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(54) **Sound absorbing panel construction**

(57) An improved sound absorbing panel construction is characterized in that it comprises a body made of a powder of wood material and/or a compacted synthetic resin, which has an exposed to the view side, provided to being faced to the outside environment, as the panel is in its installed condition, and a rear side facing a wall

or other structure the panel is mounted on; said body comprising, on its exposed to the view side, a plurality of comparatively small cross section slots and a plurality of longitudinal holes or channels extending parallel to the side surfaces and being substantially cross arranged with respect to the slots.

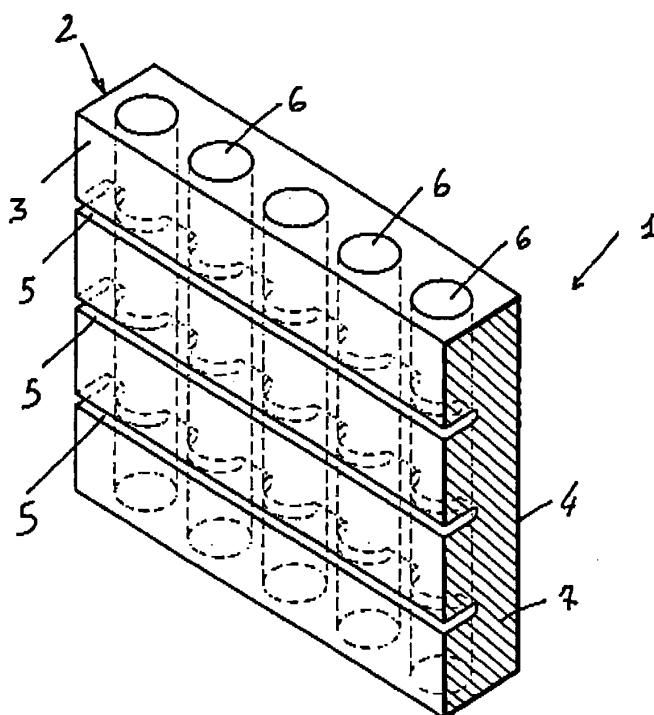


FIG. 1

Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to an improved sound absorbing panel construction.

[0002] Constructions and materials to be used for covering walls to absorb sound energy impinging thereon, and, accordingly, to reduce reflected sound energy, are already known.

[0003] In particular, are known sound absorbing panels made of a powder of a wood material and/or pressed synthetic resin materials, in which a plurality of holes and slots so arranged as to absorb the impinging sound energy are formed.

[0004] However, the above mentioned sound absorbing panels are affected by several drawbacks, which are mainly due to the arrangement of said holes and/or slots and the manner with which they mutually cross.

[0005] In fact, in prior panels of the above mentioned type, the crossing points of said slots, holes, and so on, provide excessively weak regions in the panel structure.

[0006] Thus, the panel can be easily broken, both during its shipment and its installing operations, in particular if the users do not properly handle the panel.

[0007] Moreover, it has been found that also the acoustic characteristics of the above prior panel construction would require improvements.

SUMMARY OF THE INVENTION

[0008] Thus, the aim of the present invention is to provide a sound absorbing panel construction which is improved with respect to prior like sound absorbing panels.

[0009] Within the scope of the above mentioned aim, a main object of the invention is to provide such a panel construction which has a very high mechanical strength.

[0010] Another object of the invention is to provide such a sound absorbing panel construction which is very efficient in absorbing and dispersing sounds.

[0011] Another important object of the present invention is to provide such a sound absorbing panel construction which can be used in a very broad range of applications, owing to its greatly improved mechanical strength with respect to prior sound absorbing light panel constructions.

[0012] Yet another object of the present invention is to provide such a sound absorbing panel construction which is very reliable and safe in operation.

[0013] Yet another object of the present invention is to provide such a sound absorbing panel construction which can be easily made starting from easily commercially available elements and materials and which, moreover, is very competitive from a mere economic standpoint.

[0014] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by an improved sound absorbing

panel construction, characterized in that said panel construction comprises a body made of a powder of a wood material and/or compacted synthetic resin, said body having an exposed to the view side, facing the outside with the panel in an installed condition, and a rear side.

[0015] Said rear side is provided for facing a wall or other structure thereon the panel is adapted to be assembled.

[0016] Said body comprises, on the exposed to the view side, a plurality of slots having a comparatively small cross-section and a plurality of longitudinal holes or channels which extend parallel to the side surfaces, and being substantially cross arranged with respect to said slots.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] Further characteristics and advantages of the present invention will become more apparent hereinafter from the following detailed disclosure of a preferred, though not exclusive, embodiment of the invention, which is illustrated, by way of an indicative, but not limitative, example in the accompanying drawings, where:

Figure 1 is a perspective view of the panel construction according to the present invention;

Figure 2 is a further perspective view of the panel construction including a plurality of slots on both faces thereof, according to a further aspect of the present invention;

Figure 3 is a cross-sectional side view of the panel construction shown in figure 1;

Figure 4 is a further side view of the panel construction shown in figure 1;

Figure 5 is a cross-sectional side view of the panel construction shown in figure 2;

Figure 6 is a top plan view of the panel construction; and

Figure 7 is a front view of the panel construction according to the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0018] With reference to the number references of the above mentioned figures, the improved sound absorbing panel construction according to the present invention, which has been generally indicated by the reference number 1, comprises a panel construction body 2, made, for example, of a powder of a wood material and/or a compacted or pressed synthetic resin, and having an exposed to the view side 3, i.e. a side which will face the outside environment with the panel in an installed condition, and a rear side 4, which will face a wall or other structure thereon the panel will be assembled.

[0019] More specifically, the body 2 comprises, on the exposed to the view side 3 thereof, a plurality of longitudinal slots 5, having a comparatively small cross section, and extending through the overall longitudinal extension

of the body 2.

[0020] According to the present invention, the body 2 comprises a plurality of longitudinal holes or channels 6, extending parallel to the surfaces of the sides 3 and 4, while being substantially cross arranged with respect to the longitudinal slots 5.

[0021] In the shown exemplary embodiment, the longitudinal holes or channels 6 are arranged with an angle of 90° with respect to the longitudinal slots 5.

[0022] Thus, the above arrangement of the longitudinal holes 6 will provide a strong bottom portion 7 in the body 2, corresponding to the panel rear side 4.

[0023] Said bottom portion 7, as shown, is not affected by the longitudinal holes 6, thereby it will have a very high mechanical strength, being free of any weakening regions.

[0024] Moreover, the rear side 4 can comprise a plurality of rear longitudinal slots 8, of a comparatively small cross-section, extending through the overall longitudinal extension of the body 2, said rear longitudinal slots will cross the longitudinal holes or channels 6 thereby providing a labyrinth passage for the sound or acoustic waves entering the front slots 5.

[0025] In this connection it should be pointed out that the provision of the above mentioned rear slots 8 does not substantially weaken the bottom portion 7 of the body 2, since said slots have a very reduced size.

[0026] It has been found that the invention fully achieves the intended aim and objects.

[0027] In fact, the invention provides a sound absorbing panel construction which has a very high mechanical strength and very good acoustical characteristics.

[0028] Moreover, the absorbing panel construction according to the invention has very good aesthetic characteristics.

[0029] In fact, the rear side 4 of the subject panel construction does not comprise holes as included in prior panel constructions and can also be assembled in an exposed to the view condition, even in the embodiment thereof including the rear slots.

[0030] In practicing the invention, the used materials, as well as the contingent size and shapes, can be any, depending on requirements.

Claims

1. An improved sound absorbing panel construction, **characterized in that** said panel construction comprises a panel construction body made of a powder of a wood material and/or a compacted or pressed synthetic resin material, said body having an exposed to the view side, provided for facing the outside environment with the panel in an assembled condition, and a rear side, facing a wall or other structure the panel will be mounted on, said body comprising, on the exposed to the view side, a plurality of comparatively small cross-section slots and a plu-

rality of longitudinal holes or channels extending parallel to the surfaces of the panel sides while being substantially cross arranged with respect to said slots.

2. An improved sound absorbing panel construction, according to claim 1, **characterized in that** said small cross-section slots extend through an overall longitudinal extension of said body.
3. An improved sound absorbing panel construction, according to claim 1 or 2, **characterized in that** said longitudinal holes or channels are arranged with an angle of 90° with respect to said slots.
4. An improved sound absorbing panel construction, according to one or more of the preceding claims, **characterized in that** said longitudinal holes are so arranged as to provide a strong bottom portion of said body, corresponding to the rear side of said panel construction.
5. An improved sound absorbing panel construction, according to one or more of the preceding claims, **characterized in that** said bottom portion does not comprise any longitudinal holes.
6. An improved sound absorbing panel construction, according to one or more of the preceding claims, **characterized in that** said rear side comprises a plurality of small cross-section rear longitudinal slots extending through an overall longitudinal extension of said body.
7. An improved sound absorbing panel construction, according to one or more of the preceding claims, **characterized in that** said rear longitudinal slots cross said longitudinal holes or channels thereby providing a labyrinth passage for sound waves entering the front slots.
8. An improved sound absorbing panel construction, according to one or more of the preceding claims, **characterized in that** said panel construction comprises one or more of the disclosed and/or illustrated features.

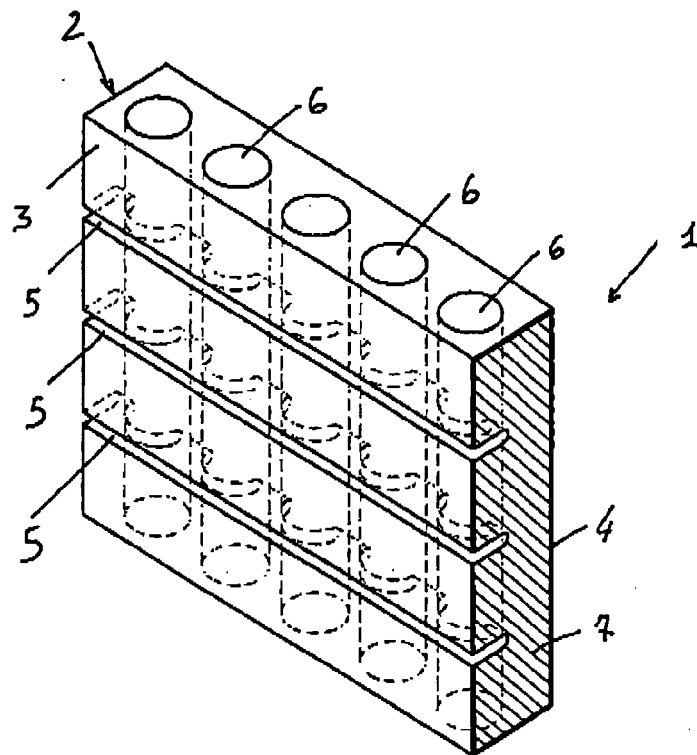


FIG. 1

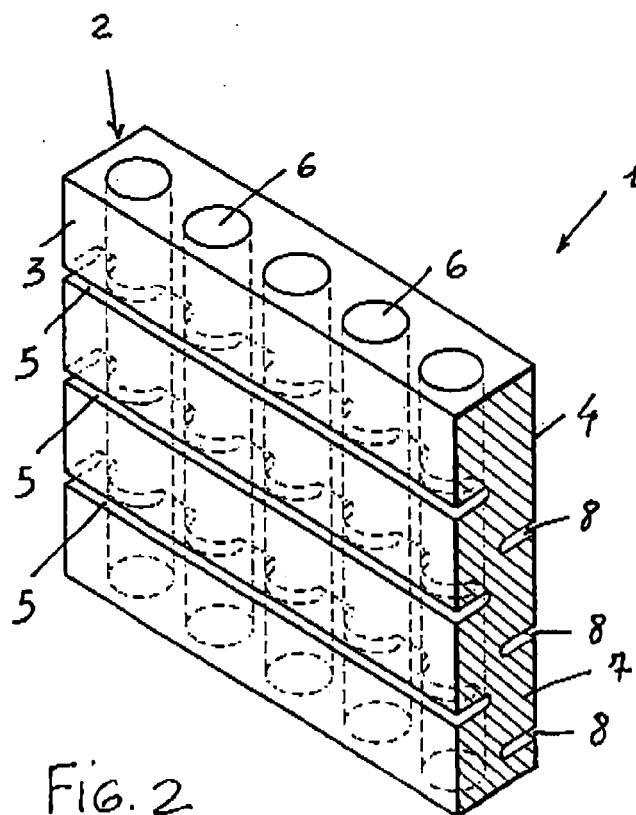


FIG. 2

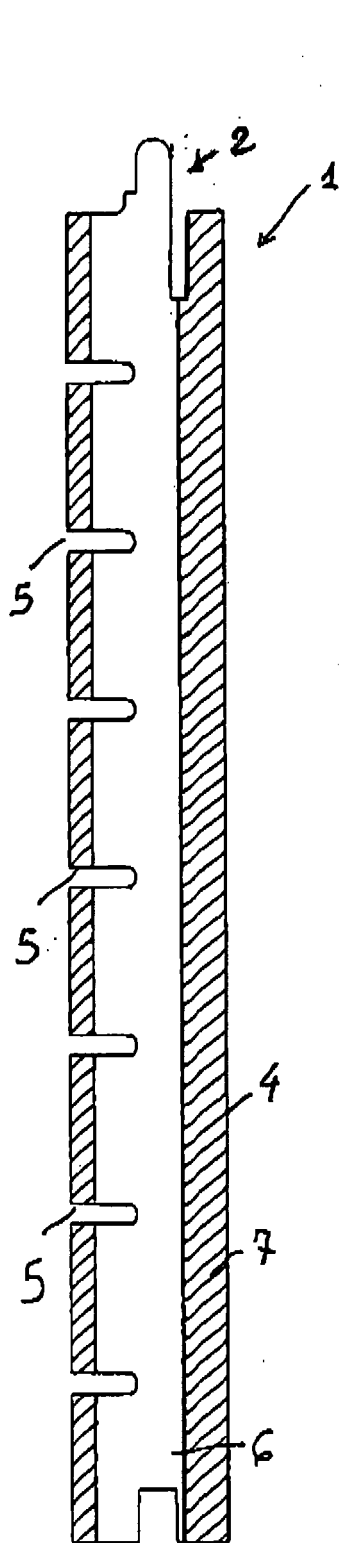


FIG. 3

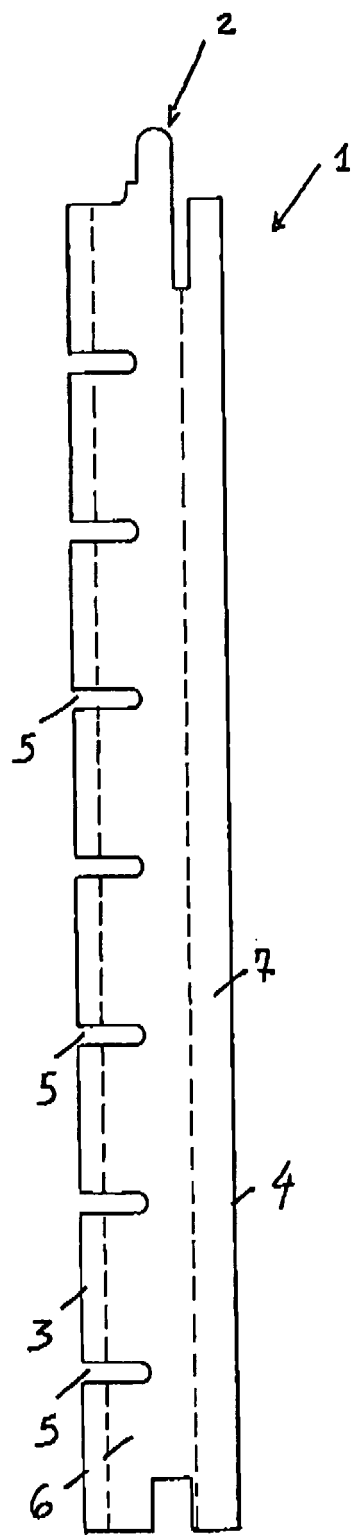


FIG. 4

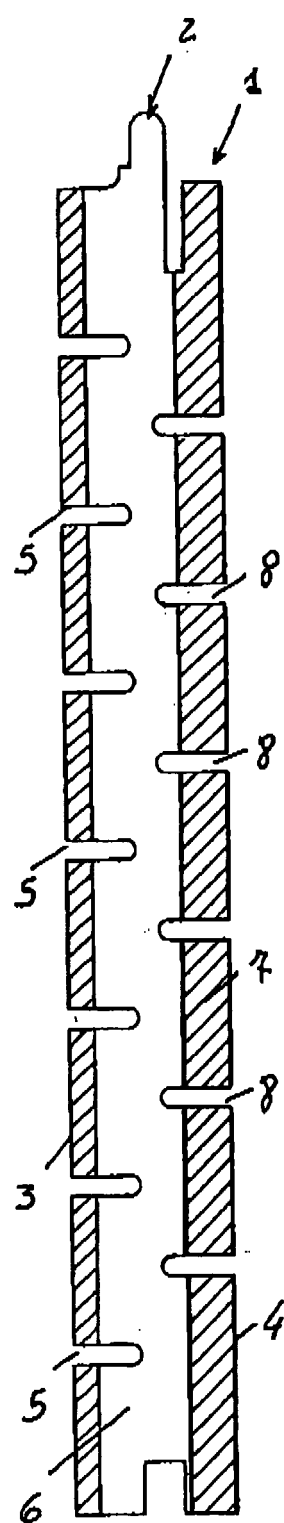


FIG. 5

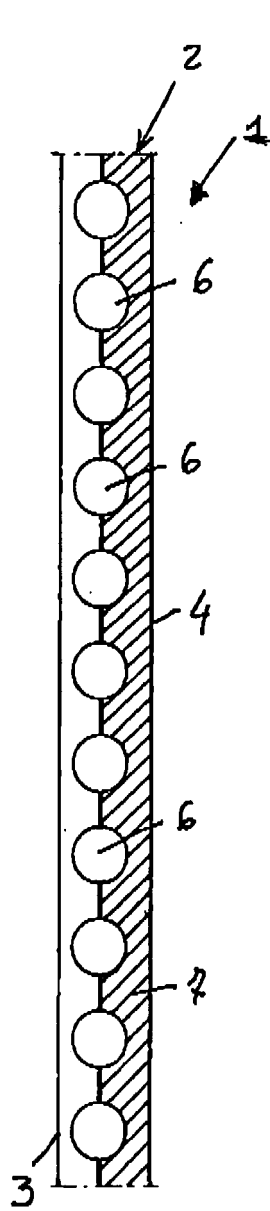


FIG. 6

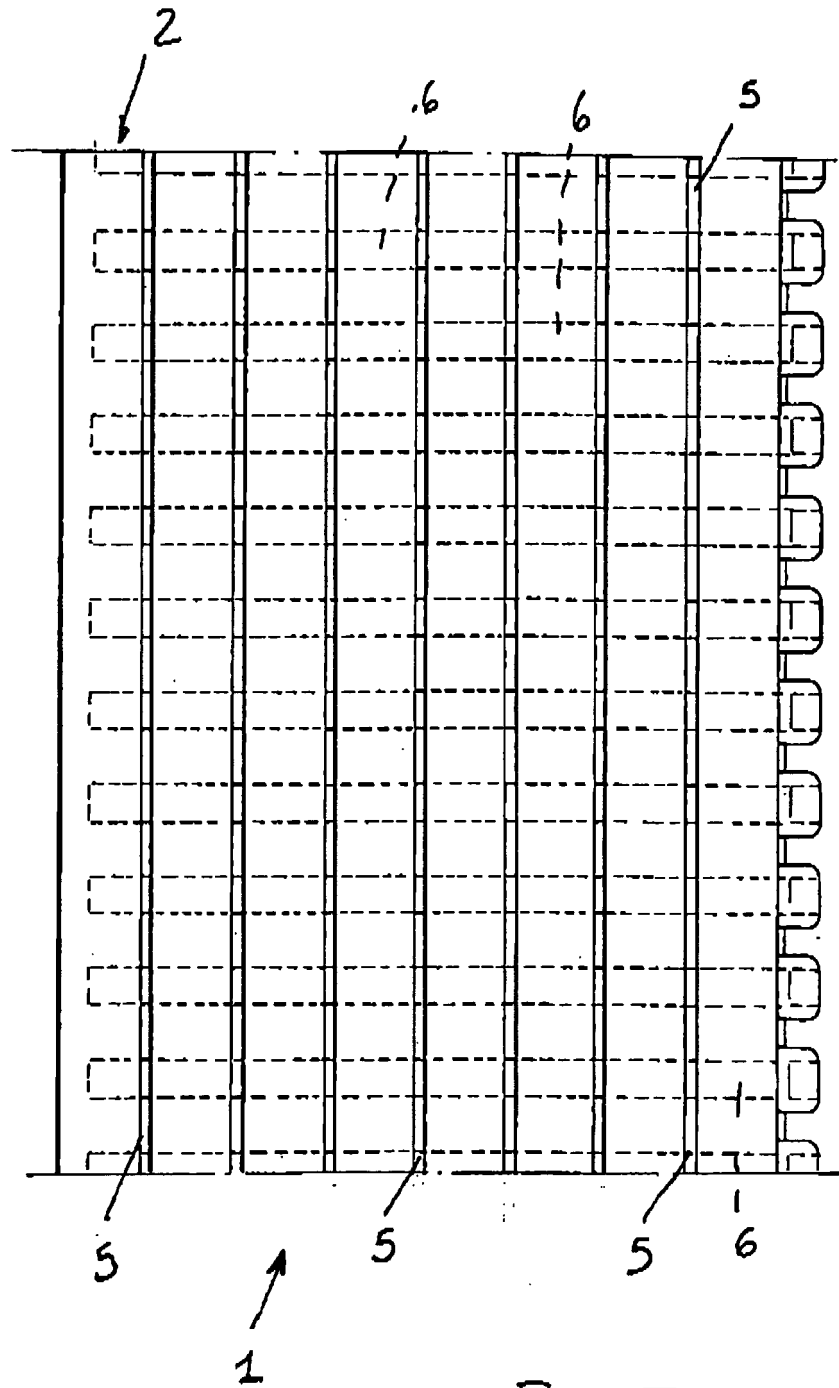


FIG. 7