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(54) **PROCESS FOR PRODUCING BOX STRUCTURES FOR FRAMES FOR DISAPPEARING SLIDING DOORS**

VERFAHREN ZUR HERSTELLUNG VON SCHACHTELSTRUKTUREN FÜR DIE RAHMEN
EINGEFAHRENER SCHIEBETÜREN

PROCESSUS POUR PRODUIRE DES STRUCTURES DE BOÎTE POUR DES CADRES AFIN DE
MASQUER DES PORTES COULISSANTES

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Description

[0001] The present invention relates to a process for producing box structures for frames for disappearing sliding doors.

[0002] Such a process is known for example from EP-A-1 609 939, according to which the frame is obtained by assembling the single components of the box.

[0003] Metal frames for sliding doors are known, to be incorporated into the masonry work.

[0004] These frames comprise a box structure consisting of two facing ribbed panels closed along three edges and an upright connected to the top of the box structure by a longitudinal guide.

[0005] These known box structures present however the drawback of considerable bulk for storage and transport purposes because of the box structure thickness.

[0006] This drawback is eliminated according to the invention by process for producing box structures for door frames as described in claim 1.

[0007] A preferred embodiment of the present invention and two variants thereof are described in detail hereinafter with reference to the accompanying drawings, in which:

- Figure 1 is a plan view of a metal sheet for forming box structures by the process of the invention,
- Figures 2 and 3 are plan views of two metal sheet portions for forming the box structure,
- Figure 4 shows the assembled box structure, and
- Figure 5 shows a variant thereof.

[0008] As can be seen from the figures, the process for producing box structures for frames consists of forming on a sheet metal strip an outline 2 corresponding to the plan development of the box structure.

[0009] Specifically, the outline comprises two rectangular panels 4 and 6 corresponding to the box structure walls, bands 8 and 10 corresponding to the box structure thickness and a band 12 for connecting together the vertical edges of the panels 4 and 6.

[0010] The outline 2 is provided with creasing lines 14 between the band 10 and panel 4, creasing lines 16 between the panel 4 and band 8, and creasing lines 18 between the band 8 and panel 6.

[0011] The panel 4 is joined to the band 12 along a creasing line 20.

[0012] The free major edge of the band 12 comprises a plurality of tangs 22 engagable, as described hereinafter, in slots 24 provided in a major edge of the panel 6. Likewise a minor edge of the panel 6 comprises tangs 26 engagable in slots 28 provided in the edge of the band 10.

[0013] The panels 4 and 6 comprise a plurality of longitudinal ribs 30 obtained by deep drawing, to ensure rigidity of the box structure, and a plurality of bosses 32

of substantially circular shape also obtained by deep drawing, and provided with a tang 34 obtained by punching the central portion of each boss.

[0014] The box structure is formed in the following manner:

- the bands 10 are folded about the panels 4 along the creasing lines 14,
- the two panels 4 and 6 are made to face each other by folding them about the band 8 along the creasing lines 16, 18,
- the band 12 is folded about the panel 4 along the creasing line 20,
- the tangs 26 are inserted into the slots 28 and the tangs 22 into the slots 24 and then bent over.

[0015] After fixing the box structure to the masonry work an electrowelded mesh 36 is applied to the former and fixed by bending over the tangs 34.

[0016] In the embodiment shown in Figures 2 and 3, two separate sheet metal portions are shown, these being joined together in the aforescribed manner to form the box structure.

[0017] In the embodiment shown in Figure 5, both the panels 4, 4' comprise tangs 38 formed by punching and bending portions of the constituent metal sheets of the panels.

[0018] The purpose of these tangs is to create gripping regions for the cement mortar, hence eliminating the use of the electrowelded mesh.

[0019] From the foregoing it is apparent that the process of the invention presents numerous advantages, and in particular:

- it enables the box structure to be made up directly on site so that for storage and despatch purposes it represents only a small thickness,
- the box structure can be produced easily and rapidly by machining along a line comprising blanking, profiling, deep drawing and drilling machines.

Claims

1. A process for producing box structures for frames for disappearing sliding doors, **characterised by:**

- forming on at least one metal sheet an outline having a shape and dimensions corresponding to the plan development of the box structure, the outline comprising two rectangular panels (4, 6) corresponding to the box structure walls,
- forming creasing lines (14, 16, 18, 20) on the metal sheet along those regions forming the thickness bands (8, 10, 12) in the made-up box structure,
- forming mutual engagement means (22, 24) along certain metal sheet edges in those regions

making up the corners.

- folding the panels (4, 6) and the bands (8, 10, 12) along the creasing lines (14, 16, 18, 20) to form the box structure.

2. A process for producing box structures as claimed in claim 1, **characterised by** forming a plurality of deep drawn regions (32) on the surface of the metal sheet.
3. A process for producing box structures as claimed in claim 1, **characterised by** forming a plurality of deep drawn bands (30) on the surface of the metal sheet.
4. A process for producing box structures as claimed in claim 1, **characterised by** forming on the surface of the metal sheet a plurality of tangs (38) obtained by punching and bending portions of metal sheet.

Patentansprüche

1. Verfahren zum Herstellen von Gehäusestrukturen für Rahmen für verborgene Schiebetüren, **gekennzeichnet durch:**

- Formen auf mindestens einem Metallblech einer Kontur mit einer Form und Maßen, die der aufgebreiteten Zeichnung der Gehäusestruktur entsprechen, wobei die Kontur zwei rechteckige Tafeln (4, 6) aufweist, die den Gehäusestrukturwänden entsprechen,
- Formen von Faltlinien (14, 16, 18, 20) auf dem Metallblech entlang der Bereiche, die die Stärkenbänder (8, 10, 12) in der gebildeten Gehäusestruktur bilden,
- Formen von Mitteln (22, 24) zum gegenseitigen Eingreifen entlang bestimmter Metallblechkannten in den Bereichen, die die Ecken bilden,
- Falten der Tafeln (4, 6) und der Bänder (8, 10, 12) entlang der Faltlinien (14, 16, 18, 20), um die Gehäusestruktur zu bilden.

2. Verfahren zum Herstellen von Gehäusestrukturen nach Anspruch 1, **gekennzeichnet durch** Bilden mehrerer Tiefziehbereiche (32) auf der Fläche des Metallblechs.
3. Verfahren zum Herstellen von Gehäusestrukturen nach Anspruch 1, **gekennzeichnet durch** Bilden mehrerer Tiefziehbänder (30) auf der Fläche des Metallblechs.
4. Verfahren zum Herstellen von Gehäusestrukturen nach Anspruch 1, **gekennzeichnet durch** Bilden mehrerer Angeln (38), die **durch** Stanzen und Umbiegen von Metallblechabschnitten erzielt werden,

auf der Fläche des Metallblechs.

Revendications

1. Procédé pour produire des structures de boîte pour des cadres pour masquer des portes coulissantes, **caractérisé par** le fait de :

- former sur au moins une feuille métallique un contour ayant une forme et des dimensions correspondant au développement du plan de la structure de boîte, le contour comprenant deux panneaux rectangulaires (4, 6) correspondant aux parois de la structure de boîte,
- former des lignes de pliage (14, 16, 18, 20) sur la feuille métallique le long de ces régions formant les bandes d'épaisseur (8, 10, 12) dans la structure de boîte ainsi préparée,
- former des moyens de mise en prise mutuels (22, 24) le long de certains bords de feuille métallique dans ces régions préparant les coins,
- plier les panneaux (4, 6) et les bandes (8, 10, 12) le long des lignes de pliage (14, 16, 18, 20) pour former la structure de boîte.

2. Procédé pour produire des structures de boîte comme revendiqué dans la revendication 1, **caractérisé par** la fait de former une pluralité de régions embouties profond (32) sur la surface de la feuille métallique.
3. Procédé pour produire des structures de boîte comme revendiqué dans la revendication 1, **caractérisé par** la fait de former une pluralité de bandes embouties profond (30) sur la surface de la feuille métallique.
4. Procédé pour produire des structures de boîte comme revendiqué dans la revendication 1, **caractérisé par** la fait de former sur la surface de la feuille métallique une pluralité de tiges (38) obtenues en appuyant sur des parties de la feuille métallique et en les pliant.

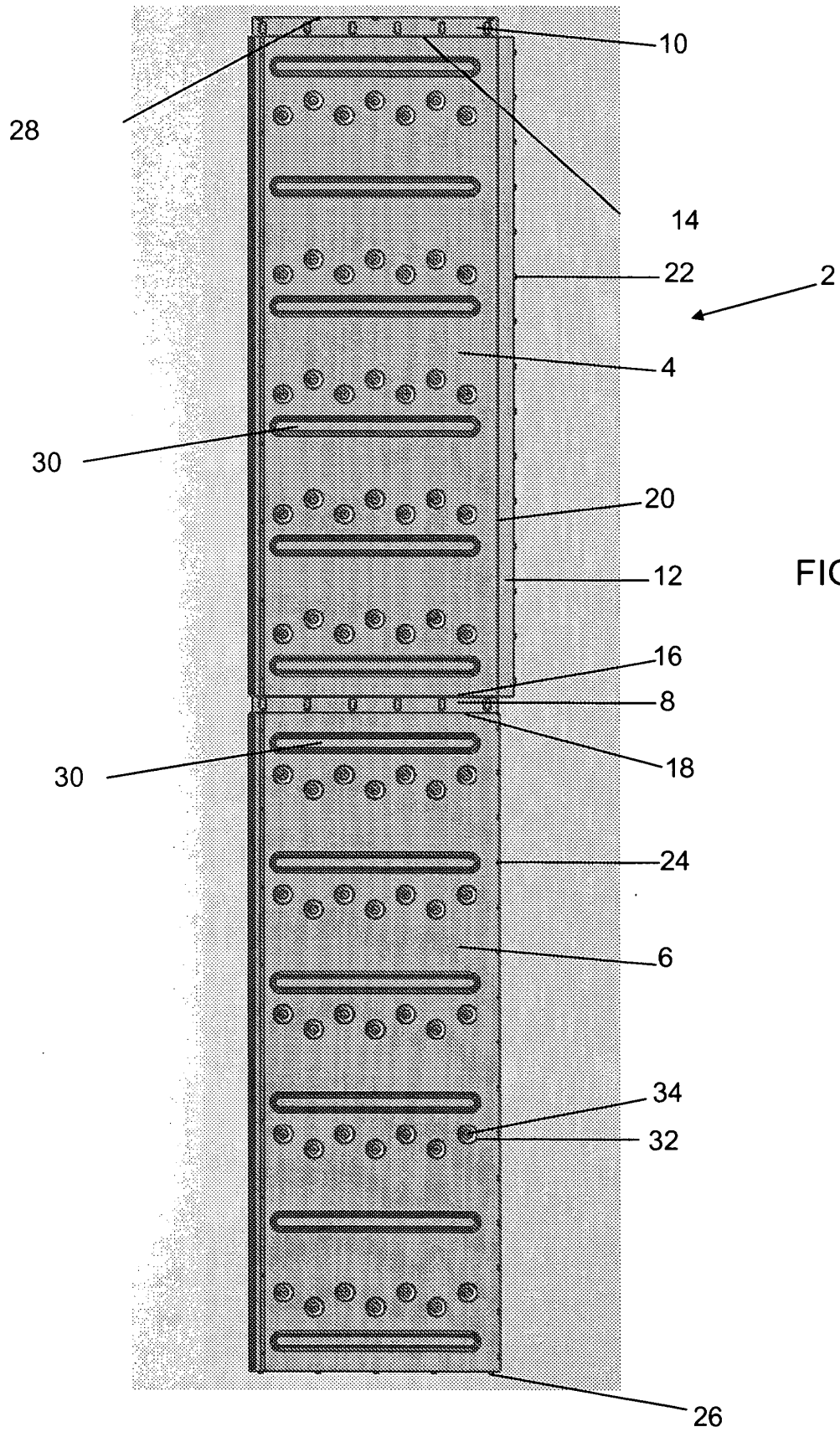


FIG. 1

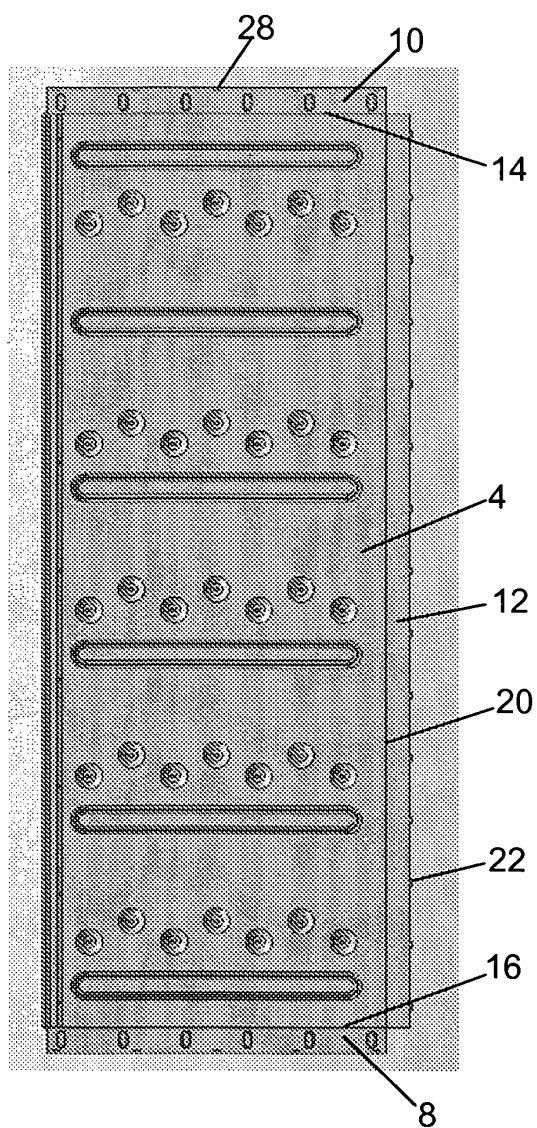


FIG. 2

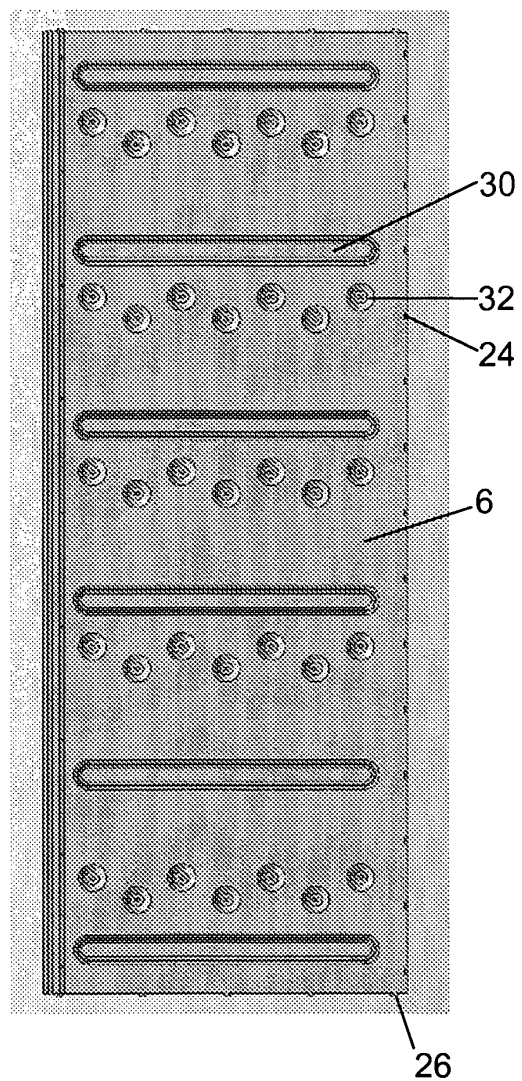
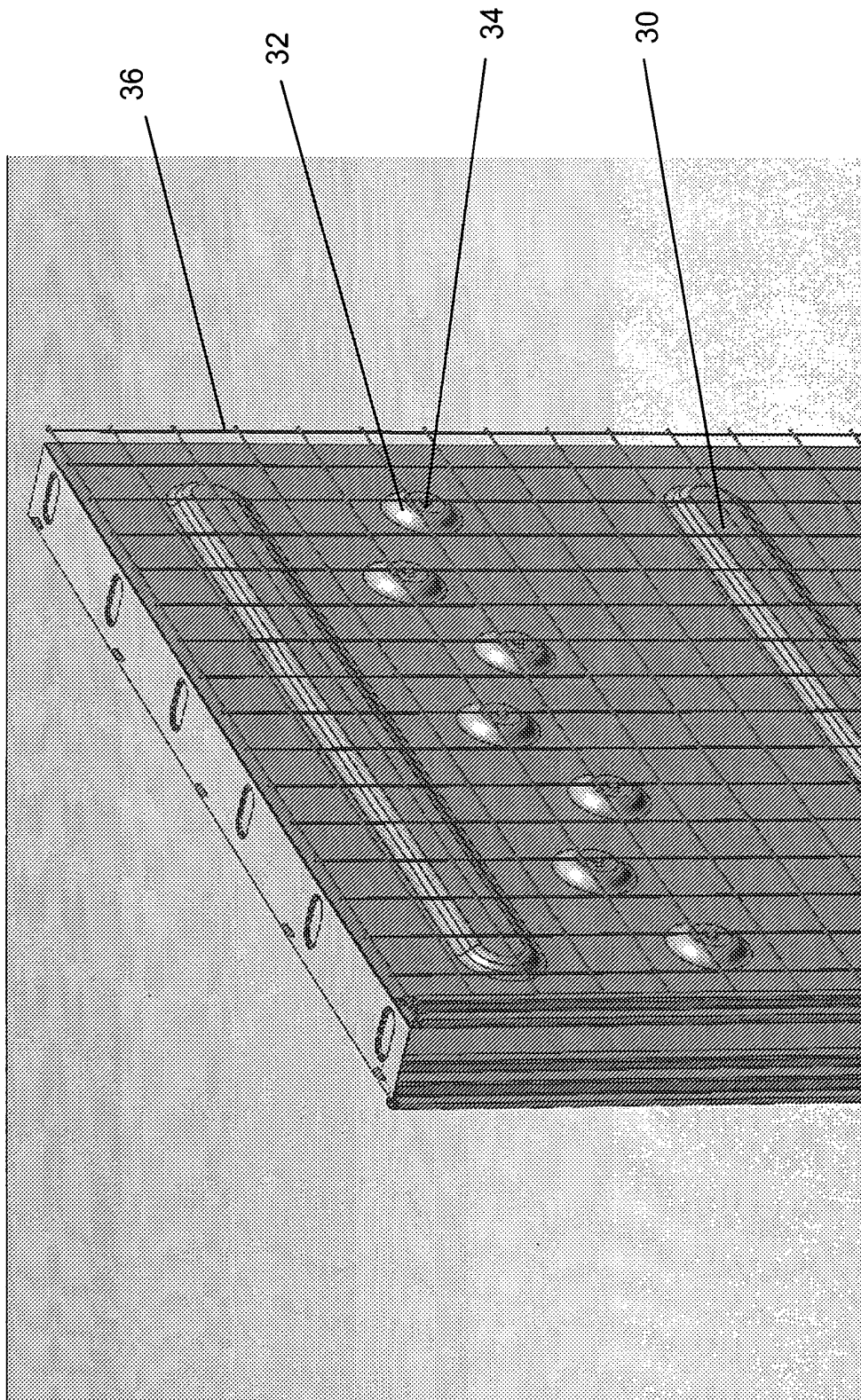


FIG. 3

FIG. 4



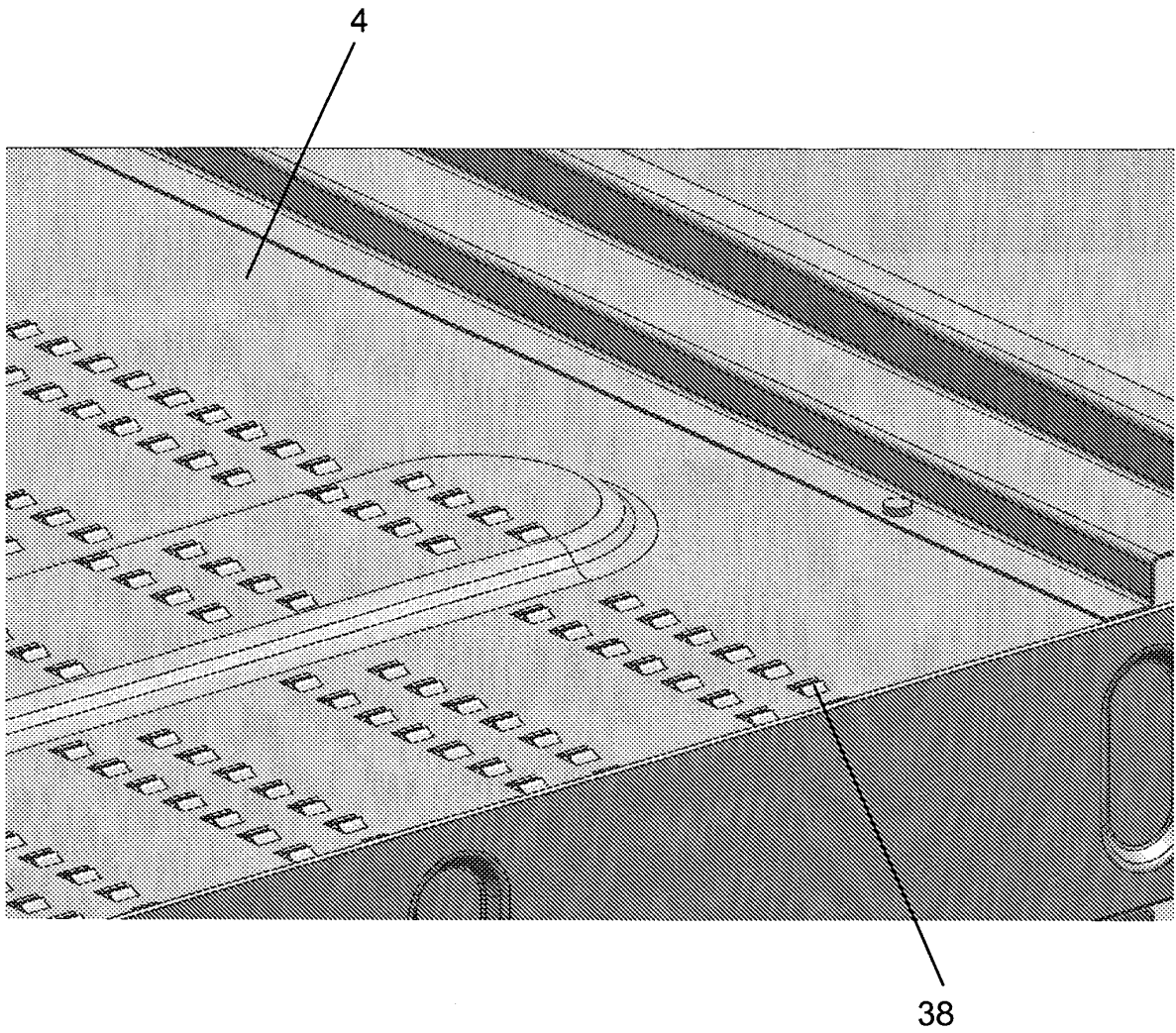


FIG. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1609939 A [0002]