(11) Application No. AU 2006100366 A4

(19) AUSTRALIAN PATENT OFFICE

(54) Title
Improvements to decorative panels

(51)[6] International Patent Classification(s)
B44C 5/04 (2006.01) 13/00
E04F 13/00 (2006.01) 20060101ALI20060509
E04F 13/12 (2006.01) BHAU E04F
B44C 5/04 13/12
20060101AFI20060509 20060101ALI20060509
BHAU E04F BHAU

(21) Application No: **2006100366** (22) Application Date: **2006 .05 .04**

(30) Priority Data

(31) Number	(32) Date	(33) Country
2005902245	**2005 .05 .04**	**AU**
		20060601

(43) Publication Date : **2006 .06 .01**
(43) Publication Journal Date : **2006 .06 .01**

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ABSTRACT

A decorative panel (10) comprises a metal sheet (12) fixed to a backing panel (14) so that the metal sheet covers a face of the backing panel. The metal sheet has printing of a decorative nature for display on an outward face on the metal sheet. The edge (16A, 16B) of the metal sheet is provided with means (24) to cooperate with a suspension framework (22) for supporting the panel in use.

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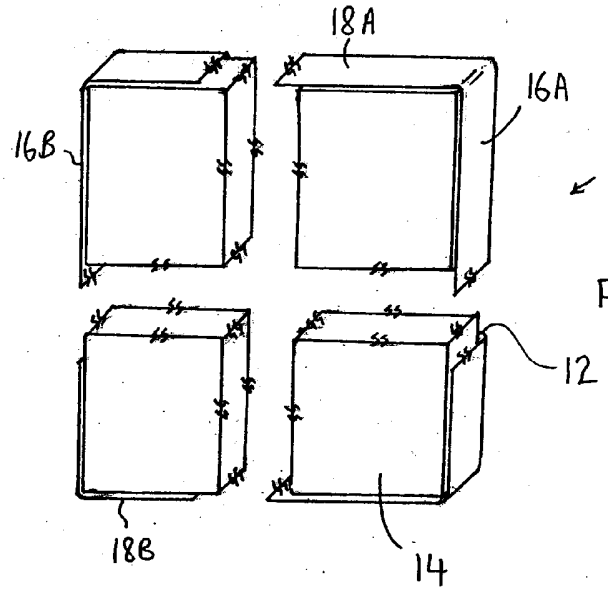

FIG. 1

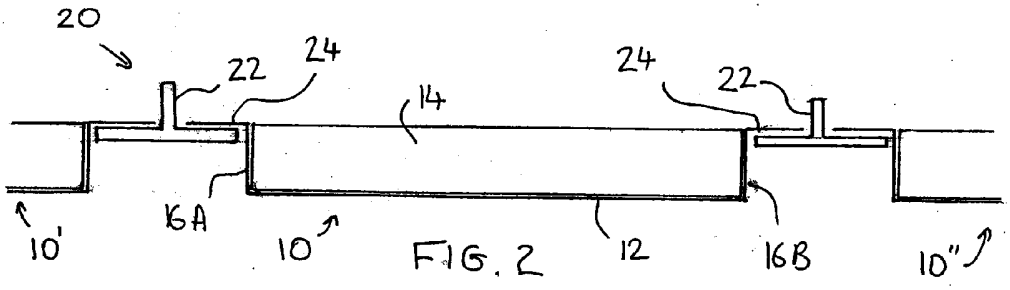

FIG. 2

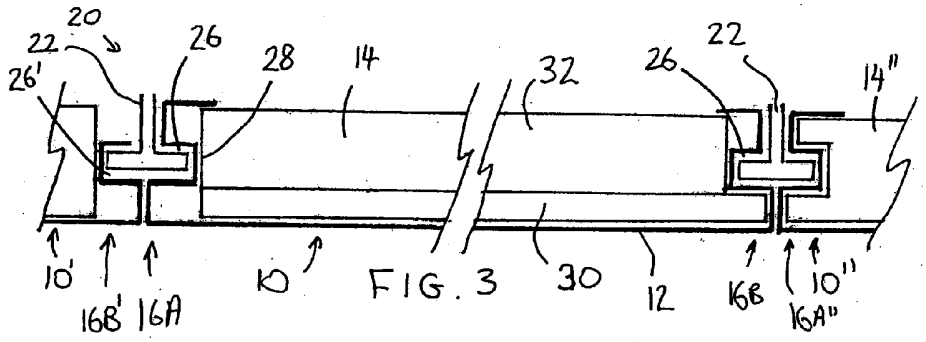

FIG. 3

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AUSTRALIA

Patents Act 1990

COMPLETE SPECIFICATION

INNOVATION PATENT

Applicant:

VICTOR JAMES MCVEIGH

Invention Title:

IMPROVEMENTS TO DECORATIVE PANELS

The following statement is a full description of this invention, including the best method of performing it known to me:

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IMPROVEMENTS TO DECORATIVE PANELS

The present invention relates to a decorative panel for use on ceilings, walls, furniture and cupboard paneling, etc.

In the specification for Australian Innovation Patent 2001100262, a decorative panel comprising a metal sheet coupled to a panel member is described. The metal sheet has printing of a decorative nature for display on an external surface of the metal sheet. The inventor has developed further improvements to this decorative panel.

According to a first aspect of the present invention there is provided a decorative panel comprising:

a metal sheet fixed to a backing panel so that the metal sheet covers a face of the backing panel, the metal sheet having printing of a decorative nature for display on an outward face of the metal sheet, wherein at least one edge of the metal sheet is turned over a corresponding edge of the backing panel, wherein the edge of the metal sheet is shaped to receive a suspension framework for supporting the panel in use.

Preferably the backing panel comprises a first backing layer fixed to the metal sheet and a second layer fixed the first layer.

Preferably the edge of the metal sheet is provided with means to cooperate with the suspension framework for supporting the panel in use.

According to a second aspect of the present invention there is provided a decorative panel comprising:

a metal sheet fixed to a backing panel so that the metal sheet covers a face of the backing panel, the metal sheet having printing of a decorative nature for display on an outward face of the metal sheet, wherein the backing

panel comprises a first layer fixed to the metal sheet and a second layer fixed to the first layer.

Preferably the metal sheet is turned over a corresponding edge of the backing panel.

Preferably the metal sheet is provided with means to cooperate with a suspension frame for supporting the panel in use.

Preferably the edge of the metal sheet is shaped to receive a suspension frame for supporting the panel in use.

According to a third aspect of the present invention there is provided a decorative panel comprising:

a metal sheet fixed to a backing panel so that the metal sheet covers a face of the backing panel, the metal sheet having printing of a decorative nature for display on an outward face on the metal sheet, wherein the edge of the metal sheet is provided with means to cooperate with a suspension framework for supporting the panel in use.

Preferably the edge of the metal sheet is shaped to receive the suspension framework.

Preferably the backing panel comprises a first backing layer fixed to the metal sheet and a second layer fixed to the first layer.

Preferably the metal sheet is turned over a corresponding edge of the backing panel.

Further preferred features of the first, second and third aspects of the present invention are listed below.

Preferably the edge of the metal sheet is turned to provide a square corner. Alternatively, the edge of the metal sheet is turned to provide a rounded corner.

Preferably all of the edges of the metal sheet are turned to cover all of the edges of the backing panel.

Preferably the edge of the metal sheet is shaped to conceal the suspension framework.

Preferably the edge of the metal sheet is provided with a flange to be received behind the suspension framework.

Preferably the edge is shaped to provide a recess in a corresponding side of the panel for receiving a flange of the suspension framework.

Preferably the first layer is an insulating layer. Preferably the first layer is a sound attenuation layer. Preferably the first layer is a thermal insulation layer. Preferably the first layer is formed of foamed polystyrene sheet.

Preferably the second layer is a stiff layer. Preferably the second layer is formed of paper covered cementious board.

Preferably the backing panel is provided with a plurality of clips for fastening the panel to the suspension framework for supporting the panel in use.

Preferably the means to cooperate with the suspension framework comprise spring latches.

According to a fourth aspect of the present invention there is provided a decorative panel and suspension framework combination comprising:

at least two spaced apart framework members, each having a flange pointing towards the other; and

a metal sheet fixed to a backing panel so that the metal sheet covers a face of the backing panel, the metal sheet having printing of a decorative nature for display on an outward face of the metal sheet,

wherein corresponding edges of the metal sheet provided with means to cooperate with the flanges of the suspension framework for supporting the panel.

Preferably the edges of the metal sheet are shaped to receive the flanges of the suspension framework.

In order to provide a better understanding, preferred embodiments of the present invention will now be described, by example only, with reference to the accompanying drawings, in which:

Figure 1 is a rear perspective view of a decorative panel of indefinite width and height in accordance with one embodiment of the present invention;

Figure 2 is a schematic cross-sectional view of a decorative view of a decorative panel according to one embodiment of the present invention installed on a wall or ceiling and supported by a suspension framework;

Figure 3 is a schematic cross-sectional view of a decorative panel supported by a suspension framework according to an embodiment of the present invention;

Figure 4 is a schematic cross-sectional view of an alternative decorative panel installed on a suspension framework according to an embodiment of the present invention;

Figure 5 is schematic cross-sectional view of a yet another alternative decorative panel installed on a

suspension framework according to an embodiment of the present invention; and

Figure 6 is a schematic cross-sectional view of a further decorative panel also installed on a suspension framework according to an embodiment of the present invention.

Referring to Figure 1, a decorative panel 10 according to the present invention includes a metal sheet 12 fixed to backing panel 14 so that the metal sheet covers a (rear) face (not shown) of the backing panel 14. The outwardly directed face of the metal sheet is printed with a decorative display. The printing may be a single colour or multi-colour of photographic quality. The decorative image on the shape may be of, for example, famous people, actors, footballers, toys, childrens themes, ships, aeroplanes, fish, rainbows, etc. An example is a blue sky with clouds or birds or butterflies. Another example is a night sky with stars and other images like moons or clouds. A further example is a photograph of wood showing the grain, or a photograph of marble or granite. Further examples includes replicas of decorative artworks. The metal sheet may be, for example, tinplated steel or aluminium. The metal sheet is adhered to the backing panel using a suitable glue. Other suitable methods of fixing the metal sheet to the backing panel may be used.

The edges 16a, 16b, 18a and 18b of the metal sheet 12 are turned over the edges of the backing board 18. In this figure, four of the edges are turned to cover the edges of the backing board to the same depth as the depth of the backing board. This may be varied so that the edge of the metal sheet only partially covers the depth of the backing board or may be greater than the depth of the backing board. The corner created by turning the edge may either by a square corner or a rounded corner. The turning of the edges over the side of the backing board disguises the presence of the backing board; provides an ability to fix

the decorative panel to a support system as will be described further below; and also provides the ability to conceal framework of the support system, as will also be described further below.

Referring to Figure 2, panels 10, 10' and 10'' are shown coupled to a suspension system 20. The suspension system includes two T-frames 22 which are installed within, for example, a ceiling or a wall. Panel 10 shows edges 16a and 16b covered by the turned metal sheet 12. In addition, the edges include flanges 24 which project in opposite directions to each other. The projections are tucked behind the T-support frames 22.

In the case of the support frame 20 being a ceiling, flanges 24 enable the panel to be supported without falling to the ground. In the case of the support frame 20 being installed on a wall, the flanges 24 allow the panel to not fall away from the wall (towards the bottom of the page in the drawing).

Referring to Figure 3, a decorative panel 10 is shown in which the backing panel 14 is formed of at least two layers 30 and 32. The first layer 30 is an insulating layer formed of foamed polystyrene. Alternatives to polystyrene may be used such as polyurethane or polyisocyanurate. It acts as both a sound attenuator and a thermal insulator. The second layer 32 is comprised of plasterboard or other suitable material such as a fibre panel, wood panel, chipboard, MDF, plywood or a fibrocement panel. Typically this would be a cementious material, such as plaster or gypsum, covered in paper sheets. The first layer 30 is adhered by glue to the second layer 32. The metallic panel 12 is adhered to the first layer 30.

The edge 16a of sheet 10 is profiled to include a recess 26 for receiving the T-shaped support frame 22. It can be

seen that the profile forms a (lower) projection, the recess 26 (in the middle), and then an (upper) shorter projection. The edge of the metal sheet is then folded back to partly cover the rear of the backing panel 14. For decorative panel 10', the profile of the edge 16b' is slightly different. The profile provides a (lower) projection recess 26' and a flange portion that completes the shaping of the recess. The (upper) shorter projection is not provided. The projections of 16a and 16b' abut to conceal the T-frame 22. It can be seen that the profile of the edge 16b and 16a'' corresponds with the profile of 16a.

There are also differences in the shape of the backing panel 14. The shape of the backing panel 14 on the side of edge 16a is simply flat, with the first layer 30 being level with the second layer 32. The part of the metal sheet 12 on edge 16a that forms the recess 26 also abuts against the edge of the backing panel 14. The backing panel 14 on the side 28 of edge 16b is different. In particular, the first layer 30 extends beyond the edge of the second layer 32 so that it projects into the lower projection formed by the shaping of the metal sheet 12 at edge 16b. The part of the metal sheet 12 on edge 16b that forms the recess 26 also abuts the second layer 32. However the inside of the (upper) projection is not filled. In the case of the edge 16a'', both of the insides of upper and lower projections are filled with the backing board 14''. It will be appreciated that further variations will be apparent to a person skilled in the art.

Referring to Figure 4, the T-frames 22 of the suspension system 20 are used here to hold the decorative panels 10, 10' and 10'' in place. In this case, the panels simply rest behind the T-shaped end of the framework 22. It may be desirable to shape the edges of the panel with a slight

indentation to receive the T-shape so that the T-shape is flush with the front surface of the panel.

In Figure 5, it can be seen that the edges 16a' and 16b of panels 10 and 10' are shaped with a Z or S shaped profile in cross-section. This allows the projecting parts to be positioned outermost so as to abut or nearly abut and conceal the T-shape form member 22. The recess parts of the Z-shaped edges 16' and 16'' receive the T-shaped member 22.

In Figure 6, the backing panel 14 has clips 40 fixed thereto with an arm 42 of the clip resiliently compressing against the back of the T-shaped frame member 22. It is anticipated that a plurality of clips 40 would be used to provide sufficient strength to hold the weight of the panel 10 in place. The edges of adjacent panels can then simply abut each other to conceal the T-frame member 22. The clips 20 may be fixed by glue or may be screwed or have some other fastener to affix them to the backing panel 14 or even the metal panel if it is turned to partly cover the back of the decorative panel.

Each clip 40 is preferably in the form of a spring biased latch. The spring urges the latch to close against the backing panel 14. In particular each clip 40 may be formed of a bent stiff wire with a rectangular portion forming the latch and a coiled portion forming the spring in a similar configuration to a conventional mouse trap.

To install the panel the spring loaded latch of each clip are lifted away from the backing panel 14 and the panel manoeuvred to place the T-bar suspension frame in the gap between the latches and the backing board 14. The latches can be released, which in turn hold the panel to the suspension frame. A similar process can occur on the other side of the panel so that the panel is secured to the suspension system.

To remove the panel, the panel is forced away from the suspension system sufficiently to overcome the resilience of the springs in the clips until the latches are moved back sufficiently to pass the suspension frame, thereby releasing one edge of the panel. The opposite side can then be pulled free.

Typically the panels will come in 600 mm x 600 mm or 600 mm x 1200 mm sizes and will be between 10 and 40 mm in thickness. A typical depth of the recess in the shaped edges will be 5 mm to allow the recess to receive the T-bar suspension system.

The metal sheet may be embossed with designs to provide a three dimensional appearance for aesthetic purposes or for sound attenuation or magnification purposes. Clips may have a pivoting arm as illustrated in Figure 6 or they may be of a sliding nature. The shaping of the edges may also include a depression on one side over which a flange of another edge on adjacent panel may slide. Guiding grooves or the like may be provided so that adjacent panels are positioned correctly. Panels may be riveted, glued or spot welded together. Metal sheet may be installed on existing panels which form the backing board of the present invention.

Other modifications and variations as would be evident to the skilled addressee are intended to fall within the scope of the present invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A decorative panel comprising:

a metal sheet fixed to a backing panel so that the metal sheet covers a face of the backing panel, the metal sheet having printing of a decorative nature for display on an outward face on the metal sheet, wherein the edge of the metal sheet is provided with means to cooperate with a suspension framework for supporting the panel in use.

2. A panel according to claim 1, wherein the metal sheet is turned over a corresponding edge of the backing panel and shaped to receive the suspension framework.

3. A panel according to claim 2, wherein the edge of the metal sheet is shaped to conceal the suspension framework.

4. A panel according to claims 2 or 3, wherein the edge of the metal sheet is provided with a flange to be received behind the suspension framework.

5. A decorative panel and suspension framework combination comprising:

at least two spaced-apart framework members, each having a flange pointing towards the other; and,

a metal sheet fixed to a backing panel so that the metal sheet covers a face of the backing panel, the metal sheet having printing of a decorative nature for display on an outward face of the metal sheet,

wherein corresponding edges of the metal sheet are provided with means to cooperative with the flanges of the suspension framework for supporting the panel.

Dated this 4th day of May 2006.

VICTOR JAMES MCVEIGH

By His Patent Attorneys
GRIFFITH HACK
Fellows Institute of Patent and Trade Mark Attorneys of Australia

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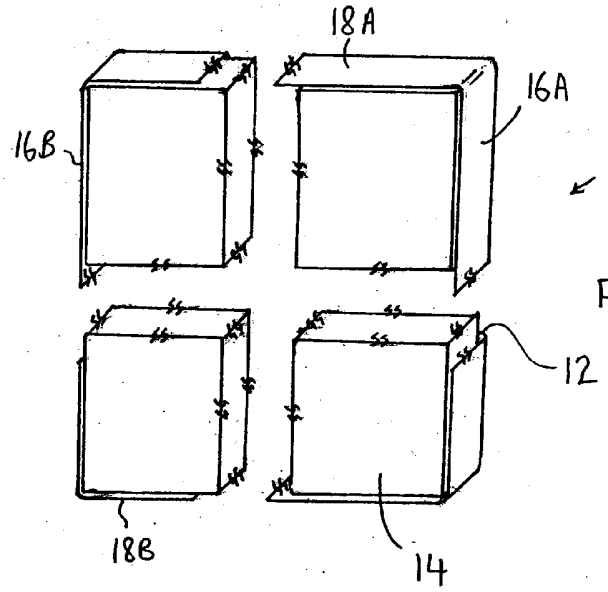

FIG. 1

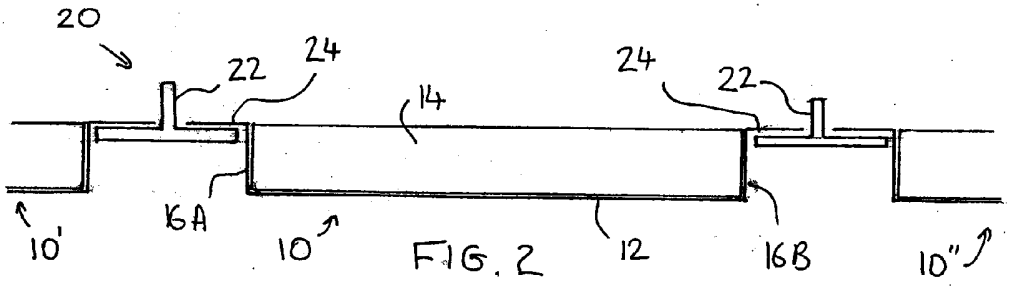

FIG. 2

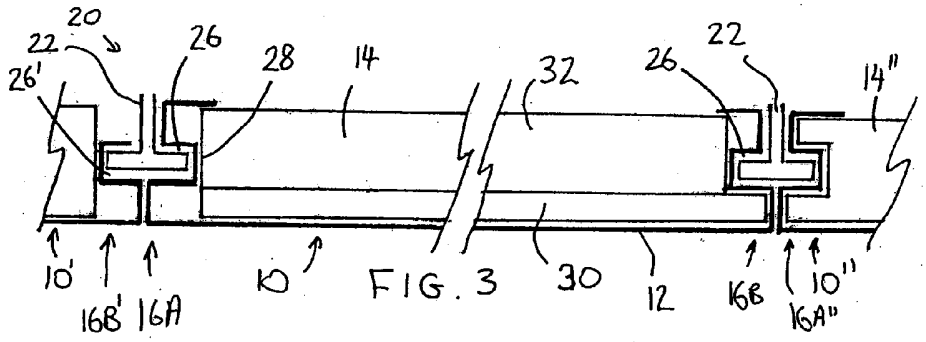

FIG. 3

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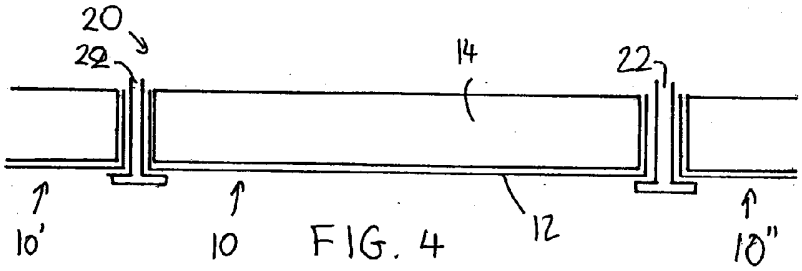

FIG. 4

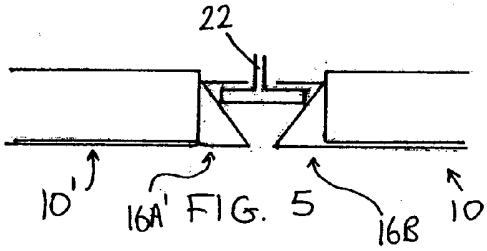

FIG. 5

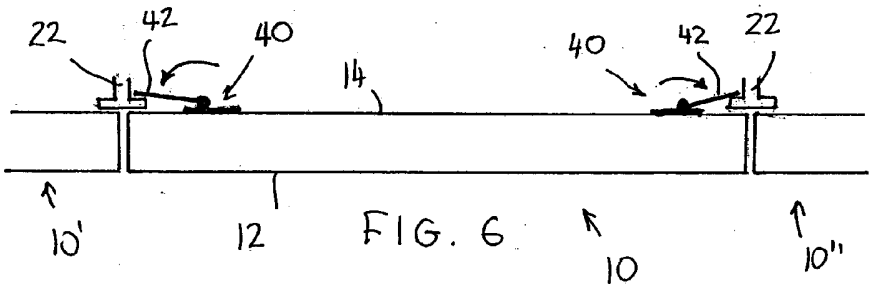

FIG. 6