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(54) **Method for assembling a reinforcement onto the faceplate of a refrigerator, freezer or the like**

Verfahren zur Montage eines Verstärkungsteils auf die Frontplatte eines Kühl- oder Gefrierschranks

Procédé d'assemblage d'une pièce de renforcement à la plaque frontale d'un réfrigérateur ou congélateur

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Description

[0001] The present invention relates to a method for assembling a metal reinforcement member onto a specific profiled sheet metal part, known as a faceplate, of a refrigerator, freezer or similar appliances, to enable a hinge for the appliance door to be securely connected.

[0002] Said appliances are provided with at least one door hinged to the appliance casing by hinges which are fixed to the casing at the relative faceplate or faceplates. Considering the high stresses to which the hinges are subjected (they have to withstand the weight both of the door and of the door contents), a reinforcement consisting of a profiled piece of sheet metal of adequate thickness must be fixed to the faceplate.

[0003] The fixing method generally used is to position the reinforcement at a dedicated point on the faceplate, attach it temporarily to this latter, spot weld the reinforcement and faceplate together, then remove the temporary attachment.

[0004] This method works well in terms of the result, but represents a costly step (in terms of time, equipment, labour, etc.) within the entire production cycle.

[0005] US 4170391 discloses a method for assembling a metal reinforcement member according to the preamble of claim 1. WO 02099346 discloses a refrigerator with a reinforcement member for installing a hinge.

[0006] An object of the present invention is therefore to make assembly of the reinforcement and faceplate easier, quicker and cheaper, without using welding (of which the intrinsic drawbacks are well known) and without the need to temporarily attach the two components together in the required position.

[0007] This and further objects which will be apparent from the ensuing detailed description are attained by an assembly method in accordance with the technical teachings of the accompanying claims.

[0008] The invention will be more apparent from the following detailed description, provided by way of non-limiting example, of preferred embodiments thereof illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view, before being assembled together, of a faceplate (partly reproduced) and the reinforcement to be associated with it which do not form part of the present invention;

Figure 2 is a perspective view of the assembled faceplate and reinforcement which does not form part of the present invention;

Figure 3 is a section through the assembly means on termination of assembly which does not form part of the present invention;

Figure 4 is a perspective view of the faceplate and reinforcement during assembly, but provided with a variant of the assembly means which do not form part of the present invention;

Figure 5 is a section (similar to Figure 3) of the variant of the assembly means on termination of assembly

which does not form part of the present invention; Figure 6 is a perspective view of the faceplate and reinforcement during assembly, but provided with a further variant of the assembly means according to the present invention;

Figure 7 is a perspective view of the assembled faceplate and reinforcement of Figure 6;

Figure 8 is a perspective view of a different version of the faceplate and reinforcement before their assembly which do not form part of the present invention.

[0009] With initial reference to Figures 1, 2, 3, which show an embodiment not forming part of the present invention, the reference numeral 1 indicates a faceplate formed from a sheet metal profile bar having a base side 2, a front side 3 at 90° to the base side, and a channel part 4 to the side of the front side 3 and involving only a fraction (the upper fraction) of the front side 3 to hence obtain in the faceplate a longitudinal groove 5 within which the reinforcement 6, of substantially the same height, is to be located.

[0010] The reinforcement 6 is formed from a piece of U-shaped robust sheet metal having a base side 7, a front side 8 at 90° to the base side, and a right-angled third side 9 having a width less than that of the base side 7. Holes 10 are provided in the front side for fixing a conventional hinge, not shown, by screws.

[0011] The two components (faceplate and reinforcement) are provided with means for snap-fitting them together, making the use of spot welding, with all its contingent disadvantages and drawbacks, superfluous.

[0012] Specifically, with regard to the embodiment of Figures 1, 2 and 3, two bosses 11 are formed on the base side 2 of the faceplate 1 by pressing in predetermined positions and at a predetermined distance apart, while on the base side 7 of the reinforcement 6 two outwardly projecting rectilinear parallel groove-type guides (see Figure 3) indicated by 12 are formed, again by pressing, in predetermined positions and at a distance apart equal to that of the bosses 11, followed, aligned therewith, by a notch or recess 14 after a connection piece 13.

[0013] For assembly, which can be easily automated, the reinforcement 6 is rested with its base side 7 on the base side 2 of the faceplate, precisely such that each boss 11 of this latter penetrates into a guide 12 in the reinforcement. The reinforcement is then thrust totally in the direction of the arrow F to cause the bosses, by virtue of the intrinsic elasticity of the sheet metal, to pass beyond the connection pieces 13 where they snap into the notches or recesses 14, to settle therein. Stable and precise assembly of the parts is hence achieved, such as to bring the walls 8 and 3 of the two components into mutual contact, as can be seen in Figure 2, with the reinforcement hence engaging in the groove 5 of the faceplate.

[0014] A first variant which also does not form part of the present invention is shown in Figures 4 and 5.

[0015] In these figures, parts equal or corresponding

to those already described are indicated by the same reference numerals associated with the letter "a". In practice, the covered guides 12 are replaced by long holes 12a.

[0016] Figure 4 shows the step in which the bosses 11 a are still within the guides, i.e. in this case within the long holes 12a.

[0017] The invention also evidently includes solutions in which the bosses 11, 11a are formed in the lower side 7, 7a of the reinforcement 6, with the guides 12, 12a and corresponding notches or recesses 14, 14a being formed in the base wall 2, 2a of the faceplate 1, 1a.

[0018] Two further variants are shown in Figures 6, 7 and in Figure 8 respectively.

[0019] In Figures 6, 7, which show an embodiment according to the present invention equal or corresponding parts are indicated by the same reference numerals associated with the letter "b". The variant of these figures can be used for faceplates of different dimensions and for right or left handed mounting. The faceplate 1b presents on its base side 2b two circular bosses 11 b (similar to the version of Figures 1, 2, 3) and a rectilinear boss 20 (similar to the guide 12 of Figure 3, which however is provided on the lower flange of the reinforcement), while the reinforcement 6b presents a pair of spaced-apart rectilinear parallel slots 21 in its lower flange 7b. Figure 7 shows the assembly of the reinforcement 6b to the faceplate 1b, in which the bosses 11b snap-engage into a side Z of the reinforcement to retain it against the wall 3b of the faceplate, while the rectilinear boss 20 prevents transverse movements and acts as a guide during assembly. Notches similar to the notches 14 (Figure 1) can be provided in the side Z where the bosses 11 b engage.

[0020] Figure 8 shows an embodiment not forming part of the present invention with a different faceplate, indicated by 21, having a channel-shaped part 22 along parallel opposing sides. The reinforcement 24, which in this case is of U-shape, is mounted in the interspace defined between the ends 23 of the channel-shaped parts. Two holes 26 are provided in the flanges 25 of the U to be snap-engaged by corresponding bosses 28, emerging from (formed in) the ends 23. Holes 29 are provided for mounting the hinges.

Claims

1. A method for assembling a metal reinforcement member (6, 6a) onto a specific profiled sheet metal part (1, 1a), known as a faceplate, of a refrigerator, freezer or a similar appliance, to enable a hinge for the appliance door to be securely connected in which said assembly is achieved by mutual snap-engagement between first means (Z) and second means (11b) provided one in the metal reinforcement member (6, 6a, 6b, 24) and the other in the faceplate (1b), **characterised in that** the first means (Z) are repre-

sented by a free edge of a base side (7b) of the metal reinforcement member (6b), said member presenting at least one open ended slot (21) arranged to cooperate with a rectilinear boss (20) present on a base side (2b) of the faceplate, said second means (11b) being provided on said base side (2b).

Patentansprüche

1. Verfahren zur Montage eines metallischen Verstärkungselements (6, 6a) auf einem speziell profilierten Blechmetallteil (1, 1a) eines Kühlschranks, eines Tiefkühlgeräts oder eines ähnlichen Geräts, das als Frontplatte bekannt ist, um die sichere Verbindung eines Scharniers für die Gerätetür zu ermöglichen, indem die Montage durch einen wechselseitigen Einschnappeingriff zwischen ersten Elementen (Z) und zweiten Elementen (11b) erreicht wird, die zum einen in dem metallischen Verstärkungselement (6, 6a, 6b, 24) und zum anderen in der Frontplatte (1b) vorgesehen sind, **dadurch gekennzeichnet, dass** das erste Element (Z) durch eine freie Kante an einer Basisseite (7b) des metallischen Verstärkungselements (6b) verwirklicht ist, wobei das Element zumindest einen Schlitz (21) mit offenem Ende bereitstellt, der so angeordnet ist, dass er mit einer rechteckigen Nabe (20) zusammenwirkt, die an einer Basisseite (2b) der Frontplatte vorliegt, wobei das zweite Element (11b) an der Basisseite (2b) bereitgestellt ist.

Revendications

1. Procédé d'assemblage d'une pièce de renforcement métallique (6, 6a) sur une partie métallique en tôle profilée spécifique (1, 1a), nommée plaque frontale, d'un réfrigérateur, congélateur ou appareil similaire, pour permettre à une charnière de la porte de l'appareil d'être raccordée de manière sûre, dans laquelle ledit ensemble est obtenu par un engagement par pression entre le premier moyen (Z) et les seconds moyens (11b) prévus l'un dans la pièce de renforcement métallique (6, 6a, 6b, 24) et l'autre dans la plaque frontale (1b), **caractérisé en ce que** les premiers moyens (Z) sont représentés par un bord libre d'un côté de base (7b) de la pièce de renforcement métallique (6b), ladite pièce présentant au moins une fente à extrémité ouverte (21) agencée pour coopérer avec un bossage rectiligne (20) présent sur un côté de base (2b) de la plaque frontale, lesdits seconds moyens (11b) étant prévus sur ledit côté de base (2b).

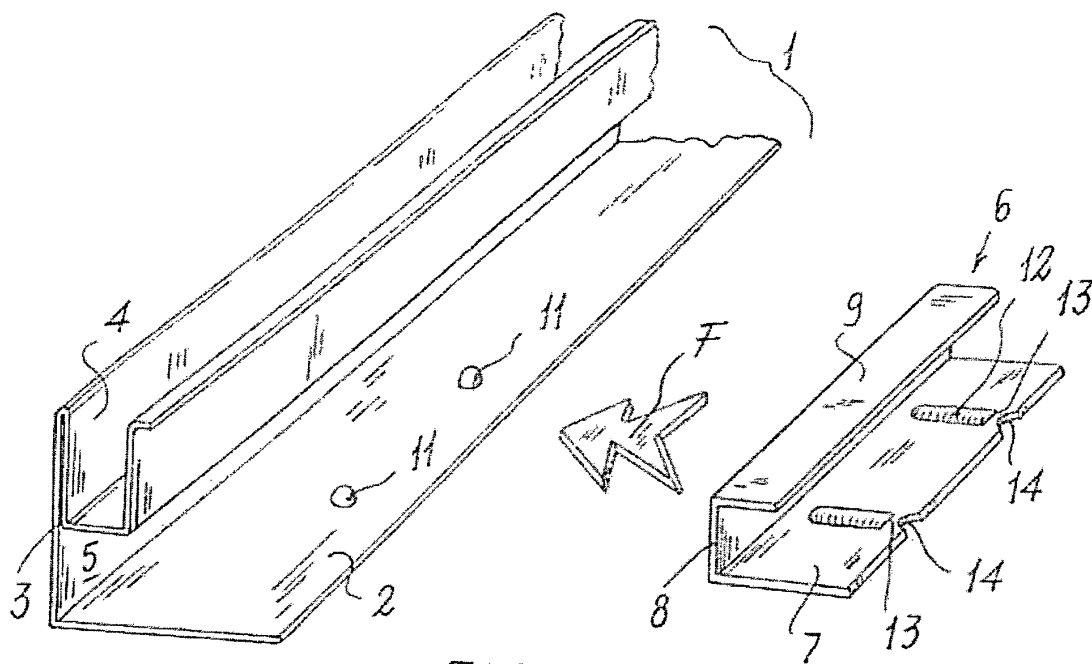


FIG. 1

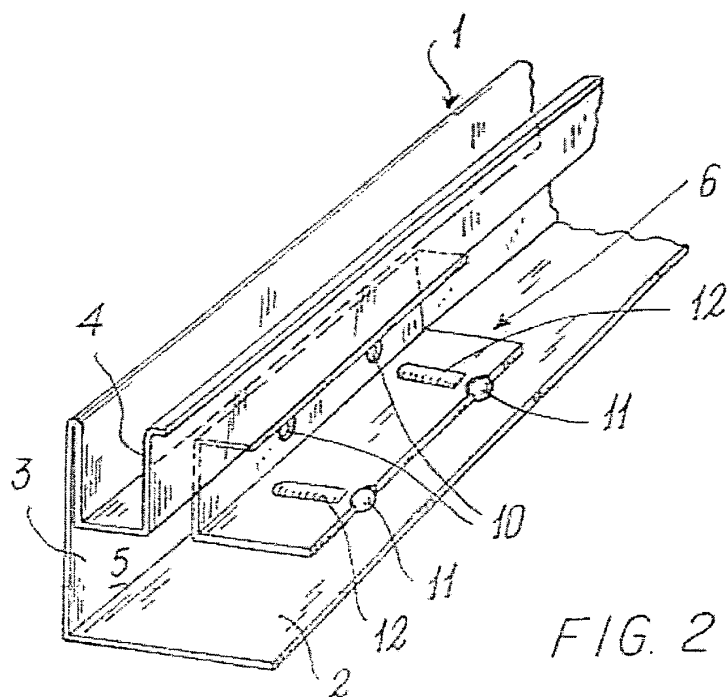


FIG. 2

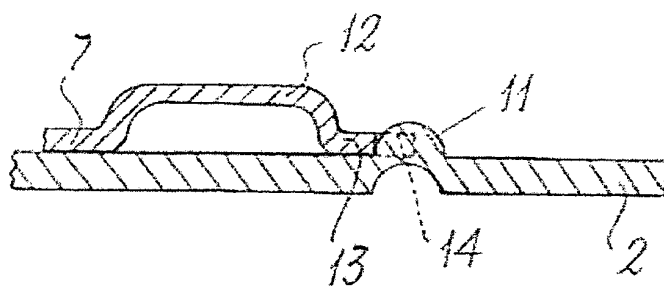


FIG. 3

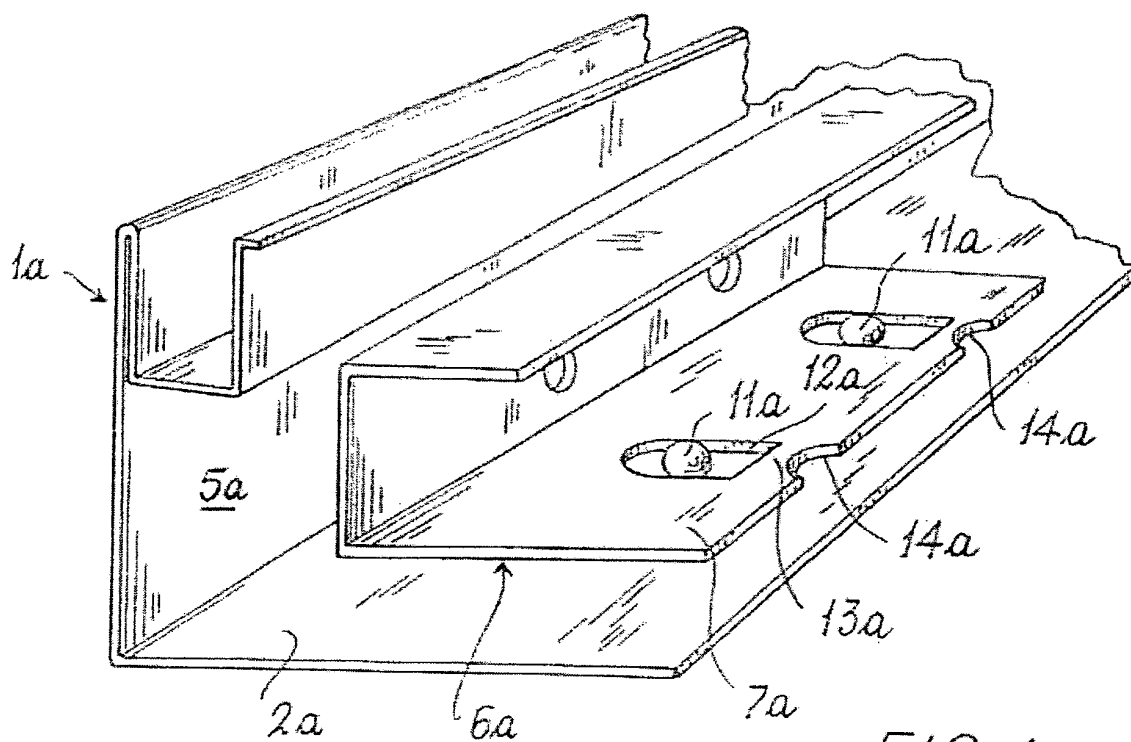


FIG. 4

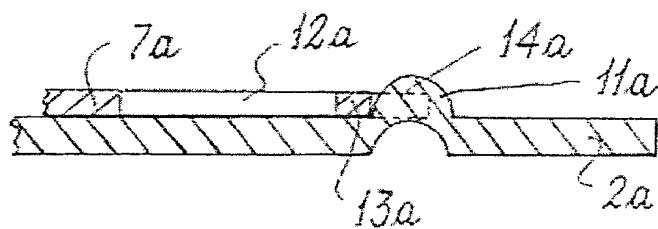
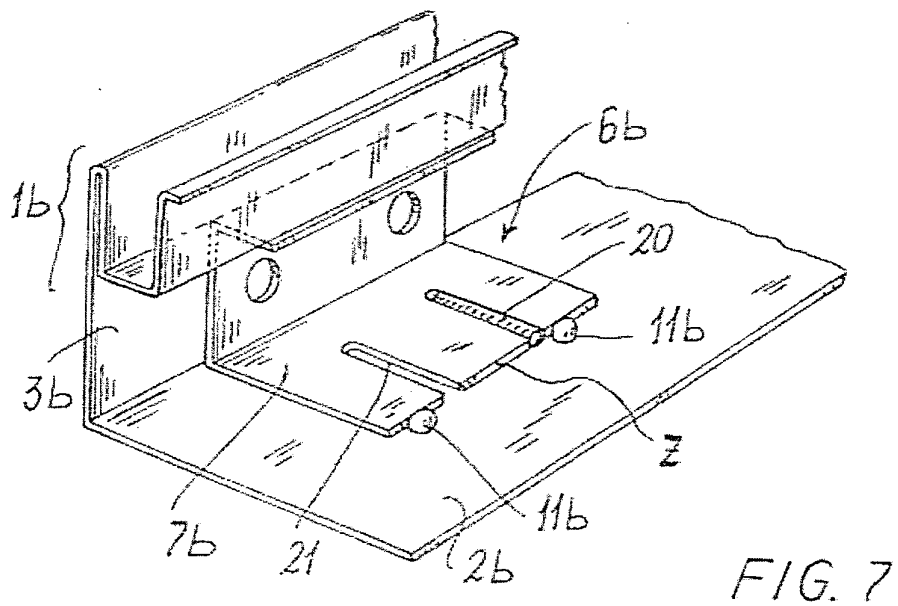
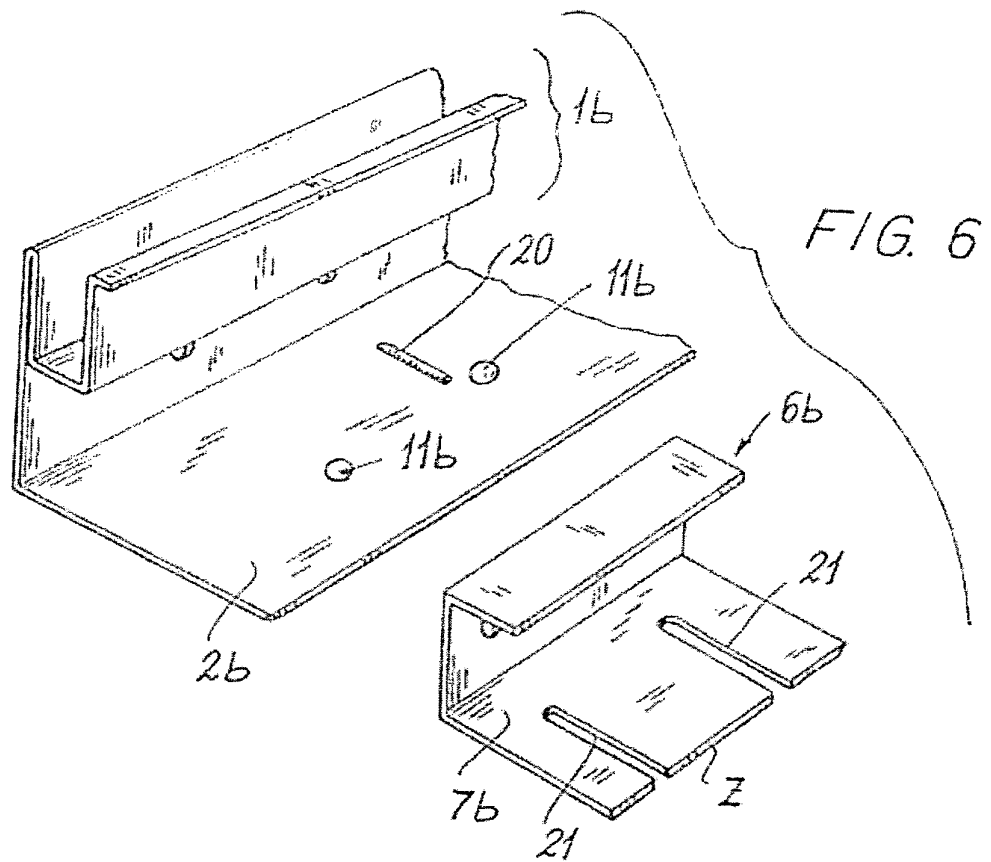
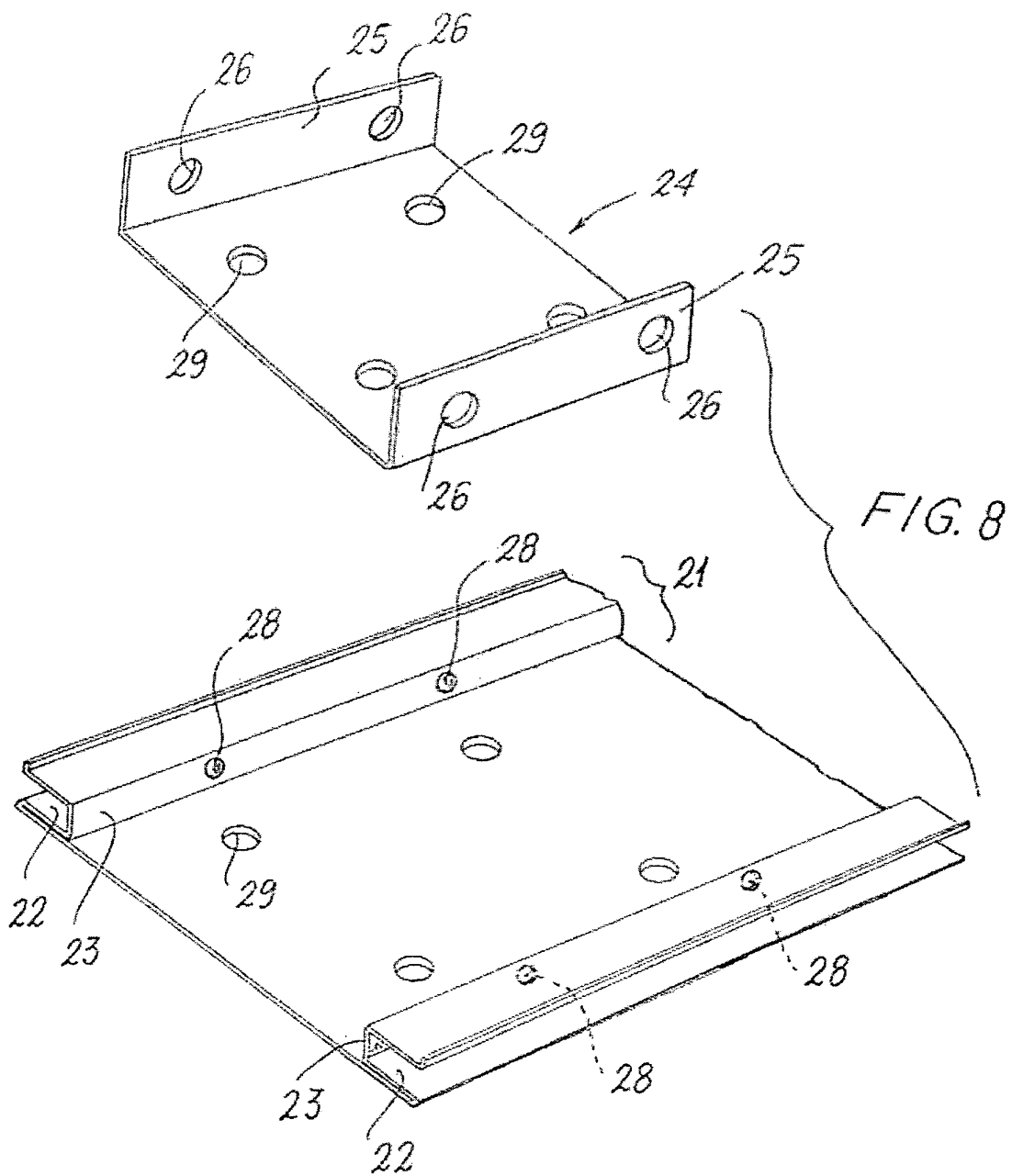


FIG. 5





REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- WO 02099346 A [0005]