No. 718,009. PATENTED JAN. 6, 1903.

W. C. LYON.

METALLIC MATRIX FOR BUILDING BLOCKS.

APPLICATION FILED MAY 10, 1902.

NO MODEL.

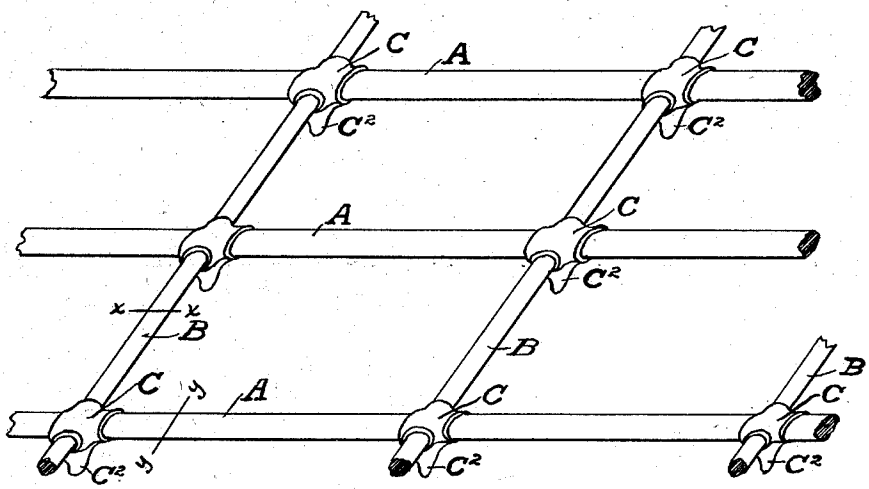

Fig. 1.

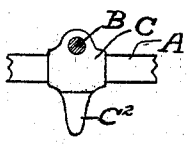

Fig. 2.

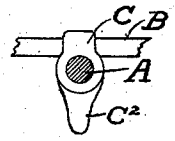

Fig. 3

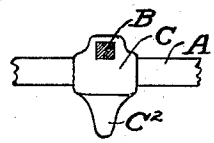

Fig. 4.

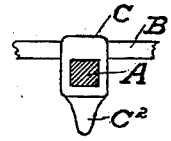

Fig. 5.

Witnesses
Kost. Berle
Fred. O. Lyon

Inventor
Wallace C. Lyon,
By Attorney Francis H. Hoyt

UNITED STATES PATENT OFFICE.

WALLACE C. LYON, OF HYATTSVILLE, MARYLAND.

METALLIC MATRIX FOR BUILDING-BLOCKS.

SPECIFICATION forming part of Letters Patent No. 718,009, dated January 6, 1903.

Application filed May 10, 1902. Serial No. 106,794. (No model.)

To all whom it may concern:

Be it known that I, WALLACE C. LYON, a citizen of the United States, residing at Hyattsville, in the county of Prince George and State of Maryland, have invented certain new and useful Improvements in Metallic Matrices for Building-Blocks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to the production of a new and improved form of metallic matrix designed especially for use in strengthening and retaining in form artificial blocks of cement and analogous material.

The invention has for its object, among others, a general improvement upon the methods heretofore employed for strengthening blocks of artificial stone or cement and the provision of a simple, inexpensive, and efficient means whereby blocks or slabs of building material which when the material of which the blocks or slabs are composed is in a plastic or semiplastic condition may be strengthened and caused to retain their perfect form, the metallic matrix being of such a character and its construction such as to insure its being held in such position relative to the block or slab within which it is contained as to effectually prevent the sagging or displacement of the matrix and at the same time to impart to the block the full tensile strength of the metal of which the matrix is composed.

Various forms of metallic strengthening devices for blocks of molded material have heretofore been employed—such, for instance, as the well-known "expanded metal," straight and twisted metallic rods, and "welded-wire" framework, in which the wires at their intersecting or crossing points are welded together; but all of these methods are found to be in some important respects objectionable. It is found that the material of which the blocks are composed while in a plastic or semiplastic condition will be of such weight, especially in cases in which the block is of considerable size, as to cause the block to sag at the center of the block, thus bending downward the metallic matrix and causing the same to be left in a position relative to its inclosing block in which the utilization of its full tensile strength will be greatly impaired. Metallic framework of wires or rods having the angles of intersection or crossing welded has been found to be seriously objectionable by reason of the fact that the high temperature to which the metal is subjected during the welding process results in a great loss in its tensile strength. It has also been found that a serious loss in tensile strength is incident to the production of so-called "expanded metal," which is produced by the well-known "cold-shearing" process.

It is the object of the present invention to obviate these objections to the methods heretofore employed in strengthening blocks of building material and to produce a simple and effective means whereby the matrix will be so placed and retained within the block as to insure the matrix being securely retained against sagging and in such position as to insure at all times the transmission to the block of full tensile strength of the metal of which the matrix is composed.

To these ends, and to such others as the invention may pertain, the same consists in the details of construction of the matrix and in the peculiar combination, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, like letters of reference indicating the same parts throughout the several views, and in which drawings—

Figure 1 is a perspective view of a metallic matrix embodying my invention. Fig. 2 is a section upon the line $x\,x$ of Fig. 1. Fig. 3 is a section upon line $y\,y$ of Fig. 1. Figs. 4 and 5 are like sections through a slightly-modified form in which square rods of metal are employed in place of the round rods or wires, as shown in Figs. 1, 2, and 3.

Reference now being had to the details of the drawings by letter, A A represent heavy rods or wires arranged parallel to one another

and retained in their parallel relationship by means of stay-wires B B, which are arranged at right angles to the rods A. At the points at which the wires B cross or intersect the rods or wires A, I connect the same by means of castings C, which are of soft metal, preferably lead, the melting-point of which is far below the temperature required to subject the rods or wires A and B to in welding. The castings C, it will be observed, are each provided with a downwardly-extending lug or projection C^2 of a length depending upon the thickness of the block of material within which the matrix is designed to be used, these lugs being designed to rest upon the surface beneath the block, and thus serve to prevent the matrix from sagging below the point at which it is designed to be retained, as will be readily understood. It is designed to have each of the castings C formed with its depending lug C^2 integral therewith.

In constructing the matrix the main rods or wires and stay-wires are arranged in their relative positions, and the castings C are molded over the points of intersection between the main and tie wires, as shown in the drawings.

As the material of which the castings C are formed is melted at a temperature much below that required for melting iron and infusing the metals by electricity, as has been heretofore proposed, the tensile strength of the metal of which the matrix is formed will not be weakened, and the block of material within which my matrix is inclosed will in consequence be of far greater strength than would otherwise be possible. The lugs which are formed integral with the castings C forming, as they do, a uniform support for the matrix during the time that the cement or other material of which the block is composed is in a plastic or semiplastic condition, the sagging of the matrix which is so common, especially in cases in which the molded block is of a considerable size, is entirely avoided.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The means of connecting the main rods or wires of a matrix designed for use in building blocks or slabs, with the tie-wires, the same consisting in a casting of lead or other soft metal, said casting being provided with a depending lug or projection, substantially as shown and described and for the purpose specified.

2. A matrix for use in molding blocks of building material, comprising rods, castings carried thereby, a projecting lug on each casting, and stay-wires fastened to said castings, as set forth.

3. A soft-metal casting attached to a building block or slab matrix, said casting being provided with a depending lug or extension, substantially as described and for the purpose specified.

4. A matrix comprising rods A, hollow castings C mounted thereon, integral lugs C^2 on said castings, and stay-wires B mounted in apertures in said castings and at right angles to said rods, as set forth.

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

WALLACE C. LYON.

Witnesses:
KORB BERLE,
CHAUNCEY G. GRAHAM.