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(54) **A connection article for a support frame of a false ceiling and method of installation**

(57) The present disclosure relates to a connection article (1) suitable for connecting a pair of metal profiles (2a, 2b) overlapped cross-like. The connection article (1) includes a sheet metal body (10) having a pair of opposed side walls (12), and a top wall (11) interposed between the side walls (12) to define a housing (A). Each of the

side walls (12) defines with the top wall (11) a first bend (P1), and wherein each side wall (12) includes, from the first bend (P1), a central portion (12a) and an end portion (13). The end portion (13) has a lateral extension greater than the central portion (12a) and, sideways, defines coupling projections (17).

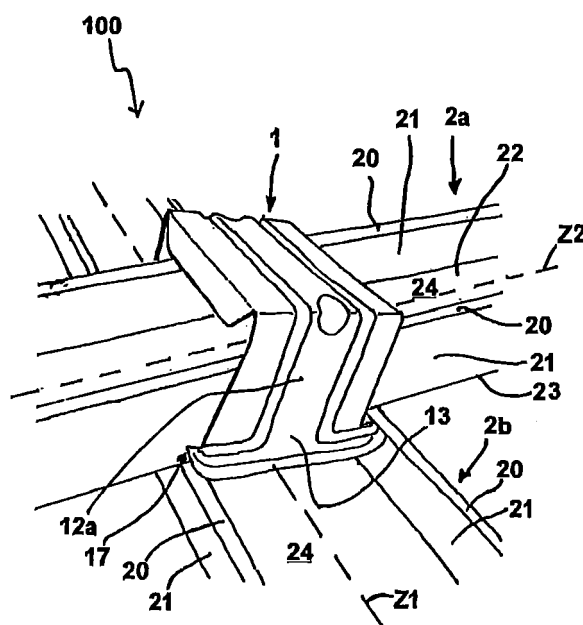


FIG. 4

Description

[0001] The present disclosure refers to a connection article suitable for support structures, or load-bearing structures, of false ceilings, i.e. support structures for walls or panels placed underneath a regular ceiling.

[0002] Support structures for false ceilings comprise a support frame intended for supporting or propping of panels or plates, which are connected to the ceiling by a so-called hanger, steel rods or other coupling articles. The support frame includes metal profiles, preferably but not exclusively C- or U-shaped (i.e., made of a side wall and two opposed lateral sides or shoulders). The metal profiles are cross-like overlapped to ideally form a grid, the grid defining a plane for the panels of the false ceiling. The above-mentioned connection article is intended to connect and fix the metal profiles to each other in the region of areas of crossing between two metal profiles in the grid-like configuration.

[0003] In particular, at the basis of the present disclosure there is a recognition by the Inventors that currently known connection articles are not sufficiently effective for fixing metal profiles. Moreover, known connection articles require many manual steps for the fixing to the profiles by an operator, with an entailed slowness in assembling. Moreover, the need to perform various manual steps entails in some cases a lack of safety, owing to profiles not completely locked or not fixed in a workman-like manner.

[0004] Therefore, the present disclosure stems from the technical problem of providing a connection article for a support frame of a false ceiling allowing to overcome the drawbacks mentioned above with reference to the known art, and/or attain further advantages or features.

[0005] Such a technical problem can be solved by a connection article according to independent claim 1, a support frame for supporting a false ceiling according to claim 9 and a method according to claim 13. Specific embodiments of the subject-matter of the present disclosure are set forth in the corresponding dependent claims.

[0006] In particular, the connection article according to the present disclosure is a C- or U-shaped sheet metal body (comprising a top wall and two side walls) and intended to be arranged straddling a pair of metal profiles cross-like placed the one on the other, i.e., it is a body intended to be arranged astride or straddling in the region of a crossing of an upper metal profile and a lower metal profile, so as to connect the two profiles in a crossed condition. In particular, the top wall of the connection article rises above, or lies on, lateral sides of the upper metal profile, whereas the side walls of the same connection article are partially inserted in the lower metal profile, and cooperate with end edges of the lateral sides of the lower metal profile.

[0007] Each of the side walls of the connection article, according to the present disclosure, has lateral projections in the region of end areas. Such projections, when the article is arranged astride the metal profiles, are able

to interfere (with a stable engagement) with opposite edges of the lower metal profile, so as to lock or trap the upper metal profile between the top wall of the connection article and the lower metal profile itself.

[0008] Moreover, the sheet metal body includes two finnings, on each side of the top wall, in which each finning is comprised between the side walls. In particular, each finning defines, with the respective side wall, a seat, recess or niche. The edge of each of the lateral sides of the upper metal profile is stably received into the niche, and interferes with a corresponding finning of the connection article.

[0009] In practice, the lower metal profile is engaged by, or interferes with the projections of the side walls of the connection article, whereas the upper metal profile is locked between the top wall of the connection article, where it cooperates with the finnings, and the lower metal profile.

[0010] The edges of the upper metal profile, by being received into the niches and interfering with the finning, prevent a collapse of the upper metal profile on itself, i.e. a closing of the lateral sides of the upper metal profile the one towards the other.

[0011] This locked/trapped position allows a stable connection between the metal profiles, and prevents movements of the components in a vertical direction.

[0012] It has to be noted that, in such configuration, a relative sliding of the upper metal profile, the lower metal profile and the connection article may be allowed in order to modify a pitch in a grid made of plural metal profiles placed cross-like.

[0013] In an embodiment, in order to insert at least partially the side walls of the connection article in the lower metal profile, the lower metal profile is slightly spread apart elastically during insertion, so that after an elastic return the lateral sides of the lower metal profile cooperate with the projections of the connection article. To foster this step, said projections are bent and cambered towards the outside, so that the lateral sides of the lower metal profile can slide thereon during the spreading apart.

[0014] In an embodiment, the connection article is sized so that a distance between the pairs of side walls is less than a distance between the lateral sides of the upper metal profile. For instance, the distance between the pairs of side walls is measured at the height of the above-mentioned seat or niche. This feature allows, when the connection article is placed on the metal profiles, to flex the sides of the upper metal profile the one to the other, so as to ensure more stable contact with the connection article.

[0015] Even more specifically, in an embodiment, the above-mentioned distance between the pairs of side walls of the connection article is selected less than a distance between the lateral sides of the upper metal profile, so that the upper metal profile defines a convex-radius camber area facing the lower metal profile, said camber area being in pressing contact against said other metal

profile.

[0016] It will be understood that, in accordance to this embodiment, when the connection article is placed on the metal profiles the lower metal profile is trapped or locked, both by the projections of the connection article, and by the camber area of the upper metal profile pressing towards the lower metal profile. This solution can improve stability of the connection and further prevent plays of the components in a vertical direction.

[0017] Other features and the operation modes of the subject-matter of the present disclosure will be made evident from the following detailed description of preferred embodiments thereof, given by way of a non-limiting example.

[0018] It is also to be understood that all possible combinations of embodiments described with reference to the following detailed description fall within the scope of the present disclosure.

[0019] Reference will be made to the figures of the annexed drawings, wherein:

- Figure 1 shows a perspective view of a connection article according to the present disclosure;
- Figure 2 shows a side view of a connection article according to the present disclosure, from a first angle;
- Figure 3 shows a side view of a connection article according to the present disclosure, from a second angle;
- Figure 4 shows a perspective view of a connection article and of two metal profiles in a first assembled condition;
- Figure 5 shows a perspective view of the connection article and of two metal profiles in a second assembled condition;
- Figure 6 shows a view from one side, in the direction of arrow VI of Figure 5, of a portion of a support frame according to the present disclosure.

[0020] With reference to the figures, a connection article for a support frame of a support structure of a false ceiling according to the present disclosure is denoted by reference number 1. A support or load bearing frame of a support structure of a false ceiling is denoted by reference number 100 and comprises a plurality of metal profiles 2a, 2b, also referred to as "C profiles" or "U profiles", which are cross-like overlapped to define a grid-like configuration (partially visible in Figures 4-6). In practice, in the support frame 100, metal profiles 2a of a first set are arranged in parallel, evenly spaced the one from the other, and metal profiles 2b of a second set are arranged in parallel, evenly spaced the one from the other. The metal profiles 2a of the first set are overlapped to the second set of metal profiles 2b along a direction orthogonal to the first set.

[0021] It follows that in the grid-like configuration each metal profile 2a of the first set, which lies above, or upper metal profile, is arranged in a configuration overlapped

and crossed, or cross-like, to at least one metal profile 2b of the second set, which lies below, or lower metal profile.

[0022] More specifically, the connection article 1 is intended to be arranged straddling the two metal profiles 2a, 2b in the area of crossing in order to connect in a stable way such two metal profiles 2a, 2b.

[0023] The connection article 1, once installed on-site, is therefore, e.g., arranged with an orientation like that visible in Figures 1, 4-6. It follows that any spatial reference in the present description and in the claims hereinafter, such as, e.g., "top", "above", "upper", "bottom", "lower", "horizontal", "vertical", is to be understood as merely by way of example, with reference to the above-mentioned orientation.

[0024] The connection article 1 is a sheet metal body 10 bent and including two side walls 12 connected by means of first bends P1, for instance forming an angle β greater than 90° (Figure 3), to a top wall 11. In practice, the side walls 12 are portions of the sheet metal body 10 facing and opposed to each other.

[0025] In the illustrated embodiment, the side walls 12 are slightly spread apart with respect to a vertical, for instance of an angle α of 5° , to form said angle β of 95° . In other words, the side walls 12 are in a mutually converging position. The top wall 11 is interposed between the side walls 12.

[0026] In the exemplary embodiment, referring specifically to Figure 1, the sheet metal body 10 has a shape substantially similar to an upturned U or C. In particular, the top wall 11 forms the base of the U or C, whereas the two side walls 12 are the two end sections of the U or C.

[0027] In the exemplary embodiment, the peculiar shape of the sheet metal body 10, and in particular the arrangement of the top wall 11 and of the side walls 12, define an internal housing A intended to receive, as will be seen hereinafter, one of the two metal profiles 2a.

[0028] In the exemplary embodiment, moreover, referring specifically to Figures 2 and 3, the connection article 1 is symmetrical with respect to a longitudinal plane, identified in the figures by a dashed line denoted by reference letter L, orthogonally intersecting the two side walls 12, and is also symmetrical with respect to a transversal plane, identified in the figures by a dashed line denoted by reference letter T, crossing the centre of the housing A.

[0029] In particular, the longitudinal plane L and the transversal plane T actually correspond, in the example, to symmetry planes.

[0030] In the exemplary embodiment, each side wall 12 includes, starting from bend P1, a central portion 12a, which therefore is contiguous to the top wall 11, and an end portion 13, corresponding to the edge area of the side wall 12 far from the top wall 11. More in particular, referring specifically to Figure 2, the end portion 13 has a lateral extension greater than the central portion 12a and, sideways, defines coupling projections 17, which therefore project from opposite sides with respect to the

longitudinal plane L.

[0031] In practice, the end portion 13 is wider in a lateral direction starting from the longitudinal plane L.

[0032] In the exemplary embodiment, the sheet metal body 10 includes two coupling projections 17 in the region of each side of the end portion 13. In particular, the sheet metal body 10 overall includes four coupling projections 17.

[0033] In an exemplary embodiment, like that visible in Figure 1, it is possible to note the peculiar configuration of the sheet metal body 10 in which the end portion 13 is bent towards an area external to the housing A. In practice, each end portion 13 is a free-end edge bent towards the outside of the sheet metal body 1 and wider than the central portion 12a.

[0034] In the exemplary embodiment illustrated, the end portion 13 is not only bent but also rounded or cambered with a concavity facing upwards in the figures, i.e., on the side of the top wall 11. It follows that also the coupling projections 17 have a shape curved upwards, i.e. with the concavity facing towards, or on the side of the top wall 11.

[0035] In other words, the end portion 12b is bent cup-like.

[0036] More specifically, the end portion 13 comprises a connecting part 12b coplanar with the central portion 12a and a bent end part 12c.

[0037] Between the connecting part 12b and the end part 12c a second bend P2, having an angle of about 90°, is provided.

[0038] In the exemplary embodiment, the sheet metal body 10 includes two finnings 16. In particular, the finnings 16 are sheet metal portions projecting from the top wall 11 on each side of the top wall 11 in an area comprised between the side walls 12. In the exemplary embodiment, the finnings 16 extend along a direction substantially parallel to the longitudinal plane L and orthogonally to the plane T.

[0039] In the example illustrated, each finning 16 is separated from the top wall 11 by third bends P3, for instance 90° ones. More specifically, in the exemplary embodiment illustrated the finnings 16 are substantially trapezoidal-shaped (trapezium-shaped) sheet metal portions, bent downwards with respect to the top 11, on the side of the coupling projections 17 or towards the housing A.

[0040] It is observed that the trapezoidal shape of the finnings 16 defines, on each side of a respective finning 16, a respective seat, niche, or recess 160.

[0041] In the exemplary embodiment, the sheet metal body 10 further includes two reinforcing ribs 15. In particular, the reinforcing ribs 15 are essentially drawn sections of the sheet metal body 10. More specifically, the ribs 15 have a rounded or curved section and extend along the top wall 11, on the central portion 12a and towards the coupling projections 17. In particular, the two ribs 15 extend parallel on the top wall 11, on the central portions 12a of the side walls 12 to the connecting part

12b, and bend in a direction diametrically opposite to the longitudinal plane L to end each in the region of the coupling projections 17.

[0042] Moreover, in the exemplary embodiment it is observed that the sheet metal body 10 includes two reinforcing drawn sections 14. In particular, the drawn sections 14 are located in the region of the first bends P1, and are essentially sink marks or depressions, or hollows, located in the region of the bends P1. More specifically, the drawn sections 14 are located in a median zone of the bends P1 and define grip areas for the sheet metal body 10.

[0043] Referring to Figure 4 and to Figure 5, hereinafter it is described each of the two metal profiles 2a, 2b, extending along a respective longitudinal axis Z1, Z2. In particular, the metal profile 2a, 2b has a U-like shape, from which the above-mentioned "U profile" name derives, with a bottom wall 22 and two lateral sides 21. In the exemplary embodiment, the metal profile 2a, 2b has the cavity 24 of the U facing upwards.

[0044] The bottom wall 22 connects to the side walls 21 by means of corners 23.

[0045] Each side wall 21 ends with a bent edge 20, in the example rounded, which, in the example, is rounded.

In particular, the bent edge 20 is obtained by bending the lateral side 21 onto itself. More specifically, the bending faces the cavity 24 of the metal profile 2a, 2b. It follows that, in the exemplary embodiment, the bent edges 20 define a projection oriented towards the cavity 24 of the metal profile 2a, 2b.

[0046] According to an aspect of the present disclosure, a distance D between the pairs of side walls 12 of the connection article 10 is less than a distance between the lateral sides 21 of the metal profile, i.e. is less than the width of the cavity 24, width that is measured along a direction orthogonal to the longitudinal axis Z1, Z2.

[0047] In an exemplary embodiment, as the one illustrated, the distance D between the pairs of side walls 12 is measured in the region of a connection zone between each side wall 12 and the top wall 11, in the region of the first bends P1 or of the niches/seats 160.

[0048] Thus, when the connection article is arranged astride of or straddling a metal profile 2a, 2b, and the side walls 12 of the connection article 10 embrace from the outside the corresponding lateral sides 21 of the metal profile 2a, 2b, forcing the sides 21 in a converging direction, the bottom wall 22 of the metal profile 2a, 2b is bent to have/define a camber area 30 substantially central and facing downwards.

(Figure 6)

[0049] It has to be observed that, in the configuration illustrated, the upper metal profile, the lower metal profile and the connection article are joined to each other so as not to prevent a sliding in the longitudinal direction.

[0050] Referring to Figure 4 and to Figure 5, hereinafter it is described a step of connecting and fixing between

the connection article 1 and the metal profiles 2a, 2b. In particular, referring to Figure 4, the two metal profiles are arranged in a relationship overlapped the one to the other, both with the cavity 24 of the "U" facing upwards. More specifically, as mentioned, the metal profiles 2a, 2b are arranged cross-like or X-like, that is, with the longitudinal axes Z1, Z2 arranged orthogonally to each other.

[0051] With the metal profiles 2a, 2b in this position, the connection article 1 is inserted on the upper metal profile 2a so that the housing A be facing the cavities 24.

[0052] The connection article 1 is arranged straddling so as to embrace the upper metal profile 2a. In particular, the bent edges 20 and the lateral sides 21 of the upper metal profile 2a are received inside the housing A of the connection article 1.

[0053] The connection article 1 is inserted with a certain tilt with respect to the horizontal, and in particular with the side walls 12 tilted with respect to the lateral sides 21, as illustrated in Figure 4. In other words, the connection article 1 is inserted so that the longitudinal plane L be tilted with respect to the lateral sides 21 of the lower metal profile 2b.

[0054] In this configuration, the two coupling projections 17 of the side wall 12 lying lower are inserted first, under the bent edge 20 of the lower metal profile 2b, whereas the two coupling projections 17 of the opposite side wall 12 are rested above the other edge 20 of the same lower metal profile 2b. The respective bent edges 20 of the other metal profile, i.e. of the upper metal profile 2a, are received into the respective seats 160 of the connection article 1. The configuration described hereto is visible in Figure 4.

[0055] From this position, a downwards pressure is applied on the connection article 1, in the region of the top wall 11, towards the metal profiles 2a, 2b. In particular, the coupling projections 17, favoured in the exemplary embodiment by the respective rounded and cambered shape, slide and slip on the edges 20. At the same time, the lateral sides 21 of the lower metal profile broaden out or move away the one with respect to the other, until obtaining the desired coupling.

[0056] More specifically, following the broadening out of the bent edges 20, referring now to Figure 5, the coupling projections 17 pass over the bent edges 20 of the lower metal profile 2b. In particular, in this configuration the four coupling projections 17 of the connection article 1 lie below the bent edges 20 of the lower metal profile 2b. Moreover, it is noted that in said configuration the edges 20 of the upper metal profile 2a are received into the respective seats 160, so as to interfere with the finings 16, and be locked there.

[0057] It has to be noted that in this position it is prevented a collapse of the lateral sides 21 of the upper metal profile 2a, the one towards the other one.

[0058] Moreover, in an embodiment as the one illustrated, when each of the two coupling projections 17 engages with a respective bent edge 20 of the lower metal profile 2b, the lateral sides 21 of the upper metal profile

2a are forced to adhere to the side walls 12 of the connection article and the bottom wall 22 of the upper metal profile bends to form a camber area 30, in which said camber area presses against the bent edges 20 of the lower metal profile 2b.

[0059] More specifically, when each of the two coupling projections 17 engages with a respective bent edge 20 of the lower metal profile 2b and each edge 20 of the upper metal profile 2a is received into the niche or seat 160 of the connection article 1, the bottom wall 22 of the upper metal profile 2a bends and creates a pressing contact with the lower metal profile 2b.

[0060] It is pointed out that, in the exemplary embodiment, when each of the coupling projections 17 is in a position, that is when the fixing has been successfully concluded, a peculiar sound (*click*) is heard, which can confirm that the fixing of the connection article 1 to the metal profiles 2a, 2b has been completed and the coupling has been successfully concluded. To an operator, such a sound can also be the indicator of a correct and safe assembly.

[0061] The article for false ceiling according to the present disclosure can improve the modes of assembly between article for false ceiling and metal profiles, without vibrations. In particular, the shape and structure of the coupling projections of the article for false ceiling according to the present disclosure allow a quick, simple and safe coupling of article for false ceiling and metal profiles.

[0062] Moreover, according to some aspects of the present disclosure, the peculiar cambered and rounded shape of the coupling projections and their strength enable the coupling projections to elastically deform the side walls of the lower metal profile, by acting as a sort of wedge, and allowing to quickly obtain a connection between the connection article and the metal profiles.

[0063] In addition, thanks to the peculiar shape of the housing and to the solidity of the coupling projections, the article for false ceiling is perfectly integral to the metal profiles, both thanks to the constraints deriving from the coupling of the coupling projections on the edges of the lower metal profile, and thanks to the constraints deriving from the receiving, inside the housing, of edges and side walls of the upper metal profile.

[0064] Therefore, such a configuration can allow to minimize the risk that on-site plays or vibrations be generated between metal profiles and article for false ceiling, and can further prevent that the metal profiles be subject to deformations on-site.

[0065] In particular, the peculiar shape of the housing and of the finings can allow to lock in position the side walls and the edges of the upper metal profile. Essentially, the upper metal profile can keep a constant contour and section, remarkably increasing the capacity.

[0066] Moreover, in an embodiment, the distance between the side walls, e.g. measured between the first bends, is less than the distance between the lateral sides of the metal profile.

[0067] This causes, by applying a certain pressure on the top wall of the connection article, a flexing of the lateral sides or shoulders to occur in the region of both edges of the upper metal profile.

[0068] The result of this elastic deformation of the upper metal profile manifests itself in a (convex-radius) camber towards the point of contact with the edges of the lower metal profile, creating a recovery of plays between the two metal profiles, the upper and the lower one.

[0069] In fact, the upper metal profile is held stationary by the edges of the lower metal profile, which under the action of the projections of the connection article push upwards, and by the top wall and the finnings of the connection article, which pushes downwards. The lower metal profile is held stationary by the projections of the connection article, which push upwards, and by the camber area which pushes downwards.

[0070] In practice, a spring structure is obtained in the region of the bottom wall of the upper metal profile that compresses the lower metal profile, all in a single assembly movement concluding with the full rotation of the connection article on the two orthogonally overlapped profiles.

[0071] This is obtained without necessarily providing further interference-recovering contrivances, and with a final and reliable coupling ensured by the end-of-step "click".

[0072] In practice, it results that the three components (connection article, upper metal profile, lower metal profile), though sliding towards each other to facilitate the steps of centring the required pitch, can be integral as one piece. The subject-matter of the present disclosure has hereto been described with reference to preferred embodiments thereof. It is understood that there may be other embodiments referable to the same inventive concept, all falling within the protective scope of the claims set forth hereinafter.

Claims

1. A connection article (1) suitable for connecting a pair of cross-like overlapped metal profiles (2a, 2b), said connection article (1) including a sheet metal body (10) having a pair of opposed side walls (12), and a top wall (11) interposed between the side walls (12) to define a housing (A), wherein each of the side walls (12) defines a first bend (P1) with the top wall (11), and wherein each side wall (12) includes, starting from the first bend (P1), a central portion (12a) and an end portion (13), wherein the end portion (13) has a lateral extension greater than the central portion (12a) and, sideways, defines coupling projections (17), and wherein the sheet metal body (10) includes two finnings (16), each projecting from the top wall (11) on each side of the top wall (11) in an area comprised between the side walls (12), each finning (16) defining, with a respective side wall (12),

a niche (160).

2. The connection article (1) according to claim 1, wherein each end portion (13) is an edge of the sheet metal body (10) at least partially bent towards an area external to the housing (A) of the sheet metal body (1).
3. The connection article (1) according to claim 1 or 2, wherein the end portion (13) is an at least partially rounded or cambered edge of the sheet metal body (10).
4. The connection article (1) according to any one of the preceding claims, wherein each side wall (12) forms an angle greater than 90° with the top wall (11).
5. The connection article (1) according to any one of the preceding claims, wherein the side walls (12) are in a mutually converging position.
6. The connection article (1) according to any one of the preceding claims, wherein a third bend (P3) is interposed between each finning (16) and the top wall (11).
7. The connection article (1) according to any one of the preceding claims, wherein each finning is trapezium-shaped.
8. The connection article (1) according to any one of the preceding claims, wherein the sheet metal body (10) includes at least two reinforcing ribs (15), said ribs (15) being defined by drawn sections obtained in the sheet metal body (10), said ribs extending along the top wall (11), on the central portion (12a) and to the coupling projections (17).
9. A support frame (100) of a structure for supporting a false ceiling, including a combination of a connection article (1) as defined in any one of the preceding claims 1 to 8 and two metal profiles (2a, 2b), wherein each metal profile (2a, 2b) includes a bottom wall (22) and lateral sides (21), and wherein said bottom wall (22) and said lateral sides (21) define a cavity (24), said metal profiles (2) being arranged cross-like and overlapped the one on the other in an area of crossing, both said cavities (24) being facing the housing (A) of the connection article (1), wherein a metal profile (2a) lying above in the area of crossing, or upper metal profile, is received inside the housing (A) and edges (20) of the lateral sides (21) of said upper metal profile (2a) are in engagement into the respective niches (160) of the connection article, and wherein said coupling projections (17) of the connection article are in engagement with respective edges (20) of the lateral sides (21) of the other metal profile (2b) lying below in the area of crossing, or

lower metal profile.

10. A support frame (100) according to claim 9, wherein the lateral sides (21) of the upper metal profile (2a) adhere to the side walls (12) of the connection article (1). 5
11. The support frame (100) according to claim 9, wherein the lateral sides (21) of the upper metal profile (2a) are forced into a converging position, and in such condition the bottom wall (22) of the upper metal profile (2a) has a camber area (30) facing the lower metal profile (2b), said camber area (30) being in pressing contact against said lower metal profile (2b). 10 15
12. The support frame (100) according to claim 9 or 10, wherein at least the bottom wall (22) of the upper metal profile (2a) has a camber area (30) facing the lower metal profile (2b), said camber area (30) being in pressing contact against said lower metal profile (2b). 20
13. A method of fixing two metal profiles (2a, 2b) by a connection article according to any one of the claims 1 to 8, wherein each metal profile (2a, 2b) includes a bottom wall (22) and lateral sides (21), wherein said bottom wall (22) and lateral sides (21) define a cavity (24), the method comprising the steps of 25
 - overlapping cross-like the two metal profiles (2a, 2b) so that the one of the two metal profiles (2a), or upper metal profile, be arranged above the other one of the metal profiles (2b), or lower metal profile; 30
 - placing the connection article (1) straddling the upper metal profile (2a) so that said upper metal profile (2a) be partially received inside the housing (A), 35
 - tilting the connection article (1) so that the side walls (12) of the connection article (1) be tilted with respect to the lateral sides (21) of the lower metal profile (2b), 40
 - inserting two coupling projections (17) under a respective edge (20) of a lateral side (21) of the lower metal profile (2b) and resting other two coupling projections (17) on the opposite side on a respective edge (20) of a lateral side (21) of the lower metal profile (2b); 45
 - applying a pressure on the top wall (11) towards the metal profiles (2a, 2b), until the other two coupling projections (17) resting on the edge (20) pass over said edge (20) and engage with said edge (20), and until the edge (20) of the upper metal profile (2a) is received into the respective niche (160) of the connection article and interferes with the finning (16). 50 55

14. The method according to claim 13, wherein when

each of the two coupling projections (17) engages with a respective edge (20) of the lower metal profile (2b), the bottom wall (22) of the upper metal profile (2a) bends to form a camber area (30), wherein said camber area (30) presses against the metal profile (2b).

15. The method according to claim 13 or 14, wherein when each of the two coupling projections (17) engages with a respective edge (20) of the lower metal profile (2b) and the bottom wall (22) of the upper metal profile (2a) bends, the lateral sides (21) of the upper metal profile (2a) are forced into a converging position.

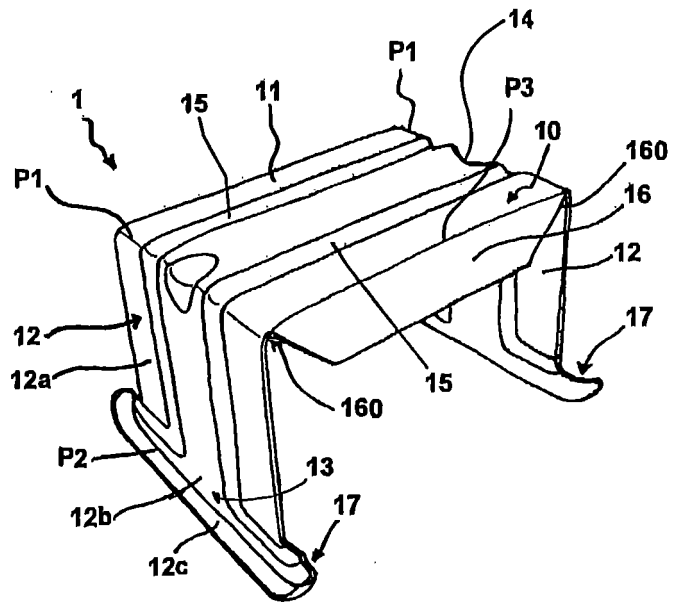


FIG. 1

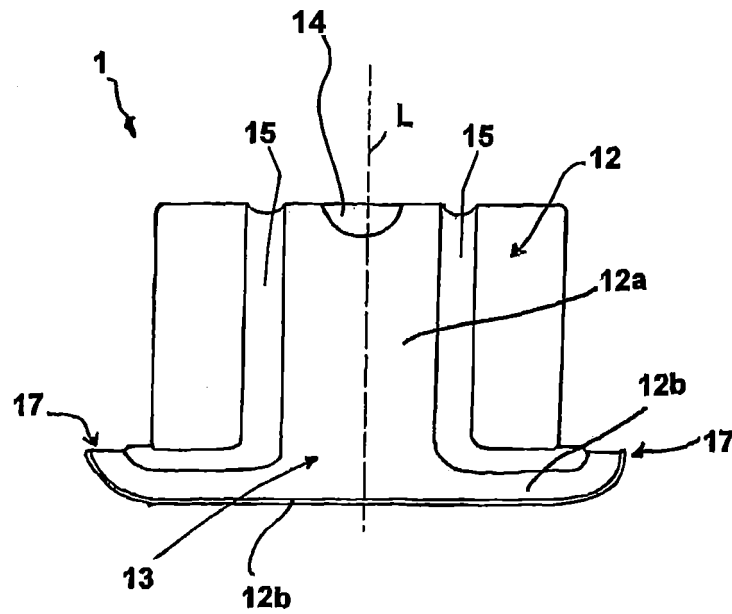
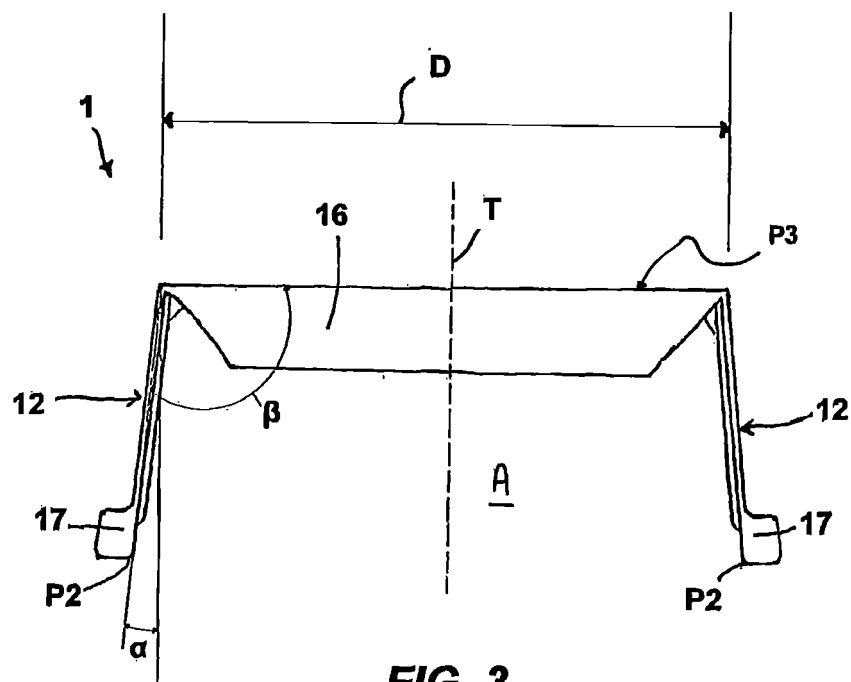


FIG. 2



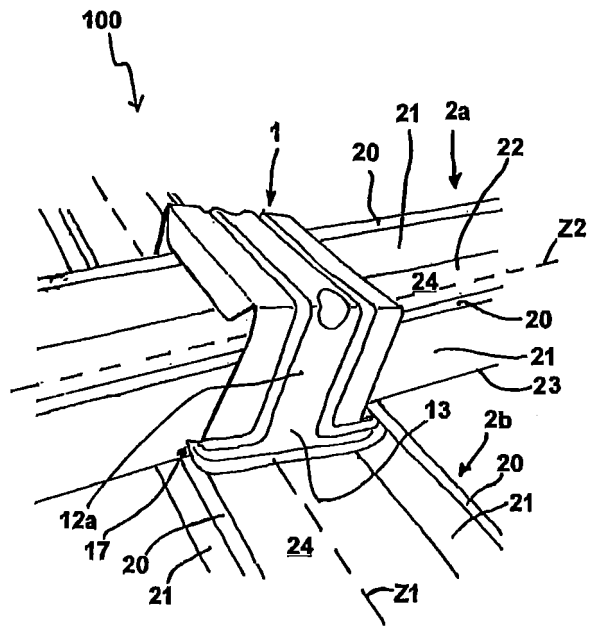


FIG. 4

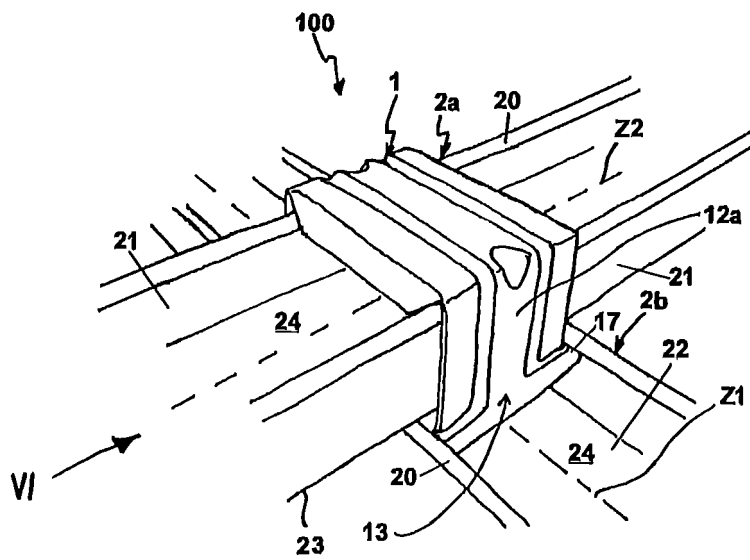


FIG. 5

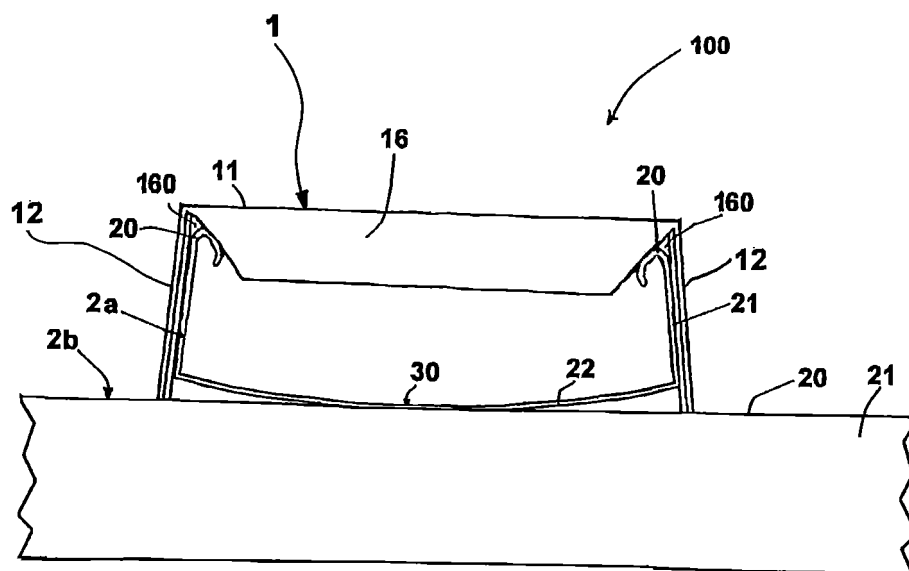


FIG. 6



EUROPEAN SEARCH REPORT

Application Number
EP 11 17 5393

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