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COMPOSITE PLANK

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2 Claims. (Cl. 72—68)

This invention relates to planks of composite metal and cement construction equal to wood in resisting tensile, compressive and shearing stresses but having the advantage of being fire proof. This application is a division of my application Serial No. 39,029, filed September 3, 1935.

Planks of the herein construction are designed for floors and an object of the invention is the provision of a composite metallic and cementitious plank in which tension is resisted by the metal part and compression by the cementitious portion, the plank having a nail-penetrable metal sheathed tongue bordering its edges.

Other objects will appear as the following description of an embodiment of the invention proceeds. In the drawing which accompanies and forms a part of this specification, and throughout the several figures thereof and in such specification, the same characters of reference have been employed to designate identical parts.

In said drawing:

Figure 1 is a perspective view of a composite metallic and cementitious plank having nail-penetrable tongues secured to a beam and made in accordance with the present invention;

Figure 2 is a transverse cross-section through the beam and one of the planks shown in Fig. 1; and

Figure 3 is a longitudinal section taken along the broken line 3—3 of Fig. 2.

Figures 1 to 3 inclusive illustrate a form of the invention in which composite metallic and cementitious planks are provided, Figure 1 showing a construction embodying such planks. The numeral 16' represents a sheet metal trough having a length equal to that of the plank. Trough 16' has a flat bottom 17 with side flanges 18 bent inwardly as at 19 to form channels. Extending longitudinally along the inside of the bottom 17 and suitably secured thereto by welding or otherwise are metallic members 20 preferably V-shaped. The trough 16' is filled with a body of cementitious material such as shown and is molded with a depth greater than that of the tongues formed by the flanges 18. The cementitious mass interdigitates with the reinforcing members 20 and fills the V-shaped grooves. Thus the cementitious material is integrally keyed to

the bottom of the trough and metallic sheathed tongues are formed along the lateral edges of the plank, the tongues being nail-penetrable.

Figure 1 illustrates a pair of planks resting upon a beam 21 with their tongues abutting and being secured in place by nails 22 driven through said tongues. The channel formed by said tongues and in the bottom of which the nails are driven is filled with a layer 23 of mortar or cement, the surface of which is flush with the surface of the planks.

It is obvious that when subjected to bending stress, the tension is taken up by the sheet metal at the bottom of the trough and by the reinforcing members, while compression stresses are resisted by the cementitious material.

A construction, such as is shown in Figure 1 may be used in the fabrication of walls, floors, or roofs, and in connection with the beam construction illustrated in the first three figures, it enables the fabrication of an entire building from cementitious and metal units without the use of inflammable materials. Such a structure renders unnecessary the use of any finishing material except that which may be desired for interior or exterior decoration, as for example paint.

I claim:

1. A prefabricated concrete plank comprising a shallow flat bottomed sheet metal trough having side flanges bent inwardly and forming channels, metallic reinforcing elements bent into grooved cross-section extending longitudinally of the bottom of said trough and secured upon the inside of said bottom, and a body of nailable cementitious material in said trough interdigitating with said reinforcing elements and filling their grooves, said reinforcing elements forming metal sheathed tongues of cementitious material projecting from the sides of said plank and the plank being of greater thickness than the tongues.

2. A prefabricated plank as described in claim 1 in which the reinforcing elements are of V-cross section and secured at their apices to the inner face of the bottom of the trough, and in which the tongues extend in a plane with the bottom of the plank.

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