

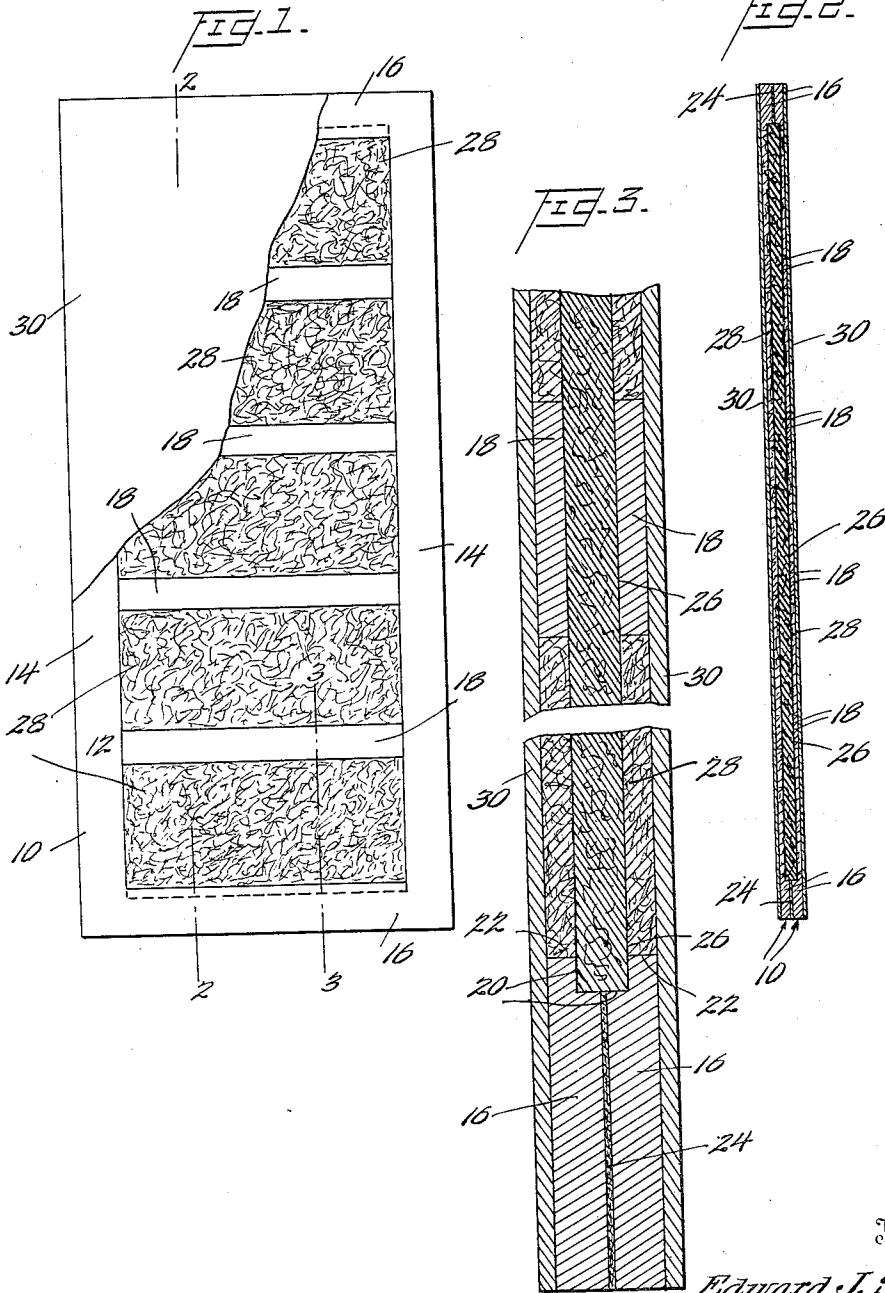
Nov. 7, 1939.

E. J. SHIELDS

2,178,729

PANEL

Filed March 22, 1938



Inventor

Edward J. Shields

By J. R. Paris.

Attorney

UNITED STATES PATENT OFFICE

2,178,729

PANEL

Edward J. Shields, Watertown, Mass., assignor
to Hall-Gregg, Inc., Somerville, Mass., a corporation of Massachusetts

Application March 22, 1938, Serial No. 197,457

2 Claims. (Cl. 20—35)

This invention relates generally to sound-proof constructions and is more particularly directed to sound proof panels or doors.

One object of my invention is to provide a sound damping or sound proof panel which has sound damping or sound absorbing material throughout its area so that it is effective for sound insulating purposes throughout its area.

Another object of the invention is to provide a sound insulating core which may be employed under many circumstances and for many purposes. The core may be employed in a flush door construction by affixing to its outer faces any suitable or desirable sheet material such as plywood. The core may also be employed as a partition panel where sound insulation is a desideratum. In such instances, the core may be employed with the sheet material attached thereto, or, if desired, the partition may be built of a plurality of such cores, and the partition is then faced on both sides with any suitable facing material, such as plaster board, or plywood, or any other desirable finishing material.

Other objects of the invention are to provide a simple rugged and light construction of the type described.

In the accompanying drawing, a preferred embodiment of my invention is shown. It will be understood, however, that the embodiment is illustrative and that other modifications falling within the scope of the appended claims will be apparent to persons skilled in the art.

In the drawing:

Fig. 1 is an elevation of a door panel embodying the present invention, showing the finishing material broken away;

Fig. 2 is a vertical section on line 2—2 of Fig. 1;

Fig. 3 is an enlarged section of a part of the door taken on line 3—3 of Fig. 1.

The core of the present panel or door consists of a pair of skeletal structures 10 with interposed sound damping or absorbing material disposed between such frames, with the result that the core is substantially sound insulating throughout its area. The skeletal structures are preferably identical and each comprises: a rectangular frame 12, composed of a pair of stiles 14, and top and bottom rails 16; and spaced intermediate rails 18. The stiles and rails are associated together in each skeletal structure in any manner well known in the art. The skeletal structures are preferably made of wood and the intermediate rails 18 are substantially thinner than the stiles and top and bottom rails. As shown, the inter-

mediate rails are about half the thickness of the stiles and top and bottom rails. In all constructions, the rails and stiles all have their outer faces in the same plane.

In the construction shown, the top and bottom rails are each rabbetted as shown at 20 so that the edge 22 is of the same thickness as the intermediate rails. When the skeletal frames are assembled to form a core or a panel, then the faces 22 are spaced the same way as the inner faces of superposed intermediate rails.

In constructing the core, a pair of skeletal frames are juxtaposed with any suitable sound damping material 24 interposed between the stiles and top and bottom rails, as shown. This would preferably be a rigid or semirigid sound insulating material in sheet form and should preferably be thin as compared with the thickness of the core. Thus, it may be an eighth of an inch or it may be up to one-half an inch; the object being that it should be interposed between the stiles and top and bottom rails so as to minimize the transmission of sound through these portions of the core and taking care not to weaken the structure thereby. The material 24 is thus interposed in the form of suitably shaped sheets between the adjacent faces of the frames as shown. Another and much thicker sheet or layer of sound damping and insulating material 26 is also interposed between the skeletal structure. The material 26 may be in sheet form, if desired, but obviously need not have the rigidity or structural value of the sheets 24. The material 26 enters and fills the recesses formed by the rabbets 20 in the top and bottom rails. The skeletal structures 10 are then permanently connected together in any desired manner and by any suitable means. Panels 28 also of sound absorbing material, or, if desired, of any other suitable material, is then inserted in the panel spaces and affixed to the core.

Thus, the elements 10, 12, 14, 16, 18, 24, 26, and 28 constructed and arranged as shown and described constitute the sound insulating or sound damping or absorbing core which has many applications, in that it may be employed as a core for sound insulating partitions which may then be finished in any desirable manner by the use of any suitable surfacing materials, or it may be employed as the core of a sound insulating door or panel. For the latter purpose, the core is surfaced on each face with any suitable or desirable material, and, as shown herein, the finishing materials are sheets of plywood 30, one on

each face and coextensive with the area of the core.

Having thus described my invention, what I claim is:

- 5 1. A composite insulated panel construction comprising a pair of skeletal structures each having a wood frame and spaced wood rails, the outer faces of said rails being disposed in the plane of the outer faces of the frame, said frames 10 being thicker than the rails, relatively rigid sound insulating material disposed between the faces of the frames, sound insulating material disposed between the faces of the rails and filling the panels therebetween substantially to the plane of 15 the outer faces of said skeletal structures and finishing layers of plywood disposed over the outer faces of said skeletal structures and coextensive therewith.

2. A composite sound insulated door comprising a pair of joined superposed coextensive skeletal structures each having a wood frame and spaced wood rails, the outer faces of said rails being disposed in the plane of the outer faces of the frame, said rails being approximately half the thickness of the frame, some of the inner edges of the frame being rabbeted to form recesses disposed toward the panels formed by the frame and the rails, sound insulating material disposed between the faces of the skeletal structures and coextensive therewith, substantially filling the panels, and substantially filling the said recesses and the space between adjacent inner faces of the rails and finishing layers of sheeted material disposed over the entire areas of the outer faces of said skeletal structure.

EDWARD J. SHIELDS.