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(54) **SUPPORT FOR METALLIC POSTS**

(57) Comprises a first body (3) in one piece provided with: a folded plate (7), with a first through-hole; at least one tab (14, 15), which starts from the plate (7) and extends towards the concave zone (11); hooks (17, 18) defined in the tabs (14, 15); and notches (19, 20) defined in the tabs (14, 15); wherein the support additionally comprises fastening means to connect to the post (1) an element intended to be supported on the post (1), wherein the fastening means comprise respective fastening zones (22) on the respective sides (9, 10) of the plate.

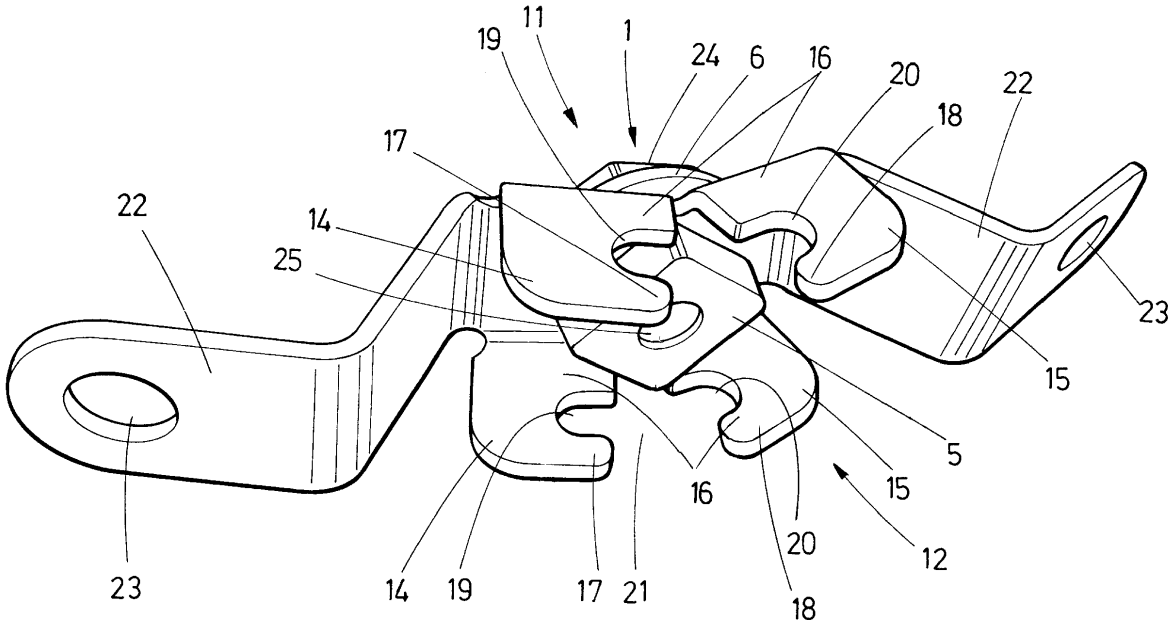

FIG. 2

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Description

OBJECT OF THE INVENTION

[0001] The present invention can be included in the technical field of construction, in particular, the construction of metal fencing.

[0002] Specifically, the object of the present invention is a support intended to be fixed to metal posts, particularly applicable to metal posts intended to support metal fencing, whether for example of the mesh type, or of the type with wires disposed vertically and/or horizontally, etc.

BACKGROUND OF THE INVENTION

[0003] The field of the art has extensive knowledge of metal fencing, which is used both to mark the boundaries of determined enclosures or grounds, and to indicate a tacit or express prohibition to enter said enclosures or grounds.

[0004] Many types of metal fencing are made up of a plurality of posts driven into the ground, on which fencing elements are supported, for example of the type consisting of metal wire lattices, or also those comprising a plurality of parallel horizontal and/or vertical wires fastened to supports fixed at various heights on the posts. A particular case of the last example referred to is that in which the posts are hollow metal posts, generally made in curved sheet metal, and which comprise a longitudinal protrusion to which the supports are fixed.

[0005] In the particular case referred to, said supports are usually made up of two pieces, which to secure them to the post, are interconnected to each other by means of elements such as nuts and bolts, in such a way that an operative needs to use a large amount of time disposing the pieces in the appropriate relative positions, both between the parts themselves, and between the two parts in relation to the post, and subsequently assembling and tightening the nuts and bolts.

DESCRIPTION OF THE INVENTION

[0006] The present invention describes a support for metal posts whose application is especially indicated for supporting fencing bodies (preferably, but not necessarily metal fencing bodies) on metal posts made of curved or folded sheet metal and which are provided with a longitudinal protrusion. In general, the support forming the object of the present invention is not limited for use on posts shaped by means of curving or folding sheet metal, but is also applicable on metal posts shaped by means of alternative procedures, such as for example, welding or others, in particular the invention is applicable to metal posts of the type called fastener, provided with a longitudinal protrusion which facilitates, as explained further on, the securing of the support of the invention to the post.

[0007] The support of the invention is characterised in that it comprises a first body in one piece, which comprises a plate that is folded and provided, therefore, with a fold which defines a concave zone in the plate, intended to face the post, and a convex zone intended to face away from the post. The fold also divides the plate into a first side and a second side. The plate also incorporates a through-hole which occupies part of the first side and part of the second side.

[0008] From the plate at least one tab leads towards the concave zone, which defines hooks to fix the support to the protrusion of the post, and notches to house the protrusion.

[0009] The first body incorporates additionally fastening means to connect to the post an element intended to be supported on the post, wherein the fastening means comprise fastening zones located on each side of the plate.

[0010] To secure the first body to the post, the support can incorporate additionally a bolt, a nut and deformation means, as will be explained further on in the preferred embodiment.

[0011] In the aforementioned example of application, the element intended to be supported is a horizontal metal cable to define a fence, in cooperation with other cables fixed at different heights on the post.

DESCRIPTION OF THE DRAWINGS

[0012] To complement the description being made and with a view to contributing to a better understanding of the characteristics of the invention, in accordance with an example of a preferred practical embodiment thereof, a set of drawings is attached as an integral part of said description, which by way of illustration and not limitation represent the following:

Figure 1.- Shows a view in perspective of a support according to a first embodiment of the invention, once assembled on a metal post.

Figure 2.- Shows a view in perspective of the support of figure 1 in a preassembled position prior to being fixed to the post.

Figure 3.- Shows a view in perspective of a second embodiment of the support of the invention.

Figures 4a and 4b.- Shows separately the components of a third embodiment of the support of the invention.

Figure 5.- Shows a view in perspective of the support of figure 4, once assembled on a post.

PREFERRED EMBODIMENT OF THE INVENTION

[0013] Next with the help of figures 1-5 mentioned above, a detailed description is provided of an example of a preferred embodiment of the present invention.

[0014] The support for metal posts, according to the present invention, as can be appreciated in figures 1-5, is configured to be fixed to a metal post (1), provided with

a longitudinal protrusion (2) intended to be embraced by the support, as explained further on.

[0015] To do this, the support comprises a first body (3) configured in one single piece as a whole, and also additionally comprises: a bolt (4); coupling means, for example a nut (5), to relate the movement of the bolt (4) with that of the first body (3), wherein the coupling means present a relative movement in respect of the first body (3) which is limited by a form lock; and deformation means, to unite the first body (3) with the protrusion (2) of the post (1) as explained next.

[0016] The bolt (4) in turn comprises a head (24) and a threaded rod (25).

[0017] The first body (3) comprises a folded plate (7) which, therefore, incorporates a fold (not shown) which divides the plate (7) into: a first side (9); and a second side (10), separated from the first side (9) by the fold. On the plate (7), due to it being folded, a convex zone (12) and a concave zone (11), opposite the convex zone (12) are defined. While fixing the support to the post (1), the concave zone (11) is facing the post (1), whereas the convex zone (12) is disposed away from the post and, consequently, facing an operative carrying out the aforementioned fixing.

[0018] The plate (7) comprises also a first through-hole (13) passing through the thickness of the plate (7), from the convex zone (12) to the concave zone (11) - or vice versa - which extends on either side (9, 10) of the fold, occupying part of the first side (9) and part of the second side (10). Preferably, the first hole (13) has its centre located in the fold, in such a way that said first hole (13) extends towards the first side (9) and towards the second side (10) in a symmetrical manner in relation to the fold.

[0019] The first body (3) comprises additionally at least one tab (14, 15) oriented towards the concave zone (11), wherein the tab (14, 15) or the tabs (14, 15) define hooks (17, 18) to fix the support to the protrusion (2) of the post (1), and also the tabs (14, 15) comprise notches (19, 20) to surround the protrusion (2). Preferably, as shown in the figures, there are four tabs (14, 15) which start from the plate (7) - wherein, in general, the tabs (14, 15) start from the edge of the plate (7) - and extend towards the concave zone (11), preferably in a manner perpendicular to the plate (7). The four tabs (14, 15) comprise: two first tabs (14) located on the first side (9) and opposite each other; and two second tabs (15) located on the second side (10) and also facing each other, each one of the first tabs (14) adjoining one of the second tabs (15), defining respective pairs (16) of adjoining tabs (14, 15).

[0020] In each one of the first tabs (14) and of the second tabs (15) a first hook (17) and a second hook (18) are defined respectively, on the outside of the corresponding tabs (14, 15), and also respectively, a first notch (19) and a second notch (20) on the inside of the tabs (14, 15). The two notches (19, 20) of each one of the two pairs (16) define jointly a corresponding cavity (21) limited by the hooks (17, 18), wherein the two cavities (21) corresponding to the two pairs (16) are aligned with each other, so as to be able to house the longitudinal protrusion (2) present in the post (1), in such a way that, once the support is fixed on the post (1), the hooks (17, 18) surround the protrusion (2).

[0021] The support of the invention additionally comprises fastening means to connect to the post (1) an element intended to be supported on the post (1), wherein the fastening means comprise respective fastening zones (22) located on each side (9, 10) of the plate (7). In the example represented in figures 1 and 2, it is possible to appreciate that the fastening zones (22) are in extension to the sides (9, 10).

[0022] The deformation means mentioned above may be preferably inserted between the head (24) of the bolt (4) and the plate (7). In the embodiment shown in figures 1, 2 and 3, the deformation means comprise a spring washer (6), and it is possible to appreciate that they are inserted between the head (24) of the bolt (4) and the plate (7).

[0023] It is possible to appreciate in the embodiment illustrated by means of figures 1 and 2 that the fastening means comprise additionally, in the fastening zones (22), respective perforations (23) intended to connect the end of some first horizontal metal wires (not represented) which define a metal fencing of the wire fence type (not shown).

[0024] In other alternative embodiments shown in figures 3, 4, and 5, it is possible to appreciate that the fastening means comprise, in the fastening zones (22), instead of or in addition to the perforations (23), housings (28) defined, at least in one part, by the fastening zones (22). Next two preferred embodiments for defining the housings (28) are described.

[0025] In a first example, illustrated by figure 3, it is possible to appreciate that the fastening means comprise a second body (27) configured to define housings (28), in cooperation with the fastening zones (22). Preferably, the housings (28) are defined by a cooperation between first wings (29) defined in the fastening zones (22) and second wings (35) defined in the second body (27). The second body (27), as shown in figure 3, comprises a third through hole (30) to house the bolt (24). The second body (27) can be located in the concave zone (11), inserted between the bolt (24) and the first body (3) although preferably, as shown in figure 3, said second body (27) is located in the convex zone (12), in such a way that the first body (3) is inserted between the head (24) of the bolt (4) and the second body (27).

[0026] In a second example illustrated in figures 4 and 5, it is shown that the deformation means comprise a third body (32), see figure 4a, which in turn comprises:

- a fourth hole (not shown), to be passed through by the rod of the bolt (4);
- a pressure zone (33) for pressing against the plate (7) to unfold said plate (7), and
- third wings (34), which extend laterally from the pres-

sure zone (33),

wherein additionally the housings (28) are defined by the first wings (29) and the third wings (34).

[0027] In accordance with the cited examples illustrated in figures 3 to 5, the housings (28) serve preferably to house second vertical metal wires (31) which form part of a metal type fencing. The fencing does not necessarily have to be of the metal type, and may also be made of other materials, such as plastics, in particular plastic mesh or lath. At the same time, the fencing is not necessarily of the mesh or lath type, but can also adopt other forms, such as plates, for example (made of glass, methacrylate, etc.), or others, which have not been represented.

[0028] As mentioned previously, the support also incorporates a bolt (4), which in turn comprises a head (24) and a threaded rod (25). The bolt (4) passes through the first hole (13) of the plate (7), leaving the head (24) in the convex zone (12) and the rod (25) in the concave zone (11).

[0029] In accordance with what has been previously advanced, the support incorporates coupling means, provided with a rotatory movement with respect to the first body (3) which is limited by means of a form lock, to relate the rotation movement of the bolt (4) with the unfolding of the first body (3).

[0030] According to a preferred embodiment, the coupling means are housed between at least two tabs (14, 14), and also comprise a smaller dimension and a larger dimension which are respectively smaller and larger than the distance that separates the tabs (14, 15).

[0031] According to a first example of said embodiment, the coupling means comprise a nut (5), which comprises a second threaded through hole. The bolt (5) is threaded on the free end of the rod (25), opposite the head (24), on the concave zone (11) of the plate (7). The nut (5) presents a non-circular contour provided, as mentioned previously, with a smaller dimension which is smaller than the separation between the tabs (14, 15) opposite each other, and with a larger dimension which is larger than said separation between tabs (14, 15) opposite each other.

[0032] According to a second example of said embodiment, the coupling means can be materialised in the second body (27), wherein at least one of the first hole (13) and of the third hole (30) is threaded.

[0033] In the convex zone (12), inserted between the head (24) of the bolt (4) and the plate (7), the spring washer (6) is disposed, as mentioned in the beginning of the description.

[0034] To fix to a post (1) the support described above, according to the example just mentioned, one starts with a preassembled configuration wherein the bolt (4) passes through the first hole (13), and the nut (5) is threaded on the free end of the bolt (4), and the spring washer (6) is assembled between the head (24) of the bolt (4) and the plate (7), as explained previously.

[0035] The support in the preassembled configuration is connected to the protrusion (2) of the post (1), by hooking on said projection (2) the two first hooks (17) opposite each other corresponding to the first side (9) of the plate (7). Next, using one hand the operative holds the support in the described position and, using the other hand, actuates the rotation of the bolt (4), with the help of some type of appropriate tool. The nut (5) will initially turn freely joined to the bolt (4), but after a certain rotation, will contact the tabs (14, 15) and be retained, allowing actuation of the bolt (4) to permit said bolt (4) to become increasingly threaded on the nut (5), advancing towards the concave zone (11).

[0036] In consequence, the head (24) of the bolt (4) presses, during its advance, the spring washer (6) against the fold in the plate (7), exerting a strength which deforms the plate (7) tending towards flattening said plate (7).

[0037] While the plate (7) is being flattened, the two second hooks (18) opposite each other, corresponding to the second side (10), surround in turn the protrusion (2) of the post (1), in such a way that, when the plate (7) has been flattened to a determined angle, preferably, until the first side (9) and the second side (10) form 180°, the hooks (17, 18) embrace the protrusion (2) of the post (1) with sufficient strength so as to maintain the support fixed to the post (1).

[0038] According to an alternative embodiment for the coupling means, the coupling means are not housed between the tabs (14, 15), and instead are external to the plate (7). In one example of this embodiment, the coupling means are materialised by the third body (32), wherein at least one of the first hole (13) and of the fourth hole are threaded.

[0039] As shown in the figures, preferably, the first body (3) is a flat piece made of metal sheet by cutting and curving-folding.

[0040] At the same time, it can be observed from the figures that, preferably, the first body (3) and all its components present a symmetrical configuration with respect to the fold.

Claims

1. Support for metal posts (1), support **characterised in that** it comprises a first body (3) configured in one single piece which comprises:

   - a plate (7) folded by means of a fold that defines in the plate (7) a first side (9) and a second side (10) opposite the first side (9) with respect to the fold, the plate comprising (7), due to the fold, a convex zone (12) and a concave zone (11);
   - a first through hole (13) made in the plate (7), and which extends along both sides (9, 10) of the fold, occupying part of the first side (9) and part of the second side (10);

- at least one tab (14, 15), which starts from the plate (7) and runs towards the concave zone (11);
- hooks (17, 18) defined in the tab or tabs (14, 15); and
- notches (19, 20) defined in the tab or tabs (14, 15);

wherein the support additionally comprises fastening means to connect to the post (1) an element intended to be supported on the post (1), wherein the fastening means comprise respective fastening zones (22) located respectively on each side (8, 9) of the plate (7).

2. Support for metal posts (1), according to claim 1, **characterised in that** it additionally comprises:

- a bolt (4), which passes through the first hole (13) of the plate (7), and which comprises a head (24) and a threaded rod (25), with the head (24) in the convex zone (12) and the rod (25) in the concave zone (11);
- deformation means, to exert, in cooperation with the rotation of the bolt (4), a strength on the plate (7) which tends to unfold said plate (7); and
- coupling means, configured to possess a movement in relation to the first body (3) which is limited by means of a form lock, to relate the rotation of the bolt (4) to the unfolding of the plate (7).

3. Support for metal posts (1) according to claim 2, **characterised in that** the deformation means are inserted between the head (24) of the bolt (4) and the plate (7), and comprise preferably a spring washer (6).

4. Support for metal posts (1), according to claim 1, **characterised in that** the fastening means comprise additionally respective perforations (23) made in the fastening zones (22).

5. Support for metal posts (1), according to claim 1, **characterised in that** the fastening means comprise additionally a second body (27) configured to define housings (28), in cooperation with the fastening zones (22).

6. Support for metal posts (1), according to claim 5, **characterised in that** the housings (28) are defined by:

- first wings (29) defined in the fastening zones (22); and
- second wings (35) defined in the second body (27).

7. Support for metal posts (1), according to either of claims 5 or 6, **characterised in that** the second body (27) comprises a third through hole (30) to house the bolt (24), and **in that** the second body (27) is located in the convex zone (12),
wherein the first body (3) is inserted between the head (24) of the bolt (4) and the second body (27).

8. Support for metal posts (1), according to claims 3, 5 and 6, **characterised in that** the deformation means comprise a third body (32), which in turn comprises:

- a fourth hole to be passed through by the rod (24) of the bolt (4);
- a pressure zone (33) to unfold the plate (7), and
- third wings (34), which extend laterally from the pressure zone (33), wherein additionally the housings (28) are defined by the first wings (29) and the third wings (34).

9. Support for metal posts (1), according to claim 1, **characterised in that** the first hole (13) has its centre located in the fold, said first hole (13) extending towards the first side (9) and towards the second side (10) in a symmetrical manner with respect to the fold.

10. Support for metal posts (1), according to claim 1, **characterised in that** the tabs (14, 15) start from the contour of the plate (7), preferably perpendicularly to the plate (7).

11. Support for metal posts (1), according to claim 1, **characterised in that** the tabs (14, 15) comprise:

- two first tabs (14) located in the first side (9) and opposite each other; and
- two second tabs (15) located in the second side (10) and opposite each other, each first tab (14) adjoining a second tab (15) to define a respective pair (16) of adjoining tabs (14, 15);

wherein the notches (19, 20) of each pair (16) of adjoining tabs (14, 15) define a cavity (21) surrounded by the respective hooks (17, 18).

12. Support for metal posts (1), according to either of claims 1 or 11, **characterised in that** the hooks (17, 18) are defined in the outer contour of each tab (14, 15), and **in that** the notches (19, 20) are defined in the inner contour of each tab (14, 15).

13. Support for metal posts (1) according to claim 11, **characterised in that** the coupling means are housed between at least two tabs (14, 15) opposite each other, wherein the coupling means are selected preferably from among:

- a nut (5), which comprises a second threaded through hole in which the rod (25) is threaded in

the concave zone (11), and also **in that** the nut (5) presents a contour provided with a smaller dimension which is smaller than the separation between the tabs (14, 15) opposite each other, and also with a larger dimension which is larger than said separation between tabs (14, 15) opposite each other; and
- the second body (27), wherein at least one of the first hole (13) and the third hole (30) is threaded.

14. Support for metal posts (1), according to claim 2, **characterised in that** the coupling means are external to the plate (7).

15. Support for metal posts (1), according to claim 14, **characterised in that** the coupling means are materialised by the third body (32), wherein at least one of the first hole (13) and the fourth hole is threaded.

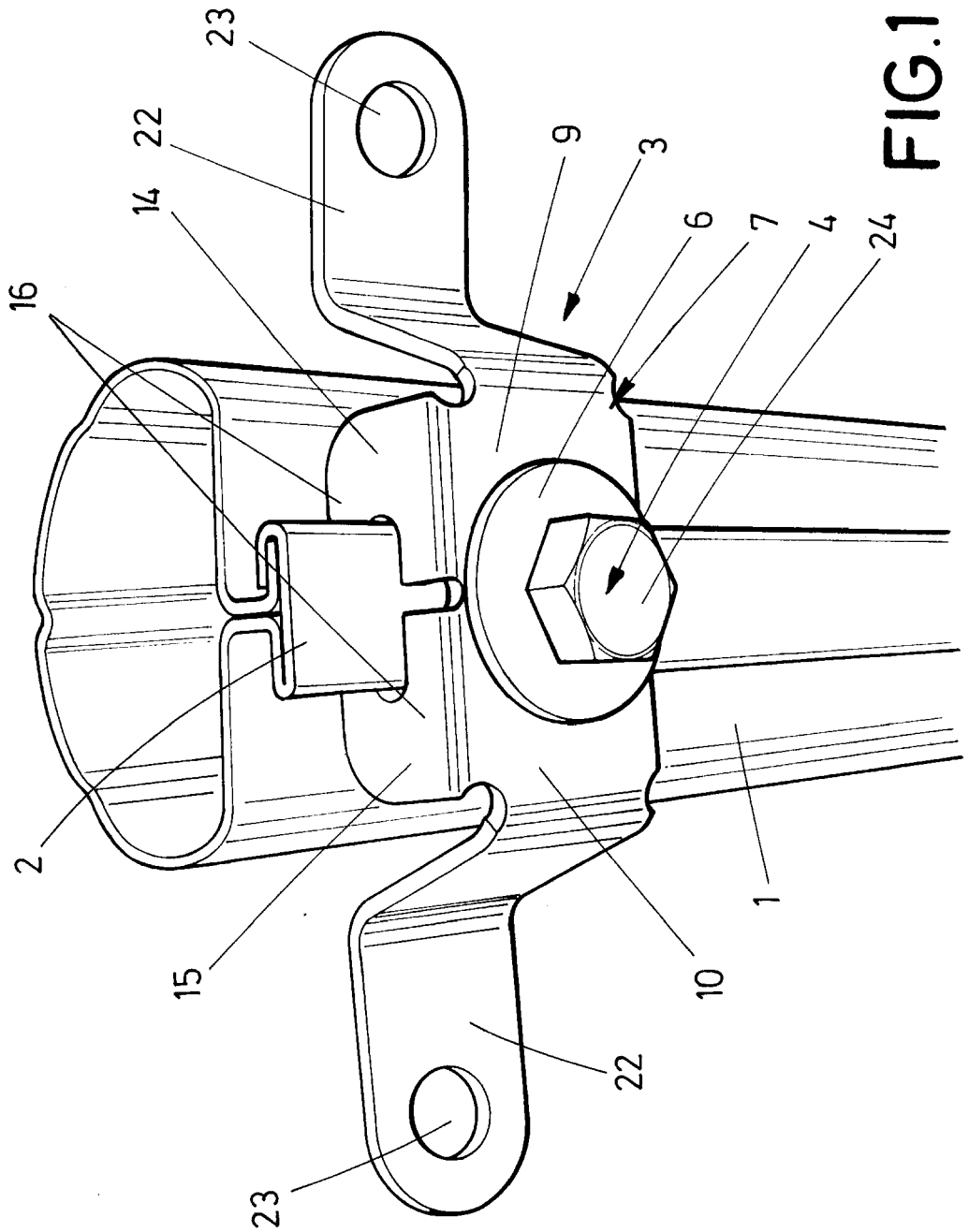

FIG.1

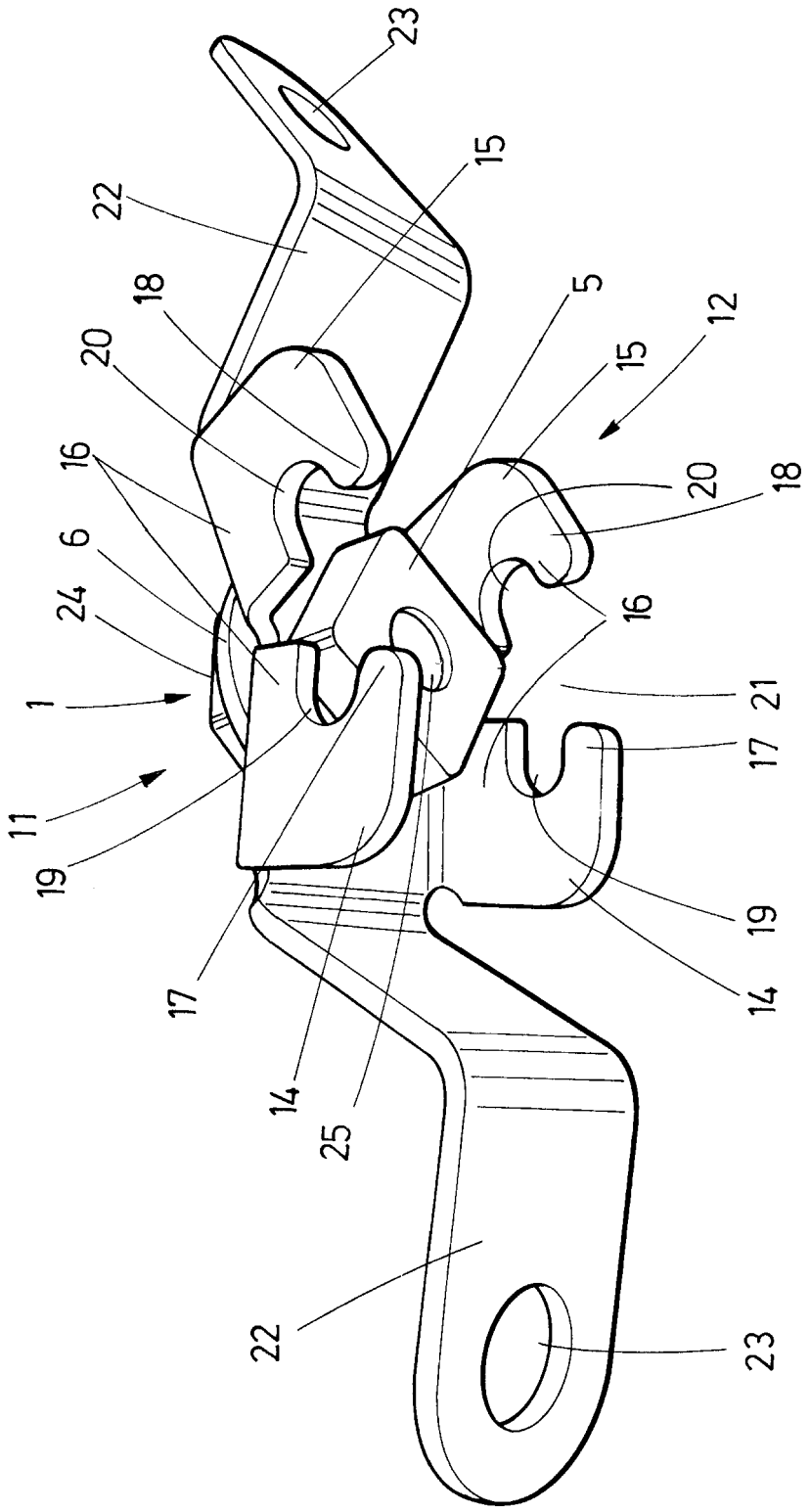

FIG.2

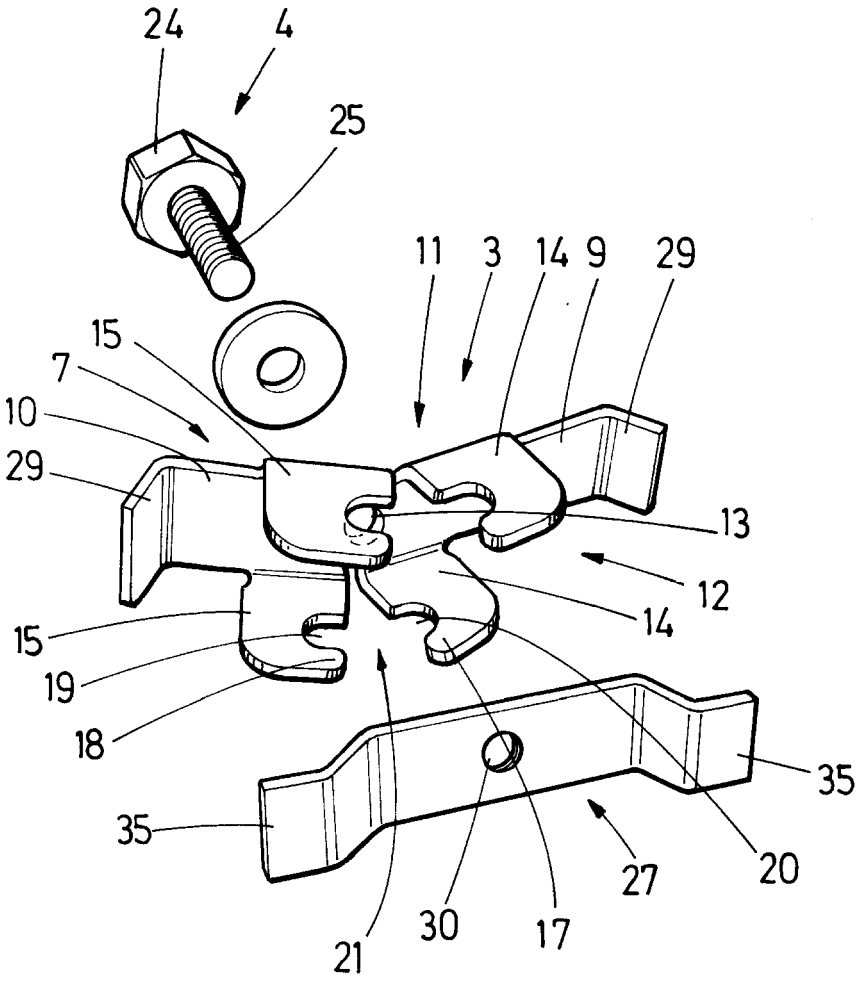

FIG.3

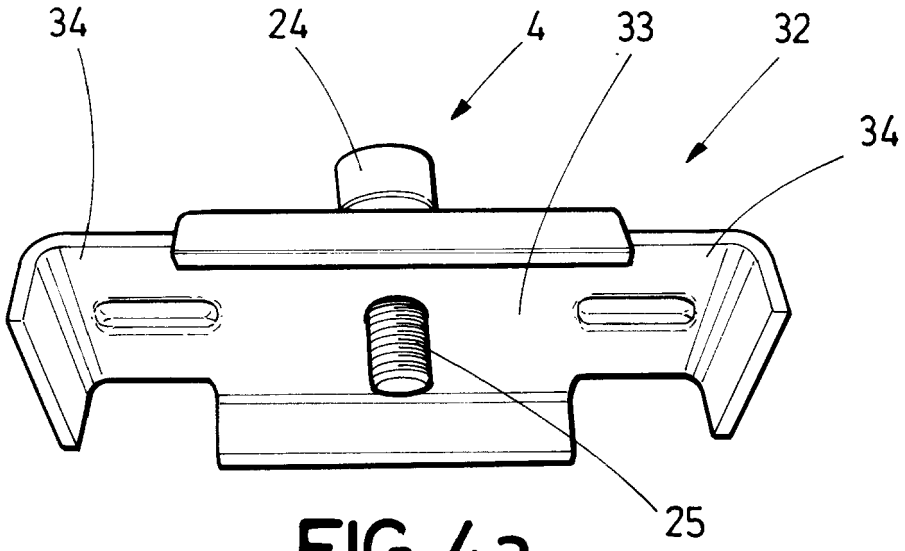

FIG.4a

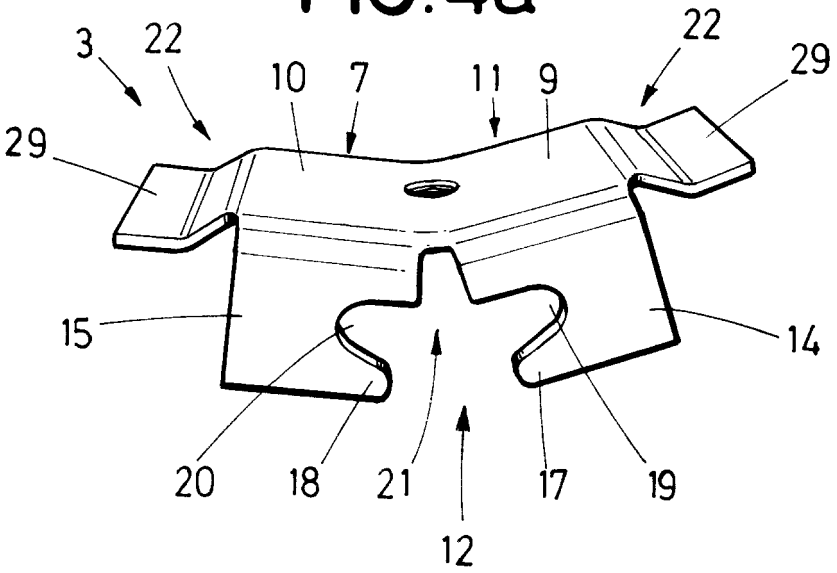

FIG.4b

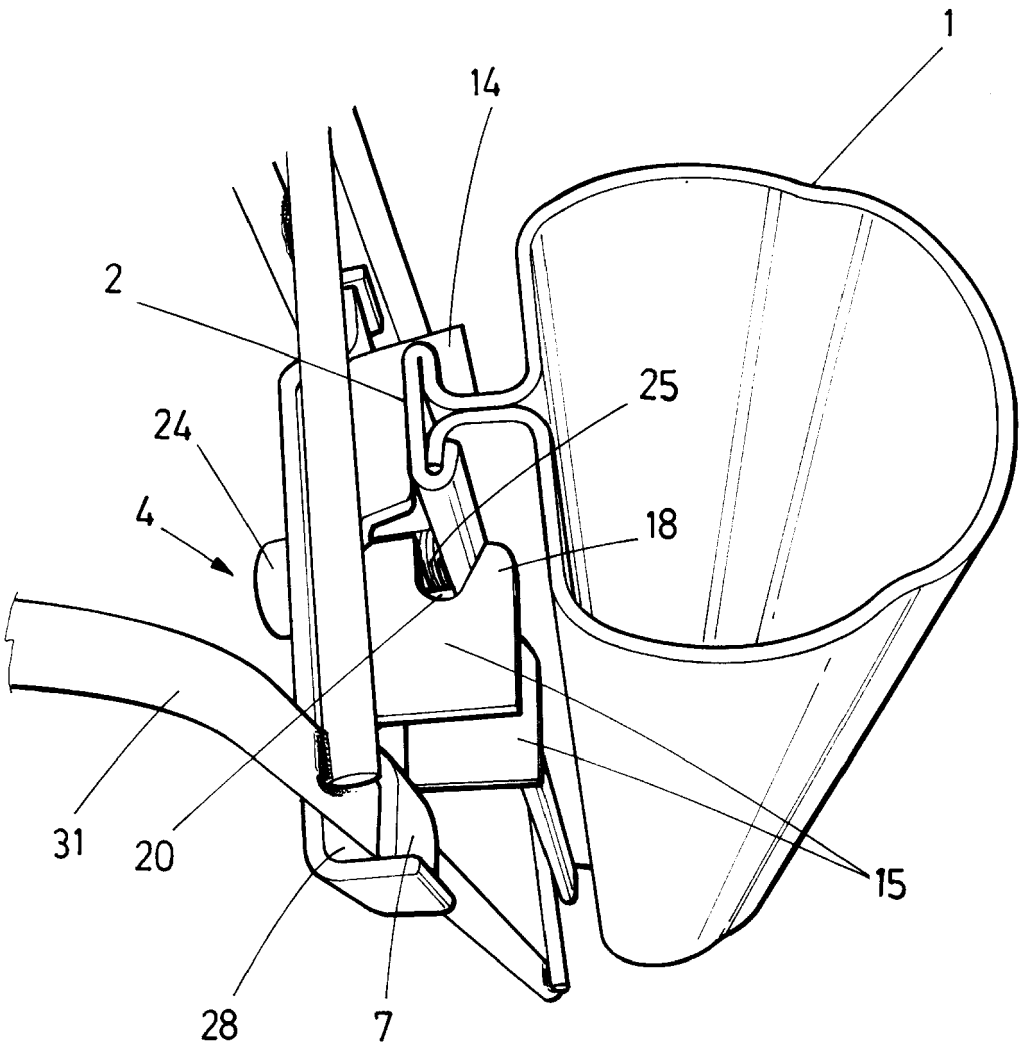

FIG.5

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EUROPEAN SEARCH REPORT

Application Number
EP 15 38 2006

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	EP 1 607 551 A1 (CLOTEX [FR]) 21 December 2005 (2005-12-21) * claim 1; figures 1,2,3 *	1-15	INV. E04H17/16
A	EP 0 481 100 A1 (MALKMUS DOERNEMANN CAROLA [DE]) 22 April 1992 (1992-04-22) * column 4, line 55 - column 6, line 5; claim 1; figures 1,2 *	1-15	
A	DE 88 04 116 U1 (PUK-WERKE KG) 10 November 1988 (1988-11-10) * claim 1; figures 1,2,3,4,6 *	1-15	
A	DE 14 34 716 A1 (LOEBBERT & CO) 21 November 1968 (1968-11-21) * claim 1; figures 3,4 *	2	

TECHNICAL FIELDS SEARCHED (IPC)
E04H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	22 June 2015	Rosborough, John

CATEGORY OF CITED DOCUMENTS

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22-06-2015

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82