Sept. 4, 1951 J. J. HJARTSATER 2,567,070

SOUND ABSORBING FIBROUS MATERIAL FOR COVERING THE WALLS OR CEILINGS OF ROOMS

Filed March 22, 1948

Fig.1.

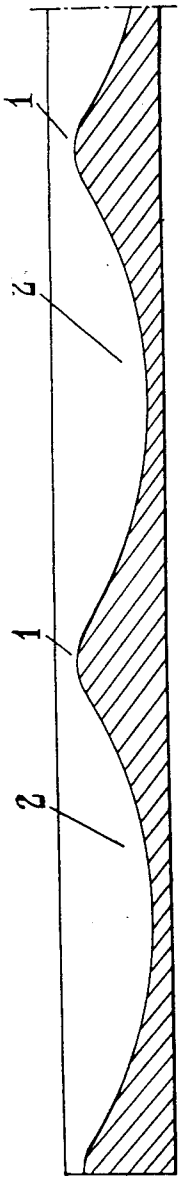


Fig.2.

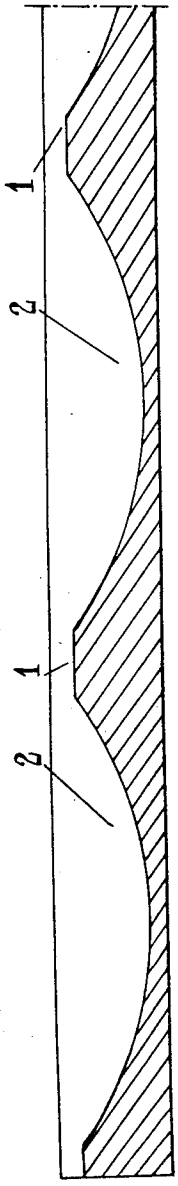


Fig.3.

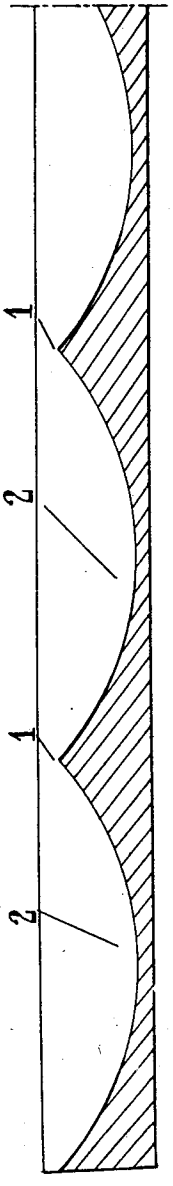


Fig.4.

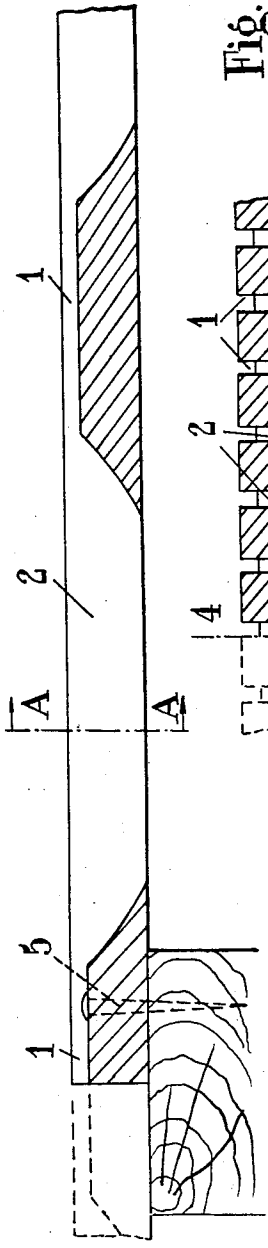
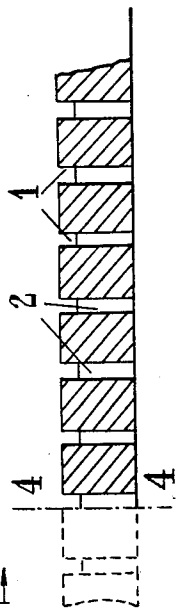


Fig.5.



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SOUND ABSORBING FIBROUS MATERIAL FOR COVERING THE WALLS OR CEILINGS OF ROOMS

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8 Claims. (Cl. 181—30)

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This invention relates to sound-absorbing or sound-deadening boards for covering walls and ceilings to modify the acoustics in a room or auditorium.

It is previously known for this purpose to use perforated or grooved boards made of fibrous materials as for instance wooden fibre boards; however, these known boards for covering walls and ceilings and the like have not the desired sound-absorbing or sound-deadening effect, the object of same being substantially that of transmitting the sound waves to the inside layers of rock-wool, felt or the like.

The object of the present invention is to secure a grooved sound-absorbing or sound-deadening board, which effectively itself absorbs or destroys the sound waves, thus simplifying or even omitting the layer behind the board.

According to the present invention this is obtained by cutting a multitude of continuous grooves closely adjacent to each other on the exposed side of the board, the grooves having such a construction that shallow portions alternate with deep portions. The profile of the grooves may be that of a waveline or approximately a waveline with the crest rounded, flattened or pointed. A modification of the present invention consists in having the deep portions of the grooves extending through the board, whereby the grooves in this case will have a straight bottom when the board is placed on a wall or ceiling.

The present invention is illustrated in the accompanying drawing, in which:

Figures 1 to 3 inclusive are three embodiments of the invention showing sectional views along the grooves.

Figure 4 is a similar sectional view of a modification, and

Figure 5 is a sectional view along the line A—A in Figure 4.

According to the present invention the sound-absorbing or sound-deadening board is provided on the exposed side with a multitude of continuous grooves closely adjacent to each other, each groove being so formed that shallow portions 1 alternate with deep portions 2. In Figures 1, 2 and 3 the profile of the groove has the form of a waveline or approximately a waveline, the crest being respectively rounded, flattened or pointed. In the modification of the invention shown in Figures 4 and 5 the deep portions 2 extend through the board whereby these portions will have a straight bottom, when the board is placed on a wall or ceiling. It has been proved that the sound

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waves are effectively destroyed by the use of boards according to the invention.

In placing together sound-absorbing boards according to the present invention, the joints will be practically invisible, when the boards are cut and placed together along the grooves as indicated by the line 4—4 in Figure 5. The heads of the nails 5 will also be practically invisible in the bottom of the grooves 1.

The present invention also comprises sound-absorbing boards having the deep portions of the grooves in some parts of the board extending through the same while in other parts they do not extend therethrough.

As indicated in the drawings, the board of sound absorbing fibrous material has appreciable thickness and is to be placed together with other boards against a wall or ceiling of a room or enclosure to form a sound absorbing surface thereon. Each board presents an exposed face embodying a series of parallel, closely spaced grooves, and in which the space between the grooves presents an exposed surface with greater width than the width of the grooves.

In the species of Figures 1 to 3 the bottom profile of the grooves is such as to respectively form a wave line, a wave line with flattened crests, and a wave line with the crests terminating in points. In this connection it is to be noted that the crests lie in a common plane disposed below the exposed face of the board and the crests are equally spaced from one another. The construction of these figures presents a series of continuous grooves, each groove extending throughout the length of the board and comprising alternating deep and shallow portions with the shallow portions equally spaced from one another.

As regards the species of Figure 4, the bottom surface of the groove is constituted by the wall or ceiling surface against which the board is placed and in this form the deep portions of the groove are constituted by slots extending through the board with the portions of the board forming the end faces of the slots being inclined from the exposed face toward the wall or ceiling and toward one another and with the shallow portions having flat bottoms lying in a common plane disposed below the exposed face and the opposite terminal edges of the flat bottom portions constituting the upper terminal edge of the respectively inclined portions forming the ends of the slots.

I claim:

1. A board of sound absorbing fibrous material having appreciable thickness for covering the

wall and/or the ceiling area of a room or enclosure to deaden the sound therein including a grooved exposed face having a series of continuous parallel grooves therein in closely spaced relation, each of the grooves comprising a plurality of alternating deep and shallow portions throughout the length of the board with the shallow portions being substantially equally spaced from one another.

2. A board of sound absorbing fibrous material and having appreciable thickness for covering the wall and/or ceiling area of a room or enclosure to deaden the sound therein including a grooved exposed face having a series of continuous parallel grooves therein in closely spaced relation and the bottom of each groove having a profile presenting a series of troughs and crests alternating lengthwise thereof throughout the length of the board with the crests being equally spaced from one another and disposed below the said face of the board.

3. A board of sound absorbing fibrous material and having appreciable thickness for covering the wall and/or the ceiling area of a room or enclosure to deaden the sound therein including a grooved exposed face having a series of continuous parallel grooves therein in closely spaced relation and the bottom of each groove having a profile in the form of a wave line with the crests being substantially equally spaced from one another and disposed below the said face of the board.

4. A board of sound absorbing fibrous material and having appreciable thickness for covering the wall and/or the ceiling area of a room or enclosure to deaden the sound therein including a grooved exposed face having a series of continuous parallel grooves therein in closely spaced relation and the bottom of each groove having a profile in the form of a wave line with flattened crests, the crests being substantially equally spaced from one another and disposed below the said face of the board.

5. A board of sound absorbing fibrous material and having appreciable thickness for covering the wall and/or the ceiling area of a room or enclosure to deaden the sound therein including a grooved exposed face having a series of continuous parallel grooves therein in closely spaced relation and the bottom of each groove having a profile in the form of a wave line with crests terminating in points and the crests being substantially equally spaced from one another and disposed below the said face of the board.

6. A board of sound absorbing fibrous material and having appreciable thickness for covering a wall and/or ceiling area of a room to deaden the sound therein and including opposite faces, one of said faces being adapted to be placed in abutting relationship with an adjacent wall or ceiling surface and the opposite face constituting an exposed face, said exposed face presenting a surface having a series of continuous parallel grooves in closely spaced relation, each groove including alternating deep and shallow portions extending throughout the length of the board, the deep portions constituting slots through the board with the portions of the board defining the opposite end walls of each slot being inclined downwardly from the said exposed face toward the first mentioned face and respectively toward each other, each shallow portion of the groove having a flat bottom surface disposed in a common plane below the said exposed face and the said flat bottom portions being substantially equally spaced from one another and the opposite edges of said flat bottom portions constituting the upper terminal edges of the respective inclined end portions of the slots.

7. A board of sound absorbing fibrous material having appreciable thickness for covering the wall and/or the ceiling area of a room or enclosure to deaden the sound therein including a grooved exposed face having a series of continuous parallel grooves therein in closely spaced relation, the spacing between the grooves being greater than the width of the grooves, each of the grooves comprising a plurality of alternating deep and shallow portions throughout the length of the board with the shallow portions being substantially equally spaced from one another.

8. A board of sound absorbing fibrous material having appreciable thickness for covering the wall and/or the ceiling area of a room or enclosure to deaden the sound therein including a grooved exposed face having a series of continuous parallel grooves therein in closely spaced relation, the spacing between the grooves being greater than the width of the grooves, and the bottom of each groove having a profile in the form of a wave line with flattened crests, the crests being substantially equally spaced from one another and disposed below the said face of the board.

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