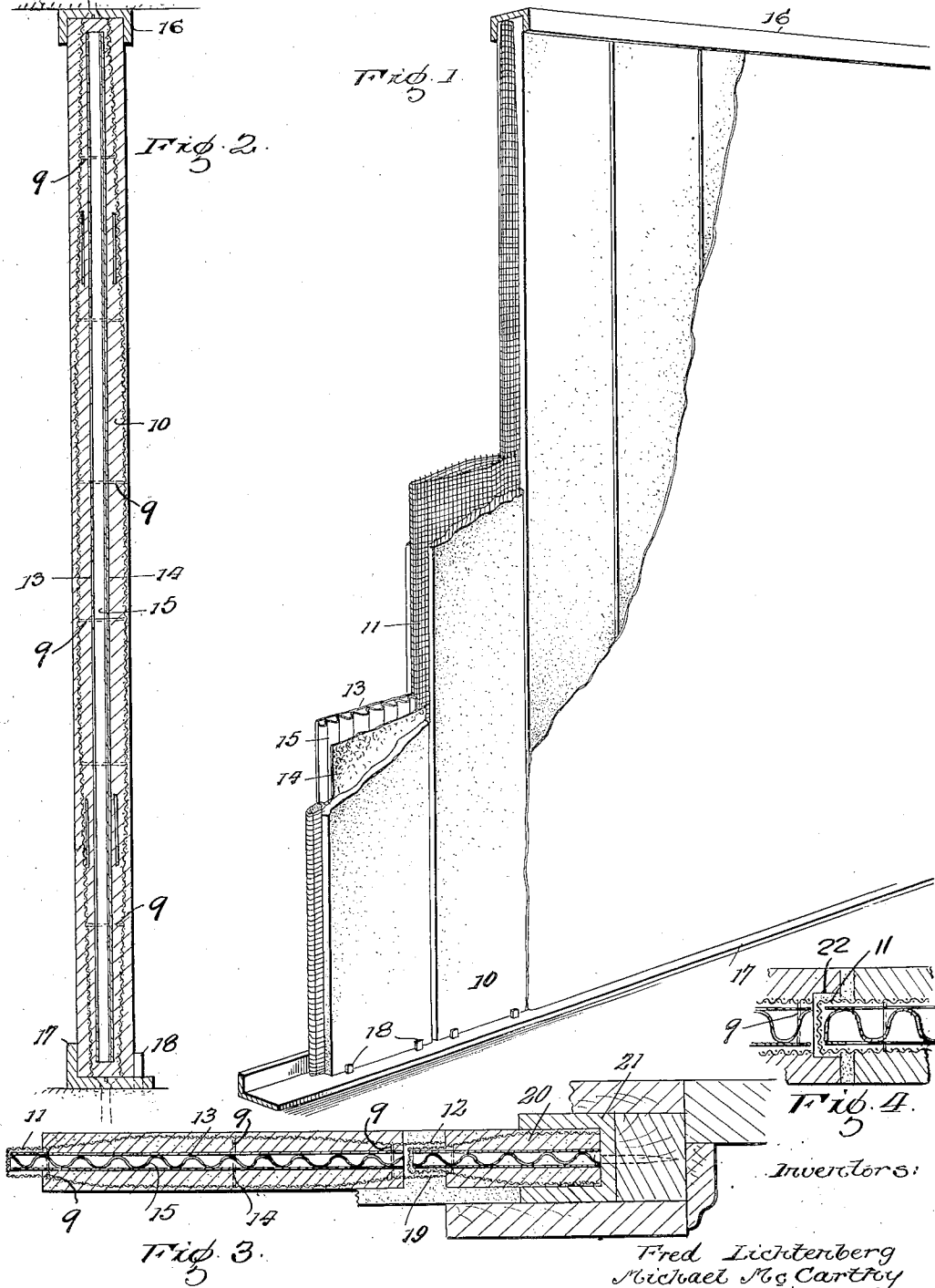


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 CONCRETE PARTITION.
 APPLICATION FILED SEPT. 18, 1920.

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UNITED STATES PATENT OFFICE.

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CONCRETE PARTITION.

1,406,989.

Specification of Letters Patent.

Patented Feb. 21, 1922.

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To all whom it may concern:

Be it known that we, FRED LICHTENBERG and MICHAEL McCARTHY, citizens of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Concrete Partitions, of which the following is a specification.

This invention has relation to the art of concrete building construction, and has for an object to provide new and novel means for the construction of partitions, walls, floors, or the like parts of a building and which will be in the form of units or elements of reinforced concrete having a reinforcing means therein of a novel nature adapted primarily to assist in the interlocking engagement of the units when placed in edge to edge relation.

Another object of the invention is to provide reinforced concrete slabs for the purpose above set forth and embodying in addition thereto a novel means for rendering the slabs sound proof consisting of layers of fibre material of both plane and corrugated formation.

In addition to the foregoing this invention comprehends improvements in the details of construction and arrangement of parts to be hereinafter described and particularly set forth in the appended claims.

In the accompanying drawing in which similar and corresponding parts are designated by the same characters of reference throughout the several views in which they appear,

Figure 1 is a view in perspective of a portion of a wall or partition with parts broken away illustrating the manner in which the same is built up.

Figure 2 is a view in vertical section of one of the slabs in situ, and

Figure 3 is a view in horizontal section of a formation illustrating the manner in which the slabs are used, and

Figure 4 is a similar view illustrating a slightly modified form of joint between the slabs.

With reference to the drawings, 10 indicates generally one of the slabs. It will be noted that they are relatively long and narrow and are constructed of any suitable plastic or concrete mixture reinforced through the medium of wire fabric. It will be noted from Figure 3 that the reinforcement is made by taking a sheet of wire fab-

ric and bending it upon itself lengthwise with the intermediate portion of the two layers thus formed slightly separated. These separated portions of the folded wire fabric are preferably tied together in this relation by cross connections 9 (Figures 2 and 3) which may simply be in the form of short tie wires. The concrete is poured around the reinforcement in any suitable mould so that beyond one edge of the slab there will be projecting the folded end 11 of the fabric and at the other end there will project the faced edges 12 of the fabric. It will be noted that the layers adjacent the intermediate portion extend very nearly to the surface of the slab and then merge toward the ends 11 and 12. Located between the sections of reinforcing material we usually provide a pair of thicknesses 13 and 14 of paper, fibre, asbestos or any suitable material held in spaced relation. Interposed between the sheets 13 and 14 we may provide a sheet 15 of corrugated paper, asbestos or the like holding the members 13 and 14 in spaced relation. In forming the slabs it is not intended that the concrete should fall between the sheets 13 and 14 or within the interstices of the corrugated section 15. In this manner dead air space is provided. It will be noted that the ends of the strips 13, 14 and 15 project into the space formed by the extension 11 of the reinforcing material, while at the opposite edge of the slab the ends of said sections 13 and 14 and 15 lie flat to the surface of the edge and do not extend between the members 12 of the reinforcing fabric. It will also be noted from Figure 2 of the drawing that the sheets 13, 14 and 15 terminate short of the ends of the slab while the sections of the reinforcing materials extend clear to the ends of the slab and while closely adjacent at said ends nevertheless diverge gradually apart toward the middle of the slab in a curved line.

When assembling for a wall the slabs are usually placed vertically. Previous thereto a channel beam or member 16 may be secured to the ceiling of the room and an angle member 17 to the floor of the room directly therebeneath and in parallelism thereto. The upper ends of the slabs may then be inserted in the channel members and the lower ends permitted to rest upon the angle members 17. In assembling the slabs care should be taken that the folded end 11 of the fabric

of one slab be inserted between the spaced ends 12 of the fabric of an adjacent slab, thus forming in effect a tongue and grooved joint. To secure the lower ends of the slab in place we may provide a plurality of wedges or the like 18 which are dropped into openings formed in one leg of the angle members 17 as clearly shown in Figs. 1 and 2. We then cement the space between the slab by filling a plastic mixture therebetween as indicated at 19, and if desired the ordinary plaster coating may then be applied to the surface of the slab obliterating the joints. In building around doors a half slab 20 may be provided, a fraction of the width of the standard slab but otherwise constructed the same with the exception that it is not provided with the projecting edges 12 of reinforcing material, the edge 11 being the only edge permitted to project. We also may provide a channel member 21 which is secured to the framing around the door and receives the edge of the slab 20. The frame is then constructed in any suitable manner desired.

From the foregoing it will be seen that we have constructed a hollow reinforced partition slab which may be in any desired length and width thus eliminating any cutting of slabs. Owing to the manner in which the slabs are erected to form a partition it will be seen that a considerable saving of labor will be effected as well as material. The use of scaffolds and other auxiliaries is also done away with. The method of reinforcing ensures a maximum of tensile strength both vertical and horizontal. The interior arrangement of the slabs ensures a fire-proof, germproof, and soundproof partition or structure. The slabs, being constructed in the manner shown enables them to be readily handled by one man without additional labor or auxiliary help. Other uses and advantages will readily occur to those who are familiar with the art to which this invention appertains.

In Figure 4 we have shown how a more positive and secure interlock between the slabs may be effected by providing a groove 22 in one upright edge of each slab to receive the projecting loop 11 of reinforcement fabric on the edge of the adjoining slab. This tongue and groove engagement also helps to preserve the continuity of the air cells since the groove provides a seat enclosing the loop on the reinforcement and making it that much more difficult for the cement to work in around the head of the loop sufficiently to cut off the air cell. In this view we have also clearly shown how the tie wires 9 serves to unite the material at opposite sides of the interposed air cells. This latter feature is also illustrated in Figure 2 where it will be seen that these ties operate as bonds between the opposite side

walls of the slab at points intermediate the ends, where such walls are connected together by the cementitious material itself.

While we have illustrated and described our invention with some degree of particularity, we realize that in practice various alterations therein may be made. We therefore reserve the right and privilege of changing the form of the details of construction or otherwise altering the arrangement of the correlated parts without departing from the spirit of the invention or the scope of the appended claims.

We also wish it understood that the terms employed herein are used in a descriptive rather than in a limiting sense, except for such limitations as may be required by the state of the prior art.

Having thus described our invention what we claim as new and desire to secure by United States Letters Patent is:—

1. A slab for partitions constructed of cementitious material, a reinforcing element consisting of two layers of wire fabric embedded in the slab having the bent edge projecting beyond one edge of the slab and the terminal edges of the reinforcing element projecting beyond the opposite edge of the slab, and a piece of fibrous material intermediate the opposite face portions of the slab and between said layers of reinforcing fabric to create a dead air space.

2. A slab of cementitious material having a reinforcing element therein consisting of sheet of wire fabric bent upon itself and embedded in said slab with the bent portion projecting beyond one edge of the slab, and the terminal edges of the reinforcing element projecting beyond the opposite edge of the slab in spaced relation, parallel sheets of fibrous material embedded in the slab in spaced relation intermediate the opposite face portions of the slab and between the layers of wire, and a sheet of corrugated fibrous material between said first mentioned sheets.

3. A building slab of cementitious material having embedded therein a folded sheet of wire fabric arranged with the folded edge thereof projecting beyond the edge of the body of the slab to form the tongue element of a tongue and groove joint between adjacent slabs.

4. A building slab of cementitious material having embedded therein a folded sheet of wire fabric arranged with the folded edge thereof projecting beyond the edge of the body of the slab to form the tongue element of a tongue and groove joint between adjacent slabs and the separated edges of the folded sheet projecting in spaced relation beyond the opposite edge of the body of the slab to provide the groove element for a tongue and groove joint at this edge of the slab.

5. A building slab of cementitious ma-

terial having embedded therein a folded sheet of wire fabric arranged with folded edge thereof projecting beyond the edge of the body of the slab to form the tongue element of a tongue and groove joint between adjacent slabs and air cell forming means interposed between the layers of the folded fabric and extending into the projecting loop of the same to form a continuation of the air cell at the joints between adjacent slabs.

6. A building slab of cementitious material having embedded therein a folded sheet of wire fabric arranged with the folded edge thereof projecting beyond the edge of the body of the slab to form the tongue element of a tongue and groove joint between adjacent slabs, air cell forming means interposed between the layers of the folded fabric and extending into the projecting loop of the same to form a continuation of the air cell at the joints between adjacent slabs and tie elements connecting together the layers of reinforcing fabric at opposite sides of the air cell.

7. A building slab of cementitious material having fibrous material interposed therein and forming an intermediate air cell extending substantially throughout the slab, layers of wire fabric embedded in the cementitious material at opposite sides of the fibrous material and tie elements connecting together the reinforcing layers at such opposite sides of the fibrous material.

8. A building slab of cementitious material having incorporated therein, air cell forming means extending substantially throughout the slab, reinforcements embedded in the body of the slab at opposite sides of said air cell forming means and tie elements connecting said separated reinforcements together through the intermediate air cell forming means.

9. A building slab of cementitious material having layers of reinforcing fabric embedded therein in spaced relation, said layers being relatively widely spaced at the central or intermediate portions of the slab and approached in closer relation at the edge portion of the slab.

10. A building slab of cementitious material having embedded therein, separated layers of reinforcing fabric and spaced wider apart mid-length the slab than at the end thereof.

11. A building slab of cementitious material having embedded therein, separated layers of reinforcing fabric and spaced wider apart mid-length the slab than at the end thereof and tie elements securing the rein-

forcing layers together in such spaced relation.

12. A building slab of cementitious material having layers of reinforcing fabric embedded therein in spaced relation, said layers being relatively widely spaced at the central or intermediate portions of the slab and approached in closer relation at the edge portion of the slab and tie elements securing the reinforcing layers together in such spaced relation.

13. A building slab of cementitious material having separated layers of reinforcing material embedded therein, said layers being bulged apart at intermediate portions of the slab and approached at the edge portions of the slab and tie elements securing said layers together in such variously spaced relation and air cell forming means between the bulged apart portions of the layers of reinforcing material.

14. A building slab of cementitious material having substantially parallel sheets of fibrous material embedded therein with an intermediate sheet of corrugated fibrous material holding the same in spaced relation and providing therewith air cell forming means, said air cell forming means projecting beyond one edge of the slab and the slab having means at the opposite edge thereof to receive the projecting air cell forming means of an adjoining slab.

15. A building slab of cementitious material having embedded therein, a folded sheet of wire fabric arranged with the folded edge thereof projecting from one edge of the body of the slab and with the layers of the folded fabric secured in spaced apart relation within the body of the slab, said slab having a grooved construction at the edge which is opposite the edge having the projecting folded fabric.

16. A building slab of cementitious material having embedded therein, a folded sheet of wire fabric arranged with the layers of the folded sheet in spaced relation and tie wires securing said folded layers in such spaced relation.

17. A building slab of cementitious material having embedded therein, a folded sheet of wire fabric arranged with the layers thereof in spaced relation and air cell forming means embedded in the cementitious material between said spaced layers of the folded wire fabric.

In testimony whereof we affix our signatures.

FRED LICHTENBERG,
MICHAEL McCARTHY.