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(54) **ARRANGEMENT FOR HOLDING A COLUMN, CARRYING A BALCONY, ON A HOUSE WALL**

ANORDNUNG ZUM HALTEN EINER SÄULE UND EINES BALKONS AN EINER HAUSWAND

DISPOSITIF POUR MAINTENIR UNE COLONNE, PORTER UN BALCON, SUR UN MUR DE MAISON

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Description

Technical Field

[0001] The present invention relates to an arrangement for holding or securing, in a vertical position on a house wall, a tubular column adapted to horizontally carry a balcony slab, the tubular column having a plane side, which extends over the length of the column and is adapted to face the house wall, and the arrangement comprising a mounting plate, which is adapted to be fastened to the house wall, level with a floor structure, with one of its flat sides abutting against the house wall, and a protrusion, which is connected to the mounting plate and extends from the other flat side thereof and which is arranged to engage with the column for securing the same.

Background Art

[0002] A prior-art arrangement of this kind for securing a column will be described in more detail below, reference being made to Figs 1 and 2 of the accompanying drawings. Fig. 1 is a side view illustrating how a column of the kind described above is secured to a house wall. Fig. 2 shows a mounting plate of the prior-art arrangement as seen in the direction indicated by the arrow A in Fig. 1.

[0003] Figs 1 and 2 show two tubular, vertical columns 1, which are placed on top of each other and which, at their lower end, each support a balcony slab 2. Each of these columns 1, which consist of steel pipes of square cross-section, is secured to a house wall 3 by means of a prior-art arrangement 4 of the kind described above. Each balcony slab 2 is carried on the associated column 1 by means of a carrier flange 5 and a tie-rod 6.

[0004] The carrier flange 5 is attached by means of bolted joints 7 to the inside of the carrier column 1, i.e. the side facing the balcony slab 2, some distance above the balcony slab and extends in an arc-shaped manner down to the balcony slab 2. The carrier flange 5 is fastened to the side edge surface of the balcony slab 2 that faces the column 1 by means of a bolted joint 8. In a corresponding manner, the tie-rod 6 is fastened to the column 1 and the balcony slab 2 by means of bolted joints.

[0005] The arrangement 4 comprises a mounting plate 9, which is fastened to the house wall 3 by means of two stud bolts 10, which extend into a floor structure 11, in which they are fixed, for example, by means of chemical anchors, and nuts 10a screwed onto the stud bolts 10. The mounting plate 9 has a protrusion 12 in the form of a U-shaped outward bend, which extends from the house wall 3 and whose inner dimensions correspond to the outer cross-sectional dimensions of the column 1. The protrusion 12 encloses the column 1, which is thus secured to the house wall 3 by the mounting plate 9.

[0006] The work required to mount the column 1 with the aid of the arrangement 4 and to mount the balcony slab 2 with the aid of the carrier flange 5 and the tie-rod 6 is fairly complicated. Moreover, in the prior-art example

described above, extensive supplementary work is required to cover and seal on the one hand the parts of the arrangement 4 which are located outside the column 1, i.e. on the side thereof located opposite the balcony slab 2, and on the other hand the parts of the carrier flange 5 and the associated bolted joints 7 that are visible from the inside of the balcony.

[0007] Reference is also made to DE 197 24 393 A1 and WO 89/12148.

20 Summary of the Invention

[0008] The object of the present invention is to provide a securing arrangement, which in the first place allows rapid and simple mounting on a house wall of a tubular column adapted to horizontally carry a balcony slab and which in the second place makes it possible to design the mounting plate in such a manner that no parts of the arrangement will be located outside the column, i.e. the supplementary work required to cover and seal such parts can be eliminated or at least considerably reduced.

[0009] According to the invention, this object is achieved by an arrangement according to claim 1, which is of the kind stated by way of introduction and which is characterised in that the protrusion has a through hole, which extends parallel to the flat sides of the mounting plate, and is adapted to be inserted in an opening in said plane side of the tubular column, the column has a stud through-hole, which extends parallel to said plane side and the arrangement further comprises a stud, which is adapted to be inserted in the stud hole and in the through hole of the protrusion inserted in the opening of the column for securing the column in the vertical position on the house wall.

[0010] The protrusion is preferably located, with respect to the horizontal extension of the mounting plate fastened to the house wall, adjacent one end of said mounting plate. This allows the mounting plate to be arranged in such a manner that no parts thereof project outside the column when the protrusion is inserted in the column.

[0011] Suitably, to permit the taking-up of tolerances with respect to the vertical distance between successive floor structures and/or the levels where the balcony slabs are to be mounted, the through hole of the protrusion is a vertically elongate hole, the stud through-hole of the column is a vertically elongate stud hole and the opening of the column is vertically elongate.

[0012] The through hole of the protrusion, like the stud through-hole of the column, has a horizontal width which advantageously is only slightly greater than the diameter of the stud.

[0013] The opening of the column has a horizontal width which advantageously is only slightly greater than the horizontal width of the protrusion.

[0014] The column advantageously consists of a pipe of square cross-section.

[0015] The protrusion preferably consists of a pipe

piece of square cross-section.

[0016] The tubular column preferably has a slot for receiving a flange fastened to a side edge surface of the balcony slab and projecting substantially perpendicularly to said side edge surface for suspending the balcony slab from the column.

Brief Description of the Drawings

[0017] The invention will now be described in more detail with reference to the accompanying drawings.

Fig. 1 is a side view illustrating the above-described prior-art arrangement.

Fig. 2 shows a mounting plate of the prior-art arrangement as seen in the direction indicated by the arrow A in Fig. 1.

Fig. 3 is a perspective view of a mounting plate forming part of the arrangement according to the invention.

Fig. 4 is a perspective view obliquely from above and behind of the arrangement according to the invention.

Fig. 5 is a view corresponding to that of Fig. 4 but showing a tubular column only.

Fig. 6 is a perspective view obliquely from above and from the front of the arrangement according to the invention without a column.

Description of a Preferred Embodiment

[0018] The shown arrangement according to the invention comprises a mounting plate 20 of steel, which is shown in Figs 3, 4 and 6. The mounting plate 20, which is shown in its position as mounted on a house wall (not shown), has a horizontally elongate, rectangular shape. The mounting plate 20 has a stud-bolt hole adjacent each of its ends, through which hole a stud bolt 21 extends. The two stud bolts 21 extend, in the same way as the stud bolts 10 in the prior-art arrangement 4 described above, through the house wall and into a floor structure (not shown), in which they are fixed in a known manner, for example by means of chemical anchors. Each stud bolt 21 is threaded at least at the end thereof projecting from the house wall and the mounting plate, onto which end a nut 22 is screwed. When the nuts 22 have been tightened and the mounting plate 20 mounted on the house wall, one flat side of the mounting plate abuts against the house wall.

[0019] The mounting plate 20 has, adjacent one of its stud-bolt holes (the right one in Fig. 3) a protrusion 23 in the form of a pipe piece of substantially square cross-section, which extends horizontally from the other flat side of the mounting plate, the one facing away from the house wall. The tubular protrusion 23 is welded to the mounting plate 20 in a position such that the nut 22 arranged at said one stud-bolt hole and the stud-bolt end onto which it is screwed are situated inside the protrusion

23, as shown in Fig. 3. The tubular protrusion 23 has, in each of its two vertical, mutually opposite pipe walls, a vertically elongate hole 24. The holes 24 are located just opposite each other and together form a through hole 24, 24 in the protrusion 23 that runs parallel to the flat sides of the mounting plate 20.

[0020] A column 25 for horizontally carrying a balcony slab 26 extends vertically upwards on the house wall. The column 25 consists of a steel pipe, which is of substantially square cross-section, one side 27 of the pipe being oriented so that its plane surface faces the house wall. The column 25 is usually one of a plurality of vertical columns arranged on top of each other and carrying a balcony, the lowermost column of which is arranged on and supported by a plinth or console (not shown) arranged at the lower portion of the house wall. Naturally, the column 25 may itself be the lowermost column in the line of columns. The upper end of the column 25 is situated substantially level with the upper edge of the mounting plate 20.

[0021] In its pipe side 27 facing the mounting plate 20, the tubular column 25 has a vertically elongate and substantially rectangular opening 28, whose height is substantially greater than the height of the protrusion 23 and whose width is only slightly greater than the width of the protrusion 23. As shown in Fig. 4, the protrusion 23 extends far enough into the column 25 via the opening 28 for the pipe side 27 to abut against the mounting plate 20.

[0022] In each of its two, opposite pipe sides, which are perpendicular to the pipe side 27, the tubular column 25 has a hole 29, which in the example shown is a circular hole, but which could also be a vertically elongate hole. The holes 29 are located just opposite each other and together form a stud through-hole 29, 29 in the column 25 that runs parallel to the flat sides of the mounting plate 20. When the protrusion 23 is completely inserted in the column 25, as shown in Fig. 4, the vertical centre lines of the holes 24 in the protrusion 23 and of the holes 29 in the column 25 are situated in one and the same vertical plane parallel to the flat sides of the mounting plate 20. The horizontal width of the holes 24 is substantially the same as the diameter of the holes 29.

[0023] A stud 31 provided with a head 30 extends through the stud through-hole 29, 29 in the column 25 and the through hole 24, 24 in the protrusion 23. The diameter of the stud 31 is slightly smaller than the horizontal width of the holes 24 and the diameter of the holes 29, whereas the diameter of the stud head 30 is greater than this diameter. When the head 30 of the stud 31 abuts against one of the pipe sides provided with holes 29 of the tubular column 25, its opposite end projects slightly from the other of these pipe sides. The stud 31 is prevented from being pulled out by means of a locking washer 32. This opposite stud end and, thus, the locking washer 32 are located outside that pipe side of the tubular pipe 25 that faces the balcony slab 26.

[0024] In this pipe side, a vertical slot 33 is provided outside of the hole 29, i.e. further away from the pipe side

27. A flange 34 forming one leg of a right-angled angle element 35 is inserted in the slot 33, the other leg 36 of said angle element extending parallel to one side edge surface of the balcony slab 26 and abutting against the same. The angle element 35 is fastened to the balcony slab 26 by means of two bolts 37. The flange 34 has, at its lower edge, a downwardly open notch 38, with which the lower boundary edge of the slot 33 engages. In this way, the balcony slab 26 is suspended from the column 25.

[0025] As in the case of the prior-art arrangement described above, the balcony slab 26 is also supported by a oblique tie-rod (not shown), which is fastened at its lower end to the balcony slab 26 and at its upper end to yet another column, which rests on the column 25 and forms an upward extension of the same.

[0026] As will be appreciated an arrangement corresponding to the above-described arrangement according to the invention is provided on the other side of the balcony slab 26.

[0027] When mounting a balcony slab 26, the first step in the case of both arrangements is to fasten the mounting plate 20 to the house wall, level with a floor structure, in the manner described above. The vertically supported column 25 is then brought into abutment against the mounting plate 20, in connection with which the protrusion 23 is inserted in the opening 28 of the column. The column 25 is locked in this position by inserting the stud 31 in the holes 24 and 29 and by mounting the locking washer 32. The angle element 35, which has not yet been fastened to the balcony slab 26, is suspended from the column 25 by inserting its flange 34 in the slot 33. The balcony slab 26 is then lifted in place, whereupon the angle element 35 is fastened to the balcony slab by means of the bolts 37. It will be appreciated that these operations are performed on both sides of the balcony slab 26. Finally, a tie-rod is fastened on both sides to both the balcony slab 26 and the next column, which rests on the column 25.

Claims

1. An arrangement for securing, in a vertical position on a house wall, a tubular column (25) having a plane side (27), which extends over the length of the column and is adapted to face the house wall, and a stud through-hole (29, 29), which extends parallel to said plane side (27), and being adapted to horizontally carry a balcony slab (26), and the arrangement comprising a mounting plate (20), which is adapted to be fastened to the house wall, level with a floor structure, with one of its flat sides abutting against said house wall, and a protrusion (23), which is connected to the mounting plate (20) and extends from the other flat side thereof and which is arranged to engage with the column (25) for securing the same,

characterised in that,

the protrusion (23) has a through hole (24, 24), which extends parallel to the flat sides of the mounting plate (20), and is adapted to be inserted in an opening (28) in said plane side (27) of the tubular column (25), and the arrangement further comprises a stud (31), which is adapted to be inserted in the stud hole (29, 29) and in the through hole (24, 24) of the protrusion (23) inserted in the opening (28) of the column (25) for securing the column, in the vertical position, on the house wall.

2. An arrangement as claimed in claim 1, wherein the protrusion (23) is located, with respect to the horizontal extension of the mounting plate (20) fastened to the house wall, adjacent one end of said mounting plate.
3. An arrangement as claimed in claim 1 or 2, wherein the through hole (24, 24) of the protrusion (23) is a vertically elongate hole.
4. An arrangement as claimed in any one of the preceding claims, wherein the stud through-hole (29, 29) of the column (25) is a vertically elongate stud hole.
5. An arrangement as claimed in any one of the preceding claims, wherein the through hole (24, 24) of the protrusion (23), like the stud through-hole (29, 29) of the column (25), has a horizontal width which is only slightly greater than the diameter of the stud (31).
6. An arrangement as claimed in any one of the preceding claims, wherein the opening (28) of the column (25) is vertically elongate.
7. An arrangement as claimed in any one of the preceding claims, wherein the opening (28) of the column (25) has a horizontal width which is only slightly greater than the horizontal width of the protrusion (23).
8. An arrangement as claimed in any one of the preceding claims, wherein the column (25) consists of a pipe of square cross-section.
9. An arrangement as claimed in any one of the preceding claims, wherein the protrusion (23) consists of a pipe piece of square cross-section.
10. An arrangement as claimed in any one of the preceding claims, wherein the tubular column (25) has a slot (33) for receiving a flange (34) fastened to a side edge surface of the balcony slab (26) and projecting substantially perpendicularly to said side edge surface for suspending the balcony slab (26)

from the column (25).

Patentansprüche

1. Anordnung zum Sichern einer Rohrsäule in einer senkrechten Lage an einer Hauswand (25), die eine flache Seite (27), die sich über die Länge der Säule erstreckt und angepasst ist, sodass sie der Hauswand zugewandt ist, und ein Bolzendurchgangsloch (29, 29), das sich parallel zur flachen Seite (27) erstreckt und angepasst ist, eine Balkonplatte (26) horizontal zu tragen, aufweist, und wobei die Anordnung eine Montageplatte (20) umfasst, die angepasst ist, an der Hauswand auf gleichem Niveau mit einer Bodenstruktur befestigt zu werden, wobei eine ihrer flachen Seiten an der Hauswand anliegt, und einen Vorsprung (23), der mit der Montageplatte (20) verbunden ist und sich von der anderen flachen Seite davon erstreckt und der derart angeordnet ist, dass er in die Säule (25) eingreift, um diese zu sichern, **dadurch gekennzeichnet, dass,** der Vorsprung (23) ein Durchgangsloch (24, 24) aufweist, das sich parallel zu den flachen Seiten der Montageplatte (20) erstreckt und angepasst ist, in eine Öffnung (28) in der flachen Seite (27) der Rohrsäule (25) eingeführt zu werden, und dass die Anordnung weiter einen Bolzen (31) umfasst, der angepasst ist, um in das Bolzenloch (29, 29) und in das Durchgangsloch (24, 24) des Vorsprungs (23) eingeführt zu werden, der in die Öffnung (28) der Säule (25) eingeführt ist, um die Säule in der senkrechten Lage an der Hauswand zu sichern.
2. Anordnung nach Anspruch 1, wobei sich der Vorsprung (23) in Bezug auf die horizontale Ausdehnung der Montageplatte (20) befestigt an der Hauswand angrenzend an ein Ende der Montageplatte befindet.
3. Anordnung nach Anspruch 1 oder 2, wobei das Durchgangsloch (24, 24) des Vorsprungs (23) ein vertikal längliches Loch ist.
4. Anordnung nach einem der vorstehenden Ansprüche, wobei das Bolzendurchgangsloch (29, 29) der Säule (25) ein vertikal längliches Bolzenloch ist.
5. Anordnung nach einem der vorstehenden Ansprüche, wobei das Durchgangsloch (24, 24) des Vorsprungs (23) wie das Bolzendurchgangsloch (29, 29) der Säule (25) eine horizontale Breite aufweist, die nur geringfügig größer ist als der Durchmesser des Bolzens (31).
6. Anordnung nach einem der vorstehenden Ansprüche

che, wobei die Öffnung (28) der Säule (25) vertikal länglich ist.

7. Anordnung nach einem der vorstehenden Ansprüche, wobei die Öffnung (28) der Säule (25) eine horizontale Breite aufweist, die nur geringfügig größer als die horizontale Breite des Vorsprungs (23).
8. Anordnung nach einem der vorstehenden Ansprüche, wobei die Säule (25) aus einem Rohr mit quadratischem Querschnitt besteht.
9. Anordnung nach einem der vorstehenden Ansprüche, wobei der Vorsprung (23) aus einem Rohrstück mit quadratischem Querschnitt besteht.
10. Anordnung nach einem der vorstehenden Ansprüche, wobei die Rohrsäule (25) einen Schlitz (33) aufweist, um einen Flansch (34) aufzunehmen, der an einer Seitenrandfläche der Balkonplatte (26) befestigt ist und im Wesentlichen senkrecht zur Seitenrandfläche vorsteht, um die Balkonplatte (26) von der Säule (25) her schwebend zu halten.

Revendications

1. Arrangement pour la fixation, dans une position verticale sur un mur de maison, d'une colonne tubulaire (25) présentant un côté plat (27), lequel s'étend sur la longueur de la colonne tout en étant adapté pour faire face au mur de maison, et un trou de passage de goujon (29, 29) s'étendant parallèlement audit côté plat (27), tout en étant adaptée pour supporter horizontalement une dalle de balcon (26), et l'arrangement comprenant une plaque de montage (20), laquelle est adaptée pour être fixée au mur de maison, au niveau d'une structure de sol, avec l'un de ses côtés plats butant contre ledit mur de maison, et une saillie (23) reliée à la plaque de montage (20) tout en s'étendant à partir de l'autre côté plat de celle-ci, et laquelle est conçue pour s'engager avec la colonne (25) pour fixer cette dernière, **caractérisé en ce que** la saillie (23) présente un trou de passage (24, 24) s'étendant parallèlement aux côtés plats de la plaque de montage (20), tout en étant adapté pour être insérée dans une ouverture (28) dans ledit côté plat (27) de la colonne tubulaire (25), et **en ce que** l'arrangement comprend en outre un goujon (31) adapté pour être inséré dans le trou de goujon (29, 29) et dans le trou de passage (24, 24) de la saillie (23) insérée dans l'ouverture (28) de la colonne (25) pour fixer la colonne, dans la position verticale, sur le mur de maison.
2. Arrangement selon la revendication 1, dans lequel la saillie (23) est située à côté d'une extrémité de

ladite plaque de montage, par rapport à l'extension horizontale de la plaque de montage (20) fixée au mur de maison.

3. Arrangement selon la revendication 1 ou 2, dans lequel le trou de passage (24, 24) de la saillie (23) est un trou allongé verticalement. 5
4. Arrangement selon l'une quelconque des revendications précédentes, dans lequel le trou de passage de goujon (29, 29) de la colonne (25) est un trou de goujon allongé verticalement. 10
5. Arrangement selon l'une quelconque des revendications précédentes, dans lequel le trou de passage (24, 24) de la saillie (23), tout comme le trou de passage de goujon (29, 29) de la colonne (25), présente une largeur horizontale à peine supérieure au diamètre du goujon (31). 15
6. Arrangement selon l'une quelconque des revendications précédentes, dans lequel l'ouverture (28) de la colonne (25) est allongée verticalement. 20
7. Arrangement selon l'une quelconque des revendications précédentes, dans lequel l'ouverture (28) de la colonne (25) présente une largeur horizontale à peine supérieure à la largeur horizontale de la saillie (23). 25
8. Arrangement selon l'une quelconque des revendications précédentes, dans lequel la colonne (25) consiste en un tuyau à section transversale carrée. 30
9. Arrangement selon l'une quelconque des revendications précédentes, dans lequel la saillie (23) consiste en une pièce de tuyau à section transversale carrée. 35
10. Arrangement selon l'une quelconque des revendications précédentes, dans lequel la colonne tubulaire (25) comporte une fente (33) destinée à recevoir un rebord (34) fixé à une surface de bord latéral de la dalle de balcon (26) et faisant saillie substantiellement perpendiculairement à ladite surface de bord latéral pour suspendre la dalle de balcon (26) à partir de la colonne (25). 40

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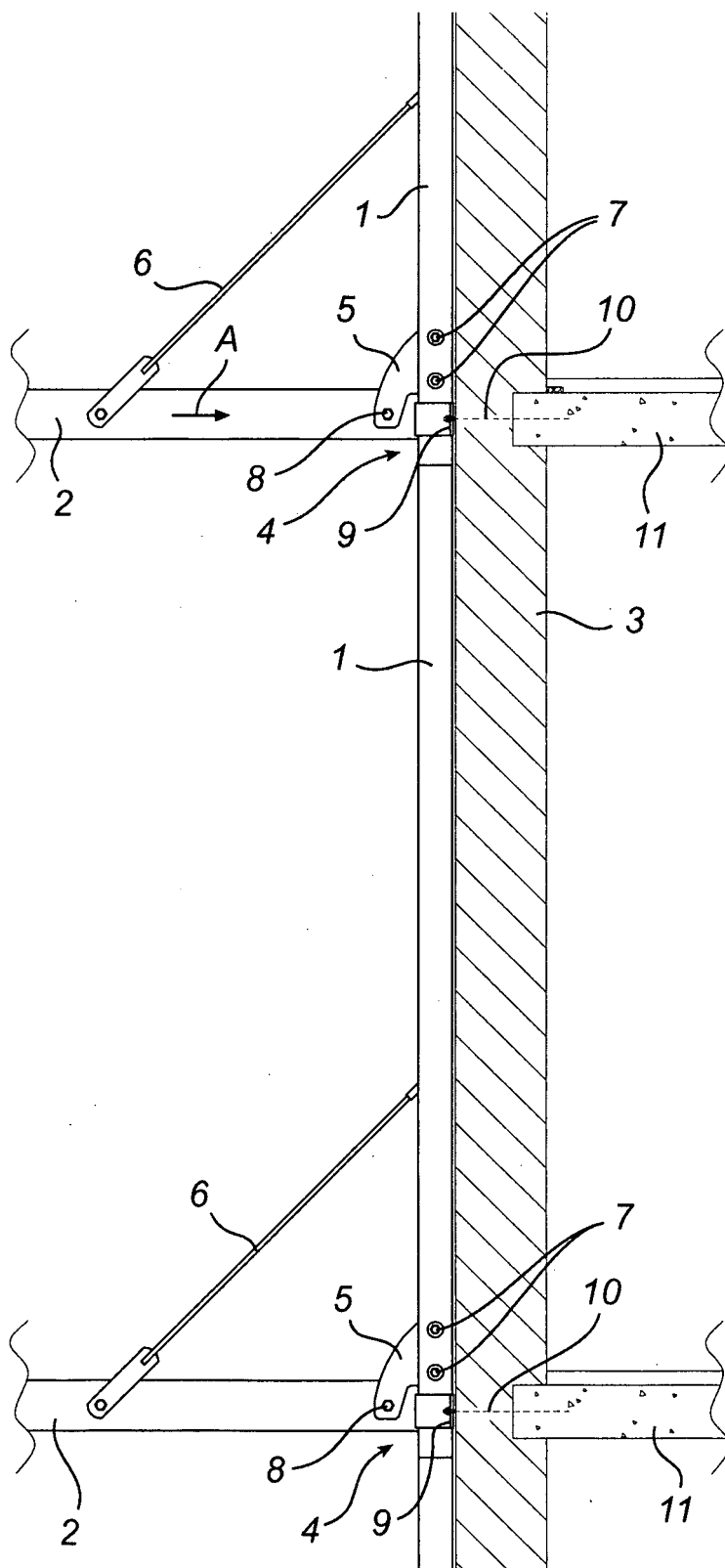


Fig. 1

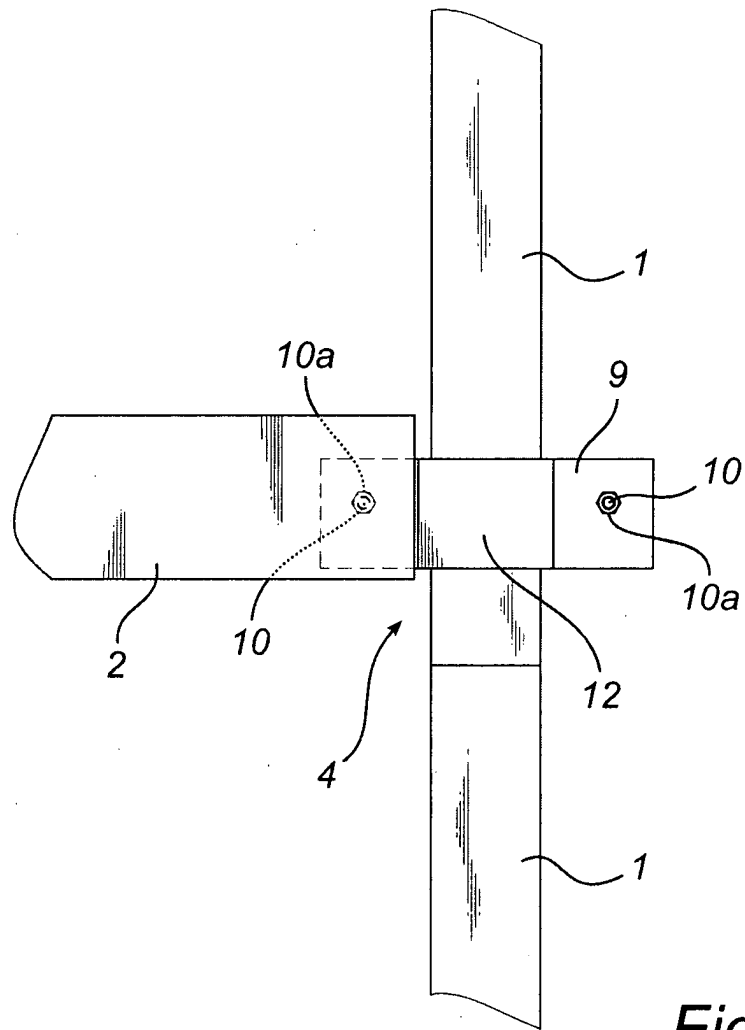


Fig. 2

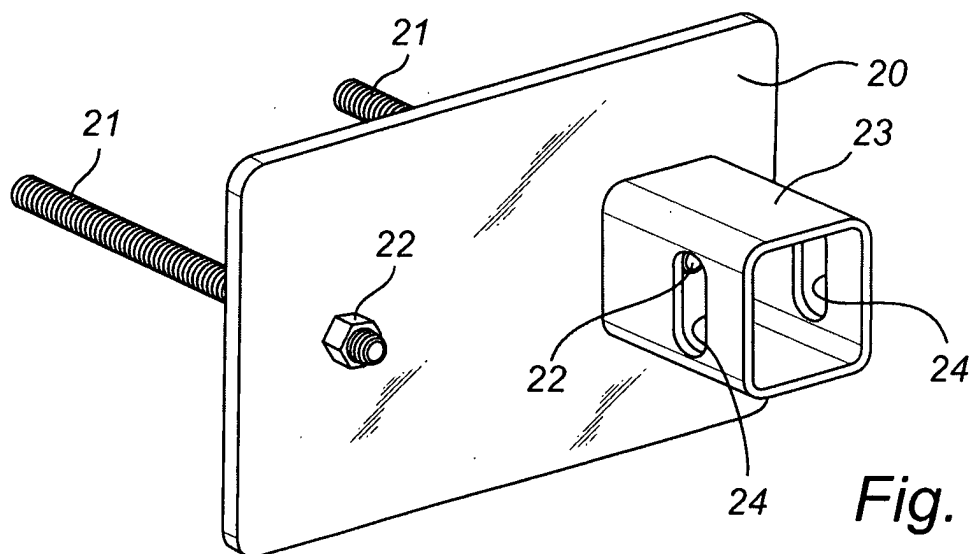


Fig. 3

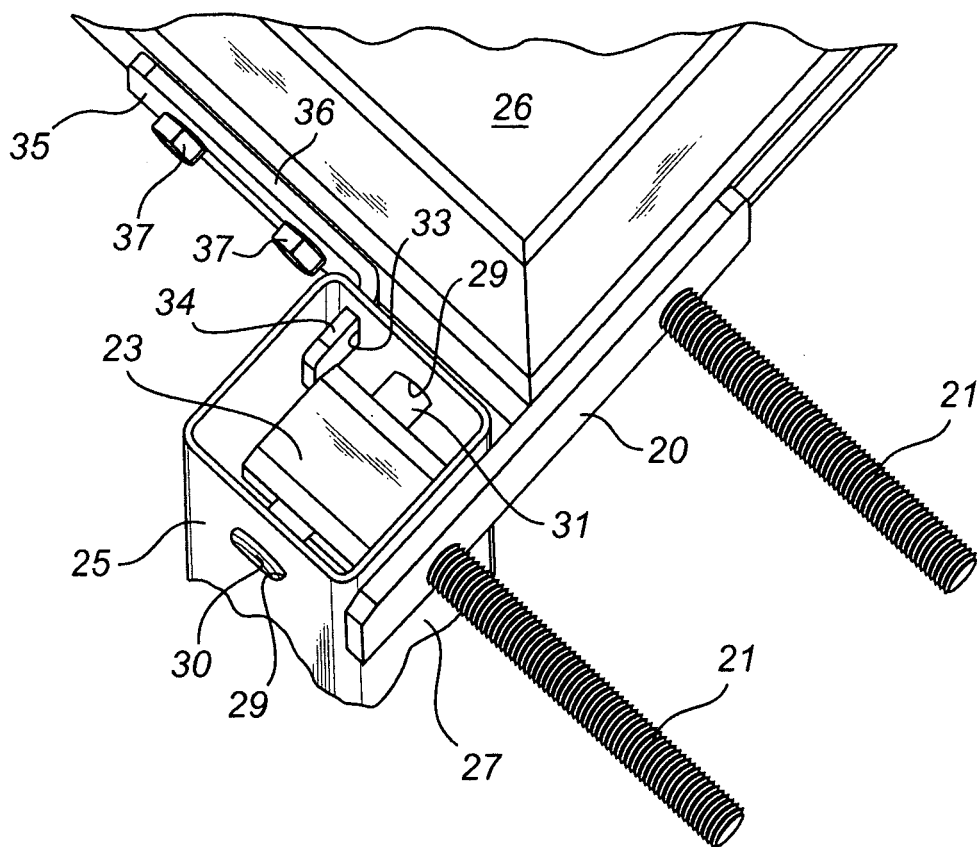


Fig. 4

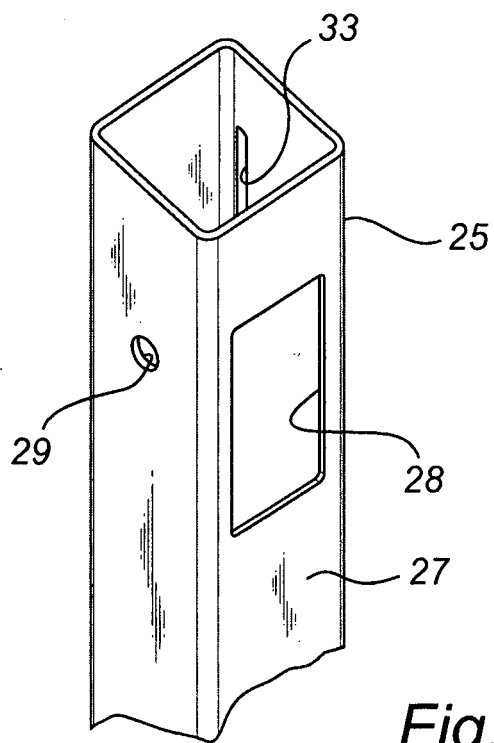


Fig. 5

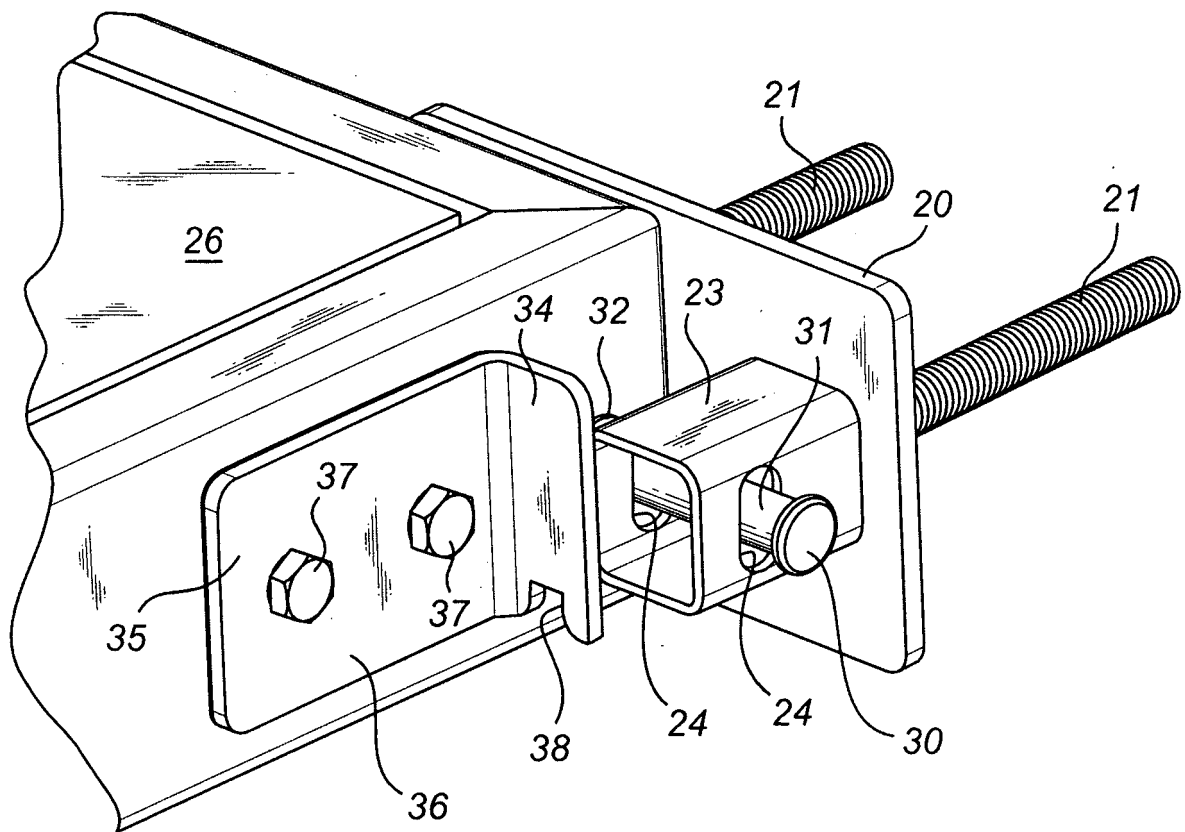


Fig. 6

REFERENCES CITED IN THE DESCRIPTION

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