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(54) **SHOWER ENCLOSURE**

DUSCHABTRENNUNG

ENCEINTE DE DOUCHE

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Description

[0001] The present invention relates generally to shower enclosures and particularly to a shower enclosure comprising panels attached to each other by means of flexible hinged connectors.

[0002] In accordance with the present invention there is now provided a shower enclosure comprising:

a) at least two adjoining panels, at least one of which is at least indirectly attachable to a wall; and
b) at least one flexible, hinged, load-bearing, integrally-formed connector that dynamically connects said panels, said connector including a first end segment, a flexible middle segment, and a second end segment, said end segments being moveable between a first substantially planir position and a second position, wherein the planes of said end segments are substantially perpendicular to each other, said middle segment including a flexible plastic material and said end segments including at least a semi-rigid material, all three segments being co-extruded as a single integral linear unit and wherein each of said first and second end segments include surfaces adapted to abut each other and to delimit the extent of movement of said end segments towards each other from a linear alignment of 180° to a substantially perpendicular alignment of about 90°.

[0003] In preferred embodiments of the present invention each of said end segments is provided with an angled surface adjacent said middle segment which together form a V-like configuration therewith and preferably each of said angled surfaces diverges at an angle of about 45° from the plane of said connector.

[0004] It will thus be realized that said flexible, hinged, load-bearing, integrally-formed connector can be used to connect panels in a linear configuration when placed in linear alignment of 180°, as seen in Fig. 3, and can also be used as corner elements of an enclosure, connecting two panels at substantially 90° to each other when said end segments are brought together in a manner in which said surfaces of said end segments abut each other to delimit the extent of movement to about 90°, as seen in Fig. 4.

[0005] In accordance with a preferred embodiment of the present invention the at least one hinged connector includes a first end segment having a first open channel sized for receiving therein one of the adjoining panels, a flexible middle segment extending from the first end segment, and a second end segment extending from the middle segment and having a second open channel sized for receiving therein the other of the adjoining panels, the middle segment including a flexible plastic material and the end segments including at least a semi-rigid material, all three segments being co-extruded as a single, integral unit. The middle segment preferably includes flexible polyvinyl chloride (PVC) and the end segments include at least semi-rigid PVC. Alternatively, the middle segment includes flexible polypropylene and the end segments include at least semi-rigid polypropylene. The panels may be generally flat or generally arcuate.

[0006] Further, in accordance with a preferred embodiment of the present invention, the shower enclosure includes an additional pair of the panels, each connected to one of the at least two adjoining panels with the at least one flexible hinged connector, and a seal attached to an edge of at least one of the additional pair of panels and operative to substantially seal the additional pair of panels.

[0007] Still further in accordance with a preferred embodiment of the present invention, the shower enclosure includes an additional pair of the panels, each connected to one of the at least two adjoining panels with the at least one flexible hinged connector, and a seal attached to an edge of at least one of the additional pair of panels and operative to substantially seal the additional pair of panels.

[0008] Still further in accordance with a preferred embodiment of the present invention, the shower enclosure includes a tray box which receives therein, or thereon, bottom edges of the panels.

[0009] In German specification 2901371 and in French patent application 81 06977, published under no. 2503230, there are described flexible hinged connectors, however said connectors are not provided with means to enable movement between a first planir position of about 180° and a second position of about 90°, and therefore do not provide an acceptable solution for the interconnection of panels forming a wall of a shower enclosure.

[0010] Similarly, while US patent 5,729,867 discloses a flexible, hinged, load-bearing, integrally formed connector, including a first end segment, a flexible middle segment and a second end segment in which the middle segment includes a flexible plastic material and all three segments are co-formed as a single integral unit, and while US Patent 5,115,855 discloses a flat panel display end hinge in which the hinge means is three segments which are co-extruded as a single linear unit, neither of said references teaches or suggests a flexible hinged, load-bearing, integrally formed connector, comprising first and second end segments which include integral abutment and/or stop means adapted to limit the extent of rotation of said end segments towards each other from a linear alignment of about 180° to a substantially perpendicular alignment of about 90°.

Brief Description of the Drawings

[0011] The invention will now be described in connection with certain preferred embodiments with reference to the following illustrative figures so that it may be more fully understood.

[0012] With specific reference now to the figures in detail, it is stressed that the particulars shown are by way of example and for purposes of illustrative discussion of the preferred embodiments of the present invention only and are presented in the cause of providing what is believed to be the most useful and readily understood description of the principles and conceptual aspects of the invention. In this regard, no attempt is made to show structural details of the invention in more detail than is necessary for a fundamental understanding of the invention, the description taken with the drawings making apparent to those skilled in the art how the several forms of the invention may be embodied in practice.

Fig. 1 is a simplified pictorial illustration of a shower enclosure constructed and operative in accordance with a preferred embodiment of the present invention with flat panels;

Fig. 2 is a simplified pictorial illustration of a shower enclosure constructed and operative in accordance with another preferred embodiment of the present invention with flat panels and a bottom tray box;

Fig. 3 is a simplified pictorial illustration of a flexible hinged connector constructed and operative in accordance with the present invention, and used in the shower enclosures of the present invention;

Fig. 4 is a simplified pictorial illustration of the flexible hinged connector of Fig. 3 in a folded position; and

Fig. 5 is a simplified pictorial illustration of the flexible hinged connectors of Fig. 3, connected to a wall attachment member in accordance with a preferred embodiment of the present invention.

Detailed Description of a Preferred Embodiment

[0013] Reference is now made to Fig. 1 which illustrates a shower enclosure 10 constructed and operative in accordance with a preferred embodiment of the present invention. Shower enclosure 10 includes a plurality of panels 12 constructed of any sturdy material suitable for showers, such as plastic or glass. Panels 12 may be transparent, translucent or even opaque. Two adjoining panels 12 are connected to each other by at least one flexible hinged connector 14 that dynamically connects panels 12 such that panels 12 swing about connector 14 between a first linear alignment and a second perpendicular alignment, as discussed hereinafter with reference to Fig. 4. Unlike the prior art, connector 14 is a structural member and is capable of bearing at least part of the full weight of panels 12. Preferably only one connector 14 spanning most or all of the length of the panels 12 is required to connect adjoining panels, but more than one connector 14, each shorter than the panel length, may also be employed. Handles 15 may be provided for easy entry into or exit from shower enclosure 10.

[0014] Reference is now made to Fig. 3 which illustrates flexible hinged connector 14. In accordance with the present invention connector 14 includes a first end segment 16 having a first open channel 18 sized for receiving therein one of the adjoining panels 12. A flexible middle segment 20 extends from first end segment 16, and a second end segment 22 extends from middle segment 20 and has a second open channel 24 sized for receiving therein the other of the adjoining panels 12. The middle segment 20 is constructed of a flexible plastic material and the end segments 16 and 22 are constructed of at least a semi-rigid material, all three segments 16, 20 and 22 being co-extruded as a single, integral unit. For example, middle segment 20 may be constructed of flexible polyvinyl chloride (PVC) or polypropylene and end segments 16 and 22 may be constructed of at least semi-rigid PVC or at least semi-rigid polypropylene. The shape of connector 14 illustrated in Fig. 5 is just one example of the many different shapes connector 14 may comprise.

[0015] As will be noted, each of said end segments 16 and 22 is provided with an angled surface 23 and 25, respectively, adjacent said middle segment 20 and together forming a V-like configuration therewith, whereby said angled surfaces serve as an integral, internal braking system and when said surfaces are rotated towards each other the mutual abutment of surfaces 23 and 25 delimit and define the angle between the panels 12 connected thereto to an angle of about 90°.

[0016] Fig. 4 illustrates the flexible hinged connector 14 in a folded position, i.e., folded about middle segment 20, to assume a substantially perpendicular alignment between end segments 16 and 22, by virtue of the abutment of angled surfaces 23 and 25 with each other, said surfaces preferably provided with an angle of about 45° each.

[0017] Referring again to Fig. 1, it is seen that panels 12 are preferably attached to walls 26 to form the shower enclosure 10. However, it is appreciated that the shower enclosure 10 may also be formed solely from panels 12 without walls. Panels 12 may be hingedly attached to walls 26 with any kind of hinge, but most preferably, are attached by means of flexible hinged connectors 14. Reference is made to Fig. 5 which illustrates one of the flexible hinged connectors 14 connected to a wall attachment member 64 in accordance with a preferred embodiment of the present invention. Wall attachment member 64 preferably includes a first portion 66 which snugly fits in either first open channel 18 or second open channel 24, and a second portion 68 which can be affixed to wall 26 with suitable hardware, such as a screw 70. A decorative strip 72, which snaps on to second portion 68, may cover the hardware.

[0018] Fig. 1 illustrates shower enclosure 10 with panels 12 extending from walls 26 and connectors 14 bearing the full weight of panels 12. Alternatively, the panels 12 may rest on the floor. Reference is now made to Fig. 2 which illustrates a shower enclosure 40 constructed

and operative in accordance with another preferred embodiment of the present invention. In this embodiment, shower enclosure 40 further includes a tray box 42 which receives therein bottom edges of panels 12.

[0019] Panels 12 of shower enclosures 10 and 40 are generally flat, and the enclosures have a generally rectangular perimeter, however arcuate panels can also be used.

[0020] It will be evident to those skilled in the art that the invention is not limited to the details of the foregoing illustrative embodiments and that the present invention may be embodied in other specific forms. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description.

Claims

1. A shower enclosure comprising:

a) at least two adjoining panels, at least one of which is at least indirectly attachable to a wall; and
b) at least one flexible, hinged, load-bearing, integrally-formed connector that dynamically connects said panels, said connector including a first end segment, a flexible middle segment, and a second end segment, said end segments being moveable between a first substantially planir position and a second position, wherein the planes of said end segments are substantially perpendicular to each other, said middle segment including a flexible plastic material and said end segments including at least a semi-rigid material, all three segments being co-extruded as a single integral linear unit and wherein each of said first and second end segments include surfaces adapted to abut each other and to delimit the extent of movement of said end segments towards each other from a linear alignment of 180° to a substantially perpendicular alignment of about 90°.

2. The shower enclosure according to claim 1, wherein said at least one connector is structurally capable of bearing at least the full weight of said panels.

3. The shower enclosure according to claim 1, wherein said at least one connector is structurally capable of bearing a partial weight of said panels.

4. The shower enclosure according to claim 1, wherein each of said end segments is provided with an angled surface adjacent said middle segment which together form a V-like configuration therewith.

5. The shower enclosure according to claim 1, wherein said at least one hinged connector comprises a first end segment having a first open channel sized for receiving therein one of said adjoining panels, a flexible middle segment extending from said first end segment, and a second end segment extending from said middle segment and having a second open channel sized for receiving therein the other of said adjoining panels.

6. The shower enclosure according to claim 5, wherein said middle segment comprises flexible polyvinyl chloride and said end segments comprise at least semi-rigid polyvinyl chloride.

7. The shower enclosure according to claim 5, wherein said middle segment comprises flexible polypropylene and said end segments comprise at least semi-rigid polypropylene.

8. The shower enclosure according to claim 1, wherein said panels are generally flat.

9. The shower enclosure according to claim 1, wherein said panels are generally arcuate.

10. The shower enclosure according to claim 5, further comprising at least one flexible hinged connector, as defined in claim 5, attached to a wall attachment member which comprises a first portion, which snugly fits in at least one of said first open channel and said second open channel, and a second portion which is affixable to said wall.

11. The shower enclosure according to claim 10, comprising a decorative strip which attaches to said second portion.

12. The shower enclosure according to claim 1, further comprising:

an additional pair of said panels, each connected to one of said at least two adjoining panels with said at least one flexible hinged connector; and
a seal attached to an edge of at least one of said additional pair of panels and operative to substantially seal said additional pair of panels.

13. The shower enclosure according to claim 1, further comprising a tray box which receives therein bottom edges of said panels.

Patentansprüche

1. Duschabtrennung, die aufweist:

a) mindestens zwei angrenzende Platten, von denen mindestens eine mindestens indirekt an einer Wand befestigt werden kann; und
b) mindestens ein elastisches, gelenkiges, tragendes, zusammenhängend ausgebildetes Verbindungsteil, das die Platten dynamisch verbindet, wobei das Verbindungsteil ein erstes Endsegment, ein elastisches mittleres Segment und ein zweites Endsegment umfaßt, wobei die Endsegmente zwischen einer ersten im wesentlichen planaren Position und einer zweiten Position beweglich sind, worin die Ebenen der Endsegmente im wesentlichen senkrecht zueinander sind, wobei das mittlere Segment ein elastisches Kunststoffmaterial umfaßt, und wobei die Endsegmente mindestens ein halbstarres Material umfassen, wobei alle drei Segmente als eine einzelne zusammenhängende lineare Einheit koextrudiert werden, und worin ein jedes von erstem und zweitem Endsegment Flächen umfaßt, die so ausgeführt sind, daß sie aneinanderstoßen und das Maß der Bewegung der Endsegmente in Richtung zueinander von einer linearen Ausrichtung von 180° zu einer im wesentlichen senkrechten Ausrichtung von etwa 90° begrenzen.

2. Duschabtrennung nach Anspruch 1, bei der das mindestens eine Verbindungsteil konstruktiv in der Lage ist, mindestens das gesamte Gewicht der Platten zu tragen.

3. Duschabtrennung nach Anspruch 1, bei der das mindestens eine Verbindungsteil konstruktiv in der Lage ist, ein Teilgewicht der Platten zu tragen.

4. Duschabtrennung nach Anspruch 1, bei der ein jedes der Endsegmente mit einer winkeligen Fläche benachbart dem mittleren Segment versehen ist, die zusammen eine V-förmige Konfiguration damit bilden.

5. Duschabtrennung nach Anspruch 1, bei der das mindestens eine gelenkige Verbindungsteil aufweist: ein erstes Endsegment mit einem offenen Kanal, der für das Aufnehmen von einer der angrenzenden Platten darin bemessen ist; ein elastisches mittleres Segment, das sich vom ersten Endsegment erstreckt; und ein zweites Endsegment, das sich vom mittleren Segment erstreckt und einen zweiten offenen Kanal aufweist, der für das Aufnehmen der anderen der angrenzenden Platten darin bemessen ist.

6. Duschabtrennung nach Anspruch 5, bei der das mittlere Segment ein elastisches Polyvinylchlorid aufweist, und bei der die Endsegmente mindestens halbstarres Polyvinylchlorid aufweisen.

7. Duschabtrennung nach Anspruch 5, bei der das mittlere Segment ein elastisches Polypropylen aufweist, und bei der die Endsegmente mindestens halbstarres Polypropylen aufweisen.

8. Duschabtrennung nach Anspruch 1, bei der die Platten im allgemeinen flach sind.

9. Duschabtrennung nach Anspruch 1, bei der die Platten im allgemeinen bogenförmig sind.

10. Duschabtrennung nach Anspruch 5, die außerdem mindestens ein elastisches, gelenkiges Verbindungsteil nach Anspruch 5 aufweist, das an einem Wandbefestigungselement befestigt ist, das einen ersten Abschnitt, der enganliegend in mindestens einen von erstem offenen Kanal und zweitem offenen Kanal passt, und einen zweiten Abschnitt aufweist, der an der Wand befestigt werden kann.

11. Duschabtrennung nach Anspruch 10, die einen dekorativen Streifen aufweist, der am zweiten Abschnitt befestigt ist.

12. Duschabtrennung nach Anspruch 1, die außerdem aufweist:

ein zusätzliches Paar von Platten, wobei eine jede mit einer der mindestens zwei angrenzenden Platten mit dem mindestens einen elastischen, gelenkigen Verbindungsteil verbunden ist; und
eine Dichtung, die an einem Rand von mindestens einer des zusätzlichen Paares von Platten befestigt ist und die wirksam wird, um im wesentlichen das zusätzliche Paar von Platten abzudichten.

13. Duschabtrennung nach Anspruch 1, die außerdem einen Wannenkasten aufweist, der darin die unteren Ränder der Platten aufnimmt.

Revendications

1. Enceinte de douche comprenant:

a) au moins deux panneaux adjacents, dont au moins un est au minimum indirectement fixable au mur; et
b) au moins un connecteur formé en une seule pièce, porteur, articulé, flexible qui connecte dynamiquement lesdits panneaux, ledit connecteur englobant un premier segment terminal, un segment central flexible, et un deuxième segment terminal, lesdits segment terminaux étant mobiles entre un première position pratiquement plane et une deuxième position, dans

laquelle les plans desdits segments terminaux sont pratiquement perpendiculaire l'un par rapport à l'autre, ledit segment central englobant un matériau plastique flexible et lesdits segments terminaux englobant au moins un matériau semi-rigide, les trois segments étant co-extrudés en une seule unité linéaire solidaire et dans laquelle chacun desdits premier et deuxième segment terminal comprend des surfaces adaptées pour abouter l'une contre l'autre et pour délimiter l'étendue du mouvement desdits segments terminaux l'un vers l'autre à partir d'un alignement linéaire de 180° vers un alignement pratiquement perpendiculaire d'environ 90°.

2. Enceinte de douche selon la revendication 1, dans laquelle ledit au moins un connecteur est structurellement capable de supporter au moins le poids total desdits panneaux.

3. Enceinte de douche selon la revendication 1, dans laquelle ledit au moins un connecteur est structurellement capable de supporter au moins une partie du poids desdits panneaux.

4. Enceinte de douche selon la revendication 1, dans laquelle chacun desdits segments terminaux est pourvu d'une surface angulaire adjacente audit segment central, formant ensemble une configuration en forme de V.

5. Enceinte de douche selon la revendication 1, dans laquelle ledit au moins un connecteur articulé comprend un premier segment terminal ayant un premier canal ouvert calibré pour recevoir l'un desdits panneaux adjacents, un segment central flexible s'étendant à partir du premier segment terminal, et un deuxième segment terminal s'étendant à partir dudit segment central et ayant un deuxième canal ouvert calibré pour recevoir l'autre desdits panneaux adjacents.

6. Enceinte de douche selon la revendication 5, dans laquelle ledit segment central comprend du polychlorure de vinyle flexible et lesdits segments terminaux comprennent au moins du polychlorure de vinyle semi-rigide.

7. Enceinte de douche selon la revendication 5, dans laquelle ledit segment central comprend du polypropylène flexible et lesdits segments terminaux comprennent au moins du polypropylène semi-rigide.

8. Enceinte de douche selon la revendication 1, dans laquelle lesdits panneaux sont en règle générale plats.

9. Enceinte de douche selon la revendication 1, dans laquelle lesdits panneaux sont en règle générale arqués.

10. Enceinte de douche selon la revendication 5, comprenant en outre au moins un connecteur articulé flexible, tel que défini dans la revendication 5, fixé à un élément d'attache mural comprenant une première partie s'ajustant étroitement dans au moins un dudit premier canal ouvert et dudit deuxième canal ouvert, et une deuxième partie pouvant être fixée audit mur.

11. Enceinte de douche selon la revendication 10, comprenant une bande décorative qui se fixe à ladite deuxième partie.

12. Enceinte de douche selon la revendication 1, comprenant en outre:

une paire supplémentaire desdits panneaux, chaque panneau étant connecté à au moins l'un desdits deux panneaux adjacents avec ledit au moins un connecteur articulé flexible; et un joint d'étanchéité fixé à un bord de au moins un de ladite paire supplémentaire de panneaux et fonctionnant pour sceller ladite paire supplémentaire de panneaux.

13. Enceinte de douche selon la revendication 1, comprenant en outre une boîte à plateaux recevant les bords inférieurs desdits panneaux.

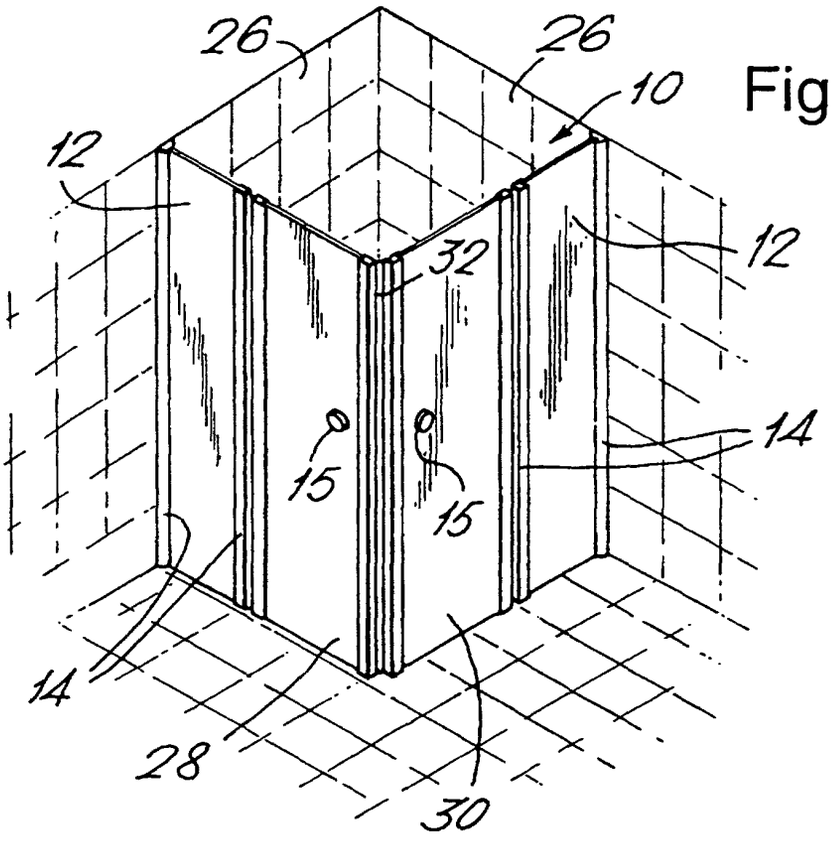

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Fig.1.

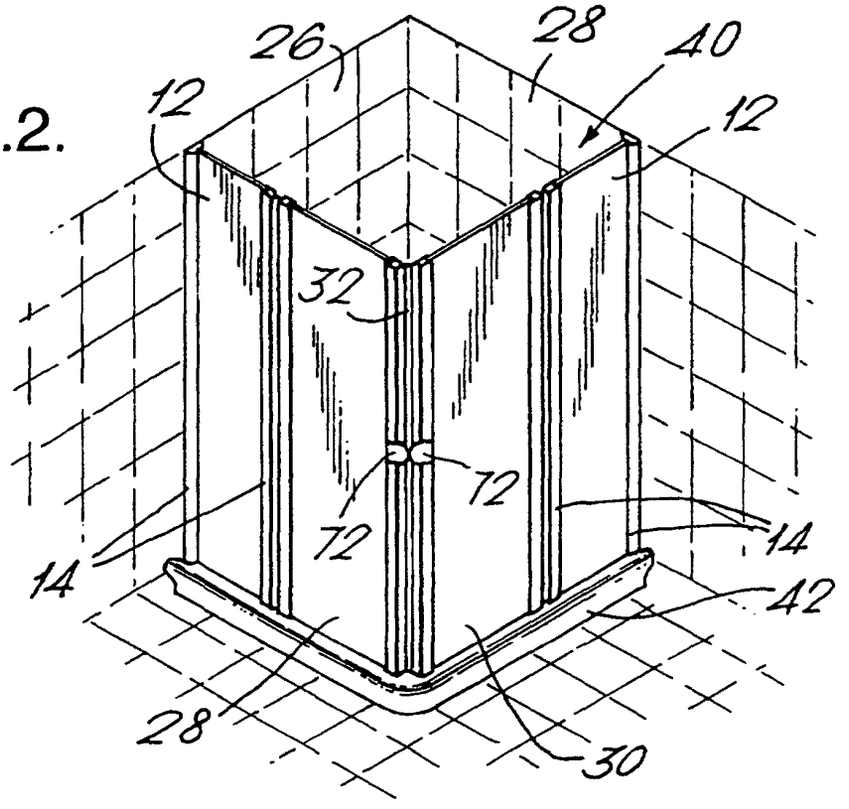

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Fig.2.

Fig.3.

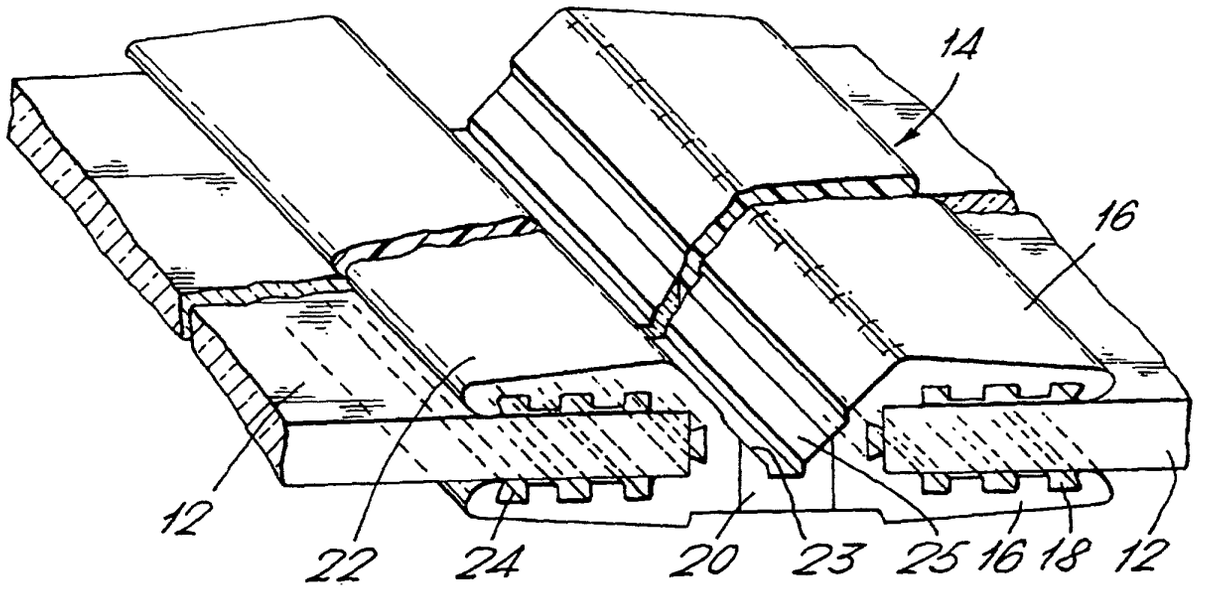


Fig.4.

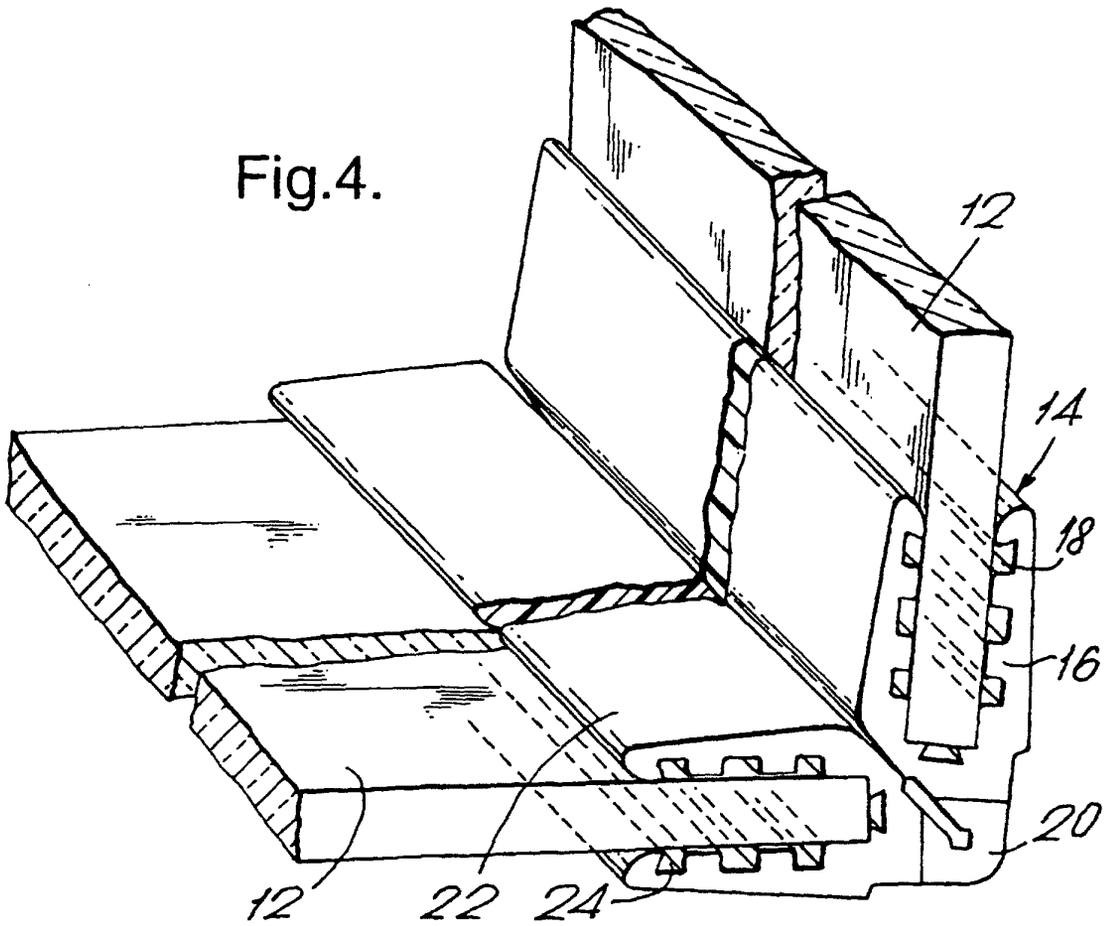


Fig.5.

