

June 9, 1925.

1,540,932

A. H. DODGE

SOUND INSULATING PARTITION

Filed April 19, 1924

Fig 1

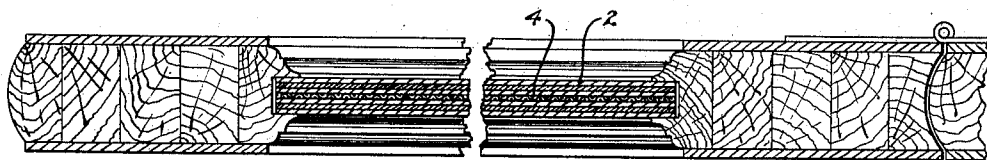


Fig 3

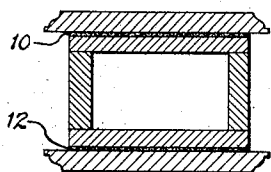


Fig 2

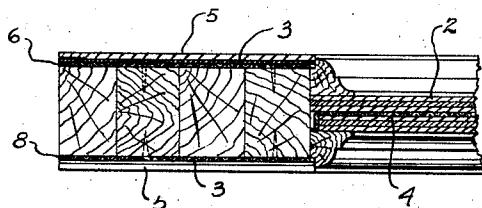
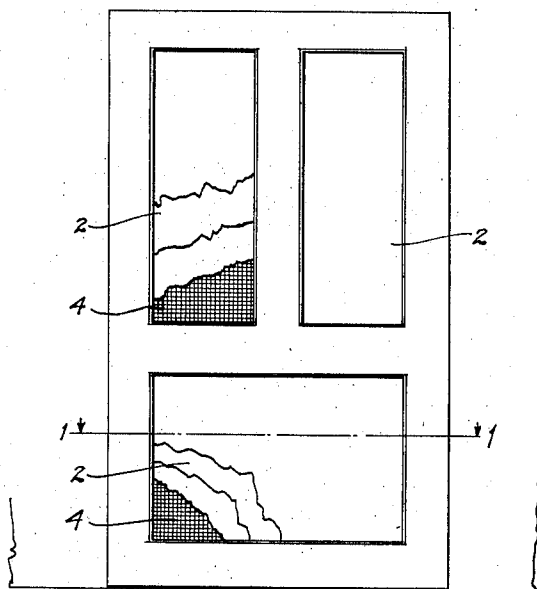


Fig 4



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UNITED STATES PATENT OFFICE.

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SOUND-INSULATING PARTITION.

Application filed April 19, 1924. Serial No. 707,553.

To all whom it may concern:

Be it known that I, ARTHUR H. DODGE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Sound-Insulating Partitions, of which the following is a clear, full, and exact description.

This invention relates to the insulation of doors or of relatively thin partitions against the passage of sound therethrough, and has for its general object to provide such insulation in door or partition constructions without radical change either in the designs of the doors or partitions, in the process of manufacture or in the method of securing the parts together.

Insulation of permanent partitions against the passage of sound therethrough, particularly where the thickness or weight of the partitions is not a major consideration, is comparatively easy. The principal difficulty encountered is when attempts are made to provide adequate sound insulation in doors, thin, paneled partitions and partitions made up of movable sections, such as folding doors, etc. In such partitions and doors, particularly where portability or ease of movement is an essential characteristic, the problem of providing effective insulation without increasing either the weight or the thickness of the door or partition, or radically changing its design and appearance, or reducing its structural strength, presents more difficulty.

The present invention aims to provide simple but effective means to insulate such doors and partitions against passage of sound therethrough, or at least to reduce their sound-transmitting properties.

An important feature of the invention is the provision of a sound-insulating layer or lamina, which may be readily secured in position between adjacent laminae by the same means that serve to unite the adjacent laminae to each other. Other objects and important features of the invention will appear from the following description and claims, when considered in connection with the accompanying drawings, in which—

Fig. 1 is a transverse section, on the line 1—1 of Fig. 4, through a folding door having only the panel portion thereof provided with the novel sound-insulating means of the present invention.

Fig. 2 is a sectional view of the modified construction in which both the panel and the stile or rail, or both, of the door are provided with the novel sound-insulating means of the present invention.

Fig. 3 is a pilaster, such as used with folding doors of the type herein shown, showing one mode of effecting sound insulation of such constructions, and

Fig. 4 is an elevation of a door having parts broken away to illustrate the nature of the sound-insulating means.

In the form of the invention shown in Fig. 1, which is suitable for use where difficulty is experienced only in the passage of sound through the panel sections of doors, it will be noted that only the panel section of the door is provided with the novel sound-insulating means of the present invention. In the construction illustrated in this figure, the panel, which is shown in cross-section, comprises laminae of wood veneer upon the two sides of an intermediate layer 4 made up of wire mesh, this layer serving as the sound-insulating or sound-retarding layer.

One advantage of using the wire mesh as sound-insulating or sound-retarding means in a construction of this sort is that it may readily be secured in position without material modification of the door construction or marked increase in thickness or reduction in strength of the parts. In securing this sound-insulating or retarding means in position between the adjacent laminae, the screen cloth or wire mesh, which is preferably similar to that used for insect or similar screens, is set in a heavy bed of glue between the adjacent laminae of the panels and the laminated structure thus produced is pressed together under considerable pressure, thereby forcing the mesh into the wood so as to produce a substantially integral structure. Thus, preferably both the adjacent laminae of wood are united by glue extending through the interstices of the screen mesh, and the screen itself is also securely locked to the adjacent laminae by being forcibly united thereto, and is held rigidly in position as a part of the permanent structure. In addition to setting the screen mesh in a bed of glue and securing it in position adjacent the laminae in a manner just described, the mesh may be cut to project beyond the edges of the adjacent wood laminae and may be bent over these edges, as shown

in Fig. 2, and secured thereto in any suitable manner, as for example, by means of light nails.

When the stiles or rails of a door are to be provided with sound-insulating means in accordance with the present invention, such means may be set in glue as hereinbefore described, and a thin veneer 3 of wood may then be nailed over it to hold it in position, and the outside veneer 5 of the stile or rail may then be glued under pressure to the first-mentioned veneer in the usual manner.

When the sound retarding material is located within the stile or rail, it is preferably not crimped over the edges in the manner above described in connection with the panels but is preferably cut slightly smaller than the adjacent wood layers in order to provide a trimming edge to secure accurate fitting of the door or partition section.

In insulating either the stiles and rails of doors or sections of light partitions, more than one sound-insulating layer may be provided as shown at 6 and 8 in Fig. 2, and at 10 and 12 in Fig. 3.

What I claim is:

1. A sound insulating door or partition comprising laminæ, and an intermediate lamina consisting of a screen mesh interposed between said laminæ and having the interstices thereof filled with an adhesive by which the adjacent laminæ and the screen are united.

2. A sound insulating door having a panel comprising laminæ, and an intermediate lamina consisting of a metallic screen the

edges of which are bent over the edges of one of the adjacent laminæ.

3. A sound insulating door comprising a frame structure and panels, and having an insulating layer extending through the frame and through the panels, said layer comprising a metallic screen having its interstices filled with an adhesive by which it and the adjacent parts of the door are united.

4. A sound insulating door or other partition section comprising laminæ and an intermediate lamina interposed between said laminæ and consisting of a wire mesh.

5. A sound insulating door comprising a frame and panels, said frame and said panels each having as an intermediate layer, between the faces thereof, a wire mesh, and means acting upon adjacent portions of said frame and said panels for securing said mesh in position as a permanent and immovable part of the door structure.

6. A sound-insulating door member comprising outer layers of wood and an inner layer of wire mesh forcibly united to said layers to form a substantially integral structure.

7. A sound-insulating door member comprising an inner layer of wire mesh, outer layers of wood pressed against said mesh, and adhesive means to assist in binding said layers of wood to each other and to said mesh.

Signed at New York city, New York, this 17th day of April, 1924.

ARTHUR H. DODGE.