Feb. 3, 1942. W. H. VENZIE 2,271,929

BUILDING INTERIOR CONSTRUCTION

Filed Sept. 9, 1938

Fig. 1.

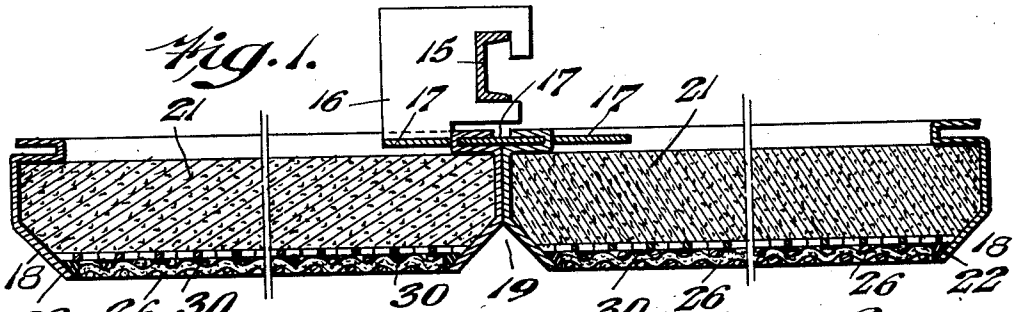
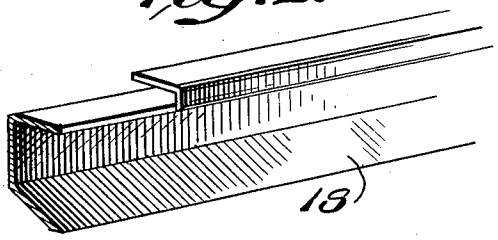


Fig. 2.

Fig. 3.



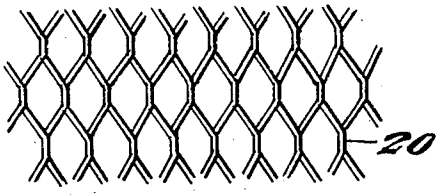


Fig. 4.

Fig. 5.

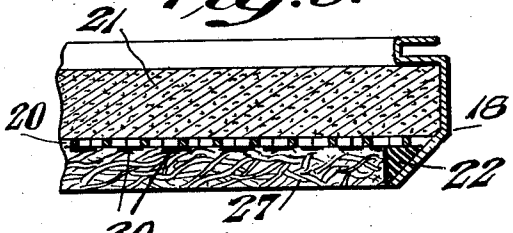


Fig. 8.

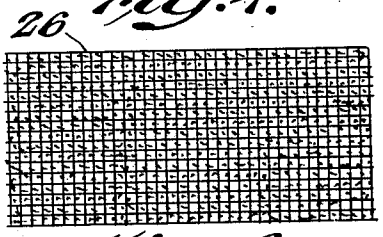


Fig. 6.



Fig. 9.

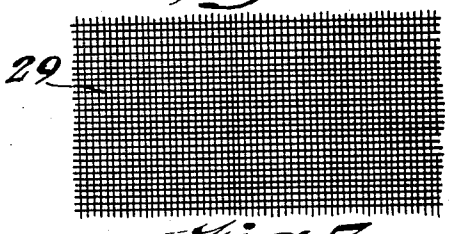
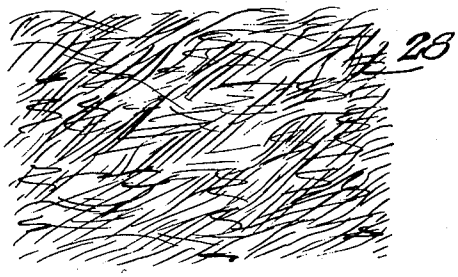
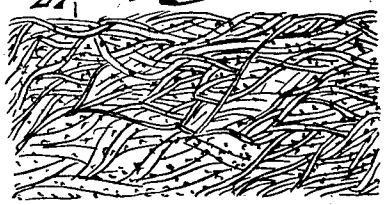


Fig. 7.





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BUILDING INTERIOR CONSTRUCTION

Walter H. Venzie, Philadelphia, Pa.

Application September 9, 1938, Serial No. 229,065

12 Claims. (Cl. 72—68)

The invention relates to building interior construction and, more particularly, to a novel sound absorbent and fire resistant ceiling and wall and to novel surfacing units for use in the same.

A primary object of the invention is to provide a novel panel or surfacing unit, adapted for connection preferably to conventional furring strips, which has increased sound absorbing and at the same time increased fire retarding characteristics over such units of this general type as heretofore were known to the art.

A more specific object of the invention is to provide a room surfacing unit composed of a multiplicity of layers including an inner layer characterized by its sound absorbing capacities, a middle layer characterized by its fireproof and strength characteristics together with its permeability by sound waves and a third layer characterized by its fireproof characteristics together with a paint receiving surface, lack of strength, permeability by sound waves and ability to preclude the passage of fire embers.

Other objects of the invention will be apparent from the following specification, claims and from the drawing in which:

Fig. 1 is a vertical sectional view through one form of ceiling embodying the invention;

Fig. 2 is a broken perspective view of the frame for the units embodied in the invention;

Fig. 3 is a plan view of a section of the supporting screen used in the units;

Fig. 4 is a face view of a portion of the unit shown in Fig. 1;

Fig. 5 is a vertical sectional view through a unit showing a type of filler different from that shown in Fig. 1;

Fig. 6 is a face view of a portion of the unit shown in Fig. 8;

Fig. 7 is a face view of a portion of the unit shown in Fig. 5;

Fig. 8 is a vertical sectional view through a unit having a third type of filler; and

Fig. 9 is a horizontal sectional view, on an enlarged scale of the lower portion of the unit shown in Fig. 8.

Referring now particularly to Fig. 1, the surfacing unit embodied in my invention may be supported from a usual type of sub-support within a building such as a plasterer's channel **15** by means of a clip such as that shown at **16**. The lower portion of the clip may be provided with three parallel spaced fingers **17** upon the central one of which rests the upper legs of two frames **18**, which portions are held in position by the outer two fingers.

As shown most clearly in Figs. 1 and 2, the frame **18** is of metal and, when viewed from one of its ends, is substantially S-shaped in cross section. When viewed from the opposite end the S of course is reversed. The shape departs from the shape of the typical S in that the lower leg of the S drops at a substantial angle below the horizontal, turning inwardly of each unit. Thus, when two of the units are erected in abutting relationship as shown in Fig. 1, the two sloping edges combined to form a V-shaped groove **19** between the faces of two units and form a design upon the ceiling. The clip **16** and frame **18** in themselves form no part of the present invention as, except for the slope imparted to the lower leg of the frame they are described and claimed in the copending U. S. application of Frederick M. Venzie Serial Number 38,496, filed August 30, 1935.

While many desired shapes may be given to the frame, preferably it is bent to form a square and the ends spot welded together. Previous however to the welding of the ends a screen **20** is placed within the frame. The screen **20** preferably is formed of expanded metal lath of such dimensions as will render it substantially rigid within the frame when its edges rest upon the inner face of the sloping leg of the frame. While expanded metal lath is described other materials may be used provided they have its characteristics of rigidity, fire resistancy and porosity. Preferably, also previous to the welding of the frame **18** a layer of sound absorbent material **21** is positioned within the frame over the screen **20**. The layer of sound absorbent material may take any of the forms known to those skilled in the art, and while here represented as being of boardlike nature typical of "Absorbex", may be cellular or granular provided the particles are sufficiently large to be supported by the screen **20**. A usual characteristic of such materials is their inflammability which if reduced, results in a loss of sound absorbing capacity.

In order to reduce the fire hazard without this loss of sound absorbing capacity, below the screen **20**, around the edges of the lower leg of the frame **18** the space may be filled with an edging of grouting **22** preferably of a fireproof nature. The grouting **22** assists in holding the screen fixedly in position in the event that the layer of sound absorbing material is burned, should it be of boardlike formation as shown, or in all events should it be of cellular or granular form.

A fireproof facing may be attached to the room surface of the unit. The facing may take a

number of forms but certain characteristics are always desirable. First, the material should permit the passage of sound waves therethrough; second it should be of a sufficiently close weave to preclude the passage of embers; third, it should in itself be fire resistant, and fourth, it should afford a surface capable of receiving a decorative finish such as paint. While a number of substances will meet this requirement, as for instance a fireproofed perforated paper, only three have been illustrated. In Figs. 1 and 5, I have illustrated a surface layer of woven asbestos fibre **26**; in Figs. 5 and 7 a surfacing material of fireproofed wood shavings held together with a fireproof cementitious binder to form a boardlike unit **27**; and in Figs. 6, 8, and 9 a surfacing material of compressed steel wool **28** provided with a room surfacing face **29** of conventional wire cloth.

Each of these materials is flexible and in order to maintain its position is connected to the relatively more rigid screen **20**. This connection may be made at the time the unit is constructed, as by pressing the surfacing material into the mesh (Fig. 5) or by connecting the two by a fireproof adhesive **30** (Figs. 1 and 8).

It will be noted from a consideration of Figs. 4, 6, and 7 that each of these substances gives a different texture to the room surface of the unit and, from a consideration of Figs. 1, 5, 8, and 9, that each of the surfacing materials is such as will be permeable by sound waves and yet preclude the passage of embers therethrough.

While the invention has been described as embodied in a ceiling it will be obvious that it is equally applicable to wall construction, no modification being necessary except in terminology due to differences of the planes.

Various modifications may be made in the above described embodiment of the invention without departing from the spirit and scope thereof as set forth in the following claims.

What is claimed is:

1. A surfacing unit for use in interior building construction comprising a closed metal frame, inwardly turning lower edges forming an integral part of said frame, expanded metal lath seated on said edges, a porous fireproof material secured to the under surface of said metal lath, said fireproof material being flexible relative to said metal lath, and a sound absorbent material above said metal lath, said lath, porous material and sound absorbent material all lying between the upper and lower edges of said frame and being supported on said lower edges thereof.

2. A surfacing unit for use in interior building construction comprising a closed metal frame, inwardly turning lower edges forming an integral part of said frame, expanded metal lath seated on said edges, and a porous fireproof material secured to the under surface of said metal lath, said fireproof material being flexible relative to said metal lath, said lath and porous material lying between the upper and lower edges of said frame and being supported on said lower edges thereof.

3. A surfacing unit for use in interior building construction comprising a closed metal frame, inwardly turning lower edges forming an integral part of said frame, expanded metal lath seated on said edges, and a sound absorbent material above said metal lath, said lath, and sound absorbent material lying between the upper and lower edges of said frame and being supported on said lower edges thereof.

4. A surfacing unit for use in interior building construction comprising a metal frame, expanded metal lath connected to said frame a porous fireproof material secured to the under surface of said metal lath, and a sound absorbent, inflammable material above said metal lath, said lath, porous material and sound absorbent material all lying between the upper and lower edges of said frame.

5. A surfacing unit comprising a rigid marginal frame, a porous fire resistant screen within said frame, and opposed layers of sound absorbent inflammable material and of fire resistant porous material embracing the screen within the frame.

6. A surfacing unit comprising a fireproof screen, a combustible material supported on said screen and a layer of weak incombustible material carried by and below said screen.

7. In interior building construction, a support, a clip engaging said support and a surfacing unit carried on by said clip, said unit comprising a frame having clip receiving means, a carrier within said frame, sound absorbent means supported on said carrier and porous fire resistant means depending from said carrier.

8. A surfacing unit comprising a frame substantially S-shaped in cross section, the lower leg of the frame being inclined below the horizontal, a substantially rigid screen resting on said lower leg, a steel wool mat depending from said screen, sound absorbent material carried on said screen and a facing of woven wire fabric on said mat.

9. A surfacing unit comprising a frame, a substantially rigid large meshed screen within said frame, a layer of fire-resistant fibrous material depending from said screen and sound absorbent material carried on said screen.

10. In a surfacing unit adapted for use in interior building construction, a layer of sound absorbent material, a screen having a relatively large mesh therebelow, a screen having a relatively fine mesh and a paint receptive surface beneath said large meshed screen and a layer of fire-resistant fibrous material interposed between the screens.

11. A surfacing unit comprising a frame, a porous fire-resistant screen within the frame and layers of sound-absorbent material and of porous fire-resistant material providing a paint receiving outer surface, respectively disposed adjacent opposite faces of the screen.

12. A surfacing unit comprising an incombustible support, layers of combustible sound-absorbent material and of weak incombustible material respectively engaging opposed faces thereof and a metal frame embracing the edges of both layers and of the support.

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