

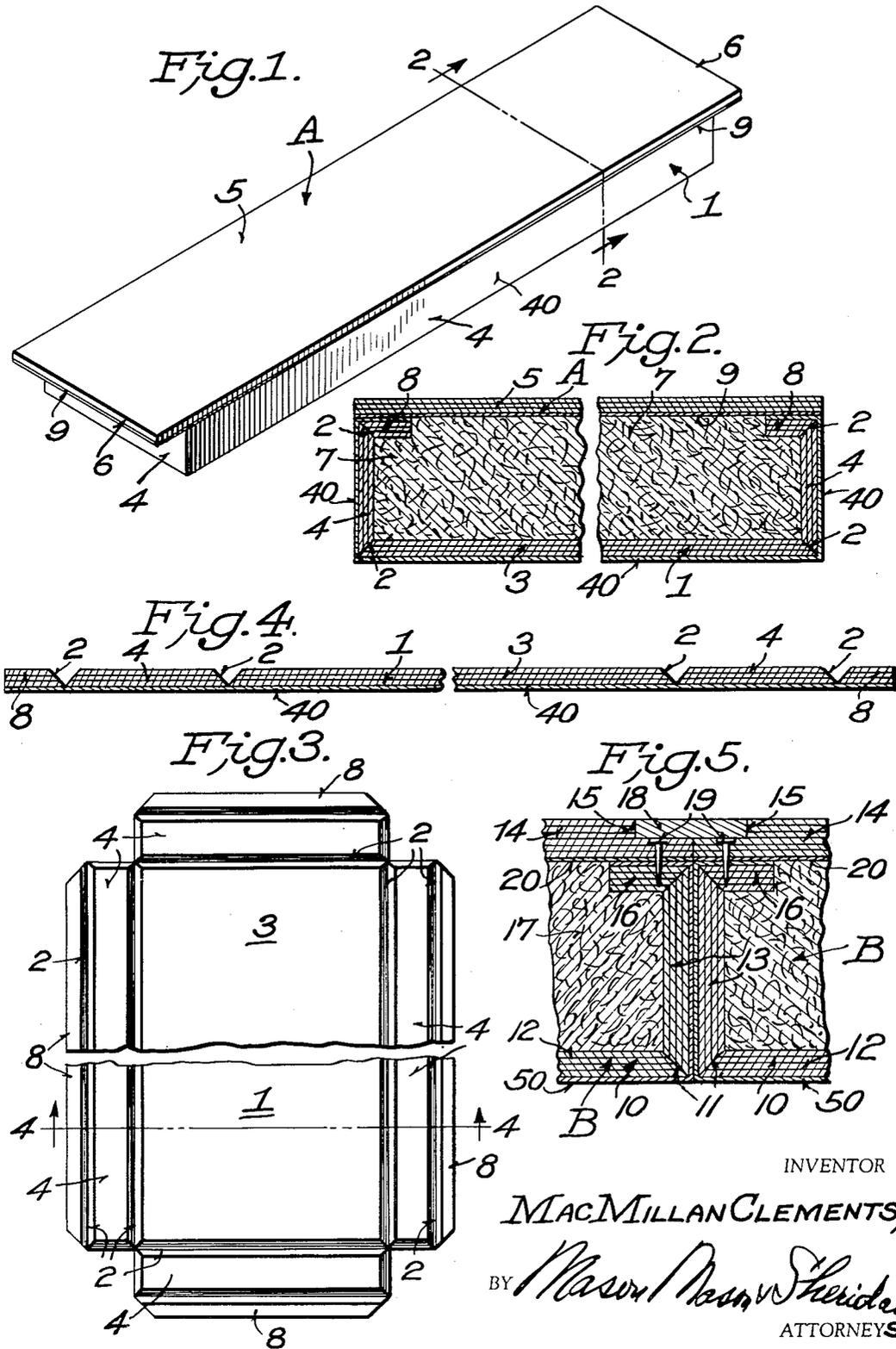
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INSULATED ROOF AND FLOOR PANEL

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**INSULATED ROOF AND FLOOR PANEL**

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2 Claims. (Cl. 20—4)

This invention relates to a light weight, load-bearing insulated panel adapted particularly for use in the construction of floors and roofs of buildings and of refrigerator walls, floors and roofs.

An object of the invention therefore is to provide a panel having the above noted characteristics, and which in addition, requires a minimum mass and a panel which is fire resistant.

An additional object is to provide a panel of the character described and wherein the panel provides a vapor barrier.

A further object of the invention is to provide a panel which combines the above advantages in a metal clad panel in which there is no metal-to-metal conductance of heat or cold from one side to the opposite side of the panel.

Yet another object of the invention is to provide a load bearing light weight panel which requires no framework for supporting and holding together the sides of the panel.

Other objects will be set forth hereinafter throughout the specification.

In the drawings:

Fig. 1 is a side elevation showing one form of the invention;

Fig. 2 is a transverse vertical section taken centrally of the structure shown in Fig. 1;

Fig. 3 is a plan view of the plywood blank that includes the base and sides;

Fig. 4 is a view taken on the line 4—4 of Fig. 3; and

Fig. 5 is a vertical section partly broken away of the meeting sides of a pair of panels, of a modified form of the invention.

The use of dead air cells in panels which form walls, ceilings and other parts of building structures and of refrigerators has been well recognized in these arts. The present invention complements such structures by providing floor and/or ceiling panels of novel construction having dead air spaces therein.

The present invention does not require that other parts of the building, such as the walls thereof, be provided with air cells, but devices of this invention may be used to supplement such constructions, as may be required.

The present invention comprises a structure which embodies characteristics of low thermal conductivity and low thermal emissivity.

In Figs. 1 to 4 of the drawings A indicates the panel as a whole. This panel comprises a plywood sheet particularly shown in Figs. 3 and 4 having a metal heat or cold dissipating skin 40 bonded thereto. The sheet is provided with a plurality of longitudinal and transverse notches 2 whereby the ends, sides and projecting portions indicated by the numeral 8, are folded with the bonded metal skin thereon into proper position as seen in Figs. 1 and 2.

A plywood cover 5, having extensions which project beyond the panel sides at both ends of the panel, closes the top of the panel, the interior space of which is filled with insulating material, such as fiber glass. Cover 5 may be permanently attached to the projections of the sides 4.

The underside of the cover 5 may be provided with a thin metal layer 9 such as metal foil which is bonded or otherwise secured thereto. The layer 9 is used particularly when the panel is to be used as a floor panel. Extensions 6 serve as flanges whereby the panels may be nailed to a structural supporting means.

In the second form of the invention the panels B are constructed as described in connection with Figs. 1 to 4 except that the adjacent upper side edges of the cover of each panel have been rabbeted for the reception of a filler strip. This strip preferably connects the adjacent side edges along the entire sides thereof of the juxtaposed sides of each pair of panels to prevent entry of moisture, heat or cold between the said side edges.

Each panel consists of a plywood sheet 10 with sides 13, said sheet having bonded thereto the metal skin 50. The sheet is notched preferably in the same manner as shown in Figs. 3 and 4 so that it may be folded to form sides and extensions.

Each cover 14 is provided with a rabbeted edge 15. Before the covers are applied the interior of the panel is preferably filled with insulation 17. The covers are then applied and secured in place by suitable means such as nails 19. Nails may also be used to secure the cover 5 to the extensions, in the construction of Figs. 1 and 2.

After the floor has been laid by arranging a plurality of such panels side by side and securing them to a supporting means, not shown, the filler strip 18 is inserted in the rabbeted joint and secured in the rabbets by any suitable means such as by a sealing material or nails, or both, not shown.

The underside of the cover of each panel, especially when such panels are used as flooring, is preferably provided with a thin layer of metal 20 such as metal foil which is bonded to the underside thereof or otherwise secured thereto.

The cover of each panel of Fig. 5 is preferably provided with end extensions, not shown, but which are the same as is disclosed at 6 in Fig. 1 for attaching the panel to a supporting means.

When a panel of either of the two forms shown is used as a roof panel, the foil or other thin metal layer 9 or 20 is preferably not used.

The above description and the drawings attached hereto disclose several embodiments of the invention as specific language has been used in describing the several figures. It will nevertheless be understood that no limitation of the scope of the invention is hereby contemplated, and that various alterations and modifications may be made such as would occur to one skilled in the art to which the invention relates.

Having described the invention, what is claimed as new and what is desired to be secured by Letters Patent is:

1. A panel for use in building construction and refrigerators comprising in combination a substantially rigid laminated sheet, said laminated sheet comprising an outer metallic layer and an inner substantially rigid non-metallic layer, said layers being substantially coextensive and bonded together to form said laminated sheet, said laminated sheet forming a base and a plurality of sides integral with said base and extending at right angles to and in the same direction from said base, a cover for closing the open side of said panel, said cover being permanently attached to said sides and comprising a substantially rigid non-metallic layer and a metallic layer bonded together, said layers of said cover being substantially coextensive and with the metallic layer arranged next to and in contact with the outer metallic layer of each of said integral sides, and insulating material in the space defined by said cover and said laminated sheet including the sides thereof, said insulating material being entirely enclosed by the metallic layers of said laminated sheet and said cover, each of said integral sides of said

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panel having a laterally projecting portion arranged in spaced parallel relation to said base and extending inwardly of the panel, and attaching means connecting said cover to said laterally projecting portions.

2. A panel assembly for use in building construction and refrigerators comprising in combination a substantially rigid laminated sheet, said laminated sheet comprising an outer metallic layer and an inner substantially rigid non-metallic layer, said layers being substantially coextensive and bonded together to form said laminated sheet, said laminated sheet forming a base and a plurality of sides integral therewith, said sides extending in the same direction at right angles to said base, a cover for closing the side of said panel opposite said base, said cover comprising a substantially rigid non-metallic layer and a metallic layer bonded together, said layers of said cover being substantially coextensive and the metallic layer being arranged next to and in contact with the outer metallic layer of each of said integral sides, means for rigidly attaching said cover to said sides, and insulating material in the space defined by said cover and said laminated sheet including the sides thereof, said insulating material being entirely enclosed by the metallic layers

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of said laminated sheet and said cover, said cover having a rabbet extending along a side edge thereof and formed in its outer face, a second panel constructed in accordance with said first named panel, said panels being arranged in the same plane and with their rabbets in juxtaposed relation and together forming an outwardly opening groove, a strip filling said groove and spanning the joint between said panels, the outer face of said strip being flush with the outer faces of the covers of said panels, each of said integral sides of each of said panels having a laterally projecting portion arranged in spaced parallel relation to said base and extending inwardly of the panel, said attaching means connecting said covers to the laterally projecting portions of said panels.

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