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(54) CONSTRUCTION PROFILE FOR DRY CONSTRUCTION OF WALLS, PARTITION WALLS, SUSPENDED CEILINGS AND FOR FIXING SANITARY DEVICES

(57) The present invention relates to a construction profile for dry construction of walls, partition walls, suspended ceilings and for fixing sanitary devices, which comprises a hollow longitudinal body from shaped sheet metal (1) with the edges (11) of the sheet metal (1) connected, which comprises a dovetail projection (34) on each of its lateral sides (33), defined by longitudinal mounting depressions (3) located at the corners (10) of the forming four-sided shape of the construction profile. The edges (11) of the sheet metal (1) are joined by a longitudinal pressed closure (4).

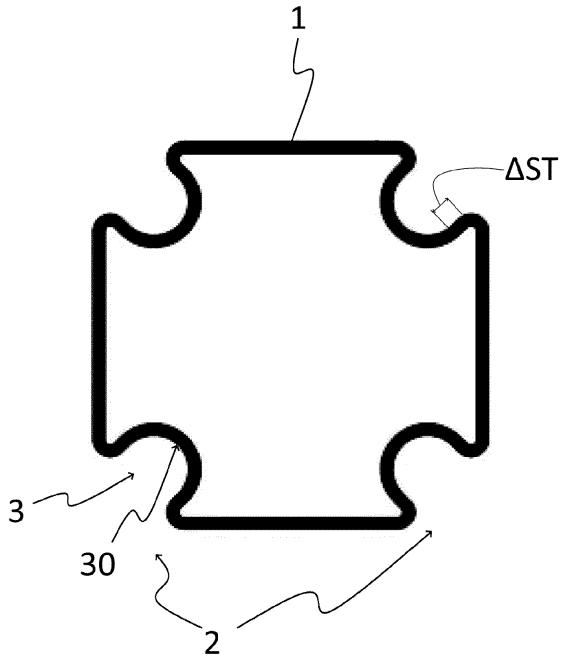


Fig. 1

EP 4 112 838 A1

Description

Technical field

[0001] The present invention relates to a construction profile for dry construction of walls, partition walls, suspended ceilings and for fixing sanitary appliances, which comprises a hollow longitudinal body from shaped sheet metal with connected edges of the sheet metal, which comprises a dovetail projection on each of its lateral sides, defined by longitudinal mounting embossed depressions located at the corners of the forming four-sided shape of the construction profile.

Background art

[0002] Systems for dry construction of walls, partition walls, suspended ceilings and for fixing sanitary appliances ceilings are available on the market from many manufacturers. These dry construction systems are also used for the construction of walls and partitions intended for fixing sanitary appliances, such as toilet modules, installation frames for wash basins, bidets, urinals and other sanitary appliances.

[0003] An important component for these construction systems are longitudinal metal construction profiles, usually produced by successive rolling of galvanized sheet metal followed by longitudinal welding. These construction profiles are usually approximately square in cross-section and are provided with longitudinal mounting grooves of various shapes at the corners. Connecting elements, such as corner couplings, mounting feet, etc., are accordingly adapted to the shape and size of these grooves.

[0004] An exemplary embodiment of the construction profile according to background art is shown in Fig. 1, showing a cross-section through a known construction profile, which has a square basic cross-section, wherein it is formed from sheet metal 1 and provided at the corners 2 with longitudinal mounting embossed depressions 3 with a bottom 30 having a semi-circular cross-section or having the shape of a longitudinally divided cylinder half.

[0005] The disadvantages of known construction profiles consist in the necessity of longitudinal welding of the sheet metal forming the construction profile, which results in increasing the negative impact on the environment, requires air filtration, produces toxic fumes, consumes a lot of energy and generates a large amount of heat, which additionally negatively affects the material characteristics of the sheet metal constituting the construction profile. As a result of the welding, it is also necessary to subsequently clean the weld area and to ensure the protection of the weld area against corrosion, which further increases the economic and environmental burden arising from the production of known construction profiles. Another drawback of the background art is also the presence of only a short section Δ_{ST} (see Fig. 1 - background art) on the front part of the side walls of the individual embossed corner longitudinal mounting depressions. For certain applications, it also appears that it would be necessary for the construction profile to exhibit higher torsional rigidity and better resistance to buckling.

[0006] The object of the invention is to eliminate or at least reduce at least some of the disadvantages of the background art.

Principle of the invention

[0007] The object of the invention is achieved by a construction profile for dry construction of walls, partition walls, suspended ceilings and for fixing sanitary appliances, whose principle consists in that the edges of the sheet metal are connected by a longitudinal pressed closure.

[0008] The advantage of this solution is only the use of mechanical methods of production without the use of welding and other similar methods of joining sheets, thereby reducing the ecological burden and energy consumption of the production. In addition, it is not necessary to solve the problem of protecting the sheet metal edges from corrosion. Moreover, the use of a longitudinal pressed closure creates an additional strengthening element that improves the resistance of the construction profile in torsion and buckling. In combination with the features of preferred embodiments which are the subject of the dependent patent claims, a further improvement of not only in the form strength of the construction profile is achieved, but also in the increase of the clamping areas on the dovetail projections for fastening couplings, support feet, etc., thereby improving the usability of systems for dry construction.

Description of drawings

[0009] The invention is schematically represented in a drawing, wherein Fig. 1 shows a cross-section through the construction profile known from the background art, Fig. 2 shows a cross-section through the construction profile according to the present invention and Fig. 3 shows a spatial view of the construction profile according to the invention.

Examples of embodiment

[0010] The invention will be described with reference to an exemplary embodiment of a construction profile for dry construction of walls, partition walls, suspended ceilings and for fixing sanitary appliances.

[0011] The construction profile is formed by a spatial body from shaped sheet metal 1. The construction profile has a substantially square basic cross-section, as shown in Fig. 2 by means of corners 10 of the forming four-sided shape, which is here, for example, a square, indicated in Fig. 2 by a dashed line.

[0012] The corners 10 of the forming square indicated in Fig. 2 by a dashed line are pressed diagonally relative

to the forming square in the V direction inside the profile with respect to the centre S of the profile in the form of longitudinal mounting embossed depressions 3.

[0013] The longitudinal mounting embossed depressions 3 have a rounded bottom 30 and a pair of mutually opposing plane walls 31. The plane walls 31 connect to the rounded bottom 30 with a transition arc 32.

[0014] Preferably, the radius R_{32} of the transition arcs 32 is 3 times to 8 times smaller than the radius R_{30} of the rounded bottom 30. Preferably, the depth H_3 of the longitudinal mounting embossed depressions 3 is only by 10 to 20 % smaller than the width S_3 of the longitudinal mounting embossed depressions 3. The length Δ_{AP} of the plane walls 31 in the V direction from the circumference O of the construction profile to the centre S of the construction profile is 40 to 70 % of the depth H_3 of the longitudinal mounting embossed depressions 3.

[0015] The construction profile further comprises lateral sides 33 defined by the longitudinal mounting embossed depressions 3, whereby these lateral sides 33 of the construction profile together with adjacent plane walls 31 of the longitudinal mounting embossed depressions 3 form a dovetail projection 34, which widens in the direction from the centre S of the construction profile to the outer edge of the construction profile. In a preferred embodiment, the lateral sides 33 of the construction profile are provided with longitudinal auxiliary embossed depressions 5, which can advantageously be created already within the rolling process of the construction profile from a strip of sheet metal 1, e.g., galvanized steel sheet, or another suitable material. In the exemplary embodiment shown, the longitudinal auxiliary embossed depressions 5 have a rounded cross-sectional shape and have a depth of half the thickness of the wall of the construction profile.

[0016] In the exemplary embodiment shown, the bottom 30 of one longitudinal mounting embossed depression 3 is formed by folding and pressing the edges 11 of the sheet 1 together, thereby joining the edges 11 of the sheet metal 1 together, to form a longitudinal pressed closure 4 which closes the construction profile without welding or otherwise joining the sheet 1. In the embodiment shown, the mutual folding and pressing of the edges 11 of the sheet metal 1 is at least double.

[0017] To increase the longitudinal and transverse rigidity of the longitudinal pressed closure 4, the longitudinal pressed closure 4 is provided with a row of embossed spot depressions 40 arranged one behind the other, in the exemplary embodiment shown, situated along the entire length of the longitudinal pressed closure 4. In the embodiment shown, the embossed spot depressions 40 have substantially a conical shape and their longitudinal axis is perpendicular to the outer surface of the longitudinal pressed closure 4, i.e., it is directed towards the centre S of the construction profile. With the aid of the embossed spot depressions 40 further deformation of the individual mutually folded and pressed edges 11 of sheet metal 1 is achieved and the mechanical strength of the longitudinal pressed closure 4. Is ensured. The embossed spot depressions 40 are distributed along the length of the longitudinal pressed closure 4 at mutual intervals Δ_{40}, for example here in the range from 5 mm to 25 mm.

[0018] In an unillustrated exemplary embodiment, the longitudinal pressed closure 4 with optional embossed spot depressions 40 is situated in another part of the circumference O of the construction profile, e.g., in the surface of one lateral side 33 of the construction profile etc. Also in this embodiment, the longitudinal pressed closure 4 with optional embossed spot depressions 40 is preferably formed by at least double mutual folding and pressing of the edges 11 of the sheet metal 1.

[0019] The construction profile is produced in a required length, wherein if smaller lengths are required, the construction profile can be cut with the usual tools, e.g., by means of a hand-held or electrical saw, etc.

Industrial applicability

[0020] The present invention is applicable in construction production for dry construction of walls, partition walls, suspended ceilings and for fixing sanitary appliances, such as WC modules, wash basins, bidets, urinals and other sanitary appliances.

List of references

[0021]

1	sheet metal
10	corner of the forming four-sided shape
11	sheet metal edge
3	longitudinal mounting depression
30	rounded bottom
31	plane wall
32	transition arc
33	lateral side
34	dovetail projection
4	longitudinal pressed closure
40	spot depression
Δ_{AP}	length of the plane wall
Δ_{40}	spacing of the embossed spot depressions
H_3	depth of the longitudinal mounting depression
O	circumference of the construction profile
R_{30}	radius of the rounded bottom
R_{32}	radius of the transition arc
S	profile centre
S_3	width of the longitudinal mounting depression
V	direction inside the profile to the centre of the profile

Claims

1. A construction profile for dry construction of walls, partition walls, suspended ceilings and for fixing san-

itary appliances, which comprises a hollow longitudinal body made of shaped sheet metal (1) with the edges (11) of the sheet metal (1) connected, which on each of its lateral sides (33) comprises a dovetail projection (34) defined by longitudinal mounting embossed depressions (3) located at the corners (10) of the forming four-sided shape of the construction profile, **characterized in that** the edges (11) of the sheet metal (1) are connected by a longitudinal pressed closure (4).

2. The construction profile according to claim 1, **characterized in that** the edges (11) of the sheet metal (1) are connected by at least double mutual folding and pressing into the longitudinal pressed closure (4).

3. The construction profile according to claim 1 or 2, **characterized in that** the longitudinal pressed closure (4) is arranged in a longitudinal mounting embossed depression (3).

4. The construction profile according to claim 3, **characterized in that** the longitudinal pressed closure (4) is disposed in the bottom (30) of the longitudinal mounting embossed depression (3).

5. The construction profile according to claim 1 or 2, **characterized in that** the longitudinal pressed closure (4) is arranged in the surface of the lateral side (33) of the construction profile.

6. The construction profile according to any of claims 1 to 5, **characterized in that** the longitudinal pressed closure (4) is provided with a row of embossed spot depressions (40) arranged one behind the other.

7. The construction profile according to any of claims 3 to 6, **characterized in that** the lateral sides (33) of the construction profile are provided with longitudinal auxiliary embossed depressions (5).

8. The construction profile according to any of claims 3 to 7, **characterized in that** the longitudinal mounting embossed depression (3) has a rounded bottom (30) and a pair of mutually opposing plane walls (31) which connect to the rounded bottom (30) with a transition arc (32).

9. The construction profile according to claim 8, **characterized in that** the transition arcs (32) have a radius (R_{32}) 3 times to 8 times smaller than the radius (R_{30}) of the rounded bottom (30).

10. The construction profile according to any of claims 3 to 9, **characterized in that** the longitudinal mounting embossed depression (3) has a depth (H_3) smaller by 10 to 20 % than its width (S_3), wherein the length (Δ_{AP}) of the plane walls (31) of the longitudinal mounting embossed depression (3) in the (V) direction from the circumference (O) of the construction profile to the centre (S) of the construction profile is 40 to 70 % of the depth (H_3) of the longitudinal mounting depression (3).

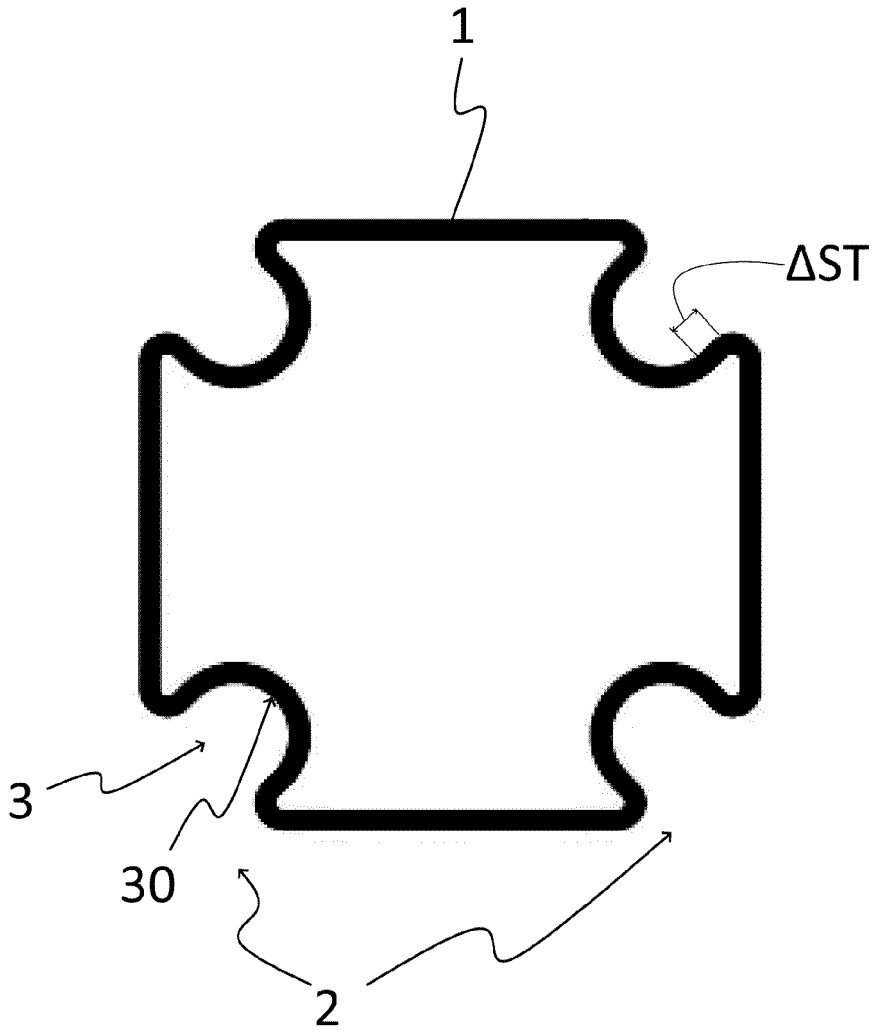
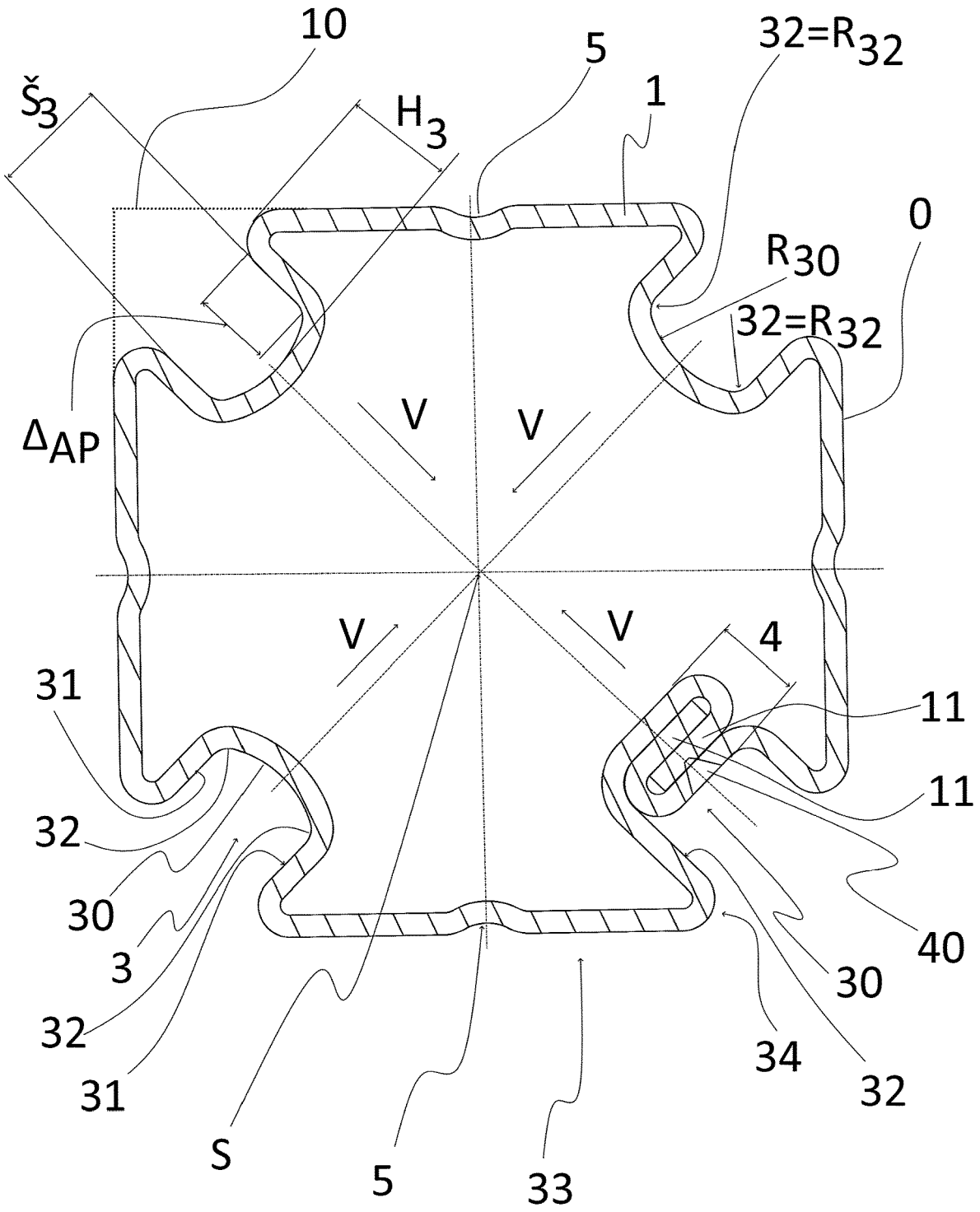


Fig. 1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5
32=R32
1
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H3
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Fig. 2

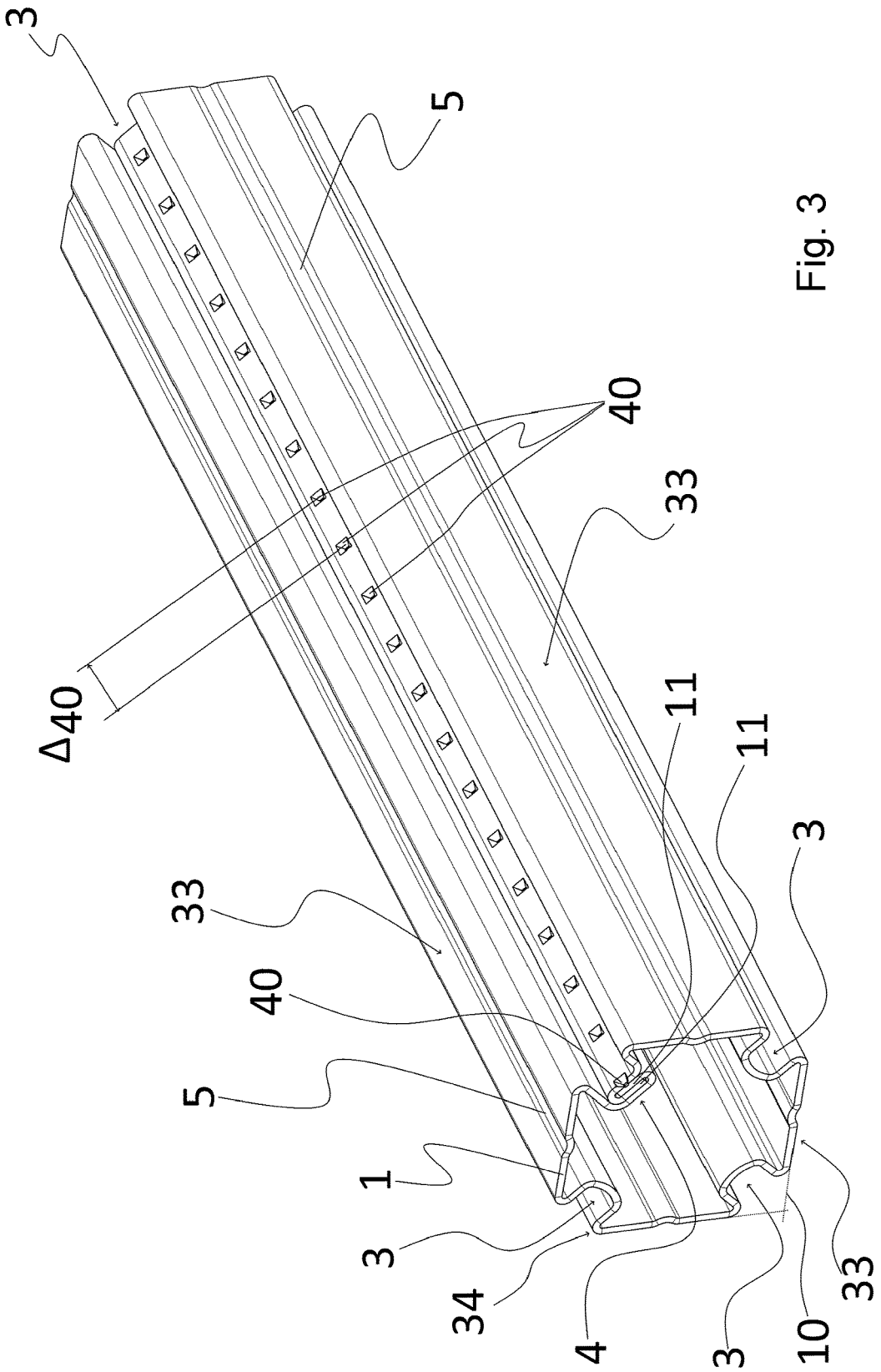

Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 22 18 1273

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	US 5 271 204 A (WOLF MORRIS A [US] ET AL) 21 December 1993 (1993-12-21) * figures 1-18 * * column 6, line 58 - line 62 *	1-10	INV. E04C3/07 ADD. E04C3/04
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			TECHNICAL FIELDS SEARCHED (IPC) E04C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	25 October 2022	Petrinja, Etiel

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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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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25-10-2022

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