

Description

TECHNICAL FIELD

[0001] The present invention relates to fences for providing a visual screening, for example around a garden. In particular, the invention relates to cross-profiles for clamping in garden slats which can be fitted into a pre-provided garden fence.

BACKGROUND

[0002] To provide for the privacy of owners of a plot, garden slats or garden panels have been developed which can be slid into a pre-provided wiring around the plot. Such wiring, dependent on the manufacturer, is manufactured with varying dimensions. For example, the distance between two vertical wires can be 50 or 55 mm. Accordingly, the manufacturer of the garden slats must also provide varying dimensions for the garden slats to be slid in.

[0003] It is also important for the manufacturer of the garden slats to provide good clamping of the slats in the wiring. It is known that severe gusts of wind can be sufficiently powerful to force such garden slats out of the wiring. To this end, clamping elements were developed such as reported, for example, in EP 2 924 193. EP 2 924 193 describes a clamping element which supports the garden slats and also shows a top profile to enclose the upper side of the garden slats. In addition, one or more cross-profiles, called 'nose profiles' in jargon, are provided to sufficiently robustly enclose the garden slats. Such cross-profiles are mounted into horizontal passages or loops provided thereto, and exert a transversal pressure on the garden slats.

[0004] Since manufacturers of garden fencing do not make use of standard dimensions, the dimensions of the horizontal passages or loops will also vary according to the manufacturer. Upon purchase, the consumer must be able to select the appropriate cross-profiles. However, the correct determination of the dimensions of said loops and the corresponding dimensions of the associated cross-slats do not always prove to be apparent. Because of this, consumers nevertheless often purchase cross-profiles with wrong dimensions.

[0005] It is therefore an objective of the present invention to provide a cross-profile for clamping slats into a garden fence, wherein said cross-profile can be applied for varying dimensions. In addition, such a cross-profile should be easy to use, possess sufficient mechanical strength to realise a desired clamping of the garden slats and to satisfy visual expectations of a consumer. The present invention seeks to provide a solution for one or more of aforementioned problems or shortcomings.

SUMMARY

[0006] To this end, the invention provides an assem-

blable cross-profile for garden fencing.

[0007] In a first aspect, the invention provides an assemblable cross-profile 1, 2 comprising a base profile 1 and an aspect profile 2, and one or more spacing elements 121, 122, 13, 141, 142, 22, 23 to affix said base profile 1 and said aspect profile 2 at two or more distances from each other.

[0008] This offers as an advantage that, depending on the dimensions of the garden fence, the cross-profile can be assembled to satisfy the dimensions of the garden fence.

DESCRIPTION OF THE FIGURES

[0009] The explicit features, advantages and objectives of the present invention shall become further clear for the person skilled in the technical field of the invention after reading the here following detailed description of the embodiment of the invention and of the figures enclosed herein. The figures serve to explain the invention further, without thereby limiting the scope of the invention.

Figures 1 to 4 represent a simplified reproduction of an assembled cross-profile according to the present invention.

Figure 1 schematically shows a perspective of an assembled cross-profile 1, 2 for enclosing a series of garden slats 3 in a garden fence 4, 5.

Figure 2A shows an alternative embodiment for the embodiment according to Figure 1. Figures 2B and 2C show a detail in side view of the embodiments according to Figure 1 and Figure 2A, respectively.

Figures 3A and 3B show a side view in further detail of the assembled cross-profile in a first and a second assembled state.

Figure 4A and 4B show the assembled cross-profiles 1, 2 in varying perspectives. Figures 4C and 4D show the aspect profile 2 and the base profile 1 respectively in perspective.

DETAILED DESCRIPTION OF THE INVENTION

[0010] Unless defined otherwise, all terms used in the description of the invention, including technical and scientific terms, have the meaning that is generally understood by the person skilled in the technical field of the invention. For a better appraisal of the description of the invention, the following terms are explicitly explained.

[0011] In this document, "a", "an" and "the" refer to both the singular and plural unless the context clearly implies otherwise. For example, "a segment" means one or more than one segment.

[0012] Where "approximately" or "about" are used in

this document for a measurable quantity, a parameter, a period of time or moment, and such, then variations are meant of +/-20% or less, preferably +/-10% or less, more preferably +/-5% or less, still more preferably +/-1% or less, and even still more preferably +/-0.1% or less than and of the cited value, insofar such variations are applicable in the described invention. Herewith it should be understood, however, that the value of the quantity for which the term "approximately" or "about" is used, is itself specifically disclosed.

[0013] The terms "comprise", "comprising", "consist of", "consisting of", "provided with", "contain", "containing", "include", "including", "encompass", "encompassing" are synonyms and are inclusive or open terms indicating the presence of that which follows, and which do not exclude or prevent the presence of other components, features, elements, members, steps, known from or described in the prior art.

[0014] The citation of numerical intervals by the end points comprises all whole numbers, fractions and/or real numbers between the end points, including these end points.

[0015] The terms "base profile" and "aspect profile" should be regarded as interchangeable. In the context of the present invention, the term "aspect profile" is used to preferably denote a profile which is to be provided with a desired visual aspect, such as shape, colour, relief, for example. In the context of the present invention, the term "base profile" is used to denote a profile which serves as base for affixing said aspect profile. The terms "spacing element" or "spacing elements" should be regarded as an element or a set of elements which are provided to bear said base profile and said aspect profile at two or more distances from each other. The term "affix" should be understood as synonymous for the term "to bear" or "to position" and should be understood as assembling said base profile and said aspect profile at a fixed distance with respect to each other. More specifically, the term "affix" refers to assembling said base profile and said aspect profile at a fixed distance from respective base areas with respect to each other.

[0016] In a first aspect, the invention provides an assemblable cross-profile 1, 2 comprising a base profile 1 and an aspect profile 2, and one or more spacing elements 121, 122, 13, 141, 142, 22, 23 to affix said base profile 1 and said aspect profile 2 at two or more distances from each other. Preferably said assemblable cross-profile relates to a cross-profile for a garden fence wherein a series of slats is provided between a series of vertical wirings.

[0017] This offers as an advantage that, depending on the dimensions of the garden fence, the cross-profile can be assembled to satisfy the dimensions of the garden fence. In this way, a consumer does not need to determine the precise dimensions of the garden fence beforehand.

[0018] In a preferred embodiment, the present invention provides an assemblable cross-profile according to

the first aspect of the invention, wherein said base profile 1 and said aspect profile 2 are both provided with one or more spacing elements 121, 122, 13, 141, 142, 22, 23 to affix said base profile 1 and said aspect profile 2 at two or more distances from each other.

[0019] In a preferred embodiment, the present invention provides an assemblable cross-profile according to the first aspect of the invention, wherein said spacing elements 121, 122, 13, 141, 142, 22, 23 are provided to affix said base profile 1 and said aspect profile 2 at two to four, and preferably two or three, varying distances from each other. By providing a limited number of varying distances, the operator, the consumer or the installer can easily assemble the cross-profile. Most preferably, said spacing elements are provided to affix said base profile 1 and said aspect profile 2 at two varying distances from each other.

[0020] In a preferred embodiment, the present invention provides an assemblable cross-profile according to the first aspect of the invention, wherein said aspect profile 2 is provided with a protrusion 22 and wherein said base profile 1 is provided with a recess 13 for receiving said protrusion 22, or vice versa. Such a protrusion and recess preferably interconnect and offer a simple embodiment to mutually anchor or affix said base profile and said aspect profile.

[0021] In a preferred embodiment, the present invention provides an assemblable cross-profile according to the first aspect of the invention, wherein said protrusion 22 is provided with a resistance element 23 and wherein said recess 13 is provided with a complementary resistance element 141, 142. Said resistance elements allow said base profile and said aspect profile to be affixed at two or more discrete, predetermined distances from each other. In this way, the cross-profile can be provided to satisfy two or more dimensions, preferably two or more commercially common dimensions.

[0022] In a preferred embodiment, the present invention provides an assemblable cross-profile according to the first aspect of the invention, wherein said resistance elements 141, 142, 23 have a round cross section. This offers as an advantage that said base profile and said aspect profile can simply slide into and out of each other from a first position at the level of resistance element 141 to a second position at the level of resistance element 142.

[0023] In a preferred embodiment, the present invention provides an assemblable cross-profile according to the first aspect of the invention, wherein said base profile 1 and said aspect profile 2 are manufactured from a thermoplastic material. More preferably, said spacing elements are manufactured from a thermoplastic material, and still more preferably said base profile and said aspect profile, including spacing elements and resistance elements, are completely manufactured from a thermoplastic material. Thermoplastic materials are readily mouldable by means of extrusion and are less rigid than thermosetting or metallic materials. Because of this, the re-

sistance elements are flexible during assembly of said base profile and aspect profile, as a result of which a transition can be simply made from a first to a second position without causing damage to the spacing elements in doing so. Preferably, said base profile and said aspect profile are manufactured from polyvinylchloride (PVC) with a certain amount of softening agent sufficient to guarantee the required flexibility of the resistance elements. The person skilled in the art shall appreciate that the required amount of softening agent also depends on the thickness of the resistance elements. Preferably, said base profile and said aspect profile are manufactured from a material having the same composition and mechanical properties, such as flexibility.

[0024] In a preferred embodiment, the present invention provides an assemblable cross-profile according to the first aspect of the invention, wherein said base profile 1 is provided with two raised edges 111, 112. This offers as an advantage that a closed cross section of the cross-profile can be realised. In this way, aesthetic desires can be satisfied, but it can also be realised that biological material, e.g. from the garden environment, does not accumulate in the space between base profile and aspect profile. Preferably, said two raised edges 111, 112 are provided at an angle α less than 90° , such as indicated in Figure 3. More preferably, said angle α is chosen between 45° and 75° and still more preferably between 50° and 70° . Most preferably, said angle α is equal to 52° , 54° , 56° , 58° , 60° , 62° , 64° , 66° or 68° , or any value located therein between.

[0025] In a preferred embodiment, the present invention provides an assemblable cross-profile according to the first aspect of the invention, wherein the raised edges 111, 112 of said base profile 1 are provided with a raised edge 113, 114 at an angle of γ . The angle γ is chosen such that, in the second state in which base profile and aspect profile lie closer to each other, the raised edges 113, 114 of the base profile and 211, 212 of the aspect profile come to lie contiguously in a same plane. Thus the closed cross section is realised.

[0026] In a preferred embodiment, the present invention provides an assemblable cross-profile according to the first aspect of the invention, wherein the raised edges 111, 112 of said base profile 1 are curved. Still more preferably, said raised edges 111, 112 are round. This offers as an advantage that, upon assembling base profile and aspect profile, the slanted raised edges of the aspect profile can touch the raised edges of the base profile at any predetermined distance between base profile and aspect profile whatsoever.

[0027] In a preferred embodiment, the present invention provides an assemblable cross-profile according to the first aspect of the invention, wherein said aspect profile 2 is provided with two raised edges 211, 212. This offers as an advantage that a closed cross section of the cross-profile can be realised. In this way, aesthetic desires can be satisfied, but it can also be realised that biological material, e.g. from the garden environment,

does not accumulate in the space between base profile and aspect profile. Preferably, said two raised edges 211, 212 are provided at an angle β greater than 90° , such as indicated in Figure 3. More preferably, said angle β is chosen between 105° and 135° and, still more preferably, between 110° and 130° . Most preferably, said angle β is equal to 112° , 114° , 116° , 118° , 120° , 122° , 124° , 126° or 128° , or any value located therein between.

[0028] In a preferred embodiment, the present invention provides an assemblable cross-profile according to the first aspect of the invention, wherein angles α and β are supplementary angles. It is meant therewith that the sum of α and β is equal to 180° , or at least is equal to approximately 180° . In this way, the raised edges of base profile and aspect profile are the extension of each other, so forming two closed sides of a trapezium.

[0029] In a preferred embodiment, the present invention provides an assemblable cross-profile according to the first aspect of the invention, wherein said base profile 1 and said aspect profile 2 are provided with a varying thickness. In a more preferred embodiment, the present invention provides an assemblable cross-profile according to the first aspect of the invention, wherein said base profile 1 is provided with a greater thickness than said aspect profile 2. Because said base profile and said aspect profile are manufactured from a same material with the same mechanical properties, such as flexibility, the raised edges of the aspect profile with a thinner thickness will nevertheless flex more simply opposite with respect to the raised edges of the base profile. In this way it can be assured that the raised edges interconnect closely.

[0030] In a second aspect the invention provides a kit comprising:

- (A) a cross-profile 1, 2 according to the first aspect of the invention; and
- (B) a series of garden slats 3.

[0031] This offers as an advantage that an assemblable package can be supplied to a consumer, and that the consumer can choose the dimensions of the cross-profile according to the dimensions of the local garden fence. In this way, a consumer assures himself of not purchasing a cross-profile with the wrong dimensions.

[0032] In a third aspect, the invention provides a fence with cross-profile 1, 2 according to the first aspect of the invention.

[0033] In a fourth aspect, the invention provides a mould for making an assemblable cross-profile 1, 2 according to the first aspect of the invention.

[0034] In a fifth aspect, the invention provides a method for making an assemblable cross-profile 1, 2 according to the first aspect of the invention, wherein a base profile 1 and an aspect profile 2 are separately extruded, and wherein said base profile 1 and said aspect profile 2 are both provided with spacing elements 121, 122, 13, 141, 142, 22, 23 to affix said base profile 1 and said aspect profile 2 at two or more distances from each other.

EXAMPLE

[0035] The invention shall now be further explained on the basis of the following example, without being limited thereto in any respect.

[0036] Figure 1 shows schematically a perspective of an assembled cross-profile 1, 2 for enclosing a series of garden slats 3 in a garden fence 4, 5. The garden fence comprises a series of horizontal wirings 4a, 4b, 4c, 4d, ... and a series of vertical wirings 5a, 5b, ... between which a series of garden slats 3a, 3b, ... is clamped. At the level of the horizontal wiring 4b, the framework 4, 5 shows a horizontal loop for bearing a cross-profile 1, 2. The garden slats 3a, 3b, ... are supported at the bottom by means of a clamping clip 6a, 6b, ... and are clamped at the top by means of a span 7. The assembled cross-profile 1, 2 shows a base profile 1 and an aspect profile 2, which in assembled state designate a closed, trapezoid cross section. According to the embodiment of Figure 1, the shortest base 21 of the assembled cross-profile 1, 2 is directed towards the wiring 4b.

[0037] Figure 2A shows an alternative embodiment for the embodiment according to Figure 1, wherein the horizontal loop for bearing the assembled cross-profile 1, 2 is provided with two horizontal wirings, 4b and 4c. For such an embodiment of the wiring 4, 5, it can be opted to bear the assembled cross-profile 1, 2 with the longest base 1 directed towards the wiring 4b, 4c.

[0038] Figures 2B and 2C show in side view a detail of the embodiments according to Figure 1 and Figure 2A, respectively. Dependent on the garden fence, the assembled cross-profile 1, 2 can be provided with a height D1 or D2.

[0039] Figure 3A shows in further detail a side view of the assembled cross-profile 1, 2 in assembled state. At the bottom of Figure 3A, the base profile 1 is shown with the aspect profile 2 beared therein at an established, fixed distance. By pressing base profile 1 and aspect profile 2 towards each other, the two profiles can be beared closer to each other in a thinner, fixed state. To this end, base profile 1 and aspect profile 2 are provided with spacing means, 121, 122, 13, 141, 142 and 22, 23, respectively. The protrusion 22 stands upright on the base area 21 of the aspect profile 2 and is provided with a spherical edge 23 at its extremity. Opposite thereto, a recess 13 is formed by means of two raised edges 121 and 122 standing upright on the base area 11 of the base profile 1. The recess 13 has a width corresponding to, and preferably not greater than, the width of the protrusion 22 of the aspect profile 2. The width of the protrusion 22 is even implemented in a slightly narrower dimension with respect to the width of the recess 13, e.g. 1.3 mm as opposed to 1.5 mm. In this way, no permanent stresses are exerted by the protrusion 22 on the raised edges 121 and 122. The recess 13 is provided with two locally widened parts 141 and 142 with a width to clamp the spherical edge 23. In that regard, the diameter of the spherical edge 13 corresponds with the diameter of the two local

cavities 141, 142. The raised edges 121 and 122 of the recess 13 are manufactured from a flexible material such as PVC with plasticizer, for example, such that the spherical edge 23 can be moved from the position at the level of widened part 142 to the position at the level of widened part 141, or vice versa, by slightly pressing the two raised edges 121 and 122 outwards during the transition. Thus, the height of the assembled cross-profile can be readily adapted to the dimensions of the horizontal loop of the fence. Alternatively, it can be opted to slide the base profile 1 and the aspect profile 2 away from each other in the longitudinal direction, and to subsequently slide these in the desired position again in the longitudinal direction.

[0040] At both sides of the base area 11, the base profile 1 is provided with raised edges 111, 112 at an angle of α . In a same way, the base area 21 of the aspect profile 2 is provided with a slanted raised edge 211, 212 at an angle of β . In that regard, care is taken to ensure that angles α and β are supplementary. That is, the sum of α and β is 180. Thereby the raised edges 111, 112 and 211, 212 come to lie contiguously in a same plane. In this way, a closed trapezoid cross section can be obtained. A closed cross section is important for preventing ingress of rain water, biological or other material in the cross-profile.

[0041] The aspect profile 2 and the base profile 1 are preferably manufactured from a same, lightly flexible material. However, the thickness of the aspect profile 2 is less than the thickness of the base profile 1, e.g. 1.0 mm as opposed to 1.1 mm. When the cross-profile 1, 2 is fixed in the closest state, that is, the spherical edge 23 is beared at the level of the local, spherical cavity 141, the raised edges 211, 212 will fold slightly outwards. This will increase the angle β . In order to still arrive at a closed trapezoid cross section, the raised edges 111, 112 are each provided with a raised edge 113, 114 at an angle of γ . The angle γ is chosen such that in the closest state, the raised edges 113, 114 and 211, 212 come to lie contiguously in a same plane. Thus the closed cross section is realised.

[0042] In Figure 3B, the cross-profile is shown in a closest, assembled state. The raised edges 211, 212 of the aspect profile 2 are pressed slightly outwards in this regard, which is expressed by a larger angle β' , wherein $\beta' > \beta$. The raised edges 211, 212 come to abut the raised edges 113, 114 of the base profile 1, so forming a closed trapezoid cross section.

[0043] Figures 4A and 4B show the assembled cross-profiles 1, 2 in varying perspectives. Figures 4C and 4D show in perspective the aspect profile 2 and the base profile 1, respectively.

Claims

1. Assemblable cross-profile (1, 2) comprising a base profile (1) and an aspect profile (2), and one or more spacing elements (121, 122, 13, 141, 142, 22, 23)

- to affix said base profile (1) and said aspect profile (2) at two or more distances from each other, and wherein said base profile (1) and said aspect profile (2) are manufactured from a thermoplastic material.
2. Assemblable cross-profile (1, 2) according to Claim 1, wherein said spacing elements (121, 122, 13, 141, 142, 22, 23) are provided to affix said base profile (1) and said aspect profile (2) at two to four, and preferably two or three, varying distances from each other.
 3. Assemblable cross-profile (1, 2) according to Claim 1 or 2, wherein said aspect profile (2) is provided with a protrusion (22) and wherein said base profile (1) is provided with a recess (13) for receiving said protrusion (22), or vice versa.
 4. Assemblable cross-profile (1, 2) according to at least one of preceding Claims 1 to 3, wherein said protrusion (22) is provided with a resistance element (23) and wherein said recess (13) is provided with a complementary resistance element (141, 142).
 5. Assemblable cross-profile (1, 2) according to at least one of preceding Claims 1 to 4, wherein said resistance elements (141, 142, 23) have a round cross section.
 6. Assemblable cross-profile (1, 2) according to at least one of preceding Claims 1 to 5, wherein said base profile (1) is provided with two raised edges (111, 112).
 7. Assemblable cross-profile (1, 2) according to at least one of preceding Claims 1 to 6, wherein the raised edges (111, 112) of said base profile (1) are curved.
 8. Assemblable cross-profile (1, 2) according to at least one of preceding Claims 1 to 7, wherein said aspect profile (2) is provided with two raised edges (211, 212).
 9. Assemblable cross-profile (1, 2) according to at least one of preceding Claims 1 to 8, wherein angles α and β are supplementary angles.
 10. Assemblable cross-profile (1, 2) according to at least one of preceding Claims 1 to 9, wherein said base profile (1) and said aspect profile (2) are provided with a varying thickness.
 11. Assemblable cross-profile (1, 2) according to Claim 10, wherein said base profile (1) is provided in a greater thickness than said aspect profile (2).
 12. Kit comprising:
 - (A) a cross-profile (1, 2) according to at least one of preceding Claims 1 to 11 ;
 - (B) a series of garden slats (3).
 13. Fence with cross-profile (1, 2) according to at least one of preceding Claims 1 to 11.
 14. Mould for making an assemblage cross-profile (1, 2) according to at least one of preceding Claims 1 to 11.
 15. Method for making an assemblable cross-profile (1, 2) according to at least one of preceding Claims 1 to 11, wherein a base profile (1) and an aspect profile (2) are separately extruded, and wherein said base profile (1) and said aspect profile (2) are both provided with spacing elements (121, 122, 13, 141, 142, 22, 23) to affix said base profile (1) and said aspect profile (2) at two or more distances from each other.

Fig. 1

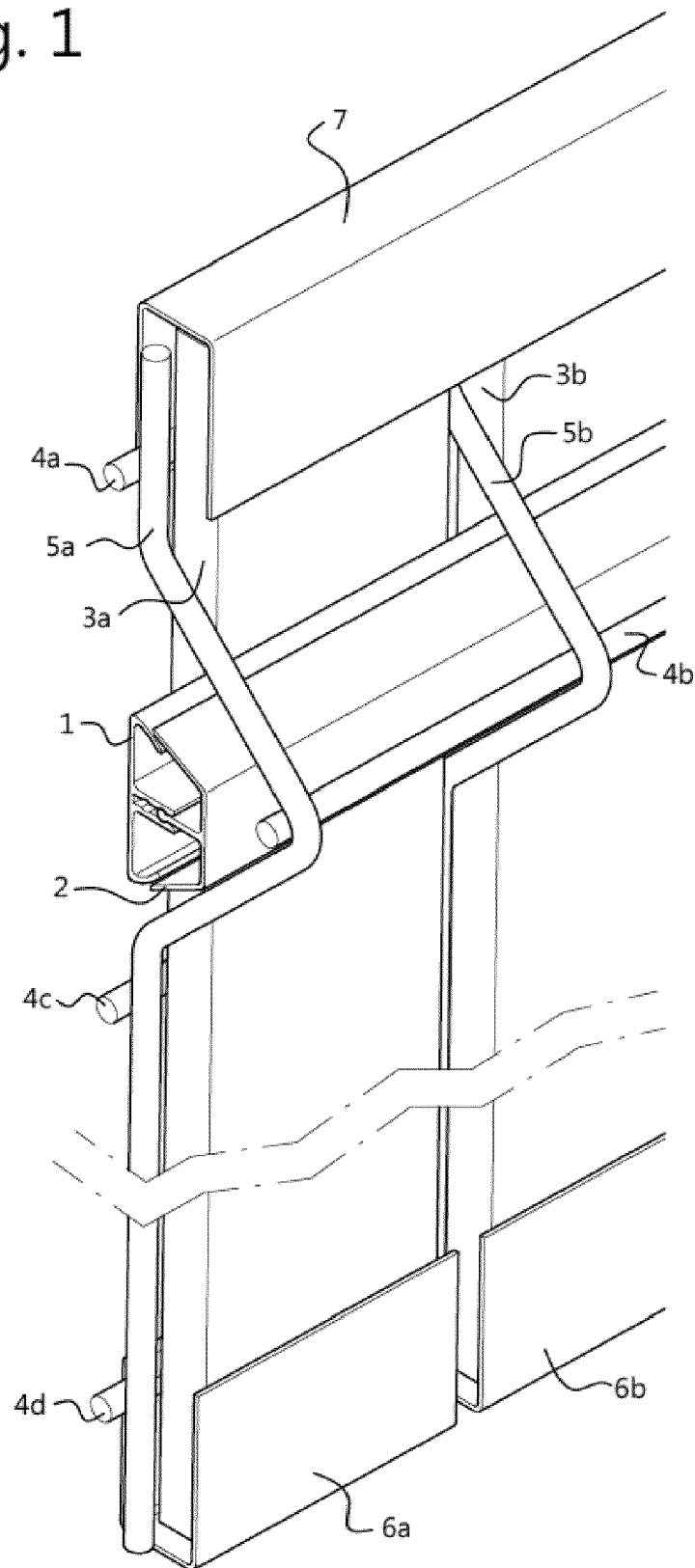


Fig. 2A

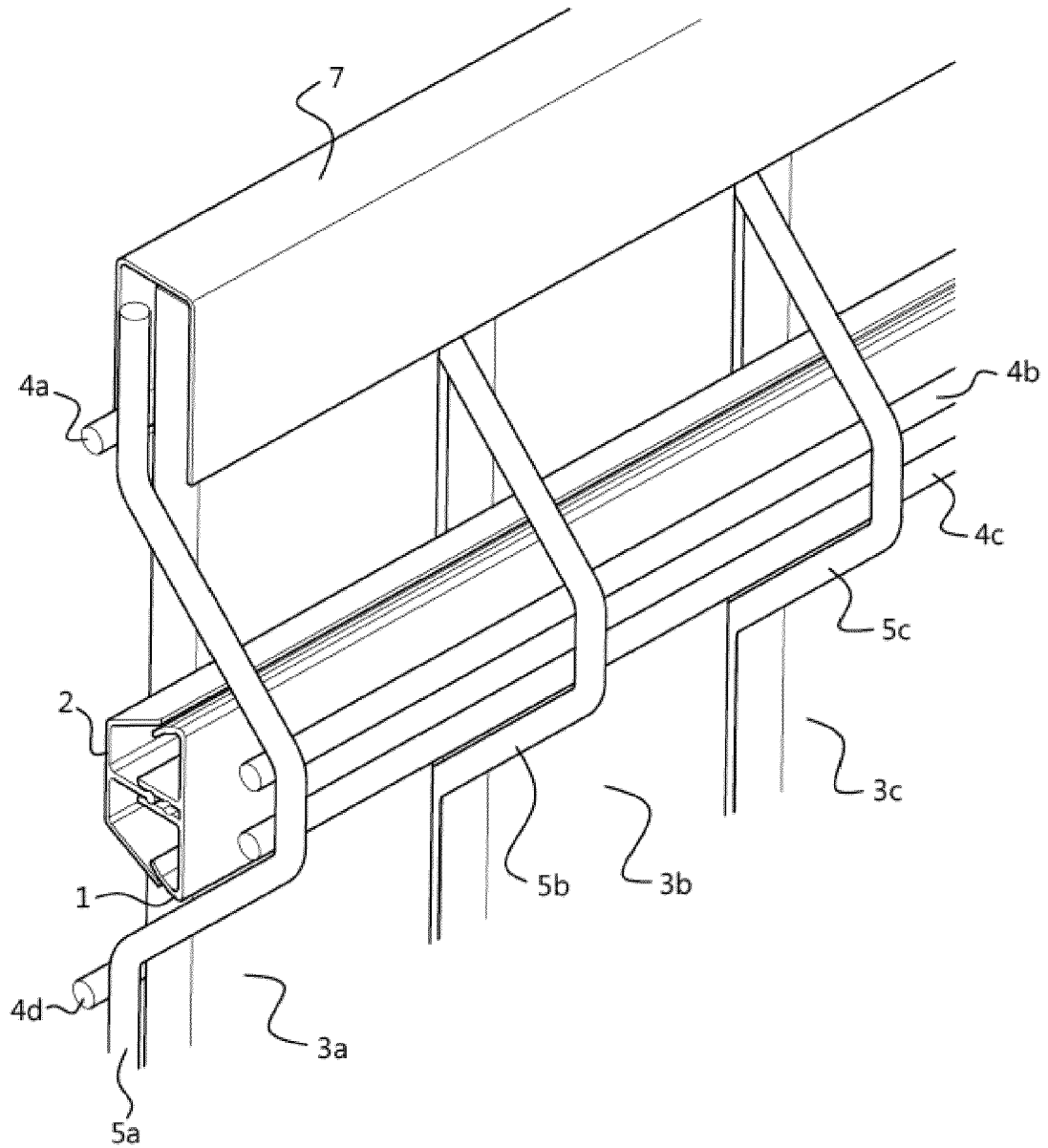


Fig. 2B

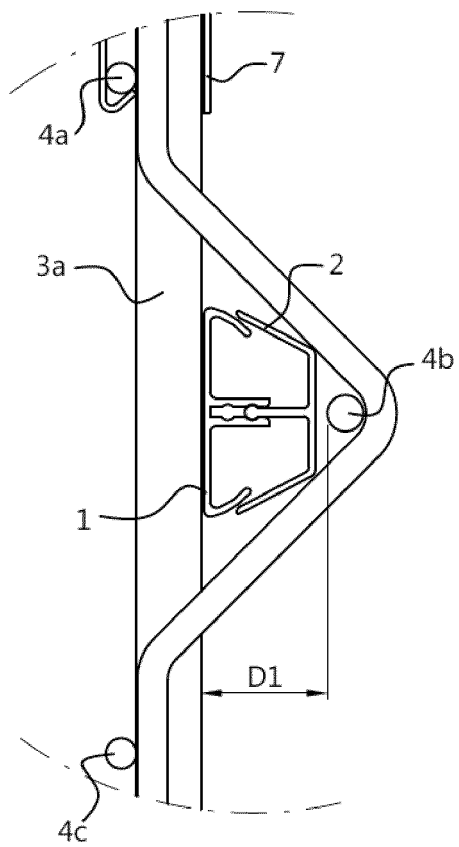


Fig. 2C

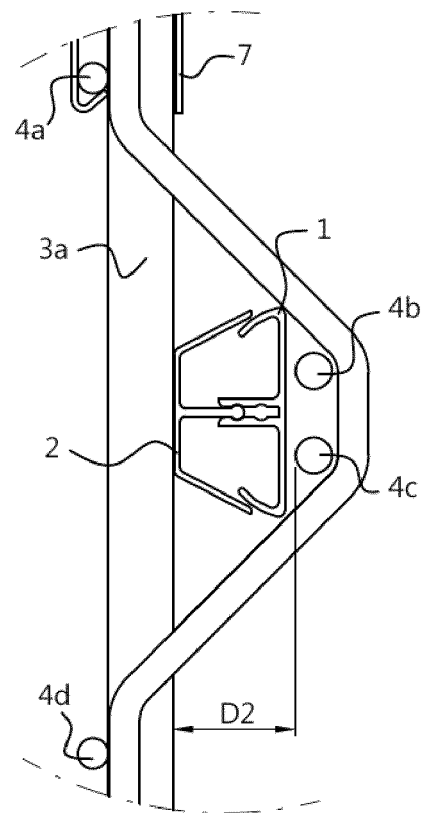


Fig. 3A

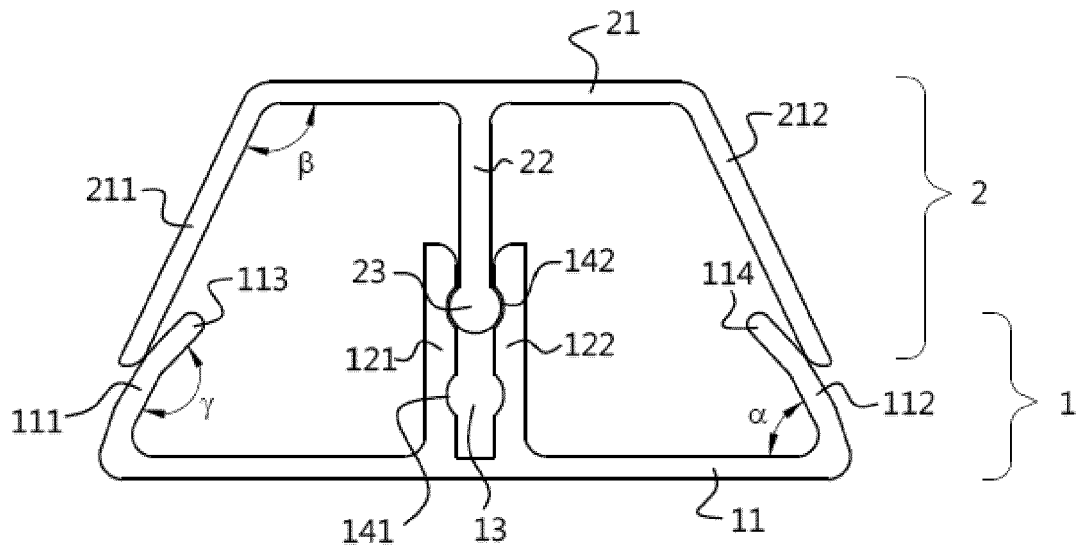


Fig. 3B

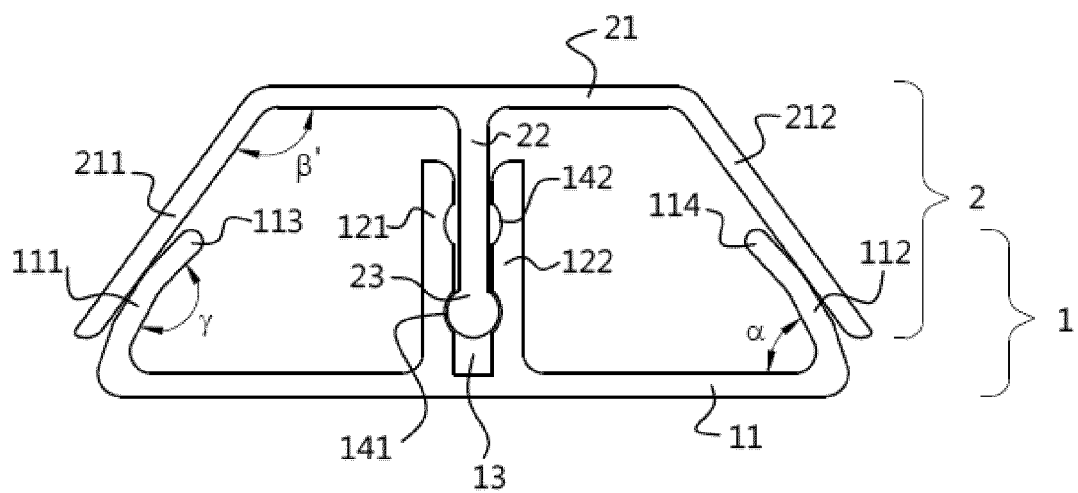


Fig. 4A

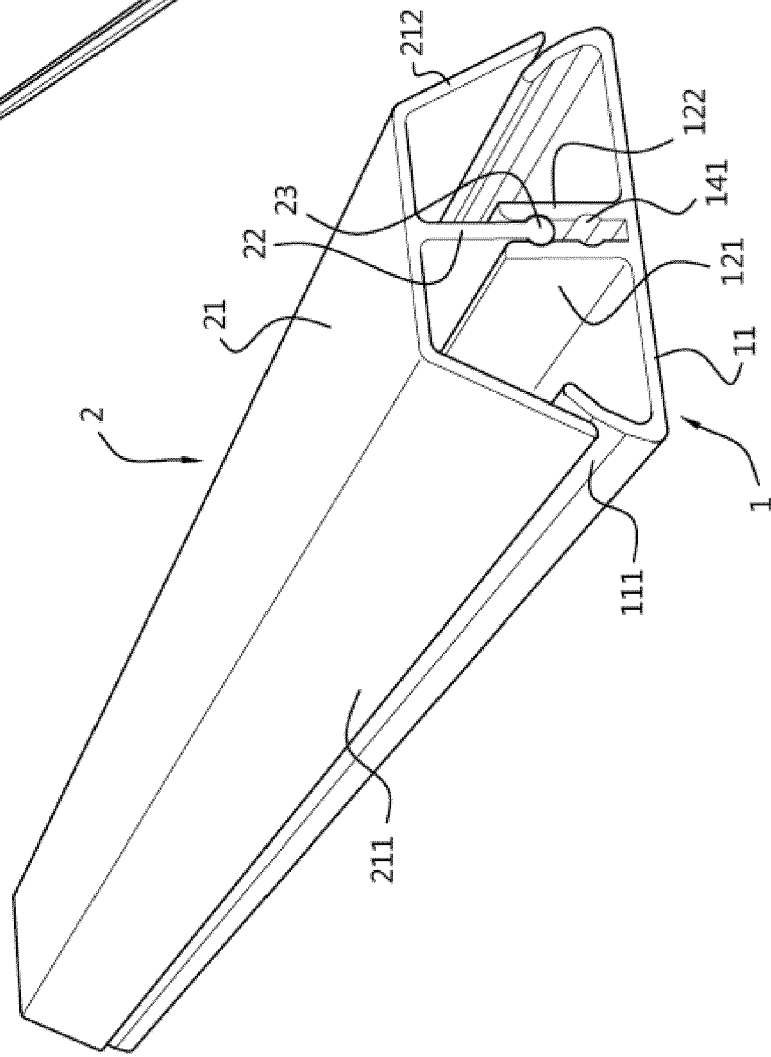


Fig. 4B

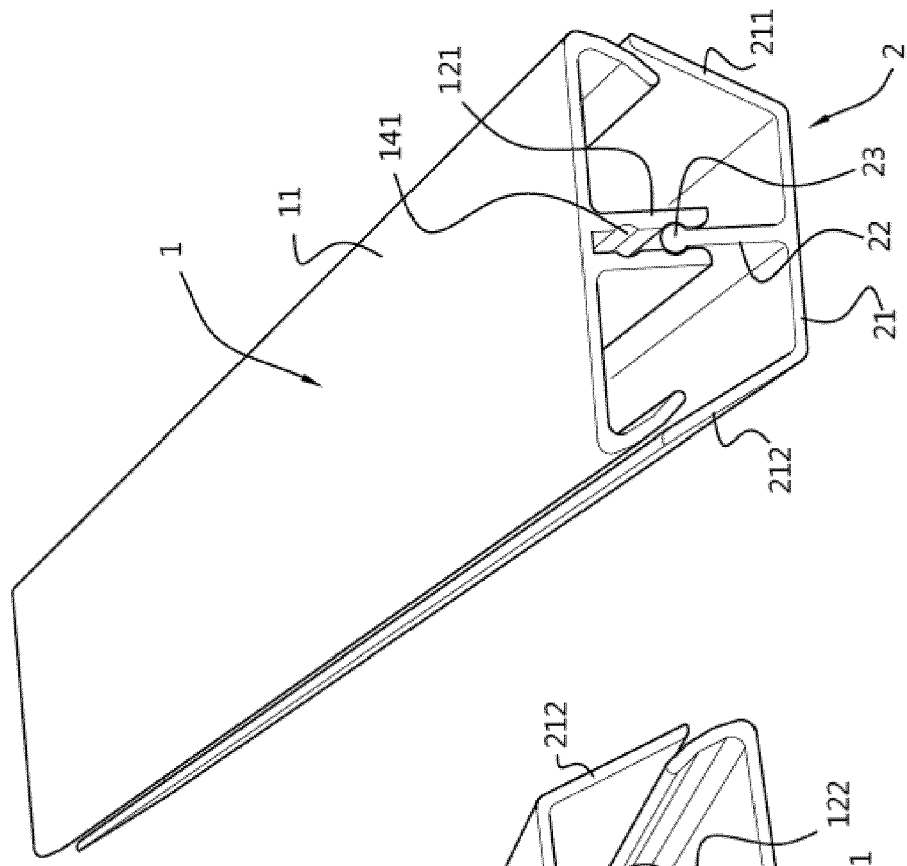


Fig. 4D

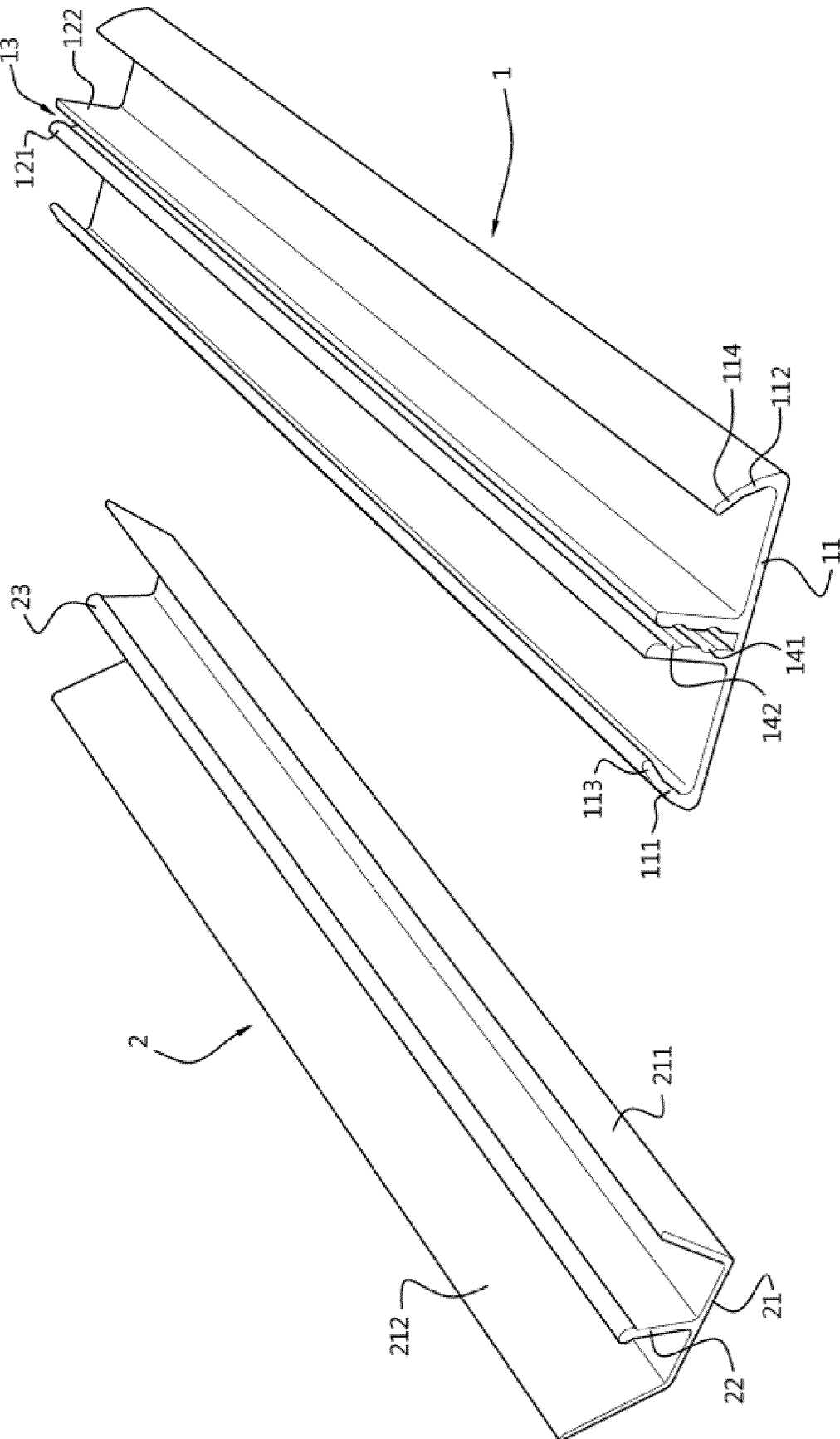
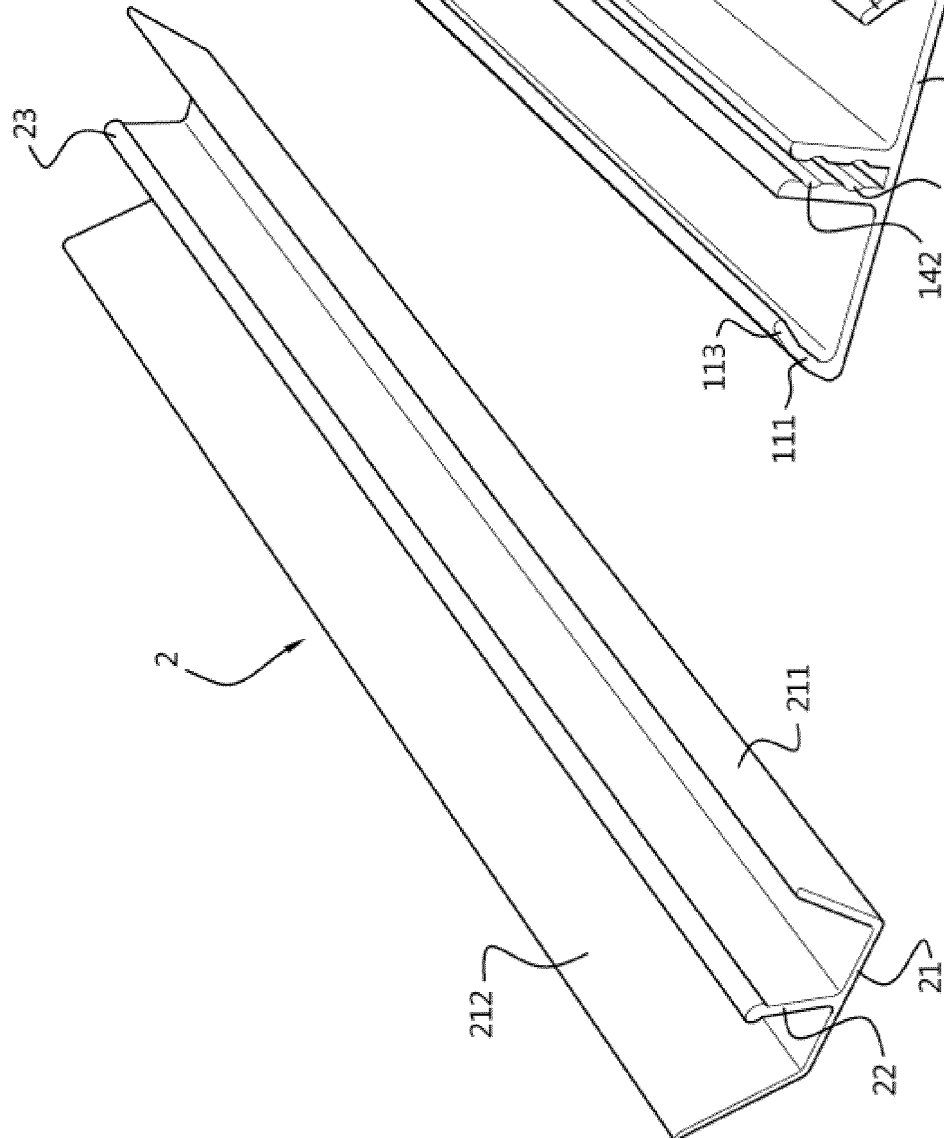


Fig. 4C





EUROPEAN SEARCH REPORT

 Application Number
 EP 18 15 2462

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	FR 1 105 961 A (CIE IND DES TELEPHONES) 9 December 1955 (1955-12-09)	1-4,14,15	INV. E04H17/14
Y	* the whole document * *	12,13	
X	FR 1 252 603 A (ROGER-HENRI MARANTIER) 3 February 1961 (1961-02-03)	1-4,6-11	
A	* page 2, left-hand column, line 1 - right-hand column, line 40; figures 1-5 *	14,15	
X	US 3 385 567 A (CASE JOHN S ET AL) 28 May 1968 (1968-05-28)	1-4,6-9,11,13	
Y	DE 20 2004 009649 U1 (OBERMEIER PETER [DE]; OBERMEIER KLAUS [DE]) 11 November 2004 (2004-11-11)	12,13	TECHNICAL FIELDS SEARCHED (IPC)
A	* page 3, right-hand column, paragraph 58 - page 4, left-hand column, paragraph 63 * * page 7, right-hand column, paragraph 96 - paragraph 97; figures 1-4,48-51 *	1-6,8,10,11,14,15	
A	DE 20 27 609 A1 (WESERSTAHL KG) 9 December 1971 (1971-12-09) * the whole document * *	1-5,8,10,11	
The present search report has been drawn up for all claims			E04H E04B F16B E04F E06B
Place of search		Date of completion of the search	Examiner
Munich		28 May 2018	Stefanescu, Radu
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 18 15 2462

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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28-05-2018

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

REFERENCES CITED IN THE DESCRIPTION

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