June 8, 1937. E. R. HARRAP 2,083,165

COMPOSITE SLAB, BLOCK, OR TILE

Filed Nov. 7, 1934

Fig. 1.

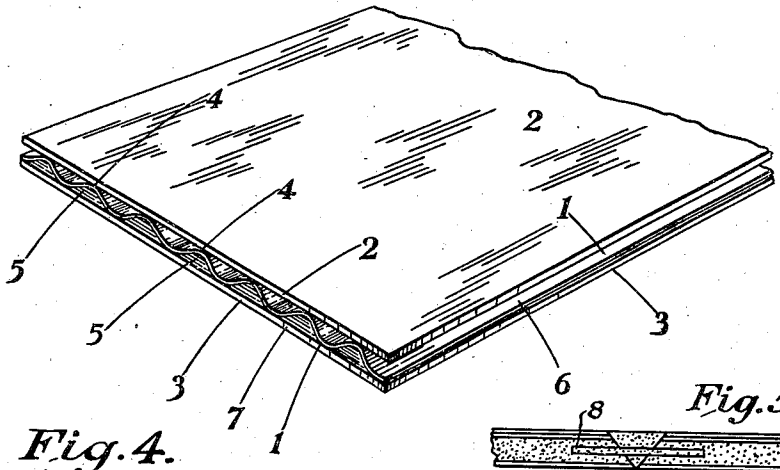


Fig. 5.

Fig. 4.

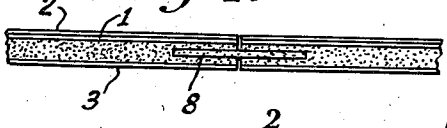


Fig. 6.

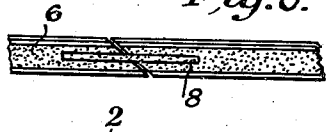
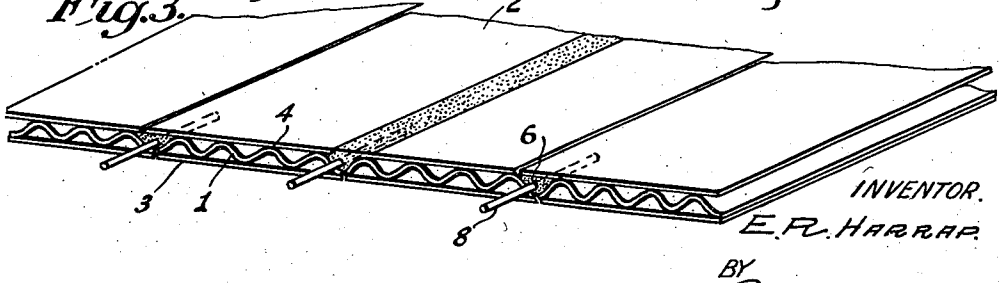


Fig. 2.

Fig. 3.



INVENTOR.
E. R. HARRAP.
BY
Blair & Kilcoyne.
ATTORNEY

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COMPOSITE SLAB, BLOCK, OR TILE

Eric Russell Harrap, Chorlton-cum-Hardy, Manchester, England

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In Great Britain December 7, 1933

8 Claims. (Cl. 108—10)

This invention relates to slabs of asbestos-cement or like composition. The term "slab" is used generically to include blocks, tiles and similar articles used in building. At the present time plane or corrugated tiles or slabs of asbestos cement are used in very large quantities for the construction in particular of roofs and also of floors and walls.

An object of the invention is to provide an improved asbestos-cement slab or the like. A further object is to provide light but strong slabs of asbestos-cement or the like capable of being easily assembled to form a roof or the like. Other objects will hereinafter appear.

According to the present invention a composite slab is made by enclosing at least one corrugated sheet made of a composition consisting of asbestos and a binding agent such as cement or a cement substitute between two plane sheets of the same or similar material and the corrugated sheet is bonded to the plane sheets at some or all of the lines of contact. If desired the sheets may be additionally secured together by means of nails, bolts or like mechanical units, which can be readily inserted during molding and can be completely covered with additional asbestos cement and smoothed over. This serves to protect the nails or the like against corrosion and at the same time allows the slabs, blocks or tiles to be provided with completely smooth faces. Of course, the smooth faces can be interrupted by grooving or other keying if desired.

The resulting composite slab possesses very great advantages of strength in comparison with the asbestos-cement sheets or slabs that are commonly used at present and is much lighter than articles of equal strength made from other materials. It is in fact found that such composite slabs will withstand very substantial impact stresses and at the same time are so light that they can advantageously be used not only for the manufacture of roofs or floors but also of walls.

The strength of the finished slab may be increased by increasing the depth of the corrugations or the thickness of the material or both.

In order that the invention may be clearly understood and readily carried into effect three forms of slab in accordance therewith will now be described by way of example with reference to the accompanying drawing, in which—

Figure 1 shows a perspective view of an asbestos-cement slab,

Figure 2 is a side elevation of two slabs showing a mitred joint,

Figure 3 is a perspective view illustrating four composite slabs in a row, the joints between which are of different natures, for the purpose of illustration.

Figures 4, 5 and 6 are detailed sectional views, of which Figure 4 is an ordinary butt joint, Figure 5 is the joint between two slabs having inclined edges running away from one another, and Figure 6 illustrates a mitred joint.

In the form of slab shown in Figure 1 a corrugated sheet 1 of asbestos-cement is secured between two rectangular plane sheets 2 and 3 of the same material, the lines of contact between the corrugated sheet and the plane sheet being equidistant from each other and parallel to the long edge of the rectangular sheets. In the usual form of construction the corrugated sheet is secured to the plane sheets along the longitudinal tangent lines of the corrugations indicated in Fig. 1 by the lines 4 by means of cement, asbestos-cement or similar binding compositions.

The fact is that a very little of the bonding agent is put in and the resultant joint is practically invisible, i. e., the bonding does make the sheets integral with one another.

When it is desired to join together two or more such slabs they are placed either end to end with the compartments 5 of each slab registering with each other or else they may be placed with their longer edges in contact. In the latter case the open end compartment 6 of each slab will form each half of a closed compartment in the combined slab. In either case the union is effected by filling adjacent compartments of the two slabs with cement, although when the two slabs are being joined along their shorter edges it is not necessary to fill all the registering compartments with cement.

Figure 2 shows a particularly convenient form of slab which can be joined to a similar slab by means of a mitred joint. On joining up the two slabs shown and filling up some or all of the registering compartments 5 with cement, a firm union may be effected between the two slabs.

The slabs are equally adapted to be joined to a wall or other fixed object and for this purpose the slab is placed in the desired position and may be attached to the wall by placing cement in one or more of the compartments enclosed between the wall and the sheets 1, 2 and 3.

In Figures 4, 5 and 6 the reinforcing rods may be of any desired length, and if desired may extend completely across the slab.

If it is desired to reinforce a structure made from a number of such composite slabs it is a

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simple matter to pass iron or like stay bars or tubes down the registering longitudinal spaces within the composite slabs or the like or these reinforcing bars or tubes may be inserted during manufacture as described above.

I claim:—

1. As a new article of manufacture, a slab comprising two plane sheets composed of asbestos and a binding agent enclosing a corrugated sheet of the same or similar composition, the corrugated sheet being bonded to the plane sheets at a number of their lines of contact by means of said composition to give an integral whole.

2. As a new article of manufacture, a slab comprising two plane sheets composed of asbestos and a binding agent enclosing a corrugated sheet of the same or similar composition, said corrugated sheet being bonded to said plane sheets by means of a binding agent.

3. As a new article of manufacture, a slab comprising two plane sheets composed of asbestos-cement enclosing a corrugated sheet of the same or similar composition, said corrugated sheet being bonded to said plane sheets by means of a binding agent.

4. As a new article of manufacture, a slab comprising two plane sheets composed of asbestos-cement or like composition enclosing a corrugated sheet of a similar composition, said corrugated sheet being secured to said plane sheets by means of mechanical units together with a quantity of cement binding agent, said binding agent completely embedding said mechanical units within it.

5. As a new article of manufacture, a slab comprising two plane sheets composed of asbestos and a binding agent enclosing a corrugated sheet of the same or similar composition rigidly affixed thereto, together with rigid bars fixed in the spaces enclosed between said corrugated sheet and each of said plane sheets.

6. In building, the steps which comprise aligning in contact a plurality of composite slabs each composed of a corrugated sheet of asbestos-cement or like composition enclosed within two plane sheets of the same or similar composition and each having edges making an oblique angle with the plane sheets bounding them, and uniting said slabs by means of a binding agent inserted into the spaces left between contacting edges, whereby to form an integral structure having mitred joints.

7. As a new article of manufacture, a slab comprising two plane sheets composed of asbestos and a binding agent enclosing a corrugated sheet of the same or similar construction, said corrugated sheet being bonded to said plane sheets by means of a binding agent of the same material.

8. As a new article of manufacture, a slab comprising two plane sheets composed of asbestos-cement enclosing a corrugated sheet of the same or similar composition, said corrugated sheet being bonded to said plane sheets by means of a cement binding agent.

ERIC RUSSELL HARRAP.

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