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(71) Applicant (for all designated States except US): **AMC DESIGN HOUSE LTD** [GB/GB]; Hothouse, 274 Richmond Road, London Fields, London E8 3QW (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CLARK, Asher, M.** [GB/GB]; AMC Design House Ltd, Hothouse, 274 Richmond Road, London E8 3QW (GB). **SAUNDERS-SINGER, George** [GB/GB]; Hotcakes, Hotcakes Studio, Singer Instrument Co Ltd, Watchet Somerset TA23 0RE (GB).

(74) Agents: **GREY, Ian** et al.; 20 Little Britain, London EC1A 7DH (GB).

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(54) Title: A SHELF AND SHELVING SYSTEM

(57) Abstract: A shelf comprising a first shelf mounting element configured to be positioned against and be connected to the surface of an upright to which the shelf is to be attached, a shelf member extending from an edge of the first shelf mounting element and upon which items to be supported by the shelf are placed, a shelf support element extending from a foremost edge of said shelf member remote from the first shelf mounting element, and a second shelf mounting element depending from an edge of the shelf support element remote from the shelf member configured to be positioned against and be connected to said surface of the upright spaced from the first shelf mounting element such that, when the shelf is mounted to said surface of the upright, the shelf member extends outwardly from the first shelf mounting element away from the upright surface and the shelf support element extends from the foremost edge of the shelf member towards the upright surface at an angle relative to the shelf member.



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A shelf and shelving system

Description

5 The present invention relates to a shelf. The present invention also relates to a blank for a shelf and a shelving system comprising a shelf, an upright support and means for mounting the shelf to the upright support.

Shelves generally comprise a shelf member upon which items to be supported are
10 placed and a mounting element to mount a shelf to an upright support, such as a wall or display board. Commonly, the mounting element comprises at least a pair of brackets which are fixedly mounted to the upright support and extend outwardly therefrom, the shelf member being disposed on the brackets such that it extends therebetween. However, this arrangement has a number of disadvantages in that the
15 brackets are unsightly and a number of components are required, including a shelf member, a pair of brackets, mounting means to mount the brackets to the wall and mounting means to mount the shelf member to the pair of brackets.

Shelves are commonly used to display goods, such as shoes or clothing, in a retail
20 environment such as at a fashion exhibition or a shop. The appearance of the shelves is therefore an important consideration, because it is essential to display the goods in the most effective manner possible. There is also a need to display a plurality of shelves in an attractive manner, and in different and unique
arrangements.

25 Furthermore, shows and exhibitions, as well as displays in shops, are generally temporary and so there is a need to be able to simply and easily assemble and dismantle the shelves. One solution to this problem is to use brackets with hooks which locate in preformed holes formed in upright supports. However, such
30 brackets do not stably locate against the support and are unsightly. Due to the temporary nature of the shelving, there is also a need for a shelf which is cheap, disposable and which may be produced from environmentally friendly materials.

The present invention seeks to provide a shelf and/or shelving system that overcomes or substantially alleviates the problems with conventional shelves referred to above and removes the need for separate brackets to support the shelf.

5 According to the present invention, there is provided a shelf comprising a first shelf mounting element configured to be positioned against and be connected to the surface of an upright to which the shelf is to be attached, a shelf member extending from an edge of the first shelf mounting element and upon which items to be supported by the shelf are placed, a shelf support element extending from a
10 foremost edge of said shelf member remote from the first shelf mounting element, and a second shelf mounting element depending from an edge of the shelf support element remote from the shelf member configured to be positioned against and be connected to said surface of the upright spaced from the first shelf mounting element such that, when the shelf is mounted to said surface of the upright, the
15 shelf member extends outwardly from the first shelf mounting element away from the upright surface and the shelf support element extends from the foremost edge of the shelf member towards the upright surface at an angle relative to the shelf member.

20 Preferably, the first shelf mounting element and the shelf member are foldable relative to each other about said edge of the first shelf mounting element.

Further, the shelf member and the shelf support element may be foldable relative to each other about said foremost edge of the shelf member and the second shelf
25 mounting element and shelf support element may be foldable relative to each other about said edge of the shelf support element.

Alternatively, the shelf member, shelf support element and first and second shelf mounting elements extend in the same plane prior to folding to form a shelf.

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In a preferred embodiment, at least one of the first or second shelf mounting elements is a sheet of material with a mounting face and said mounting face is configured to be positioned against said surface of the upright.

Advantageously, the shelf member and the shelf support element are sheets of material. Preferably, they are formed from an integral sheet of material.

- 5 In one embodiment, the second shelf mounting element and shelf support element are formed from an integral sheet of material. In another embodiment, the shelf member and shelf support element are formed from an integral sheet of material.

10 The shelf may be formed from an integral sheet of material and each sheet of material may be formed from corrugated cardboard.

Advantageously the shelf is configured such that opposing side edges of the shelf member, shelf support element and first and second shelf mounting elements extend along a pair of parallel vertically extending planes and the foremost edge of
15 the shelf member extends at an incline with respect to a horizontal plane when the shelf is connected to the surface of the upright.

Preferably the shelf is configured such that the foremost edge of said shelf member tapers towards the surface of the upright along its length when the shelf is
20 connected to the surface of the upright.

The shelf may further comprise mounting holes extending through at least one of the first and second shelf mounting elements.

- 25 Advantageously, the shelf comprises attachment pegs extendable through said mounting holes such that said attachment pegs are fixedly mountable in corresponding apertures formed in said surface of the upright to connect at least one of said first and second shelf mounting elements thereto.

30 According to another aspect of the present invention, there is provided a blank for a shelf.

According to yet another aspect of the invention there is provided a shelving system comprising an upright support with a surface, a shelf and mounting means for attaching the shelf to the support.

- 5 The mounting means may further comprise mounting holes formed through the first and second shelf mounting elements, corresponding apertures formed in said surface of the upright and attachment pegs extendable through said mounting holes for fixedly mounting in said corresponding apertures.
- 10 Preferably, a plurality of apertures are formed in the surface of the upright such that said shelf is positionable and connectable to the surface of the upright in a plurality of locations.

Conveniently, side edges of the shelf member, shelf support element and first and
15 second shelf mounting elements of a first shelf are configured to align with and locate against side edges of the shelf member, shelf support element and first and second shelf mounting elements of an adjacent shelf when said shelves are positioned against and connected to the surface of an upright.

- 20 In one embodiment, the shelf member of the second shelf is configured to extend from the shelf member of the first shelf at an angle relative to the shelf member of the first shelf.

Preferably, the foremost edge of the shelf member of the second shelf is configured
25 to extend toward the surface of the upright from the shelf member of the first shelf at an angle relative to the foremost edge of the shelf member of the first shelf.

Conveniently, the upright support comprises a support board and adjustment means
30 means being locatable on a surface, the adjustment means being configured to move the end of the adjustment means toward and away from the lower edge of the support board such that, when said end of the adjustment means is located on said surface, the support board is movable towards and away from said surface.

Preferably, the adjustment means further comprises at least two adjustment feet which extend from a lower edge of the support board.

5 The shelving system may further comprise a bracket mounted to the support board and a mounting rail mountable to an upstanding surface, the bracket being slidably mountable to the mounting rail such that the support board is disposed in an upright position and the bracket can slide relative to the mounting rail when the support board is moved towards and away from said surface.

10

Advantageously, the shelving system according further comprises a plurality of support boards configured to abut against each other, wherein the adjustment means is configured to move at least one support board relative to an adjacent support board such that the adjacent support boards may be aligned with each other
15 and a shelf may be mounted to extend between said adjacent support boards.

Embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

20 FIGURE 1 is a perspective view of a shelf according to an embodiment of the invention mounted to an upright support;

FIGURE 2 is an exploded view of the shelf and upright support as shown in Figure 1;

FIGURE 3 is a plan view from above of the shelf as shown in Figure 1;

25 FIGURE 4 is a front view of the shelf as shown in Figure 1;

FIGURE 5 is a side view of the shelf as shown in Figure 1;

FIGURE 6 is a plan view of a blank for the shelf as shown in Figure 1;

FIGURE 7 is a plan view of an angled shelf according to another embodiment of the invention;

30 FIGURE 8 is a front view of the angled shelf as shown in Figure 7;

FIGURE 9 is a side view of the angled shelf as shown in Figure 7;

FIGURE 10 is a plan view of a blank for the angled shelf as shown in Figure 7;

- FIGURE 11 is a plan view of another angled shelf according to a further embodiment of the invention;
- FIGURE 12 is a front view of the angled shelf as shown in Figure 11;
- FIGURE 13 is a side view of the angled shelf as shown in Figure 11;
- 5 FIGURE 14 is a plan view of a blank for the angled shelf as shown in Figure 11;
- FIGURE 15 is a plan view of a corner shelf according to a further embodiment of the invention;
- FIGURE 16 is a front view of the corner shelf as shown in Figure 15;
- FIGURE 17 is a side view of the corner shelf as shown in Figure 15;
- 10 FIGURE 18 is a plan view of a blank for the corner shelf as shown in Figure 15;
- FIGURE 19 is a plan view of a tapered shelf according to another embodiment of the invention;
- FIGURE 20 is a front view of the tapered shelf as shown in Figure 19;
- FIGURE 21 is a side view of the tapered shelf as shown in Figure 19;
- 15 FIGURE 22 is a plan view of a blank for the tapered shelf as shown in Figure 19;
- FIGURE 23 is a plan view of another tapered shelf according to a further embodiment of the invention;
- FIGURE 24 is a front view of the tapered shelf as shown in Figure 23;
- FIGURE 25 is a side view of the tapered shelf as shown in Figure 23;
- 20 FIGURE 26 is a plan view of a blank for the tapered shelf as shown in Figure 23;
- FIGURE 27 is a plan view of another tapered shelf according to a further embodiment of the invention;
- FIGURE 28 is a front view of the tapered shelf as shown in Figure 27;
- FIGURE 29 is a side view of the tapered shelf as shown in Figure 27;
- 25 FIGURE 30 is a plan view of a blank for the tapered shelf as shown in Figure 27;
- FIGURE 31 is a perspective view from above of a shelving system comprising shelves in accordance with the present invention;
- FIGURE 32 is a front perspective view of the shelving system as shown in Figure 31;
- 30 FIGURE 33 is another perspective view of the shelving system as shown in Figure 31;
- FIGURE 34 is a further perspective view of the shelving system as shown in Figure 31;

FIGURE 35 is a perspective view of an attachment pin as shown in Figure 1;
FIGURE 36 is a rear view of a number of upright supports as shown in Figure 1;
FIGURE 37 is a side view of one of the upright supports as shown in Figure 36;
FIGURE 38 is a side view of one of the upright supports as shown in Figure 37
5 mounted to an upstanding surface;
FIGURE 39 is a mounting rail as shown in Figure 38; and
FIGURE 40 is a foot rail as shown in Figure 38.

Referring now to the drawings, a shelf 1 and an upright support 2 are shown in
10 Figure 1, wherein the shelf 1 is mounted to the upright support 2 by means of
attachment pins 3 such that items to be supported (not shown) are mountable on
the shelf 1.

The upright support 2 comprises a support board 4 with a plurality of apertures 5
15 formed therein. The support board 4 may be formed from a number of known
materials, such as plyboard, medium density fibreboard (MDF) or a plastic. Such a
support board 4 is supported by a pair of vertical posts (not shown) between which
the support board 4 extends. The plurality of apertures 5 are formed at
predetermined, regular intervals such that they are arranged in equally spaced,
20 parallel rows.

However, it will be appreciated by a person skilled in the art that the upright
support 2 is not limited to the above described arrangement and that a shelf may be
mounted to a wall or other surface (not shown) as will become apparent hereinafter.

25 A first embodiment of the shelf 1 is shown in Figures 1 to 6. The shelf 1 comprises
a shelf member 6, a shelf support element 7, a first shelf mounting element 8 and a
second shelf mounting element 9. The shelf 1 is formed from an integral sheet of
material, which in this embodiment is formed from corrugated cardboard, although
30 the invention is not limited thereto and the shelf may be formed from foldable sheet
plastic or the like. A first blank 10 for the shelf 1 is shown in Figure 6. The first
blank 10 is formed in a rectangular shape, although it will be apparent that a shelf

blank may be formed in a number of shapes to form alternative shelf arrangements as will be described hereinafter with reference to Figures 7 to 34.

Fold lines 11,12,13 divide the blank into the shelf member 6, shelf support element
5 7, first shelf mounting element 8 and second shelf mounting element 9. The first shelf mounting element 8 extends from one edge of the shelf member 6 along the first fold line 11 and is rotatable thereabout. The first shelf mounting element 8 extends from the first fold line 11 and is shorter than the shelf member 6 in a transverse direction to the first fold line 11, although the invention is not limited
10 thereto and the size of the first shelf mounting element 8 is dependent on mounting means for mounting the first shelf mounting element 8 to the upright support 2.

In the present exemplary embodiment, the first shelf mounting element 8 comprises four mounting holes 14a,14b which extend therethrough from a front face 15 of the
15 first shelf mounting element 8 to a rear face 16 thereof. Each mounting hole 14a,14b is disposed proximate to a corner of the first shelf mounting element 8 and is aligned to correspond with the relative position of the apertures 5 formed in the support board 4, for reasons that will become apparent hereinafter.

20 The perpendicular distance between the centre of each mounting hole 14a,14b and a side edge 19,20 of the first shelf mounting element 8 is half the distance between adjacent apertures 5 formed in the support board 4 so that a pair of shelves 1 may be mounted adjacent to each other on the support board 4 to give the appearance of a continuous shelf, as will be explained hereinafter. Similarly, two upper mounting
25 holes 14a are formed such that the perpendicular distance between the centre of each mounting hole 14a and an upper edge 18 of the first shelf mounting element 8, remote from the first fold line 11, is half the distance between adjacent apertures 5 formed in the support board 4 so that a pair of shelves 1 may be mounted in a vertical arrangement, as will become apparent hereinafter.

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Although four mounting holes are shown, it will be appreciated that in another embodiment a different arrangement and number of holes may be utilised.

The shelf support element 7 extends from one edge of the shelf member 6 along the second fold line 12 and is rotatable thereabout. The shelf support element 7 is longer than the shelf member 6 in a transverse direction to the second fold line 12, such that when the shelf member 6 extends outwardly from the first shelf mounting
5 element 8, away from the support board 4, as will be explained hereinafter, the shelf support element 7 extends from a foremost edge, defined by the second fold line 12, towards the upright support 2 at an angle relative to the shelf member 6, to support the shelf member 6.

10 The second shelf mounting element 9 extends from one edge of the shelf support element 7 along the third fold line 13 and is rotatable thereabout. The size of the second shelf mounting element 9 is determined by the mounting means for mounting the second shelf mounting element 9 to the upright support 2.

15 In the present exemplary embodiment, the second shelf mounting element 9 comprises two mounting holes 21 which extend therethrough from a front face 22 of the first shelf mounting element to a rear face 23. Each mounting hole 19 is disposed proximate to a corner of the second shelf mounting element 9 and is aligned to correspond with the relative position of the apertures 5 formed in the
20 support board 4, for reasons that will become apparent hereinafter.

Similarly to the first shelf mounting element 8, the perpendicular distance between the centre of each mounting hole 19 and each of a lower edge 24 and side edges 25,26 of the second shelf mounting element 8 is half the distance between adjacent
25 apertures 5 formed in the support board 4 so that a pair of shelves 1 may be mounted adjacent to each other on the support board 4 to give the appearance of a continuous shelf, as will be explained hereinafter.

Another embodiment of the invention will now be described with reference to
30 Figures 7 to 10. In this embodiment the shelf is generally formed the same as the above embodiment and so a detailed description will be omitted. However in this embodiment an inclined shelf 29 is formed from a second blank 30 and comprises a shelf member 31 with a first shelf mounting element 32 extending from one edge

thereof along the first fold line 11 which is rotatable thereabout. In this embodiment the shelf member 31 is identical to the previous shelf member 6, however the first shelf mounting element 32 is parallelogram shaped. Similarly, a shelf support element 33 extends from one edge of the shelf member 31 and a
5 second shelf mounting element 34 extends from the shelf support element 33 and each of the shelf support element 33 and second shelf mounting element 34 are parallelogram shaped. The shelf member 31, first shelf mounting element 32, shelf support element 33 and second shelf mounting element 34 are formed such that when the inclined shelf 29 is mounted to the support board 4, side edges
10 35,36,37,38 of the shelf member 31, first shelf mounting element 32, shelf support element 33 and second shelf mounting element 34 respectively align on the same plane. Therefore, the shelf member 31 extends at an angle other than 90 degrees to the plane defined by the side edges 35,36,37,38 such that the shelf member 31 is inclined at an angle relative to a horizontal plane when the shelf is mounted, as will
15 become apparent hereinafter.

A further embodiment of the invention is shown in Figures 11 to 14. This embodiment is generally the same as the embodiment of the inclined shelf described above with reference to Figures 7 to 10, and so extensive description of this
20 embodiment will be omitted. However, in this embodiment, another inclined shelf 40 is formed from a third blank 41 and includes a shelf member 42, first shelf mounting element 43, shelf support element 44 and second shelf mounting element 45 such that the shelf member 42 is inclined at a greater angle to the horizontal plane when the shelf is mounted compared to the above embodiment, as will
25 become apparent herein after.

Another embodiment of the invention will now be described with reference to Figures 15 to 18. This embodiment of a shelf is generally the same as the above described embodiments, however in this embodiment a corner shelf 50 is formed
30 from a fourth blank 51 and includes a shelf member 52, first shelf mounting element 53, shelf support element 54 and second shelf mounting element 55. When said corner shelf 50 is positioned against and connected to the support board 4, a vertically extending plane defined by side edges 56,57,58,59 of the shelf member 52,

first shelf mounting element 53, shelf support element 54 and second shelf mounting element 55 respectively extends at an angle of 45 degrees from the support board 4 so that an opposing corner shelf 50 formed by mounting the blank 51 in a mirrored arrangement is mountable to form a continuous corner arrangement with the side edges 56 of each shelf member 52 of each corner shelf aligning with each other, as will be explained hereinafter. Similarly the side edges 57,58,59 of the first shelf mounting element 53, shelf support element 54 and second shelf mounting element 55 align and locate adjacent to a corresponding side edge of the adjacent corner shelf 50.

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A further embodiment of the invention is shown in Figures 19 to 22. In this embodiment a tapered shelf 60 is generally formed the same as the above described embodiments and so a detailed description will be omitted herein. However the tapered shelf 60 formed from a fifth blank 61 is configured such that a foremost edge of a shelf member 62 defined by the second fold line 12 tapers towards the surface of the support board 4 of the upright support 2 when the tapered shelf 60 is mounted thereon.

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The tapered shelf 60 comprises the shelf member 62 with a first shelf mounting element 63 extending from one edge thereof along the first fold line 11, rotatable thereabout. The shelf member 62 is formed as a trapezium such that first and second side edges 64,65 of the shelf member 62 extending between the first and second fold lines 11,12 have different lengths. As in previous embodiments, a shelf support element 66 extends from one edge of the shelf member 62 along the second fold line 12 and a second shelf mounting element 67 extends from the shelf support element 66 along the third fold line 13. Each of the shelf support element 66 and second shelf mounting element 67 are trapezoidal. In this embodiment the first side edge 64 has a length corresponding to the length of the side edges of the shelf members 6,31,42,52 of the above described embodiments.

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Another embodiment of the invention is shown in Figures 23 to 26. This embodiment is generally the same as the embodiment of the first tapered shelf 60 described above with reference to Figures 19 to 22, and so an extensive description

of this embodiment will be omitted. However, in this embodiment, a second tapered shelf 70 is formed from a sixth blank 71 and includes a shelf member 72, first shelf mounting element 73, shelf support element 74 and second shelf mounting element 75, wherein first and second side edges 76,77 of the shelf member 72 have differing
5 lengths such that the foremost edge of the shelf member 72 defined by the second fold line 12 tapers towards the surface of the support board 4 of the upright support 2 when the second tapered shelf 70 is mounted thereon. The first side edge 76 has a length corresponding to the length of the second side edge 65 of the first tapered shelf 60.

10

Yet another embodiment of the invention is shown in Figures 27 to 30. This embodiment is generally the same as the embodiments of the first and second tapered shelves 60 described above with reference to Figures 19 to 22 and 23 to 26, and so an extensive description of this embodiment will be omitted. However, in
15 this embodiment, a third tapered shelf 80 formed from a seventh blank 81 includes a shelf member 82, first shelf mounting element 83, shelf support element 84 and second shelf mounting element 85. The shelf member 82 is formed with a first side edges 86 and the foremost edge of the shelf member 82 defined by the second fold line 12 tapers to meet the first fold line 11 to form a point 87 on the opposing edge
20 of the seventh blank 81, such that the foremost edge tapers to meet the surface of the support board 4 of the upright support 2 when the third tapered shelf 80 is mounted thereon. The first side edge 86 has a length corresponding to the length of the second side edge 75 of the second tapered shelf 70.

25 Each of the tapered shelves is formed such that the foremost edge of the shelf member tapers towards the surface of the support board 4 of the upright support 2 at the same angle when each is mounted thereto.

An attachment pin 3 for fixedly mounting a shelf to the surface of the support
30 board 4 is shown in Figure 35. The attachment pin 3 comprises a shaft portion 90 and a head portion 91 disposed at one end of the shaft portion 90. A circumferentially extending inclined portion 92 is formed at the distal end of the shaft 91 to help align and locate the shaft portion 90 in each of the mounting holes

14a,14b,19 and corresponding apertures 5, as will be explained hereinafter. A plurality of resilient elements 93 extend circumferentially around the shaft portion 90 and each resilient element 92 comprises an angled face 94 extending outwardly from an outer surface 95 of the shaft portion 90 towards the head portion 91 and a rear face 94 extends perpendicularly from the shaft outer surface 95 to an outer edge of the angled face 94.

Although the shelving system is shown comprising seven modules, namely a basic shelf module 1, two inclined shelf modules 29,40, a corner shelf module 50 and three tapered shelf modules 60,70,80 it will be understood that the invention is not limited thereto and that a number of different shelf modules are possible that fall within the scope of the invention.

An operation of mounting a shelf of the present invention to the upright support 2 will now be described with reference to Figures 1 and 2. The mounting of the shelf 1 to the upright support 2 will be described with reference primarily to the first exemplary embodiment shown in Figures 1 to 6, as well as reference to Figures 31 and 32 to 34, although it will be understood that such teaching also applies to each of the above described embodiments of the invention.

When the shelf 1 is not mounted to the surface of the support board 4, the elements of the shelf extend along the same plane such that a plurality of shelves 1 are stackable and easily stored, transported and packaged. Fold lines 11,12,13 are preformed in the shelf blank 10 such that the shelf member 6, shelf support element 7 and first and second shelf mounting elements 8,9 are rotatable thereabout. To mount the shelf, the rear face 16 of the first shelf mounting element 8 is positioned against the surface of the support board 4 and the mounting holes 14a,14b are aligned with corresponding apertures 5 formed in the support board 4 such that the first shelf mounting element 8 is positioned in the desired location.

The shaft portion 90 of an attachment pin 3 is then inserted through each mounting hole 14a,14b formed in the first shelf mounting element 8 such that the shaft portion 90 extends therethrough, into the apertures 5 formed in the support board

4. The inclined surface 92 of the shaft portion 90 and angled face 94 of each resilient portion 93 helps to align and guide the shaft portion 90 therein. Each attachment pin 3 is inserted into the respective mounting hole 14a, 14b and aperture 5 by pushing the head portion 91 towards the support board 4 such that the
5 attachment pin is press fitted therein. The resilient portions 93 therefore urge against an inner surface of the aperture 5 to fixedly mount each attachment pin 3 therein. Therefore, the first shelf mounting element 8 is securely mounted between the surface of the support board 4 and the attachment pin 3.

10 The shelf member 6, shelf support element 7 and second shelf mounting element 8 are then manipulated relative to each other to arrange the shelf 1 in its assembled position. The shelf 1 is formed such that when the mounting holes 21 extending through the second shelf mounting element 9 are aligned with corresponding apertures 5 in the surface of the mounting board 4 to position the shelf 1, the shelf
15 support element 7 supports the foremost edge of the shelf member 6 remote from the surface of the support board 4 in a desired position. Attachment pins 3 are then inserted through the mounting holes 21 and into the apertures 5 to fixedly mount the second shelf support element 9 to the surface of the support board 4, as described above with reference to the first shelf mounting element 8.

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When the shelf 1 is fixedly mounted to the upright support 2 as hereinbefore described, the shelf member 6 extends horizontally, although the shelf member 6 may be arranged to extend at an angle dependent on the arrangement and shape of the shelf elements as will be understood from the above described embodiments.
25 Items (not shown) to be supported by the shelf 1 may then be placed on the shelf member 6 and will be supported by the shelf 1. The shelf member 6, and hence the items placed thereon (not shown), is supported by one edge of the shelf member being held in a fixed position by the first shelf support element 8 and the foremost edge of the shelf member 6 remote from the surface of the support board 4 being
30 supported by the shelf support member 7 being fixedly mounted by means of the second shelf mounting element 9. The shelf is therefore stably mounted and the moment acting on the shelf member about the fold line 11 is counteracted by the

shelf support member which extends from the foremost edge of the shelf member 6.

To disassemble the shelf, the attachment pins 3 are simply removed and the shelf 1
5 is removed from the surface of the support board 4 and folds flat.

Although in the Figures, the first and second shelf mounting elements 8,9 are shown mounted to extend outwardly from the shelf member 6 and shelf support element 7, the invention is not limited thereto and the shelf 1 may be mounted to
10 the surface of the support board 4, or other surface, with the first and second shelf mounting elements 8,9 extending inwardly such that they are disposed behind the shelf member 6 and shelf support element 7 when the shelf is mounted. This has the advantage in that the first and second shelf mounting elements 8,9 are hidden from view in use.

15 Referring to Figures 31 to 34, a plurality of shelves are shown mounted adjacent to each other to form a continuous shelving surface. The plurality of shelves may be mounted adjacent to each other, either in a vertical configuration or a horizontal configuration due to the positioning of the mounting holes 14,21 with respect to the
20 edges 18,19,20,24,25,26 of the first and second shelf mounting elements 8,9 as described above. Adjacent shelf member edges therefore align with each other to form a continuous shelving surface. The shelves are arrangable in to produce a unique arrangement by mounting different configurations of shelves. For example, a plurality of inclined shelves 29,40 may be arranged adjacent to each other to form a
25 continuous inclined surface 98 which extends between horizontal shelves 1 on different levels (refer to Figure 32). Similarly, a plurality of tapered shelves 60,70,80 may be arranged adjacent to each other to form a continuous tapered surface 99 which extends towards the mounting surface 4 of the upright support 2 (refer to Figure 31). However, it will be understood that the invention is not limited to these
30 exemplary arrangements and that a number of different arrangements are possible.

An advantage of the shelves described above is that the blanks are reversible such that the shelf may form a mirror image of itself by reversing the blank.

Although in this embodiment, the shelf is formed from an integral sheet of material which is folded about fold lines, to form the respective elements of the shelf 1, it will be understood that the invention is not limited thereto and that the shelf may
5 be formed from individual elements which are attached to each other along adjacent edges such that they are rotatable thereabout. For example, a flexible sheet may be used to mount adjacent elements with respect to each other but allow rotation about the opposing edges of the elements

10 In the above described embodiment, the shelf is fixedly mounted to an upright support 2. Although the upright support 2 may be formed from a single support board 4, it is envisaged that in another embodiment the upright support 2 is formed from a plurality of support boards 4, so that the upright support is modular and the plurality of support boards 4 may be positioned in a number of desired
15 arrangements. The plurality of support boards 4 may be positioned adjacent to each other to form an upright support 2.

An upright support 2 formed from six support boards 4 is shown in Figure 36. Each support board 4 has a plurality of apertures 5 formed therein and is formed from a
20 number of known materials, such as plyboard, medium density fibreboard (MDF) or a plastic. The plurality of apertures 5 are formed at predetermined, regular intervals such that they are arranged in equally spaced, parallel rows.

Each support board 4 has parallel side edges 100 against which an adjacent support
25 board abuts, and upper and lower edges 102, 103 against which an adjacent support board disposed above or below each board 4 respectively abuts. Mounting brackets 104 are fixedly mounted to a rear surface 101 of each support board 4.

Furthermore, a foot rail 105 with adjustment feet 106 extending therefrom is fixedly
30 mounted to the rear surface 104 of each support board 4 disposed proximate to the ground, to adjust the height of said support board 4.

The mounting brackets are shown in Figures 37 and 38, and each mounting bracket 104 is a steel plate which is formed to define a mounting portion 107, a slider

portion 108 extending parallel to and spaced from the mounting portion, and a spacer portion 109 which extends transversely between an edge of the mounting portion 107 and an edge of the slider portion 108.

5 The mounting portion 107 of each mounting bracket 104 is fixedly mounted to the rear surface 101 of the support board by conventional means, such as screws, and so no further explanation of the mounting will be given herein. The two mounting brackets 104 of each support board 4 are equally spaced from the lower edge 102 of said support board 4, proximal to the upper edge 10. When each mounting bracket
10 104 is fixedly mounted to the support board, the spacer portion 109 spaces the slider portion 108 away from the rear surface 101 of the support board 4 to define a gap which is arranged to receive a mounting rail 110 therein, as will be explained hereinafter.

15 The foot rail 105 is shown in Figure 40 and comprises a rectangular bar 111 with a lower face 112 and opposing side faces 113, 114. One side face 113 is fixedly mounted to the rear surface 101 of the support board by conventional means so that the lower face 112 lies along the lower edge 103 of the support board 4. A pair of support arms 115 extend from the opposing side face 114 of the rectangular bar
20 111 and a threaded bore 116 (refer to Figure 36) is formed at each end of the foot rail 105, extending into said bar from the lower face 112 thereof. Each support board 4 has an individual foot rail 105 fixedly mounted to it, although it will be appreciated that in an alternative embodiment, each support board 4 may have two or more foot rails 105 mounted thereto.

25 Each adjustment foot 106 comprises a base 117 and a treaded shaft 118. The threaded shaft 118 threadingly engages in the threaded bore 116 of the foot rail 105 so that, when the adjustment foot is rotated, the base 117 moves towards, or away from, the lower face 112 of the foot rail 105.

30 The mounting rail 110 is shown in Figure 39 and comprises an elongate slide bar 119 with a support leg 120 extending from each end thereof. Mounting means 121 are formed on each support leg 120, distal to the elongate slide bar 119. The

mounting means 121 are conventional and are formed to fixedly mount the mounting rail 110 to an upstanding surface with respect to which the support board is to be mounted. The mounting rail 110 may be extendable, so that it extends along the length of a plurality of support boards 4. In this arrangement, the mounting rail
5 110 is formed from a number of elements, wherein a first element 110a has a support leg 120 at each end and then additional elements 110b have a support leg 120 at one end and a reduced section 123 at the distal end thereof, which is receivable in an opening in the end of the first, or another additional, element 110a, 110b to extend the mounting rail 110 to a desired length.

10

It will be appreciated that the support arms 115 of the foot rail 105 are equal in length to the support legs 120 of the mounting rail 110 so that, when each support board 4 is mounted to the upstanding surface, the rear surface 101 of the support boards 4 extends parallel to said upstanding surface.

15

Operation and arrangement of the upright support 2 is now described with reference to Figures 36 to 40. The arrangement of the upright support 2 is described with reference to multiple support boards which are disposed side-by-side, however it will be understood that the below description also applies to an upright support
20 with a single support board. It will also be appreciated that additional upright supports may be disposed to locate above support boards disposed side-by-side and abut their upper edge. With such an arrangement, the upper additional upright supports do not have adjustment feet 106 extending therefrom.

25 The mounting rail 110 is mounted to an upstanding surface, such as a wall, a predetermined distance from the surface on which the upright support 2 is to stand, such as a floor. The distance between the floor and the mounting rail 110 substantially corresponds to the distance from the base of the adjustment feet 106 and the mounting brackets 104 on each support board 4. The mounting rail 110 is
30 extended to the desired length by the addition of additional mounting rail elements 110b.

The support boards 4 are then mounted in position by standing each support board 4 on its corresponding adjustment feet 106 and locating the slider portion 108 of the mounting brackets 104 over the mounting rail 110, so that the mounting rail 110 is disposed in the gap between the slider portion 108 and the support board rear surface 101, and so the support boards 4 are held in place and prevented from falling over. The distal ends of the support arms 115 of the foot rail locate against the upstanding surface to ensure that the rear surface 101 of the support boards 4 is spaced equidistant from the surface and the boards 4 are then disposed in a vertical orientation.

10

Adjacent support boards 4 are disposed so that adjacent side edges 100 abut each other. The alignment of adjacent support boards 4 can then be altered by raising and lowering each support board 4 by rotating the each adjustment foot 106 so that the foot base 117 moves towards and away from the lower edge 103 of said support board 4. As the board 4 is raised and/or lowered the mounting bracket 104 slides relative to the mounting rail 110.

15

Once adjacent support boards 4 are aligned with each other, the shelves may then be mounted to the upright support as described above. However, in the above embodiment, wherein the upright support comprises a plurality of support boards, the support boards are adjusted to align with each other so that the shelves can extend across abutting support boards without misalignment.

20

Although in the above embodiment each support board has two mounting brackets 104 fixedly mounted thereto, it will be understood that in an alternative embodiment a single mounting bracket may be mounted to each support board, or more than two mounting brackets may be mounted to each support board.

25

Although in the above described exemplary embodiments the attachment pins are fixedly disposed in apertures 5 preformed in the surface of the support board 4, it will be understood that the invention is not limited thereto, and that holes may be formed as necessary by means of a power tool, such that the correct positioning of the shelf is ensured.

30

Although in the aforementioned exemplary embodiments, the shelf is mounted by means of attachment pins 3 as herein described extending through the mounting holes 14 of the first and second shelf mounting elements 8,9 to fixedly locate in the
5 apertures 5 formed in the support board 4 as described above, the invention is not limited thereto and the shelf may be mounted by alternative means. For example, a layer of adhesive may be applied to the rear face 16,23 of the first and second shelf mounting elements 8,9 which are then fixedly mounted to surface of the support
10 board 4 or other upright surface (not shown). Alternatively, pins or studs may be pressed through the front face 15,22 of the first and second shelf mounting elements 8,9 to fixedly mount the shelf.

Although embodiments of the invention have been shown and described, it will be appreciated by those skilled in the art that these are preferred embodiments only, and that changes may be made to these embodiments, or alternative embodiments are included, within the scope of the invention which is defined in the claims
15 hereafter.

Claims

1. A shelf comprising a first shelf mounting element configured to be positioned against and be connected to the surface of an upright to which the shelf is to be attached, a shelf member extending from an edge of the first shelf mounting element and upon which items to be supported by the shelf are placed, a shelf support element extending from a foremost edge of said shelf member remote from the first shelf mounting element, and a second shelf mounting element depending from an edge of the shelf support element remote from the shelf member configured to be positioned against and be connected to said surface of the upright spaced from the first shelf mounting element such that, when the shelf is mounted to said surface of the upright, the shelf member extends outwardly from the first shelf mounting element away from the upright surface and the shelf support element extends from the foremost edge of the shelf member towards the upright surface at an angle relative to the shelf member.
2. A shelf according to claim 1, wherein the first shelf mounting element and the shelf member are foldable relative to each other about said edge of the first shelf mounting element.
3. A shelf according to claim 1 or claim 2, wherein the shelf member and the shelf support element are foldable relative to each other about said foremost edge of the shelf member.
4. A shelf according to any of claims 1 to 3, wherein the second shelf mounting element and shelf support element are foldable relative to each other about said edge of the shelf support element.
5. A shelf according to any of claims 2 to 4, wherein the shelf member, shelf support element and first and second shelf mounting elements extend in the same plane prior to folding to form a shelf.

6. A shelf according to any preceding claim, wherein at least one of the first or second shelf mounting elements is a sheet of material with a mounting face and said mounting face is configured to be positioned against said surface of the upright.
- 5 7. A shelf according to any preceding claim, wherein the shelf member is a sheet of material.
8. A shelf according to any preceding claim, wherein the shelf support element is a sheet of material.
- 10 9. A shelf according to any preceding claim, wherein the first shelf mounting element and shelf member are formed from an integral sheet of material.
10. A shelf according to any of claims 1 to 8, wherein the second shelf mounting
15 element and shelf support element are formed from an integral sheet of material.
11. A shelf according to any preceding claim, wherein the shelf member and shelf support element are formed from an integral sheet of material.
- 20 12. A shelf according to any preceding claim, formed from an integral sheet of material.
13. A shelf according to any of claims 6 to 12, wherein the sheet of material is formed from corrugated cardboard.
- 25 14. A shelf according to any preceding claim, configured such that opposing side edges of the shelf member, shelf support element and first and second shelf mounting elements extend along a pair of parallel vertically extending planes and the foremost edge of the shelf member extends at an incline with respect to a
30 horizontal plane when the shelf is connected to the surface of the upright.

15. A shelf according to any preceding claim, configured such that the foremost edge of said shelf member tapers towards the surface of the upright along its length when the shelf is connected to the surface of the upright.

5 16. A shelf according to claim 6, further comprising mounting holes extending through at least one of the first and second shelf mounting elements.

17. A shelf according to claim 16, further comprising attachment pegs extendable through said mounting holes such that said attachment pegs are fixedly
10 mountable in corresponding apertures formed in said surface of the upright to connect at least one of said first and second shelf mounting elements thereto.

18. A shelf as substantially hereinbefore described, with reference to the accompanying drawings.

15 19. A blank for a shelf according to any of claims 1 to 16.

20. A shelving system comprising an upright support with a surface, a shelf according to any of claims 1 to 16 and mounting means for attaching the shelf to
20 the upright.

21. A shelving system according to claim 20, wherein the mounting means comprise mounting holes formed through the first and second shelf mounting elements, corresponding apertures formed in said surface of the upright and
25 attachment pegs extendable through said mounting holes for fixedly mounting in said corresponding apertures.

22. A shelving system according to claim 21, wherein a plurality of apertures are formed in said surface of the upright such that said shelf is positionable and
30 connectable to the surface of the upright in a plurality of locations.

23. A shelving system comprising a plurality of shelves according to any of claims 1 to 16 or combination of said claims, wherein side edges of the shelf

member, shelf support element and first and second shelf mounting elements of a first shelf are configured to align with and locate against side edges of the shelf member, shelf support element and first and second shelf mounting elements of an adjacent shelf when said shelves are positioned against and connected to the surface
5 of an upright.

24. A shelving system according to claim 23, wherein the shelf member of the second shelf is configured to extend from the shelf member of the first shelf at an angle relative to the shelf member of the first shelf.

10

25. A shelving system according to claim 23, wherein the foremost edge of the shelf member of the second shelf is configured to extend toward the surface of the upright from the shelf member of the first shelf at an angle relative to the foremost edge of the shelf member of the first shelf.

15

26. A shelving system according to any of claims 20 to 22, wherein the upright support comprises a support board and adjustment means extending from a lower edge of said support board with an end of the adjustment means being locatable on a surface, the adjustment means being configured to move the end of the
20 adjustment means toward and away from the lower edge of the support board such that, when said end of the adjustment means is located on said surface, the support board is movable towards and away from said surface.

27. A shelving system according to claim 26, wherein the adjustment means
25 further comprises at least two adjustment feet which extend from a lower edge of the support board.

28. A shelving system according to claim 27, further comprising a bracket mounted to the support board and a mounting rail mountable to an upstanding
30 surface, the bracket being slidably mountable to the mounting rail such that the support board is disposed in an upright position and the bracket can slide relative to the mounting rail when the support board is moved towards and away from said surface.

29. A shelving system according to any of claims 26 to 28, further comprising a plurality of support boards configured to abut against each other, wherein the adjustment means is configured to move at least one support board relative to an adjacent support board such that the adjacent support boards may be aligned with each other and a shelf may be mounted to extend between said adjacent support boards.

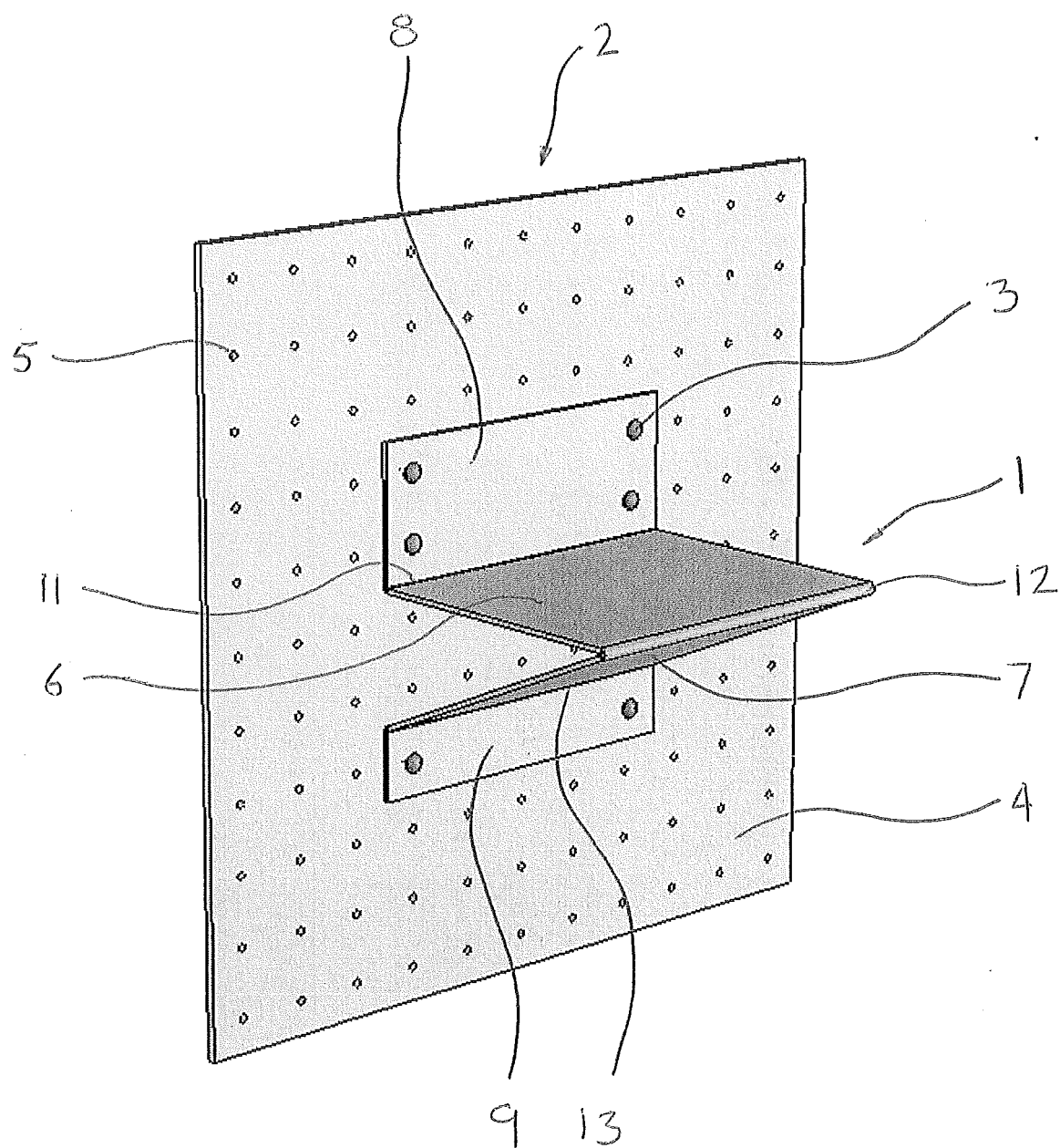


Figure 1

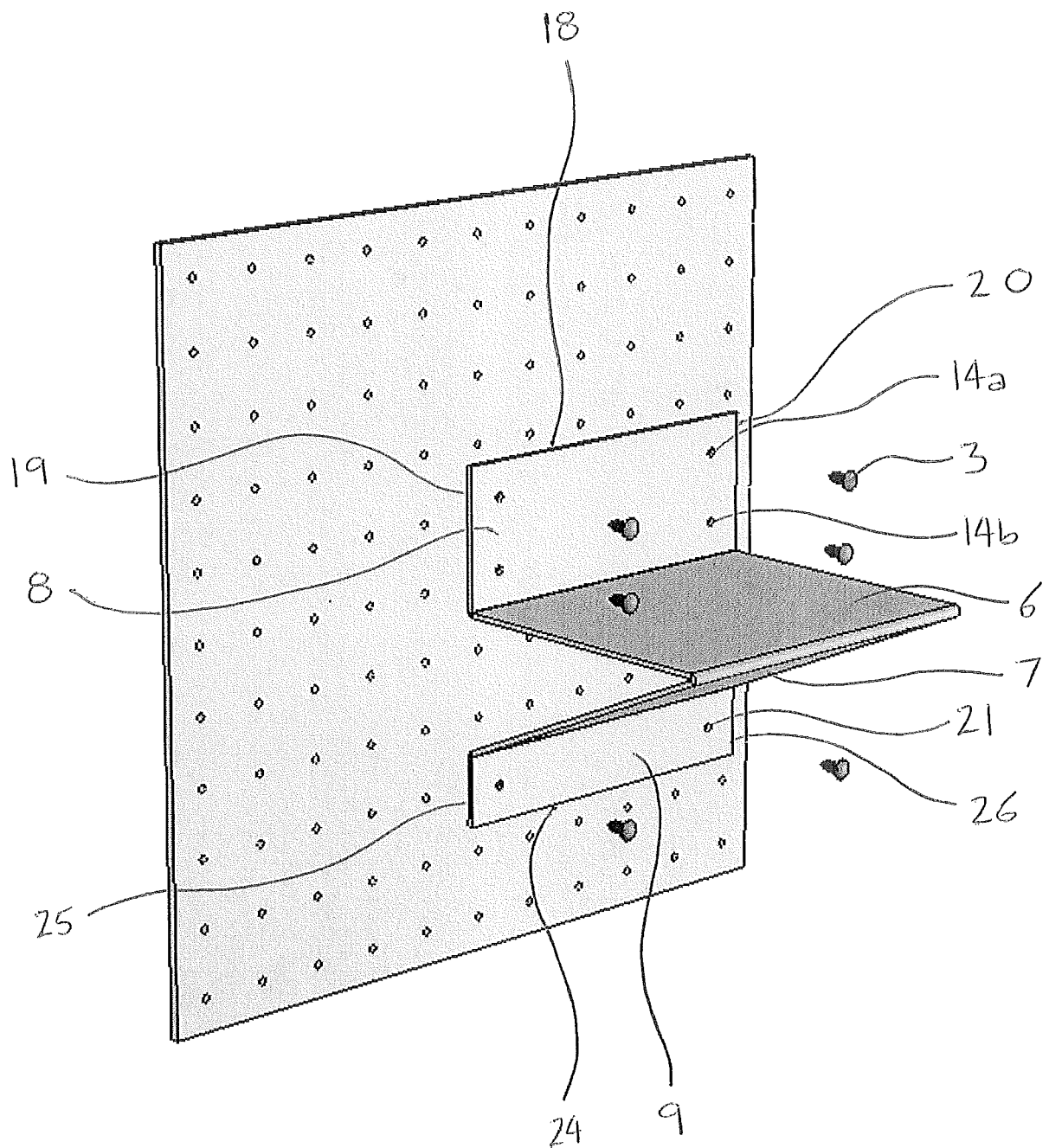


Figure 2

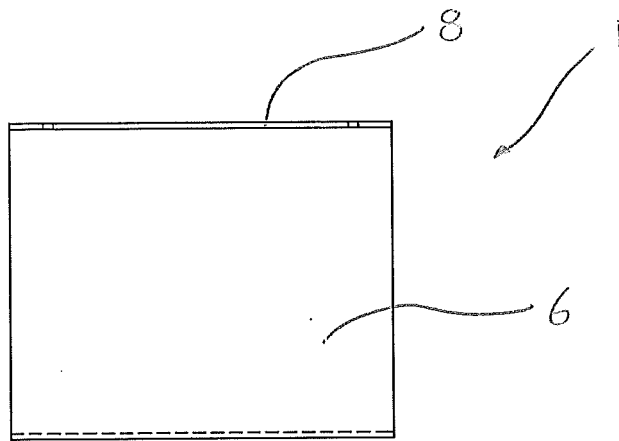


Figure 3

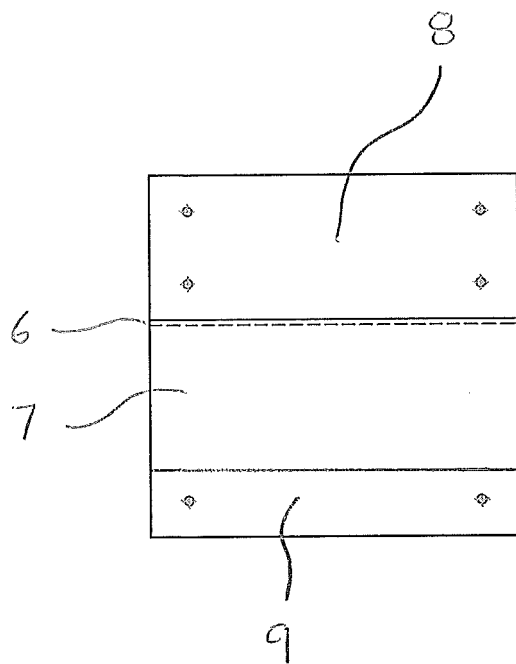


Figure 4

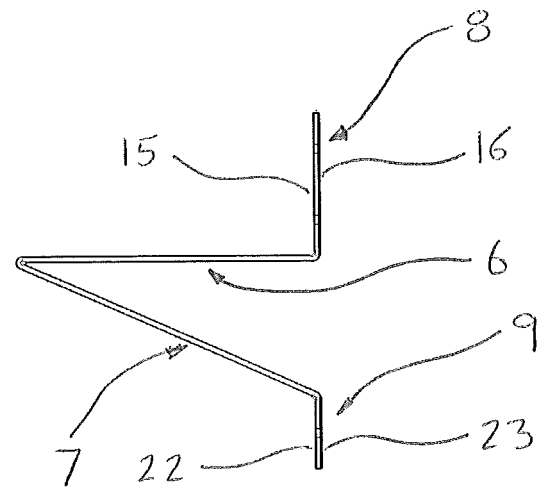


Figure 5

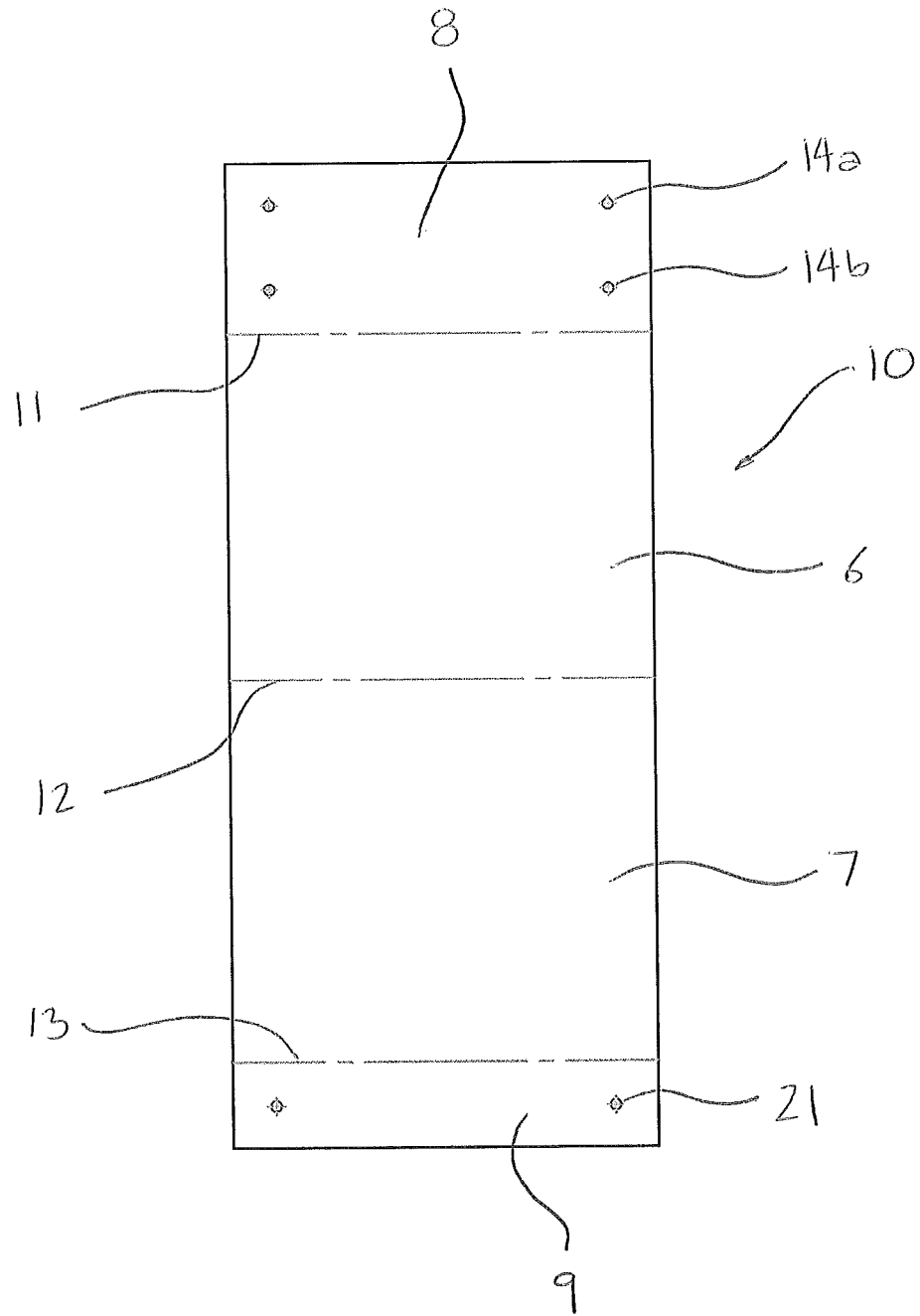


Figure 6

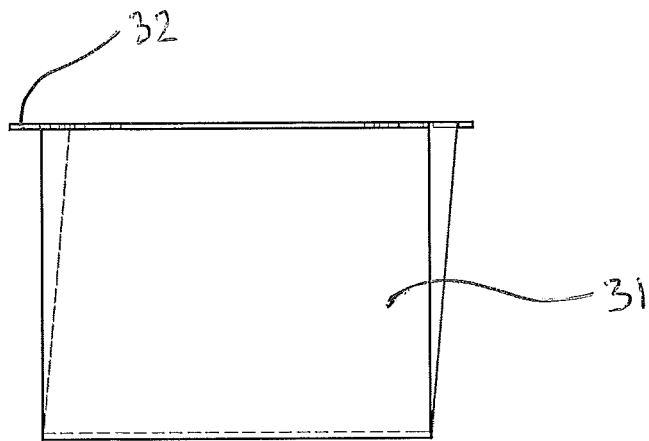


Figure 7

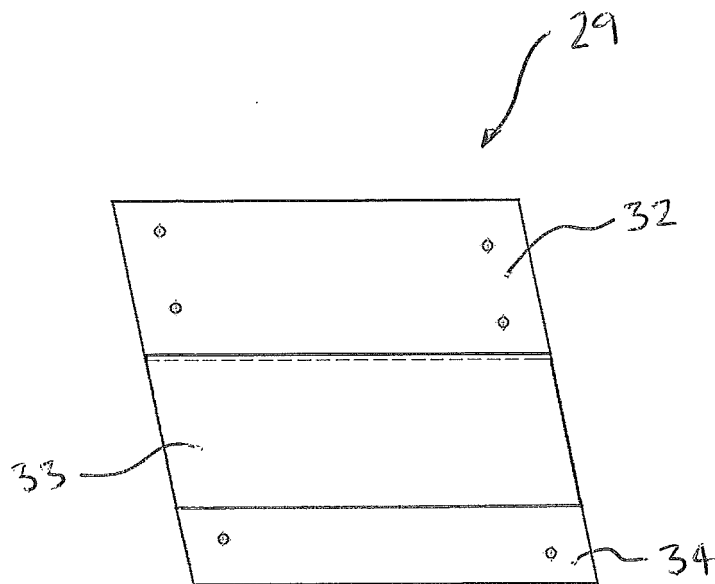


Figure 8

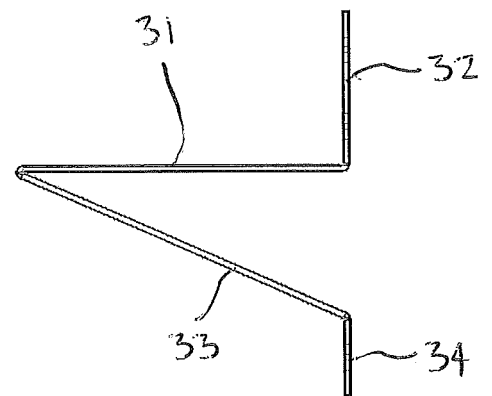


Figure 9

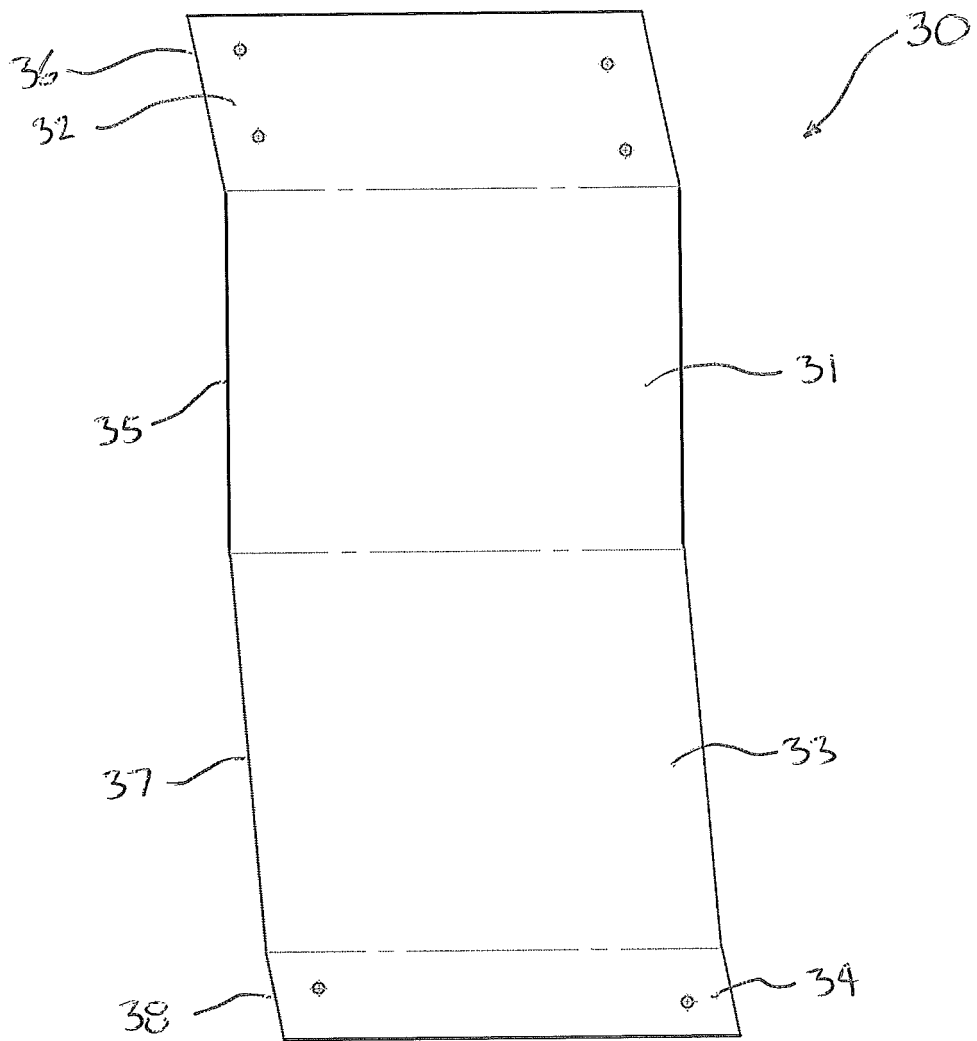


Figure 10

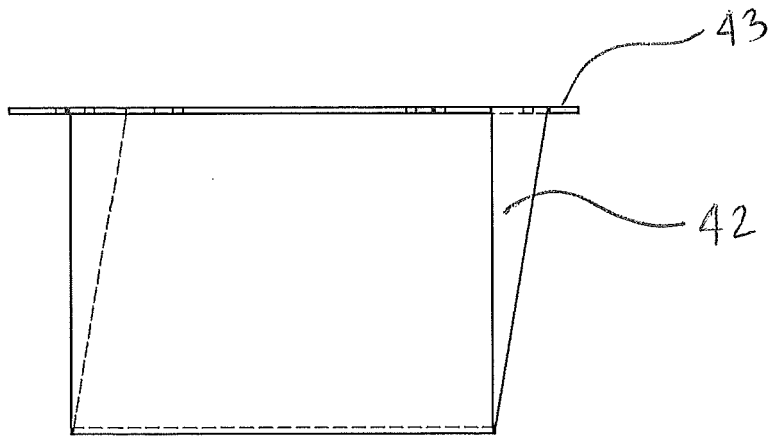


Figure 11

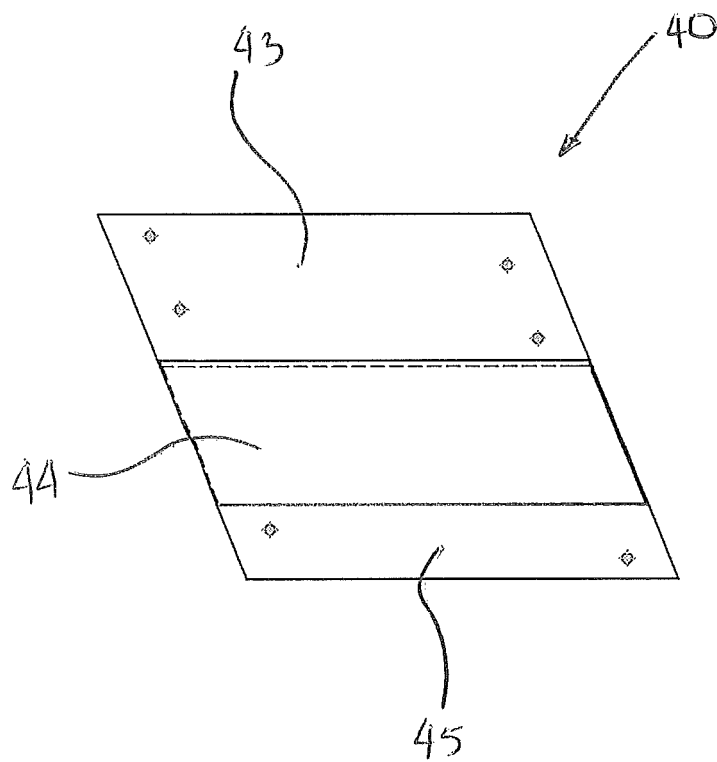


Figure 12

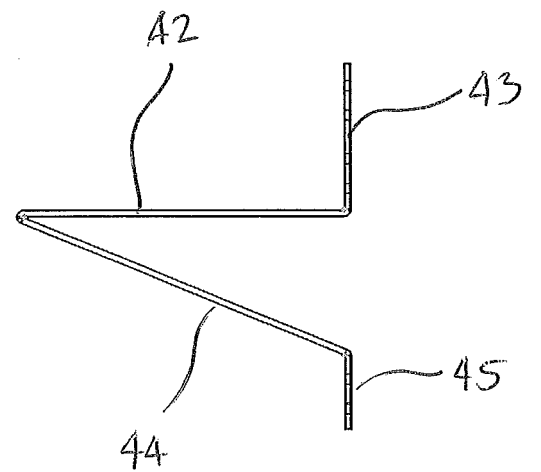


Figure 13

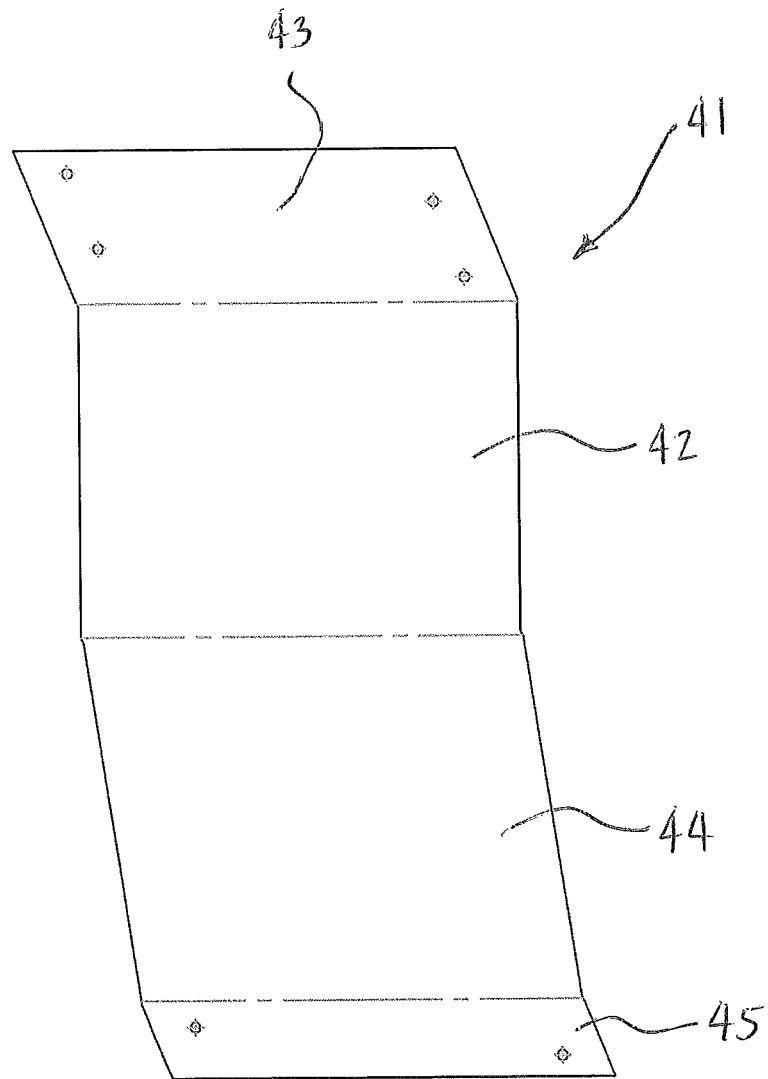


Figure 14

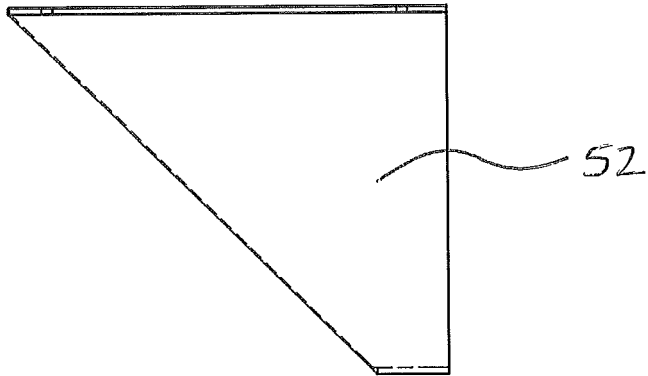


Figure 15

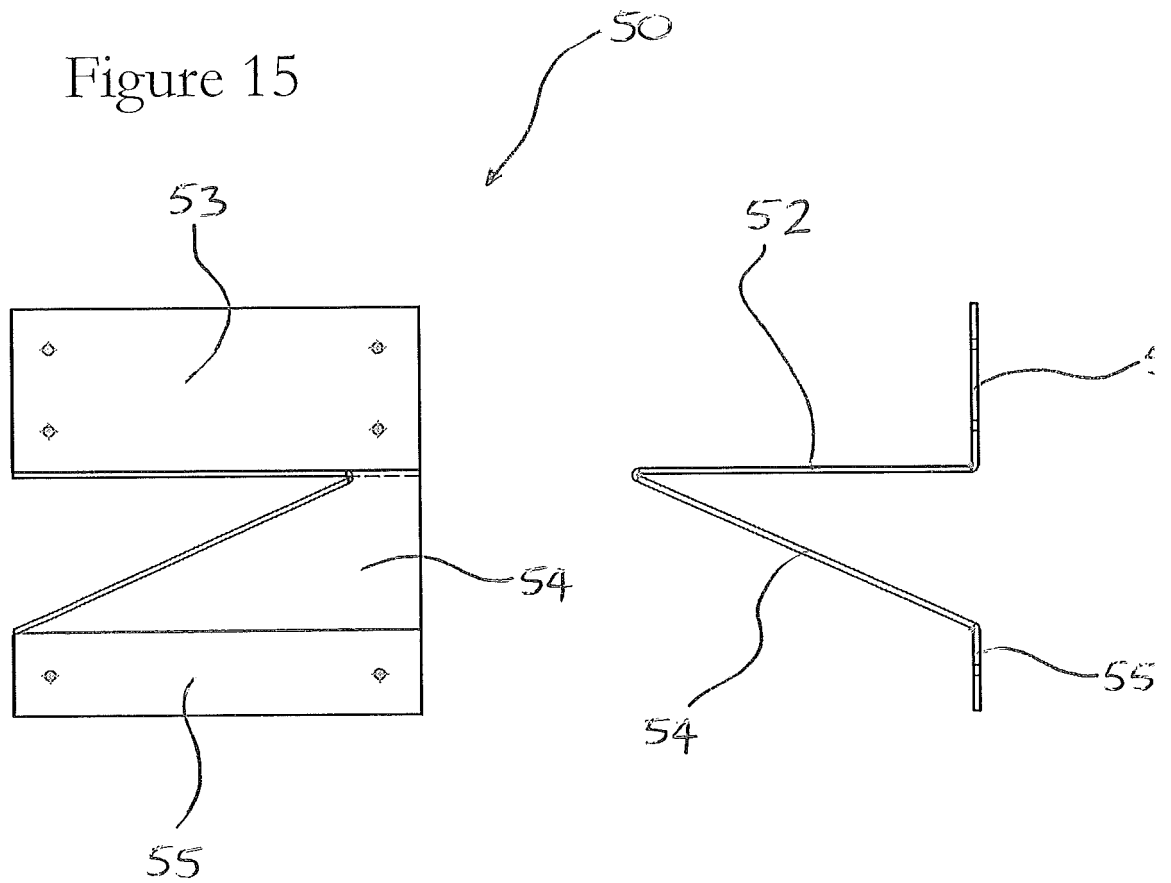


Figure 16

Figure 17

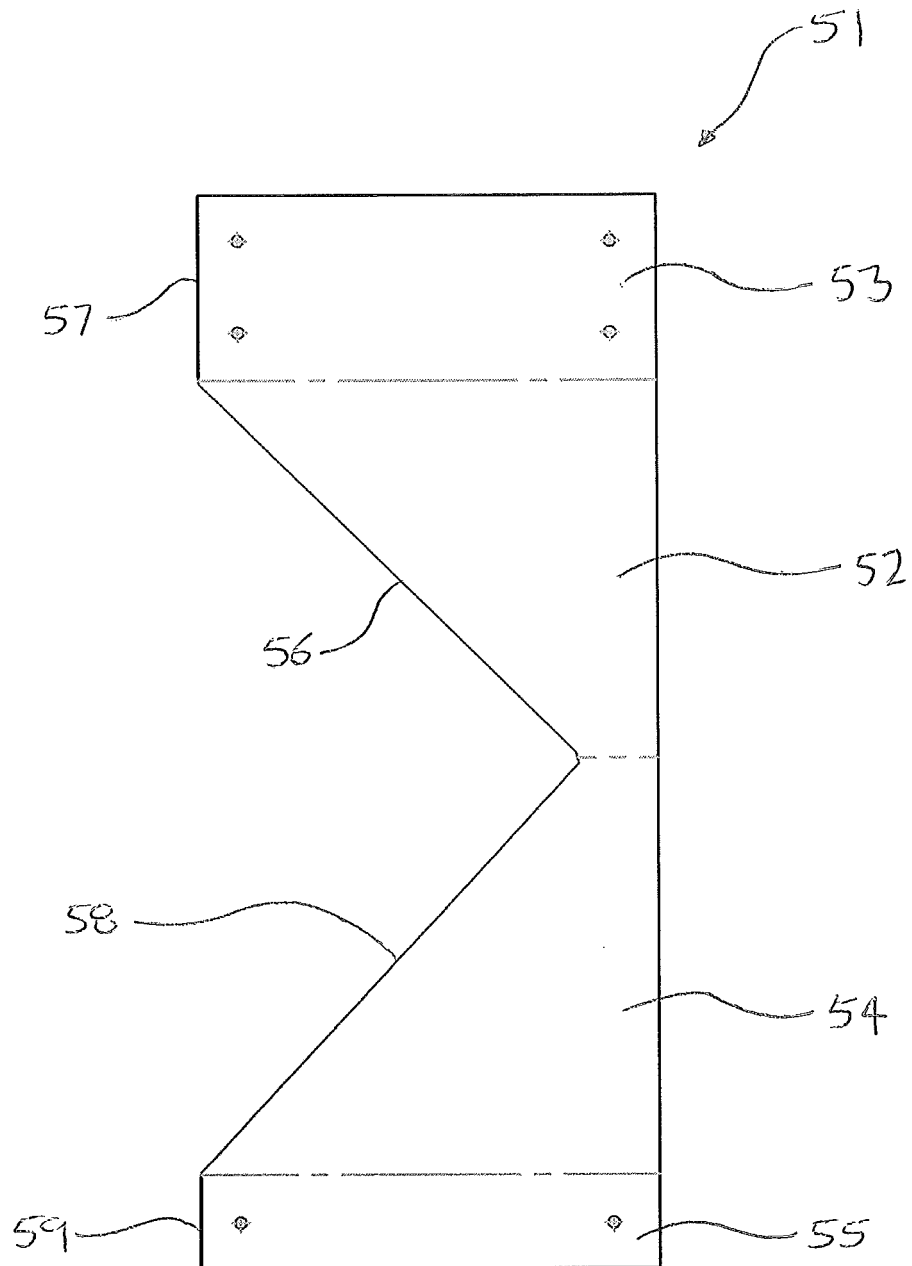


Figure 18

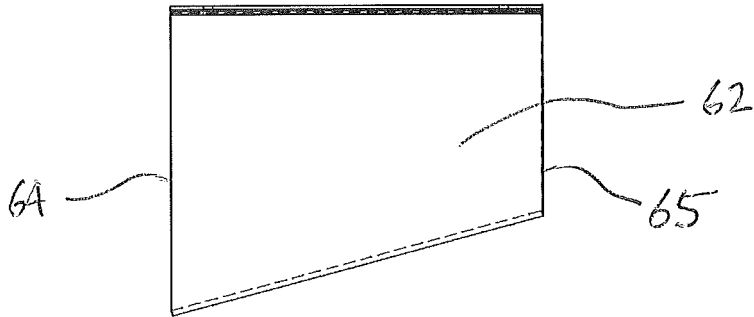


Figure 19

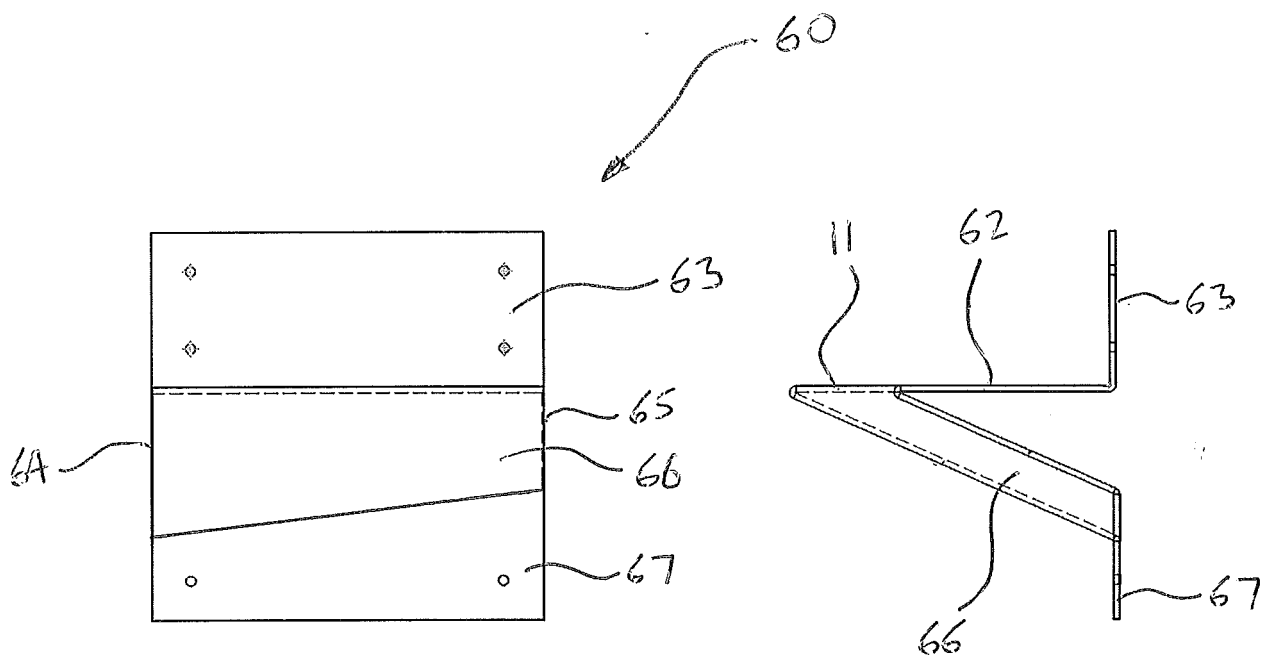


Figure 20

Figure 21

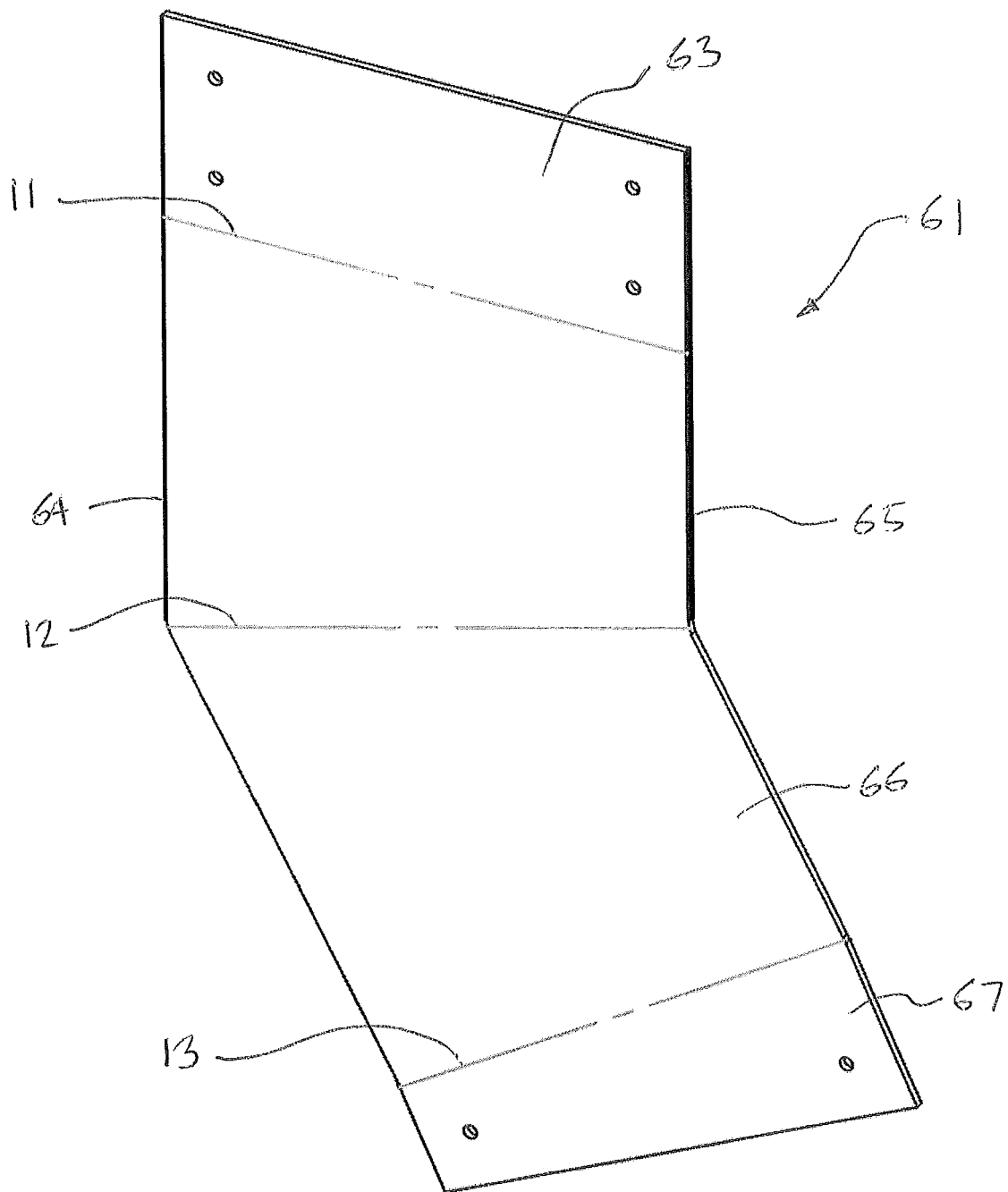


Figure 22

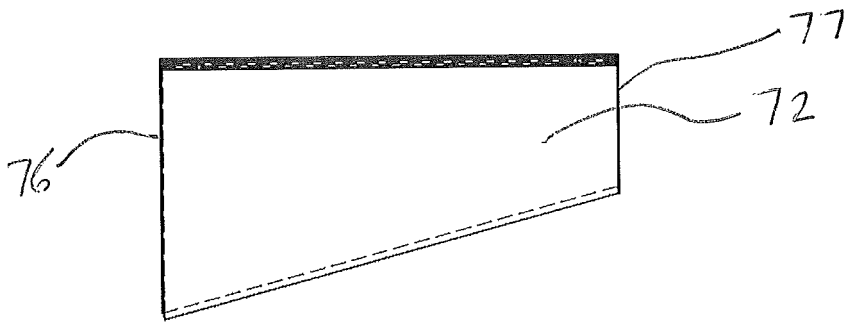


Figure 23

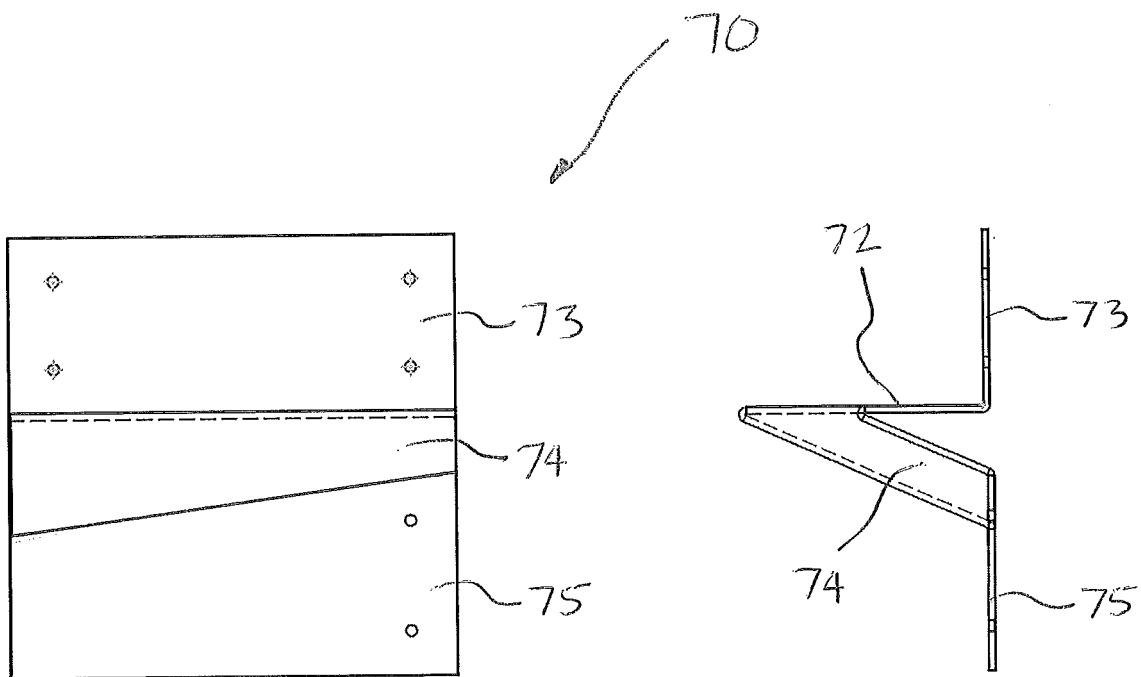


Figure 24

Figure 25

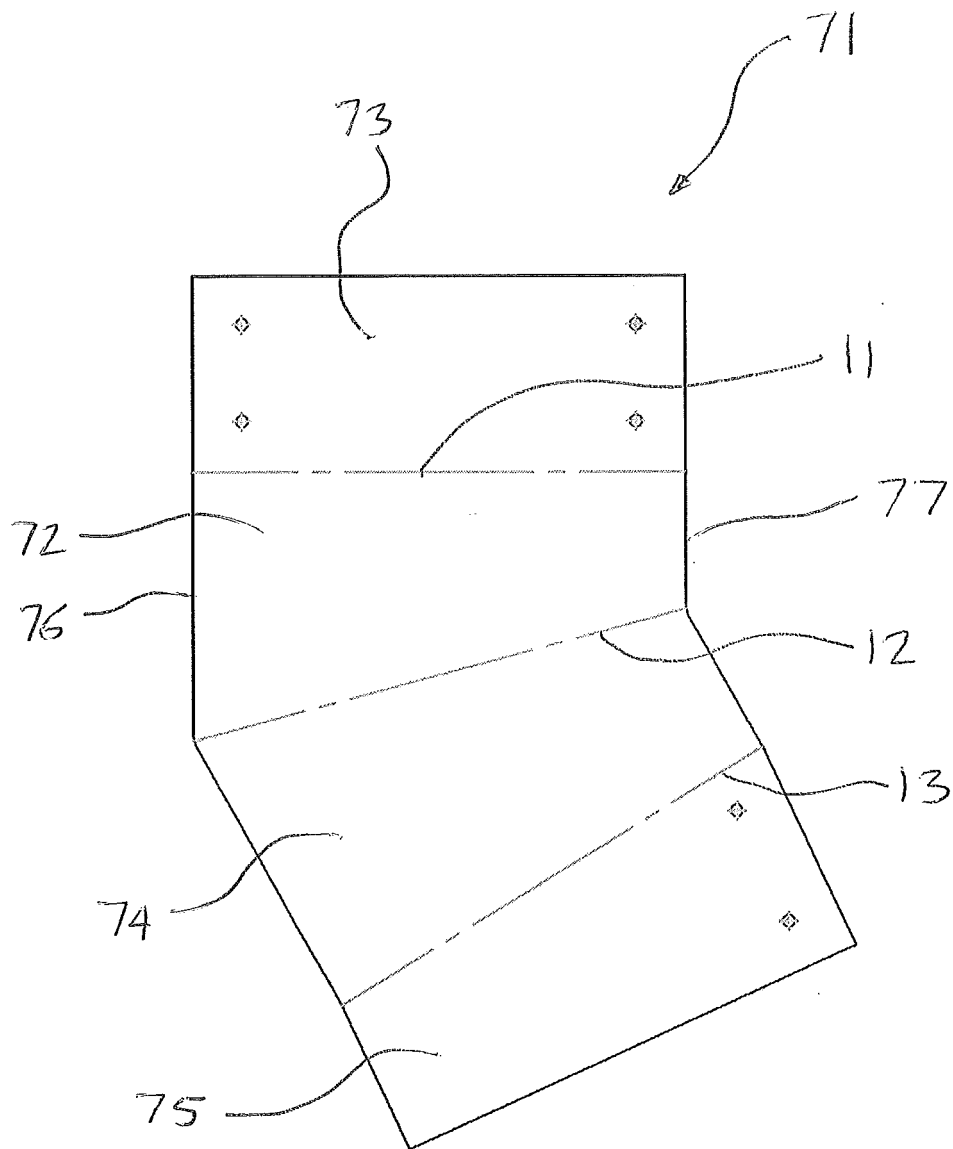


Figure 26

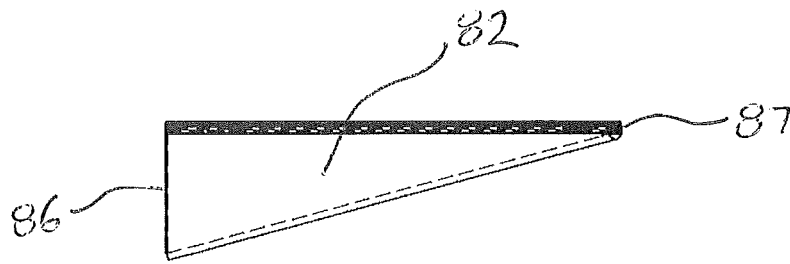


Figure 27

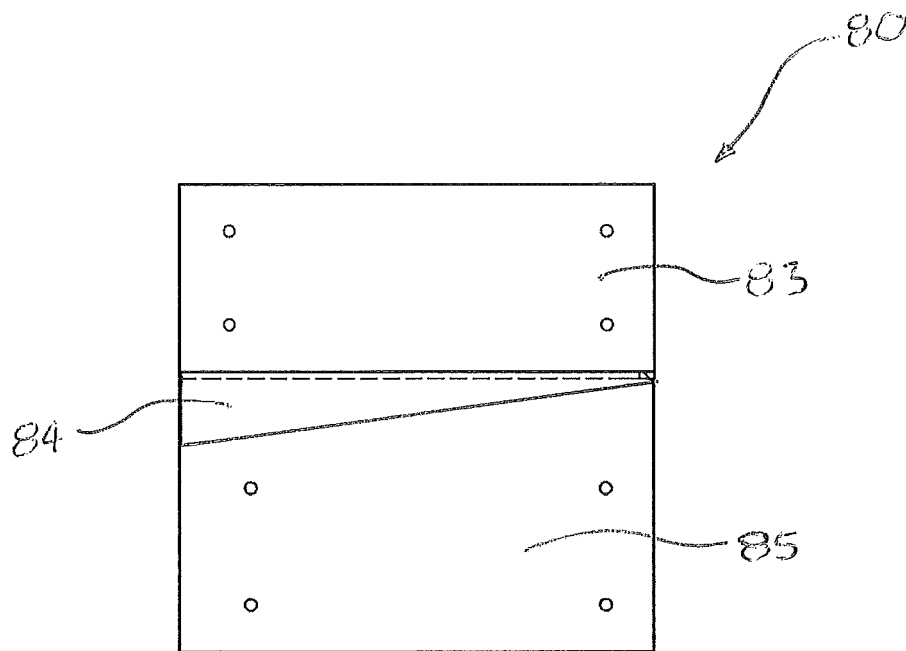


Figure 28

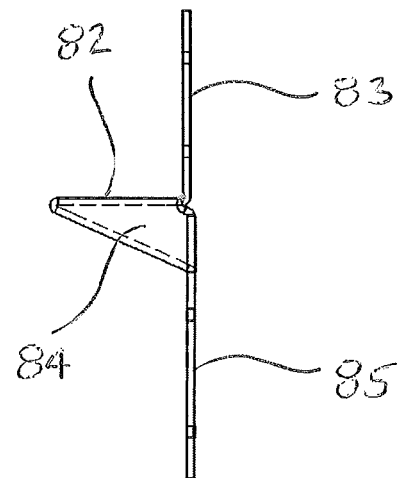


Figure 29

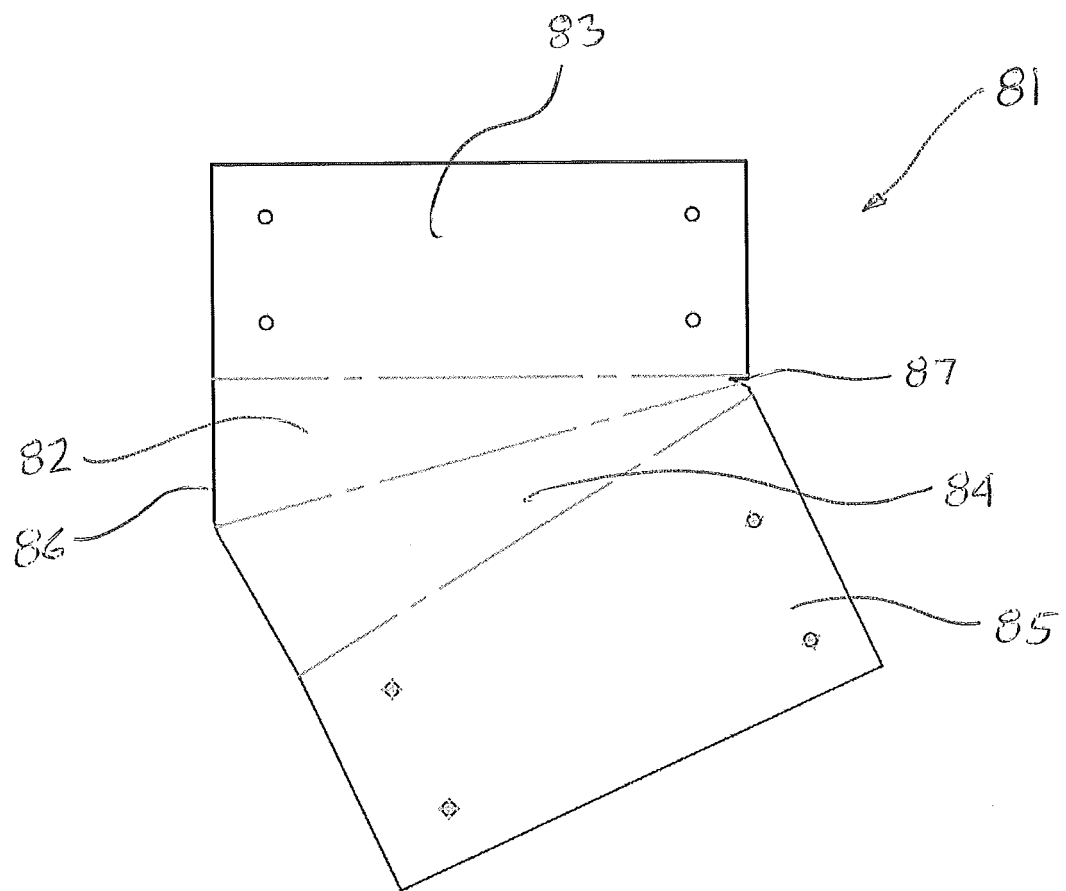


Figure 30

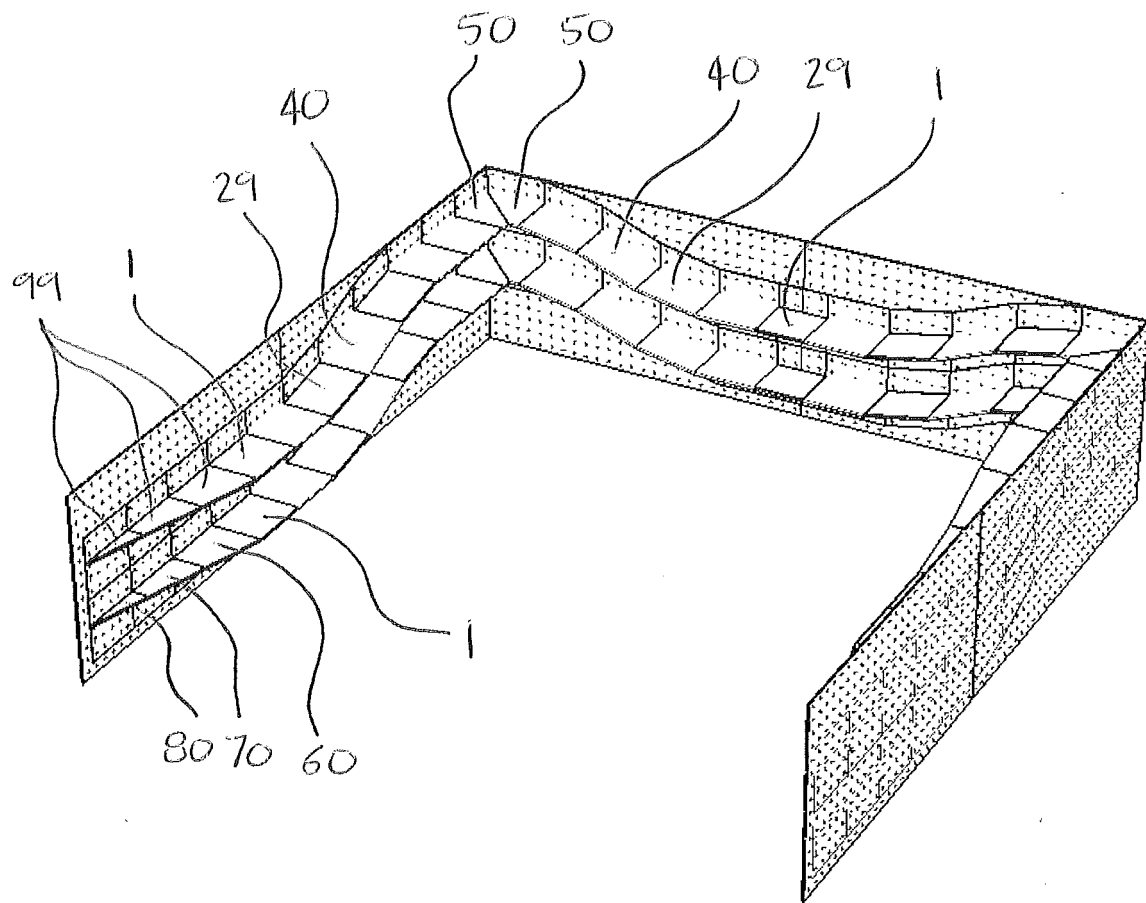


Figure 31

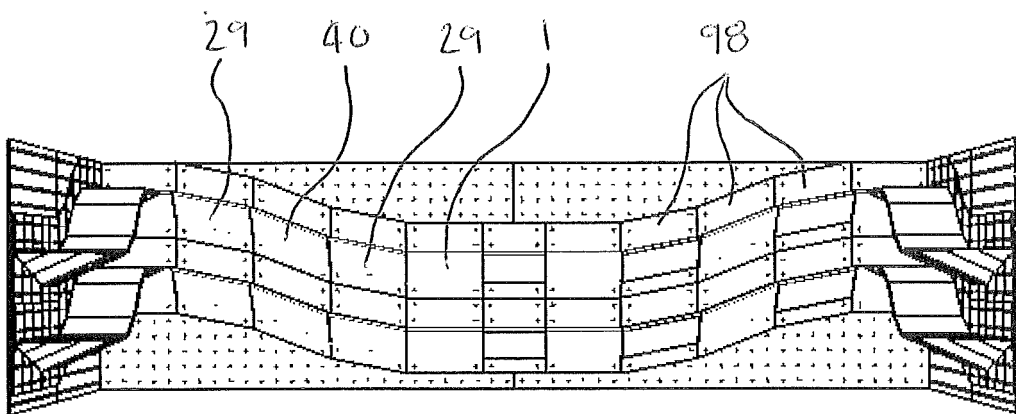


Figure 32

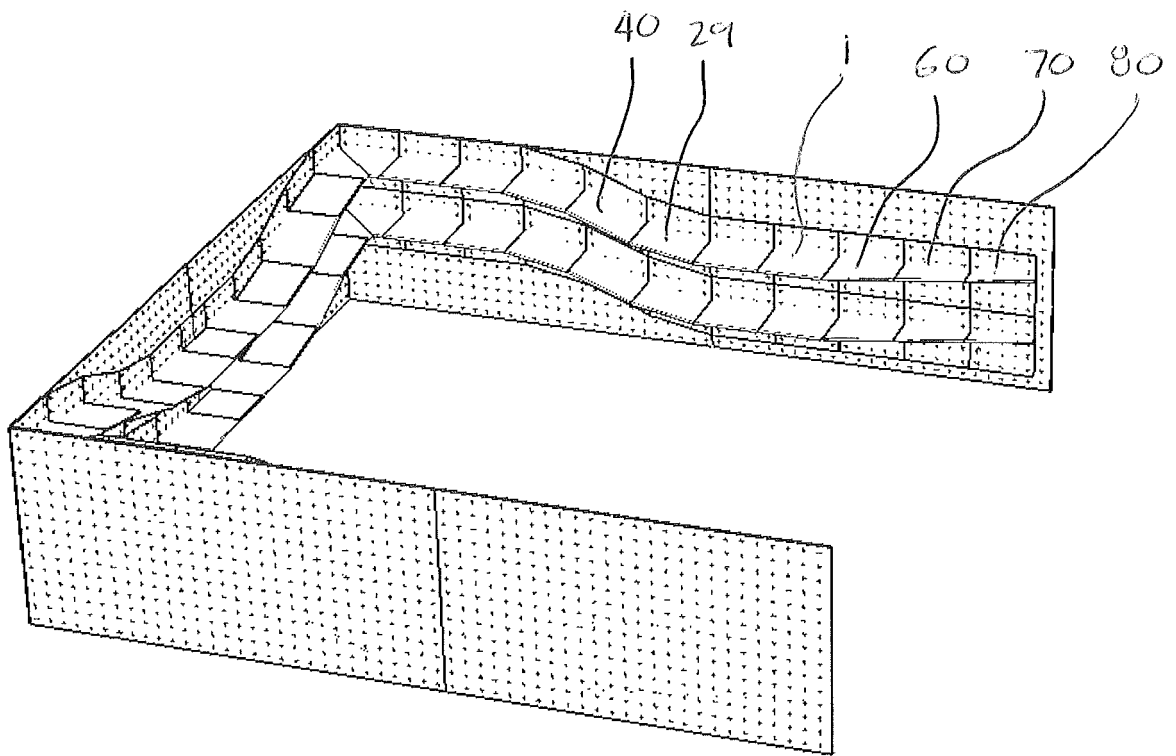


Figure 33

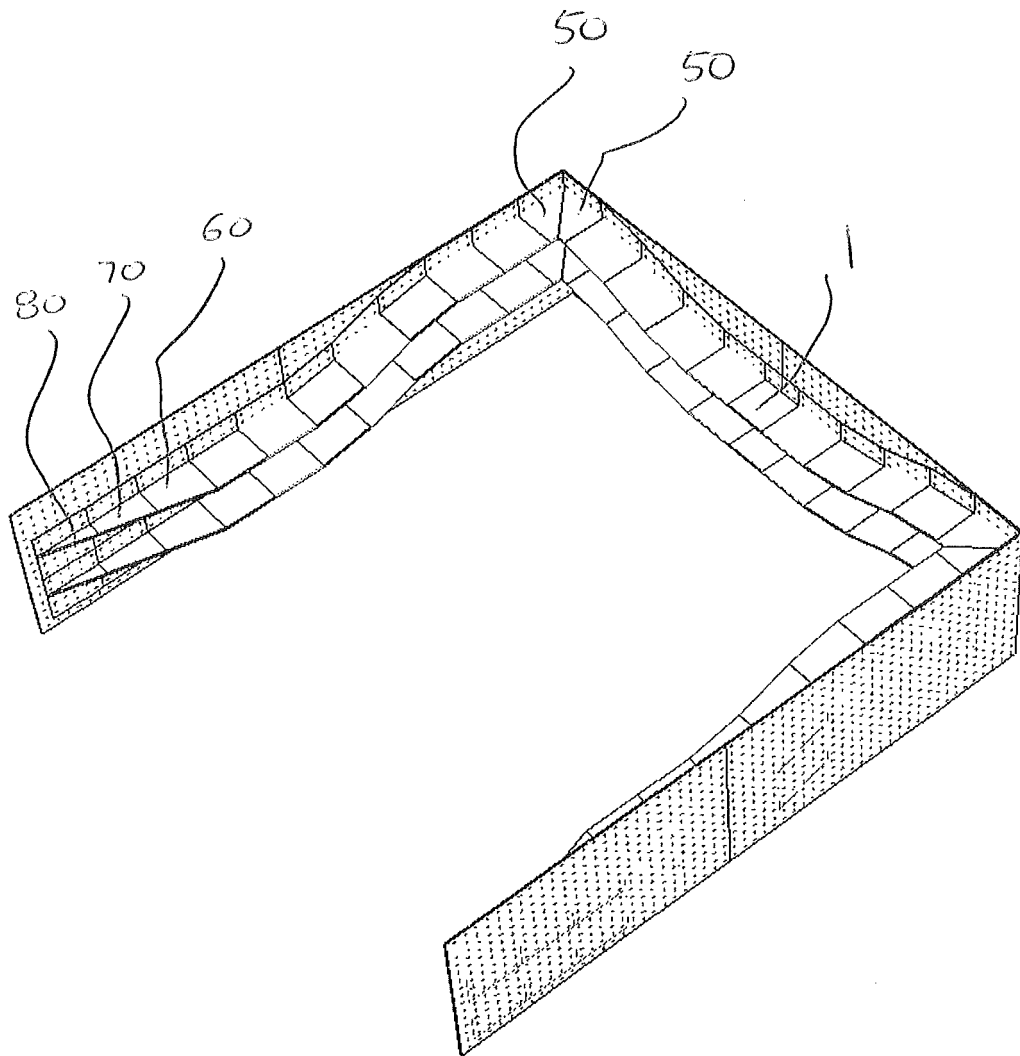


Figure 34

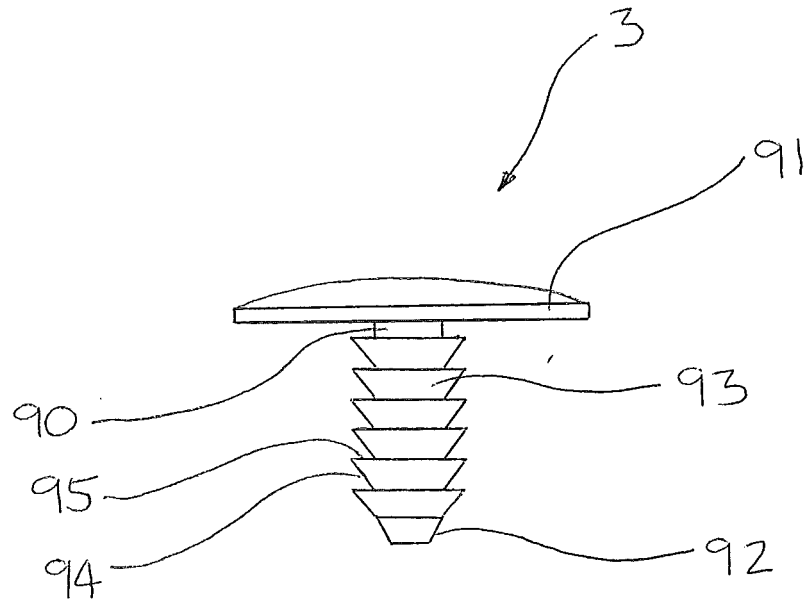


FIGURE 35.

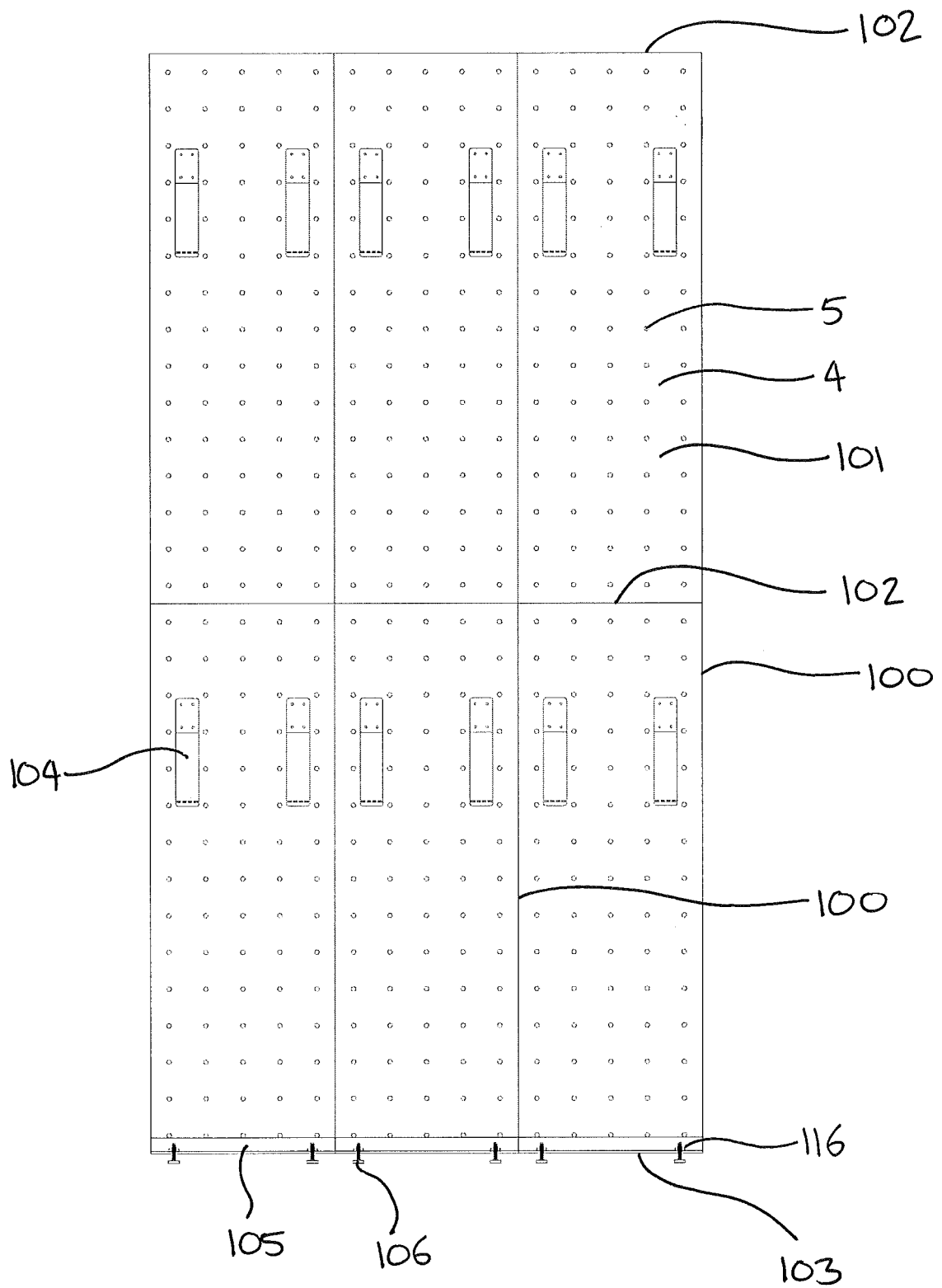


FIGURE 36

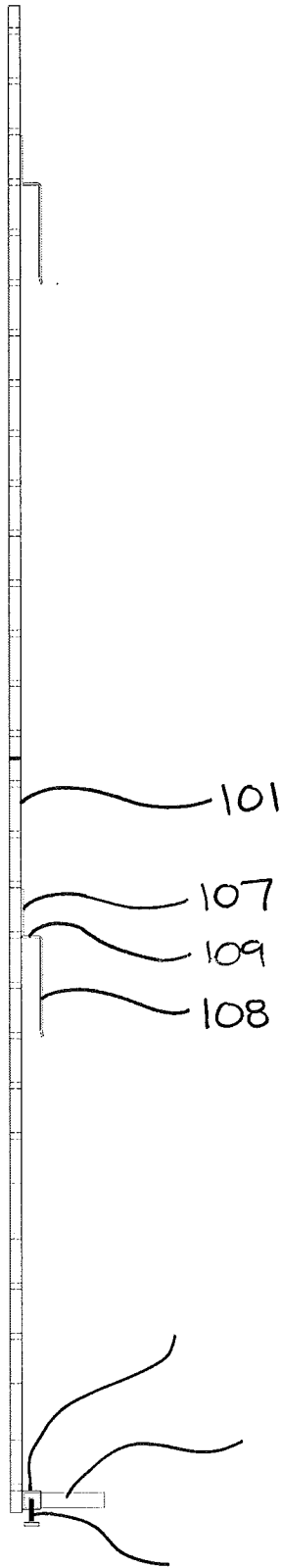


FIGURE 37

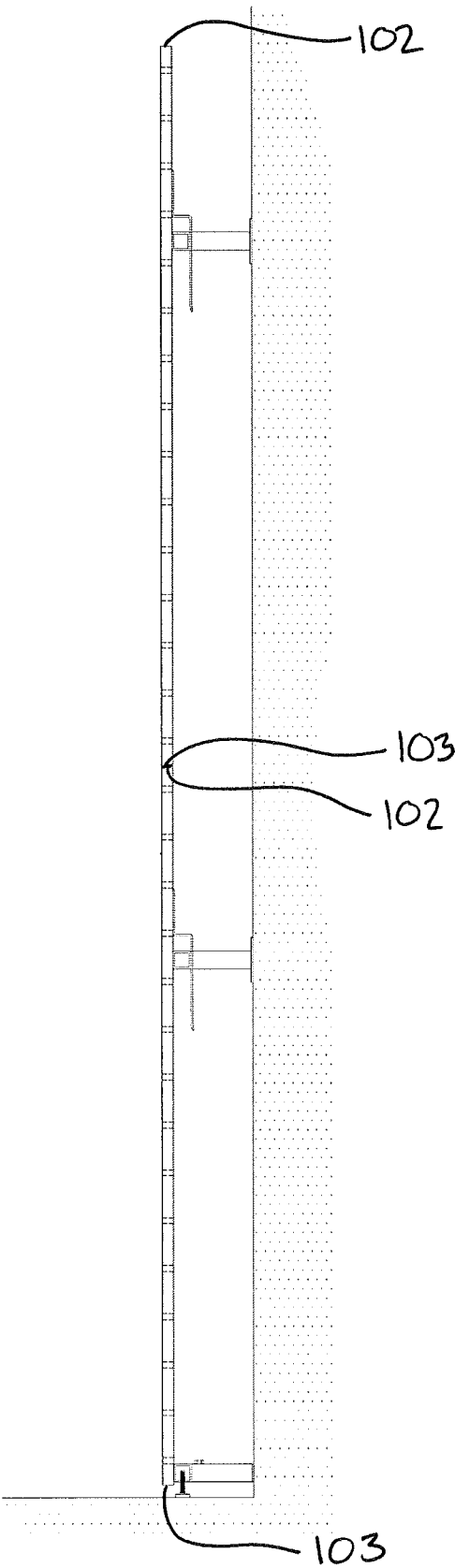


FIGURE 38

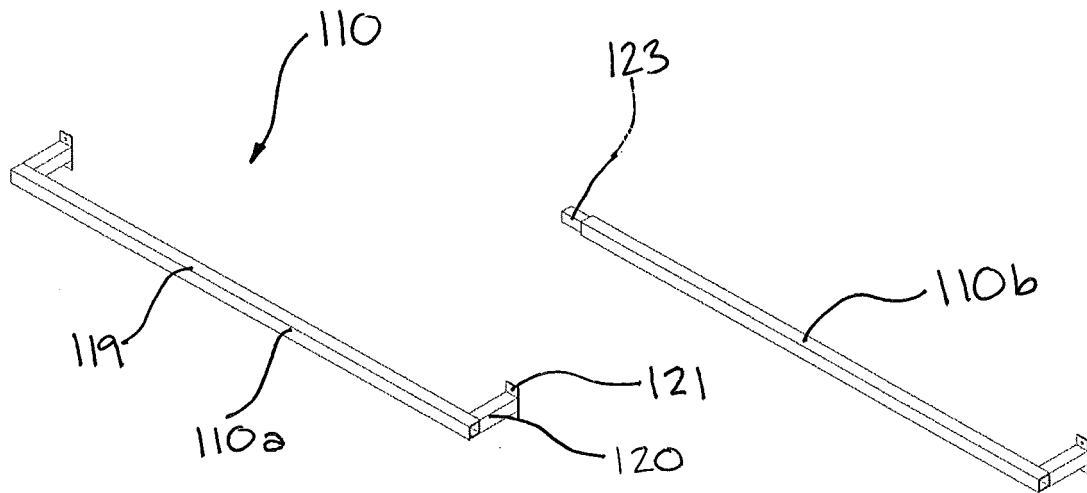


FIGURE 39

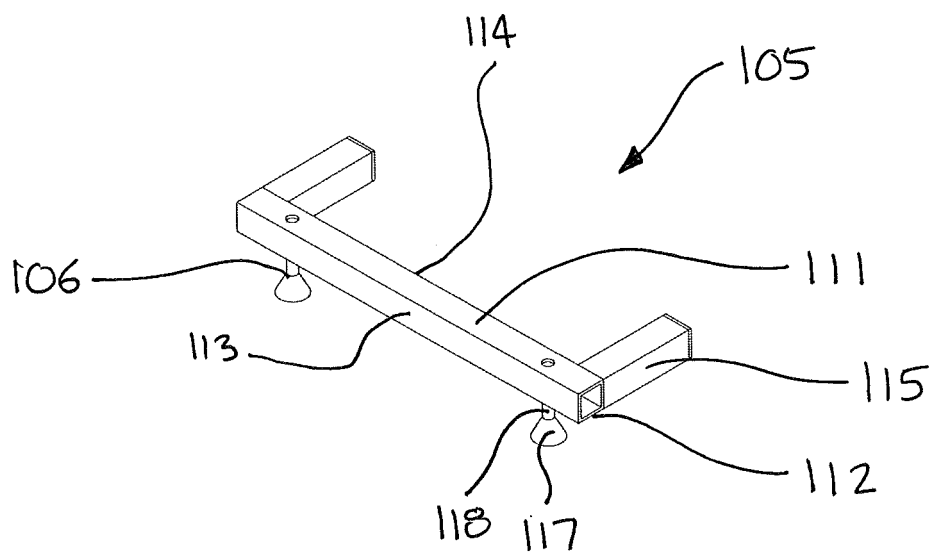


FIGURE 40.