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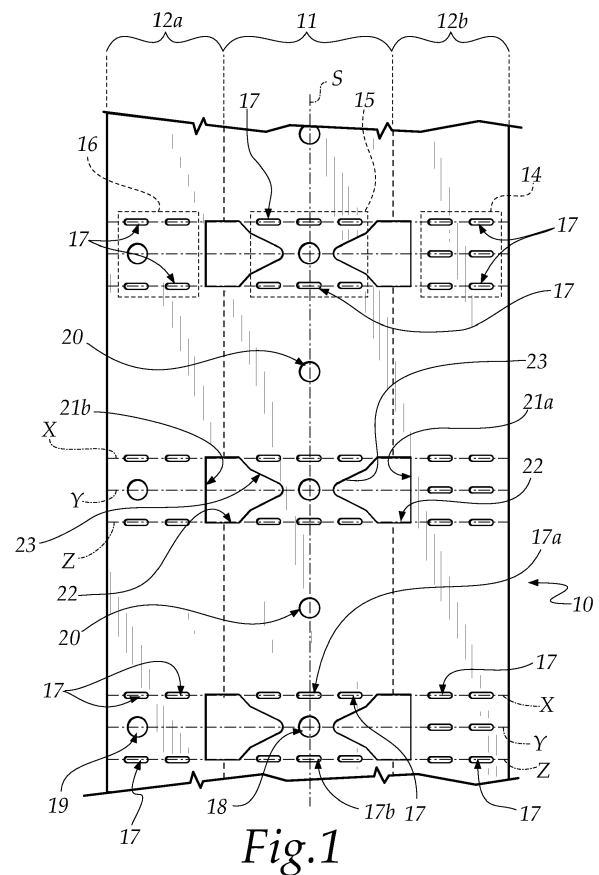
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(54) **DEFORMABLE PROFILED MEMBER**

(57) A deformable profiled member (10), C-shaped in cross-section, with a core (11) and two opposing wings (12a, 12b), respectively a first wing (12a) and a second wing (12b); on each one of the wings (12a, 12b) and on the core (11) a plurality of groups (14, 15, 16) of slots/holes being defined, each one of the groups (14, 15, 16) having at least four slots (17, 17a, 17b), extending longitudinally, the slots (17, 17a, 17b) being arranged in groups numbering at least two along lines (X, Y, Z) that are mutually parallel when considering the flat extension of said profiled member (10).



Description

[0001] The present invention relates to a deformable profiled member.

[0002] The invention is used in the construction industry, particularly in the sector of buildings that use prefabricated panels.

[0003] Nowadays, for constructing dividing structures within a building such as, for example, walls and/or false ceilings, widespread use is made of prefabricated panels, for example made of plasterboard.

[0004] In order to provide a dividing structure using prefabricated panels, generally the load-bearing frame of the dividing structure is prepared using supports and/or metallic and/or wooden profiled members, which are in turn secured to one or more elements of the building, such as walls and/or floors and/or ceilings.

[0005] Once the frame of the dividing structure is assembled, the prefabricated panels are fixed to the supports and/or to the profiled members that make it up.

[0006] Such structures are easy and rapid to set up and they make it possible to obtain ceilings and walls with shapes that are difficult to achieve with ordinary bricks and cement, such as for example curved shapes of walls or ceilings.

[0007] In order to obtain dividers with curved shapes, metallic profiled members are used which can be deformed according to requirements.

[0008] For example, there is the deformable profiled member described in EP2673426B1, by this same applicant.

[0009] This profiled member is C-shaped in cross-section and has a plurality of areas prepared to facilitate bending, which are substantially constituted by openings and/or cuts, on the core of the C and on its wings.

[0010] Such openings and/or cuts weaken the structure of the profiled member and it is therefore possible to deform it in order to provide the curve.

[0011] During erection of the frame of the dividing structure, the profiled member is in fact bent by acting on one or more of these areas prepared to facilitate bending.

[0012] Such known art has a number of aspects that show room for improvement.

[0013] First of all, the profiled member has:

- a plurality of mutually parallel groups of slots, extended longitudinally, on the wings of the C-shape, with each slot parallel to a slot of the other wing, and with each group composed of three slots: two end slots and one intermediate slot,
- a pair of slots, extended longitudinally, on the core of the C-shape, corresponding to the end slots of the two corresponding groups of slots arranged on the wings.

[0014] Such a plurality and arrangement of slots, although it allows easy bending, can determine, in some

types of installations, a mechanical rigidity and an unsuitable moment of inertia of the profiled member.

[0015] The aim of the present invention is to provide a deformable profiled member that is capable of improving the known art in one or more of the abovementioned aspects.

[0016] Within this aim, an object of the invention is to provide a deformable profiled member that can be easily and readily folded.

[0017] Another object of the invention is to provide a deformable profiled member that has a better mechanical rigidity than similar conventional profiled members, while maintaining the same flexibility.

[0018] A further object of the invention is to provide a deformable profiled member that has a better moment of inertia than similar conventional profiled members, with the same flexibility.

[0019] A further object of the present invention is to overcome the drawbacks of the background art in a manner that is alternative to any existing solutions.

[0020] Another object of the invention is to provide a deformable profiled member that is highly reliable, easy to implement and low-cost.

[0021] This aim and these and other objects which will become more apparent hereinafter are achieved by a deformable profiled member, C-shaped in cross-section, with a core and two opposing wings, respectively a first wing and a second wing, characterized in that it has on each one of said wings and on said core a plurality of groups of slots/holes, each one of said groups having at least four slots, extending longitudinally, said slots being arranged in groups numbering at least two along lines that are mutually parallel when considering the flat extension of said profiled member.

[0022] Further characteristics and advantages of the invention will become more apparent from the detailed description that follows of a preferred, but not exclusive, embodiment of the deformable profiled member according to the invention, which is illustrated by way of non-limiting example in the accompanying drawings wherein:

- Figure 1 is a view of the flat extension of a portion of a deformable profiled member according to the invention;
- Figure 2 is a side view of a portion of a deformable profiled member according to the invention in an application thereof.

[0023] With reference to the figures, a deformable profiled member according to the invention is generally designated by the reference numeral 10.

[0024] The profiled member 10 is made of metallic material.

[0025] Such profiled member 10 is C-shaped in cross-section, with a core 11 and two opposing wings, respectively a first wing 12a and a second wing 12b.

[0026] One of the particularities of the invention consists in the fact that the profiled member 10 has, on each

one of the wings 12a, 12b, and on the core 11, a plurality of groups 14, 15, 16 of slots/holes.

[0027] In particular, the profiled member 10 has:

- a plurality of first groups 14 along the second wing 12b,
- a plurality of second groups 15 along the core 11,
- a plurality of third groups 16 along the first wing 12a.

[0028] Along the direction of extension S of the profiled member 10, a first group 14 and a third group 16 are arranged at each second group 15.

[0029] Considering the flat extension of the profiled member 10, as illustrated partially in Figure 1, each one of such groups 14, 15, 16 has at least four slots 17, extending longitudinally, and such slots 17 are arranged in groups numbering at least two along lines X, Y, Z that are mutually parallel and orthogonal to the direction of extension S of the profiled member 10: a first end line X, a second end line Z and an intermediate line Y.

[0030] Specifically, the first group 14 has six slots 17 in aligned pairs, respectively:

- two slots 17 along the first end line X,
- two slots 17 along the second end line Z,
- two slots 17 along the intermediate line Y.

[0031] The second group 15 has:

- three slots 17 aligned along the first end line X, of which one is a first central slot 17a,
- three slots 17 aligned along the second end line Z, of which one is a second central slot 17b,
- a first hole 18 along the intermediate line Y, aligned with the first central slot 17a and with the second central slot 17b along the direction of extension S of the profiled member 10.

[0032] The third group 16 has:

- two slots 17 aligned along the first end line X,
- two slots 17 aligned along the second end line Z,
- a second hole 19 along the intermediate line Y

[0033] In the example shown in Figure 1, the second hole 19 is aligned with two slots 17 of the third group 16 along an axis parallel to the direction of extension S of the profiled member 10. However in variations of embodiment, not shown in the figures, the second hole 19 may not be aligned with other slots 17 along an axis parallel to the direction of extension S of the profiled member 10.

[0034] Such an arrangement and configuration of slots and holes makes it possible to provide a deformable profiled member that has a higher moment of inertia and a better mechanical rigidity than similar conventional profiled members.

[0035] Such profiled member 10 has, along the direction of extension S, a plurality of third holes 20, each one

interposed between two successive second groups 15.

[0036] Such third holes 20 are adapted for the insertion of screws for fixing the prefabricated panels during the assembly of the dividing structure.

[0037] The profiled member 10 has a plurality of pairs of openings 21a, 21b, which are mirror-symmetrical with respect to the direction of extension S, each pair of openings 21a, 21b being located at a second group 15.

[0038] In particular, considering the flat extension shown in Figure 1, the openings 21a, 21b extend between the core 11 and a respective wing 12a, 12b and are defined by:

- a first portion 22, with a substantially rectangular profile, straddling the wing 12a, 12b and the core 11,
- a second portion 23, with a substantially triangular profile, extending from the first portion 22, within the core 11, with the apex directed toward the first hole 18.

[0039] Such openings 21a, 21b, are adapted to facilitate the bending of the sheet metal during the step of conferring the C-shape on the profiled member 10, and also the bending of the profiled member 10 during the application step in order to produce the required curvature.

[0040] In practice it has been found that the invention fully achieves the intended aim and objects by providing a deformable profiled member that can be easily and readily folded.

[0041] With the invention a deformable profiled member has been devised that has a better mechanical rigidity than similar conventional profiled members, while maintaining the same flexibility.

[0042] Finally, with the invention a deformable profiled member has been provided that has a better moment of inertia than similar conventional profiled members, with the same flexibility.

[0043] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims. Moreover, all the details may be substituted by other, technically equivalent elements.

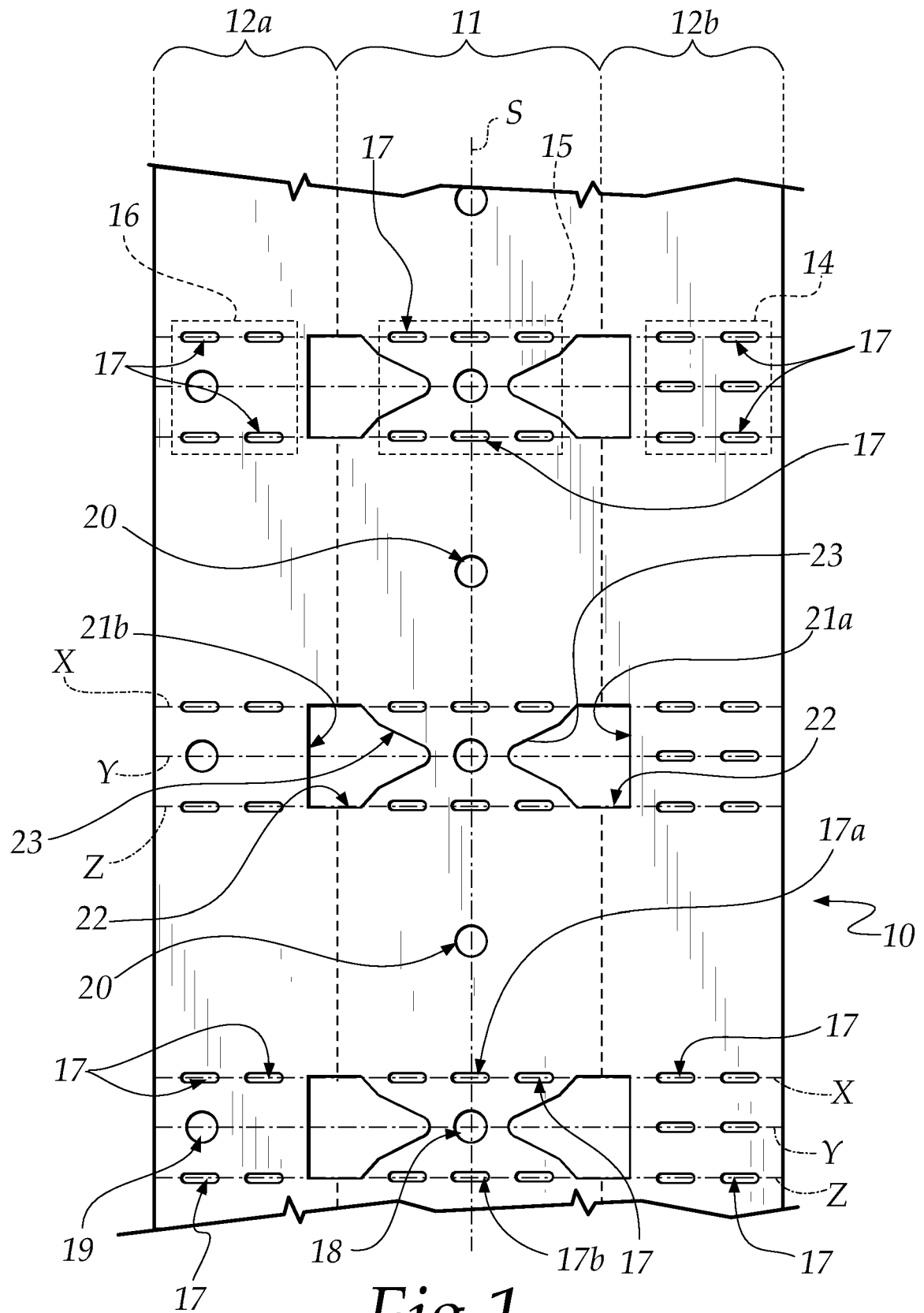
[0044] In practice the materials employed, provided they are compatible with the specific use, and the contingent dimensions and shapes, may be any according to requirements and to the state of the art.

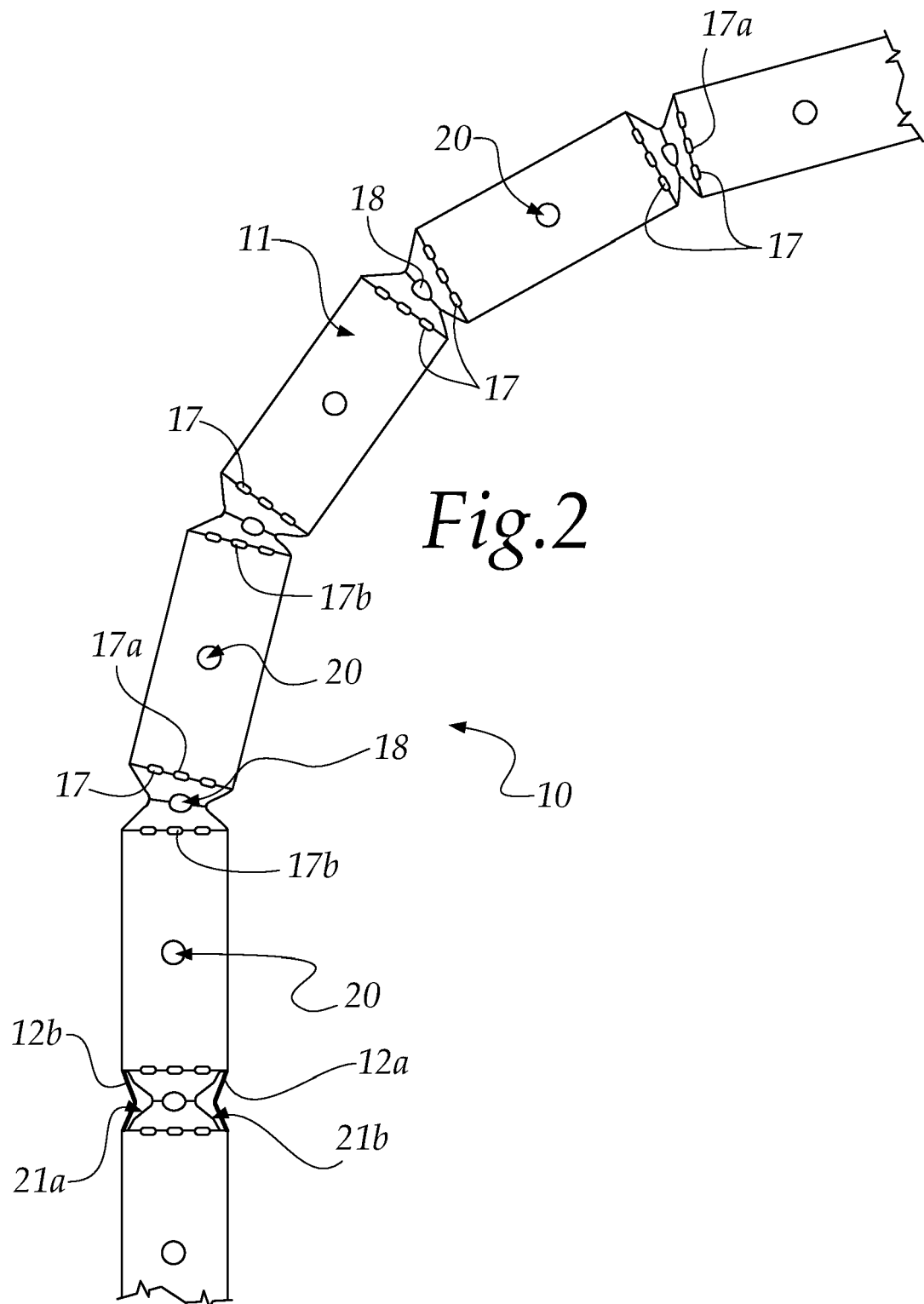
[0045] The disclosures in Italian Utility Model Application No. 20202000000499 from which this application claims priority are incorporated herein by reference.

[0046] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A deformable profiled member (10), C-shaped in cross-section, with a core (11) and two opposing wings (12a, 12b), respectively a first wing (12a) and a second wing (12b), **characterized in that** it has on each one of said wings (12a, 12b) and on said core (11) a plurality of groups (14, 15, 16) of slots/holes, each one of said groups (14, 15, 16) having at least four slots (17, 17a, 17b), extending longitudinally, said slots (17, 17a, 17b) being arranged in groups numbering at least two along lines (X, Y, Z) that are mutually parallel when considering the flat extension of said profiled member (10).
 - a plurality of first groups (14) along said second wing (12b),
 - a plurality of second groups (15) along said core (11),
 - a plurality of third groups (16) along said first wing (12a).
2. The profiled member (10) according to claim 1, **characterized in that** it has:
 - a plurality of first groups (14) along said second wing (12b),
 - a plurality of second groups (15) along said core (11),
 - a plurality of third groups (16) along said first wing (12a).
3. The profiled member (10) according to one or more of the preceding claims, **characterized in that** one of said first groups (14) and one of said third groups (16) are arranged at each one of said second groups (15) along its direction of extension (S).
4. The profiled member (10) according to one or more of the preceding claims, **characterized in that** said mutually parallel lines (X, Y, Z) are: a first end line (X), a second end line (Z) and an intermediate line (Y).
5. The profiled member (10) according to one or more of the preceding claims, **characterized in that** each one of said first groups (14) has six slots (17) in aligned pairs, respectively:
 - two slots (17) along said first end line (X),
 - two slots (17) along said second end line (Z),
 - two slots (17) along said intermediate line (Y).
6. The profiled member (10) according to one or more of the preceding claims, **characterized in that** each one of said second groups (15) has:
 - three slots (17) along said first end line (X), of which one is a first central slot (17a),
 - three slots (17) along said second end line (X), of which one is a second central slot (17a),
 - a first hole (18) along said intermediate line (Y), aligned with said first central slot (17a) and with said second central slot (17b) along said direction of extension (S) of said profiled mem-
- ber (10).
 - two slots (17) along said first end line (X),
 - two slots (17) along said second end line (Z),
 - a second hole (19) along said intermediate line (Y).
7. The profiled member (10) according to one or more of the preceding claims, **characterized in that** each one of said third groups (16) has:
 - two slots (17) along said first end line (X),
 - two slots (17) along said second end line (Z),
 - a second hole (19) along said intermediate line (Y).
8. The profiled member (10) according to one or more of the preceding claims, **characterized in that** it has, along said direction of extension (S), a plurality of third holes (20), each one of said third holes (20) being interposed between two successive ones of said second groups (15).
9. The profiled member (10) according to one or more of the preceding claims, **characterized in that** it has a plurality of pairs of openings (21a, 21b) which are mirror-symmetrical with respect to said direction of extension (S), each pair of openings (21a, 21b) being located at one of said second groups (15).
10. The profiled member (10) according to one or more of the preceding claims, **characterized in that** said openings (21a, 21b) extend between said core (11) and a respective wing (12a, 12b) and are defined by:
 - a first portion (22), with a substantially rectangular profile, straddling one of said wings (12a, 12b) and said core (11),
 - a second portion (23), with a substantially triangular profile, extending from said first portion (22) within said core (11), with the apex directed toward said first hole (18).







EUROPEAN SEARCH REPORT

Application Number

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Place of search The Hague		Date of completion of the search 10 January 2022	Examiner Couprie, Brice
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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