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Remarks:
Amended claims in accordance with Rule 137(2) EPC.

(54) Support hooks and headboard for scaffold platforms

(57) The present invention describes a headboard (3) to be applied to the end faces of a platform used in construction scaffolding floors or in similar metallic structures, this headboard being equipped with two or more support hooks (1) chosen from a set of different support hooks, which hooks are positioned and interchangeably fixed with the use of an equal number of fixing blocks. The hooks present a front support that ends with a downwardly facing loop and a back with two terminals for fixation in the headboard.
The headboard (3), produced without any welds, is adequate to the width of the platform to where it will be applied.

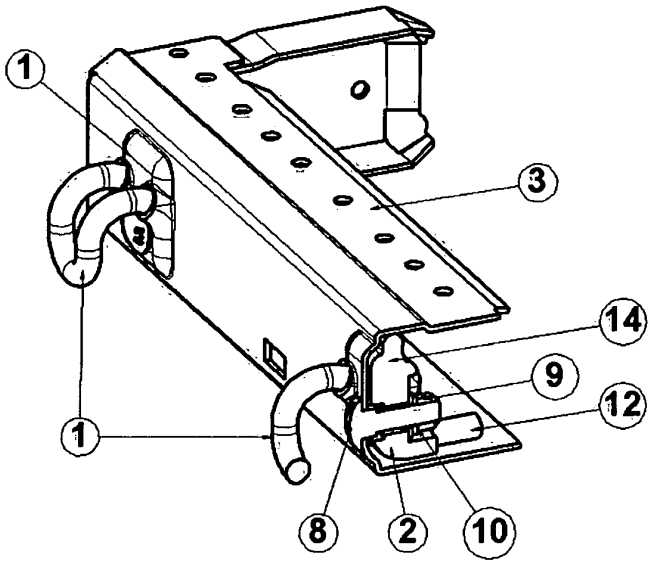

Fig. 4

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Description

[0001] The present invention describes a new type of support hook and headboard where they insert, being the proper set to apply in the decks that are used in construction scaffold structures or in decks used as a stage floor or in similar technical metallic structures support that are used in several events.

[0002] In a general mode, the different types of scaffold decks in the market, present, to support the horizontal scaffold bars, in its normal use, claws, hooks or simply curved latches that, which in general, are produced with iron round pipes or with iron rectangular and flattened pipes that are, almost always, curved in one extremity, being the other welded on top of the deck or else fixed directly laterally in the deck.

[0003] With the normal utilization of the decks in the scaffold floors, the weight of its users is totally supported by the support hooks which in case is too frail bends, or if not but welded or riveted directly in the deck, transmits the strength through the deck's zone where welds and rivets are. The constant variations of the load negative/positive, ends by deteriorate the molecules of the materials. It is very usual to find decks with hooks already twisted which when used, are repositioned or straightened with the use of a hammer or a vulgar pipe used as a handspike.

[0004] Generally, when transporting those decks from the place of work to the warehouse and vice versa, when the decks hit there hooks in the metallic structures or walls where they are stored or when the decks fall involuntarily, the hooks that are currently used, break or twist easily in the welded or riveted zone.

[0005] It is known that the deterioration of the decks' hooks with the type of support decks currently used, are a technical problem not only because of the immobilization of the decks for repairing and the financial costs inherent, but also the fragility of the welded zones can induce to ruptures causing accidents and life threatening situations for its users.

[0006] Also, the type of hooks or decks supports currently used can induce to accidents to its users, as much as for scratches or deep blows, as well as rips in the working clothes, that, generally are made by the hook tip used to support decks.

[0007] In the other hand, if necessary to increase the scaffold structure quantities and that implicate a change of the used scaffold system, which is, to change from tabular to linear or vice versa, the users are faced with the impossibility to use both decks in both systems, because it is not possible to adjust the decks to the horizontal elements in the new structure.

[0008] Equally, when a user intends to acquire new decks to use jointly with the ones that he already has, the user is conditioned to the acquisition of the decks used in the same similar hooks system to the decks already obtained because the other decks in the market are incompatibles.

[0009] This invention includes *a new type of hooks* to support the scaffold decks (nº 1 of figure 1) by *components used to position and fix the hooks at the headboard* (nº 2 of fig. 2) and *the headboard where the support hooks are fixed* (nº 3 of fig. 3) solve globally the problems related previously, permitting the production of new decks, more resistance and more safe, in such way versatile, that it can be used in any well-known scaffold system. This represents the main advantages of this feature.

[0010] The technical studies and the long test made, permitted that this feature was endowed with evolved technical particularities, with optimized configurations and simplified functioning, that permits the adaptability of those decks in any scaffold system, both in the scaffold system with linear support crosspieces or tubular support crosspieces. It is also possible with this feature the easiness to differentiate hooks applications and to be adequate to different distances between the support crosspieces of the different scaffold systems or hooks forms adequate to peripheral configuration of the support crosspiece of those different scaffold systems.

[0011] This invention presents three types of different support hooks (17, 18 and 19 of figure 1), having these geometrical configurations that better adjust to the crosspieces of the scaffold system elements currently known, but the support hooks can always be produced with front geometrical configuration adaptable to any type of support crosspiece, without loosing the technical quality and capacity that are evident with the presented formats because the fixation method proposed at the headboard, is not modified.

[0012] The support hooks in this invention (nº 1 of figure 1) are produced in massive steel pipe that can have a round, rectangular or octagonal sections or any other geometrical peripheral normalized form. As shown in the attached drawings, they are curved from a complete material section, do not present any welds or edges and are treated superficially after produced. After applying in the headboard, as shown in figure (23 and 25 of fig. 3), (fig. 4) and (fig. 5) in the frontal part enhanced in the headboard, it is serve to support the crosspieces. It always ends with a curve (13), and the two terminals or hook tips (12) stay always protected in the headboard interior and do not cause damages.

[0013] The headboard (nº 3 of fig. 1) is all in steel with special superficial treatment with variable thickness, implying in its production the previous piece planning, due to its stamping, cut and its adequate technical perforations, being after sequentially bended. This deck headboard does not have any type of welds and presents a geometrical configuration that permits its coupling in any type of known decks and after applied in the deck, presents all its edges and exterior round corners.

[0014] The headboard (nº22 to 25 of fig. 1) can present fronts with little technical variations in order to adequate to the scaffold system or the type of hooks that can be applied. That is why the headboard can have or not a pipe of variable dimensions (16) in one of the sides, which

main purpose is to equalize the deck support, when the support hooks do not permit an efficient nesting of the deck. This headboard can present two or more places to apply the same number of hooks, according with the decks' width. These places present an adequate inlaid inside to the outside (6 fig. n. º 3) with two holes (7) to introduce the two terminals (12) of the hooks (17, 18 and 19), and the two holes can be positioned higher that the inlaid, as shown (22 and 23), or medium zone of the inlaid as in (3.1 and 3.2 of the same figure).

[0015] The hooks are applied and positioned in the frontal headboard zone, being its two tips of the terminals (12) threaded by holes (7) of the inlaid (6). In the inside of the headboard (3), there is a security latch (nº 2 of fig. 2), using security latches for each hooks in the headboard, with two grooves lowered in half cane (n. 5 of fig. 2) to rabbet the two terminals (12) of the hook (1) and two or more faces in square angles, one of them presenting an enhance (nº 2 of fig. 2) that adjusts in the interior inlaid of the headboard face (nº 14 of fig. 5), permitting that after to press the fixation screw (nº 8 of fig. 4), the security latch is positioned (nº 11 of fig. 5) by adjusting the rabbet (14 of fig. nº 5), without oscillation, positioning correctly the two terminals (12) of the support hook. This way, the parquet blocks (2), the squeezing screw (8), with the use of two bolts and nuts, guaranties the solid adjustment of the hooks in the headboard structure does not permit any involuntarily recess or landslide between the headboard and the hook.

[0016] This type of support hooks with pieces that permit its fixation to the headboard structure, presents the security positioning and squeezing latches (2) and the screw (8) that after inserted in its place does not wheel and permits an easy and correct squeezing of the nut (9) applied by the headboard interior and the easy application of these components to the scaffold decks, are surely one added technical value for scaffold users safety, clearly much superior to the hooks currently used in the market.

[0017] This new type of hook has also the particularity to be removable, this is a characteristic that in case of deterioration, motivated per example, by the decks' fall or by its bad utilization, permits to the hooks to be substituted by others similar, having has immediate consequence a huge reduction of financial costs, when compared with the immobilization costs and welding used until now, and having still more value for the decks' instalment therefore the quality remains the same, as well as its safety.

[0018] Finally, it is a method extremely efficient and economic, because, since it can be used, in parallel with any type of common deck, it does not condition the customers that use this type of components to the use of one unique type of scaffold decks.

Fig 1

1 - Hooks

17 - Short hook
18 - Long hook with linear nesting
19 - Long hook with tubular nesting

Fig 2

2 - Safety latch and hooks fixation

20 - Front safety latch

21 - Back safety latch

Fig. 3

3 - Headboard

22 - Headboard without hooks with centred holes in relation to the vertical inlaid axle

23 - Headboard with short centred hooks in relation to the vertical inlaid axle

24 - Headboard without hooks and with holes on top of the inlaid

25 - Headboard with long hooks with on top linear nesting

Fig. 4

- Headboard with cut by the centre set formed by the hook, safety latch, screw, nut, spring and flattened bolts

Fig. 5

- Headboard with cut by the lateral set formed by the hook, safety latch, screw, nut, spring and flattened bolts

Diverse

4 - Enhance moulded in the safety latch (2) same as the element (14)
5 - Grooves in half cane for the terminals (12)
6 - Inlaid inside to outside in enhance in the headboard face
7 - Holes for the terminals application (12) of the hooks
8 - Screws of fixation
9 - Squeezing nut
10 - Spring and flattened bolt
11 - Enhance positioning of the safety latch in the element interior of the headboard
12 - Hook terminal or tip
13 - Frontal hook
14 - Interior element in the headboard face
15 - Free landslide safety latch to break the deck

at the scaffold crosspiece
16 - Equalizer pipe

Claims

1. SUPPORT HOOKS AND HEADBOARD FOR SCAFFOLD DECKS that forms a proper set to apply the new decks used in construction scaffoldings or in similar metallic structures, which is **characterized by** including one or more support hooks (1), that are positioned and fixed with the use of the same number of parquet blocks (2) in the front of the headboard (3), to which after the hooks are duly placed and fixed and without any other alteration or modification, it is ready to be applied in any of the two decks top.

2. SUPPORT HOOKS AND HEADBOARD FOR SCAFFOLD DECKS that forms a set according to claim 1, is **characterized by** including the support hooks (1) that, during production, are curved from a large piece of whole material without cut, welds or edges, which after placed and fixed in the headboard (3), present in the front support (13) finished in and 180º angle and aback with two terminal for fixations (12), the hooks, always with the front (13) and the same terminals (12), can be produced with several different formats (17), correct alterations to formats, according to the peripheral configuration or the distance between the scaffolding bars where the hooks are applied in the headboard.

3. SUPPORT HOOKS AND HEADBOARD FOR SCAFFOLD DECKS that forms a set according to claim 1 and mentioned in 2, is **characterized by** including a parquet block (2) for the hooks positioning and fixing (1), that has at least to faces and present in the front and base, two half cane hips (5) for correct positioning, two terminals (12) of the hooks (1). The half cane hips (5) tip the front and the parquet block that has, in the front, a stand out an ripple (4) of adequate configuration in order that the parquet block is correctly positioned, encasing and fixing without oscillations, in the headboard face interior (3), in the inlaid (14), using to squeeze, a screw (8) and two normal bolts and nuts.

4. SUPPORT HOOKS AND HEADBOARD FOR SCAFFOLD DECKS that forms a set according to claim 1 and mentioned in 2 and 3, is **characterized by** including a headboard (3) that is produced without any type of welds, from a whole steel plate with superficial treatment of variable thickness. Its production is made by a trace with the piece planning, the stamping, the technical holes and the cut, then after bent sequentially, in a way that all the exterior edges and corners stay blocked. The headboard (3) is, when produced, adequate for the decks' width where it will be applied, and, therefore, can present two or more placed to apply the same numbers of hooks (1). The numbers of the hooks (1) applied in the headboard, always higher than to, depends of the decks' width, and the places of the hooks application and fixation in the headboard front present a ripple, inlaid in the interior towards the exterior that forms a little table (6) with two holes (7) where the terminals hooks (1) can be introduced (12). The two holes (7) can be located in the little table middle zone as for the headboards (24) and (25), the technical differences of the headboards holes positioning are determined for the correct headboard adequacy to the scaffolding system and to thee type of hook applied. The headboard front can also present or not, a security breaking latches (15) and a lateral extensive rod (16), to compensate the decks' support or balance.

Amended claims in accordance with Rule 137(2) EPC.

1. BOARD CLAMPS AND RETAINER PANEL FOR SCAFFOLD BOARDS forming a means of attachment to be fitted to the tops of scaffold boards or similar metal structures, **characterised by** the following features: the inclusion of one or more board clamps (1) made of frontal U-shaped metal rods, which rear ends are positioned and locked in place by an equal number of chocks (2) fitted to the inner face of a retainer panel which, once the said clamps are properly slotted into place and secured, requires no further adaptation or modification and can be readily fitted to any of the tops of a scaffold board.

2. BOARD CLAMPS AND RETAINER PANEL FOR SCAFFOLD BOARDS forming a set which, as claimed under Paragraph 1 hereof, is **characterised by** the following features: the inclusion of board clamps (1) made of metal rods presenting no cut or welded surfaces or sharp edges which are bent during their manufacturing process, by which bending and moulding manufacturing process U-shaped clamps are produced featuring a double set of support points with consequent distribution of the forces borne by such clamps, which, once fitted and secured to a retainer panel (3), present a frontal retainer section (13) shaped with a curvature of 180º and a rear locking section fitted with two locking prongs (12), and which, albeit retaining an unchanged frontal section (13) and rear double-prong (12) locking features, can be manufactured in various similar shapes such as (17), (18), or (19), or moulded in any other shape that might prove adequate to fit the size, peripheral configuration, and span between the transoms and ledgers of a scaffolding structure to which such a clamps and retainer panel set may be fitted.

3. BOARD CLAMPS AND RETAINER PANEL FOR SCAFFOLD BOARDS forming a set which, as claimed under Paragraph 1 hereof and as referred to under Paragraph 2 hereof, is **characterised by** the following features: the inclusion of a chock (2) as a means of positioning and securing board clamps (1) in place, featuring at least two squared faces and presenting on its faces and base two sunken semi-circular grooves (5) for purposes of adequately securing the prongs (12) of the said board clamps (1), which chock features two sunken semi-circular grooves (5) cut into its face together with a protruding salience (4) designed in such a manner as to enable its firm positioning against the said retainer panel by insertion of the said chock into a reverse sunken slot (14) feature of the inner face of the said retainer panel (3), leaving no slack, and which chock is subsequently tightened by means of a screw (8) together with a set of two standard washers and nut to secure the prongs of the said clamp.

4. BOARD CLAMPS AND RETAINER PANEL FOR SCAFFOLD BOARDS forming a set which, as claimed under Paragraph 1 hereof and as referred to under Paragraphs 2 and 3 hereof, is **characterised by** the following features: the inclusion of a retainer panel (3) manufactured without any welded parts from a surface-treated whole steel plate of variable thickness, which requires manufacturing according to technical designs and production planning processes including stamping, appropriate hole-punching, and cutting production processes, following the said retainer panel is sequentially folded in order that its outer surface presents only turned edges and corners, and which retainer panel (3) is manufactured to size specifications fitting the width of the board to which it will be fitted, for which purpose it may feature two or more zones into which an equal number of board clamps (1) may be fitted, and which number of clamps (1) fitted to the said retainer panel is always in greater than two, as a function of the width of the board in question, and which zones for inserting and securing the said board clamps are moulded as bevelled protuberances with trapezoidal section (6), each punched with two holes (7) for purposes of inserting the two prongs (12) of the said clamps (1), which holes (7) may either be punched in an intermediate zone of the surface of the aforementioned plateau-shaped protuberance of the said retainer panel (22) and (23) or in the upper zone of the surface of the aforementioned protuberance of the said retainer panel (24) and (25), which positioning difference, as far as the zone of the retainer panel through which such holes are punched is concerned, is a function of the need to adequately attach the said retainer panel to each particular type of clamp employed by a said scaffolding system, and the front of which retainer panel may or may not be additionally fitted with a free-sliding safety latch (15) and a lateral extensor pin (16), as a means of providing board support or as balance compensator device.

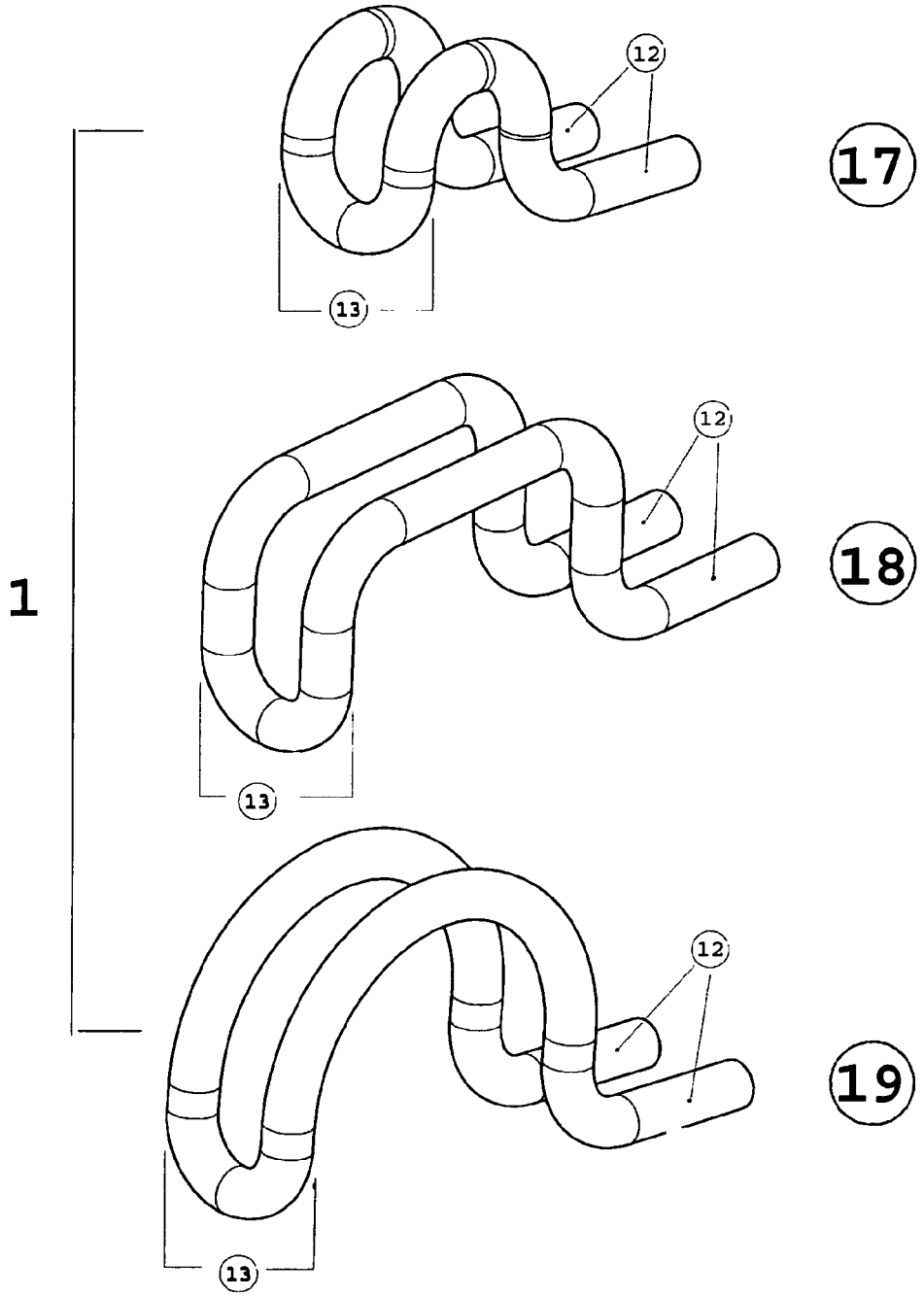

Fig. 1

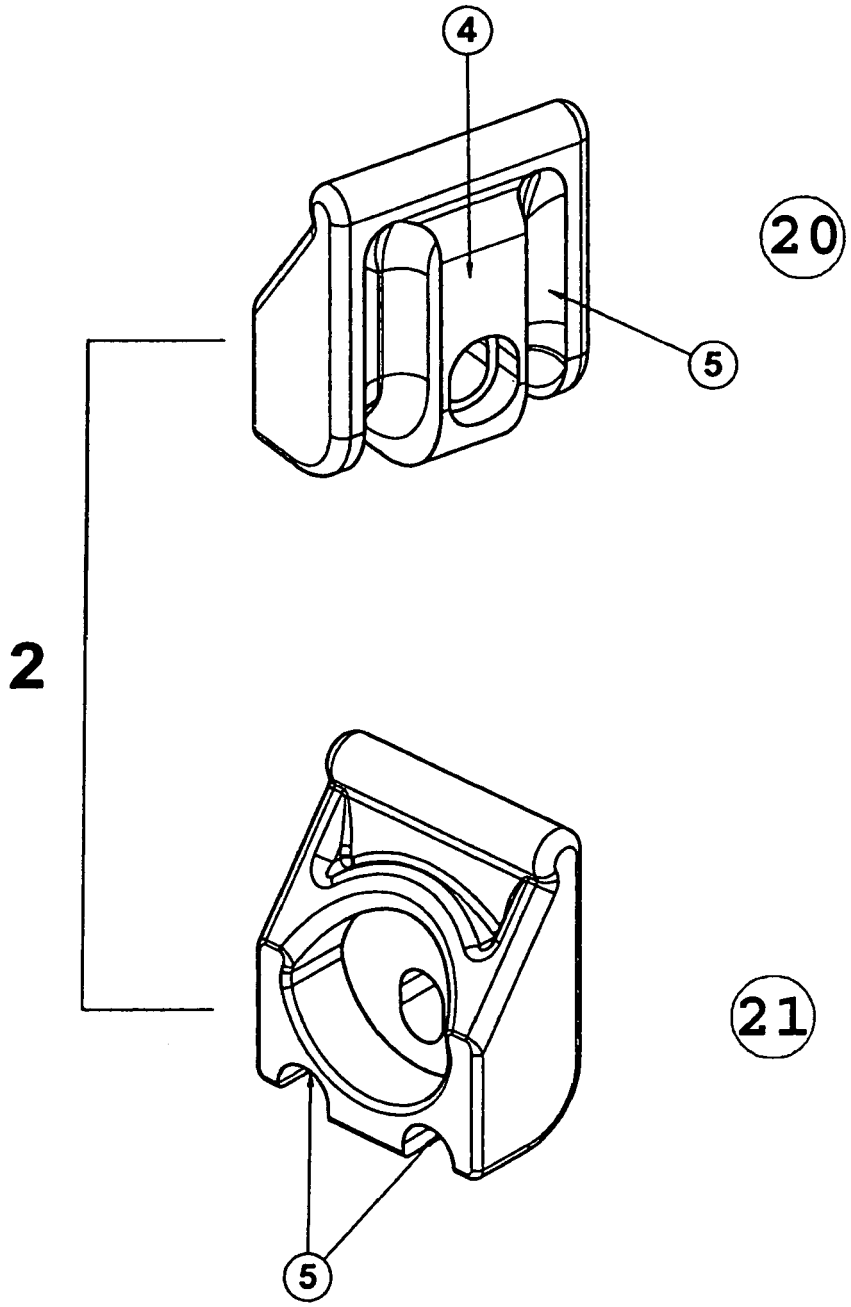

Fig. 2

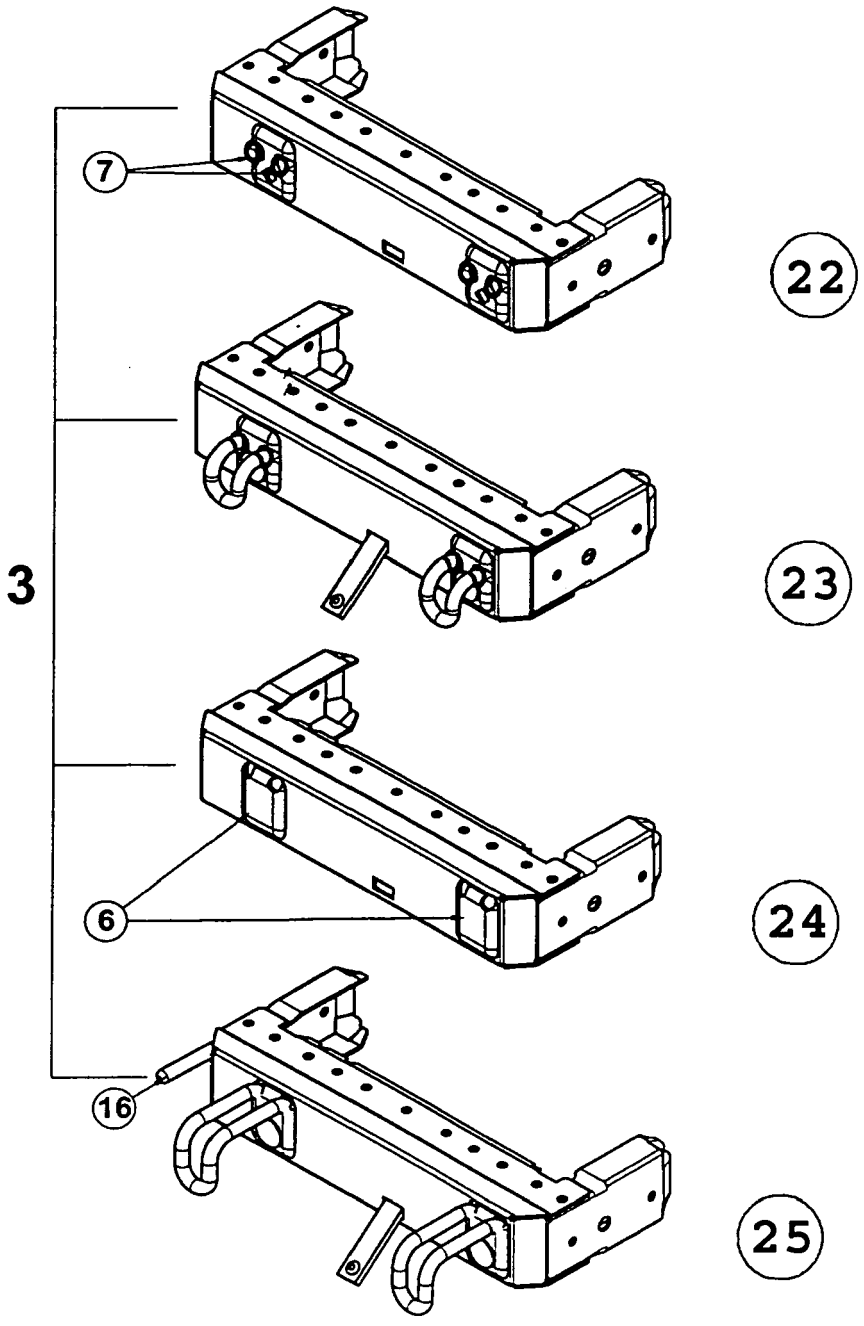

Fig. 3

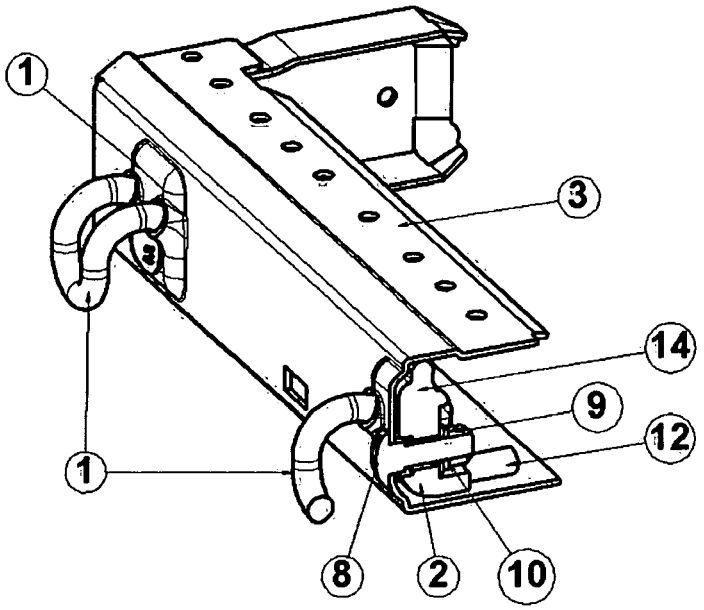

Fig. 4

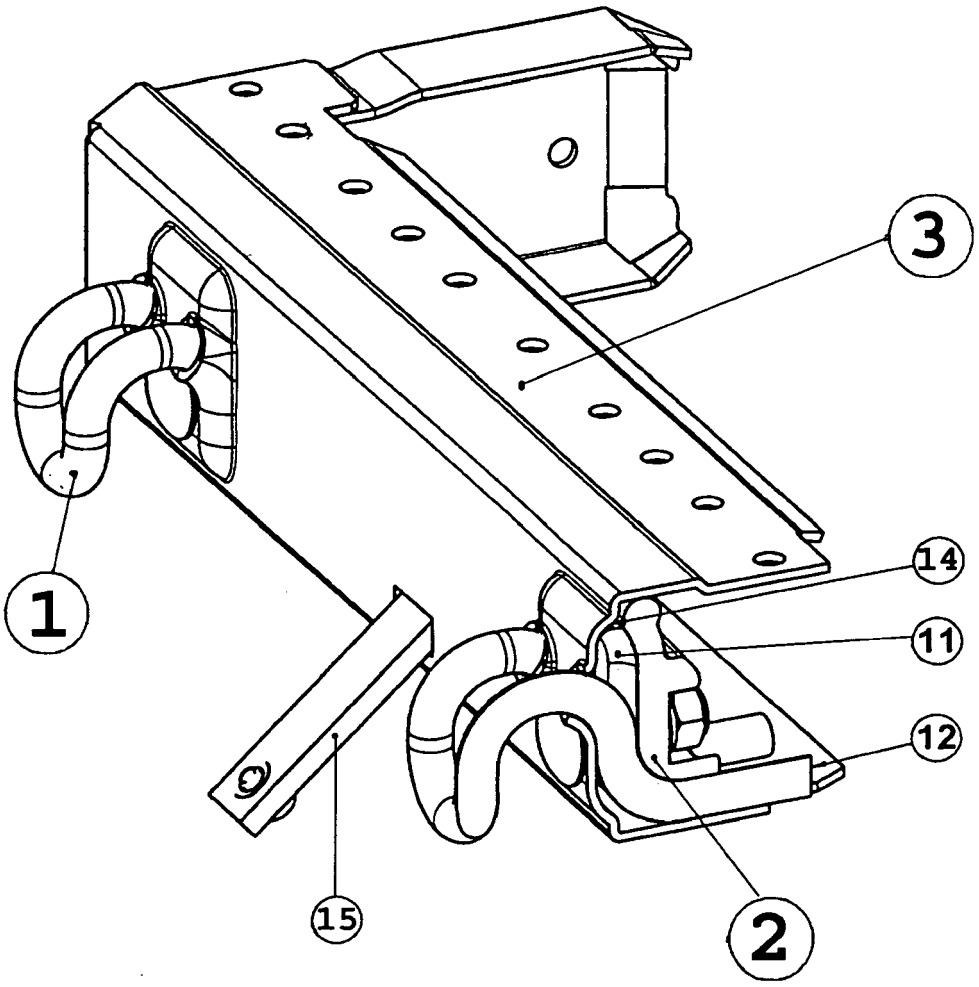

Fig. 5

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 39 8014

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	US 5 882 136 A (PYRITZ MARY B [US] ET AL) 16 March 1999 (1999-03-16) * column 3, lines 12-26 * * column 4, line 40 - column 7, line 46 * * figures 1-6 *	1 2-4	INV. E04G7/28 E04G1/15 E04G5/08
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X Y	JP 05 222832 A (FUJII DENKO) 31 August 1993 (1993-08-31) * abstract; figures 1,2 *	1 2-4	
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Y	FR 2 138 293 A (ENTREPOSE) 5 January 1973 (1973-01-05) * claims 1-3; figures 5,7 *	2	TECHNICAL FIELDS SEARCHED (IPC) E04G
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	25 January 2008	Scharl, Willibald

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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