

March 27, 1962

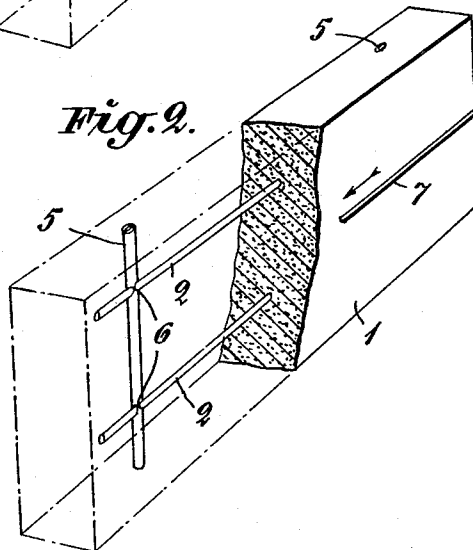
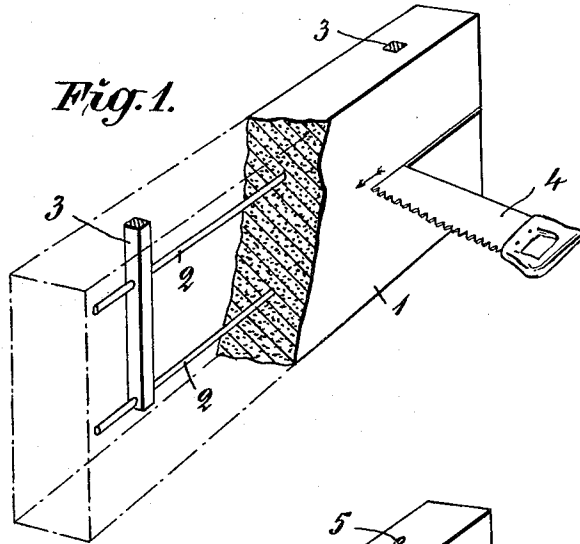
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REINFORCED LIGHT-WEIGHT CONCRETE SLABS

Filed Oct. 15, 1953

2 Sheets-Sheet 1



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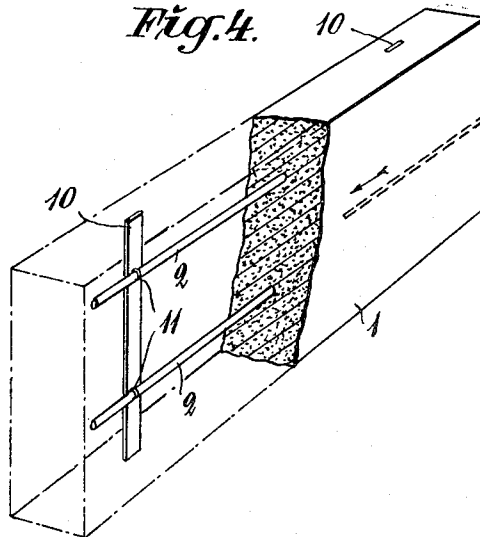
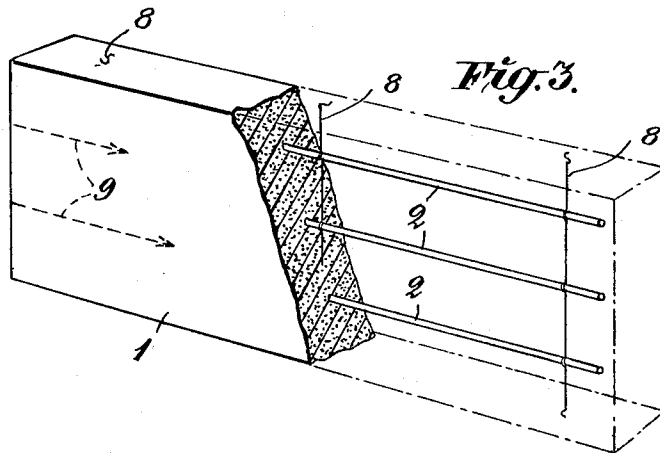
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REINFORCED LIGHT-WEIGHT CONCRETE SLABS
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ments, to Casius Corporation Limited, Montreal, Que-
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3 Claims. (Cl. 50—78)

One of the great advantages of light-weight concrete as a building material resides in the possibility of sawing it. Thanks to this property, slabs and blocks of light-weight concrete may be worked and divided up according to requirements by means of ordinary woodworking tools. In this way a considerable simplification can be effected in the erection of buildings, while at the same time the building work will be less time-consuming.

In certain cases, particularly where large parts of light-weight concrete, such as wall-slabs, are concerned, it is necessary to reinforce the light-weight concrete products, particularly with respect to the stresses to which they will be subjected during transport to the building site. This reinforcement, which usually consists of a number of separated, parallel iron rods interconnected by means of distance or joining members in such a way that a reinforcing mat or cage is produced, naturally exercises an adverse effect on the divisibility of the light-weight concrete slab and also on the workability of the latter in other respects, since both the parallel iron rods and the distance or joining members which are usually also constructed of iron rods, have to be worked with a hacksaw or the like in order to cut them.

Investigations have shown, however, that it is seldom necessary to divide up the light-weight concrete slabs in more than one direction, and as a rule they only require to be divided in the longitudinal direction on the building site when delivered in standard lengths by the manufacturer.

The present invention takes advantage of this fact and has for its object to provide a reinforced light-weight concrete slab in which the reinforcement is arranged in such a way that the division of the slab is rendered possible by sawing with an ordinary wood saw in a direction which is substantially parallel with the iron rods forming the reinforcement.

The invention is chiefly characterized therein that the distance or joining members are constructed of a material possessing approximately the same workability as the light-weight concrete of the slab. These distance or joining members which should have as small a cross-section as possible are preferably so arranged that they extend to at least one of the side edges of the slab in order to serve as carrying or supporting elements for the iron rods when casting the slab. As examples of suitable materials for the said elements, wood, especially plywood, also cardboard, cords or the like may be mentioned. Obviously, other suitable materials which have the desired workability when compared to the concrete per se may be substituted such as properly chosen plastics, concretes, fibrous materials or combinations of the foregoing.

With the foregoing and other objects in view, the invention resides in the novel arrangement and combination of parts and in the details of construction and process of manufacture hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein described may be made within the scope of what is claimed without departing from the spirit of the invention. It will be further understood that our invention is susceptible of embodiment in many and various forms, some of which are illustrated in the accom-

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panying drawing, and that the structural details or particular steps of the method herein set forth may be varied to suit particular purposes and still remain within our inventive concept.

Some forms of construction for a reinforced light-weight concrete slab according to the invention are illustrated diagrammatically in the accompanying drawings where, in all cases, the light-weight concrete slabs are partly broken away to expose the reinforcement.

FIG. 1 of the drawing is a perspective view of one form of a slab provided with a reinforcement according to the invention;

FIG. 2 is a perspective view of another form of construction;

FIG. 3 is a perspective view of a third form of the invention; while

FIG. 4 shows a fourth form of construction, also in perspective. However, the invention is not limited to the forms of construction shown in the drawings, which are merely to be regarded as examples of the application of the inventive principle.

In all the figures, 1 is the light-weight concrete slab which is reinforced by a number of parallel iron rods 2 running in the longitudinal direction. The ends of these iron rods 2 are located at some distance inside the respective end surfaces of the slab to enable one or both ends of the slab to be cut obliquely, or to permit a slight adjustment of the slab's length, if necessary.

In FIG. 1, the iron rods 2 are held together by a number of wooden bars 3 provided with holes through which the iron rods 2 run. The wooden bars 3 extend to one side edge of the slab in order to serve as carrying or supporting elements for the iron rods when casting the slab, and to indicate the direction in which the slab may be cut. It is obvious that with this form of reinforcement, the light-weight concrete slab 1 can be sawed without difficulty in a longitudinal direction in any desired manner, as indicated by the wood saw 4.

In the light-weight concrete slab according to FIG. 2, the wooden bars are replaced by cardboard tubes 5 which run at right angles to the iron rods 2 and extend out to both side edges of the slab to serve as supporting elements for the iron rods 3 when casting the slab. The iron rods 2 are here rigidly connected to the cardboard tubes 5 by means of wires or cords 6, but it is obvious that the cardboard tubes may also be provided with holes in a corresponding manner to the wooden bars 3 in FIG. 1, through which the iron rods 2 may be inserted. The slab in FIG. 2 may hence also be divided in any desired manner in a longitudinal direction with the help of an ordinary wood saw, which is indicated by the saw cut 7.

In the light-weight concrete slab according to FIG. 3, the iron rods 2 are interconnected by means of cords 8 which run between the opposite side edges of the slab and are knotted around the different iron rods 2. During the casting of the light-weight concrete slab these cords were maintained stretched and have thus assisted in localizing the iron rods 2 in the slab and it is obvious that the cords 8 will not prevent the sawing of the light-weight concrete slab with a wood-saw or any other working thereof, in the direction indicated by the arrows 9.

Finally, FIG. 4, shows a further favorable form of construction with distance and joining members 10 of wood. These are preferably constructed in the form of plywood strips to which the reinforcing irons are secured by means of staples 11.

Although the supporting distance or joining members of the types indicated here do not, of course, possess the same reinforcing capacity as the ordinary cross-wires in a reinforcing mat or cage, they nevertheless act to hold the slab together, and before everything else, they fulfill

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the function of fixing the longitudinal reinforcing rods 2 while the light-weight concrete slab is being cast. Obviously, when one end of a joining member is exposed as clearly shown in FIGS. 1-4, the direction of severing is indicated since the respective directions of the spacing element and the reinforcing rods are thereby known.

What we claim is:

1. A rigid structural building slab consisting of a body of light weight concrete and a reinforcement capable of being sawn with an ordinary wood saw, said reinforcement consisting of spaced, parallel, rigid metal rods completely embedded within the body and extending substantially the length of said body, said rigid metal rods having a shorter length than the dimension of said body in the direction of said rods, and joining members running crosswise and at right angles to said metal rods and interconnecting therewith, said joining members being made of a material possessing at least the same ease of cutting as the light weight concrete of said body, whereby the slab may be sawn entirely through in a direction substantially parallel with said metal rods by means of an ordinary wood saw without obstruction from reinforcing parts which are difficult to sever, and said joining members having at least their one end exposed on the surface of said light weight concrete body.

2. A method of manufacturing a plurality of reinforced concrete slabs which comprises: connecting a plurality of metal reinforcing rods in substantially parallel relationship by means of a plurality of joining elements constructed of a material which possesses approximately at least the same workability as the light-weight concrete of said slabs, casting a mass of light-weight concrete about said interconnected rods and joining elements, and then cutting said cast mass in a plane between two of said rods and completely through said joining elements, said casting being done with at least one end of a joining element exposed to serve as a carrying or supporting element for the metal rods when the slab is being cast.

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3. A method of manufacturing a reinforced concrete slab which comprises: connecting a plurality of metal reinforcing rods in substantially parallel relationship by means of a spacing element constructed of a material which possesses, approximately at least, the same workability as the light-weight concrete of said slab, casting a mass of light-weight concrete about said interconnected rods and spacing element, and then cutting said cast mass in a plane between two of said rods and completely through said spacing element, said metal reinforcing rods being made of iron and said spacing element made of material able to be readily severed, said spacing element being elongated and positioned with at least one end exposed to serve as a support when the slab is being cast and to show the direction of severing by indicating the respective directions of the spacing element and the reinforcing rods.

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