

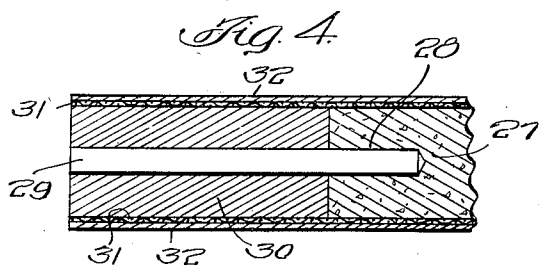
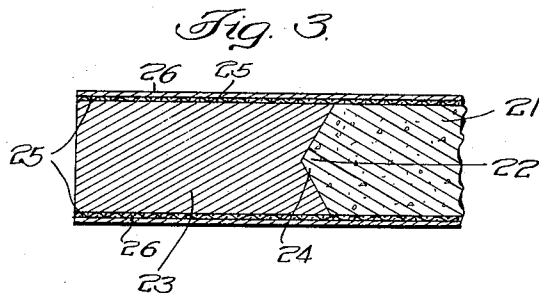
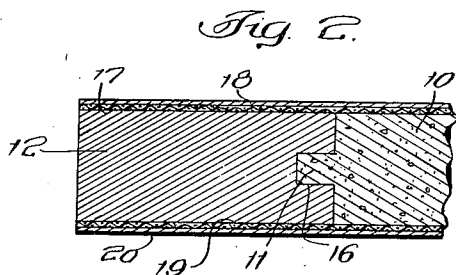
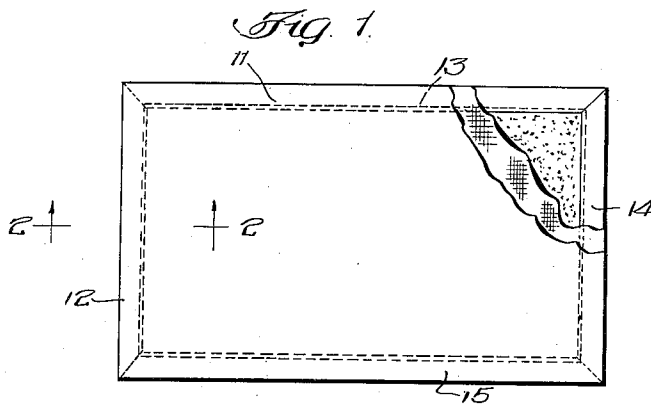
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G. K. LEWIS

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INSULATING MATERIAL AND METHOD OF MAKING THE SAME

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Witness
William R. Kilroy

Inventor
George K. Lewis
By George I. Knight
Att'y

UNITED STATES PATENT OFFICE

GEORGE E. LEWIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO MET-L-WOOD CORPORATION, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

INSULATING MATERIAL AND METHOD OF MAKING THE SAME

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This invention relates to insulating material and method of making the same.

An object of this invention is to provide insulating material in the form of a composite panel including a core of cellular material, such as cork and the like, encased within sheet metal veneers, and wherein the insulating material between the veneers is provided with a marginal frame to protect the insulation and provide means by which the composite panel may be secured in position.

Another object of the invention is to provide a method of making a composite panel of the character referred to, wherein the metallic veneers are bonded to the insulating material under pressure, and wherein means are interposed between the metallic veneers to resist collapse of the insulating material, and wherein said means are incorporated in the panel to form a part thereof.

Other and further objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawing forming a part of this specification, Fig. 1 is a plan view of a composite panel of the type contemplated by the invention, having portions broken away to more clearly disclose the construction thereof. Fig. 2 is a fragmentary enlarged vertical sectional view through the panel, corresponding substantially to the line 2—2 of Fig. 1. Fig. 3 is a view similar to Fig. 2, showing a somewhat different embodiment of the invention. And Fig. 4 likewise is a view similar to Fig. 2, showing still another embodiment of the invention.

Referring first to Figs. 1 and 2, the invention includes a core 10 of insulating material in the form of cork or any of the well known commercial insulating materials having generally similar properties. The insulating core or body 10 may be of any thickness or shape desired, being shown as rectangular, and in the form disclosed in Figs. 1 and 2, each edge of the core 10 is provided with an outwardly extending centrally disposed rib 11, said rib extending along all four edges of the insulating material proper.

Disposed about the edges of the insulating body 10 is a hardwood frame comprising sec-

tions 12, 13, 14, and 15, arranged in rectangular form, of substantial width, and of a thickness corresponding to the thickness of the insulating material 10. Each of the frame members 12 is provided with a groove 16 for the reception of the rib 11 upon the insulating material 10, as shown in Fig. 2; glue may be placed into the groove 16 of each of the frame members prior to the insertion of the rib 11 formed upon the insulating material.

Extending along one flat surface of the insulating material 10 and the encircling frame is a layer of fabric 17, such as canton flannel or similar fabric having a nap or pile, the fabric being glued to the surface of the insulating core and encircling frame.

Outwardly of the fabric 17, there is provided a sheet of steel veneer 18 which is glued to the fabric.

At the opposite broad side of the panel, there is provided a sheet of fabric 19 similar to the fabric 17, and a steel veneer 20 similar to the veneer 18, these layers of material being secured to the body 10 of the insulating material and to the flat surface of the encircling frame. All of the laminations or layers of material are permanently secured together by the applications of glue, and by reason of the provision of the fabric having a nap or pile, variations in expansion and contraction of the core 10, the frame members, and the steel veneers, is compensated for, thereby preventing any possibility of severance of the bond. The frame members 12, 13, 14, and 15 provide means by which the panel may be secured in position, as will be understood.

Referring now to Fig. 3, a core of insulating material 21 is provided, wherein the four edges thereof are each beveled to provide a V-formation, indicated at 22. The encircling frame members 23 are likewise provided with a V-shaped groove 24, adapted for the reception of the similarly shaped portion of the insulating core 21, the frame members preferably being glued to the insulating core. Layers 25 of the fabric are provided at opposite sides of the core and frame members, and the steel veneers 26—26 are likewise provided, in the same manner heretofore re-

ferred to, the various layers of material being permanently secured together by the interposition of glue therebetween.

In Fig. 4, the insulating core 27 is provided at intervals with sockets 28 in its edge, each adapted to receive the inner end of a pin 29 driven through the frame member 30, whereby the frame member is pinned to the insulating core. Layers of fabric 31 and metallic veneers 32—32 are provided in the same manner heretofore referred to, all of the laminations or layers being secured together by glue.

The invention also involves a process of forming the panels. It is well known that insulating material carries a considerable column of air cells, and it is quite difficult to apply metallic veneers to this class of material under pressure, without collapse of the insulating material, thus rendering the same useless.

In the present invention, the insulating material is first prepared along its edges for the reception of an encircling frame of hard wood, such as that heretofore described, the frame being of the same thickness as the body of the insulating material. With this frame in position with respect to the insulating material, glue may be applied to the opposite sides of both, the layers of fabric, such as those heretofore described, placed in position, additional coats of glue applied to the fabric and the steel veneers placed in position, after which the assembled composite panel may have pressure applied thereto in any desired amount necessary to effect a suitable bond between the parts, and during the pressing operation the hardwood frame resists any tendency of the insulating material to collapse, said frame being thus incorporated into the panel, and serving not only as a device for preventing collapse of the insulating material, but also to provide means by which the panel may be secured in any desired position.

While I have herein shown and described what I consider the preferred manner of carrying out my invention, the same is merely illustrative, and I contemplate all changes and modifications which come within the scope of the claims appended hereto.

I claim:

1. A method of forming a panel consisting in sandwiching a piece of insulating material between steel plates, applying pressure to said panel to bond said steel plates and insulating material together, and incorporating between said plates, as part of the panel, a spacing member capable of withstanding the bonding pressure for limiting the thickness to which the panel is compressed.

2. As an article of manufacture, a composite panel comprising a pair of sheet metal veneers spaced apart, marginal members interposed between said metallic sheets and bonded to the opposed surfaces of said metal-

lic sheets, and a filler of insulating material between the sheets, compressed to the thickness of said marginal members and bonded to the inner opposed surfaces of said sheets.

The method of forming composite insulating panels of the character described, consisting in assembling sheet metal veneers in parallel relation, placing between said sheets a core of insulating material and blocks of relatively incompressible material having bonding material on their surfaces, and compressing the panel and core material to the thickness determined by the blocks of relatively incompressible material.

In witness that I claim the foregoing I have hereunto subscribed my name this 4th day of October, 1929.

GEORGE K. LEWIS.