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(54) **A structure of an improved chair**

(57) A structure of an improved chair, comprising: one chair (1), one set of edge-bars (2) of the chair-back, one set of edge-bars (2) of the chair-seat and two metal-plates (3); the chair composed of tube or prism as the principal holder has a configuration having a chair-seat section and a chair-back section, wherein the present invention use edge-bars each having an extended part (22) and a principal part (21), the edge-bar is die-cast,

there is a U-shape fixing slit (23) between the extended part and the principal part, and the extended has several holes (24), and after the fit-rim (31) of the metal-plate is fitted into the U-shape fixing slit, the edge-bars and the metal-plate can be welded or riveted at the several holes of the extended part into a unified connector, which is unable to be dismantled, and thus provides a structure of a chair which two metal-plates can be fast fixed on the chair-seat and the chair-back.

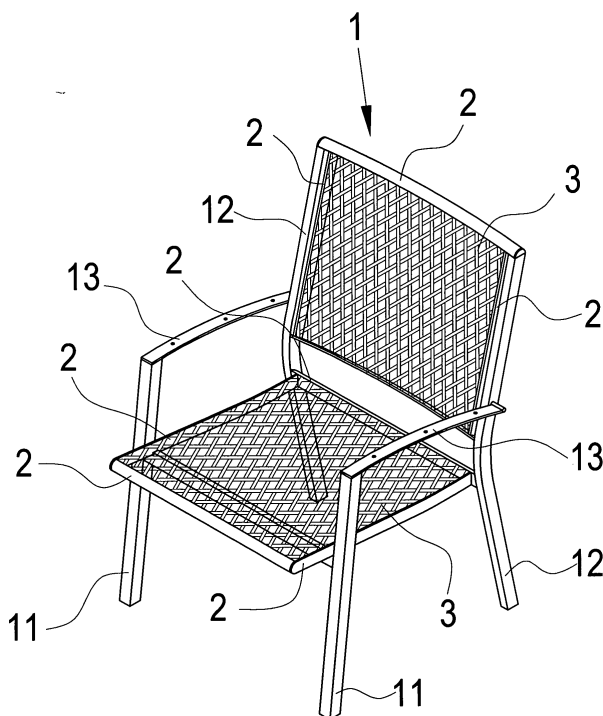


Fig. 1

Description

BACKGROUND OF THE INVENTION

1. Field of the invention

[0001] The present invention relates to a structure of an improved chair, particularly to a structure of an improved chair by bending inward the asymmetric edge of the metal-plate to form a fit-rim and then fit the fit-rim into the U-shape fixing slit of the edge-bar having an extended part.

2. DESCRIPTION OF THE PRIOR ART

[0002] People always pursuit better quality of life no matter how the history evolves. Referring to the chair for supporting human body, providing work on seat and resting, the types of chairs are fixed, rotatable, foldable, assembly-enabled, suspended, pneumatic chairs, and so the forms of chairs are chairs with back, chairs with arm-rest, bowlegged chairs, and chairs with curule legs. Still, there are many other ways of classification such as usage, material, and manufacture technology.

[0003] The conventional chair with the metal-net frame, as shown in Fig 7(A) and Fig. 8(A), wherein a metal-net frame 51 is formed by processing a metal material using a stamping die on a press. And the metal-net frame 51 is welded on the chair 5 using the high-frequency oscillation energy of ultrasonic, as shown in Fig. 7(B). Alternatively, the metal-net frame 51 is fixed on the chair 5 by bending inward the asymmetric edge 52 of the metal-net 51 and then fixing asymmetric edge 52 on the chair 5 by welding on the inside of the chair 5 frame with welding material 53, as shown in Fig. 8(B). But such a kind of a welding method that use the high-frequency oscillation energy of ultrasonic to heat locally the asymmetric edge 52 and the chair 5 at the same time, has the following disadvantages: (1) In the welding process, the pernicious gases and smoke generated in the operating environment increase as welding spots increase; (2) In the welding process, the level of the physical and chemical reactions polluting the environment increase as welding spots increase; (3) In order to increasing the beauty of the conventional chair 5, the welding spots must be processed by the tools for grinding, milling, and polishing; (4) Even the cut asymmetric edge 52 of the metal-net frame 51 is welded and finished, as shown in Fig. 7(B), if the processes such as cutting, welding and grinding are not operated properly and thus the asymmetric edge 52 remain have sharp parts that may cause the user being slashed or other harmful factors.

[0004] Thus it can be seen that the above-described conventional articles still have many drawbacks, are not well designed, and need to be improved urgently.

[0005] In view of above-described disadvantages derived from the conventional chair with metal structure,

the present inventor had devoted to improve and innovate, and, after studying intensively for many years, developed successfully a structure of an improved chair according to the present invention.

SUMMARY OF THE INVENTION

[0006] The objective of the present invention is to provide a structure of an improved chair, which provides a U-type fixing slit between the extended part of the edge-bar and the principal part which can facilitate fast fitting the metal-plate and welding the metal-plate on the chair-seat firmly with 3-5 welding spots along each side.

[0007] The another objective of the present invention is to provide a structure of an improved chair which can reduce the usage of the welding material and can reduce the time and cost of welding.

[0008] The still another objective of the present invention is to provide an operating environment which the environmental pollution can be reduced, the environmental cleanness can be increased, and the temperature can be lower.

[0009] The still another of the present invention is to provide a structure of an improved chair which the working hour for grinding, milling, and polishing and the grinding media can be reduced.

[0010] The still another objective of the present invention is to enhance the beauty of the chair and to provide a safe chair that can hide the asymmetric edge after the metal-net frame is cut, wherein by welding the extended part, fit-rim and the principal part together via the holes of the edge-bar, and welding with several welding spots to join the extended part, fit-rim and the principal part together, and then fast polishing the welding material on the holes.

[0011] The structure of an improved chair can achieve the above-mentioned objectives of the present invention, comprising:

[0012] A chair, the chair composed of tube or prism as the principal holder has front-legs, rear-legs, arm-rests and an extended-bar. There is a fix spot on each front-leg. The fix spot is used to fix the set of the edge-bar of the chair-seat or the extended-bar.

[0013] A set of edge-bars of chair-back is composed of one upper edge-bar, one lower edge-bar and two side edge-bars by fixing both ends of the upper and lower edge-bars on the rear-legs of the chair.

[0014] A set of edge-bars of the chair-seat is composed of one front edge-bar, one rear edge-bar and two side edge-bars by fixing the two side edge-bars on the fix spot of the front-leg or by placing two side edge-bars on the extended-bar of the front-legs and fixing the side edge-bars on the front-leg and fixing both ends of the rear edge-bar on the rear-leg.

[0015] Two metal-plates is die-cast, there are several fit-rims on the metal-plate, the fit-rim matches the frame formed by the edge-bars surround the four sides of the metal-plate and bends inward and is used for fitting into

the U-shape fixing slit of each edge-bar.

[0016] The edge-bar having a principal part and an extended part is die-cast, there is a U-shape fixing slit between the extended part and the principal part, and the extended part has several holes. After the fit-rim of the metal-plate fitted into the U-shape fixing slit, the edge-bars and the metal-plate can be welded or riveted at the several holes of the extended part into a unified connector, which is unable to be dismantled.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The drawings disclose an illustrative embodiment of the present invention which serves to exemplify the various advantages and objects hereof, and are as follows:

Fig. 1 is the stereo schematic diagram of a structure of an improved chair according to the present invention;

Fig. 2 is the stereo schematic diagram of the chair;

Fig. 3 is the stereo schematic diagram of the metal-plate;

Fig. 4 is the enlarged stereo schematic diagram of the A perspective view;

Fig. 5(A)~(F) is the sectional view of the edge-bar of the structure of an improved chair according to the present invention;

Fig. 6(A) is the sectional view of the first embodiment of the present invention wherein the bended inward fit-rim of the metal-plate is fitted into the U-shape fixing slit;

Fig. 6(B) is the sectional view of the second embodiment of the present invention wherein the bended inward fit-rim of the metal-plate is fitted into the U-shape fixing slit;

Fig. 7(A) and Fig. 8(A) is the stereo schematic diagram of the conventional metal-net frame seat;

Fig. 8(B) is the enlarged stereo schematic diagram of the B perspective view; and

Fig. 8(B) is the enlarged stereo schematic diagram of the C perspective view.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] Referring to Fig.1, Fig.2, Fig.3, Fig.5(A)-Fig.5 (F), the structure of an improved chair according to the present invention provides primarily comprising:

[0019] A chair1, the chair1 composed of tube or prism as the principal holder has front-legs 11, rear-legs 12, arm-rests 13 and an extended-bar 14. There is a fix spot 11 on each front-leg 11. The fix spot 111 is used to fix the set of the edge-bar2 of the chair-seat or the extended-bar 14.

[0020] A set of edge-bars2 of chair-back is composed of one upper edge-bar2, one lower edge-bar2 and two side edge-bars2 by fixing both ends of the upper and

lower edge-bars2 on the rear-legs 12 of the chair.

[0021] A set of edge-bars2 of the chair-seat is composed of one front edge-bar2, one rear edge-bar2 and two side edge-bars2 by fixing the two side edge-bars2 on the fix spot 11 of the front-leg or by placing two side edge-bars2 on the extended-bar 14 of the front-legs 11 and fixing the side edge-bars2 on the front-leg 11 and fixing both ends of the rear edge-bar2 on the rear-leg 12.

[0022] Two metal-plates3 is die-cast, there are several fit-rims 31 on the metal-plate3, the fit-rim 31 matches the frame formed by the edge-bars2 surround the four sides of the metal-plate3 and bends inward and is used for fitting into the U-shape fixing slit23 of each edge-bar2.

[0023] The edge-bar having a principal part and an extended part is die-cast, there is a U-shape fixing slit between the extended part and the principal part, and the extended part has several holes. After the fit-rim of the metal-plate fitted into the U-shape fixing slit, the edge-bars and the metal-plate can be welded or riveted at the several holes of the extended part into a unified connector, which is unable to be dismantled.

[0024] The following will describe the present invention with more details, please refer to Fig. 5(A) - Fig. 5 (F) and Fig. 6(A) again. In the structure of an improved chair 1, the side-bar2 is extruded die-cast and has a principal part21 and an extended part22, and there is a U-shape fixing slit23 between the extended part22 and the principal part21, and the bended inward fit-rim31 of the metal-plate3 can be just fitted into the U-shape fixing slit23 of the side-bar2, and the frame formed by the edge-bars2 just surround the four sides of the metal-plate3, and at the holes24 opened along the extended part22 of the edge-bar2(as shown in Fig. 6(A)), using welding and riveting to join the extended part22 of the edge-bar2, the fit-rim of the metal-plate3, and the principal part21 of the edge-bar2 into an connector which is unable to be dismantled.

[0025] After the metal-plate surrounded by the edge-bars2 use welding or riveting to join the extended part22 of the edge-bar2, the fit-rim31 of the metal-plate3, and the principal part21 of the edge-bar2, subsequently the fixed set of edge-bars of the chair-back and the fixed set of edge-bars of the chair-seat is fixed on the front-leg 11, the rear-leg 12 and arm-rest 13; the set of edge-bars of the chair-back is assembled by fixing the ends of the upper edge-bar2 and the lower edge-bar2 on the rear-leg 12; the set of edge-bars of the chair-seat is assembled by fixing the two side edge-bars on the fix spot 111 of the front-leg 11 or by placing two side edge-bars2 on the extended- bar 14 of the front-legs 11 and fixing both ends of the rear edge-bars on the rear-leg 12 and fixing both ends of the arm-rest 13 on the front-leg 11 and the rear-leg 12. Since, after the metal-plate3 surrounded by edge-bars use welding or riveting to join the extended part22 of the edge-bar2, the fit-rim31 of the metal-plate3, and the principal part21 of the edge-bar2, the welding material on the holes24 of the extended part22

can be polished, and thus the beauty of the chair¹ can be enhanced due to there is no welded spot or welded mark. More, a safe structure of an improved chair can be formed while the chair¹ is painted with powder to hide the asymmetric edge⁵² of the cut metal-net frame in the edge-bar².

[0026] Compared with the above-mentioned cited reference and other conventional technology, the structure of an improved chair according to the present invention has the following advantages:

1. According to the structure of the improved chair provided by the present invention, those edge-bars can be fast welded on the chair-seat section and chair-back section according to the shape of the seat section and the back section during processing.

2. Fitting the bended inward fit-rim of the metal-plate into the U-shape fixing slit of each edge-bar can reduce the misgivings that the users could be hurt by the asymmetric edge of the metal-plate caused by the incomplete cutting and the inappropriate welding or milling.

3. After the bended inward fit-rim of the metal-plate is fitted into the U-shape fixing slit of each edge-bar, the chair-seat section and the chair-back section of the chair can not only possess the capability for supporting weight but also further enhance the safety and the beauty of the chair.

4. The present invention also is a structure of a safe chair, wherein the extended part, fit-rim and the principal part is welded together via the holes of the edge-bars, and the extended part, the fit-rim and the principal part is joined together by several welding spots, and the welding material on holes can be polished fast, and thus the beauty of the chair can be enhanced and the asymmetric edge of the metal-net frame cut during processing can be hidden.

[0027] Many changes and modifications in the above described embodiment of the invention can, of course, be carried out without departing from the scope thereof. Accordingly, to promote the progress in science and the useful arts, the invention is disclosed and is intended to be limited only by the scope of the appended claims.

[Representative symbols of main components]	
1	chair
11	front-leg
111	fix spot
12	rear-leg
13	arm-rest
14	extended-bar
2	edge-bar

(continued)

[Representative symbols of main components]	
21	principal part
22	extended part
23	U-shape fixing slit
24	hole
3	metal-plate
31	fit-rim
5	conventional chair with metal-net frame
51	metal-net frame
52	asymmetric edge

Claims

1. A structure of an improved chair, comprising:

a chair composed of tube or prism as the principal holder and having front-legs, rear-legs, arm-rests and an extended-bar, wherein a fix spot installed on each front-leg is used to fix a set of an edge-bar of a chair-seat or said extended-bar;

a set of edge-bars of chair-back composed of one upper edge-bar, one lower edge-bar and two side edge-bars by fixing both ends of the upper and lower edge-bars on the rear-legs of the chair;

a set of edge-bars of the chair-seat composed of one front edge-bar, one rear edge-bar and two side edge-bars by fixing the two side edge-bars on the fix spot of the front-leg or by placing two side edge-bars on the extended-bar of the front-legs and fixing the side edge-bars on the front-leg and fixing both ends of the rear edge-bar on the rear-leg;

two metal-plates being die-cast, wherein a plurality of fit-rim installs on said metal-plate, and said fit-rim matching the frame formed by said edge-bars surround the four sides of said metal-plate and bending inwardly is used for fitting into the U-shape fixing slit of each edge-bar;

wherein said edge-bar having a principal part and an extended part is die-cast, and an U-shape fixing slit installs between said extended part and said principal part, and said extended part has several holes; after said fit-rim of said metal-plate fits into the U-shape fixing slit, said edge-bars and said metal-plate are welded or riveted with said several holes of said extended part into an unified connector, which is unable to be dismantled.

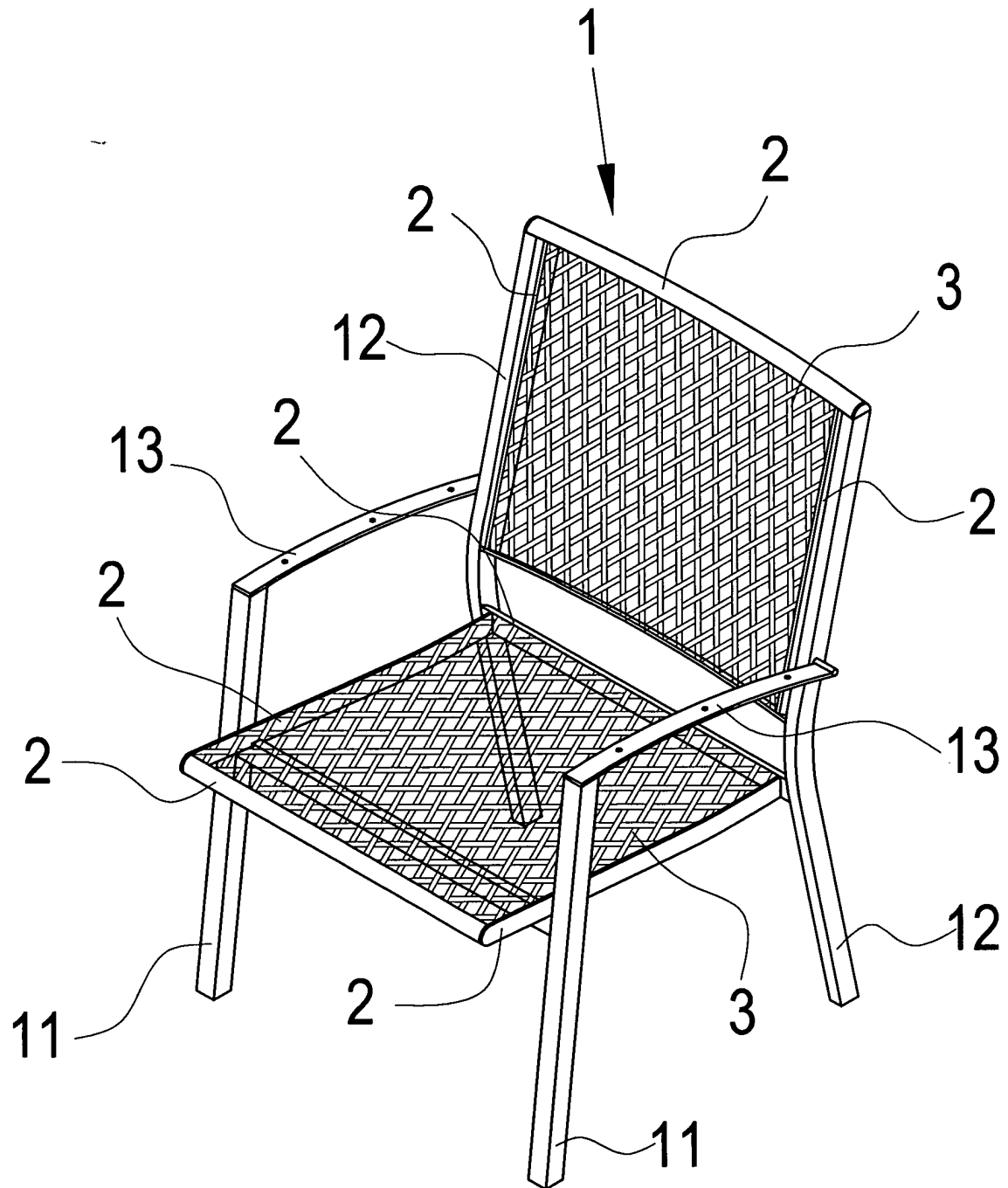


Fig. 1

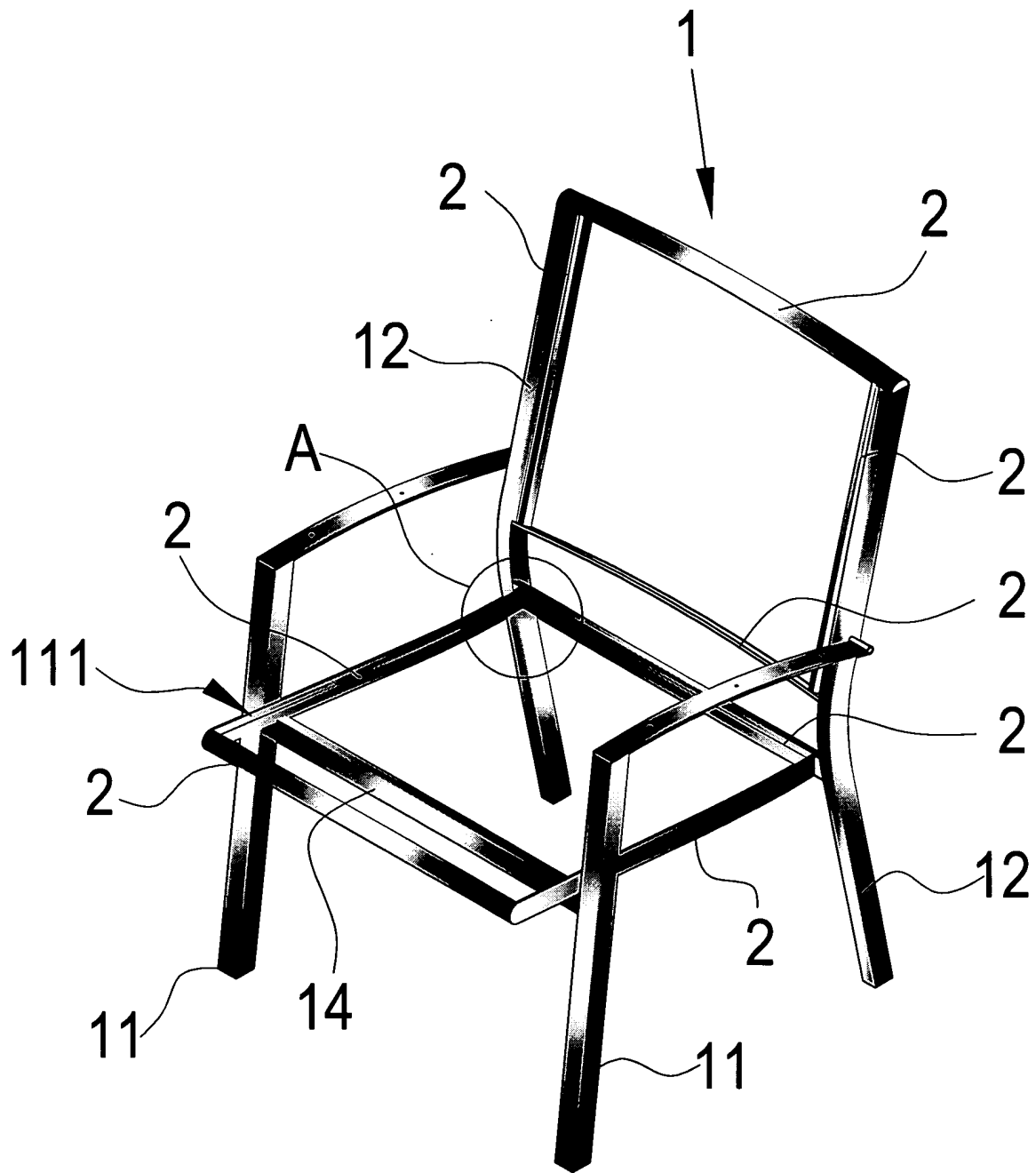


Fig. 2

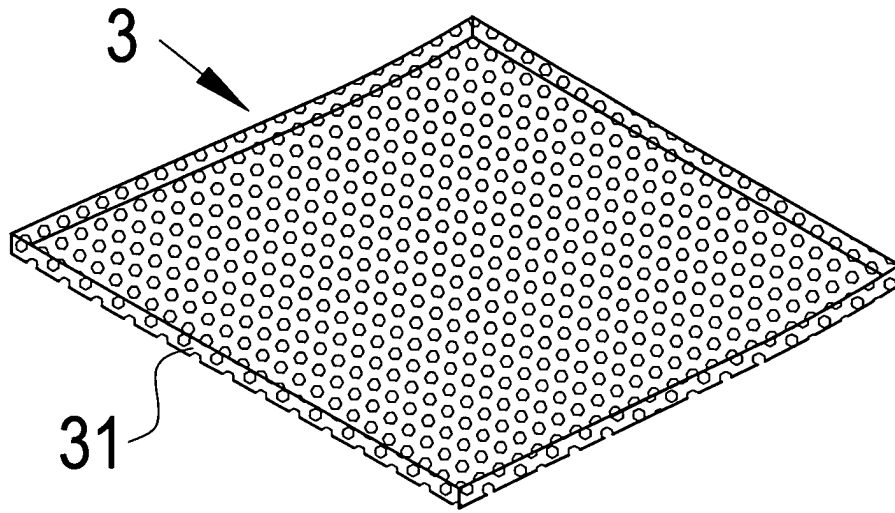


Fig. 3

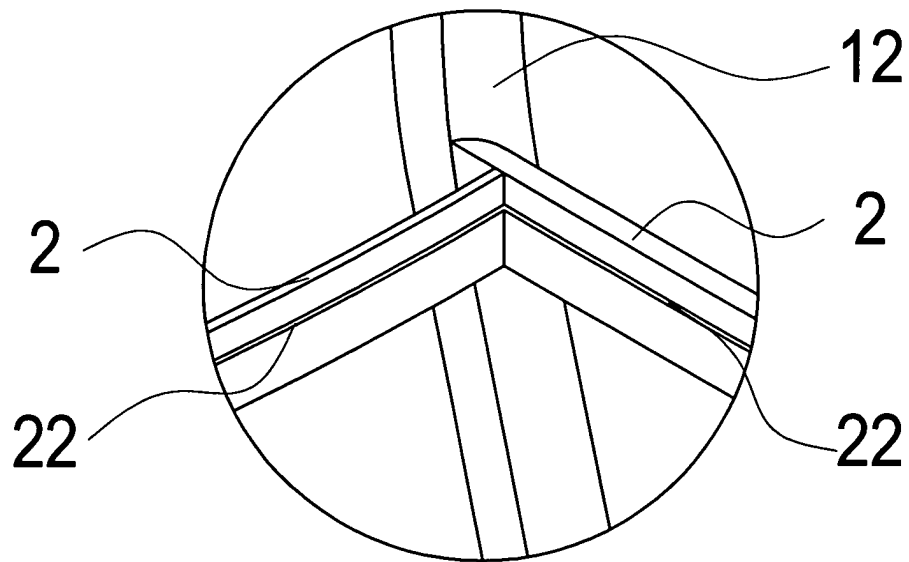


Fig. 4

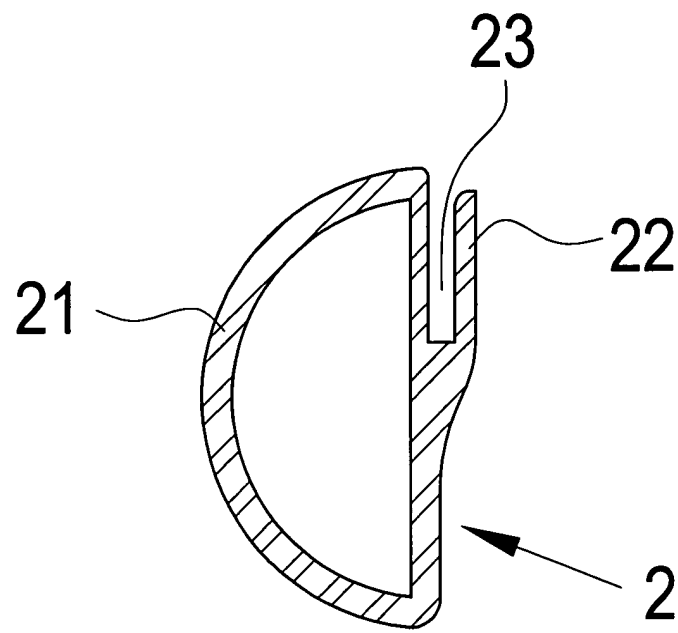


Fig. 5(A)

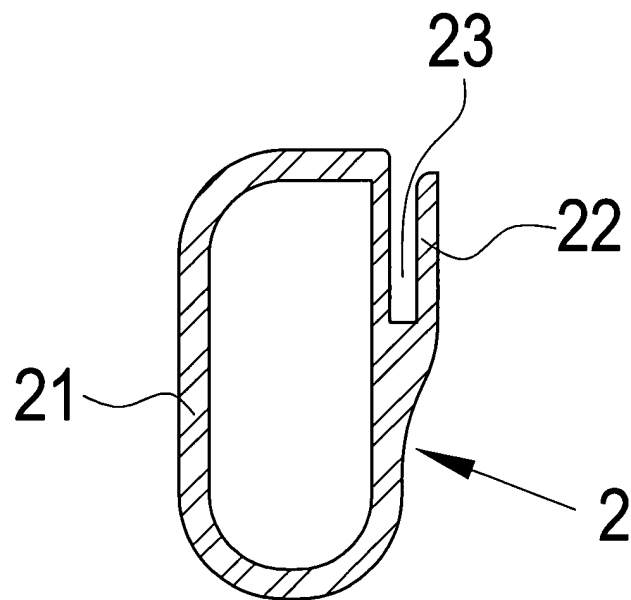


Fig. 5(B)

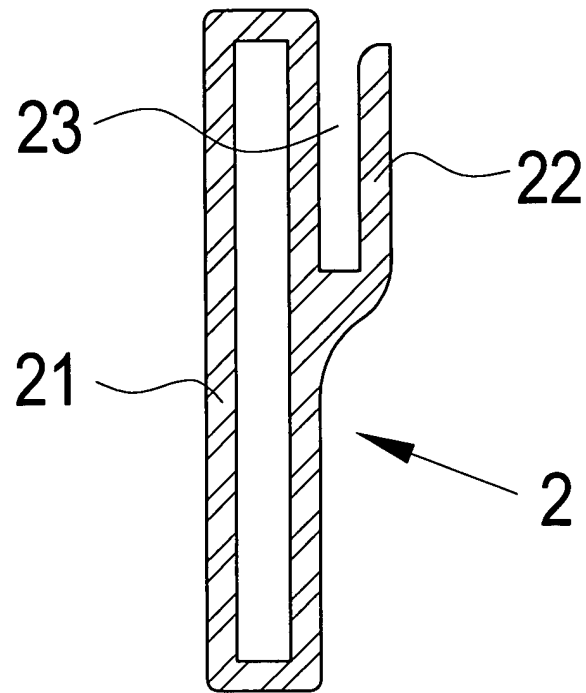


Fig. 5(C)

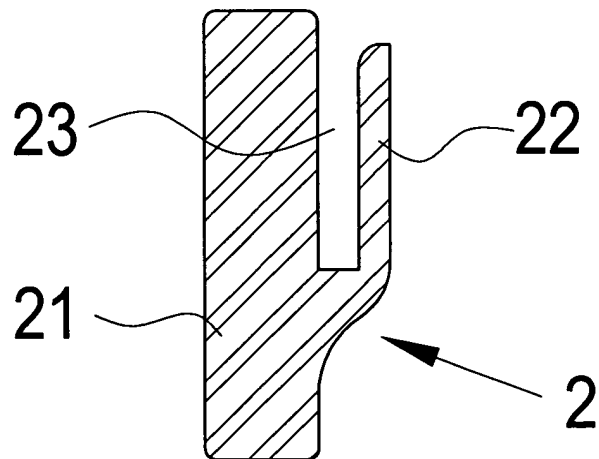


Fig. 5(D)

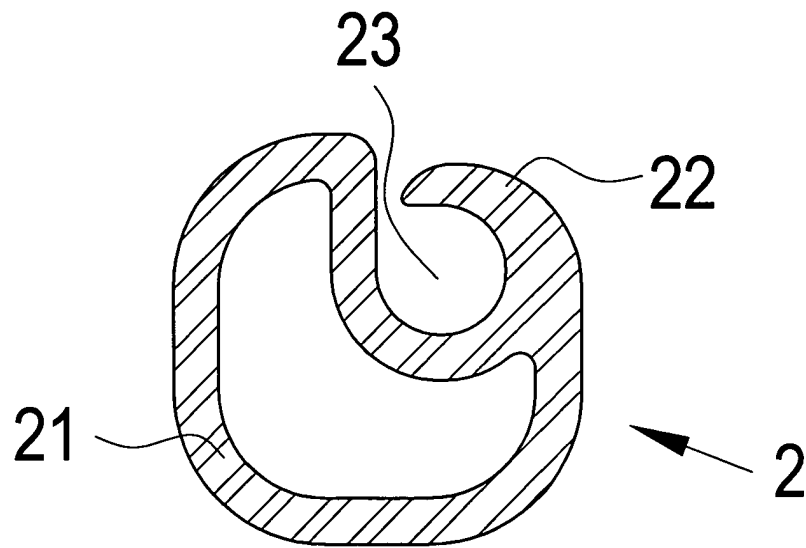


Fig. 5(E)

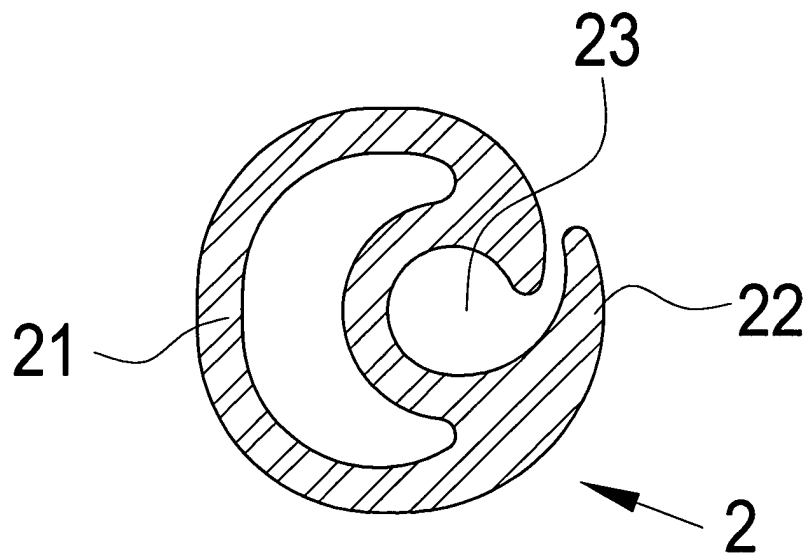
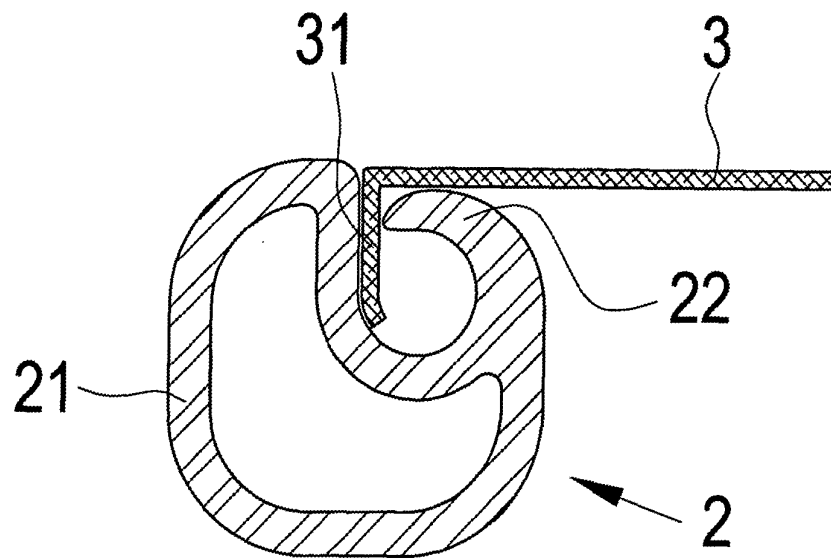
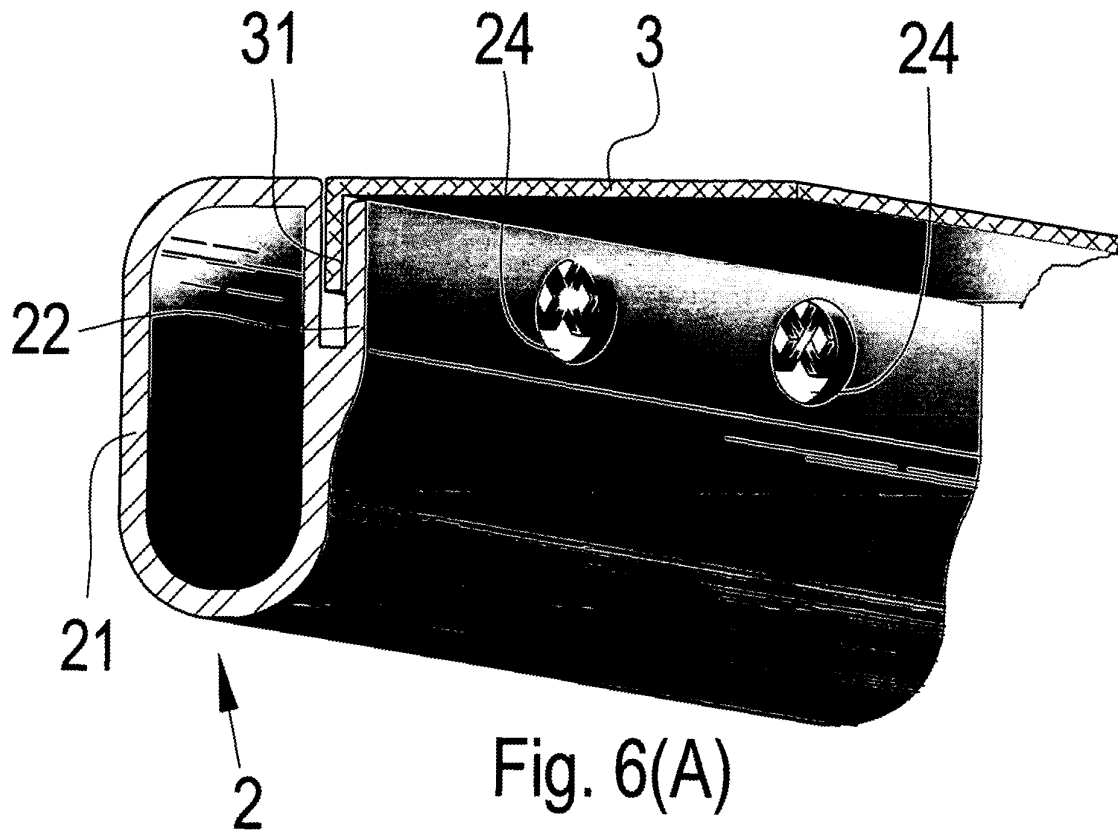


Fig. 5(F)



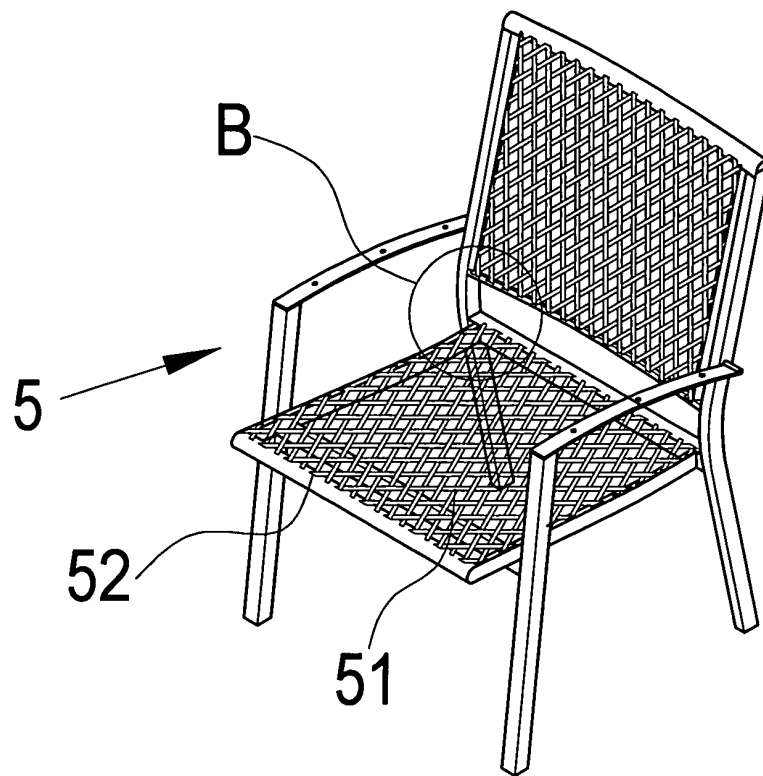


Fig. 7(A)

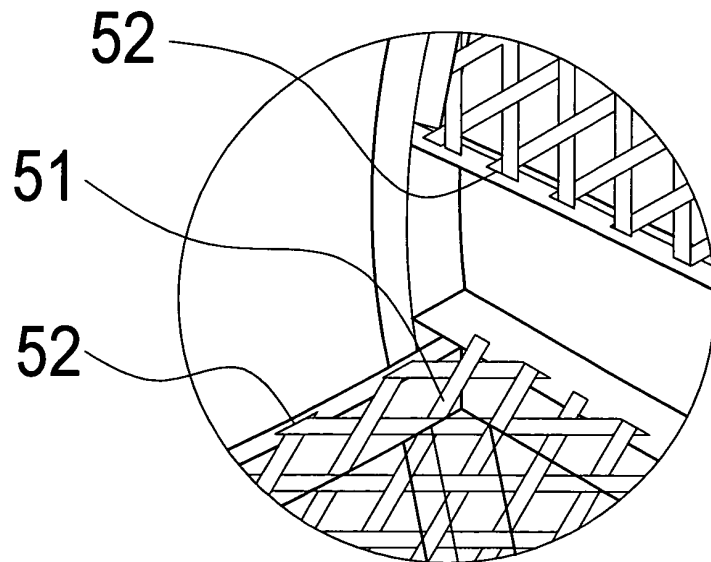


Fig. 7(B)

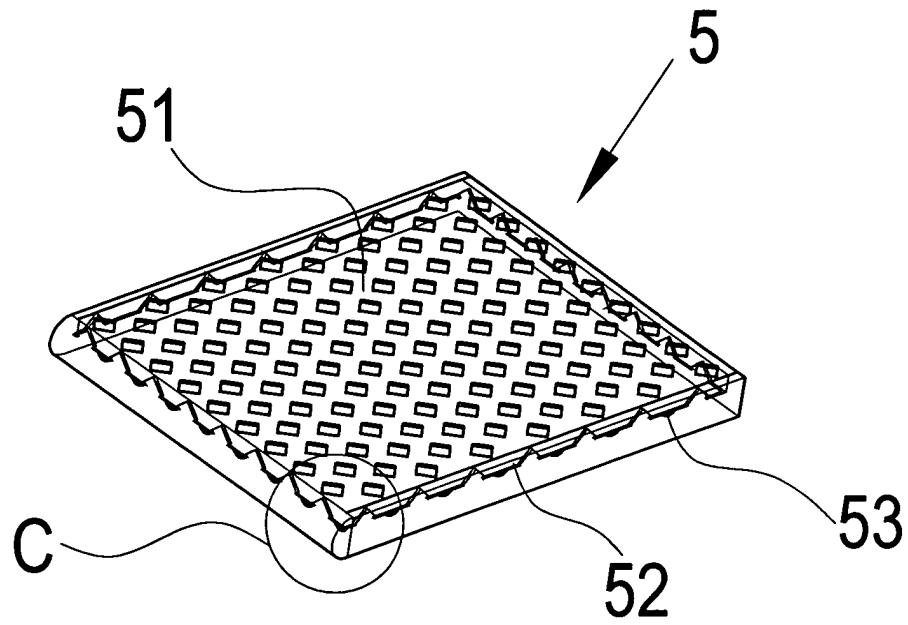


Fig. 8(A)

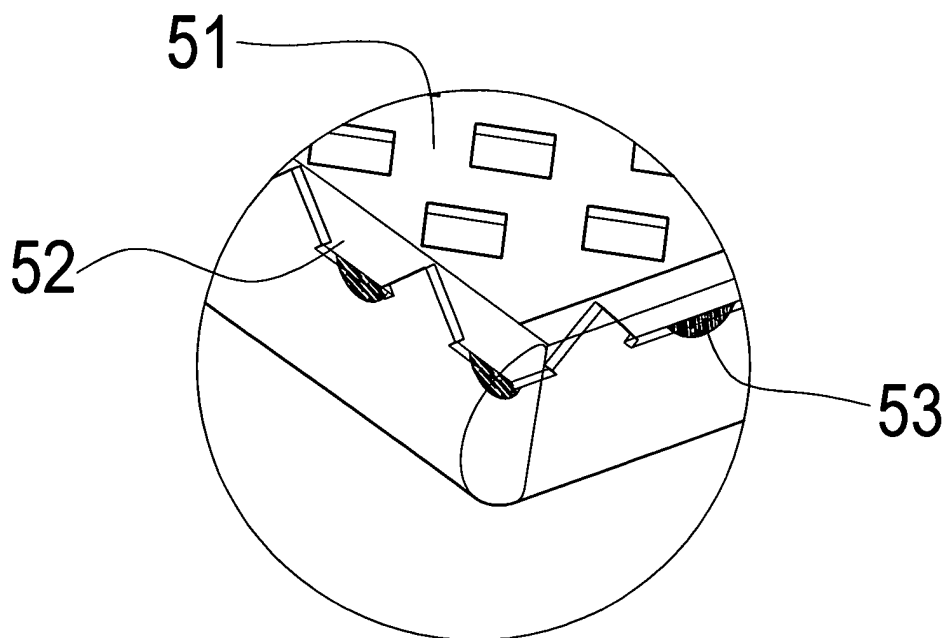


Fig. 8(B)



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 02 8255

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	DE 298 00 168 U (ERLAU AG EISEN DRAHTWERK) 9 April 1998 (1998-04-09) * page 6, paragraph 2 - page 7, last line * * figures 6,7 *	1	A47C5/06 A47C7/16 B23K33/00
A	US 4 522 444 A (POLLOCK CHARLES) 11 June 1985 (1985-06-11) * column 2, line 18 - line 37 * * figures *	1	
A	US 4 062 590 A (POLSKY NORMAN ET AL) 13 December 1977 (1977-12-13) * column 3, line 65 - column 4, line 8 * * claim 1 * * figure 5 *	1	
A	US 1 996 479 A (MCCOWAN DAVID A) 2 April 1935 (1935-04-02) * the whole document *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A47C F16B B23K
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28 April 2004	Examiner van Hoogstraten, S
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EPO FORM 1503 03.82 (P04C01)

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

EP 03 02 8255

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28-04-2004

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