May 29, 1934. H. F. HOEVEL 1,960,440

WALL COVERING AND PROCESS OF MAKING SAME

Filed Aug. 19, 1931

Fig. 1.

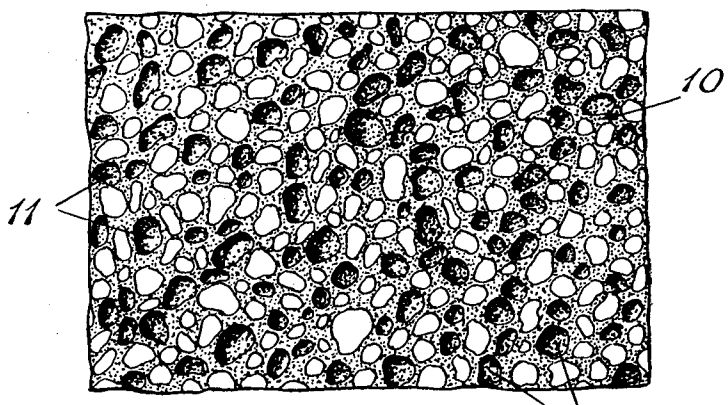


Fig. 2.

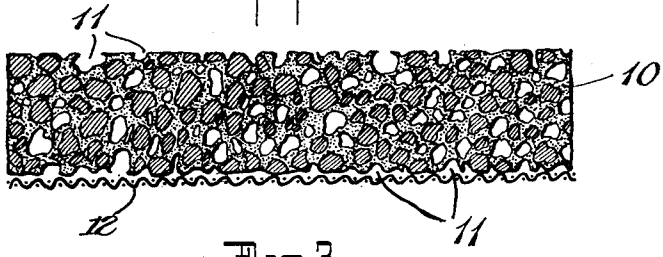
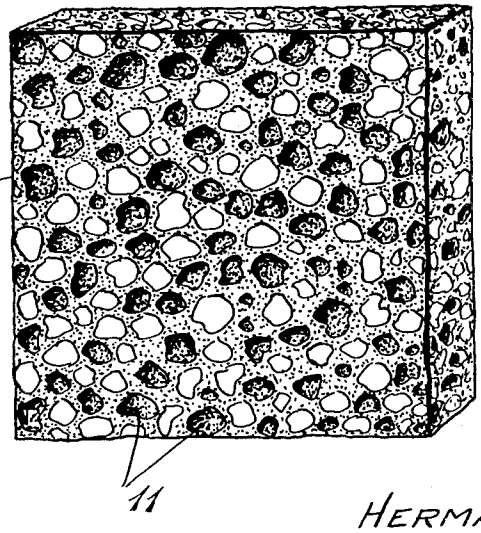


Fig. 3.



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WALL COVERING AND PROCESS OF MAKING SAME

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6 Claims. (Cl. 18—47.5)

The present invention relates to new and useful improvements in buildings, and more particularly it pertains to a novel means for deadening sound in rooms, and to a new and improved method of forming said sound deadening means.

It is well recognized that walls with smooth surfaces reverberate sound and thus the effect of sound in rooms wherein the walls are smooth is greatly multiplied, thereby rendering such rooms highly undesirable.

It is one of the objects of the present invention to provide a new and novel wall slab which acts to break up and dissipate sound waves and to reduce to a minimum the undesirable effects thereof.

It is a further object of the invention to provide a novel surface which may be formed either directly upon the material employed for surfacing the walls, or in the form of slabs which are relatively thin and which may be applied to finished walls not so constructed.

With the above and other objects in view, reference is had to the accompanying drawing, wherein

Figure 1 is a plan view of a section of wall surface constructed in accordance with the present invention;

Figure 2 is a cross-sectional view thereof; and

Figure 3 is a perspective view of a slab constructed in accordance with the present invention.

Referring specifically to the drawing, the reference character 10 designates the wall surface, and said surface is suitably formed with a plurality of voids or recesses 11 which extend to a point below the plane of the surface as will be evident by reference to Figure 2.

The voids or recesses 11 are of various sizes, shapes and depths, and, as will appear by reference to Figure 1, are distributed indiscriminately over the said surface and throughout the entire thickness of the slab.

These voids or recesses act to trap and thus destroy sound waves which encounter the wall, and thus prevent reverberation thereof, thereby deadening the sound waves and reducing to a minimum, if not eliminating entirely, the disagreeable effects thereof.

The voids or recesses may be formed in the surface and body of the slab in any desired manner, but I prefer to form them by the removal of portions of the material from which the slab is formed, since by this method I am enabled to obtain a large variety in shapes, sizes and depths of recesses.

In carrying out the manufacture of a surface or surface slab in accordance with the teachings of this invention, I take a relatively coarse granular material, of which cork, gravel and similar materials are a good example, and it is preferable to employ a material in which the granules vary in size, for a purpose to be hereinafter more fully explained.

The granular material in one form of the invention is mixed with a binder, which binder forms a large proportion of the mass and which may be partially removed by shrinkage by subjecting the mass to the action of heat, while the remaining portion of the binder serves to firmly unite the granular material. Such a binder may consist of a sago base adhesive, a casein glue or a hide glue.

After the mixture has been made, the mass may then be subjected to pressure until the desired degree of density is obtained, after which the mass is subjected to the action of heat which acts to shrink the binder where it contacts therewith, thus leaving the surface of the mass pitted with numerous voids or recesses indiscriminately distributed thereover, and which, due to the variation in size of the granules employed, are of a large variation in shape, size and depth, voids or recesses being also formed throughout the entire thickness of the mass.

While I have described a binder which is destroyed or removed by the application of heat thereto, I have discovered that other types of binders may be employed with excellent results, and I will proceed to describe such other types of binders as I know to be highly satisfactory for the purpose intended.

In lieu of the binder which is shrunk by heat, I may use a binder which is soluble in water, of which a tapioca base adhesive, animal glue or a water soluble bone glue are examples, and, after the mass has been formed, as previously described, it is immersed in water until the binder has dissolved to an extent sufficient to provide voids or recesses of the desired size and depth.

Other forms of binders which I have found highly efficient for the purpose of producing the desired voids or recesses consist of binders which are soluble in alcohol, such as rosin, or binders which are soluble in hydrochloric or sulphuric acid, such as a tapioca or sago base adhesive or an animal glue. In using binders soluble in acid, it is to be understood that granules must be employed which are unaffected by the acid.

From the foregoing, it will be apparent that the present invention provides a new and novel slab for the walls and ceilings of rooms, which

surface is highly effective in the reduction of sound effects by the dissipation of sound waves which come into contact therewith, and that, further, the surface is highly effective in the dissipation of sound waves in which the frequencies are not uniform as the voids and recesses of different shape, size and depth will deaden sound waves of varying pitch.

To prevent granules of the base material which may become separated from falling into the room, a suitable protection in the form of a finely perforated plate or section of fine mesh wire screen 12 may be placed over the exposed surface of the base material.

Having thus described the invention, what is claimed is:

1. A sound deadening slab for walls, ceilings and the like, having in its surface and body a plurality of voids or recesses of varying size, conformation and depth, said voids or recesses being closely associated one with another but indiscriminately distributed over the surface and body of said slab, and means for preventing separated particles of said surface from dropping therefrom.

2. The method of constructing wall coverings of the type described which consists in mixing granular material and a binder partially decomposable under the influence of heat, and subjecting said mass to the action of heat to remove a portion of said binder and leave the surface and body of the covering formed with voids or recesses, the remaining portion of the binder firmly uniting the granular material.

3. The method of constructing wall coverings of the class described which consists in mixing granular material the granules of which are of different sizes and shapes and a binder shrinkable under the influence of heat, subjecting said mass to the action of heat to partially shrink said binder and thereby leave the surface and body of the covering formed with voids or recesses, the remaining portion of the binder firmly uniting the granular material.

4. The method of constructing wall coverings of the type described which consists in mixing granular material and a soluble binder, subjecting said mixture to the action of a solvent to remove portions of the binder from between the granules and thereby leave the surface and the body of the covering with voids or recesses, the remaining portion of the binder firmly uniting the granular material.

5. The method of constructing wall coverings of the type described which consists in mixing granular material of varying shapes and sizes and a soluble binder, subjecting said mixture to the action of a solvent to remove portions of the binder from between the granules and thereby leave the surface and the body of the covering with voids or recesses, the remaining portion of the binder firmly uniting the granular material.

6. The method of constructing wall coverings which consists in mixing granular material and a removable binder, removing a portion of said binder so as to leave the surface and body of said covering formed with recesses, the remainder of the binder firmly uniting said granular material, and applying a finely perforated member to one surface of said covering.

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