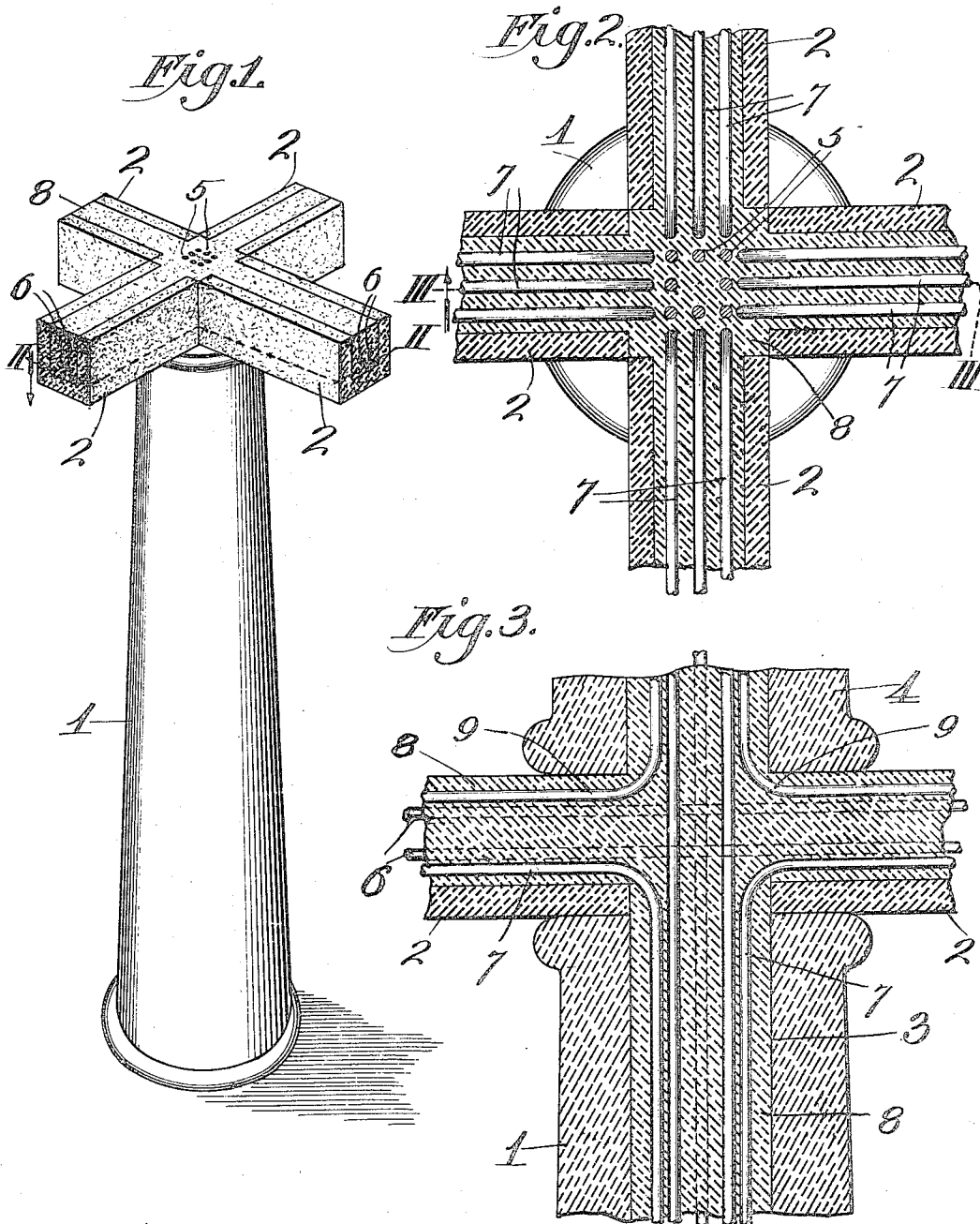


A. G. HIGGINS.
 MONOLITHIC CEMENTITIOUS STRUCTURE.
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1,052,918.

Patented Feb. 11, 1913.



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UNITED STATES PATENT OFFICE.

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MONOLITHIC CEMENTITIOUS STRUCTURE.

1,052,918.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT G. HIGGINS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Monolithic Cementitious Structures, of which the following is a specification.

This invention relates to reinforced cementitious structures, and my object is to produce a structure of this character which can be erected in less time and at less expense than analogous structures erected by the employment of forms and false work as is common in this class of structures.

A further object is to produce a structure of the character specified without any molds or false work which is as strong, durable and as attractive in outline and finish as cement structures produced by the common method.

With these general objects in view the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawing, in which:—

Figure 1, is a perspective view of a cementitious monolithic structure embodying my invention. Fig. 2, is an enlarged horizontal section on the line II—II of Fig. 1. Fig. 3, is a vertical section on the line III—III of Fig. 2.

In carrying out the invention I employ a hollow column 1, of cylindrical or other form and support upon the upper end of said column, one end of a U-shaped channeled girder 2, or the adjacent ends of a plurality of such girders, the supported end of the girder or girders overhanging and not completely bridging the bore or chamber 3, of the column.

Where the second column 4 is to stand in superposed relation to the first column and the girders thereof, the second column will stand upon the adjacent ends of the girders, and its bore will be in communication with the bore of the underlying column and with the channels of the girders, as shown clearly in Fig. 3.

In the erection of a structure of this character, the columns and girders can be made and transported to the point where the structure is to be erected as independent

units, that is to say, in the same manner that iron columns and girders are now handled.

In the actual erection of the structure, the preferred course is to first locate the basement or undermost columns and place the girders thereon for the first floor. Reinforce bars 5 are then arranged in the column in the customary manner, which bars or like ones, may also project to a higher plane than the girders for the purpose of entering and acting as reinforcements for the overlying column 4, when the same is placed upon the girders 2.

When the column 1 and girders 2 are arranged as described, and preferably before the column 4 is in place, the girders are also reinforced by the customary bars 6, or in any other well known manner, at least one or more of the bars 6, bridging the bore of the underlying column, and the space between the adjacent or alined girders. The column and the girders also receive angular reinforce bars 7, the horizontal arms of the said bars being arranged longitudinally in the channels of the adjacent girders and the vertical arms extending downwardly into the column. A cementitious material 8 is then poured or otherwise introduced into the column until the same is filled, the supply of material continuing until it fills the channels of the girders, though if an overlying column is to be placed upon the girders, the supply of cementitious material will preferably be cut off before the girder channels are completely filled to enable the workman to easily and conveniently place angular reinforce bars 9, in the upper parts of such channels with their vertical arms extending upward into the column 4, as shown in Fig. 3. In this connection it is to be understood that the density of the cementitious material may determine whether or not it is necessary to first place the reinforce bars in position and so support them, or to put such bars into position after the material has been poured or otherwise introduced into the column or columns and girders, to constitute when "set" an integral monolithic filling or core, it being understood that by this method all of the various columns and girders throughout the building, will be united by a skeleton concrete monolith.

It will be apparent that the filling or core will adhere to the various columns and

girders so as to be practically integral therewith if said units are of cementitious material, but it is to be understood that it is practical to employ columns and girders of metal or other non-combustible material and reinforce or strengthen the same by a monolithic filling or core.

From the above description it will be apparent that I have produced a structure possessing the features of advantage enumerated, and while I have illustrated and described the preferred embodiment of the invention it is to be understood that I do not desire to be restricted to the exact details of construction shown and described as obvious modifications will suggest themselves to one skilled in the art.

I claim:—

A monolithic structure, comprising a hollow column, a plurality of horizontal girders resting at their adjacent ends upon the column—without bridging the bore thereof and provided with longitudinal channels in their upper sides, a second vertical column vertically above the first-named column and resting on the adjacent ends of the girders and bridging the channels thereof, a set of right angle shaped reinforce bars extending

into the channel of each girder and into the hollow bore of the first-named column, a set of right angle shaped reinforce bars arranged in a higher plane than the first-named reinforce bars and extending into the channel of each girder and into the bore of the said second column, one or more vertical reinforce bars arranged in the two columns and extending through the space between the ends of the girders and disposed nearer the center of said columns than the right angle shaped reinforce bars, one or more horizontal reinforce bars extending into the channels of opposite girders and through the space between the ends thereof and between the two columns and arranged nearer the centers of said girders than the sets of right angle shaped reinforce bars, and a cementitious filling for the columns, the girders, and the space between the columns and the girders and embedding all of the said reinforce bars firmly in position.

In testimony whereof I affix my signature, in the presence of two witnesses.

ALBERT G. HIGGINS.

Witnesses:

HELEN C. RODGERS,
G. Y. THORPE.