

1,057,095.

3 SHEETS—SHEET 1.



Arthur L. Slee.
H. G. Print.

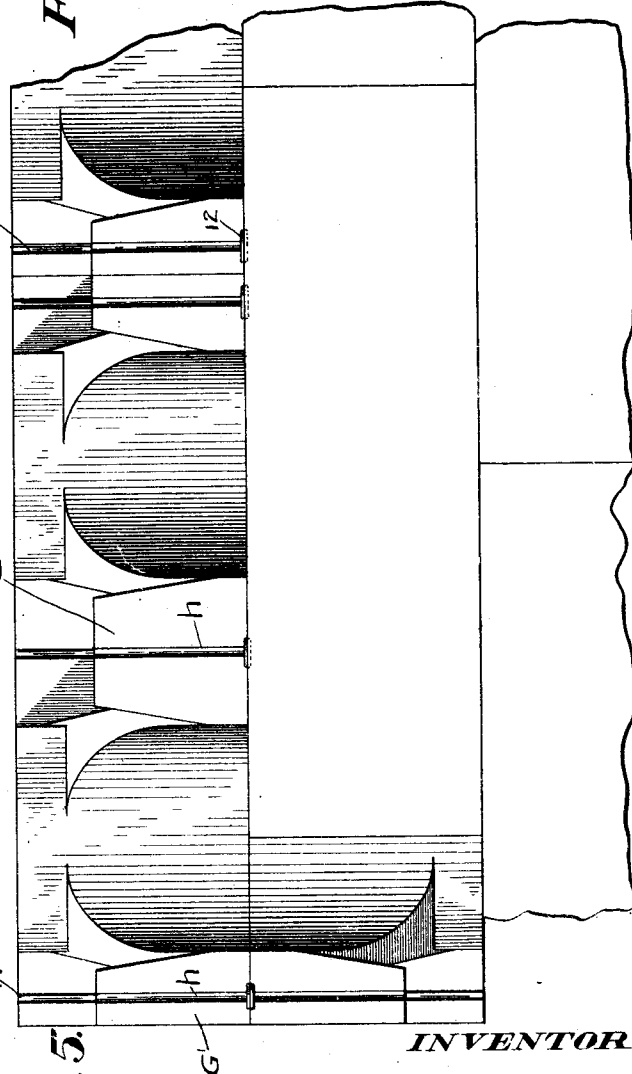
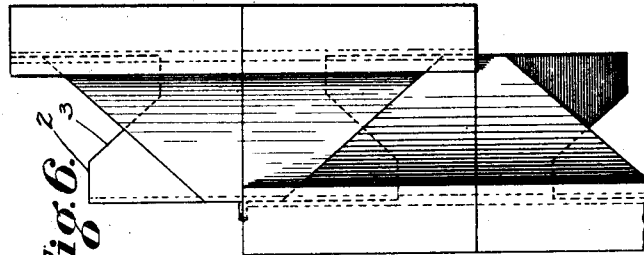
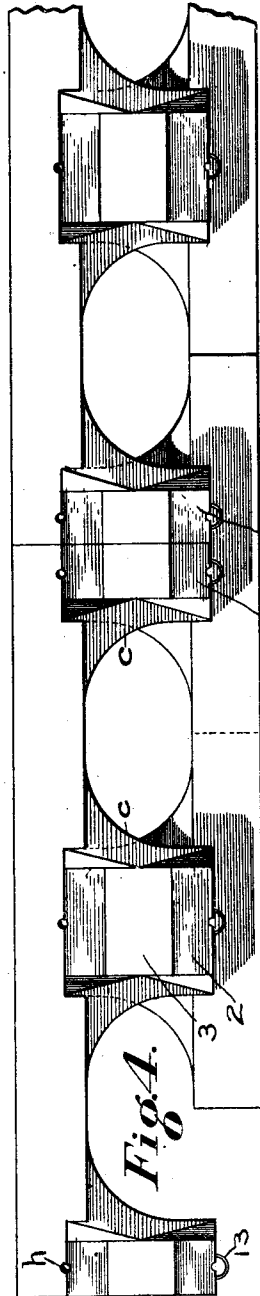
F. V. SCHILLER,
By Miller & White
his Attorney

F. V. SCHILLER.
 BLOCK FOR BUILDING CONSTRUCTION.
 APPLICATION FILED APR. 4, 1911.

1,057,095.

Patented Mar. 25, 1913.

3 SHEETS—SHEET 2.



WITNESSES.

Arthur L. Lee
 H. J. Post.

Fig. 5.

INVENTOR.

F. V. SCHILLER
 By Miller & White
 his attorneys

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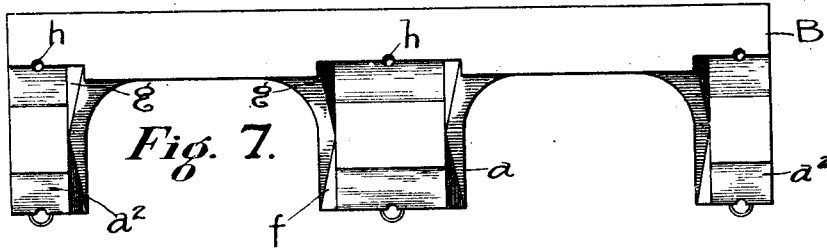


Fig. 8.

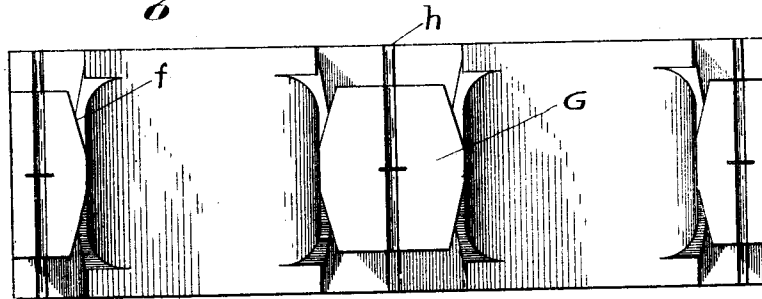


Fig. 9.

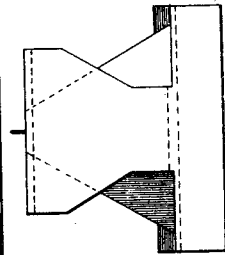


Fig. 10.

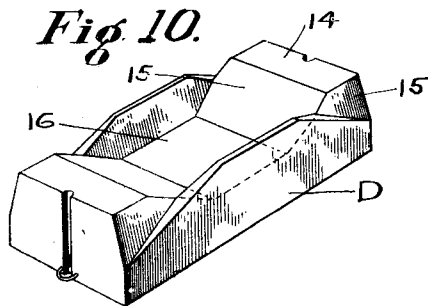


Fig. 11.

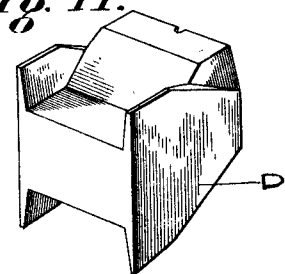
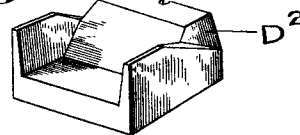


Fig. 12.



WITNESSES.

Arthur L. Slee.
H. J. Pratt.

INVENTOR.

F. V. SCHILLER
By Miller & White
his attorneys

UNITED STATES PATENT OFFICE.

FREDERICK V. SCHILLER, OF OAKLAND, CALIFORNIA.

BLOCK FOR BUILDING CONSTRUCTION.

1,057,095.

Specification of Letters Patent.

Patented Mar. 25, 1913.

Application filed April 4, 1911. Serial No. 618,849.

To all whom it may concern:

Be it known that I, FREDERICK V. SCHILLER, a citizen of the United States, and a resident of Oakland, in the county of Alameda and State of California, have invented a new and useful Improvement in Blocks for Building Construction, of which the following is a specification.

This invention relates to improvements made in concrete building construction, and to building blocks of concrete and similar plastic compositions provided with interlocking lugs or projections for joining the blocks together in a wall or other structure.

The invention has as its object to provide an improved building-block for the production of a strong and rigid wall or structure capable of withstanding shocks of earthquakes, and possessing moisture-proof, sound-proof and other desirable qualities to a high degree.

A further object of the invention is to provide an improved hollow-wall construction in which the blocks in the courses composing one side or face of the wall break joints both vertically and horizontally with the blocks composing the opposite side or face, and in such manner that every joint between one course and the next, and also between the blocks composing one face or side of the wall is opposite the solid body of a block in the opposite face or side throughout the length and height and thickness of the structure.

To these ends and objects chiefly my present invention consists in a building block having a finished face on one side to form part of the exposed surface of a wall, and on the opposite side lugs or projections and cavities or recesses of peculiar and novel character for engaging and interlocking with correspondingly formed lugs and cavities on other blocks, when a number of blocks are jointed together; the said lugs and cavities being so formed and arranged that one block will engage and fit the corresponding cavities and lugs on the other block, and the two blocks will reciprocally interlock and be held one by the other against any forces or strains that may tend to shift or move them out of place either transversely or laterally of the wall.

The invention consists further in a hollow wall construction comprising interlocking blocks of two styles or constructions, of which those on one side or face of the wall

have on one side a finished face to form part of the exposed surface of the wall, and on the other side two interlocking lugs or projections of peculiar and novel form or construction spaced apart at equal distances from the ends of the blocks, and the other blocks have each three similar interlocking lugs or projections; the interlocking devices on the respective sets or styles of blocks being formed and adapted to engage and interlock in such manner that the joints between the blocks composing one side or face of the wall will be opposed to the solid body portions of the blocks composing the opposite side or face, and all the blocks in both sides or faces will break joints horizontally as well as vertically throughout the entire length and height of the structure.

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

Figure 1 of the drawings is a plan or top-view of a section of a hollow wall constructed of two type or styles of building blocks of my invention. Fig. 2 is a front-elevation of the section represented in Fig. 1. Fig. 3 is an end-view of Fig. 2. Fig. 4 is a plan or top-view of a section of hollow wall illustrating a slight modification in which the interlocking blocks are formed in pairs. Fig. 5 is a front-elevation of the section represented in Fig. 4. Fig. 6 is an end-view of Fig. 5. Fig. 7 is a plan or top-view of the three-lug block of my invention. Fig. 8 is an elevation of the same block from the back. Fig. 9 is an end-view of Fig. 8. Figs. 10, 11 and 12 are views in perspective of spacing-blocks which are placed between the inner and outer blocks to increase the width or thickness of the wall beyond that which is produced by the lugs alone.

A novel feature in the building block of my invention consists in providing on the back of the block a plurality of interlocking lugs or projections each of a less length than the height of the block, and having an end or head of a dove-tail shape in longitudinal section joined to the block by a relatively short neck; the neck and the adjoining portion of the dove-tail head being closed in on the sides by flanges or cheek-pieces that are formed integral with the lugs and the block and in connection with the lug form a

pocket or cavity of proper dimensions to receive the head of a lug on another block of the same character. In the preferred form and arrangement of these interlocking means the head a of the lug is joined to the back of the block by a relatively short neck b of approximately one half the dimensions in height of the head a , but of the same thickness as the head. The flanges c on opposite sides of the lug extend above and below the neck and inclose the same on the sides in such manner as to form a pocket or recess d between the head a and the back of the block. In the embodiment of my invention illustrated in Figs. 1, 2 and 3 these lugs are situated on the longitudinal middle line of the block, and the flanges c extending both above and below the neck b inclose a pocket or cavity d on the top side and also one d^1 under the lug. The top and bottom edges of the lug are formed with a flat level face 2, and an inclined face 3 sloping toward the neck b , and the latter is also flat and level on the top and bottom edges. In this construction the pocket or cavity which is inclosed by the standing sides or flanges c thus corresponds in shape with that portion of the lug which I have termed the head a , in having the flat level face 2 and the sloping face 3 at the bottom, and in being of the same dimensions in width and depth as the head of the lug and consequently when two blocks are laid together back to back with their respective lugs placed in position one upon or beneath the other, the lugs on one block will fit into the pockets of the other blocks. By virtue of this peculiar form and arrangement of the lugs and the pockets or cavities each lug fitting into and confined in the pocket or cavity on the opposed block is held not only against any forces or strains that may tend to move or spread the blocks apart in directions transversely of the wall, but particularly against any force that may tend to shift the blocks one upon another laterally or longitudinally of the wall.

As embodied in the construction illustrated in Figs. 1, 2 and 3 of the drawings, the heads of the interlocking lugs on a building-block of my invention, will engage and be confined in the cavities of the opposite blocks when two blocks are placed back to back, and their own cavities will in turn receive and confine the heads of the lugs on the opposite blocks. Or, as illustrated in Figs. 1, 2, and 3, the block A on the front face of the wall will be joined to the blocks B^1 — B^2 on the rear or inner face by the reciprocal interlocking of the lugs a on one block with the pockets d^1 d^2 on the other, and of the lugs on the other with the pockets d — d^x of the former block. The lugs and pockets on the blocks of the type of one construction having two lugs, are the same in general form and arrangement as

those on the block of the type having three lugs, excepting that in the three-lug block the lugs a^3 at the ends of the block are in dimensions one-half the width or thickness of the middle lug a , and the outer side of each end-lug is finished flush with the end of the block. As the half-lugs a^2 on the adjoining ends of two three-lug blocks when placed together in a course are equal in thickness to a whole lug it will be seen that they will fill the pockets on the two-lug blocks that are laid to form part of the opposite face of the wall, and will be locked together, while their own pockets or cavities will in like manner receive the lugs of the two-lug blocks. This combination of the two-lug blocks A and the three-lug blocks B is well shown in Figs. 1, 2 and 3, wherein the half-lugs a^2 on the adjoining ends of the three-lug blocks B^1 — B^2 sit in the pocket on the upper side of the lug on the two-lug block A, and the head 2 of the last named lug sits in and fills the pocket d^1 that is formed by the union of the two half-lugs a^2 on the blocks B^1 — B^2 .

The effect of placing the lugs on both styles of blocks on the longitudinal middle line of the block and making each lug in its length equal to one half the height of the block, is to bring the horizontal joints between the courses on one side of the wall opposite the middle of a block in the opposite side, and thus make all the blocks composing one face break joints with the blocks in the opposite face. A corresponding breaking in the vertical joints between the ends of the blocks in the same face and also in those in the opposite face of the wall is secured also by the peculiar and novel arrangement of the lugs on the two styles of blocks in separate combinations of two lugs on the block of one type as A and of three lugs on the blocks of the other construction, as B used for the opposite side of the wall as before described. These blocks of two constructions as thus combined have the effect to produce a strong and rigid wall capable of withstanding shocks of earthquakes, and especially those of a rotary or twisting character or quality of motion which act to shift or move the courses or layers of blocks or bricks upon one another.

A further novel feature in the interlocking block of my invention consists in forming the head a of the lug with inclined sides f as shown in Figs. 7 and 8, and in forming the sides of each pocket or cavity in a similar manner with inclined faces g having the same slant or inclination as the beveled or slanting faces on that part of the lug which sits in the pocket. By substituting these beveled or inclined faces for perpendicular faces on those interlocking parts, the lugs are more readily entered and brought to a close seat in the pockets, 130

in the work of setting the blocks one upon another. The finished blocks are also more easily removed from the mold when the lugs and pockets are formed in the manner shown. The edges of the projecting parts on the back of the block which form the lugs and pockets as above described are beveled or inclined for the purpose also of rendering them less liable to break or be chipped in handling the blocks between the factory and the place where they are to be used. The beveled faces *f* on the lugs *a* and those *g* on the sides of the pockets may be so accurately formed in the molding of the blocks that a close joint between the faces of these interlocking lugs and a strong bonding of the inner and outer courses of blocks in laying up a wall can be insured without the use of cement or mortar.

When reinforcing rods or bars are to be introduced in the wall, provision is made for inserting them in the blocks at the time of laying the blocks in position and to that end the apertures *h* are formed vertically through the block at the point where the lug springs from the back of the block, and on each lug is embedded at the time of molding a wire 12 projecting in a loop 13 from the end of the lug and midway between the top and bottom edges, or in such position that when two blocks are set in position back to back with the lugs on one block resting on the lugs of the other block, the loops 13 on the heads of each lug will lie directly in line with an aperture *h* in the opposite block, and will take the reinforcing rods which is then inserted through the block at the aperture provided to receive it.

The grooves *h* seen at Figs. 2, 5 and 8 in the end faces of the lugs are for the purpose of letting in the reinforcing rods which otherwise would be interposed between the end of the lug and the back wall or face of the pocket on the opposite block, and would prevent a close fit between the faces of the lug and the pocket. These reinforcing rods are inserted in every block after it is placed in position. Usually they are of sufficient length to be inserted through a block and into the block lying beneath it or that one which is to be placed upon the set block, so that the rod will lie partly in each block.

In the modification illustrated in Figs. 4, 5 and 6 the interlocking lugs and cavities are formed or arranged in such manner that one half or portion of each lug and its associated cavities on a block both in the two-lug construction and in the three-lug construction, will be situated on one block, and the remaining half or portion to complete the lug and its associated cavities will be contained on a separate block; the blocks being formed and arranged to fit one upon the other and to be placed in pairs, with

their ends in the same vertical plane. This modification is applicable more particularly to blocks of the larger sizes, which, by reason of their greater weight, are better able to resist displacement. Each interlocking means in this modification will therefore be composed of the head *G* on the end of the lug, and a pocket on the same side of the neck, instead of the lug having a double interlocking head, one above, and the other beneath, the line of the neck and the top and bottom pockets.

A further feature in the present invention consists in a spacing block of novel form or construction to be placed between the outer and inner courses of the wall for the purpose of spacing the sides and faces of the wall farther apart for a thicker wall. This spacing-block is provided with projections 14 having inclined faces 15 corresponding in shape and dimensions to the pockets in the building blocks, and also with pockets 16 to take the heads of the lugs on the building blocks between which the spacing blocks are placed. A spacing-block of this construction will therefore join and lock together the ends or heads of two opposing lugs lying in the same plane or placed end to end. These blocks are usually provided in the form of a half block *D* having a flat face on one side, and on the opposite side a projecting head 14 at each end with a central cavity 16; also in the form of a half block *D'* in which the projecting head is situated on one end and the cavities are in the top and bottom faces of the blocks.

The form of spacing-block *D*² illustrated in Fig. 12 is provided for use in the bottom course of the wall, and a half-block *C* is used to bring the lowermost blocks composing the inner face of the wall on one side on a level with the foundation. A half-block of this construction is indicated in dotted lines in Fig. 3.

I claim:

1. A building block having on one face a projecting lug, comprising a head, a neck of smaller dimensions than the head connecting the head to the block and flanges arranged on opposite sides of the neck and extending above the neck to form a pocket between the head and block.

2. A building block having on one face a projecting lug comprising a head of less width than the length of the block, a neck of less height than the height of the head connecting the head to the block, and flanges of the same height as the height of the head, arranged on opposite sides of the neck.

3. A building block having on one face a projecting lug, comprising a head of less width than the length of the block and of less height than the height of the block, a neck of less height than the height of the

head and of the same width as the width of the head connecting the head to the block, and flanges arranged on opposite sides of the neck adapted to form pockets above and below the neck, said block, head, neck and flanges being formed integral.

4. A building block having on one face a projecting lug comprising a head having inwardly sloping top and bottom faces, a neck connecting said head at the base of said inwardly sloping faces with the block and flanges arranged on opposite sides of the lug, said flanges lying adjacent the neck and said inwardly sloping portions of the head and extending above and below said neck and sloping portions.

5. A building block comprising a body portion, a lug projecting from one side thereof, said lug having inwardly sloping top and bottom faces, and being provided with flanges lying adjacent and extending beyond said sloping faces to produce pockets on the top and bottom faces of the lug.

6. A building block comprising a body portion, a lug projecting from one side thereof comprising a head having inwardly sloping top and bottom faces, a neck connecting said head at the base of said sloping portions with the body portion and flanges arranged on opposite sides of said head and neck and projecting above and below said neck and said sloping portions, whereby pockets are formed on opposite sides of the lug, said body portion, head, neck and flanges being formed integral.

7. A building block comprising a body portion, a lug projecting from one side thereof, said lug having its upper and lower surfaces respectively sloping upward and downward from its point of connection with the body portion and flanges arranged on opposite sides of said lug and extending up-

ward and downward beyond the sloping surfaces of said lug.

8. A building block comprising a body portion, a lug projecting therefrom on one side, said lug comprising a head of less width and height than the width and height of the body portion, a neck of less height than the head connecting the head and body portion, said head being provided with inclined portions extending outward from said neck, and flanges extending from the body portion to the end of the head, the edges of said flanges being inclined to the neck and head and lying partly above and below said neck and inclined portions.

9. A building block comprising a body portion, a lug projecting therefrom on one side comprising a head having its side faces inclined inwardly at the top and bottom, a neck of less dimensions than the head connecting the head to the body portion, flanges arranged on opposite sides of said neck and projecting upwardly and downwardly therefrom to form pockets, the sides of the pockets being inclined to correspond to the inclination of the sides of the head.

10. In a building block, interlocking means comprising a plurality of lugs each having a head, a neck of less dimensions joining the head to the block, flanges projecting upwardly and downwardly on opposite sides of the neck adapted to form pockets above and below said neck corresponding in form and dimensions to the head of the lug, whereby the lugs and pockets on the opposite sides of several building blocks, when placed in position back to back, will reciprocally engage and interlock.

FREDERICK V. SCHILLER.

Witnesses:

W. F. DREW,

S. F. BURBANK.