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(54) **SHEET METAL SECTION FOR DRY CONSTRUCTION**

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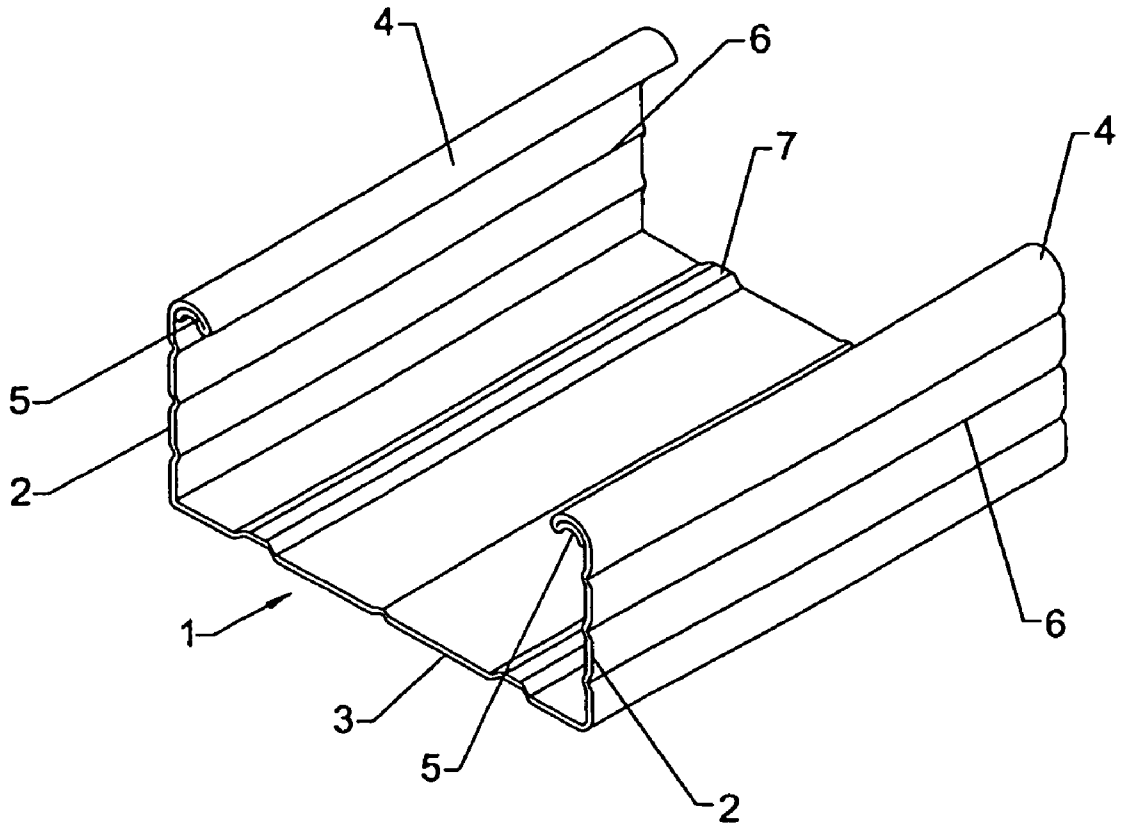
(57) **ABSTRACT**

The invention relates to a sheet metal section for dry construction, including two limb portions and a base portion that connects said limb portions. According to the invention, at least one of the limb portions is equipped with a bent supporting edge that extends in the longitudinal direction of the section, the bent supporting edge being provided with a reinforcement strip. The section is characterised in that the reinforcement strip extends over the entire width of the bent supporting edge.



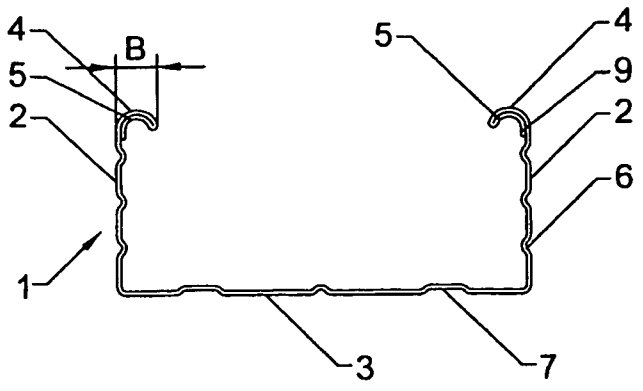


Fig. 1

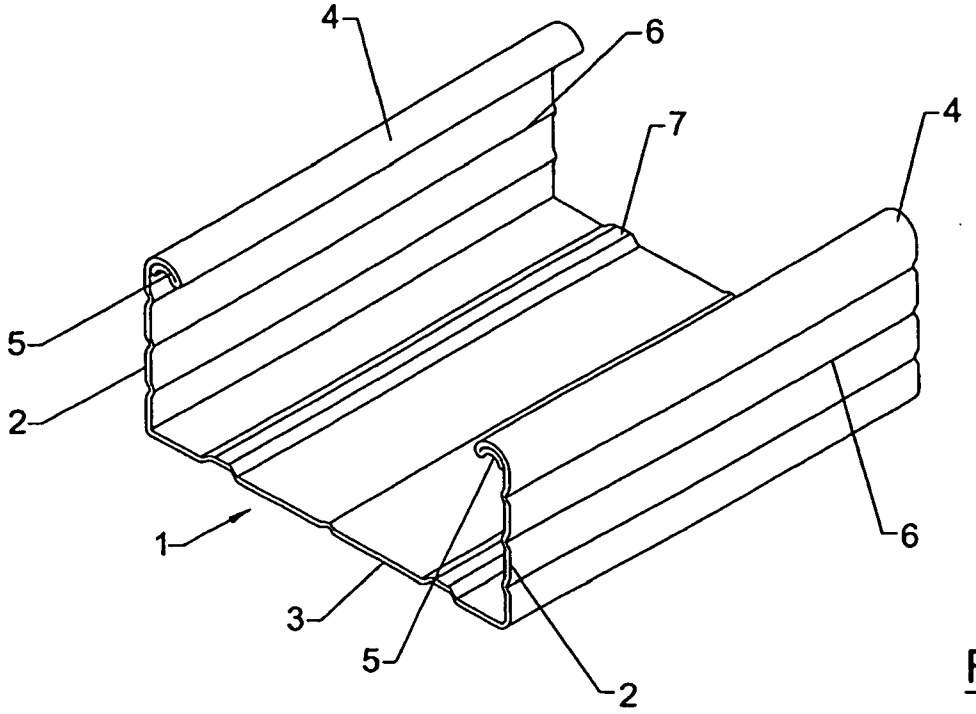


Fig. 2

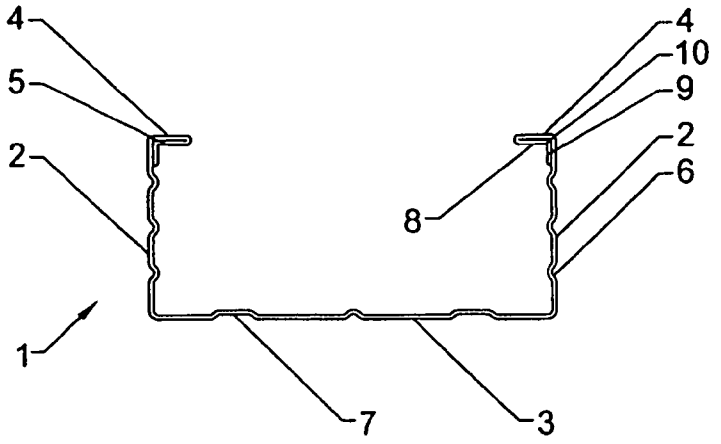


Fig. 3

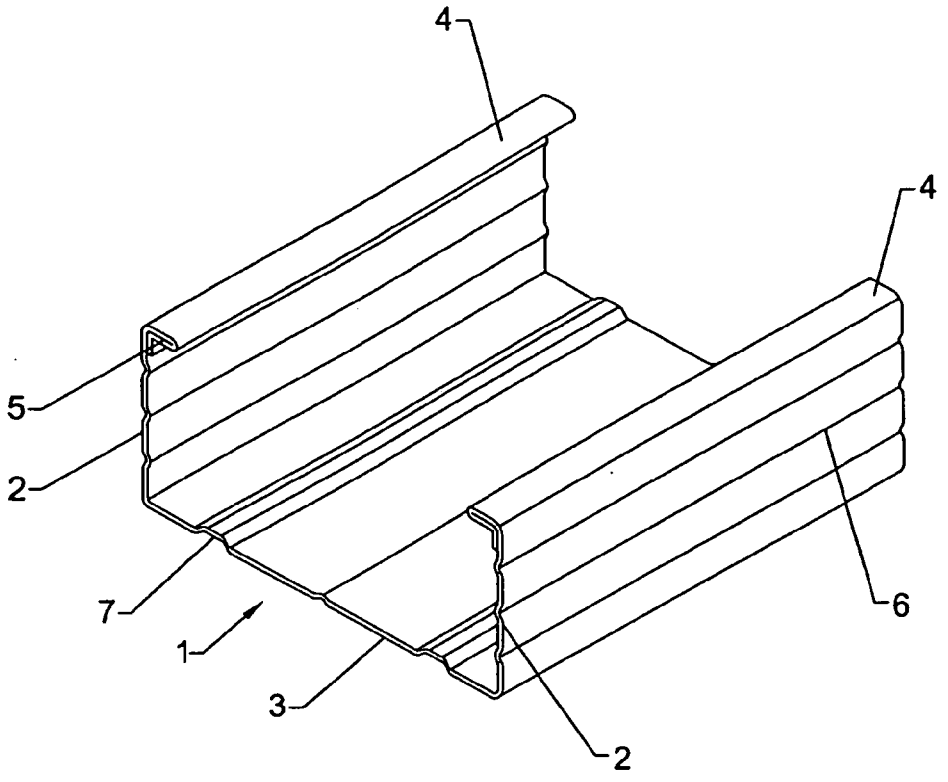


Fig. 4

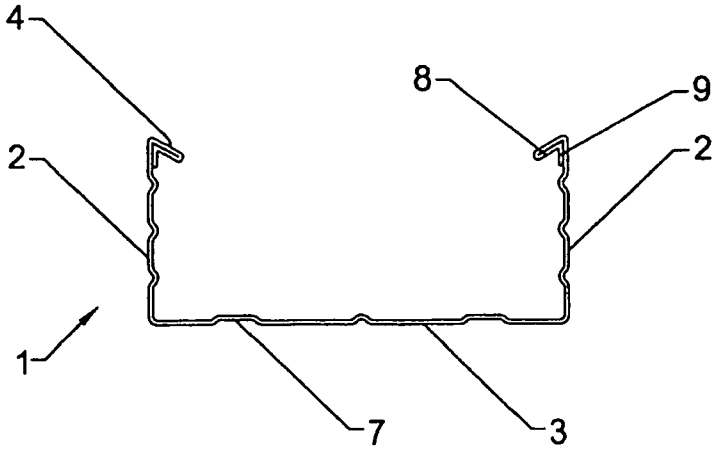


Fig. 5

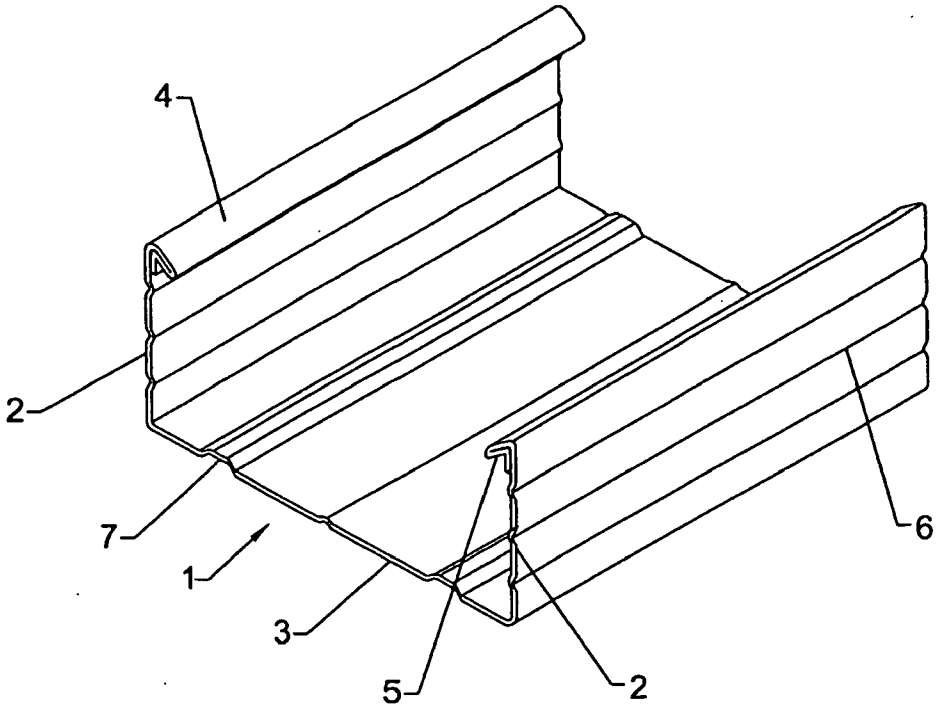


Fig. 6

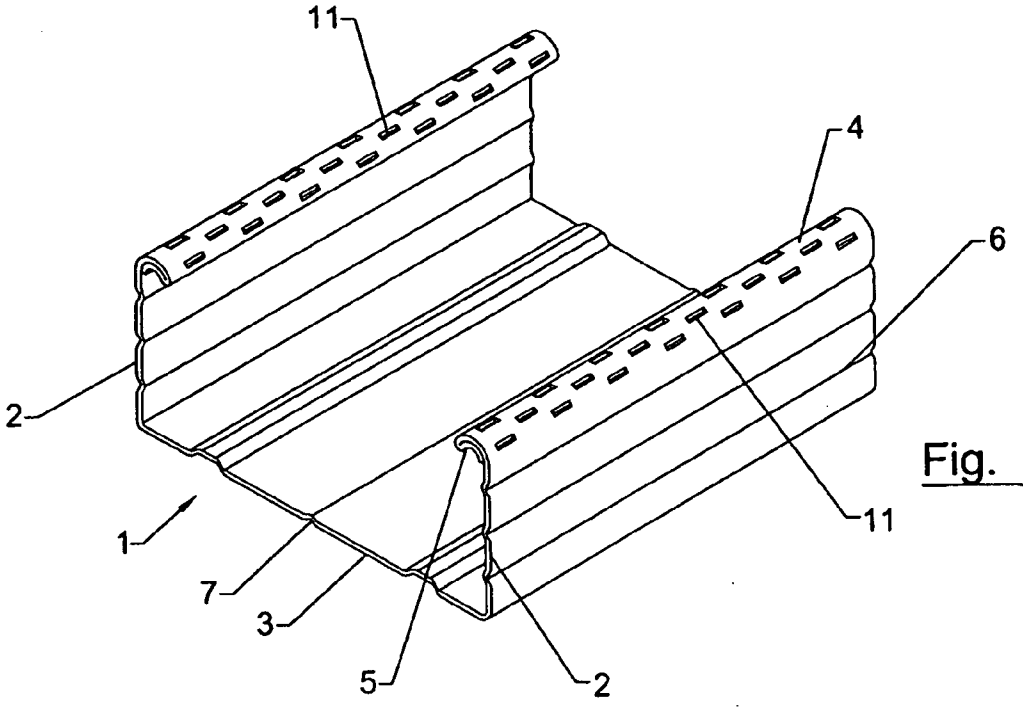


Fig. 7

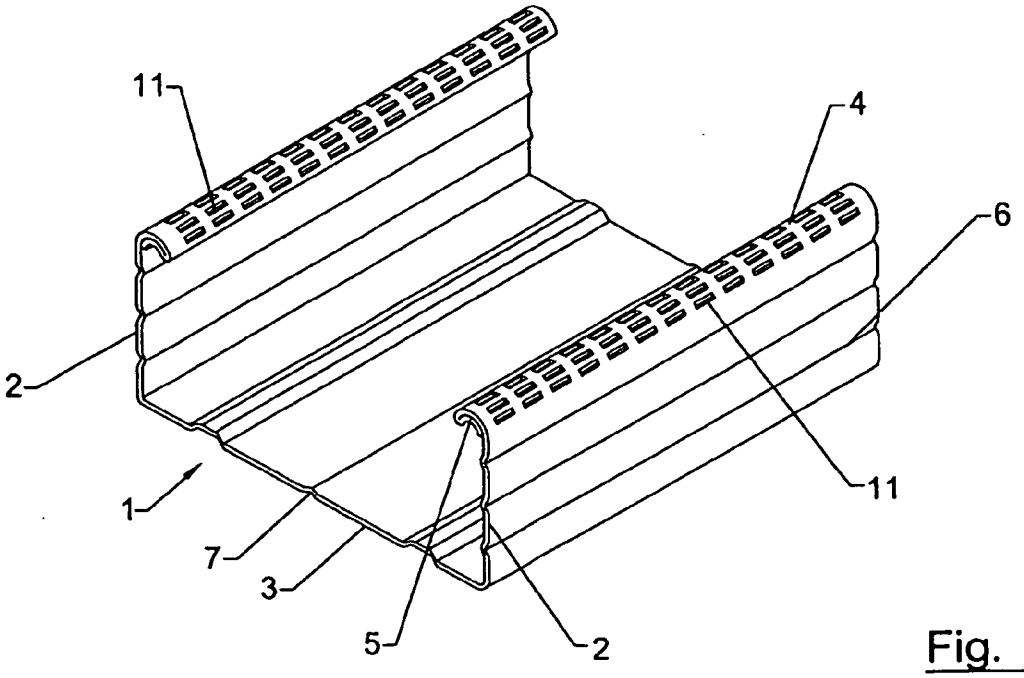


Fig. 8

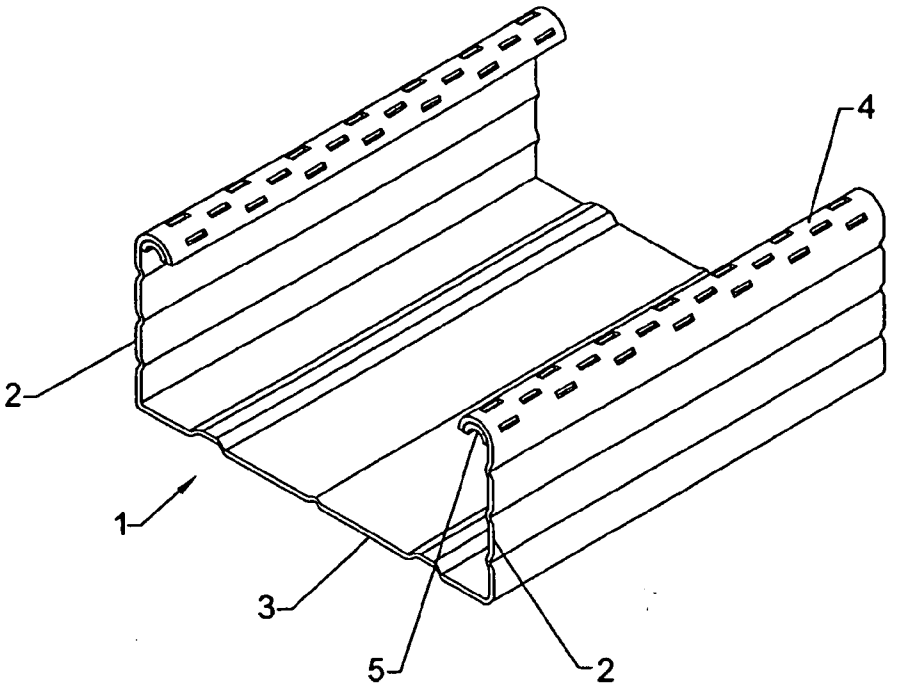


Fig. 9

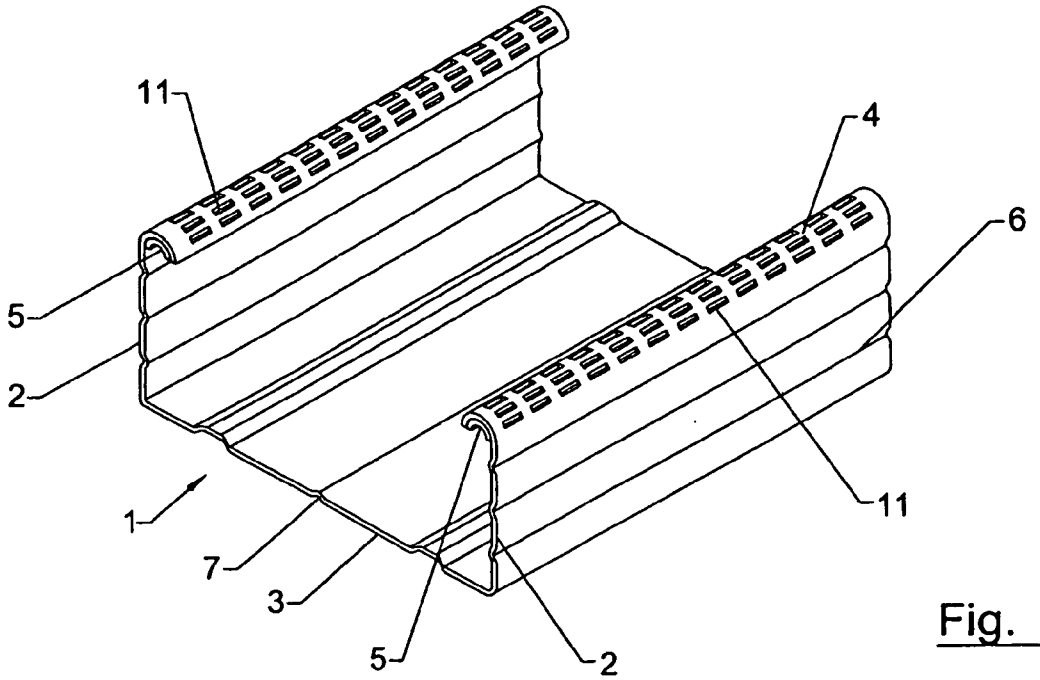


Fig. 10

SHEET METAL SECTION FOR DRY CONSTRUCTION

[0001] This claims the benefit of DE 20 2006 008 668.4 filed on May 30, 2006, through PCT/EP2006/010636 filed on Nov. 7, 2006, both are hereby incorporated by reference herein.

[0002] The present invention relates to a sheet metal section for dry construction.

BACKGROUND OF THE INVENTION

[0003] Sheet metal sections are used in various embodiments in dry construction. A known embodiment of such a section is known as a C section, having two leg sections and one base section connecting the leg sections, a bent supporting edge extending in the longitudinal direction of the section being provided on each leg section.

[0004] DIN 18 182 (Part 1) in the version of January 1987 describes providing a double flange for the supporting edge of such a C section, this double area extending over part of the width of the supporting edge.

SUMMARY OF THE INVENTION

[0005] An object of the present invention is to provide a particularly stable section with a given thickness of material.

[0006] The present invention provides a sheet metal section for dry construction having two leg sections and one base section connecting the leg sections, a bent supporting edge extending in the longitudinal direction of the section being provided on at least one of the leg sections, a reinforcing strip being provided on the bent supporting edge, extending over the entire width of the bent supporting edge.

[0007] The design according to the present invention allows a substantial increase in the stability of the section. It is thus surprisingly possible to use a thinner sheet metal for the section and nevertheless obtain stability values for the section that could be achieved in the past only by using a much thicker sheet metal. The result is a substantial savings potential because the use of material may be reduced significantly on the whole. Although a somewhat larger area of material is needed because of the reinforcing strip, this is more than compensated by the use of thinner sheet metal, so that on the whole, it is possible to lower the material consumption and thus the manufacturing cost. Another advantage is that handling and shipping are facilitated due to the lower weight achievable.

[0008] A further improvement in stability may be achieved by the fact that the reinforcing strip and/or the bent supporting edge have/has plastic material deformations for fastening the reinforcing strip to the bent supporting edge. A plurality of local plastic material deformations may preferably be provided here.

[0009] In addition, it has proven advantageous if the plastic material deformations have an elongated shape and extend in particular in the longitudinal direction of the reinforcing strip.

[0010] The plastic material deformations may advantageously be created through joining-by-forming of the leg section and the reinforcing strip, in particular by clinching.

[0011] If the reinforcing strip is additionally joined with the supporting edge by adhesive bonding in particular, the stability of the section may be further improved.

[0012] Manufacturing of the section is simple in particular when the reinforcing strip is a portion of the leg section that has been bent back.

[0013] Alternatively, the reinforcing strip may be a separate element, in particular a sheet metal strip. In this case, a sheet metal forming step may be omitted because the reinforcing strip is not bent back. The reinforcing strip may instead be supplied separately during manufacturing and may be connected to the supporting edge, e.g., by the plastic material deformations.

[0014] According to the present invention, it is also possible for the reinforcing strip to extend along the supporting edge, in particular over its entire length and/or to be situated on the side of the supporting edge facing the base section.

[0015] In addition, it has proven successful if the supporting edge has a curvature in the transverse direction of the supporting edge. This may be designed in such a way that the supporting edge is convex on the side facing away from the base section and/or is concave on the side facing the base section.

[0016] The stability also may be improved by the fact that the reinforcing strip has a first area for contacting the supporting edge and a second area for contacting the leg section. The first and second areas may then be joined together by a bending line. Good support is achieved when the first area extends parallel to the supporting edge and the second area extends parallel to the leg section.

[0017] According to the present invention, it may be provided that the section is designed as a C section.

[0018] Additional goals, features, advantages and possible applications of the present invention are derived from the following description of exemplary embodiments on the basis of the drawings. All features described and/or illustrated here, either alone or in any combination, constitute the subject matter of the present invention, also independently of how they are combined in individual claims or their reference back to preceding claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] FIG. **1** shows a section according to the present invention in a first embodiment from the side;

[0020] FIG. **2** shows a perspective diagram of the section from FIG. **1**;

[0021] FIG. **3** shows a section according to the present invention in a second embodiment from the side;

[0022] FIG. **4** shows a perspective diagram of the section from FIG. **3**;

[0023] FIG. **5** shows a section according to the present invention in a third embodiment from the side;

[0024] FIG. **6** shows a perspective diagram of the section from FIG. **5**;

[0025] FIG. **7** shows a perspective diagram of a section according to the present invention in another embodiment;

[0026] FIG. **8** shows a perspective diagram of a section according to the present invention in another embodiment;

[0027] FIG. **9** shows a perspective diagram of a section according to the present invention in another embodiment;

[0028] FIG. **10** shows a perspective diagram of a section according to the present invention in another embodiment.

DETAILED DESCRIPTION

[0029] The figures show in each case different embodiments of a section **1** of sheet metal for dry construction. Such

a section may be used as a substructure in dry construction, e.g., for plasterboard in walls or suspended ceilings.

[0030] Section **1** has two leg sections **2** and a base section **3** connecting leg sections **2**. A plurality of beads **6**, **7** extending in the longitudinal direction of section **1** is shaped into leg sections **2** and base section **3**.

[0031] A bent supporting edge **4** extending in the longitudinal direction of section **1** is provided on each leg section **2**. Supporting edge **4** pointing inward may be used for connecting to other fastening elements of the dry construction, e.g., using a so-called cross connector (not shown), which engages beneath supporting edge **4** with protrusions provided for this purpose.

[0032] A reinforcing strip **5** is provided on supporting edge **4**, running along supporting edge **4** and situated on the side of supporting edge **4** facing base section **3** in the exemplary embodiments shown here. Reinforcing strip **5** preferably extends over entire width B of bent supporting edge **4**.

[0033] In the embodiments shown in FIGS. **1**, **2**, **7**, **8**, **9** and **10**, supporting edge **4** has a curvature running in the transverse direction of supporting edge **4** and is designed in such a way that supporting edge **4** is convex on the side facing away from base section **3** and is concave on the side facing base section **3**.

[0034] Whereas supporting edge **4** of the embodiments shown in FIGS. **1** and **2** has a curved shape, in the design illustrated in FIGS. **3** and **4**, supporting edge **4** is designed to be straight and is situated at a right angle to leg section **2**. In FIGS. **5** and **6**, supporting edge **4** is situated at an acute angle to the leg section and its free end points toward base section **3**.

[0035] In the embodiments illustrated in FIGS. **1** through **8**, reinforcing strip **5** is a bent-back part of leg section **2** (or of supporting edge **4**), which comes to rest on supporting edge **4**. Reinforcing strip **5** is thus folded over toward the inside during manufacturing until it assumes the position illustrated in FIGS. **1** through **8**.

[0036] However, in the embodiments illustrated in FIGS. **9** and **10**, reinforcing strip **5** is a separate element, e.g., in the form of a sheet metal strip, which is reliably secured on supporting edge **4** by material deformations **11** and/or by adhesive bonding in the manner described below in greater detail.

[0037] FIGS. **1** through **6** show that reinforcing strip **5** may have a first area **8** for contacting supporting edge **4** and a second area **9** for contacting the inside of leg section **2** (outside of supporting edge **4**). Reinforcing strip **5** then conforms to supporting edge **4** or leg section **2**. First and second areas **8**, **9** are joined together over a bending line **10**. First area **8** extends parallel to supporting edge **4** and second area **9** extends parallel to leg section **2**.

[0038] FIGS. **7** through **10** illustrate that reinforcing strip **5** and supporting edge **4** may have material deformations **11** attaching reinforcing strip **5** to supporting edge **4**. A plurality of local and locally limited material deformations **11** are formed here, distributed over supporting edge **4**. In the embodiments shown here, material deformations **11** each have an elongated shape and extend in the longitudinal direction of reinforcing strip **5**. This embodiment is suitable in particular within the scope of the present invention. However, material deformations may also be used in other forms not shown here. Particularly great stability is achieved when the material of supporting edge **4** and reinforcing strip **5** flows one into the other due to plastic material deformations **11**.

[0039] Material deformations **11** may be created through joining-by-forming of supporting edge **4** and reinforcing strip **5**. In particular the method known as clinching may be used here.

[0040] As an alternative or in addition to material deformations **11**, reinforcing strip **5** may be connected to supporting edge **4** by adhesive bonding, which results in a particularly high load-bearing capacity.

[0041] Section **1**, which is designed as a C section, is made of curved steel plate, in particular galvanized. The material thickness of the sheet metal is advantageously between 0.2 mm and 2.0 mm, in particular between 0.3 mm and 1.0 mm and preferably 0.4 mm.

LIST OF REFERENCE NUMERALS

[0042] **1** Section
[0043] **2** Leg section
[0044] **3** Base section
[0045] **4** Supporting edge
[0046] **5** Reinforcing strip
[0047] **6** Bead
[0048] **7** Bead
[0049] **8** First area
[0050] **9** Second area
[0051] **10** Bending line
[0052] **11** Material deformations
[0053] B Width of the supporting edge

1-16. (canceled)

17. A sheet metal section for dry construction, comprising:
two leg sections;
a base section connecting the leg sections, a supporting edge that is bent and extends in a longitudinal direction of the leg section being provided on at least one of the leg sections; and
a reinforcing strip provided on the bent supporting edge, the reinforcing strip extending over an entire width of the bent supporting edge.

18. The section as recited in claim **17**, wherein the reinforcing strip and/or the bent supporting edge have/has plastic material deformations for fastening the reinforcing strip to the bent supporting edge.

19. The section as recited in claim **18**, wherein a plurality of local plastic material deformations is provided.

20. The section as recited in claim **18**, wherein the plastic material deformations have an elongated shape and extend in particular in the longitudinal direction of the reinforcing strip.

21. The section as recited in claim **18**, wherein the plastic material deformations are created through joining-by-forming of the supporting edge and the reinforcing strip.

22. The section as recited in claim **21**, wherein the plastic material deformations are created by clinching.

23. The section as recited in claim **17**, wherein the reinforcing strip is connected to the supporting edge by adhesive bonding.

24. The section as recited in claim **17**, wherein the reinforcing strip is a bent-back part of the leg section.

25. The section as recited in claim **17**, wherein the reinforcing strip is a separate element.

26. The section as recited in claim **25**, wherein the separate element is a sheet metal strip.

27. The section as recited in claim **17**, wherein the reinforcing strip extends along the supporting edge.

28. The section as recited in claim **27**, wherein the reinforcing strip extends over an entire length of the supporting edge.

29. The section as recited in claim **17**, wherein the reinforcing strip is situated on a side of the supporting edge facing the base section.

30. The section as recited in claim **17**, wherein the supporting edge has a curvature in the transverse direction of the supporting edge.

31. The section as recited in claim **30**, wherein the curvature is designed in such a way that the supporting edge is convex on the side facing away from the base section and/or is concave on the side facing the base section.

32. The section as recited in claim **28**, wherein the reinforcing strip has a first area for contacting the supporting edge and has a second area for contacting the leg section.

33. The section as recited in claim **32**, wherein the first and second areas are joined together by a bending line.

34. The section as recited in claim **33**, wherein the first area extends parallel to the supporting edge and the second area extends parallel to the leg section.

35. The section as recited in claim **17**, wherein the section is designed as a C section.

* * * * *