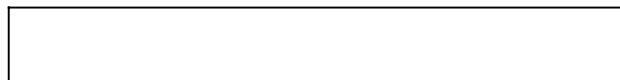
PN - [JPH01230861](#) A 19890914

PR - JP19880059061 19880311

AP - JP19880059061 19880311

DT - I

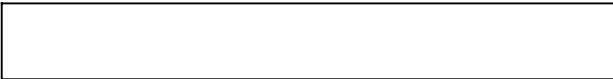
FI - E04G21/12&105A



PA	- SHIGEMATSU KOGYO KK
TI	- BAR ARRANGEMENT METHOD FOR REINFORCED CONCRETE STRUCTURE
AB	- PURPOSE: To improve the extent of executing accuracy by setting up each bar - arrangement member, with plural numbers of reinforcement holding parts at intervals conformed to a bar arrangement pitch, in leaving a space in direction orthogonal with the bar arrangement direction, and making the holding parts hold the reinforcement. CONSTITUTION: In a square section of a pillar 1 being formed by a pillar main reinforcement 4 , two bar arrangement members 8a are set up in a position equivalent to two sides mutually adjoined. Next, each reinforcing bar 5a doubling as hoop reinforcement is bent to each reinforcement holding part 82 of these bar arrangement members 8a so as to wind the outside of the main reinforcement 4 as holding this reinforcing bar 5a, and then both ends of the reinforcing bar 5a is further bent to the main reinforcement 4 being situated in a corner of the pillar 1 so as to head for the inward. Successively, arrangement of reinforcement for a wall 2 places each bar arrangement member 8b parallelly, making it hold each reinforcing bar 5b in parallel direction with the holding part 82, and each vertical reinforcing bar 5c is held on a reinforcement holding part 84 of a bar arrangement member 8c. In addition, arrangement of reinforcement for a floor 3 arranges bar arrangement members 8d, 8e, making a

reinforcement holding part 86
hold each of reinforcing bars 5d,
5c.

157/220 © EPODOC / EPO
PN - [JPH07238553](#) A 19950912
PNFP - JP2509158B B2 19960619
PR - JP19940055286 19940301
AP - JP19940055286 19940301
DT - I
FI - E02D17/20&102F;
E02D17/20&104C
FT - 2D044/DC14
PA - (A)
KENSETSU KISO ENG
TI - (A)
SLOPE PROTECTION **STRUCTURE**
AB - (A)
PURPOSE:To construct
a **structure** ignoring rusted
reinforcements without relying
on tensile force of the
reinforcements of the existing or
new slope protection **structure**.
CONSTITUTION:A circular arc-
shaped network form 7 is
covered upward of a **square** grid
frame 4 cut into a frame with a
vertical **beam** 2 and a
horizontal **beam** 3 intersecting
on the face of slope in the shape
of a grid. Hardener 12 is placed
in the network form 7 to form a
reinforced arch section 13. A
network material 5 is covered on
part or all of the beams, and the
hardener 12 is placed toward the
network material 5 to cover. An
unbonded prestressing steel 8 is
buried in the reinforced arch
section 13 under the
horizontal **beam** 3 and is
tensioned to fix. A vegetation
shelf section 14 is formed on the
upper **edge** of the
horizontal **beam** 3 to displace
soil. Very fine powder mixture is



used as cement hardener 12.

158/220 © EPODOC / EPO

PN - [JPH04285232](#) A 19921009

PR - JP19910047991 19910313

AP - JP19910047991 19910313

DT - I

CT - [JPH02272123](#) A []

FI - E04B1/24&L

PA - KAJIMA CORP

TI - COLUMN-BEAM JOINT
PART **STRUCTURE**

AB - PURPOSE:To positively secure the strength of a joint part and facilitate jointing work through dispensing with the cutting of a column and reducing welding quantity. CONSTITUTION:Welding is performed from the surface of a **square** steel pipe column 2 using slits 5 so as to perform the disposition of joint reinforcing fittings **8** into the respective **corner** angle parts in the **square** steel pipe column 2 easily without cutting the **square** steel pipe column 2. The reinforcing fittings **8** are also disposed in the positions with which the upper and lower flanges **4** of steel framed beams 3 are brought into contact, so that stress transmission to the reinforcing fittings **8** is performed positively to secure the strength of a column-**beam** joint part 1. In addition, welding work is performed only at the time of welding the reinforcing fittings **8** to the **square** steel pipe column 2 at the slit 5 parts so as to reduce the welding work and thereby to facilitate the joining construction between the **square** steel pipe column 2 and the steel framed beams 3.



159/220 © EPODOC / EPO

PN - [JPH06248698](#) A 19940906

PNFP - JP2864929B B2 19990308

PR - JP19930033495 19930223

AP - JP19930033495 19930223

DT - I

CT - (A)
[JPS5331611U](#) U [
]; [JPS59165744](#) A []

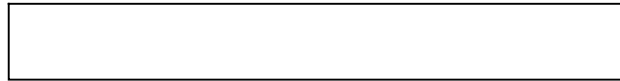
FI - E04B1/24&L; E04B1/30&E;
E04B1/58&508S

FT - 2E125/AA04; 2E125/AA14;
2E125/AB01; 2E125/AB12;
2E125/AB16; 2E125/AC04;
2E125/AC15; 2E125/AC16;
2E125/AC29; 2E125/AG04;
2E125/AG49; 2E125/AG57;
2E125/BB16; 2E125/BB35;
2E125/BD01; 2E125/BE02;
2E125/BF05; 2E125/CA90

PA - (A)
KAJIMA CORP

TI - (A)
JOINT **STRUCTURE OF SQUARE**
STEEL PIPE OR **SQUARE** STEEL PIPE
CONCRETE COLUMN AND **BEAM**

AB - (A)
PURPOSE: To heighten out-of-
plane drag and reduce
interference with arrangement of
a finish member and a floor slab
by welding a diaphragm with a
rib to a **square** steel pipe column
from outside, and welding a
flange of an H-shape steel
framed **beam** thereto.
CONSTITUTION: A diaphragm 3
with a rib projected to both sides
of a **trapezoid** plate-like member
is welded to a **square** steel pipe
column 1 from outside. A flange
of an H-shape steel framed **beam**
2 is welded to the diaphragm 3
with the rib. When the **square**
steel pipe column 1 is filled with
concrete 4 to form a **square** steel
pipe concrete column, a plurality



of studs 5 are provided to the inside of the **square** steel pipe column 1, and adhesion of concrete to the **square** steel pipe column 1 is improved.

160/220 © EPODOC / EPO

PN - [JPH03234614](#) A 19911018

PR - JP19900032155 19900213

AP - JP19900032155 19900213

DT - I

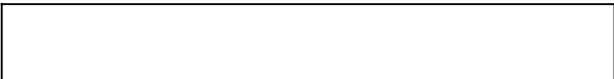
FI - B29C67/14&A; B29C70/32; B29L22/00

FT - 4F205/AA39; 4F205/AA49; 4F205/AD02; 4F205/AD04; 4F205/AD15; 4F205/AD16; 4F205/AD19; 4F205/AD35; 4F205/AG09; 4F205/AH33; 4F205/AM32; 4F205/HA02; 4F205/HA23; 4F205/HA33; 4F205/HA37; 4F205/HA40; 4F205/HA44; 4F205/HB01; 4F205/HB11; 4F205/HC15; 4F205/HC16; 4F205/HC17; 4F205/HK05; 4F205/HK31; 4F205/HL03; 4F205/HL23; 4F205/HL25; 4F205/HM06

PA - MITSUBISHI ELECTRIC CORP

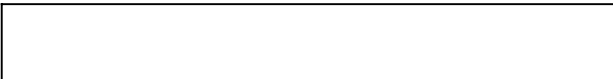
TI - HOLLOW **STRUCTURE** MADE BY FIBER REINFORCED COMPOSITE MATERIAL

AB - PURPOSE: To prevent inflating due to winding, unify the distribution of reinforcing fibers, unify and reduce thermal deformation, and improve the strength of a title **structure** by a method wherein fiber reinforced composite materials are interposed between the reinforcing fiber layers at the corners of the hollow **structure** along the axial direction of a mandrel. CONSTITUTION: Fiber reinforced composite materials 11 are arranged respectively at four corners every times when



reinforcing fibers 12 are wound by one layer around a **square** mandrel 13 while the reinforcing fibers 12 are wound further thereon to form a reinforced fiber layer 4. A preform 15 having the predetermined thickness of reinforcing fiber layer 4 is formed by repeating these operations while the preform 15 is received into a protecting case 16 and is heated. These are inserted into the cavity of a liquid phase impregnating die and the cavity is filled with the molten metal becoming a matrix and the mold is pressurized to impregnate the metal into the preform 15 and compose it. Thereafter, the protecting case 16 is removed and the outer periphery as well as the inner periphery of the preform 15 are machined to a necessary size whereby the **square beam** 1 of the final configuration is formed. According to this method, the radius of curvature of the **corner** sections becomes constant at all times in spite of the number of reinforcing fiber layers 4 wound into the peripheral direction of the same whereby the phenomenon of inflating due to winding can be prevented.

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2E125/BF08; 2E125/CA90
- PA - (A)
KAJIMA CORP
- TI - (A)
CONNECTION **STRUCTURE**
OF **SQUARE** STEEL PIPE COLUMN
OR **SQUARE** STEEL PIPE CONCRETE
COLUMN AND **BEAM**
- AB - (A)
PURPOSE: To provide a **structure**
less interfered with finishing
members than a plane-shaped
external diaphragm, in a column
penetration construction of the
connection of a **square** steel pipe
column or **square** steel pipe
concrete column with H-shaped
steel **structure** beams.
CONSTITUTION: On the upper and
lower surfaces of the flanges at
the one end of an H-shaped
steel **structure beam 4**, vertical
reinforcement members 2 are
welded so as to symmetrically
form the shape of an unfolded
fan in plan view. By welding the
outer vertical end of each of the
vertical reinforcement members
2 to the **corner** of a **square** steel
pipe column 1, the H-shaped
steel **structure beam 4** is joined
to the **square** steel pipe column 1.

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PA	- KAJIMA CORP
TI	- CONNECTION STRUCTURE OF SQUARE STEEL PIPE COLUMN OR SQUARE STEEL PIPE CONCRETE COLUMN AND BEAM
AB	- PURPOSE:To facilitate fitting work by temporarily providing rib-fitted reinforcement members on the inside of a square steel pipe column, and by fitting H- shaped steel structure beams while laminatedly superposing splits from the outside. CONSTITUTION:On the inside of the parts where H-shaped steel structure beams 6 are joined to a square steel pipe column 1, rib-fitted reinforcement members 2 of a trapezoidal shape in which screw holes 5 have been provided are installed. On the outside of the square steel structure column 1, splits T3 are laminated and superposed, and one side of the square steel pipe column 1 is sandwiched with the split T3 and with the rib-fitted reinforcement member and then is tightened by bolts 4 for joining them to the H- shaped steel structure beam 6. Thus, by using rib-fitted

reinforcement members,
a **structure** having a high out-of-
plane resistance can be obtained.

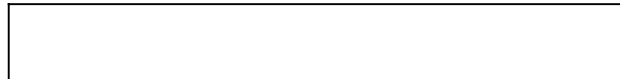
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PA - NIPPON STEEL CORP
TI - DIAPHRAGM-LESS JOINING
DEVICE FOR **SQUARE** STEEL PIPE
COLUMN AND H-SECTION
STEEL **BEAM**
AB - PURPOSE:To improve
performance of a member
constituting a **structure** using a
simple means without increasing
costs. CONSTITUTION:An L-
shaped steel reinforcing member
2 is brought into contact with
each **corner** of the external
surface of a **square** steel pipe
column 1, and the opposite ends
of the member 2 in the
circumferential direction of the
column 1 are fixed to the column
1 by welding. A flange 5 of a
joining device 4 fixed to an H-
section steel **beam** 3 is brought
into contact with the member 2
so as to be fixed thereto by
means of a one-side bolt 6.



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 2E125/CA05; 2E125/CA06;
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PA	- (A) KOKEN SEKKEI KENKYUSHO KK
TI	- (A) STRUCTURE OF JUNCTION PORTION OF STEEL COLUMN AND BEAM
AB	- (A) PURPOSE:To prevent the corner angle portion of a column from being deformed by providing and adding adjacent junction plates to the inner side face of the column, the plates being in contact with each other at their ends, and fixing the plate to the end portion of a beam and joining the column and both plates by a bolt and nut. CONSTITUTION:A steel skeleton column 1 is formed of a square steel pipe having an R portion 2 on its inner and outer face at a corner angle, and also adjacent junction plates 6 are brought in contact with each other at their ends so that the plates 6 are provided on the inner side face of the column 1. A T-shaped metal fitting 4 is affixed to the junction end portion of a skeleton beam 3. While a junction plate 5 ie. the vertical flange of the metal fitting 4 is placed along the outside of the column 1, the

column 1 and the **beam** are joined together by a bolt 7 and nut **8** passing through both of the plates 5, 6 and the column 1.

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PA - (A)
RIIDE ENG KK

TI - (A)
RACK **STRUCTURE**

AB - (A)
PURPOSE:To dispense with a transverse frame or a transverse **bar** and install many platy members to the extent by closely fitting notched parts provided in a vertical frame to respective parts of four corners of the platy member.
CONSTITUTION:Notched parts **4** provided in a vertical frame 2 are closely fitted to **corner** parts 23 in four corners of each platy member 3 and **square** pins 16 are passed through through-holes 13 formed at positions for tightly joining to the recessed **corner** parts 15 in a turning part 5 of an angle material. Thereby, a small number of parts are sufficiently used and assembling can be performed even in a narrow room.



Interruption by user...