

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 1 683 930 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

26.07.2006 Bulletin 2006/30

(51) Int Cl.:

E04G 21/00 (2006.01)

(21) Application number: **06380011.4**

(22) Date of filing: **13.01.2006**

(84) Designated Contracting States:

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

Designated Extension States:

AL BA HR MK YU

(30) Priority: **17.01.2005 ES 200500066**

(71) Applicant: **Ingenieria de Encofrados y Servicios,
S.L.**

08150 Parets del Valles (Barcelona) (ES)

(72) Inventor: **Ubinana Félix, José Luis**

08150 Parets del Valles (Barcelona) (ES)

(74) Representative: **Durán Moya, Luis-Alfonso et al
DURAN-CORRETJER**

**Còrsega, 329
(Paseo de Gracia/Diagonal)
08037 Barcelona (ES)**

(54) Clamp for protective railings for works

(57) The clamp comprises two elements (1,2) which are joined together in a guided sliding manner and are intended to embrace with pressure the structure on which the clamp is to be fixed, one of the elements (1) having a general structure in the form of a U with unequal arms (3,4) and the second element (2) having an L-shaped

structure, similarly with unequal arms (6,7), of which the longer arm (6) is slidingly fitted in the interior of the longer arm (3) of the U-shaped part in order to fix the clamp on the shuttering on which it is to be fixed owing to the disposition of a threaded spindle integral with the L-shaped part and disposed in the interior of the engaging tubular elements of the clamp.

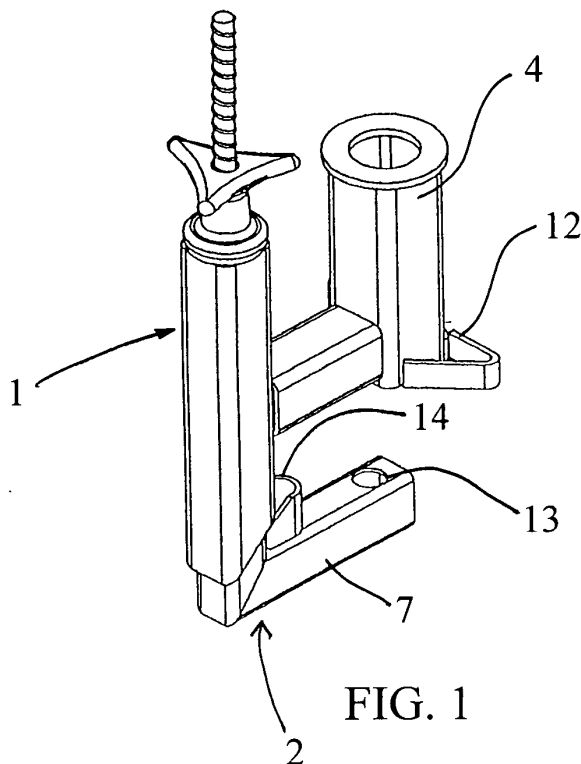


FIG. 1

EP 1 683 930 A2

Description

[0001] The present invention discloses a clamp which allows the easy construction of railings which can be incorporated in shuttering decks, walkway platforms in works and the like.

[0002] The object of the railing clamp according to the present invention is to allow quick and easy connection of the clamp to the deck, walkway platform and the like and similarly to allow the quick connection of the vertical elements to which the hand rails will then be connected to form the railing assembly.

[0003] The clamp according to the present invention basically comprises two mutually engaged elements of which the position is adjustable so as to allow the press fitting thereof on the edge of the platform on which it is to be mounted. One of the constituent elements of the clamp has a substantially U-shaped structure with unequal arms, both of which have a tubular structure, for example, square or of other form, the longer arm of the U sliding over the exterior of the second integral element of the clamp which is basically L-shaped with similarly unequal arms, the longer arm engaging in said longer arm of the U-shaped element, the height being adjustable so that the clamp can be press fitted on the edge of the platform on which it is fixed by means of a spindle which extends through the interior of said engaging tubular elements and receives a stop nut of the U-shaped element which may therefore be raised and lowered by hand, depending on the position of the nut, by pressing on the desired portion of the platform when the clamp is to be fixed.

[0004] The lower horizontal arm of the L-shaped part has through-holes for fastening or for receiving the end pins of the horizontal beams as well as a bracket element capable of receiving a retention fin of a board.

[0005] The base of the shorter tubular element of the U-shaped part has angular lateral supports to prevent lateral rocking of the clamp and a ledge which is toothed at the bottom to allow the engagement thereof with the timber panels of the shuttering or for the retention thereof on an edge of other elements.

[0006] The accompanying drawings of a preferred embodiment of the clamp according to the present invention, given as a non-limiting example, will assist the understanding thereof.

[0007] Fig. 1, 2 and 3 show a perspective view, a lateral elevation and a section of the clamp respectively.

[0008] Fig. 4 is a perspective view of a clamp applied to platform elements and carrying vertical railing elements.

[0009] Fig. 5 and 6 are respective elevations of the application of the clamp according to the invention to respective shutterings for the mounting of the corresponding railings.

[0010] Fig. 7 is a perspective view of embodiments of clamps according to the present invention for forming railings on shuttering for decks of works.

[0011] The clamp according to the present invention basically consists of two mutually guided sliding parts, one of which is designated by reference numeral 1 and the other by reference numeral 2, the first part having a substantially U-shaped structure with two arms 3 and 4 of different lengths, the arm 3 being longer and the arm 4 shorter, the two arms being joined together by a connecting bridge 5. The most convenient cross-section for said arms may be for example, prismatic, without being limited thereto.

[0012] The element 2 is L-shaped with a longer arm 6 and a shorter arm 7.

[0013] The elements are disposed in the manner illustrated in the figures in such a way that the elements 3 and 4 are disposed vertically and the element 7 horizontally. The vertical element 6 of the part 2 receives the externally connected element 3 of the part 1 which may be displaced upward or downward to respectively release or fix the clamp from or to the elements to which it is to be fixed. For this purpose the clamp has an internal spindle 8 provided with an external thread, the spindle being integral with the element 2 and having an upper stop nut 9 screwed thereon. This arrangement enables the position of the element 1 to be limited quickly and easily with respect to the element 2 of the clamp, and allows a raising or lowering movement for the respective release or locking of the clamp from or to the elements on which it is to be mounted.

[0014] On the lower portion of the shorter arm 4 of the clamp element 1 is disposed a small planar profile or bead 10 provided at the bottom with teeth 11 intended to engage in a timber shuttering element on which the clamp is to be placed or to act as a stop, for example against the edge of a tubular metallic element of the structure to which the clamp is fixed. At the same time, the lateral edges of the element 4 have two arms, one of which is designated by reference numeral 12 in Fig. 1 and 2. Said arms, which are disposed symmetrically about the tubular element 4, are intended to impart to the clamp greater stability against lateral tipping by resting on the shuttering or horizontal beam on which the clamp is to be mounted.

[0015] The horizontal arm 7 of the element 2 carries recesses such as 13 and 14 for receiving the end pins of the horizontal beams of the structure on which the clamp is placed or elements for fixing it on the platform on which the clamp is to be fitted.

[0016] In particular, the recess 14 forms an internal bracket element in the corner of the element 2 with its upper edge 21 inclined so that it can be connected to the similarly inclined lower edge 23 of the vertical arm 3 of the part 1.

[0017] The clamp is used in the manner illustrated in the figures and is intended to receive, via the shorter element 4 of the U-shaped part 1, a vertical element or post 15 of a railing comprising one or more horizontal elements such as those designated by reference numerals 16 and 17 for connecting the hand rails of the railing.

[0018] The clamp can be fitted, for example, on a metal structure, as illustrated in Fig. 4, and is fixed to the girders or horizontal beam-holders 19 and horizontal beams 18 both by the compression effected by rotating the nut 9 and by the interposition of an end pin 20 of the horizontal beam 19.

[0019] Fig. 5 shows an example of assembly in which the clamp is fitted on the structure supporting a shuttering board 22, with the end of its lower arm 7 engaging in the girder or horizontal beam holder 19, the front profile 10 of the shorter vertical arm 4 abutting against the profile of the horizontal beam 18.

[0020] Fig. 6 shows the embodiment in which the clamp supports via the lower short arm 7, a girder element 24 and, at the top, the shorter vertical arm 4 engages via its lower front profile with the timber board 25.

[0021] Fig. 7 shows a plurality of examples of application of the clamps in dispositions as shown in Fig. 5 for the clamps 26, 27 and 28, while the application corresponds to that shown schematically in Fig. 6 in the case of the clamps 29 and 30.

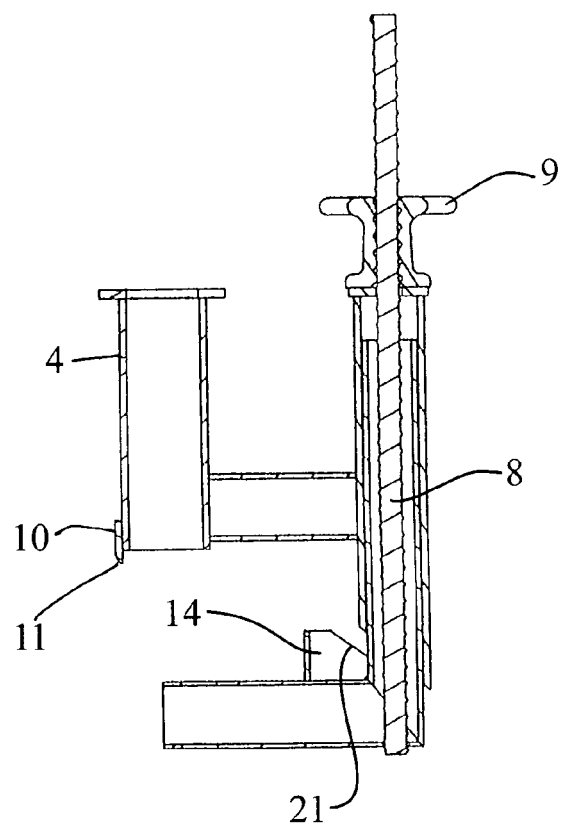
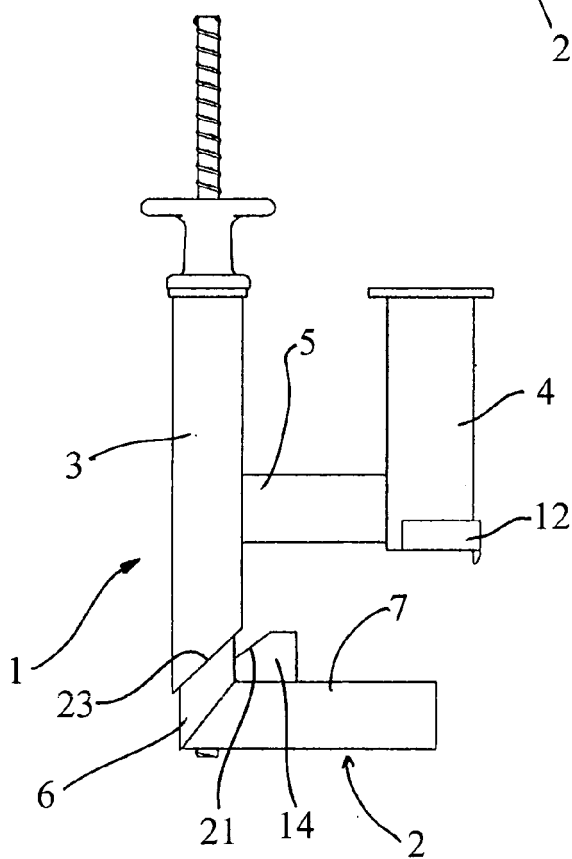
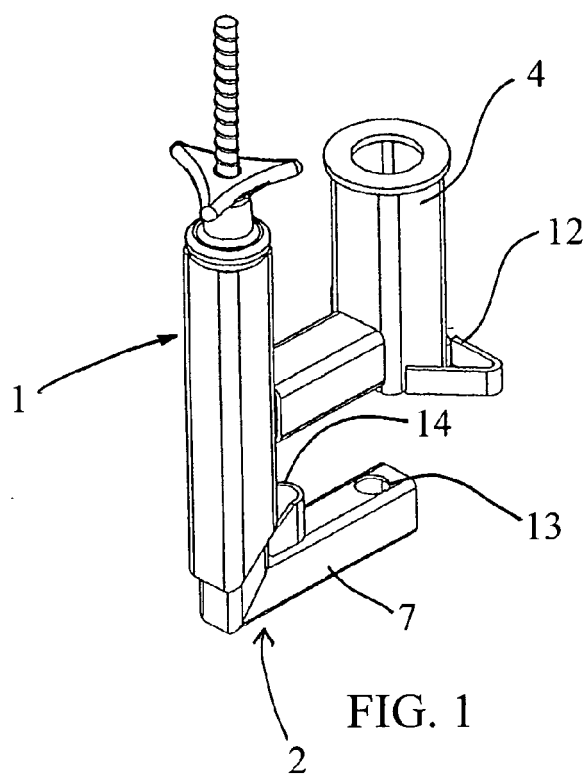
[0022] Fig. 7 shows dispositions of the railing at the corners such as those designated by reference numerals 31 and 32 and others as a transition between deck shuttering 33 and a projecting cantilever zone or platform 34. However, it should be noted that the illustrated applications of the clamp are merely non-limiting examples, and many other dispositions and assemblies employing the clamp according to the invention can be used for quickly and easily forming protective railings for works.

to provide transverse stability thereof once it has been fixed.

3. Clamp for protective railings for works according to claim 1, **characterised in that** the lower edge of the shorter vertical arm of the U-shaped part has a profile with a toothed lower edge for the engagement thereof on timber shuttering or to perform the function of a lateral stop on a structural element.
4. Clamp for protective railings for works according to claim 1, **characterised in that** the shorter lower arm of the L-shaped part of the clamp has upper and lower through-holes to allow the connection of pins of the horizontal beams for supporting the shuttering, as well as a bracket element in the internal corner of said part adapted to receive retaining lugs for boards and the like.
5. Clamp for protective railings for works according to claim 4, **characterised in that** the upper edge of the bracket element is inclined to allow the engagement of the lower end of the longer arm of the U-shaped part, which is also inclined.

Claims

1. Clamp for protective railings for works, **characterised in that** it comprises two elements which are joined together in a guided sliding manner and are intended to embrace with pressure the structure on which the clamp is to be fixed, one of the elements having a general structure in the shape of a U with unequal arms and the second element having an L-shaped structure, similarly with unequal arms, of which the longer arm is slidably fitted in the interior of the longer arm of the U-shaped part in order to fix the clamp on the shuttering on which it is to be fixed owing to the disposition of a threaded spindle integral with the L-shaped part and disposed in the interior of the engaging tubular elements of the clamp, a stop nut being joined to the spindle to enable the downward displacement thereof for fixing the clamp with respect to the shuttering to which it is to be joined and to enable the upward displacement thereof for releasing the clamp.
2. Clamp for protective railings for works according to claim 1, **characterised in that** the shorter vertical arm of the U-shaped part has lateral extensions for support on the shuttering to which the clamp is fixed



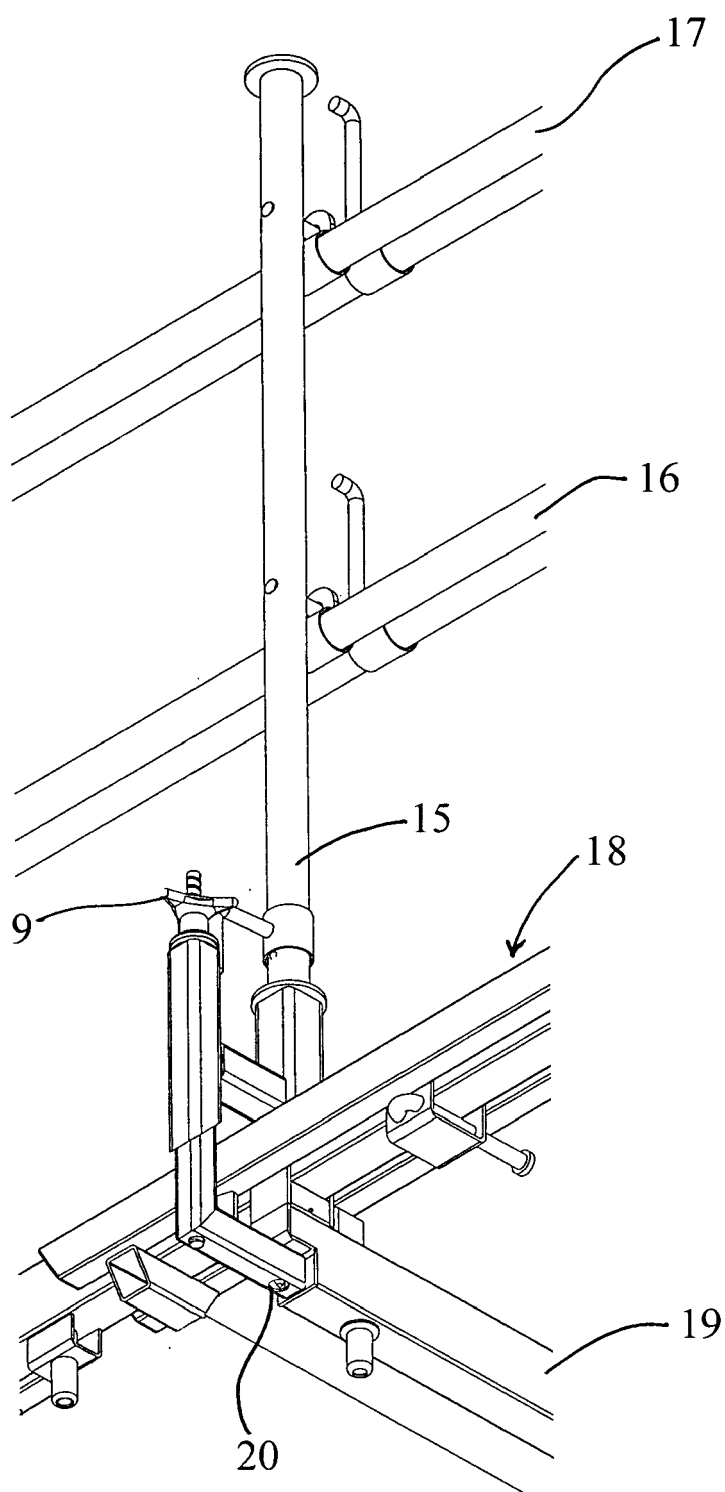


FIG. 4

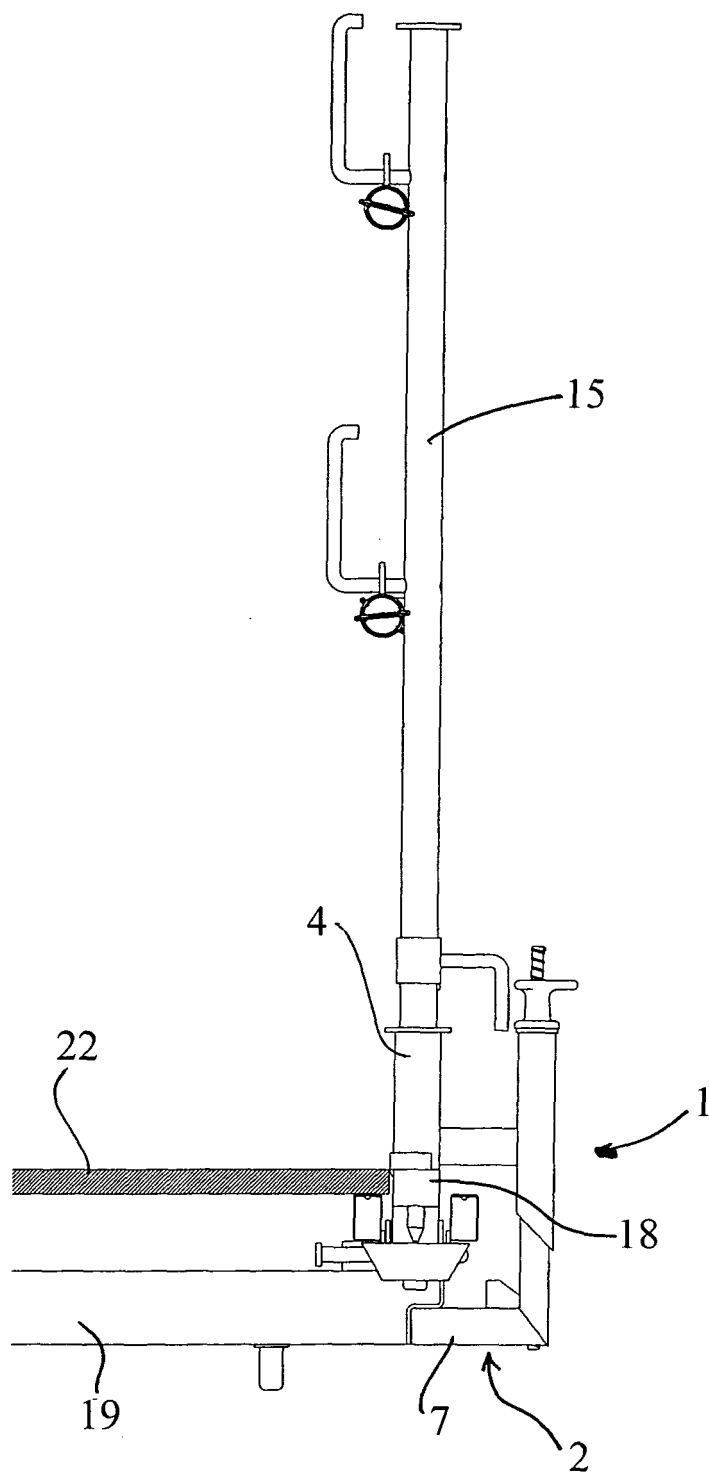


FIG. 5

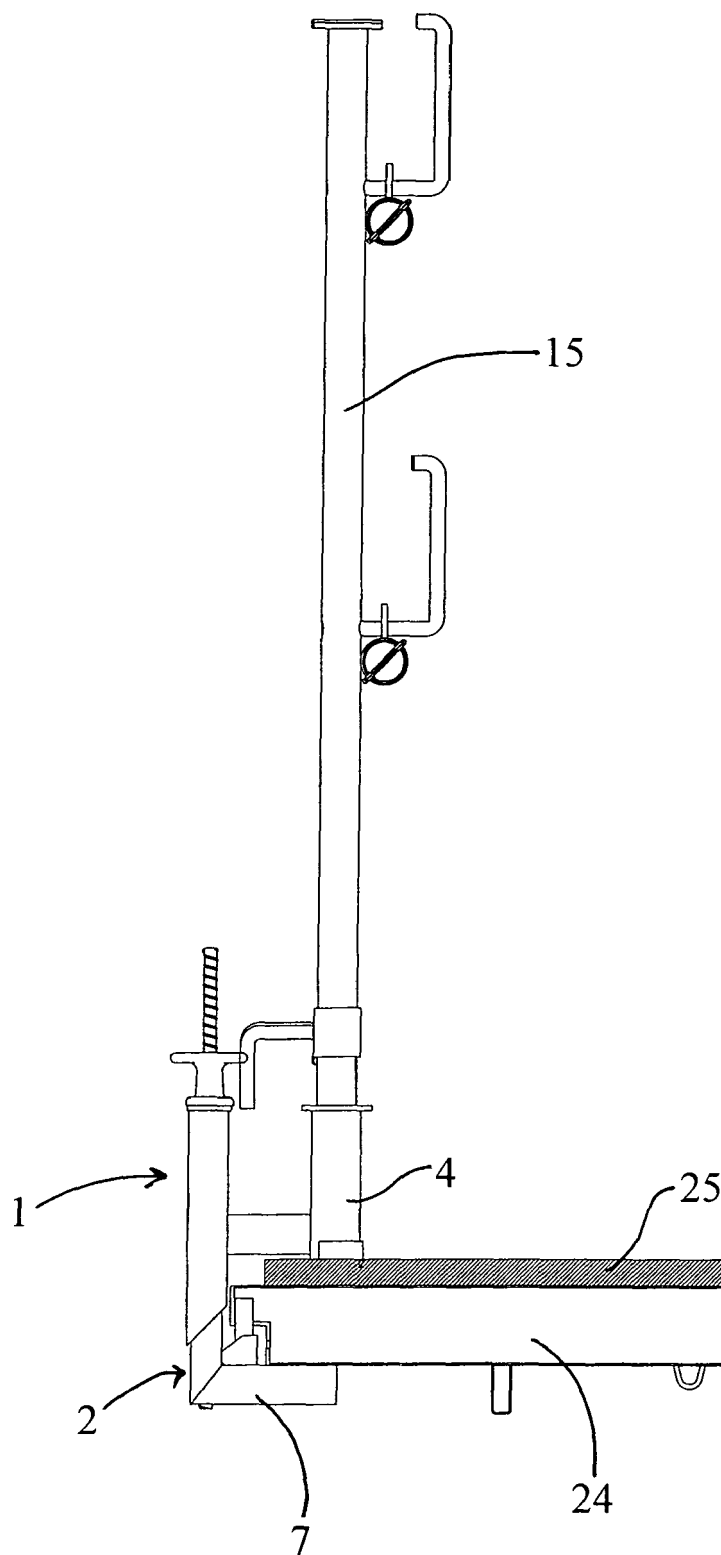


FIG. 6

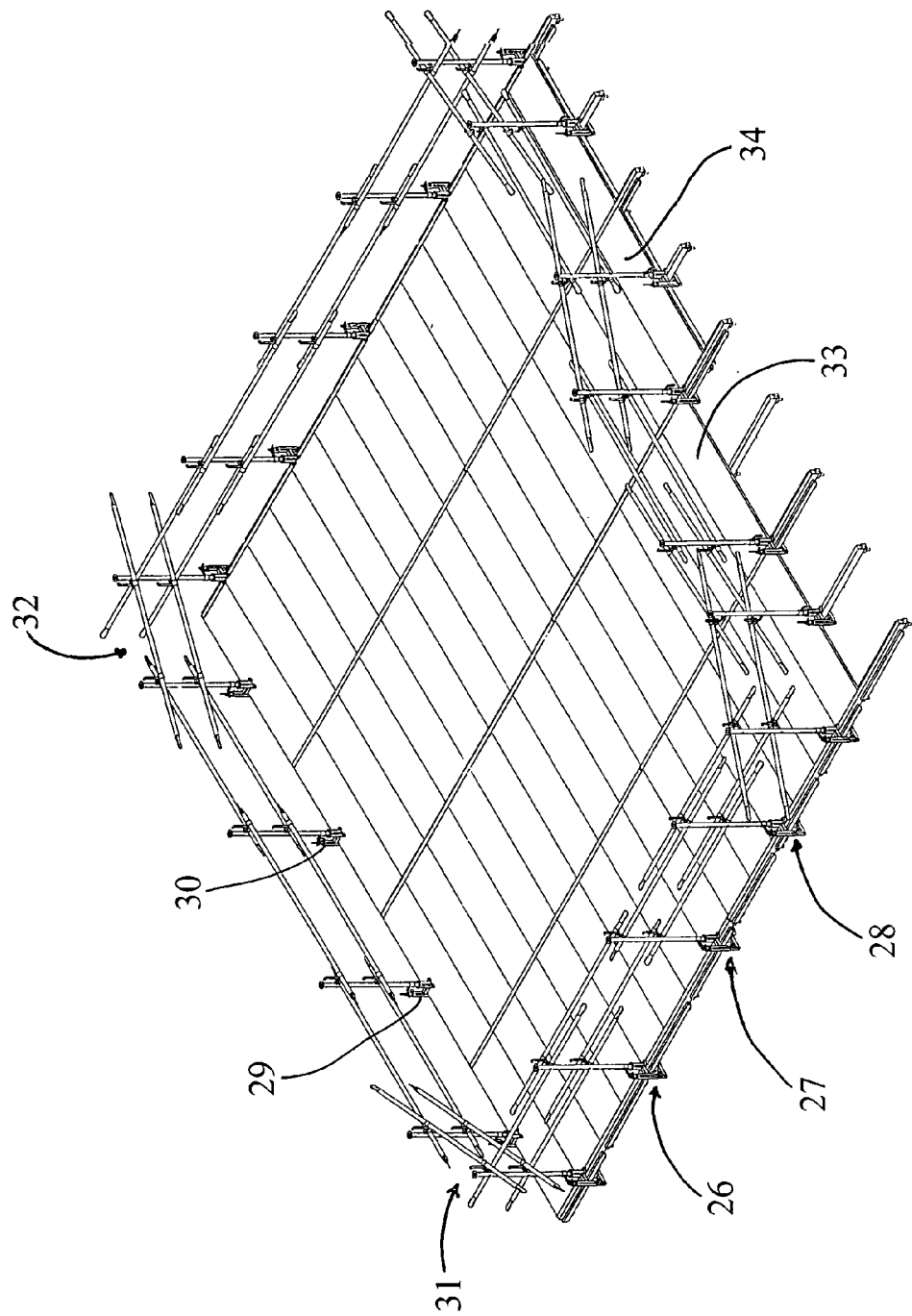


FIG. 7