

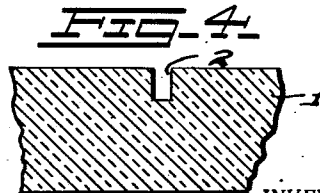
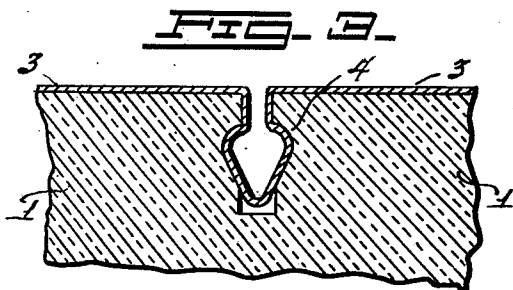
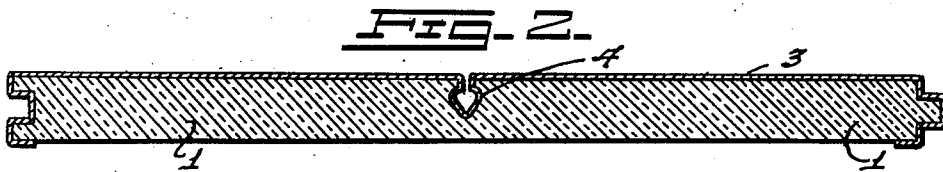
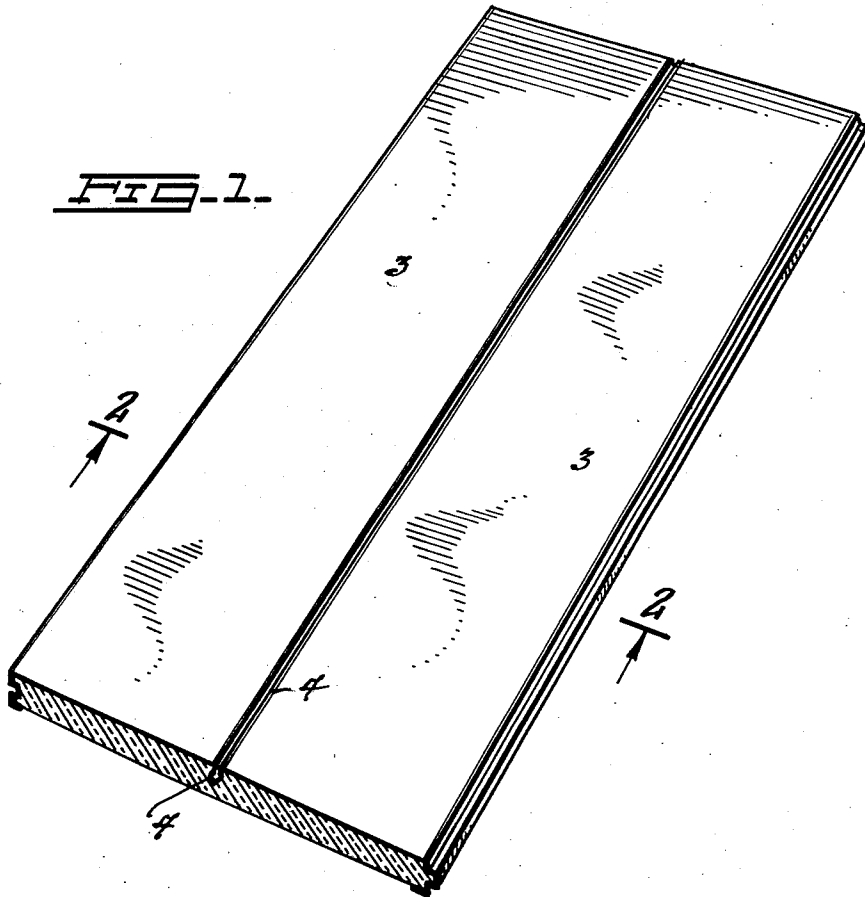
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D. H. REVELL ET AL

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METALLIC SHEET-FACED PANEL STRUCTURES

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INVENTORS
Donald H. Revell and
John L. Webster
BY
H. Lee Helms
ATTORNEY.

1

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METALLIC SHEET-FACED PANEL STRUCTURES

Donald H. Revell and John L. Webster, Louisville, Ky.,
assignors to Reynolds Metals Company, Richmond,
Va., a corporation of Delaware

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4 Claims. (Cl. 20—15)

In metal sheet-faced panel structures it is customary to employ a plywood or composition core of suitable strength and to face the core with a metallic sheet or sheets. The core is of low expansion and contraction ratio, whereas the metallic sheet, particularly of aluminum is responsive to changes in temperature and has a very much greater expansion and contraction coefficient than the core.

Thus in many endeavors to bond aluminum sheets to cores of the general kind, and by means of adhesives, expansion of the metallic sheets during warm weather has repeatedly caused them to buckle and disrupt the adhesive bond.

It is the specific object of the present invention to provide panels consisting of core members and facing sheets in which adhesive for bonding the sheets to the core is not essential, although it may be employed, and wherein the sheets are adequately bonded into flat engagement with the core and nevertheless are permitted to expand inwardly without affecting the bond. This inward expansion and contraction enables the facing sheet to be interlocked with the side margins of the panel, and without any buckling of the sheets upon expansion.

The invention will be described with reference to the accompanying drawings in which:

Fig. 1 is an isometric view showing an embodiment of the invention.

Fig. 2 is a transverse section on the line 2—2, Fig. 1, and in elevation.

Fig. 3 is an enlarged vertical section through the central portion of Fig. 2, for greater detail.

Fig. 4 is a fragmentary vertical section of the core showing the channel formed therein for receiving the expansible key member of the sheet.

Referring first to Fig. 4 it will be seen that the core 1 which may be composed of a cellulosic composition, or any suitable composition, has formed therein a rectangular channel 2. In the present embodiment this channel extends longitudinally of the core, as indicated in Figs. 1 and 2. A characteristic of the walls of the channel 2 is that they are capable of deformation, the material not being hard and rigid like the metallic sheet 3.

As shown in Figs. 1-3 inclusive the metallic sheet 3, which preferably is of aluminum, has longitudinally and centrally formed therein a shouldered downwardly extending bead 4. In the present embodiment this bead is heart shaped so that its shoulders are rounded and normally the passageway into the interior of the bead is open, permitting the sheet to be moved inward when it is applied to the channel 2 of the core.

The shouldered bead of the sheet 3, with the entrance

2

to the bead open may be pressed into the channel 2 of the core. In such an action the passageway extending into the bead may be preliminarily closed by moving the side walls of the sheet 3 inwardly. When the shouldered bead has been finally positioned as shown in Fig. 3 the springy nature of the sheet presses the shoulders of the bead into the softer material of the core and the sheet will be locked in position.

In the embodiment shown the sheet, after its application to the core, may be interlocked with the margins of the core, as shown in Fig. 2. Thus at one margin of the core the latter may be grooved and the sheet bent with the formation abutting the wall of the grooves, whereas at the opposite side of the core it may be provided with a rib encompassed by the sheet material.

Referring to Fig. 2 it will be seen that the passageway or space at the entrance to the interior of the bead permits an expansion movement of the sheet, from both margins thereof, until the passageway is closed. In practice the passageway will be calculated as that sufficient to meet all ordinary expansion of the sheet. Likewise contraction forces, after expansion, will be compensated.

It will be understood that various modifications may be made in the form or arrangement of the elements constituting the embodiment illustrated in the drawings without departing from the spirit of the invention.

Having described our invention, what we claim and desire to secure by Letters Patent is as follows:

1. A metallic sheet-faced panel structure comprising a compressible core member formed at one face with a U-shaped channel, and a metallic sheet abutting said face, the sheet being formed from edge to edge thereof with a substantially heart-shaped shouldered spring bead normally having a passageway from the outside of the sheet and into the bead, the bead being spring locked into the channelway of the core and expanded with its shoulders pressing into and deforming the walls of the core channel, as and for the purpose set forth.

2. An interlocking metal faced wall panel consisting essentially of a core-member of compressible material having a U-shaped channel disposed in one face from edge to edge thereof, said core having an interlocking tongue in parallel relation to said U-shaped channel in one of the lateral edges and an interlocking groove in the other lateral edge, and a metal face-sheet abutting said core member and having a springy substantially heart-shaped shouldered bead inserted into said U-shaped channel with the shoulders thereof pressing into and deforming said core material.

3. An interlocking metal faced wall panel consisting essentially of a core-member of compressible material having a U-shaped channel disposed in one face from edge to edge thereof, said core having an interlocking tongue in parallel relation to said U-shaped channel in one of the lateral edges and an interlocking groove in the other lateral edge, and a metal face-sheet abutting said core member and having a springy substantially heart-shaped shouldered bead inserted into said U-shaped channel with the shoulders thereof pressing into and deforming said core material, said face sheet being disposed continuously about said interlocking tongue and within said interlocking groove and extending to the side of the core opposed to the metal faced side.

4. A metallic facing sheet for a panel structure having a compressible core member formed at one face with

a channel, said sheet being formed from edge to edge thereof with a substantially heart-shaped hollow resilient bead normally having a passageway extending from the outside of the sheet into the bead, said sheet being adapted for abutment with said core member at the channeled face thereof, said bead being adapted to be spring-locked into the channel.

5

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