

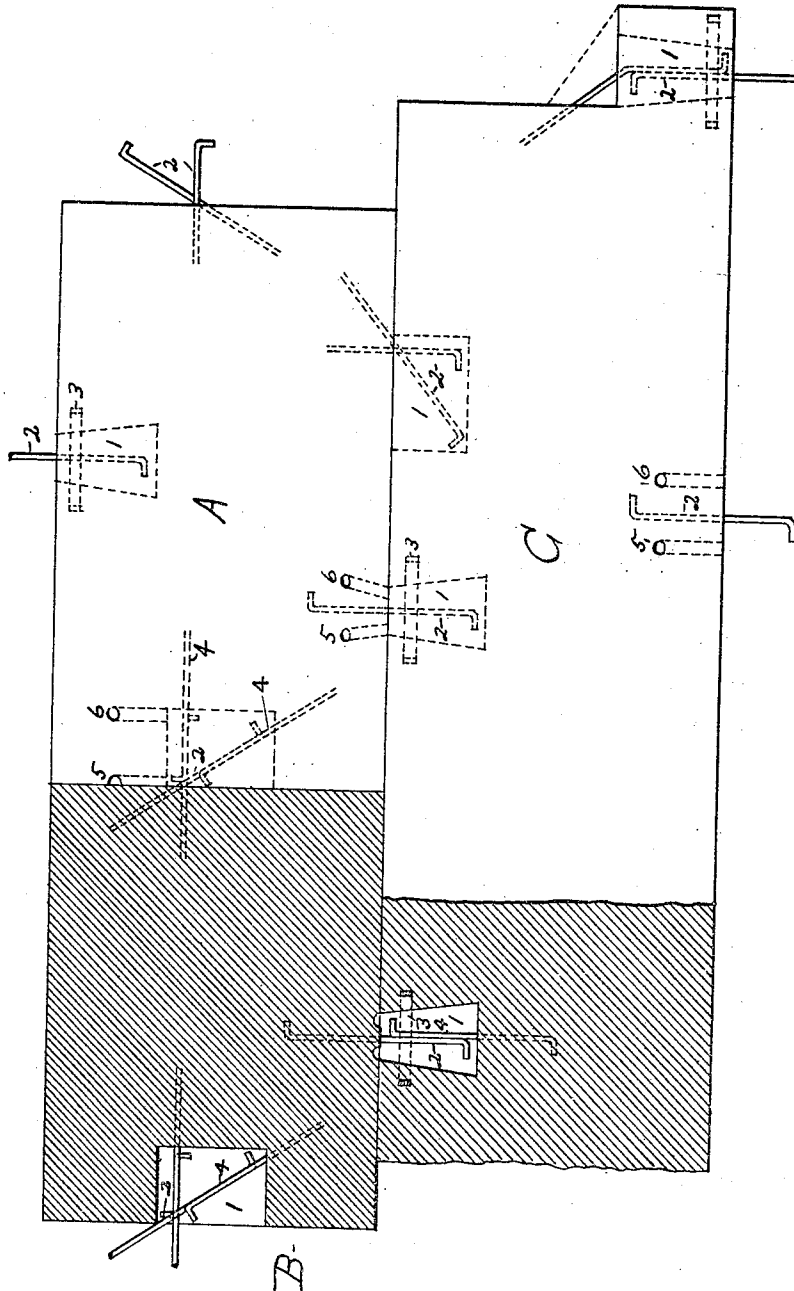
F. MELBER.

CONCRETE CONSTRUCTION.

APPLICATION FILED JAN. 28, 1904. RENEWED AUG. 23, 1909.

954,983.

Patented Apr. 12, 1910.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FREDERICK MELBER, OF ROSS TOWNSHIP, ALLEGHENY COUNTY, PENNSYLVANIA.

CONCRETE CONSTRUCTION.

954,983.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK MELBER, a citizen of the United States, and residing in the township of Ross, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Concrete Construction, of which the following is a specification.

My invention relates to structural systems wherein a plurality of units are assembled to constitute the structure and provides efficient means for uniting said units into an integral whole, either permanently or in such a manner that they may be taken down when desired without injury thereto. To effect these ends a recess is cast or otherwise formed in the face of one of the units into which recess, when the units are assembled, metal reinforcement may protrude from the other unit. I also provide metal reinforcement for the walls of the recess to prevent fracture or rupture of the material of the unit.

In the accompanying drawing I show a plurality of units assembled by means of my unions, one of said units being shown in full lines, one in vertical section, and the third unit being shown partially in full lines and partially in section.

The following is a detailed description of the drawing. A, B, and C are three units, which may be of any material, such as natural stone, but my invention is particularly applicable to units of concrete, cement or composite material. To unite the units together, I provide in the face of one of the units, a recess 1 which may be of any desired shape. Where the union is to be permanent, I prefer to form the same with walls tapering together toward the mouth of the recess, while, in case the union is to be temporary and removable, I prefer to provide a rectangular recess or a recess with the walls tapering together toward the bottom of the recess.

In the case of concrete or other artificially constructed units, I partially embed a rod or other metal reinforcement, 2, in the body of the second unit, which rod protrudes into the recess in the first unit when the units are assembled. I prefer to embed said rod 2 in the material of the unit to such an extent that the adhesion of metal to the material of the unit is equal to the tensile strength of the metal. I prefer to form the end of the rod 2 in hook shape to aid in ad-

hesion. When the units have been assembled, as shown, I introduce into said recess 1 a filling of liquid or soft binding material, such as cement or concrete, which when hardened, adheres to both units and the rod 2 and binds the units firmly together. In case I desire to form a temporary union between the units, as where temporary structures are to be erected, I prefer to coat the walls of the recess 1 with a coat or layer of non-bonding material such as some hydrocarbon substance, which will prevent the adherence of the cement filling to the walls of the recess 1 so that when the units are taken apart, the hardened material which was used to fill the recess 1 will adhere to the unit from which rod 2 protrudes and will lift out of recess 1 freely. The structure can readily be reassembled by assembling the units and seating the projection formed by the hardened filling in the recesses 1—1, once more.

To strengthen the walls of recess 1 and prevent rupture or fracture thereof, I prefer to embed therein metal rings or shapes, 3—3, whereby the said recesses maintain their form under all circumstances.

Where the unions between the units are to be permanent, I prefer to partially embed one or more metal rods or reinforcements, 4—4, in the material of the unit which contains the recess 1, allowing the hooked ends of said rods to protrude into said recess to be embedded in the filling when the same is introduced. This greatly adds to the strength of the union and forms the abutting units into what is practically an integral whole.

As it is desirable to assemble the units together and unite them when the structure is wholly or partially erected, some means must be provided for the introduction of the filling into the recesses which would be then concealed between the abutting faces of the units. For this purpose I provide a port or passage 5, leading through the material of one of the units, from the exposed face thereof, into said recess. I prefer to form said ports in such a manner as to extend downwardly into said recesses through the material of the upper unit. The filling may be introduced through said port into said recess and rammed thoroughly so that the recess is completely filled. Enough filling is also provided to fill up the port 5. In order

that the air contained in the recess may be driven out and to enable the workmen to tell when the recess is full, I prefer to provide a second port or passage, 6, which may
5 act as an overflow port, as the workman will know that the recess is filled when the surplus filling material begins to flow up through the port 6.

What I desire to claim is:—

10 1. In a union for concrete units, a unit provided with a recess in the material thereof and a metallic reinforcing ring embedded in said material forming the wall of said recess for the purpose of strengthening the same, substantially as and for the
15 purpose set forth.

2. In a union for concrete units, a unit provided with a recess in the material thereof and metal reinforcement embedded
20 in said material forming the wall of said recess, substantially as and for the purpose set forth.

3. In a union for concrete units, a unit provided with a recess in the material thereof which recess is concealed between
25 the two abutting units when assembled, metal reinforcement embedded in the material of the first unit forming the wall of said recess to strengthen the same, other
30 metal reinforcement partially embedded in the material of the second unit and extending into said recess when the units are assembled, and a port leading from the exposed face of one of said units, through the material thereof, into said recess for the
35 introduction of a filling into said recess, substantially as and for the purpose set forth.

Signed at Pittsburg, Penna., this 23rd day of January 1904.

FREDERICK MELBER.

Witnesses:

J. H. HARRISON,
EDWARD A. LAWRENCE.