

#### Search history

Search 1: FORMWORK AND BEAM AND CONNECT\* AND FRICTION GROOVE (Results 0)  
Search 2: formwork and beam (Results 12200)  
Search 3: friction groove and 2 (Results 0)  
Search 4: friction and groove (Results 389618)  
Search 5: 2 and 4 (Results 171)  
Search 6: CPC=(e04g and f16b) (Results 2316)  
Search 7: 5 and 6 (Results 2)  
Search 8: 4 and 6 (Results 75)

1) Family number: 29473000 (US4715503A)

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Title: INTERLOCKING JOINT WINE RACK

**Abstract:** A wine rack has no fasteners or adhesives at the three-dimensional joints, but rather the joints are all formed so that the three intersecting cross pieces interlock in such a way that a tight joint construction occurs strictly by virtue of the way the members are cut in the joint region, and the way in which the members are interlocked. The interlocking and connecting of cubic cells provides a rigid structure capable of accepting loads in any direction and allowing the rack to be mounted in any orientation, with single point wall mounting possible wherein the rack can withstand full loading with no distortion. The modular cell configuration is adapted to the construction of lattice beams and other arrangements besides wine racks.

#### Classifications:

**International (IPC 8-9):** A47B47/04 A47B73/00 B29C70/52  
B65D6/08 E01D1/00 E04B1/19 E04B1/24 E04B1/58 E04C3/12  
E04C3/28 E04C3/42 E04C3/46 E04G1/04 E04H12/02 E04H12/10  
E04H12/24 E04H17/14 E06C7/08 F16B12/12  
F16B7/04 (Advanced/Invention);  
E04B1/19 E04B1/24 E04B1/58 E04H12/24 (Advanced/Non-invention);  
A47B47/00 A47B73/00 B29C70/04 B65D6/00 E01D1/00 E04B1/19  
E04B1/24 E04B1/58 E04C3/02 E04C3/12 E04C3/38 E04G1/00  
E04H12/00 E04H17/14 E06C7/00 F16B7/04 (Core/Invention);  
E04B1/19 E04B1/58 (Core/Non-invention)

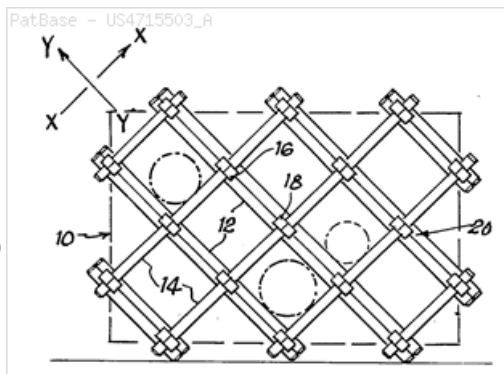
**International (IPC 1-7):** A47B47/00 A47B73/00 B29D22/00 B31F1/00  
E04B1/24 E04B1/58 E04C3/02 E04C3/30 E04H1/202 E04H12/02  
E04H12/04 E04H12/10 E04H12/18 F16D1/00 F21L7/00

**CPC:** Y10S52/10 Y10T403/34 Y10T403/342 Y10T403/347 Y10T403/44  
Y10T403/46 Y10T403/4602 Y10T403/7001 Y10T403/7096  
Y10T156/1008 Y10T156/101 Y10T156/1051 Y10T428/1362  
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E04B2001/5893 E04C3/12 E04C3/42 E04G1/04 E04H17/1439 Y10T403/343 B29C70/525 E04B2001/1924 E04B2001/1933  
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F16B7/0446 F16B2200/10 F16B2200/205

**European:** A47B47/04 A47B73/00 A47B73/00E B29C70/52C E01D1/00 E04B1/19 E04C3/12 E04C3/28 E04C3/42 E04C3/46  
E04G1/04 E04H12/02 E04H17/14E2 E06C7/08 F16B12/12M F16B7/04D2 P01D101/10 P01D101/26 P01D101/30 P01D101/40  
P04B1/19C P04B1/19C1 P04B1/19C2 P04B1/19C6 P04B1/19C7 P04B1/19D P04B1/19D2 P04B1/19E P04B1/19G2 P04B1/19H  
P04B1/19K P04B1/58P P04H12/24

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264/137 273/160 312/263 362/367 403/169 403/171 403/172 403/176 403/217 403/219 403/230 403/231 403/255 403/263  
403/346 403/382 405/262 405/272 428/102 428/152 428/176 428/181 428/193 428/36.1 428/361 446/106 52/282.1  
52/309.9 52/309.9 52/592.1 52/600 52/646 52/648 52/648.1 52/650.1 52/651.01 52/651.02 52/651.03 52/651.04 52/651.09  
52/655.1 52/697 52/720 52/724 52/728 52/731.3 52/736.1 52/736.2 52/736.3 52/736.4 52/835 52/844 52/849 52/DIG.1  
52/DIG.10 526/970 527/280



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
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| CA2154341 C        | 20001226         | CA19932154341      | 19930201         |
| EP0742862 A1       | 19961120         | EP19930904804      | 19930201         |
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| US5197818 A        | 19930330         | US19910715910      | 19910614         |
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| US2016344333 AA | 20161124 | US20160229974 | 20160805 |
| US2017067258 AA | 20170309 | US20160248942 | 20160826 |
| US2017107723 AA | 20170420 | US20160384293 | 20161219 |
| US2017187326 AA | 20170629 | US20170461166 | 20170316 |
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| US2018226914 AA | 20180809 | US20180942265 | 20180330 |
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| US2018347196 AA | 20181206 | US20180000797 | 20180605 |
| US2019106885 AA | 20190411 | US20180215594 | 20181210 |
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| US8166713 BB    | 20120501 | US20110271633 | 20111012 |
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| US9127464 BB    | 20150908 | US20140253687 | 20140415 |
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| US9774292 BB    | 20170926 | US20160229974 | 20160805 |
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| US10090801 BB   | 20181002 | US20170711745 | 20170921 |
| US10151114 BB   | 20181211 | US20160384293 | 20161219 |
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| US10472828 BB   | 20191112 | US20180000797 | 20180605 |
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| WO12125327 A3   | 20121227 | WO2012US27798 | 20120306 |
| WO12125327 A4   | 20130228 | WO2012US27798 | 20120306 |
| WO13043816 A1   | 20130328 | WO2012US56248 | 20120920 |

#### Priority:

|                |          |                |          |                |          |
|----------------|----------|----------------|----------|----------------|----------|
| US20090161668P | 20090319 | US20100298101P | 20100125 | US20100727726  | 20100319 |
| US20100345885P | 20100508 | US20100345885P | 20100518 | CA20102704915  | 20100521 |
| US20100914209  | 20101028 | US20110452983P | 20110315 | US20110485693P | 20110315 |
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| US20110270385  | 20111011 | US20110270792  | 20111011 | US20110271633  | 20111012 |
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| US20160003472  | 20160121 | US20160229905  | 20160805 | US20160229974  | 20160805 |
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| US20170515022P | 20170605 | US20170556191P | 20170908 | US20170711745  | 20170921 |
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| US20180215594  | 20181210 | US20200752667  | 20200126 |                |          |

**Probable Assignee:** RILLITO RIVER SOLAR LLC

**Assignee(s):** (std): RILLITO RIVE SOLAR LLC ; RILLITO RIVER SOLAR INC ; RILLITO RIVER SOLAR LLC ; STEARNS BRIAN CECIL ; VERMONT SLATE AND COPPER SERVICES CO INC ; VERMONT SLATE AND COPPER SERVICES INC ; ALPINE SNOWGUARDS ; ECOFASTEN SOLAR LLC ; LOUNSBURY DOUGLAS TIMOTHY

**Assignee(s):** RILLIOT RIVER SOLAR LLC ; ALPINE SNOW GUARDS ; VERMONT SLATE AND COOPER SERVICES INC ; ALPNE SNOWGUARDS

**Inventor(s):** (std): BORNEMANN ALEXANDER GRANT ; LOUNSBURY DOUGLAS TIMOTHY ; STEARNS BRIAN C ; STEARNS BRIAN CECIL

**Agent(s):** FINLAYSON AND SINGLEHURST; MICHAEL BEST AND FRIEDRICH LLP; MARK; LAW OFFICE OF MARK WILLIAMS PLLC; KW LAW LLP; COZAD SMITH JULIANNE M

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

**Title:** Form panel quick fastener

**Abstract:** A form panel quick fastener including a clamping plate having an elongated channel base fixedly fastened to a form panel at an outer side and a through hole disposed in the middle of the elongated channel base and aligned with a through hole of the form panel and a barrel raised from the elongated channel base at an inner side around the through hole of the clamping plate; a screw rod inserted through the through hole of the clamping plate and the through hole of the form panel and having a spiral groove around the periphery; and a ball thrust bearing sleeved onto the screw rod and forced into engagement with the barrel of the clamping plate to hold down the screw rod, the ball thrust bearing including a hexagonal head having a center through hole which receives the screw rod, a tubular flange perpendicularly raised from the hexagon head at one side around said center through hole of the hexagon head, a plurality of spiral holes spaced around the tubular flange at different elevations, and a plurality of steel balls respectively moved in the spiral holes and forced by an inside wall of the barrel of the clamping plate into engagement with the spiral groove of the screw rod.

**Classifications:**

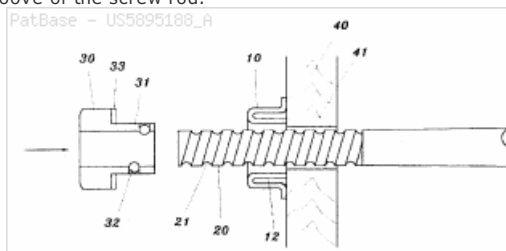
**International (IPC 8-9):** E04G17/065 F16B37/08 (Advanced/Invention); E04G17/06 F16B37/08 (Core/Invention)

**International (IPC 1-7):** E04G11/06 F16B37/08

**CPC:** E04G17/0652 F16B37/0807

**European:** E04G17/065B2 E04G17/06B2B F16B37/08A

**US:** 249/40 411/348 411/433 411/437 52/426



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US5895188 A        | 19990420         | US19970922350      | 19970903         |

**Priority:**

US19970922350 19970903

**Probable Assignee:**

CHENG TSAN HSIUNG

**Assignee(s):**

CHENG TSAN HSIUNG

**Inventor(s):** (std):

CHENG TSAN HSIUNG

**4) Family number: 2846129 (FR2132645A)**

**Abstract:** Source: FR2132645A [FR] (Claim 1) 1- REVENDICAT IONS t-Dispositif modulaire d'assemblage de profils rigides de section rectangulaire ouverte, selon les revendications i a 7 prises separement au brevet principal, caracterise en ce que la partie de l'ecrou de fixation du module d'assemblage en contact avec les bords du profile a assembler, presente une arete de section triangulaire emergant de la section meplate audit ecrou et situee le long de son axe longitudinal passant par l'axe du trou taraude lequel est situe dans le centre dudit ecrou, leuit ecrou se presente en vue de dessus comme un parallelogramme dont la longueur sur les angles extremes est egale a la largeur interne sur flancs du profile, l'arete se trouve lorsque ledit ecrou est en position de serrage dans le prolongitudinale file, perpendiculairement a l'ouverture/de celui-ci.

**Machine translation:** (Claim 1) 1 - Does REVENDICAT ION Device modular assembly profiles rigid rectangular open, according to claim 7 is taken separement the patent, characterized in that the portion of the nut securing the module assembly in contact with the edges of the profile to assemble, has an edge of triangular section emerging from the audit nut and flat section situated along its longitudinal axis passing through the axis of the threaded hole which is located in the center of said nut, nut comes in leuit top view of a parallelogram whose length on extreme angles is equal to the width of inner sides of the profile, l'arete is when said nut is in the locked position in the file prolongitudinale, perpendicular to the opening / it.

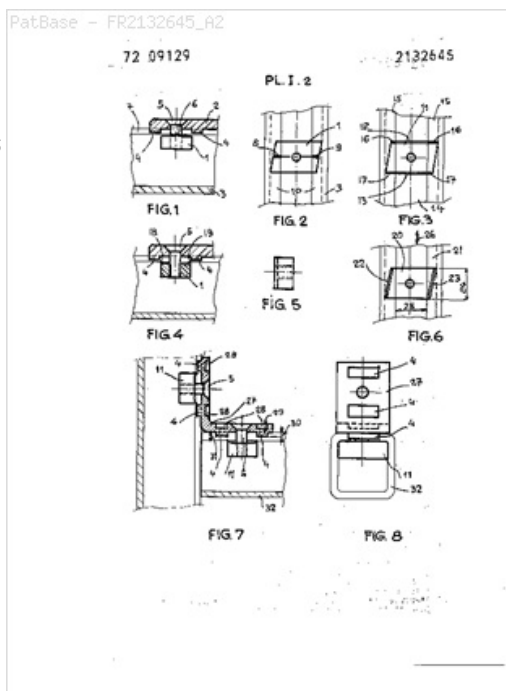
**Classifications:**

**International (IPC 8-9):** A47B57/54 E04B1/24 E04G7/26 F16B12/32 F16B37/04 F16B7/00 F16B7/04 (Advanced/Invention); E04B1/58 (Advanced/Non-invention)

**International (IPC 1-7):** A47B96/00 E04G7/00 E04G7/26 F16B1/00 F16B7/00 F16B7/04 F16S3/00

**CPC:** E04B2001/2415 E04B2001/2418 E04B2001/2448 E04B2001/405 E04B2001/5868 F16B7/04 F16B7/0446 F16C35/04 E04B1/2403 E04G7/26 F16B37/045 A47B57/46 A47B57/54 F16B7/187 F16B12/30 F16B12/32 E04B5/023

**European:** E04B5/02C F16B7/04 F16B7/04D2 F16B7/18N F16C35/04 P04B1/24B4 P04B1/24B40 P04B1/24B5 P04B1/40B P04B1/58H R16B7/18N



**Family:**

| Publication number | Publication date | Application number | Application date |
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| FR2132651 A2 | 19721124 | FR19720009866 | 19720321 |
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| FR2144665 A2 | 19730216 | FR19720021233 | 19720613 |
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**Priority:**

FR19720003950 19720207 FR19720009129 19720316 FR19720009866 19720321  
FR19720021233 19720613

**Probable Assignee:**

DEJOUX ANDRE

**Assignee(s): (std):**

GOURNELLE MAURICE ; DEJOUX ANDRE

**5) Family number: 34464163 (EP1785550B1)**

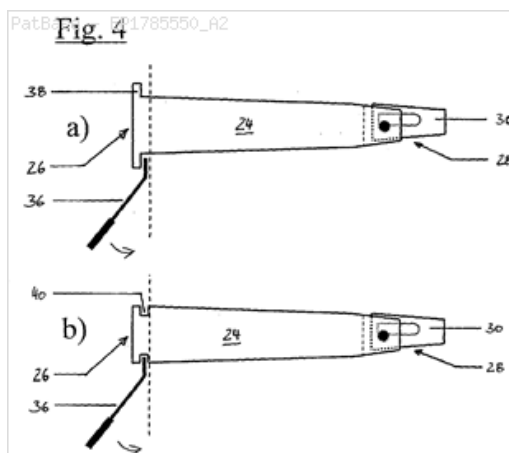
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**Title:** CONNECTION DEVICE

**Abstract:** Source: EP1785550A3 [DE] Die Erfindung betrifft eine Verbindungseinrichtung, mit der ein erstes Geruestbauteil und ein zweites Geruestbauteil formschluessig zug- und druckfest miteinander verbindbar sind, wobei die Verbindungseinrichtung einen Bolzen (24) aufweist, der im montierten Zustand durch wenigstens eine erste oeffnung im ersten Geruestbauteil und wenigstens eine zweite oeffnung im zweiten Geruestbauteil eingesetzt ist, und wobei an einem axialen Ende (26, 28) des Bolzens (24) ein Sicherungselement (30) unverlierbar angebracht ist, das den Bolzen (24) in seinem montierten Zustand halten kann. Des weiteren betrifft die Erfindung eine Verbindungseinrichtung, bei welcher der Bolzen (24) an einem ersten axialen Ende (26) eine radiale Schulter aufweist, an der zum Loesen des Bolzens (24) ein Hebel (36) angreifen kann.

**Classifications:**

**International (IPC 8-9):** E04B1/38 E04C3/04 E04C3/08 E04G1/12 E04G11/48 E04G7/20 E04G7/30 (Advanced/Invention); E04C3/04 (Advanced/Non-invention); E04B1/38 E04C3/04 E04G1/00 E04G11/00 E04G7/00 (Core/Invention)  
**CPC:** E04G7/301 E04B1/585 E04C3/08 E04C2003/0495 E04G1/12 E04G1/17 E04G11/48 F16B19/02 F16B2021/14  
**European:** E04C3/08 E04G1/12 E04G1/17 E04G11/48 E04G7/30B F16B19/02 P04B1/58C2C P04C3/04T2 R16B21/14



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE202005017667 U1  | 20060112         | DE200520017667U    | 20051111         |
| DE502006012298 D1  | 20130207         | DE200650012298T    | 20061017         |
| EP1785550 A2       | 20070516         | EP20060021755      | 20061017         |
| EP1785550 A3       | 20100317         | EP20060021755      | 20061017         |
| EP1785550 B1       | 20121212         | EP20060021755      | 20061017         |

**Priority:**

DE200520017667U 20051111 EP20060021755 20061017

**Probable Assignee:** BRAUN B AND K GMBH

**Assignee(s): (std):** BRAUN B AND K GMBH

**Assignee(s):** B AND K BRAUN GMBH

**Inventor(s): (std):** BRAUN HARTMUT ; HAUSER MATTHIAS

**Agent(s):** PRINZ AND PARTNER MBB PATENTANWAELTE RECHTSANWAELTE; PRINZ AND PARTNER

**Designated states:** AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO RS SE SI SK TR

**6) Family number: 23529207 (DE10128434C1)**

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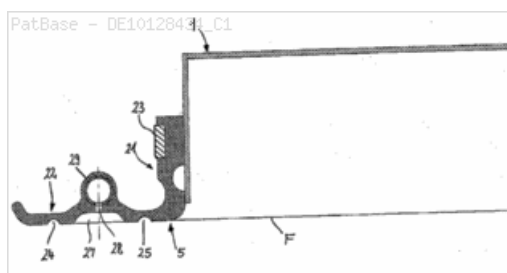
**Title:** ARBEITSGERAET UND DICHTUNGSFLANSCH HIERFUER IMPLEMENT AND SEAL FLANGE HIERFUERDie (Machine translation)

**Abstract:** Source: DE10128434C1 [DE] Die Erfindung betrifft ein Arbeitsgeraet mit einem Fahrwerk zum Verfahren laengs einer Flaechе, und einer mit einer Unterdruckquelle verbindbaren Saugglocke (1) zum Halten des Arbeitsgeraets an der Flaechе, wobei die Saugglocke (1) an der der Flaechе zugewandten Seite einen bodenseitigen, breiten, umlaufenden, flexiblen Dichtungsflansch (5) aufweist, wobei der Dichtungsflansch an der bodenseitig zwischen zwei umlaufenden Nuten (24, 25) angeordnet eine Vielzahl von zueinander benachbarten Kammern (27) aufweist, die mit einem umlaufenden, an eine Druckmediumquelle anschliessbaren Kanal kommunizieren. **Machine translation:** The invention relates to a unit with a suspension for the procedure length of a area, and a suction bell (1) which can be connected to a vacuum source to hold the area, wherein the suction bell (1) on the side facing the area a ground-side, wide, flexible sealing flange (5), wherein the sealing flange is arranged on the bottom side between two circumferential grooves (24, 25) and has a large number of adjacent chambers (27) That communicate with a circulating, Druckmediumquelle connecting channel.

**Classifications:**

**International (IPC 8-9):** B62D55/265 F16B47/00 (Advanced/Invention);

B63B59/10 (Advanced/Non-invention);  
B62D55/18 F16B47/00 (Core/Invention);  
B63B59/00 (Core/Non-invention)  
**International (IPC 1-7):** B60B39/00 B62D55/265 B63B59/10  
F16B47/00  
**CPC:** E04G23/002 F16B47/00 B62D55/265 B63B59/10  
**European:** B62D55/265 F16B47/00 L63B59/10



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE10128434 C1      | 20020822         | DE20011028434      | 20010612         |

#### Priority:

DE20011028434 20010612

#### Probable Assignee:

WOMA APPBAU GMBH

#### Assignee(s): (std):

WOMA APPBAU GMBH

#### Assignee(s):

WOMA APPARATEBAU GMBH

#### Inventor(s): (std):

REITZIG KLAUS

### 7) Family number: 70855214 (WO20011846A1)

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**Title:** SPACER FOR ADJUSTING A TARGET GAP BETWEEN TWO COMPONENTS AND METHOD FOR ALIGNING TWO COMPONENTS IN RELATION TO ONE ANOTHER

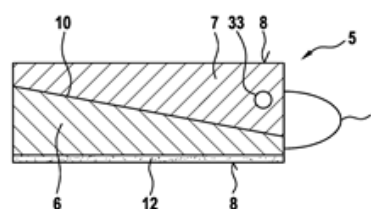
**Abstract:** The invention relates to a spacer (5) for adjusting a target gap between two components (3, 4) connected to the spacer (5) via contact surfaces (8) of the spacer. The spacer comprises at least two retaining elements (6,6', 7,7') that can move relative to one another, wherein the target gap can be adjusted by means of a movement of one of the two retaining elements (6,6', 7,7'), relative to the other of the at least two retaining elements (6,6', 7,7'), and a contact surface (8) moves relative to one of the components (3, 4), wherein one of the two retaining elements (6,6', 7,7'), is designed to be at least intermittently independently connected to one of the components (3, 4).

#### Classifications:

**International (IPC 8-9):** E04F21/00 E04G21/18 E06B1/56 E06B1/60  
F16B2/14 F16B3/00 (Advanced/Invention)  
**CPC:** F16B2/14 F16B11/006 E04F21/0015 E06B1/603 E06B1/6069  
E04G21/1841 E06B1/60 F16B3/06

PatBase - WO20011846\_A1

Fig. 2a



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE102018116907 A1  | 20200116         | DE201810116907     | 20180712         |
| DE102019100482 A1  | 20200716         | DE201910100482     | 20190110         |
| DE202018104023 U1  | 20180830         | DE201820104023U    | 20180712         |
| WO20011846 A1      | 20200116         | WO2019EP68516      | 20190710         |

#### Priority:

DE201810116907 20180712 DE201820104023U 20180712 DE201910100482 20190110

#### Probable Assignee:

KONOLD HAERTSFELDER HOLZINDUSTRIE GMBH

#### Assignee(s): (std):

KONOLD HAERTSFELDER HOLZINDUSTRIE GMBH

#### Inventor(s): (std):

STEINMEYER ROLF

#### Agent(s):

RAUNECKER PATENT; RAUNECKER KLAUS PETER

#### Designated states:

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

### 8) Family number: 30537223 (WO0111144A1)

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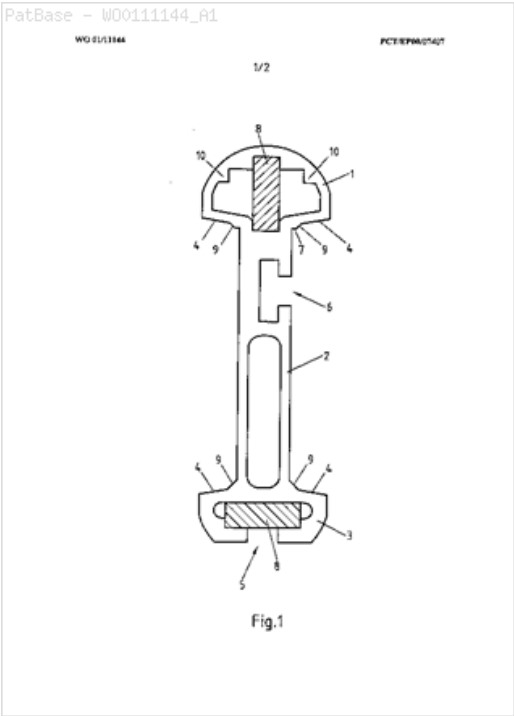
**Title:** ROLLER RAIL FOR UNITS MOVING ALONG FACADES

**Abstract:** The invention concerns a roller rail for units moving along facades. Said rail comprises at least a head (1), a web (2), a base (3) and at least a running surface (4) provided on the head (1) surfaces oriented towards the web (2). The invention aims at enabling said roller rail to be fixed laterally. To achieve this, the base (3) comprises fixing means (4) to enable it to be suspended, and the web (2) comprises fixing means (6) for being laterally fixed.

#### Classifications:

**International (IPC 8-9):** E01B25/10 E01B25/24 E04G3/34  
F16B37/04 (Advanced/Invention);

F16B37/04 (Advanced/Non-invention);  
E01B25/00 E04G3/28 (Core/Invention);  
F16B37/04 (Core/Non-invention)  
**International (IPC 1-7):** E01B25/10 E01B25/24 E04G3/00 E04G3/14 F16B37/04  
**CPC:** E01B25/10 E01B25/24 E04G3/34 F16B37/045  
**European:** E01B25/10 E01B25/24 E04G3/00G4 E04G3/34 R16B37/04E



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2000062786 A1    | 20010305         | AU200000062786     | 20000731         |
| AU2000062786 A5    | 20010305         | AU200000062786     | 20000731         |
| DE19936217 A1      | 20010315         | DE19991036217      | 19990804         |
| WO0111144 A1       | 20010215         | WO2000EP07407      | 20000731         |

**Priority:**

DE19991036217 19990804 WO2000EP07407 20000731

**Probable Assignee:** MOBITECH GMBH

**Assignee(s):** (std): KNAAK WILFRIED ; MOBITECH GMBH

**Inventor(s):** (std): KNAAK WILFRIED

**Inventor(s):** WILFRIED KNAAK

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CR CU CY CZ DE DK DM DZ EE ES FI FR GA GB GD GE GH GM GN GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

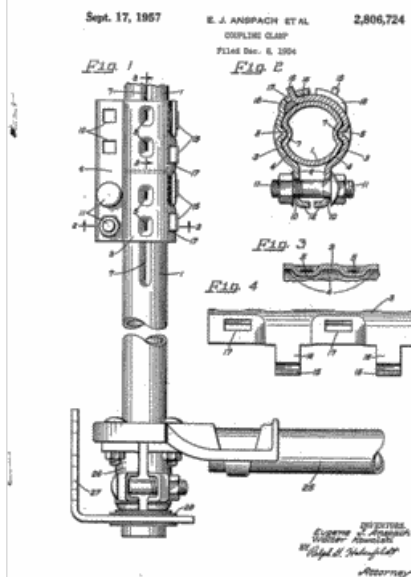
**9) Family number: 22199264 (US2806724A)** © PatBase

**Title:** COUPLING CLAMP

**Abstract:** (Claim 1) 1. A clamping member adapted to cooperate with an identical member for engaging a cylindrical member comprising, an arcuate cylinder embracing body having a lug protruding radially inwardly therefrom, a bolt receiving flange extending radially from one margin of said body, a tongue projecting circumferentially from the opposite margin and having the radius of curvature of said body, said body having a portion offset to a greater radius than said body adjacent said opposite margin and said offset portion having a tongue receiving aperture therein longitudinally spaced from said tongue, the offset portion of an endwise oppositely disposed clamping member overlaying the tongue of a cooperating identical member when in clamping relation on a cylindrical member.

**Classifications:**

**International (IPC 8-9):** E04G7/20 F16B2/06 F16L21/06 (Advanced/Invention);  
E04G7/00 F16B2/02 F16L21/06 (Core/Invention)  
**International (IPC 1-7):** E04G7/20 F16B7/00  
**CPC:** E04G7/20 F16B2/065 F16L21/06 Y10T403/5733  
**European:** E04G7/20 F16B2/06B F16L21/06  
**US:** 285/330 285/419 285/420 403/305

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2806724 A        | 19570917         | US19540473393      | 19541206         |

**Priority:**

US19540473393 19541206

**Probable Assignee:** MC GRAW EDISON CO  
**Assignee(s):** (std): MC GRAW EDISON CO  
**Assignee(s):** MCGRAW EDISON CO ; MCGRAW EDISON COMPANY  
**Inventor(s):** (std): ANSPACH EUGENE J ; WALTER KOWALSKI  
**Inventor(s):** KOWALSKI WALTER

**10) Family number: 73926268 (US2019106299A)**

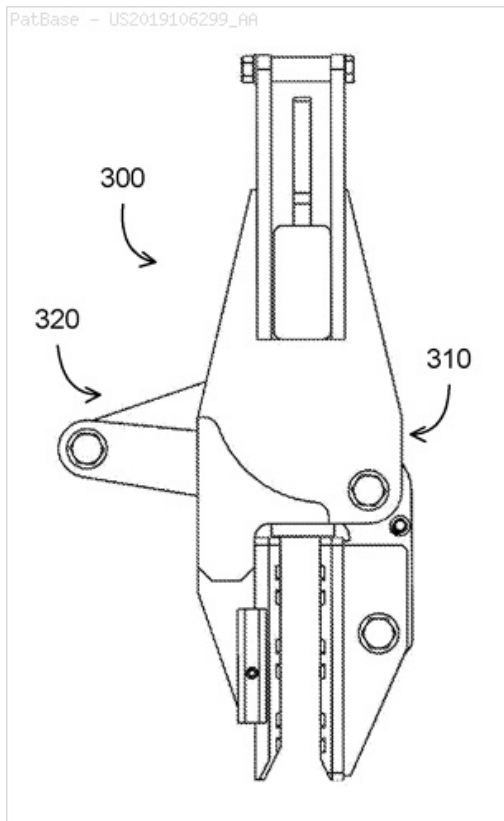
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**Title:** CLAMPING DEVICE WITH SINGLE MOVABLE JAW

**Abstract:** A clamping device for lifting and moving objects can include a fixed and rotatable jaw facing a movable and rotatable jaw, which is activated by an arm assembly coupled to a fixed body. The clamping device can include a hand-free mechanism for switching between a clamping action and a jaw opening action for inserting the object. The clamping device can include a guiding mechanism for guiding an object to the space between the jaws, effectively enlarging the jaw opening for ease of clamping on thicker objects.

**Classifications:**

**International (IPC 8-9):** B62B1/26 B62B3/04 B62B3/10 B65G1/06 B65G7/12 B66C1/42 B66C1/44 B66C1/48 B66D1/40 B66D5/32 B66F9/06 E04F21/18 E04G21/14 E04G21/16 F16B11/00 F16B12/46 F16B2/06 F16B2/10 F16B47/00 (Advanced/Invention)  
**CPC:** E04G21/168 E04F21/1822 E04F21/1816 E04F21/1844 B66C1/48 B66C1/442 F16B2/10 B62B3/008 B62B3/0612 B62B3/0618 B62B3/108 B62B2203/10 B62B2206/06 B66C1/44 F16B2/06 F16B11/00 F16B12/46 F16B47/00 F16B2/14 F16B2/18  
**US:** 1/1 414/11

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2018349288 AA    | 20190613         | AU20180349288      | 20181010         |
| CA3047309 AA       | 20190613         | CA20183047309      | 20181010         |
| US2019106299 AA    | 20190411         | US20180154734      | 20181009         |
| US2019145113 AA    | 20190516         | US20180188744      | 20181113         |
| US2020109034 AA    | 20200409         | US20190593716      | 20191004         |
| US10633224 BB      | 20200428         | US20180154734      | 20181009         |
| US10676944 BB      | 20200609         | US20180188744      | 20181113         |
| WO19073392 A1      | 20190418         | WO20181B57829      | 20181010         |
| WO19092682 A1      | 20190516         | WO20181B58922      | 20181113         |
| WO20070724 A1      | 20200409         | WO20191B58499      | 20191005         |
| WO20070726 A2      | 20200409         | WO20191B58501      | 20191005         |

**Priority:**

|                         |                         |                         |
|-------------------------|-------------------------|-------------------------|
| US20170570108P 20171010 | US20170584923P 20171113 | US20180741555P 20181005 |
| US20180741557P 20181005 | US20180154734 20181009  | WO20181B57829 20181010  |
| US20180188744 20181113  | US20190593716 20191004  |                         |

**Probable Assignee:** NGUYEN NHON HOA**Assignee(s):** (std): NGUYEN NHON HOA**Inventor(s):** (std): NGUYEN NHON HOA**Agent(s):** ATKINSON IP; NGUYEN TUE

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

**11) Family number: 61305276** (US2017037646A)

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**Title:** TEMPLATE MOLD SEVERING SCREW BAR

**Abstract:** A template mold severing screw bar used on template construction work comprises a self-tapping screw bar which includes a thread portion formed annularly on the circumference, a transmission end and a tapping end at another end opposite to the transmission end, and at least one anchor member screwed on the thread portion of the self-tapping screw bar. The anchor member includes a screwing portion and a leaning portion anchored on one end of the screwing portion. The screwing portion includes a screw hole which can be screwed by the thread portion. The leaning portion includes a friction end to firmly mount onto a template without slipping to reduce impact during concrete filling between two opposing templates, thus can enhance bulging resistance and facilitate fast assembly with fewer components and without requiring too many complex processes.

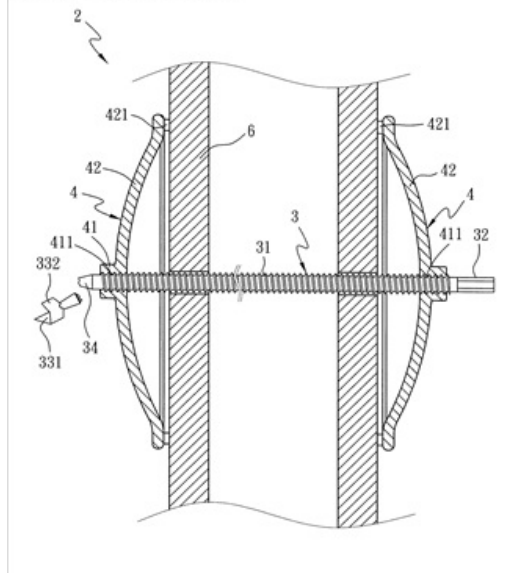
**Classifications:****International (IPC 8-9):** E04G17/00 E04G17/04 E04G17/06

E04G17/065 E04G19/00 F16B25/10 (Advanced/Invention)

**CPC:** E04G17/065 E04G11/08 E04G11/10 E04G17/0651 F16B23/0038

F16B25/103 F16B35/06 F16B25/10 E04G17/0654 E04G17/0658

**US:** 1/1 249/188 249/219.1

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| JP3206963 U        | 20161013         | JP20160003755U     | 20160802         |
| KR20170000582 U    | 20170214         | KR20160004468U     | 20160802         |
| TWM515015 Y        | 20160101         | TW20150212502U     | 20150804         |
| US2017037646 AA    | 20170209         | US20160226097      | 20160802         |
| US2017130471 AA    | 20170511         | US20170415313      | 20170125         |

**Priority:**

TW20150212502U 20150804      US20160226097 20160802      US20170415313 20170125

**Probable Assignee:** LIN HENG MAO

**Assignee(s):** (std): HUANG RUI ZHONG ; LIN HENG MAO ; WU SHENG BAO

**Assignee(s):** HUANGRUI ZHONG

**Inventor(s):** (std): WU SHENG PAO ; HUANG JUI CHUNG ; WU SHENG BAO ; HUANG RUI ZHONG

**12) Family number: 32272276 (DE10355674B3)**

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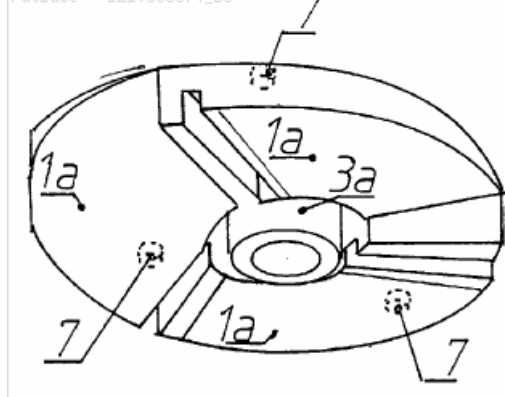
**Title:** HEIGHT-ADJUSTABLE ROTATING SPREADING WEDGE FOR HOLDING COMPONENTS TOGETHER COMPRISES A NUT PLATE AND A BOLT PLATE EACH HAVING A GROOVE ON THE WEDGE SECTIONS WITH EDGES WHICH ARE CHAMFERED OVER THEIR LENGTHS

**Abstract:** Height-adjustable rotating spreading wedge comprises a nut plate and a bolt plate each having a groove on the wedge sections with edges which are chamfered over their lengths so that a trailing wedge is able to be placed in the groove. Preferred Features: The nut plate and the bolt plate are held together by an inner axle sleeve and by an outer peripheral sleeve.

**Classifications:**

**International (IPC 8-9):** E04G21/18 E04G25/00 F16B2/14 F16B43/00 (Advanced/Invention); E04G21/18 E04G25/00 F16B2/02 F16B43/00 (Core/Invention)  
**International (IPC 1-7):** E04G21/18 E04G25/00 F16B2/14  
**CPC:** E04G21/18 F16B43/009  
**European:** E04G21/18 F16B43/00W

PatBase - DE10355674\_B3

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE10355674 B3      | 20050929         | DE20031055674      | 20031128         |

**Priority:**

DE20031055674 20031128

**Probable Assignee:**

ERWIN STEPHAN

**Assignee(s):** (std):

ERWIN STEPHAN

**Inventor(s):** (std):

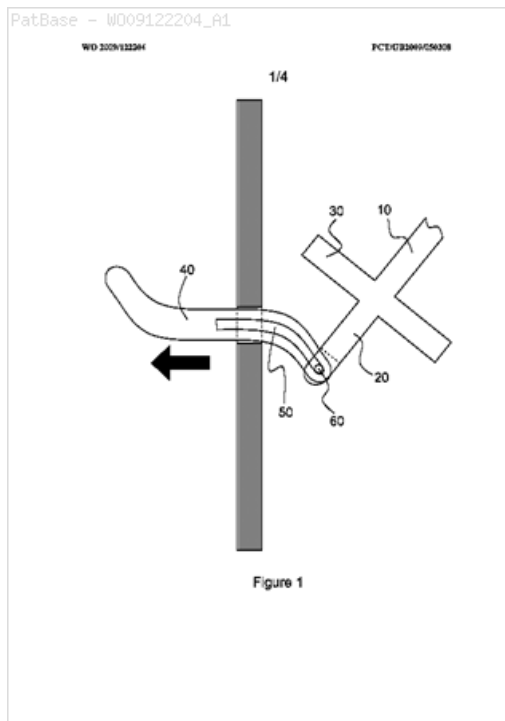
ERWIN STEPHAN

**Title:** SUPPORT ANCHOR

**Abstract:** A support anchor for temporary attachment to a substantially vertical structure, the structure having a hole, the anchor comprising: a shaft (10), comprising a first end portion (20) suitable for insertion through the hole, and restricting means (30) disposed along the shaft (10) at a predetermined distance from the first end, the distance being greater than a thickness of the structure, and the restricting means adapted to restrict insertion beyond that distance; and an elongate retaining member (40), movably connected to the first end of the shaft, having a first released configuration in which it may be threaded through the hole and a second locked configuration in which it may not; wherein the elongate retaining member (40) comprises a slot (50) and the first end (20) of the shaft comprises a pivot (60), the pivot connected to the slot such that the elongate member is operable to slide over the pivot and, in at least the released configuration, to be freely rotatable about it.

**Classifications:**

**International (IPC 8-9):** A62B1/04 E04G21/32 E04H12/00 E06C9/04  
F16B F16B13/08 (Advanced/Invention);  
A62B1/00 E04G21/32 E04H12/00 E06C9/00  
F16B13/04 (Core/Invention);  
F16B (Subclass/Invention)  
**CPC:** F16B13/0808 A62B1/04 A62B35/0068 E04G21/3261  
E04G21/3276  
**European:** A62B1/04 A62B35/00B6 E04G21/32F F16B13/08B



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2009233525 AA    | 20091008         | AU20090233525      | 20090330         |
| EP2279311 A1       | 20110202         | EP20090728567      | 20090330         |
| GB200805777 A0     | 20080430         | GB20080005777      | 20080331         |
| GB2458890 A1       | 20091007         | GB20080005777      | 20080331         |
| GB2458890 B2       | 20111019         | GB20080005777      | 20080331         |
| HK1131202 A1       | 20100115         | HK20090110430      | 20091110         |
| HK1131202 B        | 20111223         | HK20090110430      | 20091110         |
| NZ588630 A         | 20120330         | NZ20090588630      | 20090330         |
| WO09122204 A1      | 20091008         | WO2009GB50308      | 20090330         |

**Priority:**

GB20080005777 20080331 WO2009GB50308 20090330 HK20090110430 20091110

**Probable Assignee:** BALFOUR BEATTY PLC

**Assignee(s):** (std): BALFOUR BEATTY PLC ; POULTNEY WAYNE

**Inventor(s):** (std): POULTNEY WAYNE ; WAYNE POULTNEY

**Agent(s):** FREEHILLS PATENT AND TRADE MARK ATTORNEYS; FREEHILLS PATENT ATTORNEYS; HERBERT SMITH FREEHILLS; FPA PATENT ATTORNEYS PTY LTD; ERTL NICHOLAS JUSTIN; WENPING AND CO; ELKINGTON AND FIFE LLP

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

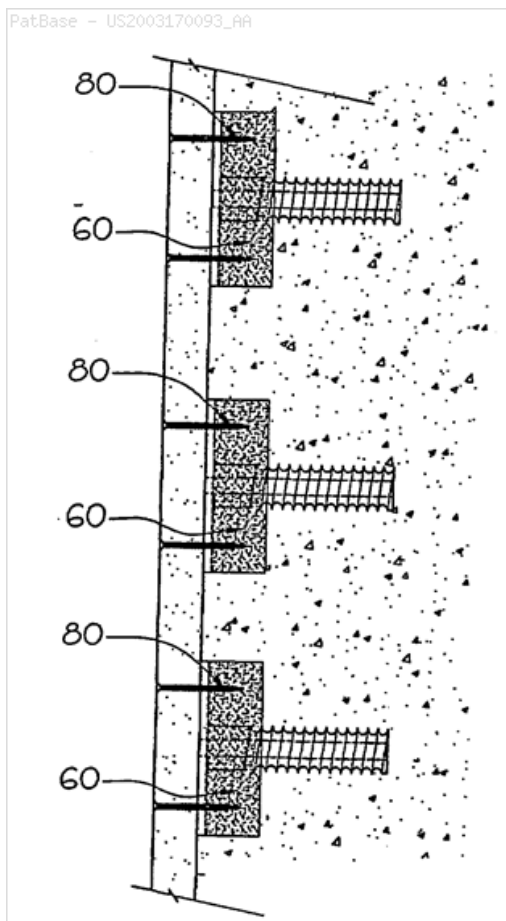
**Title:** FASTENING DEVICE WITH ADJUSTABLE FASTENING SURFACE EMBEDDED IN CAST PANEL OR OTHER PRODUCTS

**Abstract:** A component ( 20, 22 ) and method for a casting process, typically for cold-process casting of concrete wall, floor, ceiling or other panels or element in situ in building construction, leaving embedded in the cast panel a fastening surface ( 24 ) which can be adjustable to allow correction of non-uniform cast surfaces. The component may be integrated to conventional form-tie systems which use ties to space removable/reusable forms, holding forms a set distance apart, and can also hold a barrier material (typically expanded foam insulation) against the inner surface of a form(s) while casting is underway; when the forms are removed, leaving a component embedded providing an adjustable surface suitable for attaching material such finishing sheet material. The component can allow adjustment of its mounting surface with respect to the cast surface and to other like components in the cast panel to provide for (substantially) uniform surface for mounting finishing materials and/or fixtures.

**Classifications:**

**International (IPC 8-9):** B28B23/00 E04B1/41 E04B2/86 E04G11/08 E04G17/06 F16B35/00 (Advanced/Invention); F16B37/12 (Advanced/Non-invention); B28B23/00 E04B1/41 E04B2/86 E04G17/06 F16B35/00 (Core/Invention); F16B37/00 (Core/Non-invention)  
**International (IPC 1-7):** B28B23/00 E04B1/41 E04B2/86 E04G11/08 E04G17/06 F16B1/00  
**CPC:** B28B23/005 E04B1/41 E04B1/4121 E04B2/8647 E04B2001/4192 E04G17/06 F16B37/12 F16B13/141 F16B33/006  
**European:** B28B23/00S E04B1/41 E04B1/41D1 E04B2/86H E04G17/06 F16B13/14C F16B33/00C P04B1/41R R16B37/12  
**US:** 411/395 411/395P 411/548 411/908 411/908S 411/914 411/914S

PatBase - US2003170093\_AA



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2001254558 AA    | 20011112         | AU20010254558      | 20010427         |
| CA2306966 AA       | 20011027         | CA20002306966      | 20000427         |
| US2003170093 AA    | 20030911         | US20030258949      | 20030307         |
| US2007166129 AA    | 20070719         | US20060646640      | 20061227         |
| WO0183178 A1       | 20011108         | WO2001CA00569      | 20010427         |

#### Priority:

CA20002306966 20000427 WO2001CA00569 20010427 US20030258949 20030307  
US20060646640 20061227

**Probable Assignee:** DAVID JANEWAY

**Assignee(s):** (std): JANEWAY DAVID G ; JANEWAY DAVID

**Assignee(s):** DAVID JANEWAY

**Inventor(s):** (std): JANEWAY DAVID G ; JANEWAY DAVID

**Inventor(s):** DAVID JANEWAY ; JANEWAY DAVID GORDON

**Agent(s):** DAVID GORDON JANEWAY

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EE ES FI FR GA GB GD GE GH GM GN GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

#### 15) Family number: 20308329 (FR1103002A)

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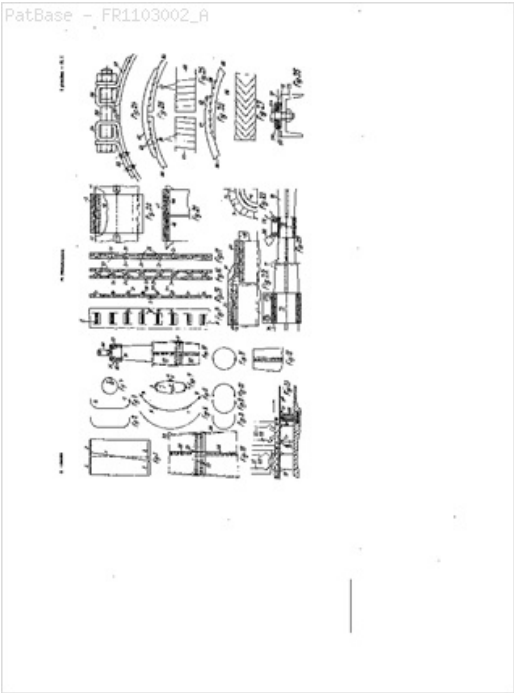
**Title:** Structures portantes formees de corps creux de tous genres, notamment de tubes a parois minces et leur procede de fabrication Bearing structures of all types of hollow bodies, in particular of formed thin-walled tubes and their method of manufacture (Machine translation)

**Abstract:** Source: FR1103002A [FR] [Source: Claim 1] 1.Wb et<B>23 percent </B> comprennent des vis de serrage au moyen desquelles les etais transversaux sont fixes aux points de jonction des tubes susdits, les extremités de ces etais étant renforcees par des fragments de tubes introduits interieurement et soumises<B>a</B> des efforts de compression queulement dans la region des surfaces de serrage, tandis que leurs bords, qui servent au renforcement, forment dans ce but, des elements creux, en forme de bourrelets. <B>250</B> Les extremités des etais transversaux sus- (lits utilises dans les tubes realises conformement aux paragraphes 190b, 200e et 210, sont aplaties (le facon<B>a</B> former deux pieces en forme de Tour elles comportant -un trou<B>de</B> vis. 26" Les tubes fabriques conformement aux paragraphes<B>19'b</B> et 20'le, comportent des surfa ces de serrage presentant, au voisinage du trou destine aux vis d'assemblage, une suite d'ondula tions qui dimInuent vers l'exterieur, la rondelle placee sous l'ecrou de serrage ayant les memes ondulations, de sorte (lue, la surface exterieure du tube prise entre les surfaces susdites et la rondelle precitee, trbuve une fixation supplemen taire dans ces ondulations. <B>27"</B> Les tubes fabriques conformement aux paragraphes 190a, 190b et 200c, comportent des trous destines<B>a</B> recevoir les organes<B>de</B> serrage, et dont les bords sont evases en forme d'enton noirs, ainsi que contre-pieces correspondantes appliquees sur ces trous. <B>281></B> Procede (le fabrication de structures por tantes comprenant des tubes formes de toles laminees, particulierement dures et iii-jices, con formement an paragraphe<B>10,</B> caracterise par les points suivants, pris separement, f)u conibi- nes entre eux de toutes facons<B>:</B> a. Les coquilles, ou parties de coquilles, de toles destinees<B>a</B> former les tubes et courbees a-Li moins le long de leurs bords longitudinaux, sont munies, apres courbure, de languettes d'assem blage

disposees le long de ces bords; <B>b.</B> Les languettes d'asseilbla.ge susdites sont decoupees dans une tole en forme d'ares de cer- eles, au moyen de couteaux qui les recourbent en les faisant sortir du plan<B>de</B> la tole en ques tion, ces languettes, de forme circulaire, etant- guidees de facon <B>a</B> executer un inouvoment en arc<B>de</B> cercle, pendant les op#:-rat-ions de d#eou- page et de cambrage; <B>c.</B> Dans les operations mentionnees au paragraphe<B>c</B> ci-dessus, les<B>b</B> ci-deqsus, les matrices et les poincons sont limites par des ares de cercle, et ils redui sent ainsi, dans autant qu'on peut le desirer, l'etirage des languettes d'assemblage en cours de fabrication; ces matrices et ces poincois servant en meme temps de couteaux de guidage; <B>d.</B> Pendant les operations mentionnees au paragraphe<B>c</B> ci-dessus, les<B>-</B> taquets servant<B>a</B> actionner les couteaux, sont realises sou-, la forme d'organes d'entrainement, de facon<B>a</B> faire tourner les couteaux en arriere et fonctionnent effieaeement- dans ce but; <B>c.</B> Pendant<B>ces</B> memes operations, telles qu'el les ont ete mentionnees aux paragraphes 280a,<B>b,</B> c et<B>d,</B> les languettes d'assemblage destinees aux joints circulaires, qui servent<B>a</B> reunir les ele- illents creux, ou les coquilles avec lesquelles les tubes sont fabriques, sont mises en place avec precision, au moyen de calibres d'estampage, ou de poineons places, comme il convient, sur les extremités des coquilles destinees<B>a</B> la fabrication de ces tubes, ces calibres ou poineons recevant, au moven d'organes de guidage, les pieces de guidage correspondantes de Voutil de decoupage et de cambrage. **Machine translation:** [Source: Claim 1] 1.Wb and<b>23 percent </b> include clamping screw by which the transverse was are secured to the junction points of the tubes aforesaid, the ends of these was being enforced by fragments of tubes internally and submitted<b>a</b>introduced b> queulement compressive forces in the region of the clamping surfaces, while their edges, which serve to strengthen, form for this purpose, elements, hollow in the form of beads. <b>250</b> The ends of the cross was sus- (beds used in the tubes made in accordance with paragraphs 190b, 200e and 210, are flattened (the so<b>a</b> form two parts in the form of a hole<b>Tower They comprising -</b> screw. 26 fabricated in accordance with paragraphs<b tubes">19'b</b> and 20, include these clamping surface having, in the vicinity of the hole for cap screws, a suite of ondula tions which reduce outward, washer placed under the clamping nut having the same corrugations, such (read, the exterior surface of the tube caught between the aforesaid aforesaid, trbuve surfaces and washer securing an additional silence in these undulations. <b">27</b> The tubes manufactured in accordance with paragraphs 190a, 190b and 200c, comprise holes<b>a</b><b>b>receive components and evases clamp>, and the edges of which are in the form of black enton, as well as corresponding counter-parts applied to these holes. <b>281></b> method (the manufacture of structures por aunts comprising tubes forms of sheets laminated, particularly hard and iii-,ices, formement con year paragraph<b>b>>10, characterized by the following features, taken separately, conibi fu- colorations between them all ways<b>b>>: a. The shells, or parts of shells, sheets intended<b>a</b> form the tubes and curved a-Li least along their longitudinal edges, are provided, after curvature, of general wiring tabs arranged along these edges; <b>b.</b> The tabs of asseilbla.ge are cut into a sheet form of the abovesaid ares of cer- eles, by means of knives, which the recourbent by departing from the plane<b>b>>of the sheet in question, these tabs, circulaire form, being routed so as <b>a</b> execute a inouvoment arc<b>b>>circle, during the op#:-rat-ions of cambrage of#eou- page and; <b>c.</b> In the operations, mentioned under paragraph<b>b>>b ci-deqsus, the matrices and the punches are limited by the redui of circle, and they present ares Thus, in as much as we can be desired, stretching assembly tabs in the course of manufacture; these matrices and the poincois serving at the same time guide knife; <b>d</b> During the operations mentioned in paragraph<b>c</b> above, the<b>-</b><b>a</b> tabs serving actuate the knives, are implemented sou-, the form of organs, such drive<b>a</b> rotate the effieaeement knives back and operate for this purpose; <b>c.</b><b>b>><b>During these same operations, such as the El have been described in paragraphs 280a, b, c</b><b>and<b>b>>d, the tabs of the joints, which are circular assembly intended<b>a</b> gather the illents ele- hollow, or the shells with which the tubes are manufactured, are implemented with precision, by means of stamping, or poineons calibers places, as appropriate, on The ends of the shells intended<b>a</b> the production of these tubes, these templates or poineons receiving, at moven organs, the pieces of Voutil corresponding guide guide for cutting and cambrage.

**Classifications:**

**International (IPC 8-9):** B21D39/03 B21D39/04 B64C1/00 E04C3/09 E04G1/00 F16B7/04 (Advanced/Invention)  
**International (IPC 1-7):** E04B1/24 E04G1/00 E04H12/08  
**CPC:** B21D39/03 B21D39/04 B64C1/06 B64C2001/0081 E04C3/09 E04G1/00 F16B7/04 Y02T50/42  
**European:** B21D39/03 B21D39/04 B64C1/06 E04C3/09 E04G1/00 F16B7/04 L64C1/00E6 Y02T50/42



**Family:**

| Publication number | Publication date | Application number | Application date |
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| FR1103002 A        | 19551028         |                    | 19540327         |

**Inventor(s):** (std): PFISTERSHAMMER JOSEF

**16) Family number:** 59311333 (DE102013112808A1)

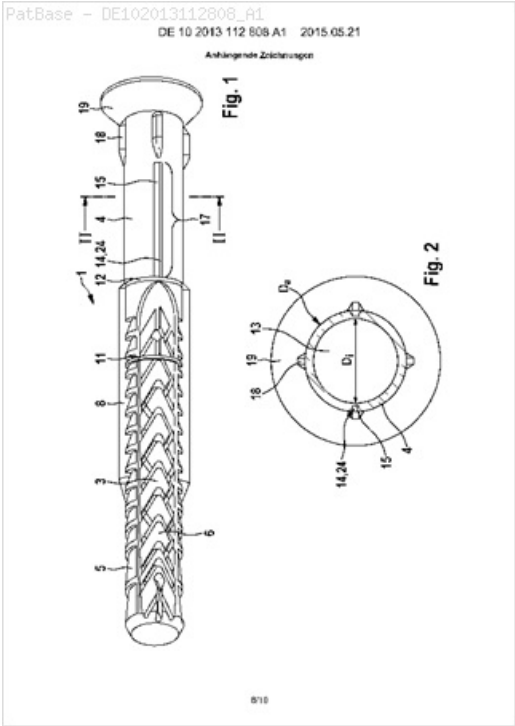
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**Title:** BEFESTIGUNGSSYSTEM, BEFESTIGUNGSANORDNUNG UND VERFAHREN ZUM HERSTELLEN EINER BEFESTIGUNGSANORDNUNG ZUR GERUESTVERANKERUNG Fastening system MOUNTING SYSTEM AND METHOD FOR PRODUCING A MOUNTING ARRANGEMENT FOR GERUESTVERANKERUNG (Machine translation)

**Abstract:** Source: DE102013112808A1 [DE] Die Erfindung betrifft ein Befestigungssystem zum Herstellen einer Befestigungsanordnung zur Geruestverankerung in einem weichen Verankerungsgrund (10) aus Porenbeton. Damit das Befestigungssystem moeglichst grosse Lasten in den weichen Verankerungsgrund (10) einleiten kann, schlaegt die Erfindung vor, dass ein Huelsenabschnitt (4) eines Spreizduebels (1) in einem Aufweitabschnitt (17) aufweitbar ist. Der Aufweitabschnitt (17) weist hierzu einen Innendurchmesser (Di) auf, der kleiner als der Durchmesser (DS) eines Schafts (16) einer Schraube

(2) ist, derart, dass die Schraube (2) den Aufweitabschnitt (17), beim Eindrehen der Schraube (2) in einen Spreizabschnitt (3) des Spreizdübels, in Umfangsrichtung weitet, derart, dass sich das zum Eindrehen der Schraube (2) notwendige Drehmoment verringert. **Machine translation:** The invention relates to a fastening system for producing a mounting arrangement for Gerüstverankerung in a soft base material (10) of cellular concrete. Thus, the fastening system can initiate possible heavy loads into the soft base material (10), the invention proposes that a Huelsenabschnitt (4) an expansion anchor (1) in an expanding section (17) is expandable. The expanding section (17) for this purpose has an internal diameter (Di) which (Ds) is smaller than the diameter of a shaft (16) of a screw (2), such that the screw (2), the expanding section (17), when screwing the screw (2) expands into an expansion section (3) of the expansion anchor, in the circumferential direction, such that the screw is screwed to (2) necessary torque decreases.

**Classifications:**  
**International (IPC 8-9):** E04G5/04 F16B13/04  
F16B13/10 (Advanced/Invention)  
**CPC:** F16B13/001 F16B13/128 E04G5/046



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE102013112808 A1  | 20150521         | DE201310112808     | 20131120         |

**Priority:**

DE201310112808 20131120

**Probable Assignee:** FISCHER HOLDING GMBH AND CO

**Assignee(s):** (std): FISCHER HOLDING GMBH AND CO ; FISCHERWERKE GMBH AND CO KG

**Inventor(s):** (std): DALY AARON

**17) Family number: 60394354** (US2017234059A)

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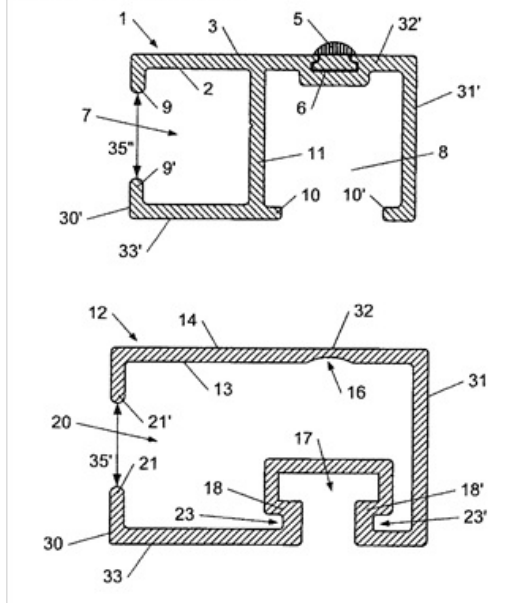
**Title:** PLUG SYSTEM

**Abstract:** System for plugging an opening, including:

- a plug element designed to cover said opening,
- a frame made up of at least four rails (1') designed to be positioned inside the opening and including a first groove (22) formed on a front wall of each rail, and
- a seal (29), said first groove (22) being designed to accommodate a substantially peripheral part (27) of the plug element, said seal (29) being designed to be accommodated with a tight fit in retaining means (34) inserted in said groove (22) and retaining said plug element on the frame.

**Classifications:**

**International (IPC 8-9):** E04G21/24 E04G21/30 E06B1/34 E06B1/36  
E06B1/52 E06B1/64 E06B1/68 E06B3/263 E06B3/30 E06B3/70  
E06B3/96 E06B3/964 E06B5/02 E06B7/22 E06B9/00 E06B9/02  
E06B9/24 E06B9/52 F16B5/06 (Advanced/Invention);  
E06B3/70 E06B9/52 (Advanced/Non-invention)  
**CPC:** E06B9/02 E06B9/52 F16B7/10 E06B3/9632 E06B7/22  
E06B3/962 E06B1/34 E06B1/36 E06B1/52 E06B1/64 E06B3/30  
F16B7/1472 E04G21/241 E04G21/30 E06B3/9641 E06B5/025  
E06B9/24 E06B9/522 E06B2003/7096 F16B5/0692  
**US:** 1/1 49/466

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
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| EP2921611 B1       | 20161207         | EP20150160041      | 20150320         |
| EP3152374 A1       | 20170412         | EP20150711172      | 20150320         |
| FR3018840 A1       | 20150925         | FR20140052400      | 20140321         |
| FR3018841 A1       | 20150925         | FR20140052401      | 20140321         |
| FR3018841 B1       | 20160325         | FR20140052401      | 20140321         |
| FR3018847 A1       | 20150925         | FR20140052399      | 20140321         |
| FR3018847 B1       | 20171124         | FR20140052399      | 20140321         |
| US2017234059 AA    | 20170817         | US20150329593      | 20150320         |
| WO15140301 A1      | 20150924         | WO2015EP55938      | 20150320         |
| WO15140303 A1      | 20150924         | WO2015EP55941      | 20150320         |

**Priority:**

FR20140052399 20140321 FR20140052401 20140321 FR20140052400 20140321  
 EP20150160041 20150320 WO2015EP55938 20150320

**Probable Assignee:** CHANCEREL PHILIPPE**Assignee(s):** (std): CHANCEREL PHILIPPE**Assignee(s):** PHILIPPE CHANCEREL**Inventor(s):** (std): CHANCEREL PHILIPPE**Inventor(s):** PHILIPPE CHANCEREL**Agent(s):** GEVERS PATENTS; RATABOUL XAVIER; GEVERS FRANCE; BE LEADER INNOVATION; GEVERS AND ORES

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

**18) Family number: 10992354 (US5685513A)**

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**Title:** VACUUM-SUCTION ATTACHMENT PAD

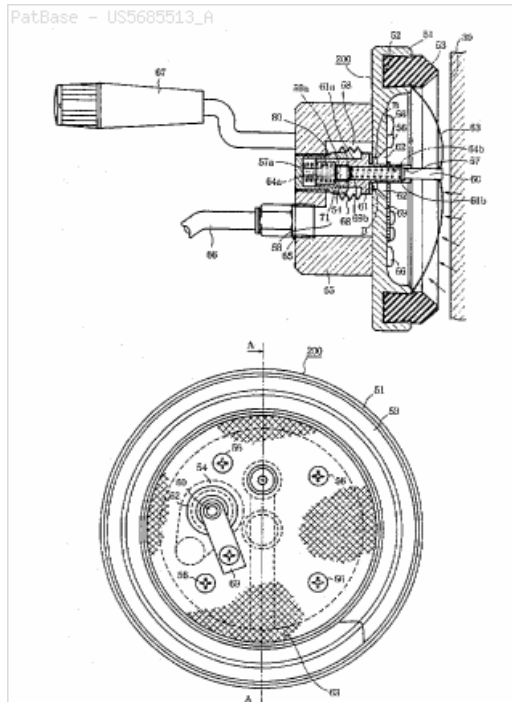
**Abstract:** A suction chamber is provided in the rear portion of a pad body remote from an external pad supporting surface. The fore end portion of the pad body facing the pad supporting surface is divided into a plurality of sucking compartments for communication with the suction chamber. An air flow passage is provided for communication with the suction chamber. Valve mechanisms are provided in air flow paths between the respective sucking compartments and the suction chamber and are closable by a sucked air flow occurring during vacuum suction. Further, an automatic switching valve is provided in a part of the air flow passage in such a manner that the switching valve is caused to open in response to abutment against the pad supporting surface of the pad body. The air flow passage is formed in such a manner that a direction of force acting to cause the automatic switching valve to open differs from a direction of counteractive force against a spring structure that normally urges the switching valve to close.

**Classifications:****International (IPC 8-9):** B25B11/00 E04G5/04

F16B47/00 (Advanced/Invention);

B25B11/00 E04G5/00 F16B47/00 (Core/Invention)

**International (IPC 1-7):** B66C1/02 E04G3/10**CPC:** E04G5/046 E04G5/04 B25B11/005 B25B11/007 F16B47/00 E04G3/325**European:** B25B11/00C B25B11/00C1 E04G5/04 F16B47/00**US:** 248/205.9 248/362 248/363 269/21 294/186 294/188 294/64.1

**Family:**

| Publication number | Publication date | Application number | Application date |
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| US5685513 A        | 19971111         | US19950443272      | 19950517         |
| US5772170 A        | 19980630         | US19960703514      | 19960827         |

**Priority:**

US19950443272 19950517      US19960703514 19960827

**Probable Assignee:** NIHON BISO CO LTD

**Assignee(s):** (std): NIPPON BISO KK

**Assignee(s):** NIHON BISO CO ; NIHON BISO CO LTD

**Inventor(s):** (std): TSUKUSHI TADAAKI

**19) Family number: 20399371 (FR1107422A)**

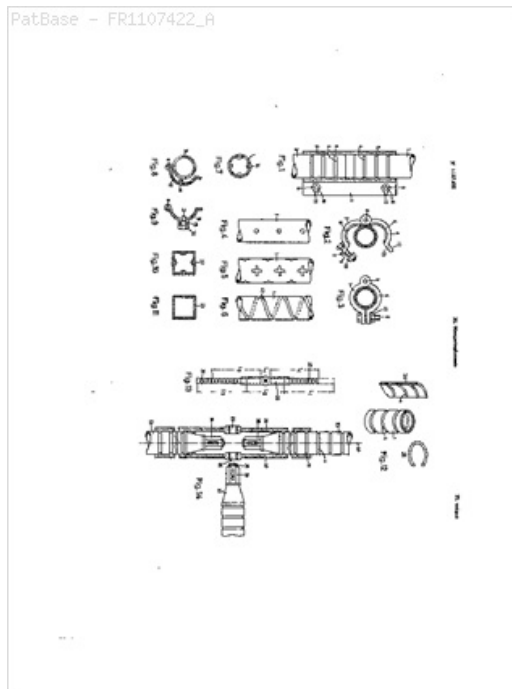
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**Title:** DISPOSITIF D'ACCOUPLEMENT DE TUBES, BARRES, EN PARTICULIER POUR ECHAFAUDAGES Mating device of TUBES, RODS, IN PARTICULAR FOR ECHAFAUDAGES (Machine translation)

**Abstract:** Source: FR1107422A [FR] [Source: Claim 1] 1 Les coquilles et les extremités des barres tubulaires, etc., a accoupler comportent une serie d'evénements, saillies, etc., qui se complètent alternative ment; **Machine translation:** [Source: Claim 1] 1 The shells and the ends of the rigid tubulaires, etc., a couple comprise a series of amendments, projections, etc., which are complete evi alternative element;

**Classifications:**

**International (IPC 8-9):** E04B1/58 E04G7/20 E04G7/26  
F16B7/04 (Advanced/Invention);  
E04B1/58 E04G7/00 F16B7/04 (Core/Invention)  
**International (IPC 1-7):** E04G7/20 E04G7/26 F16B12/40 F16B7/04  
**CPC:** E04B1/585 E04B2001/5875 E04B2001/5887 E04G7/20  
E04G7/26 F16B7/0426  
**European:** E04B1/58C2C E04G7/20 E04G7/26 F16B7/04B4  
P04B1/58K P04B1/58M

**Family:**

| Publication number | Publication date | Application number | Application date |
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| DE1720973 U        | 19560426         | DE1953M012399U     | 19530910         |
| FR1107422 A        | 19551230         |                    | 19540909         |

#### Priority:

DE1953M012399U 19530910

**Probable Assignee:** MENGERINGHAUSEN MAX

**Assignee(s):** (std): MENGERINGHAUSEN MAX

**Assignee(s):** DR ING MAX MENGERINGHAUSEN

**Inventor(s):** (std): MENGERINGHAUSEN MAX ; MENGERINGHAUSEN MAX DR ING

**Inventor(s):** DR ING MAX MENGERINGHAUSEN

## 20) Family number: 31020391 (US4301633A)

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**Title:** SHINGLE-TYPE BUILDING ELEMENT

**Abstract:** The present invention relates to a shingle-type building element in form of several shingle-like surfaces placed side by side forming a joint-structure or a single shingle piece, comprising a form of a plate which in the right angular cross-section shows the upper member with a width  $b$  a height  $h$  and a wedge-shaped lower member with the wedge point, with a truncated side, in case of a wedge stump which is later connected at the ridge, or the upper member facing the top of the wall by which the wedge-shaped lower member is either in the cross-section a triangle ABC of which side AC is equal to the height  $h$  of the upper member and of which the side BC is smaller than half of width  $b$  or the extension is such that it shows in the cross-section a triangle ABC, and a polygon joint below which gives after the building elements are laid in the cross-section a right angular basic member, by which the upper member and the lower member is one unit made of the same or different materials, the upper member of the single-type surface or joint structure show cuts in order to achieve the shingle-type effect this is not the case with the lower member.

#### Classifications:

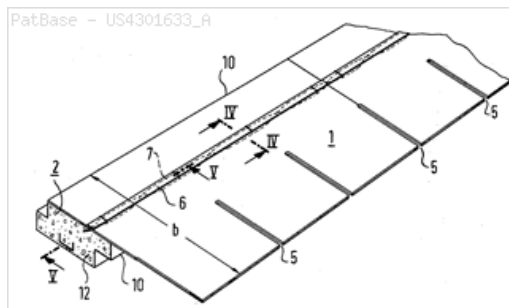
**International (ipc 8-9):** E04B7/22 E04D1/00 E04D1/22 E04D1/26 E04D3/35 E04G7/30 F16B2/08 F16B2/14 F16L3/10 F16L3/123 (Advanced/Invention); E04B7/00 E04D1/00 E04D3/35 E04G7/00 F16B2/02 F16L3/10 F16L3/12 (Core/Invention)

**International (ipc 1-7):** E04C3/00 E04D1/00 E04D1/12 E04D1/22 E04D1/26 E04D1/28 E04D13/08 E04D3/35 E04D3/365 E04D5/10 E04D5/10 E04F13/08 F16B2/06 F16B2/08 F16B2/10 F16B2/14 F16B7/04 F16B7/08 F16L3/10 F16L33/04

**CPC:** F16L3/1233 E04G7/304 F16L3/1008 Y10T24/1414 Y10T24/1453 Y10T24/44034 Y10T24/44684 E04B7/225 E04D3/351 E04D3/355 E04D3/358 F16B2/14

**European:** E04B7/22B E04D3/35A E04D3/35A3 E04D3/35F E04G7/30C2B F16B2/14 F16L3/10B F16L3/123B

**US:** 24/248SA 24/257 24/268 24/285 24/459 24/535 52/309.4 52/540 52/543 52/553 52/560



#### Family:

| Publication number | Publication date | Application number | Application date |
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| NO150697 C    | 19841128 | NO19800001709 | 19800609 |
| NO156381 B    | 19870601 | NO19800001233 | 19800428 |
| NO156381 C    | 19870909 | NO19800001233 | 19800428 |
| NO801233 A    | 19801031 | NO19800001233 | 19800428 |
| NO801233 L    | 19801031 | NO19800001233 | 19800428 |
| NO801709 A    | 19801212 | NO19800001709 | 19800609 |
| NO801709 L    | 19801212 | NO19800001709 | 19800609 |
| SE430802 B    | 19831212 | SE19800003196 | 19800428 |
| SE430802 C    | 19840322 | SE19800003196 | 19800428 |
| SE7905038 L   | 19801212 | SE19790005038 | 19790611 |
| SE8003196 L   | 19801031 | SE19800003196 | 19800428 |
| SE8004095 L   | 19801212 | SE19800004095 | 19800602 |
| SU1068044 A3  | 19840115 | SU19802914398 | 19800428 |
| SU1068044 D   | 19840115 | SU19802914398 | 19800428 |
| US4301633 A   | 19811124 | US19790087978 | 19791025 |
| US4380102 A   | 19830419 | US19800166233 | 19800707 |
| YU106280 A    | 19840229 | YU19800001062 | 19800418 |
| YU40596 B     | 19860228 | YU19800001062 | 19800418 |
| ZA8003406 A   | 19810527 | ZA19800003406 | 19800606 |

**Priority:**

DE19792917516 19790430 SE19790005038 19790611 CA19800345849 19800218  
SE19800004095 19800602 CA19800353406 19800605

**Probable Assignee:** ISOPAG AG

**Assignee(s):** (std): ISOPAG AG TE TRIESEN LIECHTENSTEIN ; HANSSON ERIK GORAN ; HANSSON ERIK G ; HANSSON ERIK ; IZOPAG AG FA ; ISOPAG AGEDENEUMENN P ; HANSSON E G ; HANSSON E ; ERIK GOERAN HANSSON TE SANDHEM ZWEDEN ; ERIK GOERAN HANSSON ; ISOPAG A G ; HANSSON E G ; ISOPAG AG

**Assignee(s):** IZOPAG AG FIRMA ; HANSSON EG ; E G HANSSON ; NEUMANN PETER ; IZOPAG FIRMA AG ; ISOPAG AG LI ; ERIK GORAN HANSSON ; ISOPAG AG TRIESEN LI ; HANSSON EG ; HANSSON ERIK GOERAN ; ISOPAG AG TRIESEN LIECHTENSTEIN ; ISOPAG AKTIENGESELLSCHAFT ; ISOPAG TE TRIESEN LIECHTENSTEIN AG ; ISOPAG TRIESEN LI AG ; ISOPAG TRIESEN LIECHTENSTEIN AG

**Inventor(s):** (std): HANSSON E ; HANSSON E G ; HANSSON ERIK G ; HANSSON ERIK GOERAN ; HANSSON ERIK GORAN ; HANSSON E G ; NEUMANN P ; NEUMANN PETER ; EG HANSSON ; ERIK GORAN HANSSON ; ERITSUKU GEERAN HANSON ; P NEUMANN ; PETER NOJMANN CH ; PETER NEUMANN ; E G HANSSON ; NOJMANN PETER

**Inventor(s):** E G HANSSON ; NEUMANN PETER DE ; GOERAN HANSSON ERIK ; NEUMANN PETER ESCHEN LI ; NEUMANN PETER ESCHEN LIECHTENSTEIN

**Agent(s):** GRIFFITH HACK ; MACRAE AND CO ; FETHERSTONHAUGH AND CO

**21) Family number: 8607398 (US4344719A)**

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**Title:** INTERNALLY EXPANDING RAILING COUPLING

**Abstract:** An internal expanding coupling for pipe railing including a slotted sleeve member positioned inside two abutted railing sections with a wedging member positioned within the slot for expanding the sleeve outwardly against the railing sections in a locking joint as the wedge member is drawn against the railing sections.

**Classifications:**

**International (IPC 8-9):** E04F11/18 E04G7/20

F16B7/04 (Advanced/Invention);

E04F11/18 E04G7/00 F16B7/04 (Core/Invention)

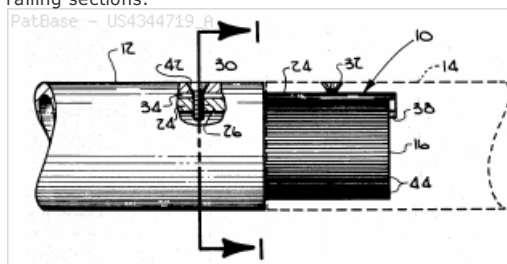
**International (IPC 1-7):** F16D1/00

**CPC:** E04F11/1817 E04G7/20 F16B7/0413 Y10T403/557

Y10T403/7067

**European:** E04F11/18F2 E04G7/20 F16B7/04B2

**US:** 403/297 403/374.3



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US4344719 A        | 19820817         | US19800171708      | 19800724         |

**Priority:**

US19800171708 19800724

**Probable Assignee:** ARCHITECTURAL ART MFG

**Assignee(s):** (std): ARCHITECTURAL ART MFG

**Assignee(s):** ARCHITECTURAL ART MFG INC

**Inventor(s):** (std): THOM WENZEL W

**22) Family number: 14257418 (FR2754291A)**

© PatBase

**Title:** Magnetic apparatus support for cast concrete bases

**Abstract:** The Magnetic apparatus support has a magnetic disc (1) with a flat upper surface and lower twist fitting connections. The disc fits into a cylindrical hollow section (2) with inner grip sections (203) for the disc twist fit unit. The container has a central tube into which a rigidiser can be inserted. The rigidiser deforms the base and holds the disc in place.

**Classifications:**

**International (IPC 8-9):** E04G15/06 F16B2/20

H02G3/12 (Advanced/Invention);

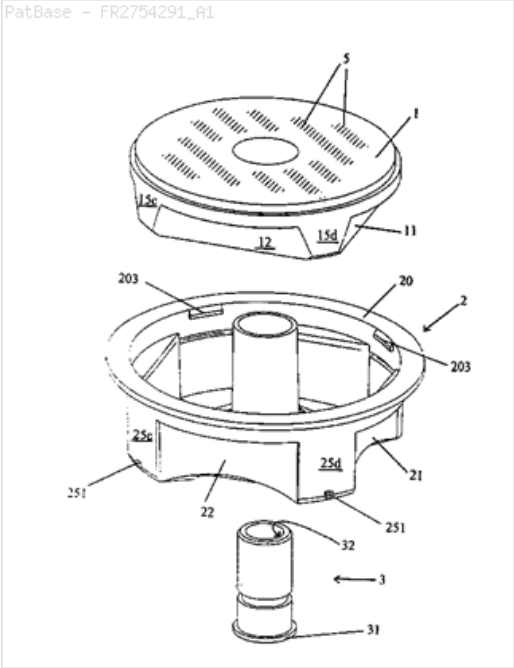
E04G15/00 F16B2/20 H02G3/12 (Core/Invention)

**International (IPC 1-7):** E04G15/04 E04G17/00 H01F7/02

**CPC:** E04G15/06 F16B2/205 H02G3/121

**European:** E04G15/06 F16B2/20B H02G3/12D

PatBase - FR2754291\_A1



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| FR2754291 A1       | 19980410         | FR19960009628      | 19960731         |
| FR2754291 B1       | 19981224         | FR19960009628      | 19960731         |

**Priority:**

FR19960009628 19960731

**Probable Assignee:** ALOMBARD SA

**Assignee(s):** (std): ALOMBARD SA

**Inventor(s):** (std): COEURET JEAN MARC ; DITLEFSEN JESPER

**Inventor(s):** JEAN MARC COEURET ; JESPER DITLEFSEN

**Agent(s):** CABINET YVES DEBAY

**23) Family number: 54109444 (US2016032953A)**

© PatBase

**Title:** LOAD RELEASE MEANS FOR TELESCOPIC PROPS

**Abstract:** A load release means for a telescopic prop, the load release means comprising: an inner member with at least one threaded portion; a striking collar with threaded internal bore configured to threadedly engage with the threaded portion of the inner member through a thread interface; and, locking means to releasably secure said striking collar on said inner member, whereby, in use, when an applied load V acts directly on the thread interface, the component force S of the applied load V provides most or all of the striking torque such that when the locking means is released little to no external torque is required to be applied to the striking collar to strike the striking collar.

**Classifications:**

**International (IPC 8-9):** A47F5/00 E04G25/00 E04G25/06 F16B33/02

F16B39/16 F16B5/02 F16B7/06 F16B7/18 F16M11/26

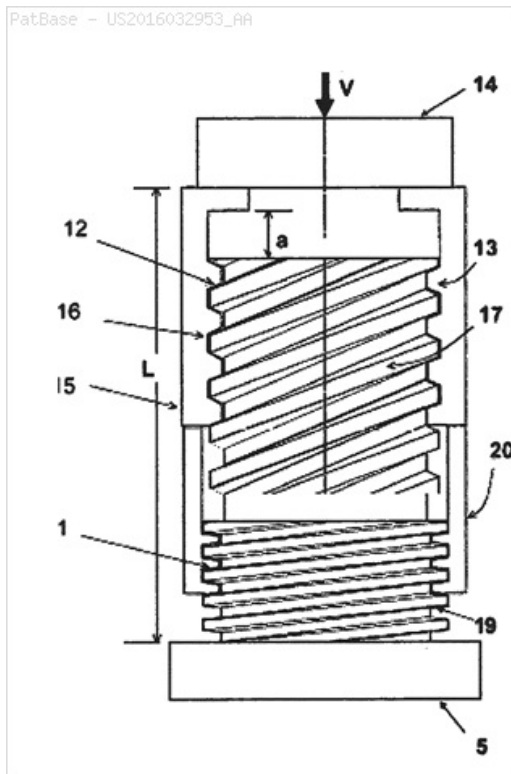
F16M13/00 (Advanced/Invention);

F16B5/02 (Advanced/Non-invention)

**CPC:** F16B7/06 F16M11/26 E04G25/065 F16B5/0275 F16B7/182

F16B33/02 F16B39/16

**US:** 248/188.4

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE602014017550 D1  | 20171228         | DE201460017550T    | 20140411         |
| EP2984256 A1       | 20160217         | EP20140718137      | 20140411         |
| EP2984256 B1       | 20171122         | EP20140718137      | 20140411         |
| GB201306649 A0     | 20130529         | GB20130006649      | 20130412         |
| GB201415924 A0     | 20141022         | GB20140015924      | 20130412         |
| GB2512919 A1       | 20141015         | GB20130006649      | 20130412         |
| GB2512919 B2       | 20150812         | GB20130006649      | 20130412         |
| GB2524129 A1       | 20150916         | GB20140015924      | 20130412         |
| GB2524129 B2       | 20160127         | GB20140015924      | 20130412         |
| PL2984256 T3       | 20180731         | PL20140718137T     | 20140411         |
| US2016032953 AA    | 20160204         | US20140781212      | 20140411         |
| US9752605 BB       | 20170905         | US20140781212      | 20140411         |
| WO14167274 A1      | 20141016         | WO2014GB00141      | 20140411         |

**Priority:**

GB20130006649 20130412 GB20140015924 20130412 EP20140718137 20140411  
 WO2014GB00141 20140411

**Probable Assignee:** BRAND ENERGY AND INFRASTRUCTURE SERVICES LTD

**Assignee(s):** (std): BRAND ENERGY AND INFRASTRUCTURE SERVICES LTD ; PAPADOPOULOS DEMETRIOS GEORGIU ; PAPADOPOULOS DEMETRIOS G ; BRAND ENERGY AND INFRASTRUCTURE SERVICES UK LTD

**Assignee(s):** DEMETRIOS GEORGIU PAPADOPOULOS ; BRAND ENERGY AND INFRASTRUCTURE SERVICES UK LTD LEATHERHEAD

**Inventor(s):** (std): PAPADOPOULOS DEMETRIOS GEORGIU ; PAPADOPOULOS DEMETRIOS GEORGIU

**Inventor(s):** DEMETRIOS GEORGIU PAPADOPOULOS

**Agent(s):** BOEHMERT AND BOEHMERT ANWALTSPARTNERSCHAFT MBB PATENTANWAELTE RECHTSANWAELTE; HARDING ANDREW PHILIP; WOLF GREENFIELD AND SACKS PC; FORRESTERS

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

**24) Family number: 73334450 (DE202018005954U1)**

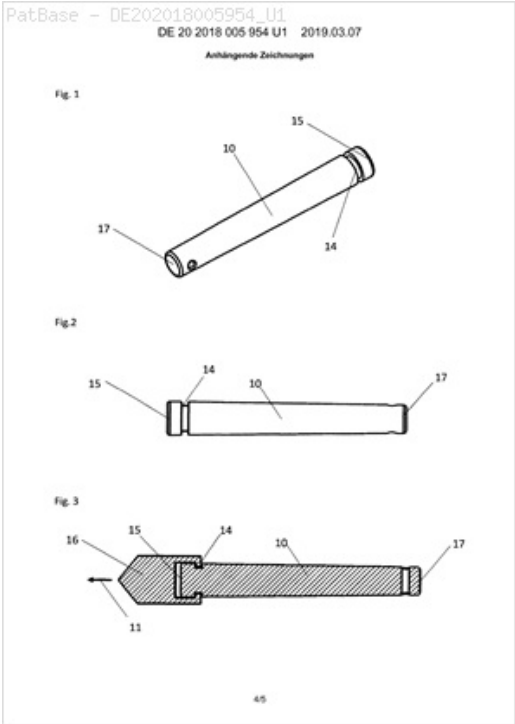
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**Title:** VERBINDUNGSEINRICHTUNG Connecting Device (Machine translation)

**Abstract:** Source: DE202018005954U1 [DE] Verbindungseinrichtung, mit der zwei Geruestbauteile formschluessig zug- und druckfest miteinander verbindbar sind, wobei die Verbindungseinrichtung einen Bolzen (10) aufweist, der an einem ersten axialen Ende (15) einen Durchmesser aufweist, der groesser ist als der Durchmesser des ersten und der zweiten Bolzenloches der Traverse, und an einem entgegengesetzten, zweiten axialen Ende (17) konisch verjuegt ist, wobei der Bolzen (10) an einem ersten axialen Ende (15) eine radiale Schulter aufweist, an der zum Loesen des Bolzens (10) ein Demontagewerkzeug (16) angreifen kann, dadurch gekennzeichnet, dass die radiale Schulter durch eine Nut (14) ausgebildet ist und dass der Bolzendurchmesser vom zweiten axialen Ende (17) aus anwaechst, bis er vor der Nut (14) geringfuegig groesser ist als der Durchmesser des ersten und der zweiten Bolzenloches der Traverse. **Machine translation:** Connecting device, with the two gantry components positively tensile and compressive solid can be connected to one another, wherein the coupling device includes a bolt (10) coupled to a first axial end (15) has a diameter that is larger than the diameter of the first and second bolt hole of the cross beam, and at an opposing, second axial end (17) is conically tapered, wherein the pin (10) at a first axial end (15) has a radial shoulder at to release the pin (10) is a disassembly tool (16) attack, characterized in

that the radial shoulder by a groove (14), and wherein the bolt diameter from the second axial end (17) of the groove (14) increases until it is slightly larger than the diameter of the first and second Bolt hole of the cross beam.

**Classifications:**  
**International (IPC 8-9):** F16B17/00 F16B19/00  
F16B7/00 (Advanced/Invention)  
**CPC:** F16B19/02 E04G7/34 E04G7/301



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE202018005954 U1  | 20190307         | DE201820005954U    | 20181221         |

**Priority:**  
DE201820005954U 20181221

**Probable Assignee:** HAUSER MATTHIAS

**Assignee(s): (std):** HAUSER MATTHIAS

**Assignee(s):** HAUSER

**25) Family number: 31381459 (WO04104324A2)** © PatBase

**Title:** COUPLING ELEMENT FOR PIPES AND THE LIKE

**Abstract:** Coupling element comprising a first shell and a second shell having first and second clamping surfaces for engaging a pipe, rod or a similar elongated element on both sides, wherein the first shell has a first end and a second end and the second shell has a first end and a second end, wherein the first end of the first shell is hinged to the first end of the second shell, and a locking element for locking the second end of the first shell and the second end of the second shell with respect to each other, wherein the locking element comprises a first locking member and a second locking member, wherein the first locking member and the second locking member are coupled by means of a springy element, and wherein the first locking member is hinged to the first shell, and wherein the second locking member has an engagement surface for coupling to an engagement surface on the second shell.

**Classifications:**  
**International (IPC 8-9):** E04G7/28 F16B2/10  
F16B2/18 (Advanced/Invention);  
E04G7/00 F16B2/02 (Core/Invention)  
**International (IPC 1-7):** E04G1/26 E04G7/28 F16B2/18  
**CPC:** E04G2007/285 E04G5/145 F16B2/185 E04G7/28 F16B2/10  
**European:** E04G7/28 F16B2/10 F16B2/18L

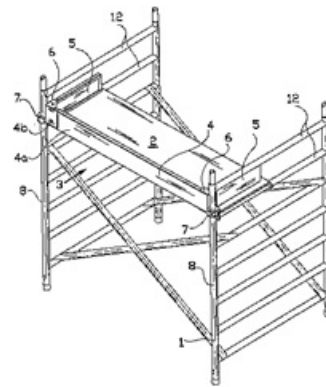


FIG. 1

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| NL1023497 C2       | 20041124         | NL20031023497      | 20030522         |
| WO04104324 A2      | 20041202         | WO2004NL00318      | 20040511         |
| WO04104324 A3      | 20050224         | WO2004NL00318      | 20040511         |

**Priority:**

NL20031023497 20030522

**Probable Assignee:** BAKKER ADRIANUS MARIA PETRUS**Assignee(s):** (std): BAKKER ADRIANUS MARIA PETRUS**Inventor(s):** (std): ADRIANUS MARIA PETRUS BAKKER ; BAKKER ADRIANUS MARIA PETRUS

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

**26) Family number: 29576475 (US4249718A)**

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**Title:** BOLT TENSIONING DEVICE

**Abstract:** Hydraulic bolt tightening means comprises a body, a piston mounted in the body, the piston and the body being of generally annular configuration to allow the device to be assembled in encircling fashion to a bolt or like components, and an annular chamber between the body and the piston for the admission of fluid under pressure to effect relative axial displacement of the body and the piston whereby the axial dimension is increased, the piston comprising an inner part having a pressure area which is subject to the pressure in said chamber and an outer part to which the fluid pressure is transmitted via said inner part and an interposed mass of solid, yielding and substantially incompressible material whose effective pressure area is less than that of said inner piston part whereby, in use, said mass is caused to expand radially so as to seal against leakage of fluid from the chamber while at the same time transmitting the pressure to the outer piston part.

**Classifications:**

**International (IPC 8-9):** B23P19/06 B25B21/00 B25B29/02 E04G21/12 F15B15/14 F15B15/20 F16B31/04

F16J1/00 (Advanced/Invention);

F16J1/00 (Advanced/Non-invention);

B25B29/00 E04G21/12 F15B15/00 F16B31/00

F16J1/00 (Core/Invention)

**International (IPC 1-7):** B23P15/06 B23P19/00 B23P19/06 B25B21/00 B25B21/00 B25B29/02 E02B15/04 E21B19/00 F15B15/20 F16B29/00 F16B31/00 F16B31/04 F16B39/00 F16J1/00

**CPC:** B25B29/02 E04G21/12 F15B15/1447 F16B31/043

**European:** B25B29/02 E04G21/12B F15B15/14E8 F16B31/04B

**US:** 254/29.0A 254/29A

PatBase - US4249718-A

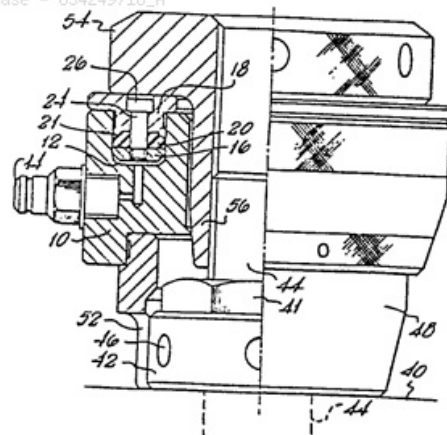


FIG. 1

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AR216981 A1        | 19800215         | AR19790276224      | 19790418         |
| AU197946136 A1     | 19791122         | AU19790046136      | 19790417         |
| AU536761 B2        | 19840524         | AU19790046136      | 19790417         |
| BR7902335 A        | 19791023         | BR19790002335      | 19790417         |
| CA1101249 A1       | 19810519         | CA19790325588      | 19790417         |
| DE2961744 D1       | 19820225         | DE19792961744      | 19790411         |
| DE2961744 D1       | 19820225         | DE19792961744T     | 19790411         |
| DK148499 B         | 19850722         | DK19790001568      | 19790417         |
| DK148499 C         | 19851223         | DK19790001568      | 19790417         |
| DK156879 A         | 19791019         | DK19790001568      | 19790417         |
| EP0005028 A1       | 19791031         | EP19790300596      | 19790411         |
| EP0005028 B1       | 19820106         | EP19790300596      | 19790411         |
| ES479658 A1        | 19800101         | ES19790479658      | 19790417         |
| FI66557 B          | 19840731         | FI19790001256      | 19790418         |
| FI66557 C          | 19841112         | FI19790001256      | 19790418         |
| FI791256 A         | 19791019         | FI19790001256      | 19790418         |
| GB1590131 A        | 19810528         | GB19770018193      | 19780428         |
| GR64899 B          | 19800607         | GR19790058846      | 19790409         |
| GR64899 B          | 19800607         | GR19790158846      | 19790409         |
| IN150679 A         | 19821120         | IN1979DE00050      | 19790125         |
| JP1414031 C3       | 19871210         | JP19790046786      | 19790418         |
| JP55006076 A2      | 19800117         | JP19790046786      | 19790418         |
| JP62019606 B4      | 19870430         | JP19790046786      | 19790418         |
| MX146848 A         | 19820825         | MX19790177356      | 19790418         |
| NO146528 B         | 19820712         | NO19790001272      | 19790417         |
| NO146528 C         | 19821020         | NO19790001272      | 19790417         |
| NO791272 A         | 19791019         | NO19790001272      | 19790417         |
| NO791272 L         | 19791019         | NO19790001272      | 19790417         |
| PT69499 A          | 19790501         | PT19790069499      | 19790417         |
| US4249718 A        | 19810210         | US19790028856      | 19790410         |
| ZA7901823 A        | 19800827         | ZA19790001823      | 19790418         |

**Priority:**

GB19780015305 19780418 GB19770018193 19780428 GB20150030578 19780518  
CA19790325588 19790417

**Probable Assignee:** HYDRA TIGHT LTD

**Assignee(s):** (std): HYDRA TIGHT LTD

**Assignee(s):** HEATON FREDERICK ; HYDRA TIGHT LIMITED

**Inventor(s):** (std): FUREDERITSUKU HIITON ; HEATON F ; HEATON FREDERICK ; HEATON FREDRICK

**Inventor(s):** FREDERICK HEATON

**Agent(s):** JAMES M LAWRIE AND CO; GOWLING LAFLEUR HENDERSON LLP

**Designated states:** BE DE FR GB IT NL SE

**27) Family number: 21480479** (DE1675011A1)

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**Title:** VORRICHTUNG ZUM BEFESTIGEN VON ROHREN UND PROFILKOERPERN DEVICE FOR FIXING PIPES AND PROFILKOERPERN (Machine translation)

**Abstract:** Source: DE1675011A1 [DE] (Claim 1) 1. Vorrichtung zum Zusammenfuegen von Rohren oder Profilkoerperns die senkrecht, parallel oder schraeg zueinander verlaufene dadurch gekennzeichnet, dass sie-aus zwei diese beiden Rohre oder Profil koerper umfassenden Klemmschellen besteht, von denen jede einen Innenfluegel aufweist, der durch Umbiegen des einen der kussenflue- gel dieser Klemmschellen entstanden ist und dessen Fluegelende diese Rohre gegenueber ihren Klemmschellen unbeweglich macht.

**Machine translation:** (Claim 1) 1 Device to fit together by pipes or Profilkoerperns the vertical, parallel or diagonal to each other wherein it consists of two, these two tubes or profile body comprising clamps is, each of which has one Innenfluegel that by bending one of kussenflue gel this clamps is formed and its wings of these tubes to their immobile makes clamps.

**Classifications:**

**International (ipc 8-9):** E04G7/24 F16B2/24 F16B7/04 F16L3/08

F16L3/12 F16L3/24 (Advanced/Invention);

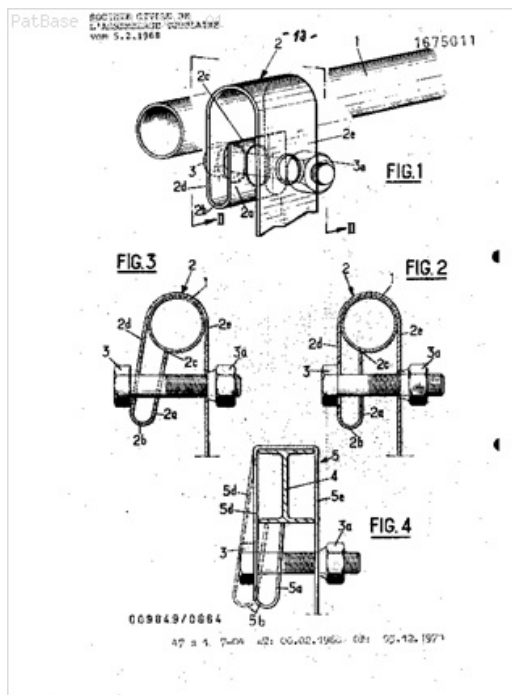
E04G7/00 F16B2/20 F16B7/04 F16L3/08 F16L3/12

F16L3/24 (Core/Invention)

**International (ipc 1-7):** E04G7/24 F16B7/04 F16B7/08

**CPC:** F16L3/245 E04G7/24 F16B2/245 F16B7/0493 F16L3/085 F16L3/12

**European:** E04G7/24 F16B2/24B3 F16B7/04D4L F16L3/08B F16L3/12 F16L3/24



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE1675011 A1       | 19701203         | DE19681675011      | 19680206         |
| FR1517925 A        | 19680322         | FR19670093864      | 19670206         |

#### Priority:

FR19670093864 19670206

**Probable Assignee:** ILE DE L ASSEMBLAGE TUBULAIRE

**Assignee(s):** (std): ILE DE L ASSEMBLAGE TUBULAIRE

**Assignee(s):** SOCIETE CIVILE DE L ASSEMBLAGE TUBULAIRE ; CIVILE DE L ASSEMBLAGE TUBULAIRE SOC

#### 28) Family number: 28047486 (DE10225403A1)

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**Title:** Framework for shelving etc comprises stays and uprights fitting together by wedges passing through wedge openings and securing with clamping elements

**Abstract:** The framework comprises stays and uprights. At least one of the stays (2) has at one of its ends a head (1) which has at least one and preferably two first wedge openings (8,9) and at least one and preferably two clamping areas (17) whereby the head can be attached with a wedge (10) and a clamping element (13) on another stay (3) so that the wedge (10) engages through the two wedge openings. Through the wedge and clamping element the head of one stay can be drawn towards the other stay whereby the clamping area (17) is held through friction and or force locking connection against the other stay (3). The clamping element (13) can be mounted loose or locally fixed on the stay.

#### Classifications:

**International (IPC 8-9):** A47B47/00 E04G7/30 E04G7/32 F16B12/32

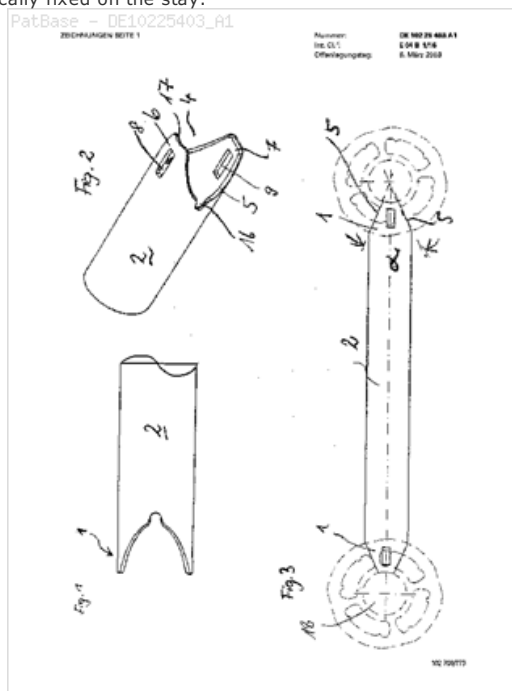
F16B12/40 F16S3/08 (Advanced/Invention);

A47B47/00 E04G7/00 F16B12/00 F16S3/00 (Core/Invention)

**International (IPC 1-7):** E04B1/18

**CPC:** A47B47/005 E04G7/307 E04G7/32 F16B12/32 F16B12/40

**European:** A47B47/00H6 E04G7/30C3B E04G7/32 F16B12/32 F16B12/40



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE10225403 A1      | 20030306         | DE20021025403      | 20020607         |
| DE10225403 B4      | 20070606         | DE20021025403      | 20020607         |

**Priority:**

DE20011027647 20010607 DE20021025403 20020607

**Probable Assignee:** RUX VOLKER

**Assignee(s):** (std): RUX VOLKER ; RUX SALES AND SERVICES GMBH

**Inventor(s):** (std): SPECHT JOACHIM

**29) Family number: 62740488 (WO16098137A1)**

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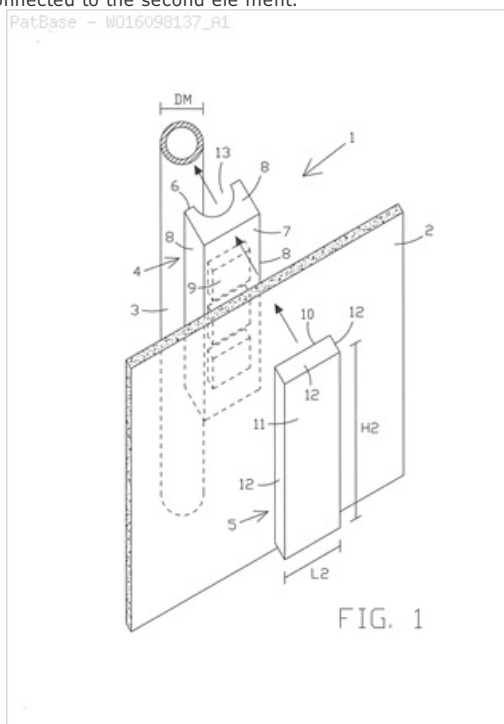
**Title:** SYSTEM FOR CONNECTING AND DISCONNECTING AN ISOLATION BARRIER TO/FROM A SUPPORT STRUCTURE THEREOF

**Abstract:** The invention relates to a system for connecting and disconnecting a fireproof polyethylene sheet to an upright of a metal scaffold. The system comprises a first element placeable between the sheet and the upright, a second element placeable on the side opposite of the sheet with respect to the upright, and means suitable for magnetically coupling the first element both to the upright and to the second element, so that the sheet is tightened between the first and the second elements and, thereby, is connected to the upright by means of the first element. In a first embodiment of the system object of the invention in which the second element is metal, the coupling means comprise first magnets integrally connected to the first element and suitable for magnetically attracting both the upright and the second element. In a second embodiment of the system object of the invention, the magnetic coupling means comprise first magnets integrally connected to the first element and second magnets integrally connected to the second element. The first magnets are suitable for magnetically attracting the upright. The first and the second magnets are suitable for being magnetically attracted to each other. In a third embodiment of the system object of the invention in which the second element is metal, the coupling means comprise third and fourth magnets integrally connected to the first element. The third magnets are suitable for magnetically attracting the upright. The fourth magnets are suitable for magnetically attracting the second element. In a fourth embodiment of the system object of the invention, the magnetic coupling means comprise both said third and fourth magnets integrally connected to the first element, and said second magnets integrally connected to the second element.

**Classifications:**

**International (IPC 8-9):** E04G21/24 E04G21/30 E04G5/12 F16B5/06 (Advanced/Invention)

**CPC:** E04G21/30 E04G5/12 E04G2021/248 F16B5/0692 F16B2001/0035



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| WO16098137 A1      | 20160623         | WO2015IT00314      | 20151216         |

**Priority:**

IT2014MI02176 20141218

**Probable Assignee:** SCICOLONE EMANUELE VALTER

**Assignee(s):** (std): SCICOLONE EMANUELE VALTER

**Inventor(s):** (std): SCICOLONE EMANUELE VALTER

**Agent(s):** GUELLA PAOLO

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

**30) Family number: 723488 (GB1221230A)**

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**Title:** IMPROVED ROD CLAMP

**Abstract:** 1,221,230. Clamps. TORSTEN BRIMBERG. 9 Dec., 1968, No. 58398/68. Heading E2B. A clamp for securing three rods or tubes 1, 2, 3 'mutually at right-angles comprises a pair of jaws 4, 5 held in the gripping position by a bolt 6 and each having three curved gripping- surfaces 7 having extended lips 8 for better grip. The centres of the gripping-surfaces, between the lips, may be filled with rubber 10, Fig. 7, to further improve the grip by increasing the area of mutual engagement. The bolt may be replaced by a clamp or strap acting along the same axis.

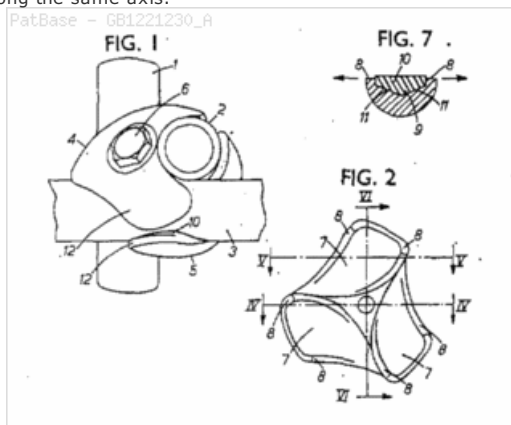
**Classifications:**

**International (IPC 8-9):** E04G7/18 F16B7/04 (Advanced/Invention); E04G7/00 F16B7/04 (Core/Invention)

**International (IPC 1-7):** E04G7/18 F16B7/08

**CPC:** E04G7/18 F16B7/0493

**European:** E04G7/18 F16B7/04D4L



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| GB1221230 A        | 19710203         | GB19680058398      | 19681209         |

**Priority:**

GB19680058398 19681209

**Probable Assignee:**

BRIMBERG TORSTEN

**Assignee(s):** (std):

BRIMBERG TORSTEN

**Assignee(s):**

TORSTEN BRIMBERG

**Inventor(s):** (std):

BRIMBERG TORSTEN

**Inventor(s):**

TORSTEN BRIMBERG

**31) Family number: 64617496** (US2018209134A)

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**Title:** CONSTRUCTION ARRANGEMENT AND DETACHABLE CONNECTION ASSEMBLY FOR THIS CONSTRUCTION ARRANGEMENT

**Abstract:** The construction arrangement comprises a first construction wall (1) and a second construction wall (2). The walls (1, 2) are arranged adjacent in a vertical plane, such that the first construction wall and the second construction wall (1, 2) have an edge in contact and such that three directions (X, Y, Z) are defined, an X-direction (X) corresponding to the contact edge direction, a Y-direction (Y) corresponding to a direction perpendicular to the X-direction and contained in the vertical plane and a Z-direction (Z) perpendicular to both the X and Y directions (X, Y), such that it is a direction normal to the first and second construction walls (1, 2). The construction comprises a connection assembly capable of transmitting forces in the X and the Y direction (X, Y) between the walls (1, 2) and attachable upon a surface of the walls (1, 2) normal to the Z-direction. The connection comprises at least two tension units (3, 4), each tension unit (3, 4) comprising two connection paddles (31, 32, 41, 42), attachable upon a surface of the first and second walls (1, 2) normal to the Z direction by means of detachable anchorage means (11, 12, 21, 22) and a tension shaft (5, 6) connecting the connection paddles (31, 32, 41, 42). For each tension unit (3, 4) a first connection paddle (31, 41) is fixed to the first wall (1) on a surface normal to the Z-direction (Z) and a second connection paddle (32, 42) is fixed to the second wall (2) on the cited surface normal to the Z-direction (Z) such that in case of shearing efforts between the walls along the X-direction at least one of the tension units (3, 4) works under tension.

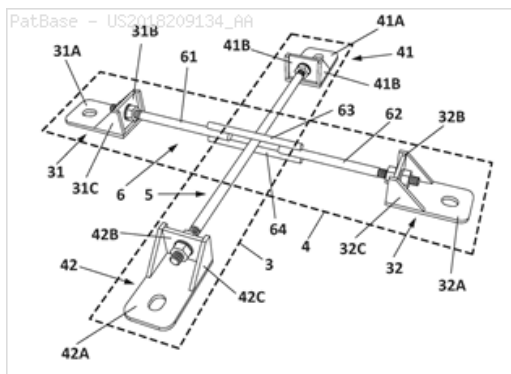
**Classifications:**

**International (IPC 8-9):** E04B1/04 E04B1/61 E04H9/02 (Advanced/Invention);

E04B1/61 (Advanced/Non-invention)

**CPC:** E04B1/6116 E04H9/021 E04H9/02 E04B1/61 E04G21/12 F16B5/0008 E04B1/043

**US:** 1/1 52/223.7



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CL2018000003 A1    | 20180727         | CL20180000003      | 20180102         |
| CO20180000121 A2   | 20180320         | CO20180000121      | 20180109         |
| EP3115528 A1       | 20170111         | EP20150382362      | 20150710         |
| MX2018000088 A1    | 20180815         | MX20180000088      | 20160706         |
| US2018209134 AA    | 20180726         | US20160742821      | 20160706         |
| WO17009153 A1      | 20170119         | WO2016EP66054      | 20160706         |

**Priority:**

EP20150382362 20150710

WO2016EP66054 20160706

**Probable Assignee:** FUNDACION TECNALIA RES AND INNOVATION

**Assignee(s):** (std): FUNDACION TECNALIA RES AND INNOVATION  
**Assignee(s):** FUNDACION TECNALIA RESEARCH AND INNOVATION  
**Inventor(s):** (std): AMAIA ARAMBURU IBARLUCEA ; ARAMBURU IBARLUCEA AMAIA ; CHICA PAEZ JOSE ANTONIO ; CALDERON URISZAR ALDACA INIGO ; INIGO CALDERON URISZAR ALDACA ; JOSE ANTONIO CHICA PAEZ  
**Agent(s):** JORGE GARAY PEREZ; HELENA CAMARGO WILLIAMSON; BALDER IP LAW SL  
**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

### 32) Family number: 29515501 (CH430155A)

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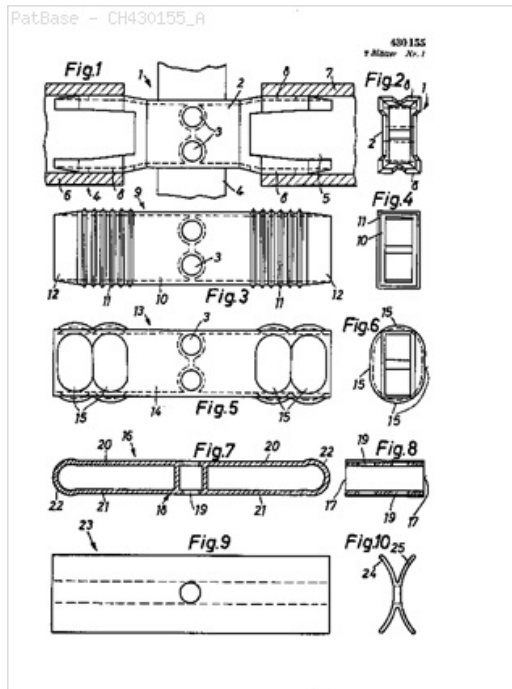
**Title:** ZUBEHOERTEIL FUER ZAUNLATTEN AUS KUNSTSTOFF ACCESSORY PART FOR FENCE PICKETS FROM PLASTIC (Machine translation)

**Abstract:** Source: CH430155A [DE] (Claim 1) 1. Zubehoerteil nach Patentanspruch, dadurch gekennzeichnet, dass das Einsteckteil in Gabelschenkeln endet, die federnd ausgebildet sind, wobei die Schenkel nach aussen gerichtete Verstaerkungen (8) aufweisen.

**Machine translation:** (Claim 1) 1 Zubehoerteil to claim, characterized in that the insert ends in fork legs, which are designed to be resilient, with the legs outward-facing reinforcements (8) have.

#### Classifications:

**International (ipc 8-9):** E04G7/02 E04G7/24 E04H17/14 E04H17/20 F16B12/40 F16B7/04 (Advanced/Invention); E04G7/00 E04H17/14 F16B12/00 F16B7/04 (Core/Invention)  
**International (ipc 1-7):** E04B1/56 E04B1/58 E04G7/02 E04G7/24 E04H11/48 E04H17/14 F16B7/04  
**CPC:** E04F2011/187 E04H17/1434 E04G7/02 E04G7/24 E04H17/20 F16B7/04 F16B7/0446 F16B12/40  
**European:** E04G7/02 E04G7/24 E04H17/14E1A E04H17/20 F16B12/40 F16B7/04 F16B7/04D2



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AT245785 B         | 19660310         | AT19640001021      | 19640207         |
| AT251266 B         | 19661227         | AT19650006885      | 19640207         |
| BE643648 A         | 19640811         |                    | 19640211         |
| CH430155 A         | 19670215         | CH19640001513      | 19640207         |
| DE1881737 U        | 19631031         | DE1963D026271U     | 19630211         |
| LU45389 A          | 19640408         | LU19640045389      | 19640208         |
| NL6401123 A        | 19640812         | NL19640001123      | 19640211         |

#### Priority:

DE1963D026271U 19630211

**Probable Assignee:** DYNA PLASTIK WERK GMBH

**Assignee(s):** (std): DYNA PLASTIK WERK G M B H ; DYNA PLASTIK WERK GMBH ; DYNA PLASTIK WERKE

**Inventor(s):** (std): JAKOB BROICH ; GERD BROICH

**Inventor(s):** BROICH JAKOB ; BROICH GERD

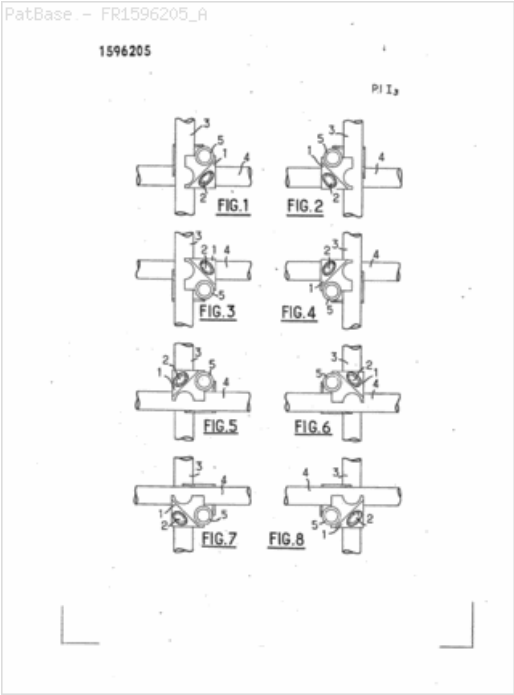
### 33) Family number: 657515 (FR1596205A)

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**Abstract:** Source: FR1596205A [FR] [Source: Claim 1] RBSUMB <B>10</B> Dispositif pour l'assemblage de barres par serrage# notam ment des barres paralleles ou perpendiculaires<B>,</B> constituees au moins de deux coquilles<U>munies</U> de gorges correspondant aux demi-circonferees des barres<B>,</B> lesdites coquilles etant reliees par un organe de serrage qui les traverse obliqueaont par rapport aux barres de<U>men</U> ere que les gorges de coquilles complementaires embrassent la presque totalite de la circonference des barres en les serrant, dispositif<B>o</B> a r a c t<B>e</B> r i<I>a</I><B>6</B> par le fait que<B>s</B> a) les<U>coquilles</U> sont rigQureusement identiques# <B>b</B> les coquilles presentent trois series de deux gorges paralleles, soit six gorges au total, c'est-a-dire que si l'on suppose la coquille<B>a</B> l'angle d'un parallelepipede<B>,</B> l'organe de serrage a son action orientee

suivant -une diagonale de deux sommets oppqses du parallelepipede et# sur chacun des angles du parallelepipade <B>.  
</B> aebouchen-# deux gorges reparties symetriquement par rapport aux plans diagonaux<B>du</B> parallelepipede, c)  
les gorges presentent des moyens<B>1</B> permettant de<B>les</B> adapter au dia metre des barres, <B>d</B> les  
coquilles presentent des moyens de blocage et de protection de Itorgane de serrage. 20) Dispositif, tel que defini-dans le  
paragraphe<B>1, a</B> a r a<B>c</B> t<B>e</B> r i s<B>e</B> par le fait que les bords des gorges presentent une  
portee concentrique<B>a</B> la gorge et de diametre legerement plus petit. <B>. 30)</B> Dispositif, tel que defini dans le  
paragraphe 2, o a r a<B>c</B> t<B>6</B> r i a<B>e</B> par le fait qu'il est prevu un segment qemi-ciroulaire avec une  
rainure exterieure correspondant<B>a</B> la portee de la gorge<B>, </B> ledit segment ayant un diametre inferieur  
correspondant<B>a</B> celui des barres. 40) Dispositif, tel que defini dans les paragraphes precedents, c a r a<B>a</B>  
t<B>e</B> r i<B>a 6</B> par le:fait que Ilorgene de serrage est un boulon. <B>50)</B> Dispositif, tel que<U>defini</U>  
dans le paragraphe 4,<B>0</B> a r a<B>0</B> # <B>, </B> t <B>e</B> r --i <B>a e</B> par le fait que la t8te de la vis  
et Itecrou sont noyes dans les<U>coquilles</U> ou un logement cylindrique'est prevu<B>a</B> cet effet. <B>60)</B>  
Dispositif# tel que defini dans le paragraphe.59 <B>c</B> a r a<B>e</B> t<B>e</B> r i s'e pax le fait que le moyen de  
blocage et de protection de-lie- crou ou de la tftte de via est constitue par un bouchon se placant sur le logement cylindrique,  
ledit bouchon presentant une jupe qui stinsere autour de la tftte de vis ou de l'ecrou entre ceux-ci et la paroi late" rale du  
logement cylindrique, ladite-jupe presentant des asperites qui correspondent<B>a</B> des asperites complementaires de la  
t9te de vis ou de Itecrou dtune part et de la paroi laterale du logement cylindrique d'au tre part. <B>70)</B> Dispositif, tel  
que defini dans le paragraphe<B>6, a</B> a r a<B>e</B> - t <B>e</B> r i<B>s</B><B>6</B> par le fait que<B>la</B> t8te de vis et  
18ecrou sont<B>a</B> six pans si bien que Ilinterieur de la jupe du bouchon a une section droite<B>a</B>  
six pans tandis que l'exterieur de la jupe presente des stries longitudina- les qui etaclaptent <B>a</B> des stries  
correspondantes de la paroi laterale du logement cylindrique. 8# Dispositif, tel que defini dans les paragraphes precedents, c  
a r a<B>a</B> t<B>6</B> r i<B>s</B><B>e</B> par le fait que les<U>coquilles</U> presentent -trois series  
perpendiculaires Itune <B>a</B> l'autre de deux gorges<U>paralleles,</U> soit six gorges au total, c'est-a-dire que si l'on  
suppose la coqui" e<B>a</B> lien- gle dtun cube, le boulon de serrage est place suivant une diagonale de deux sommets  
opposee du cube et, sur chacun des angles du aube<B>, </B> debouss- ohent deux gorges reparties symetriquement par  
rapport aux plans diago naux du cube<B>, </B> et dont les axes sont perpendiculaires<B>a</B> la face du aube. **Machine**  
**translation:** [Source: <b>10) Claim 1] RBSUMB</b> Device for Itassemblage bars by clamping# especially perpendicular  
or parallel bars<b></b>, comprised at least two shells<b>equipped</b> of grooves corresponding to half-circonfereces  
bars<b></b>, said shells are joined by a clamping member which passes through them with respect to obliqueaont  
rigid<b>men</b> ere that grooves of shells complementary embrace the almost entire circumference of bars in the  
tightening device,<b>0</b> a r a c t<b>e</b> <i> r i a</i><b>6</b> by the fact that<b></b>s a) the  
rigQureusement<b></b> shells are identical# <b></b> the shells have three sets of two parallel grooves, six grooves in  
total, i.e., if 18 it is assumed the shell<b>a</b> the angle a a <b></b> clamp Itorgane, its action oriented Next -A diagonal  
of oppqses of a two apices on each of the angles of the parallelepipade and# <b>.</b> aebouchen-# two grooves  
distributed symmetrically with respect to the planes diagonal<b>The</b> a, c) The grooves exhibit means<b>1</b>  
<b>The</b> making it possible to adapt to the dia meter bars, <b>>d</b> the shells have blocking means and protection of  
Itorgane of tightening. 20) device, as defined in subsection<b>1, a</b> A r a b>c</b><t<b>e</b> r i s<b>e</b> by the  
fact that the edges of the presenteur grooves a concentric Scope<b>a</b> the throat and diameter slightly smaller. <b>.  
30)</b> device, as defined in paragraph 2, o a r a b>c</b><t<b>6</b> r i a <b>e</b> by the fact that it is provided with  
a groove-ciroulaire qemi a segment corresponding outer<b>a</b> the scope of the groove<b></b>, said segment having a  
diameter less than corresponding<b>a</b> that of the bars. 40) device, such as defined in the preceding paragraphs, c a r a  
b>a</b><t<b>e</b> r i>6</b> with the Ilorgene:fact that clamp is a bolt. <b>50)</b><b></b> device, such as defined in  
paragraph 4, </b><b>0</b><a r a b>0</b></b>, <B> # t <b>e</b> r --i <b>e</b> by the fact that the T8te of the screw  
and Itecrou are embedded in the<b>shells</b> or a cylindrical housing is provided<b>a</b> this effect. <b>60</b>  
Device#) as defined in subsection.59 <b>c</b> A r a b>e</b><t<b>e</b> r i s e pax the fact that the blocking means and  
protection of the tftte of-bound- nut or via comprises a cylindrical cap is placing on the housing, said cap having a skirt that  
stinsere around the tftte of screw or nut between the latter and the cylindrical wall of the housing, said-skirt late" general  
having asperities that correspond<b>a</b> asperities complementary to the Itecrou t9te screws or dtune hand and the side  
wall of the cylindrical housing at the hand. <b>70)</b> device, as defined in paragraph 6, B>a</b><a r a t<b>e</b> -  
<b>e</b><i> r i s</i><b>6</b> by the fact that<b></b>The t8te screw and nut 18are<b>a</b> Ilinterieur Allen so that  
the skirt of the plug has a right cross section<b>a</b> Allen while outside of the longitudina- the etaclaptent skirt present  
striations that <b>a</b> corresponding grooves of the cylindrical side wall of the housing. 8# device, such as defined in the  
preceding paragraphs, c a r a b>a</b><t<b>6</b><i> r i s</i><b>e</b> by the fact that<b></b>shells<b></b> exhibit -three  
series perpendicular Itune <b>a</b> the other two grooves<b>parallel,</b> is six grooves in total, i.e., assuming the  
COQUI" e<b>a</b> link- gle dtun cube, clamp bolt is positioned along a diagonal line of two opposing vertices of the cube  
and, on each of the angles of the blade<b></b> debou, ohentss- two grooves distributed symmetrically with respect to the  
planes of the cube<b>, diago 3B) for exchanging signals</b> and whose axes are perpendicular<b>a</b> the face of the  
blade.

**Classifications:**  
**International (IPC 8-9):** E04G7/18 F16B7/04 (Advanced/Invention);  
E04G7/00 F16B7/04 (Core/Invention)  
**International (IPC 1-7):** E04G7/18 F16B7/08  
**CPC:** E04G7/18 F16B7/0493  
**European:** E04G7/18 F16B7/04D4L



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| FR1596205 A        | 19700615         | FR19689019243      | 19681217         |

**Priority:**

**34) Family number: 72575535** (US2018372141A)

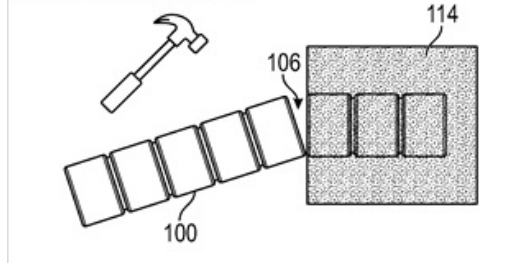
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**Title:** STRIPPED HOLE REPAIR DEVICE

**Abstract:** Current stripped hole repair devices operate by expanding to exert pressure against the inside of a hole into which the device is placed, and are by design suitable only for repairing a stripped or damaged hole in alignment with the original hole. Likewise, various methods exist that do not result in a smooth surface into which a new hole can be drilled. In most cases, these methods are non-permanent, temporary, non-weight-bearing devices that inadequately address the problem. The solution provided comprises a solid plastic insert with segments that break off at a desired length, into which a new hole may be drilled and a screw inserted. The method for installing the apparatus utilizes an adhesive that bonds to the medium into which it is installed. The disclosure describes a simplified and practical method to repair a stripped screw hole, and an apparatus that can be manufactured and made commercially available.

**Classifications:****International (IPC 8-9):** F16B13/00 F16B13/12 (Advanced/Invention)**CPC:** F16B13/126 B27G1/00 F16B13/002 F16B13/128 E04G23/0203 F16B13/141**US:** 1/1 411/40

PatBase - US2018372141\_AA

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2018372141 AA    | 20181227         | US20180986315      | 20180522         |

**Priority:**

US20170509602P 20170522

US20180986315 20180522

**Probable Assignee:**

KING ANDREW

**Assignee(s):** (std):

KING ANDREW

**Inventor(s):** (std):

KING ANDREW

**35) Family number: 64773548** (US2017022711A)

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**Title:** SUPPORT FOR EMBEDDING OBJECT IN CONCRETE

**Abstract:** A system for supporting and holding in place an object (for example and not by way of limitation, anchor bolts, steel plates and the like) to be embedded in concrete. A device having a shaft and a tower can be used to support the object, by inserting the shaft into an opening in the tower and rotatably locking the shaft in place at the desired height, an embed can be supported in the desired position. Concrete can be poured around the support to embed the object at the desired position within the concrete.

**Classifications:****International (IPC 8-9):** E04B1/41 E04C5/16 E04C5/20 E04G17/02

E04G21/02 E04G21/18 F16B13/00 F16B37/08 F16B39/282

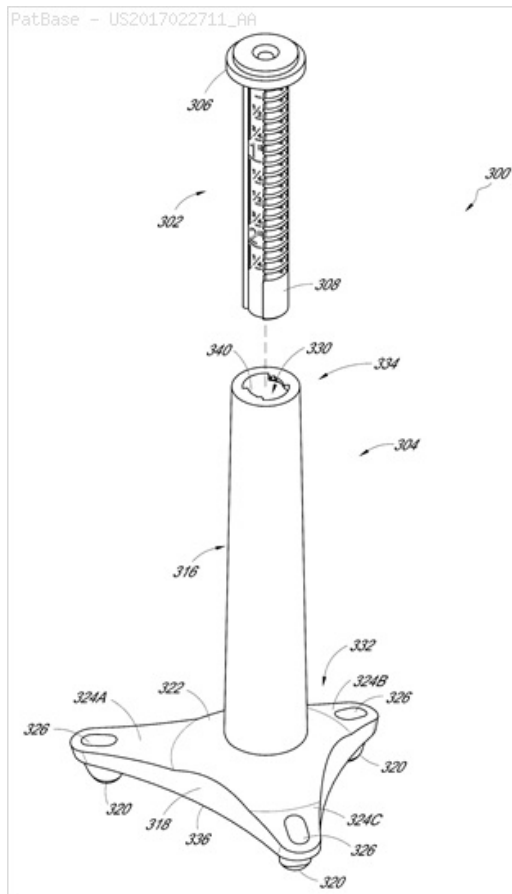
F16M11/28 F16M11/32 G01C15/00 (Advanced/Invention)

**CPC:** E04B1/41 F16M11/32 F16M11/28 E04C5/168 E04C5/20

E04G21/185 F16B5/0635 F16B7/14 F16B7/182 G01C15/04

E04C5/163 E04G17/02 E04G21/02

**US:** 1/1 248/542 52/689

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2016297904 AA    | 20180222         | AU20160297904      | 20160725         |
| CA2993790 AA       | 20180125         | CA20162993790      | 20160725         |
| EP3325822 A1       | 20180530         | EP20160831193      | 20160725         |
| EP3325822 A4       | 20190410         | EP20160831193      | 20160725         |
| US2017022711 AA    | 20170126         | US20160181155      | 20160613         |
| US2017233999 AA    | 20170817         | US20170587692      | 20170505         |
| US2018274227 AA    | 20180927         | US20180990440      | 20180525         |
| US2019169835 AA    | 20190606         | US20190256946      | 20190124         |
| US9677276 BB       | 20170613         | US20160181155      | 20160613         |
| WO17019607 A1      | 20170202         | WO2016US43871      | 20160725         |

**Priority:**

|                         |                        |                        |
|-------------------------|------------------------|------------------------|
| US20150197052P 20150726 | US20160181155 20160613 | WO2016US43871 20160725 |
| US20170587692 20170505  | US20180990440 20180525 | US20190256946 20190124 |

**Probable Assignee:** GILMAN CONSTRUCTION SOLUTIONS LLC**Assignee(s):** (std): GILMAN ANDREW ; GILMAN CONSTRUCTION SOLUTIONS LLC**Inventor(s):** (std): GILMAN ANDREW**Agent(s):** CULLENS PTY LTD; SPRUSON AND FERGUSON; GOWLING WLG CANADA LLP; PLOUGMANN VINGTOFT A S; KNOBBE MARTENS OLSON AND BEAR LLP; MALLON JOSEPH J**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW**36) Family number: 78884549 (US2020149271A)**

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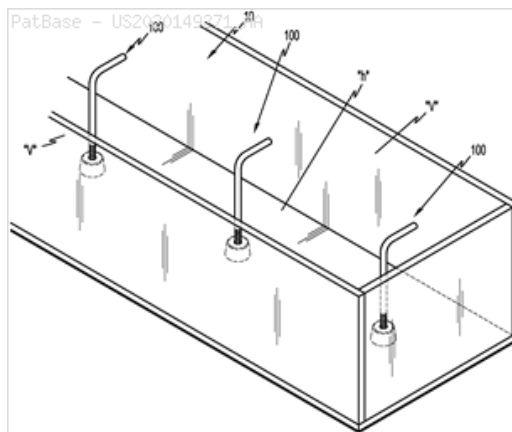
**Title:** CONSTRUCTION ANCHORING SYSTEM, APPARATUS AND METHODOLOGY

**Abstract:** A construction anchoring system includes one or more anchor apparatuses which are mountable relative to a form used to create a concrete support structure. The concrete is deposited in the form and cures whereby the one or more anchor apparatuses becomes embedded within the concrete support structure. The embedded anchor apparatus is readily accessible to be coupled with, or to support, construction supplies or equipment such as ductwork, electrical cables, plumbing, sprinklers, safety lines or fences, etc. within a construction site. A plurality of anchor apparatuses may be mounted relative to the concrete form to create a system for organizing the installation of construction materials and/or safety equipment.

**Classifications:**

**International (IPC 8-9):** E04B1/41 F16B35/06 F16B37/00 G06Q10/06  
G06Q50/08 H04B5/00 (Advanced/Invention)

**CPC:** E04B1/4157 G06Q10/06 H04B5/0062 E04G15/04 G06F30/13  
F16B21/02 F16B33/04 F16B35/005 F16B37/14 F16B37/16  
F16B35/06 F16B37/00



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2020149271 AA    | 20200514         | US20180186247      | 20181109         |
| US10689841 BB      | 20200623         | US20180186247      | 20181109         |
| WO20097589 A1      | 20200514         | WO2019US60653      | 20191109         |

#### Priority:

US20180186247 20181109 US20190794905P 20190121 US20190841217P 20190430

**Probable Assignee:** ANCHOR RING SOLUTIONS LLC

**Assignee(s):** (std): ANCHOR RING SOLUTIONS LLC

**Inventor(s):** (std): FUGALLO III JOSEPH A ; FUGALLO IV JOSEPH ; FUGALLO JOSEPH ; MARRA JOHN ; MARRA JOHN P ; WALSH JAMES ; WALSH JAMES R

**Inventor(s):** FUGALLO JOSEPH A III ; FUGALLO JOSEPH IV

**Agent(s):** RYAN MASON AND LEWIS LLP; SCHMIDT JOSEPH W

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

#### 37) Family number: 346562 (DE1812614A1)

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**Title:** STANGENKUPPLUNG ROD CLUTCH (Machine translation)

**Abstract:** Source: DE1812614A1 [DE] (Claim 1) 1. Reibungsstangenkupplung fuer die trennbar verbindende Zusammenkupplung von zwei, drei oder mehr Stangen bei gegebenen Winkeln, wobei die Kupplung aus zwei vorzugs weise untereinander gleichenKupplungehaelften (4) und (5)besteht. Jede fuer sich mit Spuren (7) zur Auf nahme von Stangen(1), (2), (3), die miteinander verbunden werden sollenversehen sind, und die Kupplungshaelften (4), (5) in ihrer Kupplungslage mittels einerZusammenziehvorrichtung (6) zusammen gehalten werden, deren Kraftlinie durch die beiden Kupplungshaelften (4), (5) in einer Richtung verlaeuft, die mindestens annaehernd mit der Raumhalbierenden zu dem zwischen den Stangen (1), (2), (3) einge schlossenen Raumwinkelzusammenrtlt, dadurch ge kennzeichnet, dass die Spuren (7) mit im Abstand von einander liegenden Erhoehtungen (8) versehen sind.

**Machine translation:** (Claim 1) 1 Friction rod coupling for the separable connecting together the coupling of two, three or more poles at given angles, with the clutch, from two preferably among gleichenKupplungehaelften (4) and (5) besteht. Each for himself with traces (7) for On commissioning of bars (1), (2), (3), which are connected with each other sollenversehen, and the Kupplungshaelften (4), (5) in its coupling position by means of a contractile apparatus (6) held together, the power line through the two Kupplungshaelften (4), (5) proceeds in one direction at least approximately with the Raumhalbierenden to between the bars (1), (2), (3) is connected Raumwinkelzusammenrtlt, characterized in that the tracks (7) with an interval of stacked increases (8) are provided.

#### Classifications:

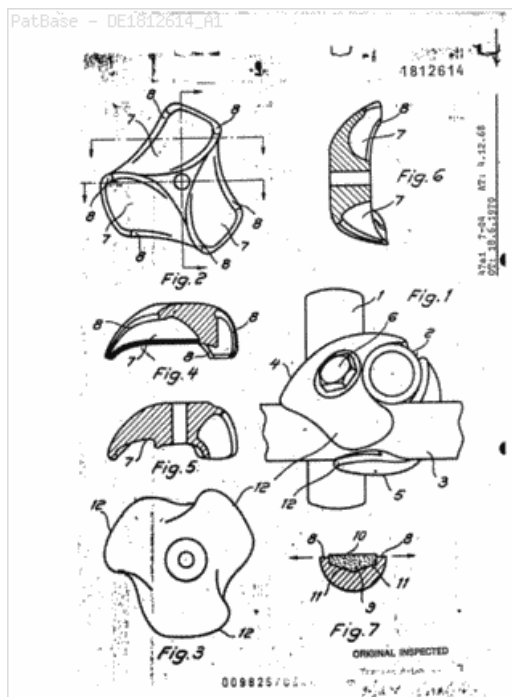
**International (IPC 8-9):** E04G7/18 F16B7/04 (Advanced/Invention);

E04G7/00 F16B7/04 (Core/Invention)

**International (IPC 1-7):** E04G7/18 F16B7/08

**CPC:** E04G7/18 F16B7/04 F16B7/0493

**European:** E04G7/18 F16B7/04 F16B7/04D4L



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE1812614 A1       | 19700618         | DE19681812614      | 19681204         |

#### Priority:

DE19681812614 19681204

**Probable Assignee:** BRIMBERG TORSTEN

**Assignee(s):** (std) BRIMBERG TORSTEN

**Inventor(s):** (std) BRIMBERG TORSTEN

### 38) Family number: 25755563 (US3696891A)

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**Title:** ENERGY ABSORBING DEVICE

**Abstract:** An energy absorbing device which includes a deformable or elastomeric energy absorbing member, an indenting element, and means for effecting relative movement causing the indenting element to be pressed into the energy absorbing member; the energy absorbing member being restrained against translation movement but otherwise not bonded so that, on relative movement of the energy absorbing member indenting elements, the indenting element not only causes localized deformation of the energy absorbing member, but also subjecting the energy absorbing member to tension loads and compressing loads throughout substantial areas at opposite sides of the region of localized deformation so that energy absorption is distributed over a substantial region.

#### Classifications:

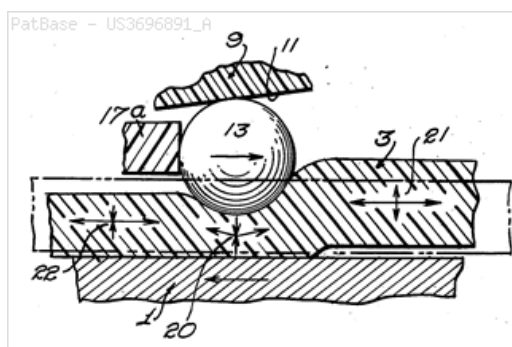
**International (IPC 8-9):** E04G7/20 F16B7/04 F16F15/12 F16F7/00 F16F7/08 F16F7/12 F16F9/30 (Advanced/Invention); E04G7/00 F16B7/04 F16F15/12 F16F7/00 F16F7/12 F16F9/00 (Core/Invention)

**International (IPC 1-7):** E04G7/20 F16F1/36 F16F15/12 F16F7/00 F16F7/12

**CPC:** F16F7/00 F16F7/082 F16F7/126 F16F9/303 E04G7/20 F16B7/0413

**European:** E04G7/20 F16B7/04B2 F16F7/00 F16F7/08A F16F7/12F2 F16F9/30C

**US:** 188/129 188/1C 188/268 188/374 74/492



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU197135060 A1     | 19730503         | AU19710035060      | 19711027         |
| BE774711 A         | 19720214         | BE19710774711      | 19711029         |
| CA967180 A1        | 19750506         | CA19710124819      | 19711008         |
| CH534825 A         | 19730315         | CH19710015571      | 19711026         |
| DE2152273 A1       | 19720504         | DE19712152273      | 19711020         |
| ES396410 A1        | 19740401         | ES19710396410      | 19711027         |
| FR2110078 A5       | 19720526         | FR19710038637      | 19711027         |
| GB1368296 A        | 19740925         | GB19710046189      | 19711005         |
| IL37893 A0         | 19711229         | IL19710037893      | 19711008         |
| IL37893 A1         | 19731025         | IL19710037893      | 19711008         |
| JP57008331 B4      | 19820216         | JP19710085925      | 19711028         |
| NL146262 B         | 00000000         |                    | 00000000         |
| NL69178 C          | 00000000         |                    | 00000000         |
| NL7114974 A        | 19720503         | NL19710014974      | 19711029         |

|             |          |               |          |
|-------------|----------|---------------|----------|
| SE370773 B  | 19741028 | SE19710013446 | 19711022 |
| SE370773 C  | 19750206 | SE19710013446 | 19711022 |
| SU520936 A3 | 19760705 | SU19711710298 | 19711029 |
| SU520936 D  | 19760705 | SU19711710298 | 19711029 |
| US3696891 A | 19721010 | US19700085001 | 19701029 |
| ZA7106884 A | 19720726 | ZA19710006884 | 19711014 |

**Priority:**

US19700085001 19701029

**Probable Assignee:** HARTWELL CORP

**Assignee(s):** (std): HARTWELL CORP ; HARTWELL CORP 9035 VENICE BOULEVARD LOS ANGELES C ; HARTWELL LOS ANGELES CALIFORNIE VER ST CORP ; HARTWELL CORP US ; HARTWELL CORPOTATION

**Assignee(s):** HARTWELL LOS ANGELES CALIFORNIE VER CORP ; HARTWELL LOS ANGELES CALIFORNIE VER ST V AM CORP ; MEES PIERSON NV ; MEESPIERSON CAPITAL CORP ; POE LLOYD R ; HARTWELL CORP 9035 VENICE BOULEVARD LOS ANGELES CA ; HARTWELL CORP 9035 VENICE BOULEVARD LOS ANGELES CALIFORNIE E U A

**Inventor(s):** (std): POE L R ; POE LLOYD R ; POE LLOYD RICHARD ; RICHARD POE LLOYD ; POE L US ; POE L ; LR POE ; LLOYD RICHARD POE

**Inventor(s):** L R POE

**Agent(s):** REINHOLD COHN AND PARTNERS

**39) Family number: 21497572 (US2326941A)**

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**Title:** JOINT FOR DEMOUNTABLE STEEL STRUCTURES

**Abstract:** 1. The combination of a pair of tubes in end to end relation, each having an outflared end portion forming an annular flange and an end insert 2A, g, », 2,326,941, (i on secured to the tube, so as to have no relative movement with respect thereto, the insert supporting the outflared end portion of the tube against collapse, a pair of QI shells engaging around the tubes and together defining a generally annular inner groove for receiving both end flanges, and means for releasably clamping said pair of shells together.

**Classifications:**

**International (IPC 8-9):** E04G7/20 F16B7/04 (Advanced/Invention); E04G7/00 F16B7/04 (Core/Invention)

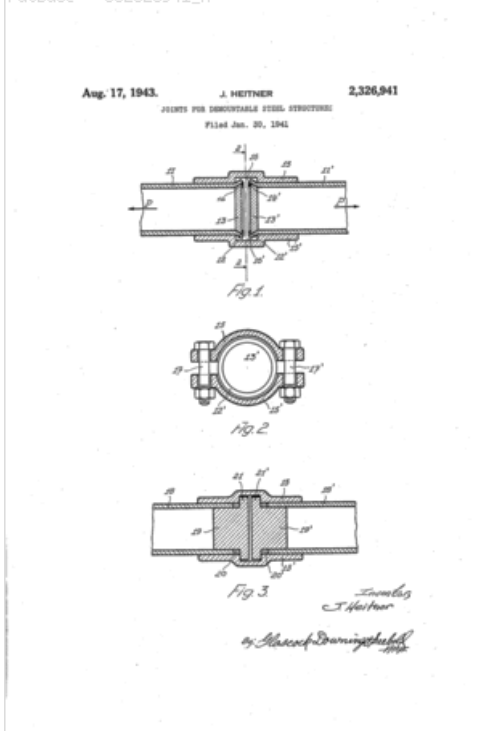
**International (IPC 1-7):** E04G7/20 F16B7/04

**CPC:** E04G7/20 F16B7/0413 F16B7/0426 Y10T403/50 Y10T403/7062 F16B2200/509

**European:** E04G7/20 F16B7/04B2 F16B7/04B4

**US:** 403/286 403/338 403/373

PatBase - US2326941\_A



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2326941 A        | 19430817         | US19410376690      | 19410130         |

**Priority:**

19400401 US19410376690 19410130

**Probable Assignee:**

JOSEPH HEITNER

**Assignee(s):** (std):

JOSEPH HEITNER

**Inventor(s):** (std):

JOSEPH HEITNER

**Inventor(s):**

HEITNER JOSEPH

**40) Family number: 55202584 (WO15044627A1)**

© PatBase

**Title:** IMPROVEMENTS IN OR RELATING TO ANCHOR BOLTS

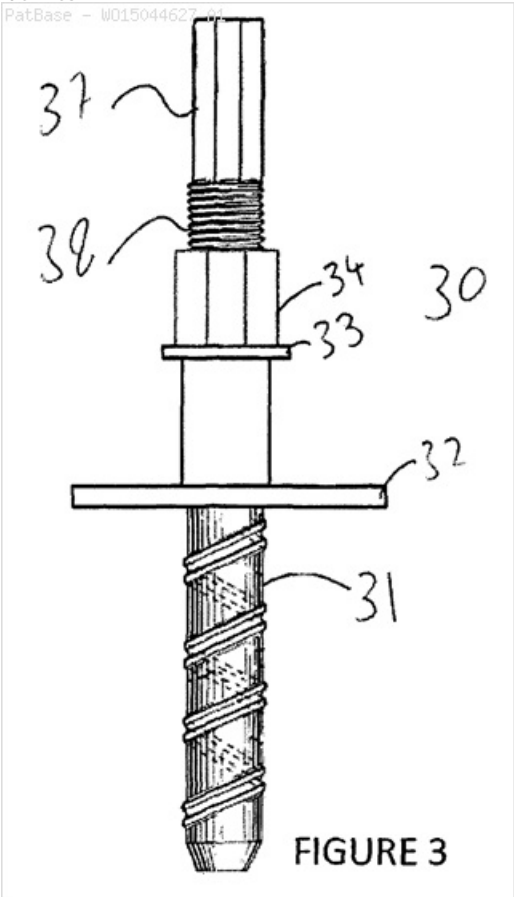
**Abstract:** The present invention relates to fasteners such as scwbolts in general and to anchor bolts in particular. Anchor bolts are used in a number of industries, particularly the construction industry, where a fastening is required to fix another

structure by the use of props or otherwise, for example in the construction of formwork and other temporary or permanent constructions. A prop, typically comprising a length of steel, is attached at a first end to a structure that need supporting and at the other end to an anchorbolt, the anchorbolt being set within the ground - typically being concrete or rock. Anchorbolts are typically installed in holes drilled in concrete and rock by drilling machines.

**Classifications:**

**International (IPC 8-9):** B21H3/02 E02D5/80 E21D21/00  
F16B33/06 (Advanced/Invention)

**CPC:** F16B33/06 E04G21/185 E02D5/801 E02D5/74 E21D21/00



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| GB201316968 A0     | 20131106         | GB20130016968      | 20130924         |
| GB201402957 A0     | 20140409         | GB20140002957      | 20140219         |
| GB2518463 A1       | 20150325         | GB20140002957      | 20140219         |
| WO15044627 A1      | 20150402         | WO2014GB00376      | 20140924         |

**Priority:**

GB20130016968 20130924 GB20140002957 20140219

**Probable Assignee:** EXCALIBUR SCREWBOLTS LTD

**Assignee(s):** (std): EXCALIBUR SCREWBOLTS LTD

**Inventor(s):** (std): CLEMENT JAMES

**Inventor(s):** JAMES CLEMENT

**Agent(s):** HUMPHREY EVANS EDWARD J

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

41) Family number: 34855601 (US2007160384A) © PatBase

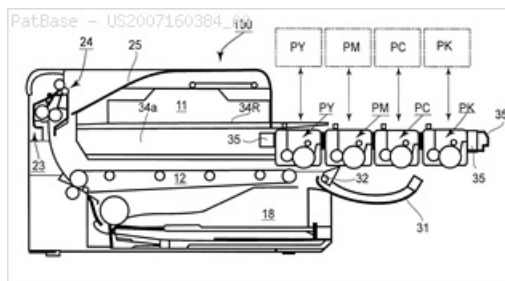
**Title:** ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

**Abstract:** An electrophotographic image forming apparatus with which a process cartridge having an electrophotographic photosensitive member is usable, the apparatus includes a transfer member contactable to the photosensitive member to transfer a toner image from the photosensitive member thereonto; a tray for carrying the cartridge, the tray being movable between a contact position in which the photosensitive member is contacted to the transfer member in a state that tray carries the cartridge and a spaced position in which the photosensitive member is spaced from the transfer member in the state that tray carries the cartridge; a supporting member for supporting the tray for movement in a tangent line direction which is parallel with a tangent line between the photosensitive member and the transfer member as seen in an axial direction of the photosensitive member between a first position for positioning the tray at the contact position and a second position which is retracted from the first position away from the transfer member in a perpendicular direction perpendicular to the axial direction and to the tangent line and in the tangent line direction to position the tray at the spaced position; a portion to be engaged; an engaging portion provided in the tray and engageable with the portion to be engaged to regulate movement of the tray in the tangent line direction when the tray is at the contact position, wherein the engaging portion is disengaged from the portion to be engaged after the electrophotographic photosensitive member is spaced from the transfer member by movement of the tray in the perpendicular direction in a state of engagement with the portion to be engaged, when the supporting member moves from the first position toward the second position.

**Classifications:**

**International (IPC 8-9):** G03G15/00 G03G15/01 G03G15/16  
G03G21/16 G03G21/18 (Advanced/Invention);  
G03G15/00 G03G21/18 (Advanced/Non-invention);

G03G15/00 G03G21/16 G03G21/18 (Core/Invention)  
**CPC:** G03G15/0136 G03G15/0178 G03G15/0189 G03G15/0194  
G03G21/1623 G03G21/1633 G03G21/1647 G03G21/1842  
G03G2221/1654 E04G7/06 E04G7/28 E04G21/32 E04H17/14  
F16B2/02 F16B5/06 G03G21/1853 G03G2221/1684 G03G2221/1869  
**European:** G03G21/18H1V S03G221/16S2 S03G221/18P3B  
**US:** 399/107 399/110 399/111 399/111P 399/113 399/121



#### Family:

| Publication number  | Publication date | Application number | Application date |
|---------------------|------------------|--------------------|------------------|
| ■ CN100511033 C     | 20090708         | CN200710001358     | 20070111         |
| ■ CN101000487 A     | 20070718         | CN200710001358     | 20070111         |
| ■ CN101571699 A     | 20091104         | CN200810189107     | 20070111         |
| ■ CN101571699 B     | 20120822         | CN200810189107     | 20070111         |
| ■ DE602007039317 D1 | 20141224         | DE200760039317T    | 20070111         |
| ■ DE602007056088 D1 | 20181004         | DE200760056088T    | 20070111         |
| ■ EP1816527 A2      | 20070808         | EP20070100375      | 20070111         |
| ■ EP1816527 A3      | 20131204         | EP20070100375      | 20070111         |
| ■ EP1816527 B1      | 20141119         | EP20070100375      | 20070111         |
| ■ EP2837975 A2      | 20150218         | EP20140186398      | 20070111         |
| ■ EP2837975 A3      | 20150513         | EP20140186398      | 20070111         |
| ■ EP2837975 B1      | 20180905         | EP20140186398      | 20070111         |
| ■ JP2007213033 A2   | 20070823         | JP20060355649      | 20061228         |
| ■ JP2011059731 A2   | 20110324         | JP20100290045      | 20101227         |
| ■ JP4709133 B2      | 20110622         | JP20060355649      | 20061228         |
| ■ JP4818462 B2      | 20111116         | JP20100290045      | 20101227         |
| ■ KR100890222 B1    | 20090325         | KR20070003359      | 20070111         |
| ■ KR20070075343 A   | 20070718         | KR20070003359      | 20070111         |
| ■ US2007160384 AA   | 20070712         | US20070622183      | 20070111         |
| ■ US2010209139 AA   | 20100819         | US20100732558      | 20100326         |
| ■ US7715752 BB      | 20100511         | US20070622183      | 20070111         |
| ■ US7937020 BB      | 20110503         | US20100732558      | 20100326         |

#### Priority:

JP20060004023 20060111 JP20060355649 20061228 EP20070100375 20070111  
EP20140186398 20070111 US20070622183 20070111 US20100732558 20100326  
JP20100290045 20101227

**Probable Assignee:** CANON INC

**Assignee(s):** (std): CANON KK

**Assignee(s):** CANON KABUSHIKI KAISHA ; CANON INC

**Inventor(s):** (std): IMAIZUMI TSUTOMU ; TOMIO NOGUCHI ; SAKURAI HIROMI ; NOGUCHI TOMIO ; IMAIZUMI CHIKARA ; HIROMI SAKURAI ; CHIKARA IMAIZUMI ; TOMIO SAKURAI HIROMI IMAIZUMI

**Inventor(s):** SAKURAI HIROMI IMAIZUMI CHIKARA NOGUCHI TOMIO

**Agent(s):** TBK; FITZPATRICK CELLA HARPER AND SCINTO

**Designated states:** AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO RS SE SI SK TR

#### 42) Family number: 41519624 (EP2071984A2)

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**Title:** CURTAIN POLE CONNECTOR

**Abstract:** A connector (10) for connecting the ends of two curtain poles, the connector comprising a generally cylindrical main body (12) formed of two semi-cylindrical sections (14, 16), held longitudinally adjacent each other by at least one resilient member (22) such that the flat surfaces of each section lie facing one another with a gap (18) therebetween, and means to increase the gap between the two sections (26) to expand the overall diameter of the main body.

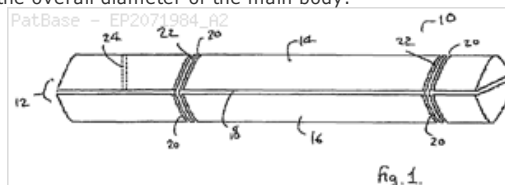
#### Classifications:

**International (IPC 8-9):** A47H1/02 E04G7/02 F16B2/00  
F16B2/04 (Advanced/Invention);

A47H1/00 E04G7/00 F16B2/00 F16B2/02 (Core/Invention)

**CPC:** A47H1/02 A47H1/022 A47H2001/0205 E04G7/02 F16B2/005  
F16B2/04

**European:** A47H1/02 A47H1/022 E04G7/02 F16B2/00B F16B2/04  
K47H1/02D



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| ■ EP2071984 A2     | 20090624         | EP20080254058      | 20081218         |
| ■ GB200724609 A0   | 20080130         | GB20070024609      | 20071218         |
| ■ GB2455727 A1     | 20090624         | GB20070024609      | 20071218         |

#### Priority:

GB20070024609 20071218

**Probable Assignee:** QUALTIERI ORAZIO

**Assignee(s):** (std): QUALTIERI ORAZIO ; QUALTIERI ORAZIO

**Assignee(s):** ORAZIO QUALTIERI

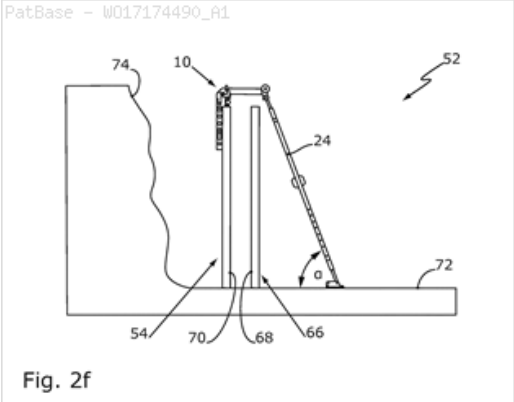
**Inventor(s):** (std): GUALTIERI ORAZIO ; QUALTIERI ORAZIO  
**Inventor(s):** ORAZIO GUALTIERI  
**Agent(s):** WINDSOR LOUISE  
**Designated states:** AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK TR

**43) Family number: 67174631 (WO17174490A1)** © PatBase

**Title:** FASTENING ELEMENT FOR WALL FORMWORKS

**Abstract:** The invention relates to a fastening element (10) which can be mounted on the upper side of a positionable formwork wall (54) of a formwork system (52). The fastening element (10) has an angular element with a first leg and a second leg. The first leg can take the form of a mounting part which can be fastened in a reversibly releasable manner to the positionable formwork wall (54). As an alternative to this, the first leg can be arranged directly or indirectly on the mounting part. The free end of the second leg has a connection possibility for a push-pull prop (24) or is connected to a push-pull prop (24). The angular element is preferably designed to be pivotable with respect to the mounting part. With the positionable formwork wall (54) set up, the positionable formwork wall (54) can form, together with the fastening element (10) and the push-pull prop (24), an arch into which a closing formwork wall (66) can be inserted.

**Classifications:**  
**International (IPC 8-9):** E04G11/06 E04G11/08 E04G11/12 E04G17/14 (Advanced/Invention)  
**CPC:** E04G11/06 E04G11/08 E04G11/12 E04G17/14 F16B7/0406 F16B7/20



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2017247576 AA    | 20181025         | AU20170247576      | 20170403         |
| DE102016205884 A1  | 20171012         | DE201610205884     | 20160408         |
| EP3440287 A1       | 20190213         | EP20170715448      | 20170403         |
| WO17174490 A1      | 20171012         | WO2017EP57823      | 20170403         |

**Priority:**

DE201610205884 20160408 WO2017EP57823 20170403

**Probable Assignee:** PERI GMBH

**Assignee(s):** (std): PERI GMBH

**Inventor(s):** (std): HAEBERLE WILFRIED ; KNOPP FABIAN ; RENZ BERND ; SCHNEIDER WERNER

**Agent(s):** BALDWIN'S INTELLECTUAL PROPERTY; K AND H BONAPAT PATENTANWAELTE KOCH VON BEHREN AND PARTNER MBB; KOHLER SCHMID MOEBUS PATENTANWAELTE PARTNERSCHAFTSGESELLSCHAFT MBB

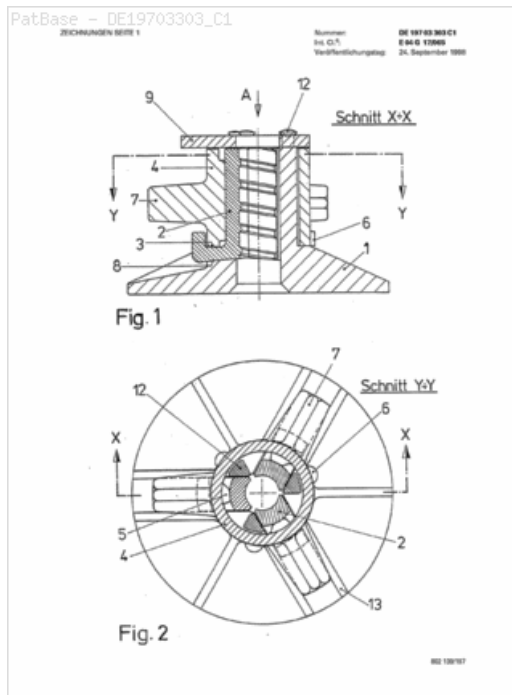
**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KH KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML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

**44) Family number: 22976632 (DE19703303C1)** © PatBase

**Title:** RETAINING NUT FOR SHUTTERING TIES

**Abstract:** The threaded ends of the ties which secure concrete shuttering are gripped by special nuts to tighten and release the ties by a simple twist action of the nuts. Each nut has three cams with inner profiles to grip the threaded tie. The cams are pressed into the ties by a ring (9) on the rear of the nut and by cam profiles (5). The nut is fitted and released by a simple twist action. The nut is moved into the locking or released position by hammering onto radial lugs in either direction. The nut grips the ties in any state eg. with concrete on the threads

**Classifications:**  
**International (IPC 8-9):** E04G17/065 F16B37/08 (Advanced/Invention); E04G17/06 F16B37/08 (Core/Invention)  
**International (IPC 1-7):** E04G17/065 F16B37/02  
**CPC:** E04G17/065 F16B37/0864  
**European:** E04G17/065 E04G17/06B F16B37/08A16



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE19703303 C1      | 19980924         | DE19971003303      | 19970130         |

#### Priority:

DE19971003303 19970130

#### Probable Assignee:

BAESLER WERNER

#### Assignee(s): (std):

BAESLER WERNER

#### Assignee(s):

BAESLER WERNER 71549 AUENWALD DE

#### Inventor(s): (std):

BAESLER WERNER

#### Inventor(s):

BAESLER WERNER 71549 AUENWALD DE

#### 45) Family number: 73423646 (DE202018006261U1)

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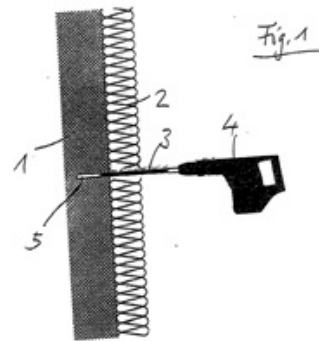
**Title:** ABSTANDSHALTER UND BEFESTIGER FUER DURCH EINE FASSADE HINDURCH AN GEBAEUDEN ZU BEFESTIGENDE TEILE

**Abstract:** Source: DE202018006261U1 [DE] Abstandshalter fuer waermedaemmte Gebaeudewand zur nachtraeglichen aussenseitigen Befestigung eines Funktions-Teiles wie eines Vordaches oder einer Markise oder eine Werbeanlage oder eines Fluchtweges oder einer Treppe oder eines Geruestes oder Lampen oder einer Kamera oder dergleichen, wobei in der Waermedaemmung eine Bohrung fuer den Abstandshalter und in der Gebaeudewand eine Bohrung fuer einen Anker des Abstandshalters vorgesehen ist, dadurch gekennzeichnet, dass der Abstandshalter eine zylindrische Form besitzt, die gebildet wird durch einen ersten, gebaeudewandseitigen Zapfen (105.1, 105.2, 105.3, 120) mit einem Kragen (106.1, 106.2, 106.3) und einem Durchgangsloch fuer den Anker, wobei der Abstandshalter mit dem Anker an der Gebaeudewand verspannbar ist durch Huelse/Rohr (110.1, 110.2, 110.3), die auf den Zapfen (105.1, 105.2, 105.3) aufschraubbar ist, wobei durch die Verschraubung die Laenge des Abstandshalters unterschiedlicher Dicke der Waermedaemmung anpassbar ist durch einen zweiten Zapfen mit einem zylindrischen Koerper 115, wobei der zweite Zapfen (121) in die Huelse/Rohr (110.1, 110.2, 110.3) einschraubbar ist und mit dem Funktionsteil verbindbar ist, wobei der erste Zapfen (105.1, 105.2, 105.3, 120), die Huelse/Rohr (110.1, 110.2, 110.3) und der zweite Zapfen (121) aus Kunststoff bestehen und eine thermische Entkopplung zwischen dem Anker und der Verbindung mit dem Funktionsteil bilden, wobei der Abstandshalter an der Beruehrungsflaeche mit der Gebaeudewand mindestens den dreifachen Aussendurchmesser gegenueber dem Anker aufweist, so dass der Abstandshalter gegenueber einer Gewindestange, welche die Gebaeudewand mit dem Funktionsteil verbindet und gleichen Durchmesser wie der Anker aufweist, eine Verstaerkung beinhaltet.

#### Classifications:

**International (IPC 8-9):** E04B1/38 E04B1/76 E04B7/00 E04G5/04 F16B13/14 (Advanced/Invention)

**CPC:** E04B1/7637 E04G5/046 F16B5/0233 F16B5/0275 F16B13/141 F16B37/125



37/72

#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE102018001932 A1  | 20190307         | DE201810001932     | 20180309         |
| DE102018010270 A1  | 20191017         | DE201810010270     | 20180309         |
| DE202018006261 U1  | 20191128         | DE201820006261U    | 20180309         |

#### Priority:

DE201710008237 20170901

#### Probable Assignee:

GILLER JUTTA

#### Assignee(s): (std):

GILLER JUTTA

#### Inventor(s): (std):

GILLER THOMAS

#### Agent(s):

KAEWERT KLAUS

#### 46) Family number: 67915653 (US2019112825A)

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#### Title: ANCHOR FOR A VERTICAL FORMWORK AND VERTICAL FORMWORK

**Abstract:** According to one embodiment an anchor for a vertical formwork is provided that includes a fixed part suitable for being fixed to a formwork panel and fixing means for fixing the fixed part to the formwork panel. The fixing means includes a fixing key suitable for being housed in a hole of the formwork panel, the fixing key comprising an off-centered stop with respect to the axis of rotation of the fixing key, such that in a first angular position the off-centered stop of the fixing key can be introduced in the hole of the formwork panel and in a second angular position the off-centered stop is retained by the formwork panel, and therefore the anchor is fixed to the formwork panel.

#### Classifications:

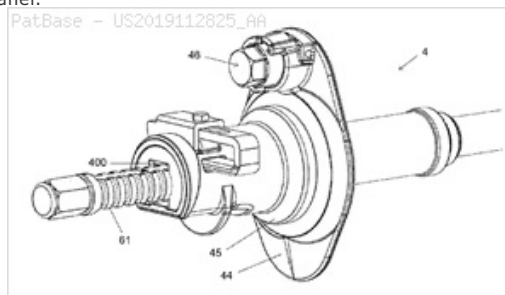
**International (IPC 8-9):** E04G17/065 E04G9/02 F16B21/02

F16B41/00 F16B5/10 (Advanced/Invention);

E04G9/02 F16B41/00 (Advanced/Non-invention)

**CPC:** E04G2009/028 E04G17/0652 F16B5/10 F16B21/02 F16B41/002

**US:** 1/1



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CA3028008 AA       | 20181217         | CA20173028008      | 20170406         |
| CN109312568 A      | 20190205         | CN201780036887     | 20170406         |
| DE602017010442 D1  | 20200130         | DE201760010442T    | 20170406         |
| DK3472406 T3       | 20200323         | DK20170716506T     | 20170406         |
| EP3258033 A1       | 20171220         | EP20160382282      | 20160617         |
| EP3472406 A1       | 20190424         | EP20170716506      | 20170406         |
| EP3472406 B1       | 20200101         | EP20170716506      | 20170406         |
| IN201917001281 A   | 20190329         | IN201917001281     | 20190110         |
| PL3472406 T3       | 20200713         | PL20170716506T     | 20170406         |
| US2019112825 AA    | 20190418         | US20180218993      | 20181213         |
| US2020248467 AA    | 20200806         | US20200852901      | 20200420         |
| US10662660 BB      | 20200526         | US20180218993      | 20181213         |

**Priority:**

|               |          |               |          |               |          |
|---------------|----------|---------------|----------|---------------|----------|
| EP20160382282 | 20160617 | EP20170716506 | 20170406 | WO2017EP58195 | 20170406 |
| US20180218993 | 20181213 | US20200852901 | 20200420 |               |          |

**Probable Assignee:** ULMA C Y E S COOP

**Assignee(s):** (std): ULMA C Y E S COOP

**Assignee(s):** ULMA C Y E S COOP ONATI ; COLINO VEGA MANUEL

**Inventor(s):** (std): COLINO VEGA MANUEL

**Agent(s):** MARKS AND CLERK; IGARTUA ISMAEL; EDELL SHAPIRO AND FINNAN LLC; IGARTUA IRIZAR ISMAEL

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

**47) Family number: 50473656 (US2013126695A)**

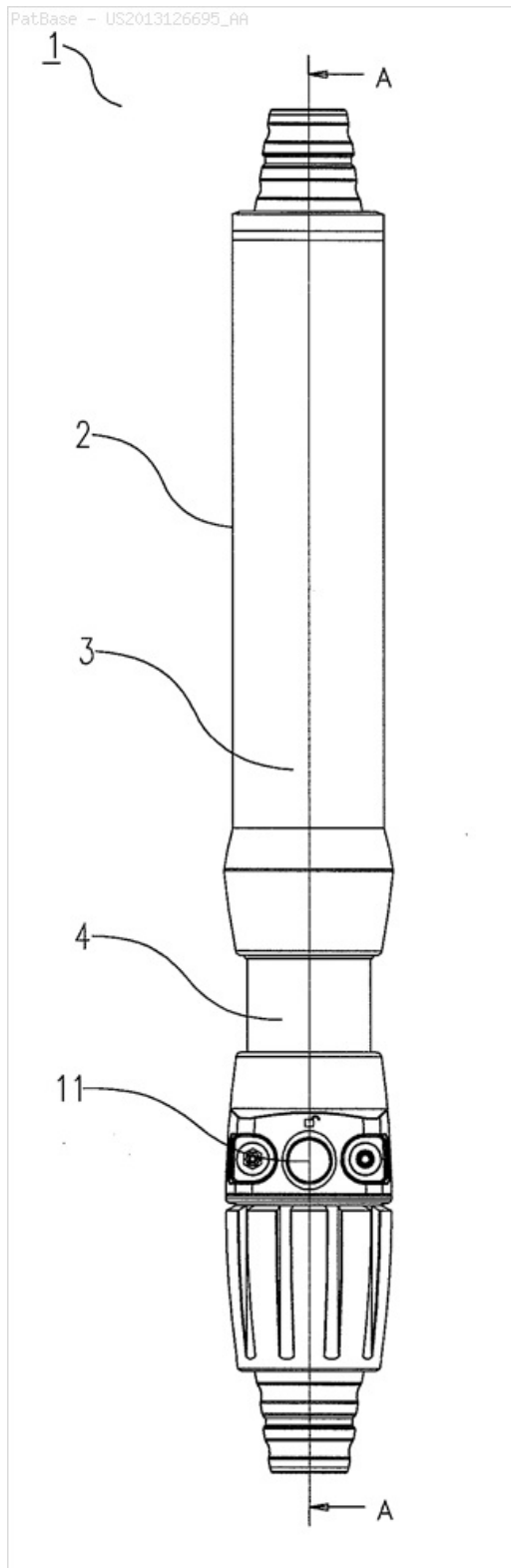
© PatBase

**Title:** TELESCOPIC SAFETY DEVICE

**Abstract:** A safety device 1 includes a telescopic tubular body 2 with an axial space which is bounded by an outer casing 3 and through which an extending part 4 is axially movable. The outer casing 3 and the extending part 4 are adjustable relative to each other between a relatively compact starting position and at least one extended position. At least one blocking body 7 is provided in the space between the outer casing 3 and the extending part 4 which blocks a movement of the extending part 4 into the outer casing 3, while the at least one blocking body 7 allows a reverse movement of the extending part out of the outer casing.

**Classifications:**

**International (IPC 8-9):** A62B3/00 E04G25/08 E21D15/14  
E21D15/44 F16B7/14 F16M13/00 (Advanced/Invention);  
A62B3/00 E04G25/08 (Advanced/Non-invention)  
**CPC:** A62B3/00 E04G25/08 F16B7/1409 E21D15/14 E21D15/44  
**European:** E04G25/08 F16B7/14B K62B3/00  
**US:** 1/1 248/354.1

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| ■ EP2582989 A1     | 20130424         | EP20110729180      | 20110621         |
| ■ EP2582989 B1     | 20191127         | EP20110729180      | 20110621         |
| ■ NL2004931 C      | 20111222         | NL20102004931      | 20100621         |
| ■ NL2004931 C2     | 20111222         | NL20102004931      | 20100621         |
| ■ US2013126695 AA  | 20130523         | US20110805792      | 20110621         |
| ■ US9045981 BB     | 20150602         | US20110805792      | 20110621         |
| ■ WO12005571 A1    | 20120112         | WO2011NL50447      | 20110621         |

**Priority:**

NL20102004931 20100621 WO2011NL50447 20110621

**Probable Assignee:** RESQTEC ZUMRO BV

**Assignee(s):** (std): RESQTEC ZUMRO BV ; RESQTEC ZUMRO B V ; MAARSCHALK JAN PIETER ; BAAS FRED

**Inventor(s):** (std): MAARSCHALK JAN PIETER ; BAAS FRED

**Agent(s):** VAN LOON ALEXANDER; JILDERDA ANNE AYOLT; YOUNG AND THOMPSON

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL

**48) Family number: 54277659 (FR2985279B)**

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**Title:** ECROU DE SERRAGE D'UNE TIGE D'ENTRETOISE POUR BANCHE DE COFFRAGE

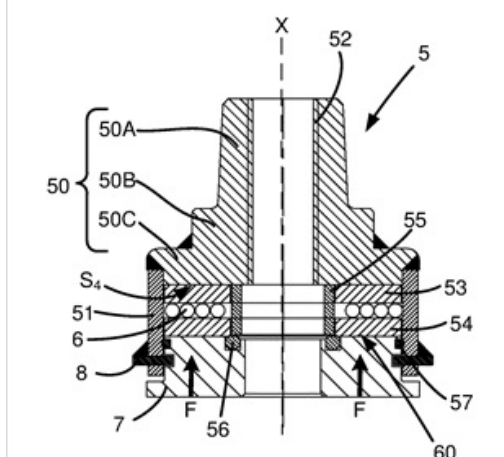
**Abstract:** Source: FR2985279B [FR] Un ecrou de serrage (5), destine a etre visse sur une tige d'entretoise (1) filetee d'une banche de coffrage (B1), comportant: - un corps (50) comportant au moins un taraudage axial (52) agence pour cooperer avec le filetage d'une tige d'entretoise (1) et une face transversale d'appui (S4), - un organe d'appui (7), destine a venir en contact avec une partie arriere d'une banche de coffrage (B1), monte dans le corps (50); et - des moyens de roulement (6), montes dans le corps (50) entre la face transversale d'appui (S4) du corps (50) et l'organe d'appui (7), agences pour limiter les frottements entre le corps (50) et l'organe d'appui (7) lors de l'application d'un couple axial au corps (50) de l'ecrou (5).

**Classifications:**

**International (IPC 8-9):** E04G17/14 E04G19/00 (Advanced/Invention)

**CPC:** E04G17/0657 F16B43/002 F16B37/00

PatBase - FR2985279\_A1



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| FR2985279 A1       | 20130705         | FR20120050070      | 20120104         |
| FR2985279 B1       | 20141031         | FR20120050070      | 20120104         |

**Priority:**

FR20120050070 20120104

**Probable Assignee:** SATECO SA  
**Assignee(s): (std):** SATECO SA  
**Assignee(s):** SATECO  
**Inventor(s): (std):** MICHENEAU PATRICK ; BRAUD THIERRY  
**Inventor(s):** PATRICK MICHENEAU ; THIERRY BRAUD  
**Agent(s):** ARGYMA

**49) Family number: 17682659 (DE9319180U1)**

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**Title:** RIEGELBOLZEN-EINHEIT MIT GEFUEHRTEM RIEGELBOLZEN, FUER LAENGENVERSTELLBARE BETONSCHAL- UND GRUBENSTUETZEN Bolt bolt unit with GEFUEHRTEM Bolt, for LAENGENVERSTELLBARE concrete scarf and Grubenstuetzen (Machine translation)

**Abstract:** Source: DE9319180U1 [DE] (Claim 1) 1. Riegelbolzen-Einheit mit gefuehrtem Riegelbolzen, fuer laengenverstellbare Betonschal-und Grubenstuetzen fuer vertikalen und horizontalen Einsatz, dadurch gekennzeichnet, dass die Teile der Einheit unverlierbar zusammengefuegt sind.

**Machine translation:** (Claim 1) 1 Latch bolt unit with guided locking bolt, length-for concrete formwork and Grubenstuetzen for vertical and horizontal use, characterized in that the parts of the assembled unit are lost.

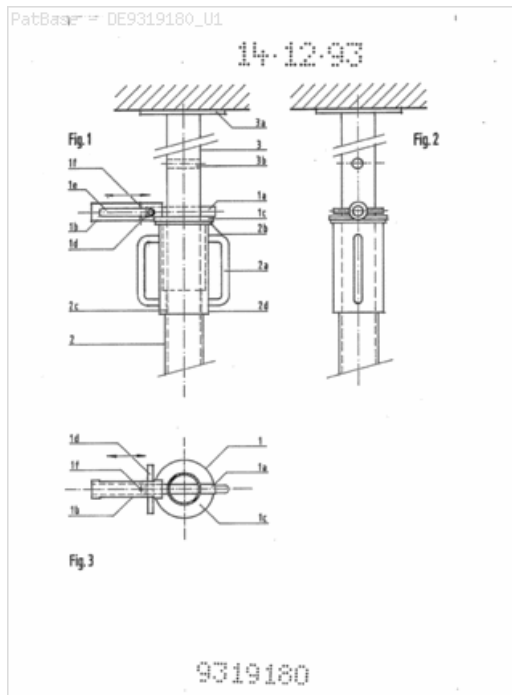
**Classifications:**

**International (IPC 8-9):** E04G25/06 F16B39/04 (Advanced/Invention); E04G25/00 F16B39/00 (Core/Invention)

**International (IPC 1-7):** E04G25/04 F16B19/02

**CPC:** E04G25/061 E04G25/063 E04G25/065 F16B39/04 E04G25/06

**European:** E04G25/06 F16B39/04



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE9319180 U1       | 19940324         | DE19930019180U     | 19931214         |

#### Priority:

DE19930019180U 19931214

**Probable Assignee:** HAENLEIN HELMUT

**Assignee(s):** (std): HAENLEIN HELMUT

**Assignee(s):** HAENLEIN HELMUT 73257 KOENGEN DE

#### 50) Family number: 59088685 (US2018044932A)

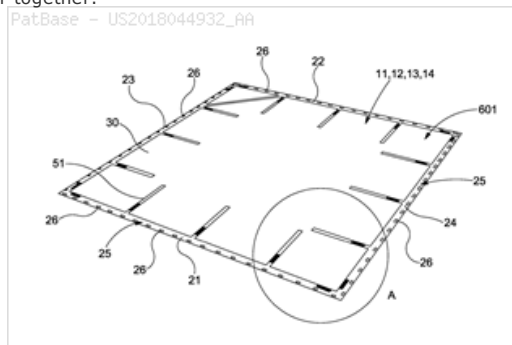
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**Title:** ASSEMBLY OF A PLATFORM ASSEMBLY AND SUPPORT STRUCTURE AND METHOD OF ASSEMBLY

**Abstract:** An assembly of a platform assembly and a support structure, the platform assembly comprising a flexible platform, a plurality of support straps arranged to support the platform, a plurality of clamps supported by the support structure, the plurality of clamps provided along a side of the platform and clamping a side section of the platform, and a plurality of tensioning devices attached to the support straps at attachment locations and arranged to tension the support straps, wherein the attachment locations of the tensioning devices are positionable independently of the position of the clamps, and a method of assembly. A clamp having first and second clamping members having clamping surfaces, an actuation assembly comprising an actuation member coupled to at least one clamping member such that rotation of the actuation member, about a rotational axis, in a first rotational direction rotates the first and second clamping members relative to each other, wherein for a certain rotational position of the actuation member, the actuation member is moveable in a first axial direction relative to at least one clamping member and is coupled to the at least one clamping member such that said relative movement acts to urge the clamping surfaces closer together.

#### Classifications:

**International (IPC 8-9):** A63B5/00 E04G1/15 E04G21/32 E04G3/20 E04G3/28 E04G3/30 E04G7/00 E04G7/02 E04G7/26 F16B2/02 F16B2/06 F16B2/10 (Advanced/Invention); E04G7/26 F16B2/10 (Advanced/Non-invention)  
**CPC:** E04G3/28 E04G7/00 E04G7/02 F16B2/06 E04G1/15 E04G1/153 E04G3/20 E04G3/30 E04G21/3266 E04G7/26 F16B2/10  
**US:** 1/1 52/202



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| EP3262250 A1       | 20180103         | EP20160705805      | 20160223         |
| GB201503002 A0     | 20150408         | GB20150003002      | 20150223         |
| GB2535705 A1       | 20160831         | GB20150003002      | 20150223         |
| US2018044932 AA    | 20180215         | US20160552913      | 20160223         |
| US10465402 BB      | 20191105         | US20160552913      | 20160223         |
| WO16135149 A1      | 20160901         | WO2016EP53786      | 20160223         |

#### Priority:

GB20150003002 20150223 WO2016EP53786 20160223

**Probable Assignee:** SPANSET INTER AG

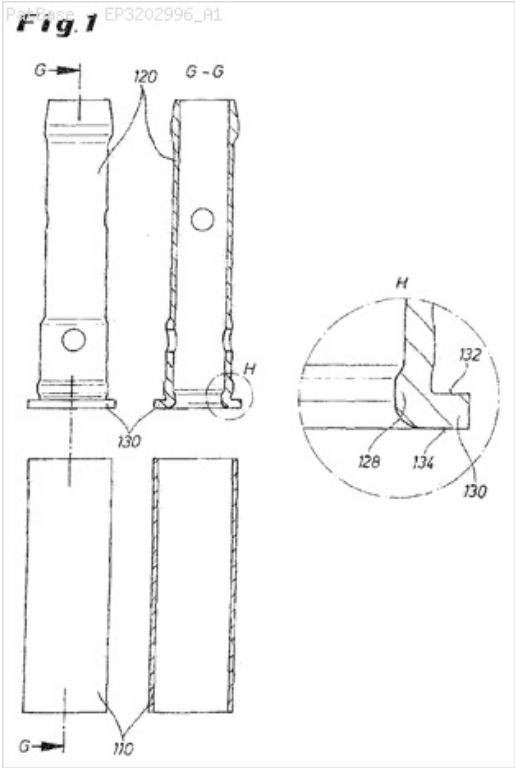
**Assignee(s):** (std): SPANSET INTER AG  
**Inventor(s):** (std): JOHN P SLAVEN ; PETER JOHN WARD ; WARD PETER JOHN ; SLAVEN JOHN P  
**Agent(s):** ROBERTS PETER DAVID; TAFT STETTINIUS AND HOLLISTER LLP; MARKS AND CLERK LLP  
**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR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

**51) Family number: 66574699** (EP3202996A1) © PatBase

**Title:** SCAFFOLDING POST FOR A BUILDING SCAFFOLD MONTANT POUR UN ECHAFAUDAGE </TI\_

**Abstract:** Source: EP3202996A1 [DE] Die Erfindung betrifft einen Gerueststiel fuer ein Baugeruest Gerueststiele fuer Baugerueste sind im Stand der Technik grundsatzlich hinlaenglich bekannt. Sie bestehen typischerweise aus einem Rohr (110) und einem mit dem Rohr verschweissten Rohrverbinder (120) zum Aufstecken eines weiteren Rohres, wenn das Geruest in die Hoehe gebaut werden soll. Die Erfindung schlaegt einen alternativen Gerueststiel vor, wobei der Gerueststiel dadurch gekennzeichnet ist, dass die Aufstandsflaeche (132) ringfoermig ausgebildet ist; der Aussendurchmesser des Flansches (130) groesser als der Aussendurchmesser des Rohres (110) ist; der Rohrverbinder (120) in Form einer Rohrhuele ausgebildet ist; und das Rohr (110) und der Rohrverbinder (120) aus unterschiedlichen Materialien gefertigt sind.  
**Machine translation:** The invention relates to a backbone stick for a construction aftermarket backbone stems for baugerueste is well known in the art and are generally. They typically consist of a tube (110) and one with the tube welded tube connector (120) for mounting a further tube when the backbone in the height is to be built. The invention proposes an alternative backbone stick, wherein the backbone Stick is characterized in that the footprint (132) is formed donut-shaped; the outer diameter of the flange (130) is greater than the outer diameter of the tube; the tube connector (110) (120) in the form of a tubular sleeve; and the tube and the tube connector (110) (120) are made of different materials.

**Classifications:**  
**International (IPC 8-9):** B21D39/04 B23K11/14 B23K20/12 E04G7/20 E04G7/30 F16B7/04 (Advanced/Invention)  
**CPC:** E04G7/301 F16B7/0413



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE102016201734 A1  | 20170810         | DE201610201734     | 20160204         |
| EP3202996 A1       | 20170809         | EP20170154430      | 20170202         |

**Priority:**  
DE201610201734 20160204  
**Probable Assignee:** MJ GERUEST GMBH  
**Assignee(s):** (std): MJ GERUEST GMBH  
**Inventor(s):** (std): SCHMELZER ROBERT  
**Agent(s):** GROSSE WOLF DIETRICH RUEDIGER  
**Designated states:** AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

**52) Family number: 57706726** (US2017081853A) © PatBase

**Title:** REBAR CONNECTOR HAVING A PAIR OF LOCKING PIECES AND CONNECTION METHOD FOR PREFABRICATED REBAR NET USING SAME

**Abstract:** A rebar connector having a pair of locking pieces includes: a first rebar and a second rebar to be connected to each other; a first connecting member having a center hole, receiving the first rebar from a first side, having a first coupling hole at a second side, and having a threaded portion on the outer side; a second connecting member having a center hole,

receiving the second rebar through a first side, and having a second coupling hole at a second side; a first locking piece coupled to the first coupling hole; a second locking piece coupled to the second coupling hole; and a locking socket locked at a predetermined position on the second connecting member, covering an outer side of the second connecting member, and having a female threaded portion on an inner side to be thread-fastened to the male threaded portion of the first connecting member.

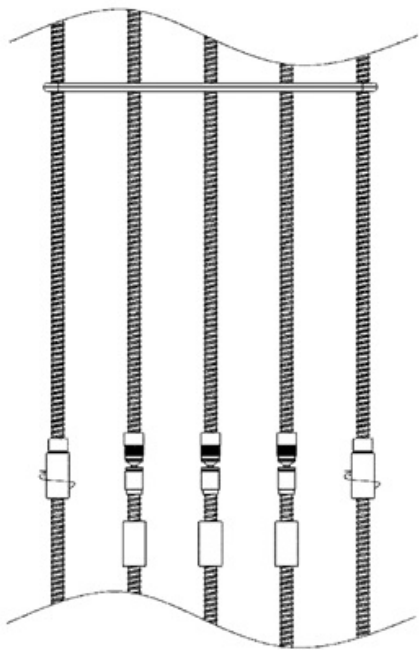
**Classifications:**

**International (IPC 8-9):** E04C5/01 E04C5/16 E04C5/18 E04G21/12 F16B7/18 (Advanced/Invention)

**CPC:** E04C5/01 F16B7/182 E04C5/0604 E04C5/165 E04C5/18 E04G21/12

**US:** 1/1 52/849

PatBase - US2017081853\_AA



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN106795717 A      | 20170531         | CN201580027009     | 20150513         |
| JP2017516003 T2    | 20170615         | JP20160565035T     | 20150513         |
| KR101456825 B1     | 20141031         | KR20140060886      | 20140521         |
| US2017081853 AA    | 20170323         | US20150311513      | 20150513         |
| WO15178621 A1      | 20151126         | WO2015KR04791      | 20150513         |

**Priority:**

KR20140060886 20140521 WO2015KR04791 20150513

**Probable Assignee:** KIM YONG KEUN

**Assignee(s):** (std): KIM YONG KEUN

**Inventor(s):** (std): KIM YONG KEUN

**Agent(s):** MAEDA AND PARTNERS

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

**53) Family number: 66155727 (US2018363308A)**

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**Title:** FORMWORK ANCHOR RECEPTACLE

**Abstract:** The present disclosure relates to a formwork anchor receptacle for arrangement on a bearing element of a formwork element, having a receptacle element, which has a receptacle opening for insertion of an anchor rod and a ball section for mounting on the mounting element of the formwork element, and having a retaining apparatus for retaining the receptacle element on the bearing element of the formwork element, wherein the retaining apparatus has a spacer element for contacting the bearing element of the formwork element, wherein the spacer element has an mounting opening for mounting on the receptacle element and a formwork device having such a formwork anchor receptacle.

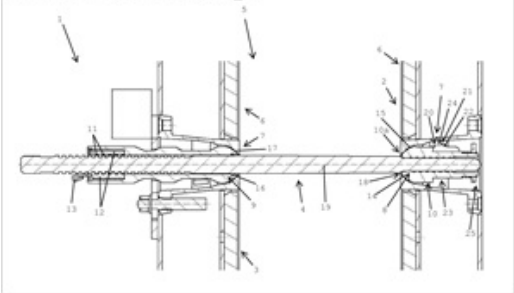
**Classifications:**

**International (IPC 8-9):** E04G E04G17/04 E04G17/06 E04G17/065 F16B5/02 F16B5/06 (Advanced/Invention)

**CPC:** E04G17/042 E04G17/047 E04G17/065 F16B5/0216 F16B5/065 F16B33/002 F16B43/007 E04G17/0651 E04G17/0652 E04G17/0657

**US:** 1/1 249/192

PatBase - US2018363308\_AA



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CA3007732 AA       | 20180607         | CA20163007732      | 20161216         |
| CA3007732 C        | 20191203         | CA20163007732      | 20161216         |
| CN108495970 A      | 20180904         | CN201680071683     | 20161216         |
| CN206636226 U      | 20171114         | CN201621392737U    | 20161216         |
| DE502016008584 D1  | 20200220         | DE201650008584T    | 20161216         |
| EP3181781 A1       | 20170621         | EP20150201058      | 20151218         |
| EP3390745 A1       | 20181024         | EP20160810401      | 20161216         |
| EP3390745 B1       | 20200129         | EP20160810401      | 20161216         |
| HK1254545 A1       | 20190719         | HK20180113838      | 20181030         |
| IN201817023634 A   | 20181116         | IN201817023634     | 20180625         |
| US2018363308 AA    | 20181220         | US20160063038      | 20161216         |
| WO17103033 A1      | 20170622         | WO2016EP81324      | 20161216         |

**Priority:**

EP20150201058 20151218 CN201621392737U 20161216 WO2016EP81324 20161216  
EP20160810401 20161216

**Probable Assignee:** DOKA GMBH

**Assignee(s):** (std): DOKA GMBH ; DOKA IND GMBH

**Assignee(s):** DOKA INDUSTRIE GMBH ; SCHMELZER MYRIAM

**Inventor(s):** (std): SCHMELZER MYRIAM

**Agent(s):** MACRAE AND CO; SONN AND PARTNER PATENTANWALTE; LIU SHEN AND ASSOCIATES

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

**54) Family number: 56664754 (US2015267449A)**

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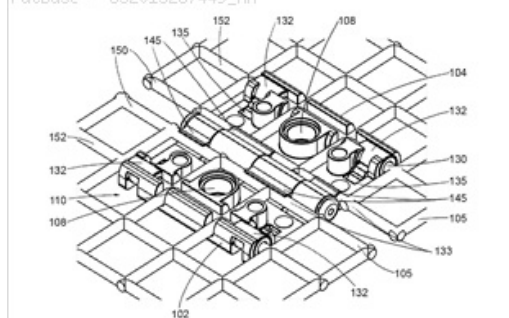
**Title:** ADJUSTABLE SAFETY PANEL CONNECTOR

**Abstract:** An adjustable panel connector (100, 300) for interconnecting two mesh panels (105) of a barricade and/or guarding system. The adjustable panel connector (100, 300) comprises a first body element (102, 302) including at least one first panel fastening arrangement (106, 108, 311); a second body element (104, 304) including at least one second panel fastening arrangement (106, 108, 311), the first body element (102, 302) and the second body element (104, 304) being interconnected along and about a connection axis (X-X, Y-Y); and a pivot locking arrangement (110, 301) configured to lock the first body element (102, 302) at a selected angle relative to the second body element (104, 304) about the connection axis (X-X, Y-Y).

**Classifications:**

**International (IPC 8-9):** E04B1/38 E04F11/18 E04F13/00 E04G5/14 E04H17/14 E05D11/10 E05D3/00 E05D3/02 E05D5/04 E05D7/12 E06B9/00 F16B12/02 F16B5/00 (Advanced/Invention); E05D7/12 E06B9/00 F16B5/06 (Advanced/Non-invention)  
**CPC:** E04F11/1834 E04F11/1855 E04G5/14 E04G5/145 E04G2005/148 F16B5/0614 Y10T16/5345 E05D5/04 E05D11/1028 E05D2007/126 E05D2011/1035 E06B2009/002  
**US:** 1/1 16/253 160/382

PatBase - US2015267449\_AA



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2013354902 AA    | 20150723         | AU20130354902      | 20131205         |
| AU2013354902 BB    | 20170406         | AU20130354902      | 20131205         |
| CA2892966 AA       | 20150528         | CA20132892966      | 20131205         |
| CA2892966 C        | 20200609         | CA20132892966      | 20131205         |
| DE602013029627 D1  | 20171221         | DE201360029627T    | 20131205         |
| EP2941518 A1       | 20151111         | EP20130859884      | 20131205         |
| EP2941518 A4       | 20161005         | EP20130859884      | 20131205         |
| EP2941518 B1       | 20171115         | EP20130859884      | 20131205         |
| US2015267449 AA    | 20150924         | US20150730813      | 20150604         |
| US9617771 BB       | 20170411         | US20150730813      | 20150604         |
| WO14085864 A1      | 20140612         | WO2013AU01418      | 20131205         |

**Priority:**

AU20120905326 20121205 AU20130354902 20131205 EP20130859884 20131205  
WO2013AU01418 20131205

**Probable Assignee:** BART S LTD

**Assignee(s):** (std): BART S LTD ; GILL SHANE PETER ; BARTS LTD

**Assignee(s):** BART S LTD KOWLOON

**Inventor(s):** (std): GILL SHANE ; GILL SHANE PETER

**Agent(s):** PHILLIPS ORMONDE FITZPATRICK; SMART AND BIGGAR; SMART AND BIGGAR LLP; POTTER CLARKSON LLP; WOODARD EMHARDT MORIARTY MCNETT AND HENRY LLP

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG

**55) Family number: 41825789** (US2011011678A)

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**Title:** LADDER STABILISATION AND SAFETY SYSTEM

**Abstract:** Expandable load bearing device for use on a ladder and comprising an outer member (20), an inner member (21) movable within the outer member, and ratchet means having a pawl (26) attachable to the outer member and a rack (22) attachable to the inner member, the pawl being movable into and out of engagement with the rack to prevent the movement of the inner member towards the outer member, and the pawl having a shoulder (36d) arranged to bear upon a load transfer member (24) on the outer member when the pawl is in engagement with the rack.

**Classifications:**

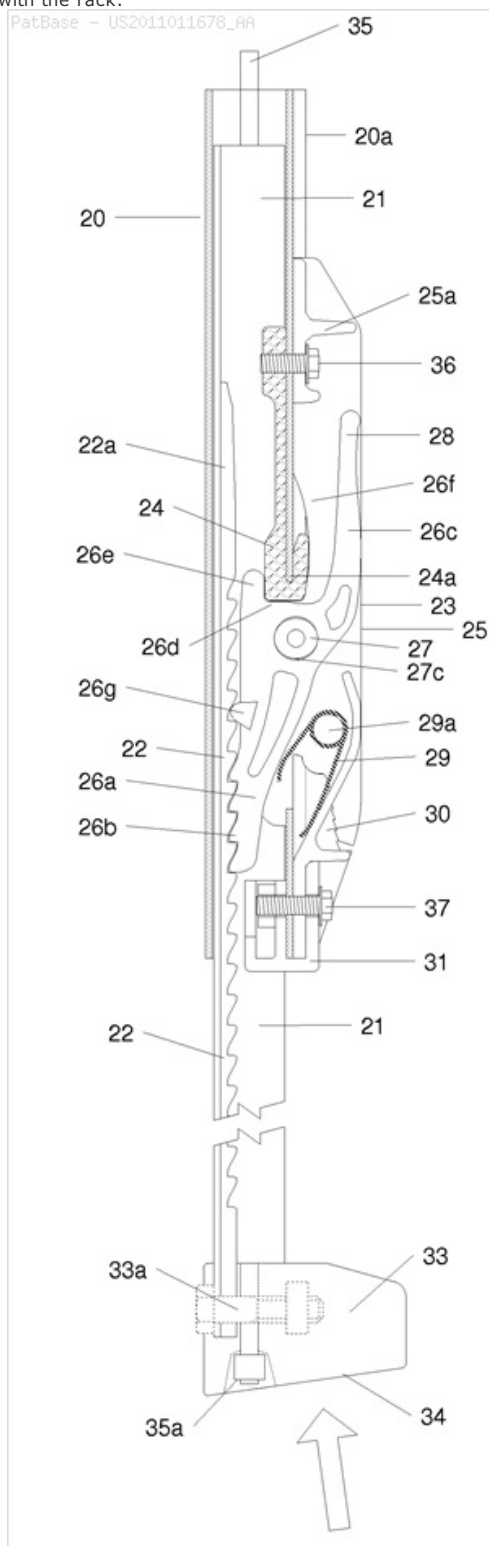
**International (IPC 8-9):** B23P11/00 E04G1/22 E06C1/12 E06C1/22 E06C7/06 E06C7/44 F16B7/10 F16M11/26 G05G5/06 (Advanced/Invention);

E06C7/00 F16B7/00 (Core/Invention)

**CPC:** Y10T29/49826 Y10T74/20684 E06C1/12 E04G1/24 E06C1/22 E06C1/39 E06C7/423 E06C7/44 F16B7/105 E04G2001/248

**European:** E04G1/24 E06C1/12 E06C1/22 E06C1/39 E06C7/42A E06C7/44 R16B7/10B

**US:** 182/141 182/172 182/172S 182/209 182/209S 248/188.5 248/188.500S 29/428 29/428S 74/535 74/535S

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| EP2279323 A2       | 20110202         | EP20090725590      | 20090326         |
| GB200805568 A0     | 20080430         | GB20080005568      | 20080327         |
| US2011011678 AA    | 20110120         | US20090736283      | 20090326         |
| WO09118563 A2      | 20091001         | WO2009GB50294      | 20090326         |
| WO09118563 A3      | 20100422         | WO2009GB50294      | 20090326         |

**Priority:**

GB20080005568 20080327 WO2009GB50294 20090326

**Probable Assignee:** SANDPIPER CONSTRUCTION LTD**Assignee(s):** (std): SHEFFIELD LANCE RODNEY ; SANDPIPER CONSTRUCTION LTD**Assignee(s):** SANDPIPER CONSTRUCTION LIMITED**Inventor(s):** (std): SHEFFIELD LANCE RODNEY**Agent(s):** LUCAS BRIAN RONALD; GUY MCCLUNG; LUCAS AND CO**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW**56) Family number: 18289798** (US3810703A)

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**Title:** RELEASABLE JOINTS WITH MALE AND FEMALE ELEMENTS

**Abstract:** The invention relates to a releasable male and female joint in which the male and female parts can be slid one into the other and held in connected condition by means of locking means. The locking means are arranged in the male or the female element and comprise at least one sprag or locking body which is arranged in a recess in the element so as to be able to move axially. A compression spring, also arranged in the recess serves to urge the sprag partially out of the recess. The projecting part of the sprag is arranged to engage an abutment provided on the other of the two elements. For undoing the joint releasing means are provided by means of which the sprag can be pressed back into the hole against the action of the associated compression spring and brought out of engagement with the abutment.

**Classifications:****International (IPC 8-9):** E04G7/02 E04G7/20 F16B12/40 F16B21/08 F16B21/12 F16B7/00 F16B7/04 F16D1/06 F16L37/084

H01R13/20 (Advanced/Invention);

E04G7/00 F16B12/00 F16B21/00 F16B7/00 F16B7/04 F16D1/06

F16L37/00 H01R13/02 (Core/Invention)

**International (IPC 1-7):** E04G7/02 E04G7/20 E04G7/26 F16B12/36

F16B2/04 F16B2/06 F16B7/00 F16B7/04 F16B7/22 F16D1/00

F16D1/04 F16D1/10 F16L37/12 H01R13/00 H01R13/20 H01R13/54

**CPC:** F16B21/08 Y10T403/598 Y10T403/604 F16B21/088 E04G7/02

E04G7/20 F16B7/00 F16B7/04 F16B7/0413 F16B12/40 F16B21/125

F16D1/06 F16L37/084 H01R13/20

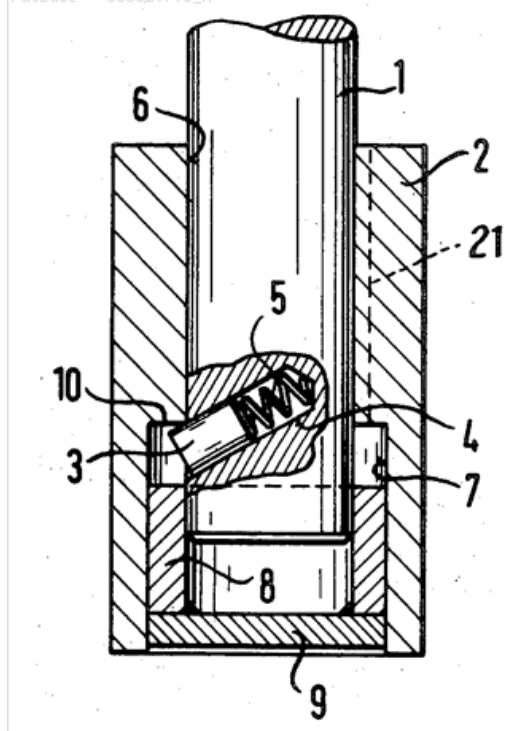
**European:** E04G7/02 E04G7/20 F16B12/40 F16B21/083 F16B21/12R

F16B7/00 F16B7/04 F16B7/04B2 F16D1/06 F16L37/084 H01R13/20

T01R13/20

**US:** 403/32.4 403/324 403/328

PatBase - US3810703\_A

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AT312729 B         | 19740110         | AT19700005405      | 19700615         |
| CH509513 A         | 19710630         | CH19700008975      | 19700615         |
| DE1931492 A1       | 19700423         | DE19691931492      | 19690620         |
| DE1931492 B1       | 19700423         | DE19691931492      | 19690620         |
| DE1931492 B2       | 19700423         | DE19691931492      | 19690620         |
| DE2002183 A1       | 19710415         | DE19702002183      | 19700119         |
| DE2002183 B1       | 19710415         | DE19702002183      | 19700119         |
| DE2002183 B2       | 19710415         | DE19702002183      | 19700119         |
| DE6941516 U        | 19700122         | DE1969041516U      | 19691024         |
| FR2046961 A1       | 19710318         | FR19700022718      | 19700619         |
| FR2046961 B1       | 19730112         | FR19700022718      | 19700619         |
| GB1316861 A        | 19730516         | GB19700029674      | 19700618         |
| IL34755 A0         | 19700819         | IL19700034755      | 19700619         |
| SE363525 B         | 19740121         | SE19700008529      | 19700618         |
| US3810703 A        | 19740514         | US19700046203      | 19700615         |
| ZA7004097 A        | 19710331         | ZA19700004097      | 19700616         |

**Priority:**DE19691931492 19690620 DE19690041516U 19691024 DE19702002193 19691024  
DE19702002183 19700119**Probable Assignee:** LACREX BREVETTI SA**Assignee(s):** (std): LACREX BREVETTI SA ; PASBRIG M ; PASBRIG MAX ; PASBRIG M CH ; LACREX BREVETTI SA CH**Assignee(s):** MAX PASBRIG

**57) Family number: 30132807** (US3074874A)

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**Title:** NUCLEAR REACTORS

**Abstract:** In the core of a homogeneous boiling liquid nuclear reactor vortex flow of the active liquid separates vapour into a central funnel from which the vapour is extracted. Vortex flow is produced by tangential injection of condensed vapour with or without extra liquid taken direct from the reactor; the extra fluid may be taken through an orifice centred on and larger than the funnel, with the use of guide surfaces and scroll outlet chambers to keep liquid and vapour separate. To improve stability and centring of the funnel the reactor may have a scroll chamber for injection or may have a spiral cross-section over all or part of its height. The core vessel may be spherical.

**Classifications:**

**International (IPC 8-9):** E02B8/02 E04G7/24 F16B7/18 F26B3/10 G01G1/38 G01G13/02 G21C1/22 G21C1/24

G21C15/16 (Advanced/Invention);

E02B8/00 E04G7/00 F16B7/18 F26B3/02 G01G1/00 G01G13/00 G21C1/00 G21C15/00 (Core/Invention)

**International (IPC 1-7):** E02B8/02 E04G7/24 F16B7/00 F16B7/04 F26B3/10 G01G1/38 G01G13/02 G21C1/22 G21C1/24 G21C15/16

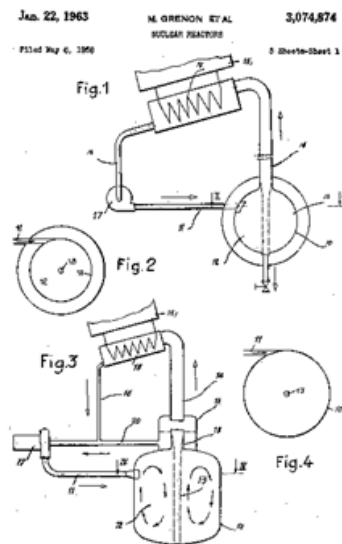
**CPC:** G21C1/22 G21C1/24 G21C15/16 E04G7/24 F16B7/18

F16B7/182 E02B8/02 Y10S177/05 F26B3/10 G01G1/38 G01G13/02 Y02E30/30

**European:** E02B8/02 E04G7/24 F16B7/18 F16B7/18B F26B3/10 G01G1/38 G01G13/02 G21C1/22 G21C1/24 G21C15/16 S21C1/22 S21C1/24 Y02E30/40

**US:** 177/13 177/164 177/213 177/60 177/DIG.5 376/357 376/399 55/340 96/209 96/212 976/DIG.195 976/DIG.30 976/DIG.31

PatBase - US3074874\_A

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| BE567413 A         | 00000000         |                    | 00000000         |
| BE570158 A         | 00000000         |                    | 00000000         |
| BE590007 A4        | 19600816         | BE19600590007      | 19600422         |
| BE590007 R         | 19600816         | BE19600590007      | 19600422         |
| CH348481 A         | 19600831         |                    | 19580507         |
| CH349451 A         | 19601015         |                    | 19580804         |
| CH354037 A         | 19610430         |                    | 19581219         |
| CH359548 A         | 19620115         |                    | 19580701         |
| CH367639 A         | 19630228         | CH19600004375      | 19600419         |
| DE1203887 B        | 19651028         | DE1958C016813      | 19580509         |
| DE1284113 B        | 19681128         | DE1960M045034      | 19600416         |
| ES257711 A2        | 19630401         | ES19600257711      | 19600428         |
| FR1174895 A        | 19590317         |                    | 19570510         |
| FR1181458 A        | 19590616         |                    | 19570808         |
| FR72478 E          | 19600414         |                    | 19571115         |
| FR72481 E          | 19600414         |                    | 19571118         |
| FR73569 E          | 19610109         |                    | 00000000         |
| FR75663 E          | 19610728         | FR19590793709      | 19590430         |
| GB872476 A         | 19610712         | GB19580014486      | 19580506         |
| GB886968 A         | 19620110         | GB19580025626      | 19580808         |
| GB925235 A         | 19630501         | GB19600014438      | 19600425         |
| LU36073 A          | 00000000         |                    | 00000000         |
| NL113992 C         | 00000000         |                    | 00000000         |
| NL227686 A         | 00000000         |                    | 00000000         |
| US3011573 A        | 19611205         | US19600023183      | 19600419         |
| US3074874 A        | 19630122         | US19580733432      | 19580506         |

**Priority:**

19570808 US19580733432 19580506 GB19580014486 19580506  
 19580509 DE1958C016813 19580509 FR19590793709 19590430  
 US19600023183 19600419

**Probable Assignee:** MANUF DE BETHUNE

**Assignee(s):** (std): GRENOBLOISE ETUDE APPL ; MANUF HORLOGERIE BETHUNE ; MANUF DE BETHUNE ; MANUF D HORLOGERIE DE BETHUNE ; JOSEPH ARTHUR CLAMOT ; COMMISSARIAT ENERGIE ATOMIQUE ; CLAMOT JOSEPH ARTHUR

**Assignee(s):** GRENOBLOISE D ETUDES ET D APPLICATIONS HYD SOC ; GRENOBLOISE D ETUDES ET D

APPLICATIONS HYDRAULIQUES SOGREAH SOC ; COMMISSARIAT A L ENERGIE ATOMIQUE ; SOCIETE GRENOBLOISE D ETUDES ET D APPLICATIONS HYDRAULIQUES SOGREAH ; MANUFACTURE DE BETHUNE ; MANUFACTURE D HORLOGERIE DE BETHUNE

**Inventor(s):** (std): GRENON MICHEL ; HALBRONN GEORGES ; DELACHANAL MICHEL ; GEORGES HALBRONN ; LARA GEORGES COHEN DE ; DE LARA GEORGES COHEN ; JOSEPH ARTHUR CLAMOT ; EDOUARD ALFRED BORZER HENRI ; LOUIS BERTHOD ; MICHEL GRENON ; MICHEL DELACHANAL ; MAURICE BOUVARD ; ALFRED BORZER HENRI EDOUARD ; BERTHOD LOUIS ; CLAMOT JOSEPH ARTHUR

**Inventor(s):** BOUVARD MAURICE ; ARTHUR CLAMOT JOSEPH ; BORZER HENRI EDOUARD ALFRED

**58) Family number: 840824** (US3407561A)

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**Title:** Frameworks

**Abstract:** ABSTRACT OF THE DISCLOSURE

A de-vice for locking together a hollow tube and an end fitting comprising on the end fitting a spigot which enters within the tube and a sleeve of resilient material within the tube and surrounding the spigot. The sleeve is a non-rotatable fit in the tube and the adjoining surfaces of the sleeve and spigot are so shaped that the spigot, the sleeve and the tube may be locked together by rotation of the spigot in the sleeve. This application is a continuation-in-part of my copending application Ser. No. 387,138 filed on Aug. 3, 1964, now abandoned for hollow tubes and containing additional subject-matter.

**Classifications:**

**International (ipc 8-9):** A47G1/06 E04G7/30

F16B12/40 (Advanced/Invention);

A47G1/06 E04G7/00 F16B12/00 (Core/Invention)

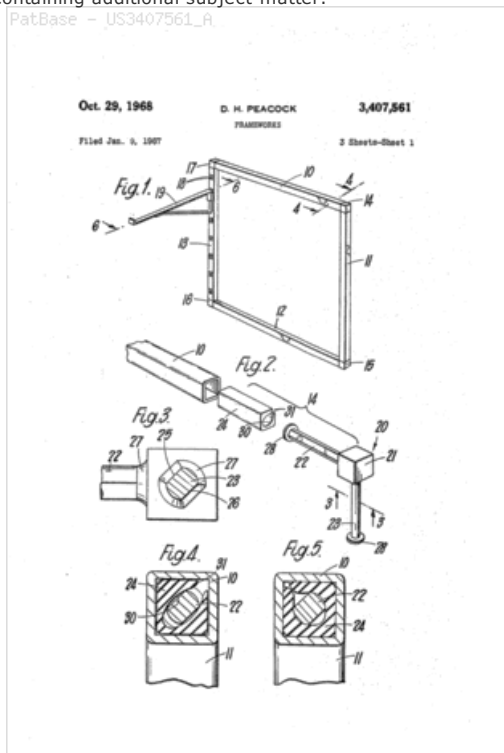
**International (ipc 1-7):** A47G1/06 E04G7/30 E06B3/04

**CPC:** A47G1/06 E04G7/307 F16B12/40

**European:** A47G1/06 E04G7/30C3B F16B12/40

**US:** 52/656.9 526/560

PatBase - US3407561\_R



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US3407561 A        | 19681029         | US19670608040      | 19670109         |

**Priority:**

US19670608040 19670109

**Probable Assignee:** VERSATILE FITTINGS W H S LTD

**Assignee(s):** (std): VERSATILE FITTINGS W H S LTD

**Assignee(s):** VERSATILE FITTINGS W H S LIMITED

**Inventor(s):** (std): PEACOCK DAVID HENRY ; HENRY PEACOCK DAVID

**59) Family number: 66407845** (US2019024397A)

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**Title:** SYSTEM FOR ANCHORING A POST TO A CONCRETE SLAB OR OTHER STRUCTURE

**Abstract:** A post for anchoring to a structure. The post comprising an elongate member, a lower jaw secured to the lower end of the elongate member, and an upper jaw releasably securable to the elongate member to permit an adjustment of the distance between the jaws. The post includes a compression clamp secured to the upper jaw and releasably engagable with a surface of the structure when the post is positioned about thereabout with said upper jaw adjacent to one surface of the structure and said lower jaw adjacent to the opposite surface. The compression clamp includes a visual indicator to provide visual notice of the application of sufficient compressive force to secure the jaws on opposite sides of the structure in order to accommodate a predetermined lateral load upon the elongate member and to resist the disengagement of the post from the structure.

**Classifications:**

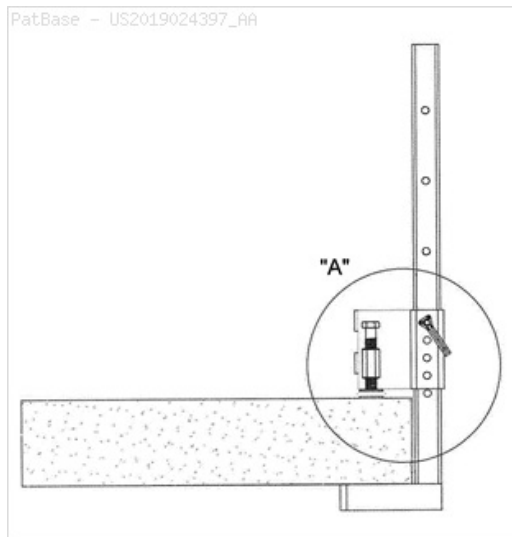
**International (ipc 8-9):** E04B1/41 E04G21/32 E04H12/22 E04H17/22

F16B31/02 G01L5/24 (Advanced/Invention);

F16B2/06 F16B5/06 F16B7/10 (Advanced/Non-invention)

**CPC:** E04G21/3242 E04H17/22 F16B2/065 F16B5/0635 F16B7/105

**US:** 1/1 52/698

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| EP3402945 A1       | 20181121         | EP20170738054      | 20170110         |
| EP3402945 A4       | 20190717         | EP20170738054      | 20170110         |
| US2019024397 AA    | 20190124         | US20170068707      | 20170710         |
| US10487522 BB      | 20191126         | US20170068707      | 20170710         |
| WO17120666 A1      | 20170720         | WO2017CA50023      | 20170110         |

**Priority:**

US20160277048P 20160111 WO2017CA50023 20170110 US20170068707 20170710  
 WO2017CA50023 20170710

**Probable Assignee:** MELIC JONATHAN J**Assignee(s):** (std): MELIC JONATHAN J ; MELIC JONATHAN JONNY**Inventor(s):** (std): MELIC JONATHAN J ; MELIC JONATHAN JONNY**Agent(s):** DEHNS; CROWE AND DUNLEVY PC; RIDOUT AND MAYBEE ET AL

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

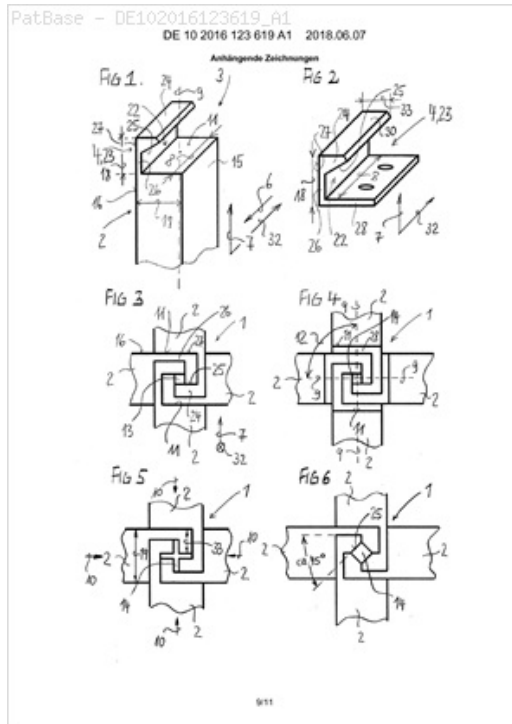
**60) Family number: 69993876 (DE102016123619A1)**

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**Title:** KREUZVERBINDUNG Cross connection (Machine translation)

**Abstract:** Source: DE102016123619A1 [DE] Die Erfindung betrifft ein Verfahren zur Herstellung einer Kreuzverbindung (1) von vier Werkstuecken (2). Darueber hinaus betrifft die Erfindung ein Werkstueck (2) zur Verwendung bei einem solchen Verfahren. Um eine Kreuzverbindung (1) von vier Werkstuecken (2) auf besonders einfache Art und Weise zu bewerkstelligen, wird ein Verfahren vorgeschlagen, bei dem die Verbindung (1) durch ein Ineinanderstecken der Befestigungselemente (4, 5) aller Werkstuecke (2) hergestellt und durch ein Einfuehren eines Sicherungsstiftes (14) in eine zwischen den Befestigungselementen (4, 5) ausgebildete Verriegelungsoeffnung (13) verriegelt wird. **Machine translation:** The invention relates to a method for producing a cross connection (1) of four workpieces (2). In addition, the invention relates to a workpiece (2) for use in such a method. Provide a cross-connection (1) of four workpieces (2) in a particularly simple manner to do so, a process is proposed in which the compound (1) by inserting the fasteners (4, 5) of all the workpieces (2) and by introducing a locking pin (14) into a between the fixing elements (4, 5) formed locking aperture (13) is locked.

**Classifications:****International (IPC 8-9):** F16B17/00 (Advanced/Invention)**CPC:** F16B5/0044 E04G7/301 E04G7/34



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE102016123619 A1  | 20180607         | DE201610123619     | 20161206         |

#### Priority:

DE201610123619 20161206

#### Probable Assignee:

GUGEL PETER

#### Assignee(s): (std):

GUGEL PETER

#### Inventor(s): (std):

GUGEL PETER

#### 61) Family number: 44112898 (US2009301359A)

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#### Title: PORTABLE LOCKING SUPPORT AND PLATFORM SYSTEM

**Abstract:** A portable support system having a portable support having a first end and a second end. The first end includes a tapered portion, and the second end includes a footing structure. The system also includes a receiving member having a support cone configured to receive the tapered portion. The support cone has a tapered inner surface and a tapered outer surface. The inner surface and outer surface are engagable with mating tapered surfaces. The receiving member is capable of attachment to one or both of a frame and a panel for use as a platform.

#### Classifications:

**International (IPC 8-9):** A47B13/00 A47B3/06 A47B57/00 E04B1/00 E04G1/15 E04G21/14 E04H3/24 E04H3/28

F16B7/02 (Advanced/Invention);

F16B7/02 (Advanced/Non-invention);

E04H3/10 (Core/Invention)

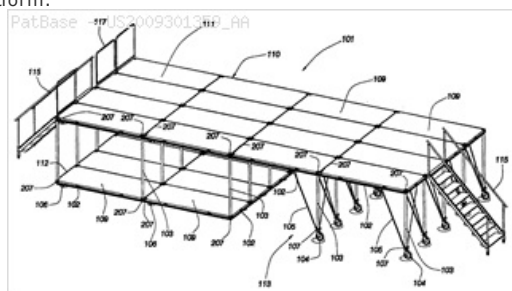
**CPC:** E04H3/24 E04B1/003 E04G1/15 E04H3/28 F16B7/025

E04G2001/158

**European:** E04B1/00D E04G1/15 E04H3/24 E04H3/28 R16B7/02K

**US:** 108/156 108/157.1 108/157.100P 108/158.11 108/56.3

108/56.300P 108/64 52/741.1 52/741.100S



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| EP2304134 A1       | 20110406         | EP20090762951      | 20090130         |
| EP2304134 B1       | 20170301         | EP20090762951      | 20090130         |
| US2009301359 AA    | 20091210         | US20080135574      | 20080609         |
| US2012152157 AA    | 20120621         | US20120405745      | 20120227         |
| US2012240510 AA    | 20120927         | US20120492252      | 20120608         |
| US8136460 BB       | 20120320         | US20080135574      | 20080609         |
| US8869713 BB       | 20141028         | US20120405745      | 20120227         |
| WO09151655 A1      | 20091217         | WO2009US32598      | 20090130         |

#### Priority:

US20080135574 20080609

WO2009US32598 20090130

US20120405745 20120227

US20120492252 20120608

#### Probable Assignee: TAIT TOWERS MFG LLC

**Assignee(s): (std):** DAVIS ADAM ; FAIRORTH JAMES ; TAIT MICHAEL ; TAIT TOWERS INC

**Assignee(s):** TAIT TOWERS MFG LLC ; WELLS FARGO BANK NATIONAL ASSOCIATION ; HIGHBRIDGE PRINCIPAL STRATEGIES LLC ; HIGHBRIDGE PRINCIPAL STRATEGIES LLC COLLATERAL AGENT AS ; JEFFERIES FINANCE LLC ADMINISTRATIVE AGENT ; BANK OF AMERICA NA

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

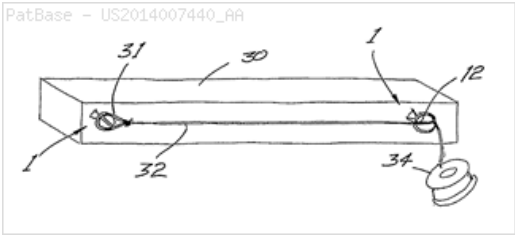
62) Family number: 55519904 (US2014007440A)

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**Title:** STRING LINE POSITIONING AND SECURING DEVICE

**Abstract:** A string line positioning and securing device that includes a body portion having a connection at one end for securement to a structure or substrate; and a frictional string retaining formation disposed on the body at a predetermined offset remote from the connection. In the preferred form the string retaining formation includes a string locking v-groove formed on the periphery of a head portion of the device, and an aligning slot that aligns the string and feeds it into the centre of the locking groove. Ideally the device includes a nail like penetration formation for securing to a substrate and an offset bearing surface to enable removal with a claw hammer.

**Classifications:**  
**International (ipc 8-9):** E04F21/18 G01B3/00 (Advanced/Invention)  
**CPC:** G01B3/00 E01C19/008 E01C23/01 E04G21/1825 F16B15/02 G01C15/04  
**US:** 33/413



**Family:**

| Publication number                                   | Publication date | Application number | Application date |
|------------------------------------------------------|------------------|--------------------|------------------|
| <span style="color: red;">■</span> AU2013101767 AD   | 20161006         | AU20130101767      | 20130410         |
| <span style="color: green;">■</span> AU2013203350 AA | 20140123         | AU20130203350      | 20130410         |
| <span style="color: red;">■</span> US2014007440 AA   | 20140109         | US20130935199      | 20130703         |

**Priority:**  
AU20120902845 20120703      AU20130203350 20130410  
**Probable Assignee:** CAIN JASON  
**Assignee(s):** (std): CAIN JASON  
**Inventor(s):** (std): CAIN JASON  
**Agent(s):** SHELSTON IP PTY LTD; SHELSTON IP

63) Family number: 22963917 (FR1350010A)

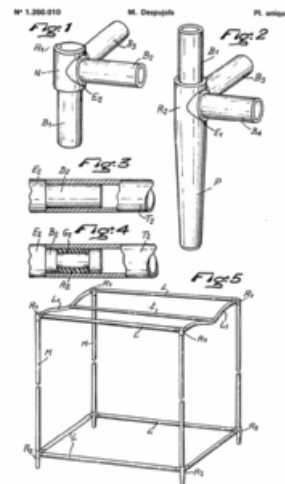
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**Title:** ELEMENT DE RACCORDEMENT TERNAIRE POUR CARCASSE TUBULAIRE ELEMENT FOR TERNARY CONNECTION CASING TUBE (Machine translation)

**Abstract:** Source: FR1350010A [FR] (Claim 1) 1 Element de raccordement a trois branches des. tine a assembler a chaque angle les elements tu bulaires constitutifs d'une carcasse, notamment pour armoire demontable, a savoir: deux cotes con secutifs de la base ou du sommet de cette derniere et le montant correspondant dans lequel chaque branche a une section externe homologue de la sec tion interne de l'element tubulaire correspondant telle qu'elle puisse penetrer dans ce dernier avec un frottement suffisant pour assurer l'assemblage;

**Machine translation:** (Claim 1) a connecting element has three branches. tina has assembled the elements at each corner you bulaires constituent of a carcass, including demountable cabinet, namely: con secutifs both sides of the base or the summit of the latter and the corresponding amount in which each branch has an outer section counterpart sec tion of the internal tubular element corresponding such that it can penetrate into the latter with sufficient friction to ensure the assembly;

**Classifications:**  
**International (ipc 8-9):** E04G7/02 F16B12/50 F16B7/04 (Advanced/Invention);  
E04G7/00 F16B12/00 F16B7/04 (Core/Invention)  
**International (ipc 1-7):** E04G7/02 F16B12/40  
**CPC:** F16B12/50 E04G7/02 F16B7/0446  
**European:** E04G7/02 F16B12/50 F16B7/04D2

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| FR1350010 A        | 19640124         | FR19620918011      | 19621208         |

**Priority:**

FR19620918011 19621208

**Inventor(s):** (std):

DESPUJOLS ROLAND JEAN PAUL

**64) Family number: 20933929** (FR1215637A)

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**Title:** Dispositif de fixation d'elements profiles en metal ou autres materiaux

**Abstract:** Source: CH345454A [FR] [Source: Claim 1] REVENDICATIONS: I. Dispositif d'assemblage d'au moins deux elements profiles, caracterise par le fait qu'il comprend deux pieces identiques destinees a etre disposees de part et d'autre des deux elements profiles a assembler, chacune d'elles] presentant une tete et deux branches, dont une prendra appui sur l'ame des profiles et l'autre, inclinee, se bloquera par frottement A son homologue de facon que leur rapprochement realise un serrage des deux elements profiles a assembler. II. Utilisation du dispositif selon la revendication I pour l'assemblage de panneaux metalliques pour le coffrage du beton. SOUS-REVENDEICATION: Dispositif selon la revendication, caracterise par le fait qu'il comprend, entre les branches inclinees, un frein mecanique en fer feuillard destine a empecher le deblocage des deux pieces. Daniel Fouque et Remo Rabiolo **Machine translation:** [Source: Claim 1] [Claims: I. Assembly of at least two elements device profiles, characterized by the fact that it includes two pieces identical intended to be willing to share and profiles on the other two elements has assemble, each one] presenting a head and two branches, which one will build on the soul of profiles and the other, inclined, will block by friction has its counterpart so that their rapprochement made a tightening of both profiles a assemble. II. use of the device according to I claim for the Assembly of panels of metal for concrete formwork. SUB-claim: Device according to claim, characterized by the fact it includes, between the branch pricked, a strip iron mechanical brake for a stop the release of the two pieces. Daniel Fouque and Remo Rabiolo

**Classifications:**

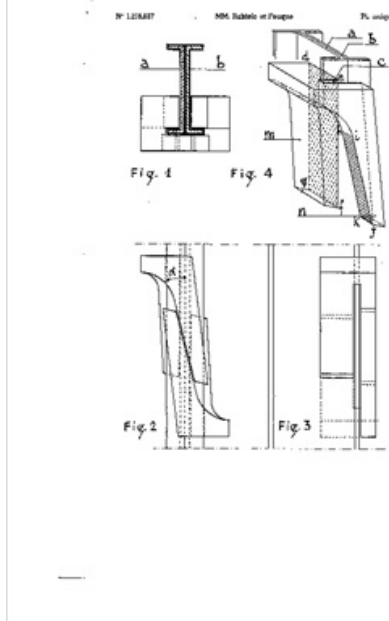
**International (IPC 8-9):** E04G17/04 E04G7/10 F16B2/14  
F16B5/06 (Advanced/Invention);

E04G17/04 E04G7/00 F16B2/02 F16B5/06 (Core/Invention)

**International (IPC 1-7):** E04G17/04 E04G7/10

**CPC:** E04G7/10 E04G17/045 F16B2/14 F16B5/0642

**European:** E04G17/04C E04G7/10 F16B2/14 F16B5/06B3D

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CH345454 A         | 19600331         |                    | 19570906         |
| FR1215637 A        | 19600420         | FR19580773731      | 19580902         |

**Probable Assignee:** FOUQUE DANIEL**Assignee(s):** (std): FOUQUE DANIEL ; RABIOLO REMO**Inventor(s):** (std): DANIEL FOUQUE ; FOUQUE DANIEL ; RABIOLO REMO**65) Family number: 20495941 (FR1112802A)**

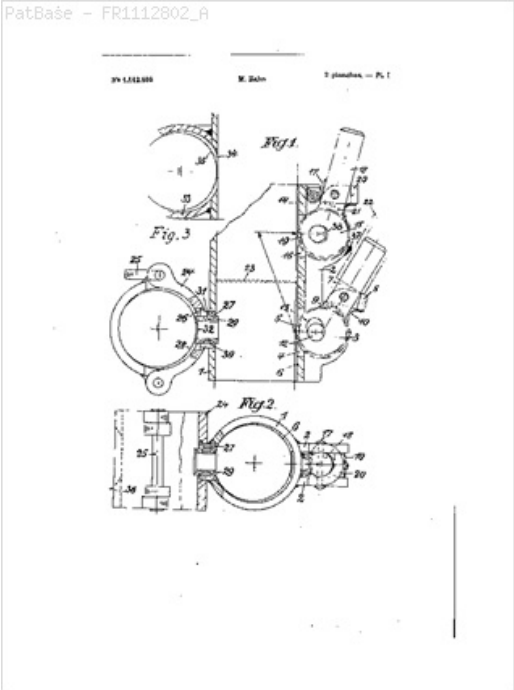
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**Title:** Raccord pour tubes Pipe Fitting (Machine translation)

**Abstract:** Source: FR1112802A [FR] [Source: Claim 1] RESUME L'invention est relative a un raccord pour tubes, remarquable, notamment, par les caracteristiques suivantes, considerees separement ou en combinaison 1 Il comporte une douille destinee a etre enfilee sur l'un des tubes a assembler et agencee de maniere a recevoir un ou plusieurs autres tubes; sur laquelle est dispose, comme organe de serrage, un plateau excentrique dente qui agit directement sur la peripherie du premier tube, lequel, ainsi maintenu, sert a assurer le serrage automatique du ou des autres tubes, soit directement, soit en cooperation avec d'autres moyens d'immobilisation, prevus sur la douille precitee; 2 Afin de permettre la mise en place des autres tubes, la douille d'accouplement est de longueur telle que l'extremite d'un deuxieme tube puisse y etre introduite coaxialement au premier, et/ou elle est munie d'un manchon, fixe ou orientable, diametralement oppose a l'organe de serrage, et destine a recevoir un deuxieme tube, et dont l'interieur communique, par un evidement, avec l'interieur de la douille d'accouplement; 3 La douille porte un ou plusieurs manchons d'assemblage, disposes en regard de l'evidement de communication, et qui sont egalement munis d'evements coaxiaux au precedent; 4 La douille d'accouplement est munie de deux flasques radiaux, ecartes l'un de l'autre et fixes a la douille, par exemple par soudure, entre lesquels est tourillonne un plateau excentrique a denture peripherique, servant d'organe de blocage, et susceptible d'etre amene, par pivotement, en prise avec la peripherie du tube a bloquer introduit dans la douille, en s'engageant a travers une ouverture menee dans la paroi de cette derniere; 5 Le plateau excentrique de blocage est muni d'un bras de manoeuvre, sur lequel est articule un cliquet d'arret double maintenu en prise par un ressort, ledit cliquet s'engageant dans un secteur dente fixe sur les flasques de maniere a empecher le plateau excentrique de revenir involontairement en arriere en quittant sa position de prise; 6 Le tourillon du plateau excentrique de blocage est monte dans une boutonniere inclinee sur l'axe de la douille d'accouplement; 7 Pour realiser le blocage automatique d'un deuxieme tube, introduit dans la douille d'accouplement coaxialement au premier tube immobilise par l'excentrique dans la douille et jusqu'au contact avec celui-ci, il est prevu un deuxieme excentrique de blocage, decale axialement par rapport au premier et tourillonne, de preference, entre les memes flasques que ce dernier, ce deuxieme excentrique etant applique contre la peripherie du deuxieme tube a serrer, a travers une ouverture de la paroi de la douille, sous l'action d'un ressort agissant sur son bras de manoeuvre, et etant muni d'une denture peripherique, dont les dents, si elles sont dissymetriques, sont orientees en sens inverse de celles du premier excentrique; 8 Le bras de manoeuvre du deuxieme excentrique est muni d'un cliquet d'arret a ressort, qui agit au blocage dans le meme sens que le cliquet du premier excentrique; 9 Les deux cliquets sont disposes de maniere a pouvoir etre liberes par action, sur leurs bras libres, d'un tube-rallonge enfille sur le bras de manoeuvre du cliquet correspondant; 10 Pour realiser le blocage d'un deuxieme tube introduit dans le manchon, en une ou plusieurs pieces, fixe de maniere rigide a la douille d'accouplement, par soudure par exemple, le manchon ainsi que son ouverture de communication sont dimensionnes de telle maniere que le tube immobilise par le premier excentrique et celui qui est maintenu dans le manchon se trouvent en contact direct, ce dernier se trouvant bloque par friction avec le premier; 11 Pour realiser le blocage d'un deuxieme tube introduit dans le manchon, il est prevu, dans l'ouverture de communication entre la douille et le manchon, un organe, de forme generale cylindrique, destine a transmettre, au tube loge dans le manchon l'effort de blocage exerce sur le premier tube; 12 L'ouverture de communication du manchon est retrecie pour former une bride a son extremite libre et une bague, munie d'une bride ou d'un collet est introduite de l'interieur du manchon a travers ladite ouverture et une ouverture correspondant a la douille, ladite bague etant fixee a la douille, par exemple par soudure, de maniere a constituer pour le manchon un tourillon creux dans lequel est dispose un organe transmetteur de pression, qui est en contact avec les deux tubes a assembler et qui peut coulisser axialement et pivoter dans la bague; 13 L'axe de rotation de l'excentrique est lui-meme excentrique et peut etre regle en position, de l'exterieur, grace a un carter et a une clef; 14 Il est prevu, sur la trajectoire de l'excentrique de blocage ou de son bras de manoeuvre, une butee qui limite la course de l'excentrique de maniere qu'il ne puisse depasser la position d'excentricite maximum; 15 L'organe de fixation et de blocage est constitue par un corps de section generale elliptique, dont l'un des arcs, de preference dente, s'applique contre le tube introduit dans la douille d'accouplement, et dont l'autre arc prend appui contre une paroi interieure de cette derniere, ledit corps elliptique presentant un alésage, excentrique suivant le petit axe de l'ellipse, dans lequel passe un axe monte excentriquement dans la douille d'accouplement; 16 Entre l'un des arcs de l'excentrique double et la paroi interieure entree contre laquelle s'appuie l'autre arc de celui-ci est interpose un ressort a lame, qui maintient l'excentrique double en

position neutre; 17 La paroi interieure du logement vers laquelle est tourne l'un des arcs de l'excentrique double presente sensiblement la meme courbure que ledit arc et est a une distance de celui-ci telle que l'arc s'appuie contre la paroi interieure lors que le double excentrique pivote; 18 La douille d'accouplement comporte, en regard de l'excentrique double, une encoche a tra vers laquelle le double excentrique agit sur le tube loge dans la douille; 19 L'axe portant- le double excentrique est replie a angle droit- a l'une de ses extremités en dehors de son logement, de maniere a constituer un levier muni, en bout, d'un perçage axial. **Machine translation:** [Source: Claim 1] [0003] The invention relates to a connector for tubes, remarkable, in particular, by the following features, taken separately or in combination combi 1 It comprises a socket intended to be finally lee on one of the tubes to assemble and arranged to receive one or more other tubes; on which is disposed, as clamping member, a eccentric plate claim, which acts directly on the periphery of the first tube, which, as well maintained, is to provide the automatic braking of the other tubes, either directly or in coope ration with other means of downtime, pre seen on the aforesaid socket; 2 in order to allow the installation of other tubes, the coupling socket is of such length As the end of a second tube may be introduced coaxialement to the first, and/or it is provided with a sleeve, fixed or steerable diame tralement, opposite to the clamping member, and for receiving a second tube, and whose interior communicates with the interior of, for a recess, the coupling socket; 3 socket bears one or more sleeves assembly, disposed opposite the recess of communication, and which are also equipped with evi amendments coaxial to the previous; 4 the coupling socket is provided with two flanges radial, spaced apart from each other and affixed to the socket, for example welded, between which is an eccentric plate. 'a toothing journaled -peripheral, serving as a locking member, and sus may block, by pivoting, in- taken be causes With the periphery of the tube in blocking introduced into the socket, by committing through an opening in the wall of the latter. 3 The eccentric plate is provided with a locking arm for maneuver, on which is articulated a stop pawl double maintained engaged by a spring, said pawl engaging in a sector claim attached to the flanges so as to prevent the eccentric plate to revert back.leaving its position of taking unintentionally; 6 The Journal of the eccentric plate is mounted in a slanted boutonniere blo cage on the axis of the coupling socket; 7 to perform the automatic blocking of a second tube, introduced into the socket of accou simply coaxially to the first tube secured by the eccentric into the socket until the con tact with the latter, there is provided a second locking axially offset with respect to excen symmetric, First and journaled, preferably, between the same flanges that the latter, the excen symmetric second being pressed against the periphery of the second deu tube to tighten, through an opening in the wall of the socket, under the action of a spring agis sant on her arm to maneuver, and being provided with a toothing, the teeth, if they are asymmetric peripheral are oriented in the direction opposite to the first; 8 the manœuvre of excentri eccentric arm of second that is provided with a stop pawl spring which acts to blocking in the same direction as the pivoting of the first eccentric; 9 The two pawls are arranged so as to be released by action, on their free arm, a Extension tube-threaded onto the manœuvre of the pawl arm corresponding; 10 to perform the blocking a second tube introduced into the sleeve, in one or several rows, rigidly attached to the coupling socket, for example by welding, the man chon as well as its opening of communication are sized such that the tube secured by the first eccentric and that which is held in the sleeve -are in direct contact, the latter being blocked by friction with the first; 11 to perform the blocking a second tube introduced into the sleeve, it is provided in the opening of the bushing and sleeve, a communication between member, of generally cylindrical shape, intended to transmit, that- The tube contained within the sleeve blocking the effort exerted on the first tube; \_ 12 the opening of the sleeve is= narrowed to form a flange communication at its free end and a ring, provided with a flange-or with a neck let is introduced in the interior of the tra sleeve in the direction of said aperture and a corresponding opening of the socket, Dante said ring being secured to the socket, for example by welding, so as to form the sleeve to a journal in which is disposed a hollow body near sion transmitter, which is in contact with the two tubes bler assembly and which can slide axially and pivot in the ring 13; the axis of rotation of the eccentric is itself Eccentric and can be adjusted in position, from the exterior, through a square and a key; 14 it is intended, on the path of the excentri blocking or that his arm to maneuver, a stop that limits the travel of the eccentric my manner that it cannot exceed the maximum position of excen tricité; 15 blocking the attachment member and is generally elliptical body of titue cons by A-section, one of the arcs, preferably claim, are applied against the tube# introduced into the socket of accoupip- ment, and of which the other arc bears against upe inner wall of the latter, said body having a bore, eccentric suivaW eVip- composition the minor axis of the ellipse, through which iu axis In the excentrique ment mounted socket of coupled- ment; 16 between one of the arcs of the eccentric double curved and the inner wall against which support the other arc of the latter is interposed a spring blade, which holds the double eccentric in neutral position; the interior wall of the housing 17 is rotated to which one of the arcs of the eccentric double present substantially the same curvature as said arc and is at a distance from the latter such that the CRA relies against the inner wall when the eccentric double pivots; 18 the coupling socket comprises, facing the eccentric double, a notch to tra to which the eccentric double acts on the tube housed in the socket; 19 the axis bearing eccentric double- is Folded at right angles- has one of its ends outside of its housing, so as to constitute a lever equipped, in the end, an axial bore.

**Classifications:**  
**International (IPC 8-9):** E04G7/24 F16B7/04 F16B7/14 (Advanced/Invention); E04G7/00 F16B7/00 F16B7/04 (Core/Invention)  
**International (IPC 1-7):** E04G7/24 F16B7/08  
**CPC:** E04G7/24 F16B7/0493 F16B7/14  
**European:** E04G7/24 F16B7/04D4L F16B7/14



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| FR1112802 A        | 19560319         |                    | 19540902         |

**Priority:**

19530902

**Inventor(s):** (std):

HAHN ALEXANDER

**Title:** TRANSFER CASE WITH TWO PLANETARY GEAR SETS HAVING A COMMON CARRIER

**Abstract:** A common carrier assembly that is particularly adapted for use in supporting planetary gear sets used in a four-wheel drive vehicle transfer case. The common carrier includes a drive plate, a differential plate, and a reduction plate. The drive plate positioned between the reduction planetary gear set and the differential planetary gear set. The drive plate selectively engages a clutch that operates to position the reduction gear set in various operation modes.

**Classifications:**

**International (IPC 8-9):** B60K17/346 F16H48/10

F16H57/02 (Advanced/Invention);

F16H57/02 F16H63/30 (Advanced/Non-invention);

B60K17/344 F16H48/00 F16H57/02 (Core/Invention);

F16H63/30 (Core/Non-invention)

**International (IPC 1-7):** B60K17/346 F16H37/02 F16H48/10

F16H57/02

**CPC:** B60K17/3462 B60K17/3467 F16H63/304 E04G21/32 F16B1/00

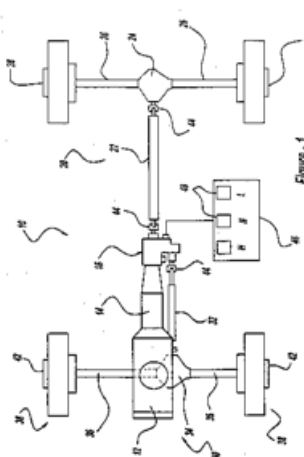
F16B2001/0028

**European:** B60K17/346B B60K17/346C R16H63/30J

**US:** 475/204 475/205 475/210 475/223 475/286

PatBase - US2004162176\_A1

Patent Application Publication Aug. 19, 2004 Sheet 1 of 5 US 2004/0162176 A1



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| EP1449706 A2       | 20040825         | EP20040250578      | 20040203         |
| JP2004249979 A2    | 20040909         | JP20040040979      | 20040218         |
| KR20040074925 A    | 20040826         | KR20040009620      | 20040213         |
| US2004162176 AA    | 20040819         | US20030369419      | 20030218         |
| US6837819 BB       | 20050104         | US20030369419      | 20030218         |

**Priority:**

US20030369419 20030218

**Probable Assignee:** BORGWARNER INC

**Assignee(s):** (std): BORG WARNER INC ; BORGWARNER INC ; FOSTER THOMAS J

**Inventor(s):** (std): FOSTER THOMAS J

**Agent(s):** UCHIDA HIROSHI; CHIBA AKIO; KOBAYASHI YASUSHI; SHAMOTO ICHIO; TOMITA HIROYUKI; MASUI CHUJI; GREG; WARN HOFFMANN MILLER AND LALONE PC

**Designated states:** AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

**Title:** CONNECTOR FOR TWO CROSSING PIPES - CONSISTS OF U-BRACKET WITH CLAMPING BLOCK AND WEDGE HELD BY SCREW

**Abstract:** The pipe supporting connector is used for crossing pipes. The connector has U bracket for enclosing one pipe and the bracket arms have holes for the other crossing pipes. High clamping force is ensured on connecting the pipes yet the pipes are not deformed. Between the crossing pipes (4, 6) is placed a block (9) with concave side for one of the pipes. Other end of this block has inclined face for the clamping wedge (7) in contact with the other pipe. The wedge is held in position by screw (14) in tapped hole in one of the bracket arms.

**Classifications:**

**International (IPC 8-9):** E04G7/18 F16B2/14 F16B7/04

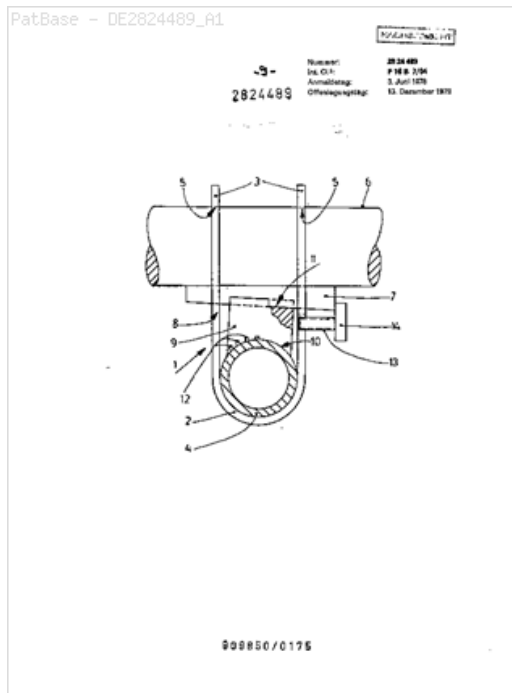
F16B7/08 (Advanced/Invention);

E04G7/00 F16B2/02 F16B7/00 F16B7/04 (Core/Invention)

**International (IPC 1-7):** F16B7/04

**CPC:** E04G7/18 F16B2/14 F16B7/0493

**European:** E04G7/18 F16B2/14 F16B7/04D4L

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE2824489 A1       | 19791213         | DE19782824489      | 19780603         |
| DE2824489 C2       | 19820616         | DE19782824489      | 19780603         |

**Priority:**

DE19782824489 19780603

**Probable Assignee:** IHLE REIFEN GMBH**Assignee(s):** (std): IHLE REIFEN GMBH**Assignee(s):** REIFEN IHLE GMBH ; REIFEN IHLE GMBH 8870 GUENZBURG DE**Inventor(s):** (std): IHLE JOHANN**Inventor(s):** IHLE JOHANN 8870 GUENZBURG DE**68) Family number: 72070954 (EP3428368B1)**

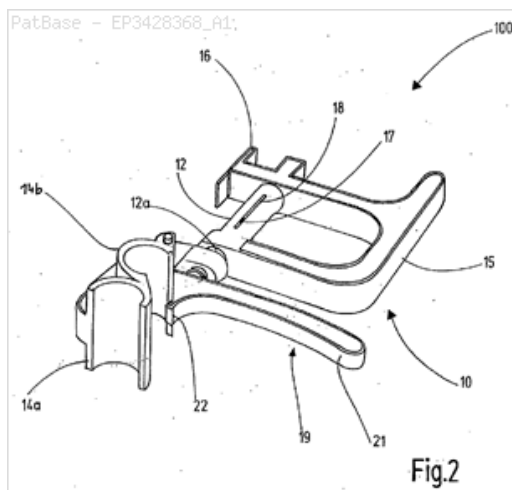
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**Title:** CLAMPING DEVICE FOR A MOBILE DUST WALL SYSTEME DE SERRAGE POUR UNE PAROI ANTI-POUSSI

**Abstract:** Source: EP3428368A1 [DE] Um eine Klemmvorrichtung zum Fixieren einer Klemmschiene einer Staubschutzwand zwischen einer Wandflaeche oder einer Deckenflaeche und einer parallel zu der Wandflaeche oder der Deckenflaeche angeordneten Stange der Staubschutzwand derart zu verbessern, dass ein schnelles und flexibles Installieren der Staubschutzwand moeglich ist, ohne die Wandflaeche oder die Deckenflaeche modifizieren oder beschadigen zu muessen, wird vorgeschlagen, eine Verbindungsteil zwischen der Klemmschiene und der Stange mit einer Verbindungshulse vorzusehen, innerhalb derer axial ein Spannelement angeordnet ist, womit die Aufnahmevorrichtung zur Aufnahme der Stange mit einer Spannung gegenueber dem Verbindungsteil beaufschlagbar ist. **Machine translation:** A clamping device for fixing a clamping rail of a dust wall between a wall or a ceiling surface and parallel to the wall or the ceiling surface the dust protection wall in a way that fast and flexible install the dust shield wall is possible without the wall or the ceiling surface modifying or damage, it is proposed that a connection portion between the clamping rail and the rod with a compound sleeve, within which an axial clamping element is arranged, by means of which the receiving device for receiving the rod having a voltage with respect to the connecting part.

**Classifications:****International (IPC 8-9):** E04G21/24 E04G21/30

F16B2/04 (Advanced/Invention)

**CPC:** E04G21/243 E04G21/30 F16B2/04**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
|--------------------|------------------|--------------------|------------------|

|                   |          |                 |          |
|-------------------|----------|-----------------|----------|
| DE202017104132 U1 | 20181122 | DE201720104132U | 20170711 |
| DE502018001190 D1 | 20200430 | DE201850001190T | 20180620 |
| EP3428368 A1      | 20190116 | EP20180178845   | 20180620 |
| EP3428368 B1      | 20200415 | EP20180178845   | 20180620 |

**Priority:**

DE201720104132U 20170711 EP20180178845 20180620

**Probable Assignee:** HEYLO GMBH

**Assignee(s):** (std): HEYLO GMBH

**Inventor(s):** (std): WITTLER THOMAS

**Agent(s):** RGTH

**Designated states:** AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

**69) Family number: 79468969 (WO20122738A1)**

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**Title:** A COUPLING DEVICE, ASSOCIATED PARTS, TOOLS AND METHODS OF USE THEREOF

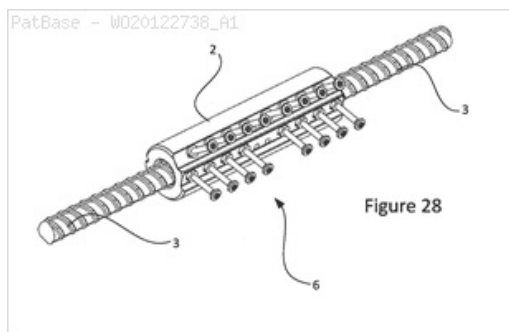
**Abstract:** A coupling device for coupling at least one elongate element, including a sleeve that receives part of the elongate element and a number of pins, which, when driven to an engaged position, cause deformation of at least part of the inner surface of the sleeve and/or an outer surface of the at least one elongate element. This deformation couples the elongate element and the sleeve. The coupler may include registration features for registration / alignment of a cooperating tool for driving the pins. Pins may be pre-fitted to the sleeve. Pins may include a shaft, and a tapering frustum section with a truncated end face. Pins may have a transitional section under a head of the pin, supporting and strengthening the head. Pins may be zinc coated.

**Classifications:**

**International (IPC 8-9):** E04C5/16 F16B7/04

F16B7/18 (Advanced/Invention)

**CPC:** E04C5/165 E04C5/166 E04G21/122 F16B7/042 F16B7/182



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| WO20122738 A1      | 20200618         | WO2019NZ50157      | 20191211         |

**Priority:**

NZ20180749116 20181212

**Probable Assignee:** HOLMES SOLUTIONS LP

**Assignee(s):** (std): ADSHEAD SAM JAMES ; AITKEN MURRAY BRUCE ; COUPLER SOLUTIONS LTD ; CUNNINGHAM JOHN BARRY ; FOSER THOMAS ; HOLMES SOLUTIONS LP ; KIMBER ANDREW EDWARD ; WOODS BENJAMIN LYALL SYDNEY

**Assignee(s):** HOLMES SOLUTIONS PARTNERSHIP LTD

**Inventor(s):** (std): ADSHEAD SAM JAMES ; AITKEN MURRAY BRUCE ; CUNNINGHAM JOHN BARRY ; FOSER THOMAS ; KIMBER ANDREW EDWARD ; WOODS BENJAMIN LYALL SYDNEY

**Agent(s):** CREATEIP

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

**70) Family number: 25753979 (US3155405A)**

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**Title:** ASSEMBLING JOINT FOR ASSEMBLING FRAMEWORK COMPRISING TUBULAR RODS, AND FRAMEWORK WITH SUCH ASSEMBLING JOINTS

**Abstract:** 932,739. Structural joints. P. CADIVIUS. Sept. 21, 1959 [Oct. 1, 1958], No. 32113/59. Class 20 (2). [Also in Groups XIV and XXVIII] A connecting or supporting device for tubes 7 of a tubular framework comprises a spigot having a reduced part 6 between two parts 4, 5 over which a tube 7 can be engaged out of alignment with the spigot to avoid obstruction by another part of the framework, to fit eventually on the parts 4, 5. These devices at the end of a framework may be secured to a floor or a wall and the devices may be connected together by bracing wires. The base 1 of the device may carry a number of spigots. The spigot may be reduced on only two opposite sides. There may be only three or four (Fig. 3) points of contact between a tube and the outer part 5. The use of the device with tubes of different crosssection is described and the tube and device may be secured together by rivets, deformation of the tube or welding or by wedging apart the split end 5.

**Classifications:**

**International (IPC 8-9):** A47B47/00 A47B47/02 E04B1/58 E04G7/02

F16B12/40 F16B7/04 (Advanced/Invention);

A47B47/00 E04B1/58 E04G7/00 F16B12/00 F16B7/04 (Core/Invention)

**International (IPC 1-7):** A47B93/04 E04B1/19 E04B1/24 E04B1/32

E04B1/58 E04G7/02 F16B12/36 F16B12/40 F16B12/50 F16B7/00

F16B7/04 F16C11/06

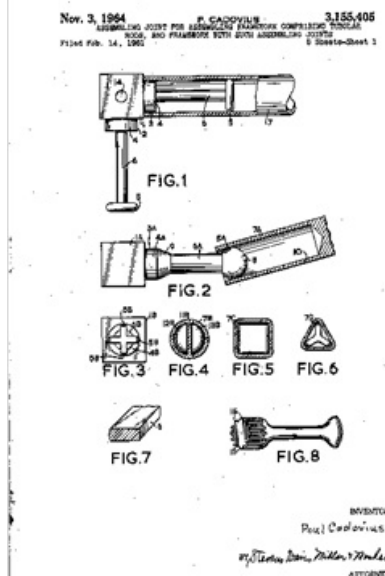
**CPC:** A47B47/0008 E04B1/585 E04B2001/5856 E04G7/02

F16B7/0413 F16B12/40 Y10T403/1616 Y10T403/602 F16B7/0446

A47B47/021 F16B2012/446

**European:** A47B47/00B A47B47/02R E04B1/58C2C E04G7/02  
F16B12/40 F16B7/04B2 F16B7/04D2 P04B1/58C5 R16B12/44D  
**US:** 403/13 403/327

PatBase - US3155405\_A



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| BE613783 A         | 19620529         | BE19620613783      | 19620212         |
| CH382935 A         | 19641015         | CH19590078574      | 19590923         |
| CH435608 A         | 19670515         | CH19620001771      | 19620213         |
| DE1192379 B        | 19650506         | DE1959C019890      | 19590930         |
| DE1291072 B        | 19690320         | DE1962C026215      | 19620212         |
| DK94024 C          | 19620730         | DK19580003531      | 19581001         |
| FR1236759 A        | 19600722         | FR19590805914      | 19590924         |
| GB932739 A         | 19630731         | GB19590032113      | 19590921         |
| GB983424 A         | 19650217         | GB19610016513      | 19610505         |
| NL108066 C         | 00000000         |                    | 00000000         |
| NL243811 A         | 00000000         |                    | 00000000         |
| NL274764 A         | 00000000         |                    | 00000000         |
| US3155405 A        | 19641103         | US19610089186      | 19610214         |

#### Priority:

DK19580003531 19581001 US19610089186 19610214

**Probable Assignee:** CADIVIUS PAUL

**Assignee(s):** (std): CADIVIUS PAUL ; CADIVIUS POUL ; POUL CADIVIUS

**Inventor(s):** (std): POUL CADIVIUS ; CADIVIUS POUL

#### 71) Family number: 57838981 (US2014356077A)

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**Title:** WEDGE ANCHOR BOLT

**Abstract:** A wedge anchor bolt having a screw member, a wedge member, and a cage member. The bolt is anchored into a drilled hole by wedging the wedge member in the end of the cage member by turning the screw member, with the result being that the wedge member becomes stuck in the cage member. For ejecting the wedge member from the cavity the screw member includes at least one of (1) one or more depressed portions, and (2) one or more projecting portions, defining a step, and the cage member includes one or more corresponding step-engaging portions for making an interference contact with the step, so that further withdrawal of the threads ceases to withdraw the threads relative to the cage member while continuing to withdraw the threads relative to the wedge member, thereby forcing the wedge member distally relative to the cavity.

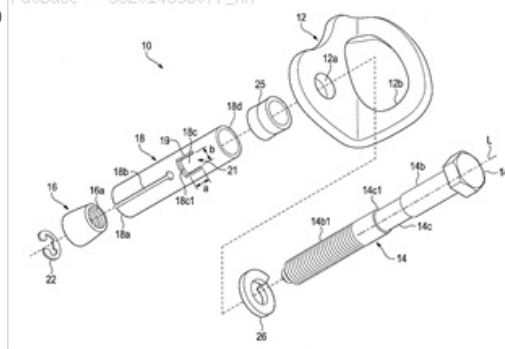
#### Classifications:

**International (IPC 8-9):** A63B29/02 E04B1/41 E04G21/32 E21D21/00  
F16B13/06 (Advanced/Invention)

**CPC:** A63B29/024 F16B13/066 A62B35/0068 E04B1/4157  
E04G21/3276

**US:** 405/259.3 405/259.4

PatBase - US2014356077\_AA



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2014356077 AA    | 20141204         | US20130907473      | 20130531         |
| US8894329 BA       | 20141125         | US20130907473      | 20130531         |
| WO14193952 A1      | 20141204         | WO2014US39791      | 20140528         |

**Priority:**

US20130907473 20130531

**Probable Assignee:** CLIMB TECH LLC**Assignee(s):** (std): CLIMB TECH LLC**Inventor(s):** (std): KEKAHUNA IVAN A J ; PATRICK ERIC SHAWN**Inventor(s):** KEKAHUNA IVAN AJ**Agent(s):** PORTLAND INTELLECTUAL PROPERTY LLC; JANKE GARTH

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

**72) Family number: 32449983** (US2005263649A)

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**Title:** AUTONOMOUS VEHICLE DOCKING SYSTEM

**Abstract:** An autonomous vehicle docking system restrains six degrees of freedom through the use of a plurality of latches having differing bearing surface geometry which each constrain a generally spherical post end, and with a soft-dock cable system to initiate the capture sequence and provide for positive disengagement by a capture vehicle.

**Classifications:**

**International (ipc 8-9):** A44B11/00 B60P1/00 B64G1/22 B64G1/64 B66F11/04 E01D15/00 E04G3/00 E04G3/28 E04G5/14 F16B1/04 F16B17/00 F16D1/00 F16M13/02 G06F13/00 (Advanced/Invention); B64G1/22 B64G1/64 (Core/Invention)

**International (ipc 1-7):** B64G1/64

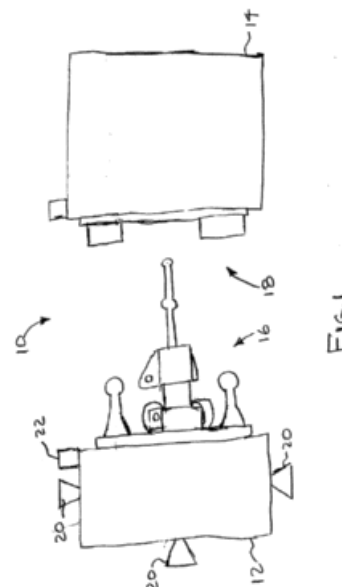
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**European:** B64G1/64C

**US:** 14/71.3 14/71.300P 182/112 182/113 182/141 24/305 24/572.1 24/595.1 24/645 24/647 24/664 244/172.4 244/172.400P 244/172.5 244/172.6 244/172.600S 248/201 248/201S 403/162 403/319 403/319P 403/322.1 403/330 403/330P 403/361 403/361S 710/304 710/304P

PatBase - US2005263649\_AA

Patent Application Publication Dec. 1, 2005 Sheet 1 of 11 US 2005/0263649 A1

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2005263649 AA    | 20051201         | US20050907091      | 20050318         |
| US2009146011 AA    | 20090611         | US20080263498      | 20081102         |
| US2009173832 AA    | 20090709         | US20090406955      | 20090318         |
| US2009173833 AA    | 20090709         | US20090409456      | 20090323         |
| US2011004717 AA    | 20110106         | US20090409468      | 20090323         |
| US2011008102 AA    | 20110113         | US20100860461      | 20100820         |
| US2012042458 AA    | 20120223         | US20110986593      | 20110107         |
| US2012045274 AA    | 20120223         | US20100860481      | 20100820         |
| US2012291241 AA    | 20121122         | US20120447718      | 20120416         |
| US2014360812 AA    | 20141211         | US20130911420      | 20130606         |
| US2016177582 A9    | 20160623         | US20130911420      | 20130606         |
| US7828249 BB       | 20101109         | US20090409456      | 20090323         |
| US7861974 BB       | 20110104         | US20090406955      | 20090318         |
| US8056864 BB       | 20111115         | US20100860461      | 20100820         |
| US8240613 BB       | 20120814         | US20090409468      | 20090323         |
| US8245370 BB       | 20120821         | US20080263498      | 20081102         |
| US8333347 BB       | 20121218         | US20120447718      | 20120416         |
| US8479884 BB       | 20130709         | US20100860481      | 20100820         |
| US8813912 BB       | 20140826         | US20110986593      | 20110107         |
| US9567759 BB       | 20170214         | US20130911420      | 20130606         |

**Priority:**

|                         |                        |                        |
|-------------------------|------------------------|------------------------|
| US20040554763P 20040318 | US20050907091 20050318 | US20080263498 20081102 |
| US20090406955 20090318  | US20090409456 20090323 | US20090409468 20090323 |
| US20100860461 20100820  | US20100860481 20100820 | US20110986593 20110107 |
| US20120447718 20120416  | US20130911420 20130606 |                        |

**Probable Assignee:** SAM CARBIS ASSET MANAGEMENT LLC

**Assignee(s):** (std): MICHIGAN AEROSPACE CORP ; WASSICK GREGORY JOSEPH ; TCHORYK JR PETER ; RITTER GREG ALAN ; PAVLICH JANE CAMILE ; HAYS ANTHONY BECKMAN ; TYNER SANDY WILLIAM ; MACDONALD ELLIE HAROLD ; BENNETT RONALD W ; SAM CARBIS ASSET MAN LLC ; MIZELL SHAWN CRAMER ; COOK ANTHONY JAY ; ALUMINUM LADDER CO

**Assignee(s):** CARBIS HOLDINGS INC ; ALUMINUM LADDER COMPANY ; SAM CARBIS ASSET MANAGEMENT LLC

**Inventor(s):** (std): BENNETT RONALD W ; HAYS ANTHONY B ; MACDONALD ELLIE HAROLD ; PAVLICH JANE C ; RITTER GREG A ; WASSICK GREGORY J ; WASSICK GREGORY JOSEPH ; TCHORYK JR PETER ; RITTER GREG ALAN ; PAVLICH JANE CAMILE ; HAYS ANTHONY BECKMAN ; MIZELL SHAWN CRAMER ; COOK ANTHONY JAY ; TCHORYK PETER JR ; TYNER SANDY WILLIAM

**Inventor(s):** WASSICK GREGORY ; TCHORYK PETER ; RITTER GREG ; PAVLICH JANE ; HAYS ANTHONY

**Agent(s):** RAGGIO AND DINNIN PC ; AMY ALLEN; NEXSEN PRUET LLC

### 73) Family number: 3873985 (US3873219A)

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**Title:** DEMOUNTABLE STRUCTURE

**Abstract:** A demountable structure, for example for forming scaffolding, shelf assemblies or frame assemblies comprises a pair of co-axial spaced connection members with a connection element interposed between the end edges of the connection member. A screw or other means extends between the connection members and clamps the end edges thereof onto the connection element. The connection element is associated with, for example, a shelf or cross-member, and a plurality of connection elements can be collectively interposed between the connection members so as to form a connection for a plurality of concurrent cross-members or the like.

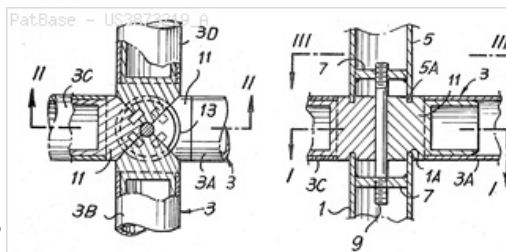
#### Classifications:

**International (IPC 8-9):** A47B47/03 A63H33/10 E04G7/20 E04G7/26 E04G7/30 F16B12/40 F16B12/42 F16B7/00 F16B7/04 F16B7/18 (Advanced/Invention); A47B47/00 A63H33/04 E04G7/00 F16B12/00 F16B7/00 F16B7/04 F16B7/18 (Core/Invention)

**International (IPC 1-7):** A47B43/00 A47B45/00 A47B47/00 A47B55/00 A47B96/00 A47B96/14 A47F5/00 A47F5/01 A63H33/04 E04G7/26 E04G7/30 F16B12/00 F16B12/10 F16B12/40 F16B12/42 F16B7/00 F16B7/02 F16B7/04 F16D1/00 F16D3/00 F16S3/06  
**CPC:** Y10T403/342 Y10T403/447 Y10T403/341 Y10T403/69 E04G7/26 A47B47/03 A47B2087/0238 A63H33/105 A63H33/106 A63H33/107 A63H33/108 E04G7/30 F16B7/04 F16B7/044 F16B7/0446 F16B7/0486 F16B7/18 F16B12/40 F16B12/42 F16B2200/30

**European:** A47B47/03 A63H33/10G A63H33/10R A63H33/10S A63H33/10T E04G7/26 E04G7/30 F16B12/40 F16B12/42 F16B7/04 F16B7/04D F16B7/04D4E F16B7/18 K47B87/02B2A1 R16B7/04D2

**US:** 108/111 108/158.11 108/192 211/182 211/186 248/250 403/170 403/171 403/219 403/344 403/381



#### Family:

| Publication number | Publication date | Application number | Application date |
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| BE790960 A1        | 19730301         |                    | 00000000         |
| CA977309 A1        | 19751104         | CA19720155415      | 19721102         |
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| DE2253782 A1       | 19730510         | DE19722253782      | 19721102         |
| DE2253782 B2       | 19790510         | DE19722253782      | 19721102         |
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| NL7214932 A        | 19730508         | NL19720014932      | 19721103         |
| SE399947 B         | 19780306         | SE19720014254      | 19721103         |
| SE399947 C         | 19780615         | SE19720014254      | 19721103         |
| US3873219 A        | 19750325         | US19720302403      | 19721031         |
| US3912410 A        | 19751014         | US19740537713      | 19741231         |
| US3985083 A        | 19761012         | US19750559594      | 19750318         |

#### Priority:

|                        |                        |                        |
|------------------------|------------------------|------------------------|
| IT19710009748 19711105 | US19720302403 19721031 | GB19720050245 19721101 |
| US19740537713 19741231 | US19750559594 19750318 |                        |

**Probable Assignee:** UFFICIO TECNICO ING A MANNUCCI

**Assignee(s):** (std): POFFERI G ; POFFERI GIANCARLO ; CANADA METAL CO LTD ; UFFICIO TECNICO ING A MANNUCCI

**Assignee(s):** POFFERI GIANCARLO CASALPALOCCO ROM ITALIEN ; GIANCARLO POFFERI ; POFFERI GIANCARLO VIA CHILONE 14 CASALPALOCCO ROM ; POFFERI GIANCARLO VIA CHILONE 14 CASALPALOCCO ROME ITALIE

**Inventor(s):** (std): POFFERI GIANCARLO

**Inventor(s):** SOK ; POFFERI GIANCARLO CASALPALOCCO ROM ITALIEN ; GIANCARLO POFFERI

**Title:** CONNECTOR PIECE FOR TUBULAR FRAME - FORMED FROM CUBE WITH SLOTS FOR TUBES

**Abstract:** A frame or scaffold has the tubes or rods clamped at the cross over points in a block which is basically a cube, with three 'U' shaped grooves along three edges of the cube. The grooves are at right angles to one another. Three screws mounted in the block, to secure the tubes or rods, are slightly off centre so that the tubes are forced into the groove. Friction prevents axial movement of the tubes, while sideways movement is prevented by the point of the screw. A corner can be machine off the cube to provide a flat by means of which the block can be anchored.

**Classifications:**

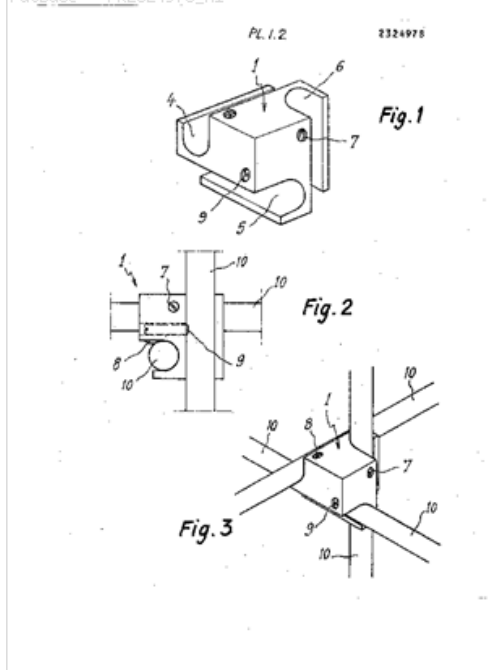
**International (IPC 8-9):** E04G7/14 F16B7/04 (Advanced/Invention); E04G7/00 F16B7/04 (Core/Invention)

**International (IPC 1-7):** E04B1/58 E04C E04G7/12 E04G7/14 F16B7/00 F16B7/04 F16S3/08

**CPC:** E04G7/14 F16B7/0493

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|--------------------|------------------|--------------------|------------------|
| CH582836 A         | 19761215         | CH19740010243      | 19740724         |
| DE2435670 A1       | 19750206         | DE19742435670      | 19740724         |
| ES417212 A1        | 19770201         | ES19730417212      | 19730724         |
| FR2324978 A1       | 19770415         | FR19740025714      | 19740724         |
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| SE403390 B         | 19780814         | SE19740009602      | 19740724         |
| SE403390 C         | 19781123         | SE19740009602      | 19740724         |
| SE7409602 L        | 19750127         | SE19740009602      | 19740724         |

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**Inventor(s):** GLANZER JACOBO BLANES GERONA SPANIEN ; SOK

**Title:** STRUCTURES DEMONTABLES EN PROFILES PERFORES Demountable structures perforated profiles in (Machine translation)

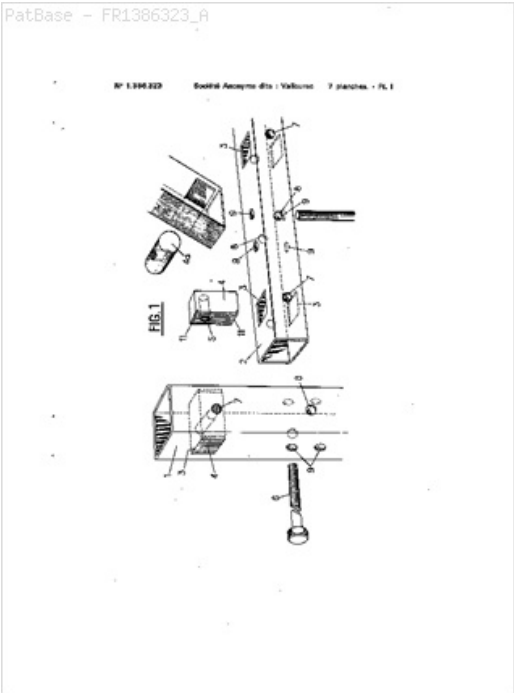
**Abstract:** Source: FR1386323A [FR] (Claim 1) **RESUME** La presente invention a pour objet le produit industriel nouveau que constitue une structure de montage prefabricable ou realisable a la demande, essentiellement caracterisee par le fait qu'elle comprend un ou plusieurs types de profiles comportant au moins deux ailes sensiblement paralleles dans lesquelles sont pratiqués, de place en place ou seulement aux endroits necessaires et selon le meme tracé pour les ailes en regard, de grands orifices, circulaires ou polygonaux, et des pieces de liaison de forme cylindrique ou prismatique que l'on peut introduire a la fois dans deux de ces orifices situés dans des ailes en regard, ces pieces de liaison comportant perpendiculairement a leur axe un orifice circulaire, taraude ou lisse, permettant la fixation et le serrage du profile a l'aide de vis ou de boulons disposés parallelement au plan des ailes considerees et pouvant étre orientés suivant la direction longitudinale du profile ou perpendiculairement a cette direction ou encore obliquement par rapport a cette direction.

**Machine translation:** (Claim 1) **SUMMARY** The present invention relates to the new industrial product that is a structure of - Mountable prefabricated or feasible a demand, mainly characterized by the fact that it takes one or more types of behavior profiles as at least two wings in which are substantially parallel practices, or from place to place only where necessary and according to the same track for the wings next, big holes, circular or polygonal, and link piece of cylindrical or prismatic shape that can be introduced a both in two of these orifices situated in opposite wings, these piece of connection comprising a perpendicularly their axis a circular hole, threaded or smooth, and for fixing the clamping profile has using screws or bolts arranged parallel to the plane of the wings and can be regarded Eastern thy along the longitudinal direction of the profile or perpendicular a that direction or obligation cally compared a that direction.

**Classifications:**

**International (IPC 8-9):** A47B57/20 E04G7/02 F16B12/30 F16B12/32

F16B7/18 (Advanced/Invention);  
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