G. A. PETERSON.

REINFORCED MOLDED BUILDING BLOCK.

APPLICATION FILED NOV. 9, 1906.

910,571.

Patented Jan. 26, 1909.

2 SHEETS—SHEET 1.

Fig. 1

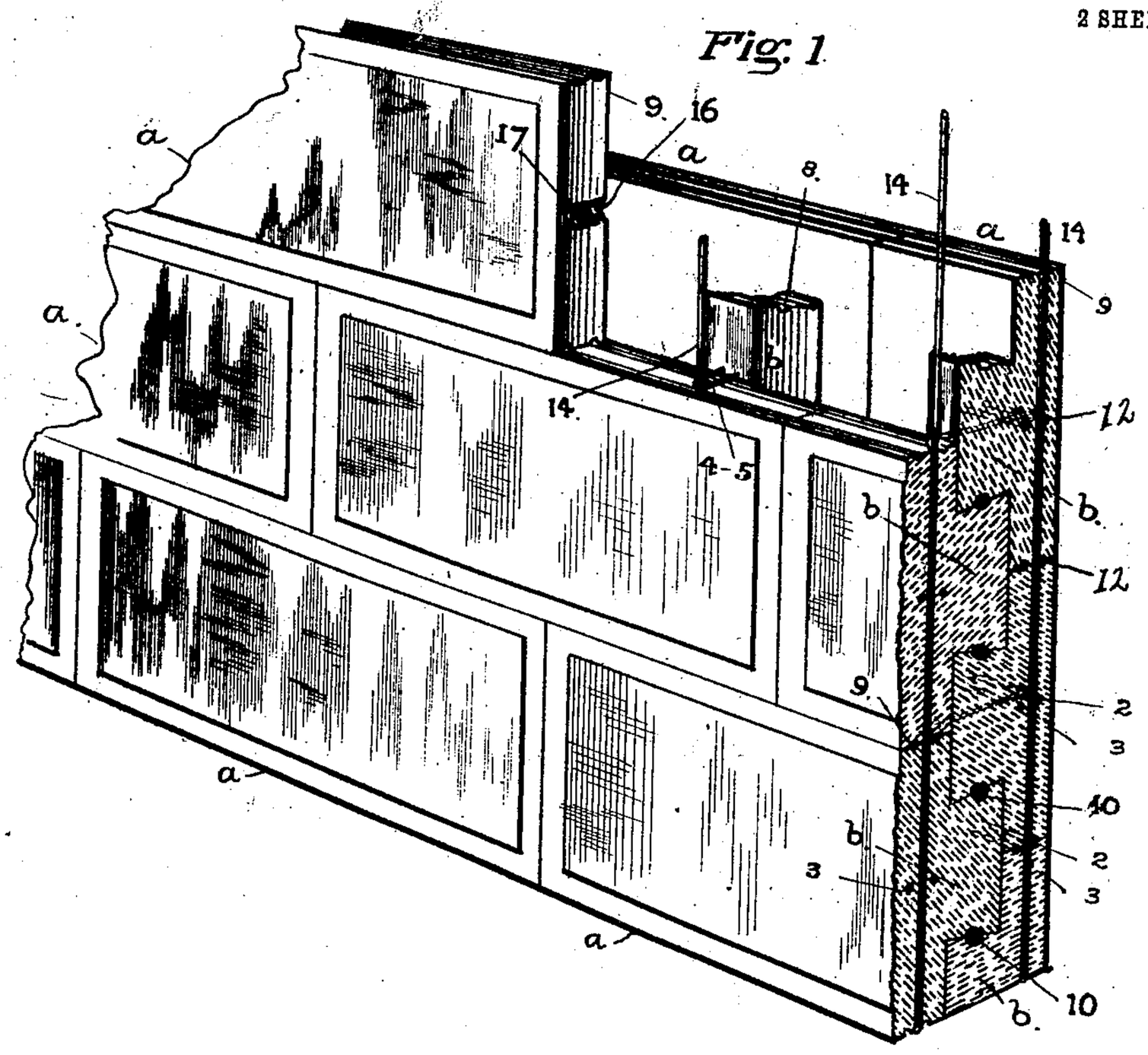
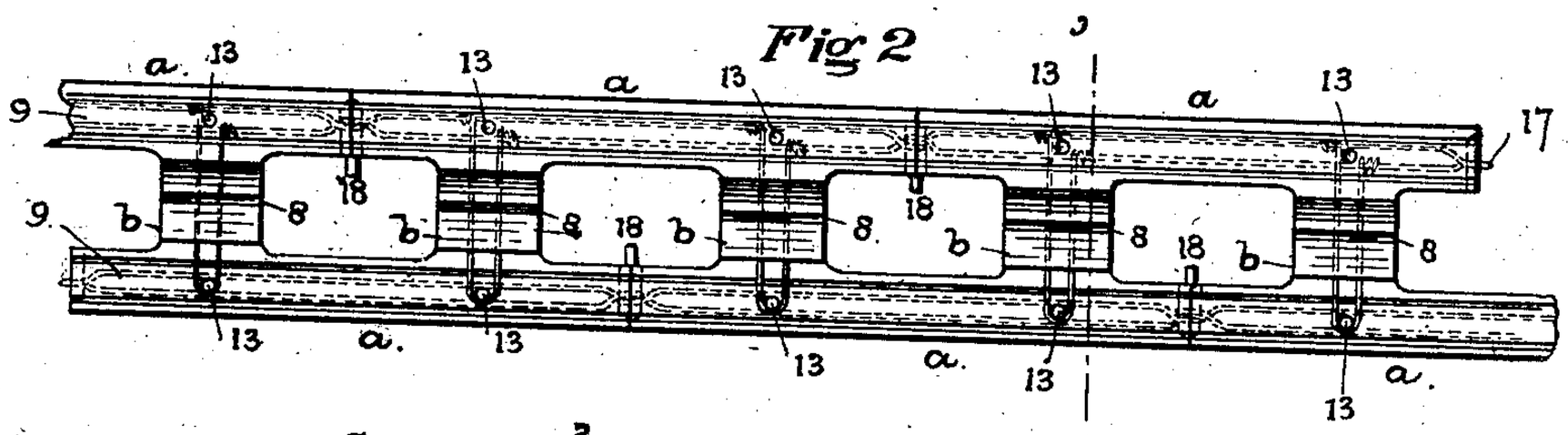
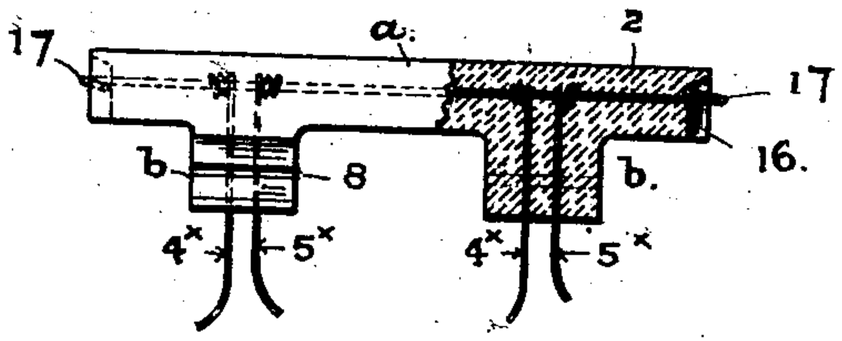


Fig 2





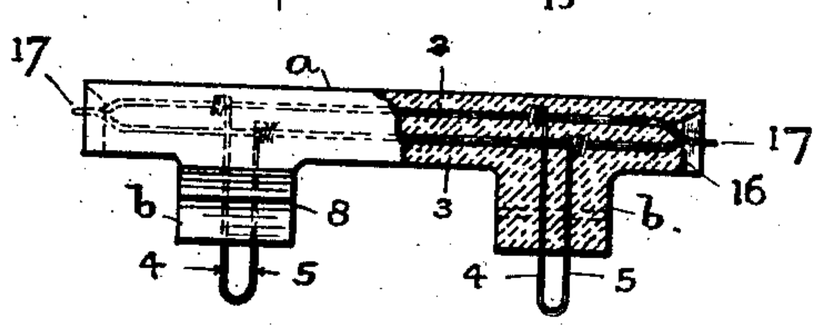


Fig. 4

Fig. 3

WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 5

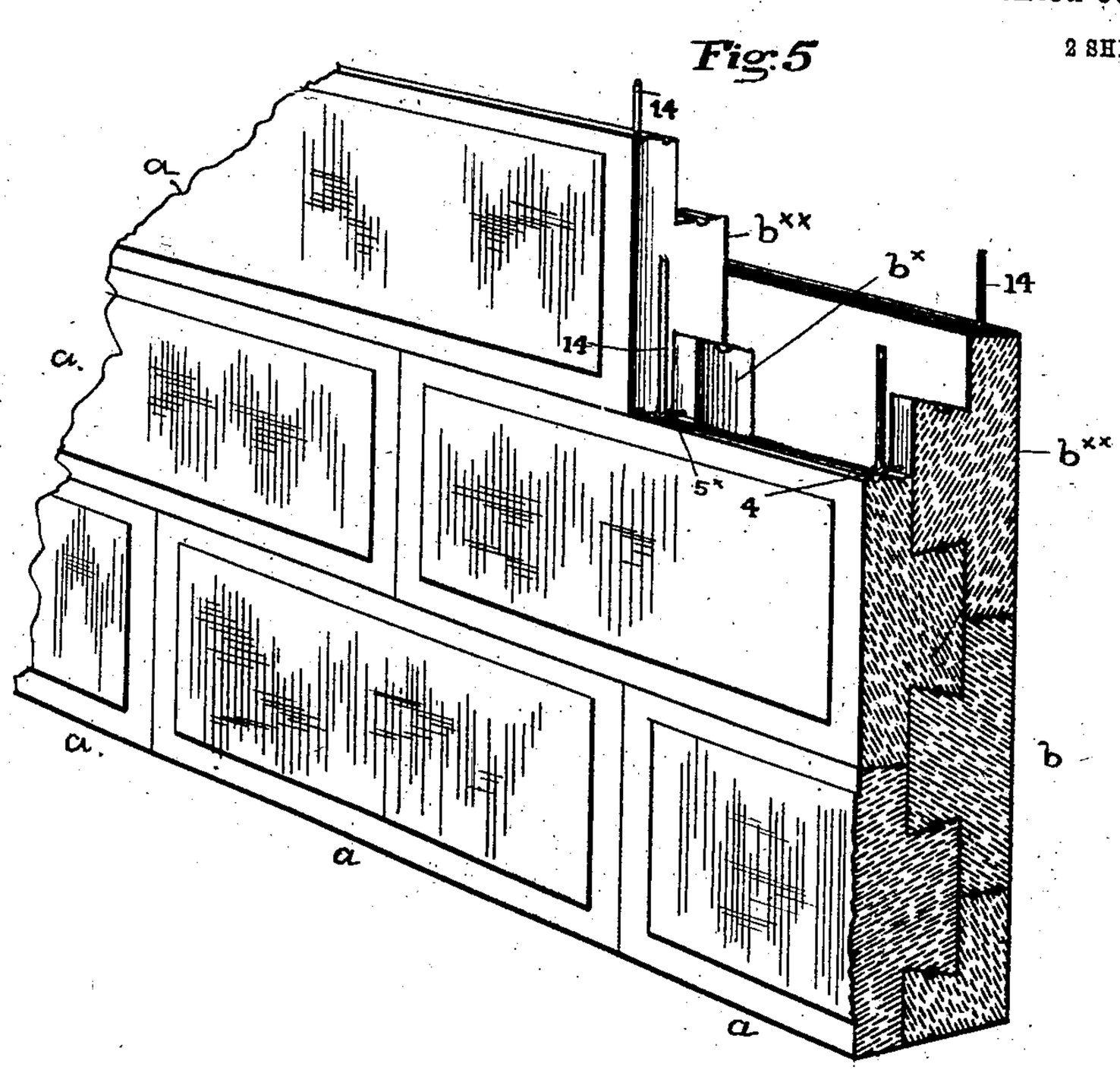


Fig. 6

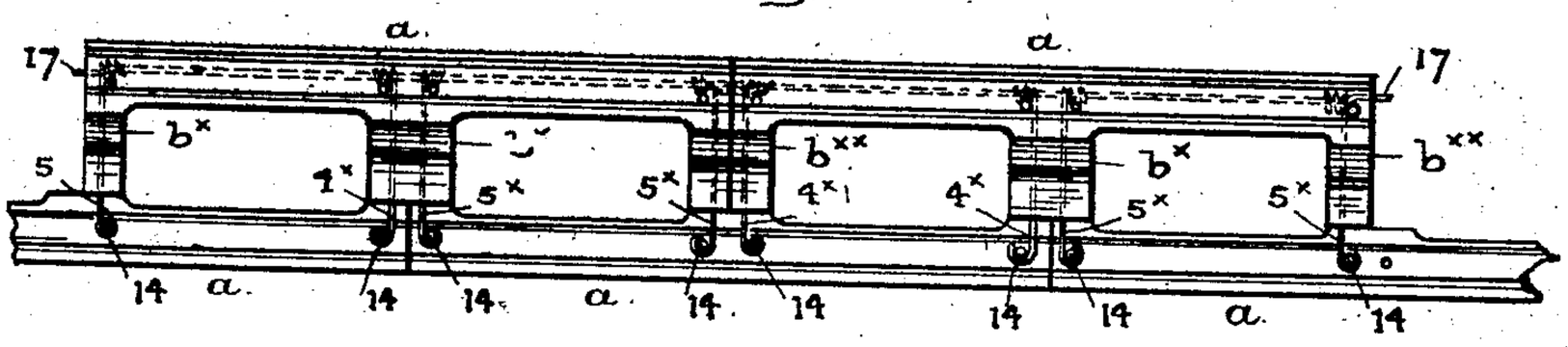


Fig. 7

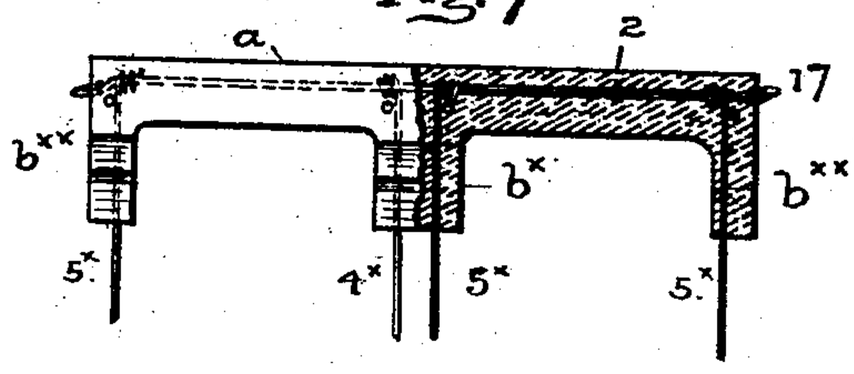
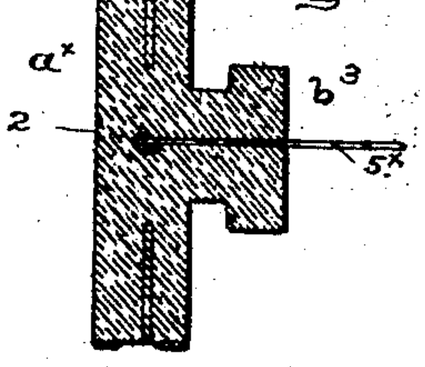


Fig. 8



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UNITED STATES PATENT OFFICE.

GEORGE A. PETERSON, OF OAKLAND, CALIFORNIA.

REINFORCED MOLDED BUILDING-BLOCK.

No. 910,571. Specification of Letters Patent. Patented Jan. 26, 1909.

Application filed November 9, 1906. Serial No. 342,725.

To all whom it may concern:

Be it known that I, GEORGE A. PETERSON, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Reinforced Molded Building-Blocks, of which the following is a specification.

This invention relates to improvements made in building blocks composed of concrete, cement, and similar compositions or mixtures, and having metal rods, bars, or wires embedded in the material as a means of reinforcing or strengthening the same.

My invention has for its object to utilize or employ reinforcing parts or members for binding, locking or fastening one block to another in the construction of walls and other parts of a building; also, to so form and arrange the reinforcing members in each block or unit that the work of locking or fastening the blocks together in the wall can be carried on as each block or unit is placed in position, and at the same time the reinforcing members will be disposed within and throughout the finished structure in the manner best calculated to resist the strains to which the finished wall or structure shall be exposed.

To these ends and objects my said invention comprises chiefly a molded building-block provided with lugs on its back face, reinforcing wires embedded in and running longitudinally through the body of the block from end to end, and wires extending through the body and lugs transversely, or from the longitudinal wires backward and through each lug to the outside.

The invention embraces, further, a molded building-block of novel construction provided with lugs on its back-face and having reinforcing and interlocking wires running longitudinally through the body and also transversely at and through each lug to the outside; the block having grooves and apertures for inserting metal rods between the blocks, and also vertically through several blocks when placed in position one upon another.

The nature of the said improvements and the manner in which I proceed to construct, apply, produce and carry out the same are explained at length in the following description, the accompanying drawings being referred to as a part of this specification.

Figure 1 is a perspective-view of a part or section of a wall in the course of construction from a number of molded building blocks embodying my invention, the blocks at the end of the wall on the right being shown in section. Fig. 2 is a plan or top-view of the wall Fig. 1, on a smaller scale. Figs. 3 and 4 are horizontal sections on an enlarged scale of two blocks that may be interlocked and fastened together according to my invention, the blocks being broken away to expose the embedded wires and show the manner of fastening one block to another by the wires. Fig. 5 is a slight modification in which the blocks are provided with three lugs, instead of two as in the construction shown in Figs 3 and 4. Fig. 6 is a plan of the form of invention shown in Fig. 5. Fig. 7 is a plan view of still another form of the invention. Fig. 8 is a cross-sectional view of the block shown in Fig. 7.

In carrying out my invention I fix in each block *a* at the time of molding, metal rods or thick wires 2—3 running longitudinally through the block, and also additional wires 4—5 in a transverse direction at each lug. The longitudinal rods or wires 2—3 run from end to end of the block and are carried to the outside; the transverse ones 4—5 are laid at each lug and are carried through the lug to the outside, either in the form of a loop with its two limbs secured to the longitudinal rods or wires 2—3, as seen in Figs. 2 and 3, or as two separate wires $4^{\times}$, $5^{\times}$, as shown in Fig. 4. The lugs *b* on the back of each block are placed at such distance apart that the blocks when laid in place one upon another, as seen in Figs. 1 and 2, will break joints between the lugs. By this construction the horizontal as well as the vertical joints are broken and those in the outer face of the wall are not opposite those in the inner face, and besides, the lugs themselves cover portions of all the horizontal joints.

In the construction of block there shown the two lugs *b*—*b* are situated on the longitudinal center-line, equally distant from the top and bottom edges of the block, and at such points on that line that the distance between the end of the block and the adjacent lug will be equal to one half the length of the block. Each lug is also formed with slanting top and bottom faces giving it a wedge-shaped appearance when viewed from the side, with the narrow end of the wedge joined to the block. By this construction when the blocks are laid to form a wall the lugs in-

terlock with each other and form continuous stud-like supports between the opposite wall faces, and have continuous air spaces between them.

Where additional reinforcing may be required, provision is made for laying metal rods 10 longitudinally through the space between the outer and the inner blocks of the courses by forming grooves 8 in the faces of the lugs. After these rods 10 are laid in position, the space between the outer and inner faces of the wall is filled with concrete mixture, thus forming a solid mass in which the rods 10 will be embedded. In a wall of lighter construction having the space between the outer and inner blocks left unfilled, the additional rods 10 are omitted.

Similar grooves or depressions 9 in the top and bottom edges of the block are provided for placing additional rods 12 between the courses of the blocks; and at intervals apart in the length of the block holes 13 for inserting vertical rods 14 are also formed. The last-mentioned rods 14 are so placed with relation to the interlocking lugs that the rods in the blocks of one course, being opposite to and in line with the lugs of the blocks in the opposite course, will pass through the wire-loops of those lugs, or will furnish a fastening-point around which the separate wires are twisted when separate wires and not loops are provided at the lugs. The horizontal rods 12 are laid on opposite sides of the perpendicular rods 14, as seen in Fig. 1, when the former are employed. In that position they contribute to the production of greater stiffness in a relatively light or thin wall.

At the ends of the block where the reinforcing and interlocking wires 2—3 are brought outside, a groove or depression 16 running into the block from the back is provided for inserting a pin or key 18 through the eyes or loops 17 formed in the ends of the protruding wires. This is the means by which the blocks in each horizontal course are united together at the ends, as the transverse wires 4, 5, and the vertical rods 14 are the means employed to bind the blocks together transversely of the wall.

The same features of construction are embodied in the modification shown in Fig. 5 where the blocks are provided with three wedge-shaped, interlocking lugs, of which one is located in the middle of the block, and one at each end; the middle one being double the thickness of those at the ends, in order to support the end lugs of the two blocks on the opposite side of the wall that meet at the middle lug in each block. In this modification the transverse reinforcing wires may be single in the narrow lugs, as illustrated in Fig. 6. The two wires (4 and 5) of the adjoining lugs are twisted around the vertical rods 14 in the opposite block, thus securing the blocks together in the same manner as the blocks in the two-lug constructions are fastened. The effect of this construction is not only to lock the blocks in the outer and inner courses together against displacement transversely of the wall, but also to draw them together, with the body of one closely against the lugs of the opposite block, by virtue of the weight of the blocks.

Other forms of lugs, such as are shown in Figs. 7 and 8 will serve the same purpose of interlocking the blocks of the outer and inner courses; but the lugs with slanting top and bottom faces have the advantage of drawing the blocks together by virtue of their own weight.

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

1. A molded building block having a finished face on one side to form part of an exposed wall and on the other side having a plurality of projecting lugs, each of said lugs being of a length less than the height of the block and arranged equi-distant between the top and bottom edges thereof, and the aggregate width of the lugs being less than the length of the blocks, the lugs being spaced apart and of a size to engage with and set on corresponding lugs of oppositely set blocks to constitute a continuous stud-like support for the wall between the opposite faces thereof, substantially as set forth.

2. A wall formed of molded building blocks each having a finished face on one side to form part of an exposed wall, and on the other side a plurality of lugs, the lugs being of a length less than the height of the block and arranged equi-distant between its top and bottom edges and the aggregate width of the lugs being less than the length of the block, the lugs carried by the blocks of one face being arranged to engage with the lugs of the blocks of the other face, whereby the engaging lugs produce continuous supporting columns between the oppositely faced blocks separated from each other by air spaces.

3. A wall or similar structure formed of a series of duplicate blocks set back to back and spaced apart, each block being provided with a plurality of lugs projecting from its rear face equi-distant between its top and bottom edges and having their top and bottom surfaces inclined and arranged to engage and interlock with correspondingly shaped lugs on the blocks of the other series, substantially as set forth.

4. In a wall construction, the combination of two series of duplicate blocks set back to back, each block having an exposed finished surface and a lug projecting from the opposite surface to engage with a lug on the other series of blocks, and the block being also formed with a vertical aperture arranged to

register with a similar aperture in the blocks above and below of the same series, rods extending through said apertures, and means carried by the blocks of one series for engaging with the rods in the other series to lock the two series of blocks together.

5. A molded building-block provided with locking lugs on the back, and having reinforcing wires inclosed within the body of the block, comprising wires laid longitudinally from end to end and terminating in eyes on the outside, and separate wires laid transversely at intervals, and extending through the lugs to the outside.

6. A wall, or similar structure, composed of molded building-blocks laid in outer and inner courses each block having longitudinally laid wires inclosed within its mass from end to end, and transversely laid wires at intervals apart extending through the back of the block to the block in the opposite course; in combination with vertically placed rods inserted through each block at points situated opposite to the points at which the transversely laid wires extend through the back of the oppositely placed blocks, as a means of fastening one block to the other by the transversely laid wires.

7. A wall, or similar structure, composed of molded blocks laid in outer and inner courses inclosing between them a hollow space, each block provided with interlocking lugs on its back, and having reinforcing wires extending through its mass comprising longitudinally laid wires running through it from end to end to the outside and transversely laid wires in the lugs extending through the back of the same; in combination with vertically placed rods inserted through each block at points in line with the lugs of the block in the opposite course, as a means for fastening the blocks in the outer courses to the oppositely placed blocks composing the inner course.

8. Molded building-blocks provided with locking-lugs on the back, and having reinforcing wires embedded in its mass, including longitudinally laid wires extending from end to end and terminating at each end on the outside in a fastening loop, in combination with a key insertible through the loops of two abutting blocks when the same are laid end to end, and a vertical rod insertible through each block in line with the lugs of the oppositely placed block when said blocks are placed in course back to back, the said rods being adapted to furnish means for fastening the blocks in one course to the blocks in the opposite by the transversely laid wires of each block.

9. A molded building block provided with spacing and locking lugs on its back face, and having embedded therein reinforcing wires, and binding wires which extend out from the lugs to form fastening wires of proper length for twisting, the body of the block having apertures extending vertically through it for tie-rods and longitudinal grooves for stiffening-rods.

10. A building block provided with spacing and locking lugs on its rear face and having embedded therein reinforcing wires extending beyond the ends of the block, and also binding wires extending through the rear of the block and continued to form wire sections of proper length for twisting, the body of the block having apertures extending vertically through it for tie-rods and longitudinal grooves for stiffening-rods.

11. A wall, or similar structure, formed of molded building blocks provided with spacing and locking lugs on its back face, having inwardly slanting, interlocking, top and bottom faces, in combination with reinforcing and binding wires extending longitudinally through the body of the block from end to end, transversely laid wires extending from the longitudinal wires through the lugs to the outside, vertically placed rods inserted through each block in line with the points at which the transversely laid wires of the oppositely placed blocks in the structure extend to the outside, as a means of securing one block to another by the transversely laid wires, and longitudinally set rods interposed between the bottom faces of the superposed lugs and the top faces of those beneath.

12. A molding block provided with spacing and locking lugs on its face, the body of the block having apertures extending through it for tie-rods, reinforcing wires embedded in the block, and binding wires which extend out from the lugs to form fastening wires of proper length for twisting.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE A. PETERSON.

Witnesses:
F. V. SCHILLER,
E. E. OSBORN.