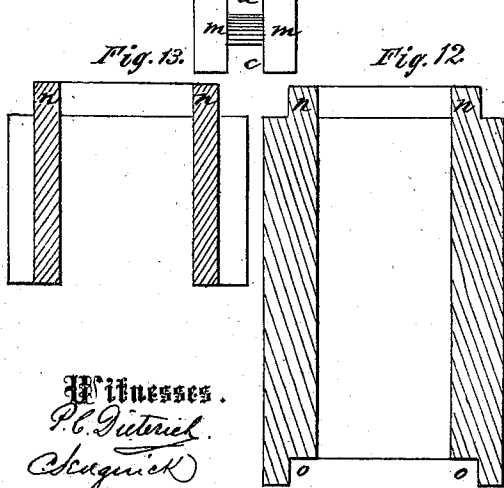
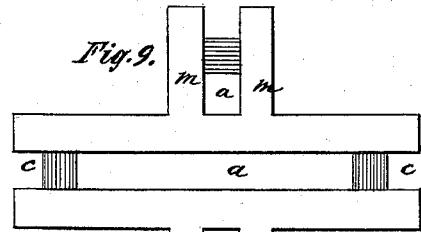
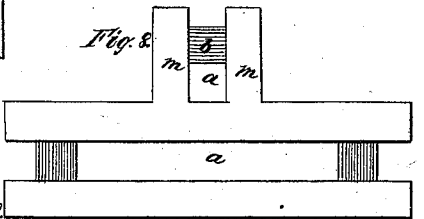
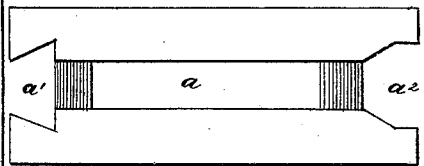
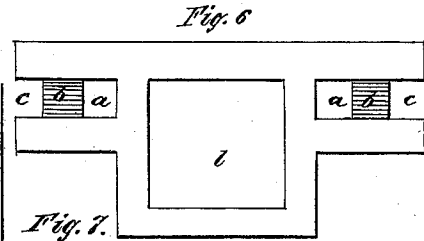
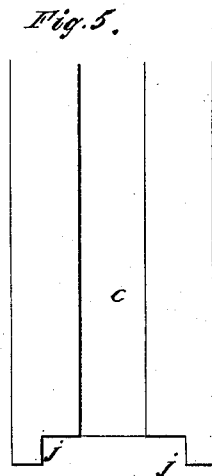
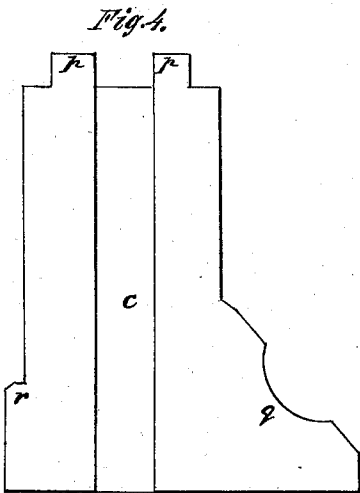
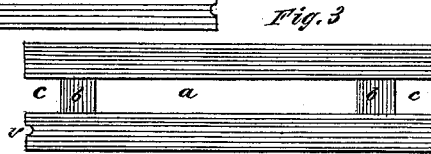
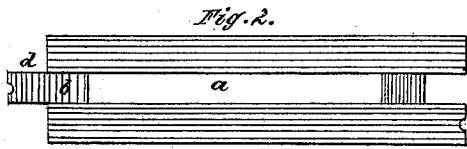
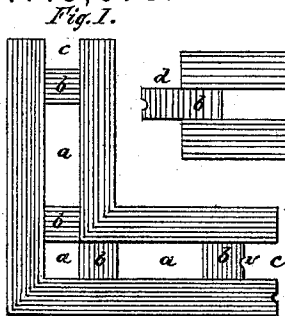


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Building-Blocks.

No. 149,678.

Patented April 14, 1874.



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Fig. 14.

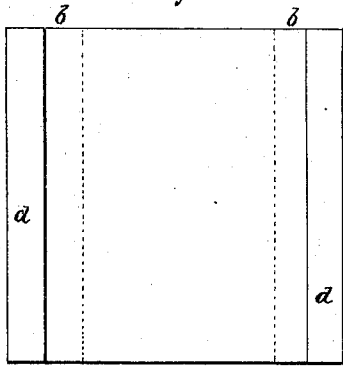


Fig. 15.

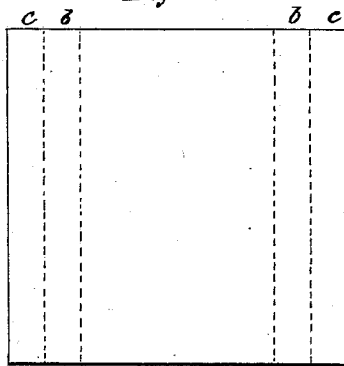


Fig. 21.

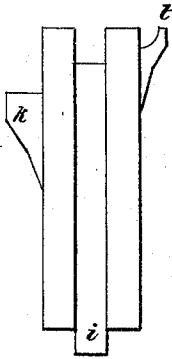


Fig. 16.

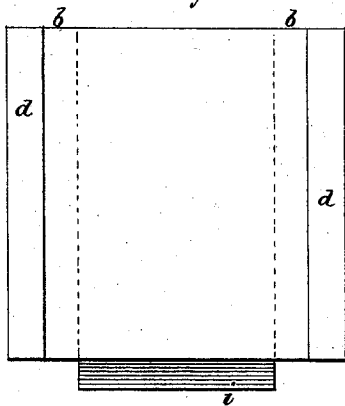


Fig. 17.

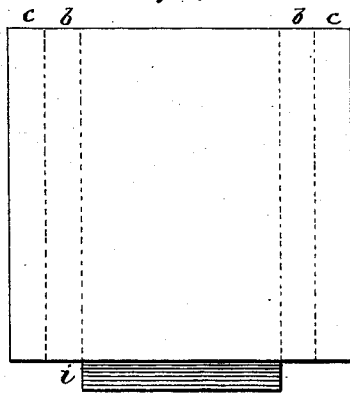


Fig. 18.

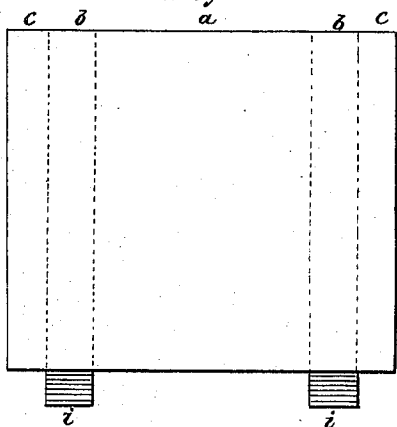


Fig. 19.

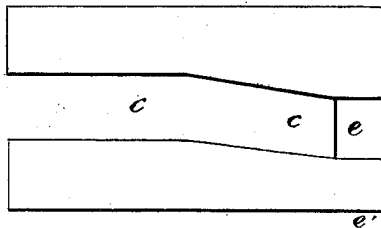
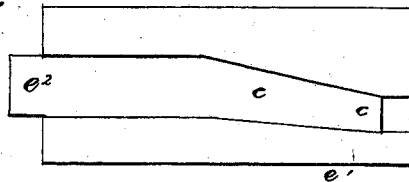


Fig. 20.



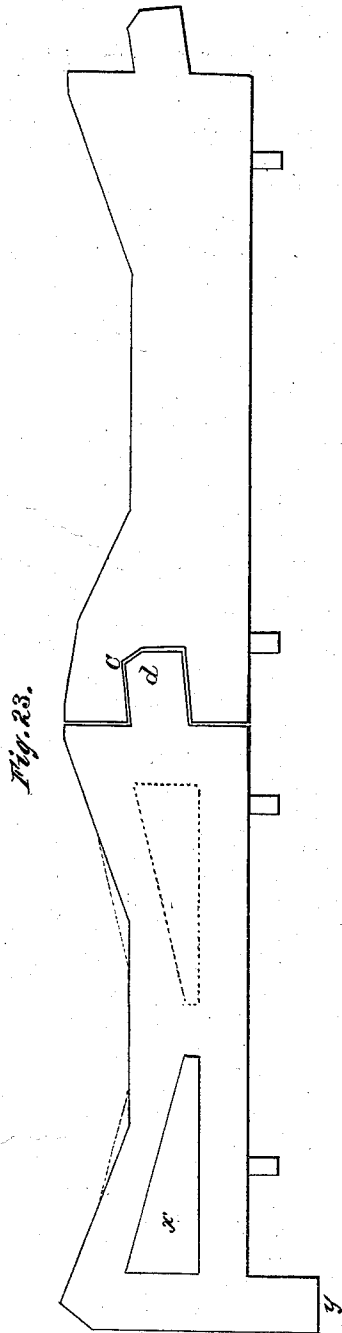
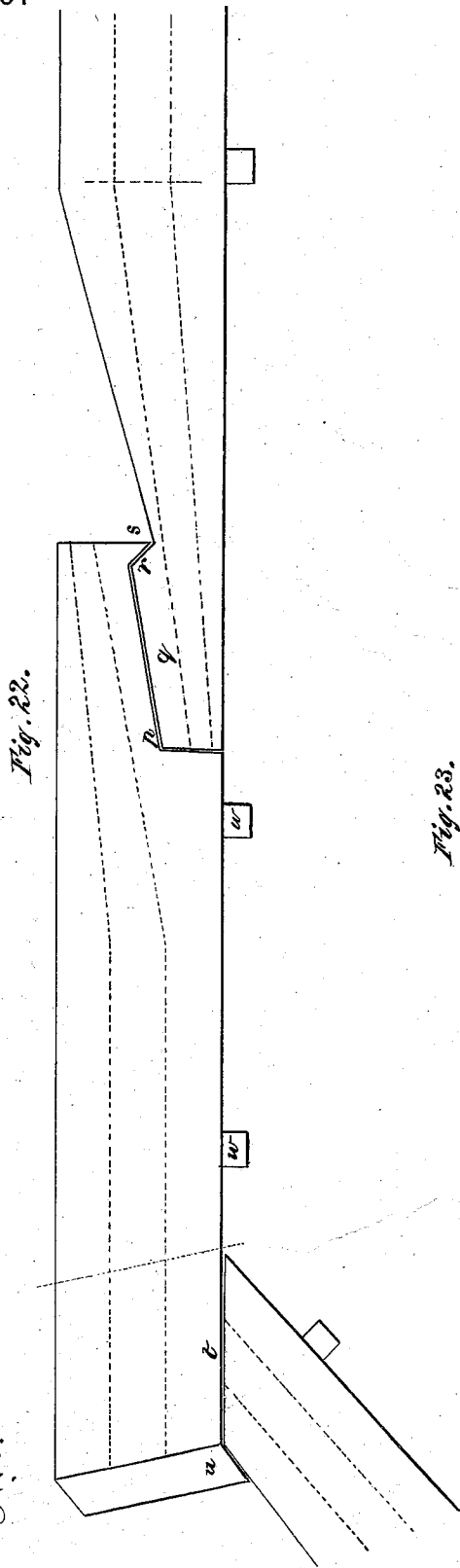
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UNITED STATES PATENT OFFICE.

THOMAS B. RHODES, OF LEETONIA, OHIO.

IMPROVEMENT IN BUILDING-BLOCKS.

Specification forming part of Letters Patent No. **149,678**, dated April 14, 1874; application filed March 29, 1873.

To all whom it may concern:

Be it known that I, THOMAS B. RHODES, of Leetonia, in the county of Columbiana and State of Ohio, have invented a new and Improved Building-Block, of which the following is a specification:

The invention relates to an improved building-block formed of concrete or other material, which in its plastic condition may be molded into the required form, and will become sufficiently hard and durable for making permanent fire-proof walls or structures. The novel features of the invention are clearly indicated in the claims.

Figure 1 is a top view of a corner-block. Figs. 2 and 3 are top views of intermediate blocks. Fig. 4 is an end elevation of a base-block. Fig. 5 is an end elevation of a block to join on the top of the base-block. Fig. 6 is a top view of a block having enlarged vertical passage for a chimney or ventilating flue. Fig. 7 is a top view of a block, showing modifications in the forms of the locking-grooves in the ends. Fig. 8 is a top view of a block having a connection for joining on a partition-wall. Fig. 9 is a top view of a block with connections for a partition-wall on each side of it. Figs. 10 and 11 are end elevations of blocks. Figs. 12 and 13 are sections of blocks for flues or chimneys, showing a mode of making tight joints between the blocks. Figs. 14 to 17, inclusive, are elevations of blocks, showing the way they go together in the wall, with slight modifications in the locking-tongues and grooves. Figs. 19 and 20 are end views of blocks, showing the arrangement for matching the blocks where the walls change from one thickness to another. Fig. 21 is an end elevation of a block, showing the application of brackets molded on the sides for supporting joists and forming eaves-troughs and the like. Fig. 22 represents some of the roofing-blocks in edge view, and Fig. 23 represents these in end view.

Similar letters of reference indicate corresponding parts.

a represents hollow spaces, extending through the blocks from bottom to top, to make hollow walls. *b* represents the parts by which the two sides of the blocks are connected. In some blocks these are arranged

sufficiently distant from the ends to form grooves *U* therein, in which tongues *d* on other blocks will fit to lock the blocks firmly together. A groove may be formed in one end of a block and a tongue in the other. These grooves and tongues may be in dovetail form, as at *a*¹, or five-sided, as at *a*², Fig. 7. The parts *b* will, in some cases, extend to the top of the blocks, and in others not, as shown at *e*, Figs. 10 and 11, and in such cases binders may be used to lock the blocks together by placing them on the upper ends of said parts, so that the adjacent parts of the two blocks to be locked together are received between the parts of the binders. I also propose to deepen and otherwise form the grooves, both horizontally and vertically, so as to use long binders of wood or iron, extending from end to end of a wall at the top, or from bottom to top, or from the bottom to the top of an opening left in the wall for a door or window. The said parts *b* may extend below the bottom of the block, as in Fig. 10, at *i*, and enter the space *e* at the upper end of the block below. The block represented in Fig. 11 shows a wide groove, *j*, in the bottom, which I prefer for the upper tier of blocks, to be fitted on a corresponding wide tongue on the top of the next block below, and at *k* it has a projecting bracket formed on the side for the support of the joists, but, if preferred, holes may be made in the side of the blocks and the joists fitted in them. *l*, Fig. 6, shows a large vertical opening through the block, instead of the ordinary one, to form a flue for smoke or ventilation. *m* represents projections on the sides of blocks, to make connections with partition-walls. The chimney or flue-blocks may join each other at top and bottom by the tenoned end *n* of one fitting in the socketed end *o* of the other, as shown in the sectional figures, 12 and 13, to make tight joints. I also propose to arrange the openings in the top blocks so that hot air admitted to them may circulate throughout the spaces in all outside walls, and in partitions, if preferred, for heating the rooms, and connect said spaces with furnaces or other heating apparatus for the introduction of heat; and I will have suitable exhaust-passages to allow the air to escape after it has parted with its heat. The

thick base sections, Figs. 4 and 5, will be locked by a wide groove, *j*, in one, and a wide tongue, *p*, on the other, in the same manner that the upper tiers are joined. The base-blocks may have a base-rib, *q*, on the outside, and a mop-board rib, *r*, on the inside.

In Figs. 19 and 20, the grooves *C* in the ends of the blocks are crooked so as to match blocks of different thickness, to diminish the thickness of the walls at the floors of high buildings. The groove *e* in the top of the block is brought as much nearer the outside *e*¹ of the wall as is necessary for receiving the tongue *e*² of the block of the next tier above, so that its outside, *e*¹, will be flush with the outside of the block below while its tongue is in the middle.

In Fig. 21, the upper-tier block is represented with a tongue, *i*, for locking with the groove of the tier below, a joist-bracket, and a grooved projection, *t*, on the outside for an eaves-trough.

In some cases, I will have the meeting ends of the blocks grooved, as at *U*, to form holes, when joined together, to fill with cement to unite them and make the joints water and air tight.

By molding these blocks they can be readily and cheaply made, in any approved form and size, both plain and ornamental, and thus afford desirable building material for less cost than bricks or wood.

I propose to construct these in several different standard sizes and thicknesses to correspond with the different stories of the building, and designate them by classes, so that by the class the size and thickness will be known.

Holes may be formed in the blocks when molded, to make continuous passages, where the blocks are joined, for conducting water from the eaves-trough to the ground; also for speaking-tubes, and the like.

In laying up a wall with these blocks, I propose to inclose each layer temporarily in a casing of wood, and pour in hot cement to flow into the interstices and fill them up and unite the blocks.

The roof-blocks, which I also propose to make of this material, according to the same general plan, with tongues and grooves to match them together, as shown at *d c*, Fig. 23, and hollow spaces, will have a recess, *p*, in the under side of the lower end, to lap over the upper end *q* of the next block below, which will be made sufficiently thinner in the upper portion than in the portion below to fit under the lower end and match with the recess, as shown.

A better elevation, *r*, will be formed on the under portion, and a corresponding rib, *s*, on the upper portion, to prevent the water from setting back in the joint. The ridge-block of one side will overlap the beveled upper end of the one on the other side, as shown at *t*, and will have a lip, *U*, at the upper end, fitting on the side of the other ridge-block, to prevent back-flow. On the under side of these blocks will be lugs or ribs *V W*, to be let into the rafters or sheathing, if any is used, to hold the blocks on the roof. The tongues and grooves will be formed, on the broken dotted lines represented in Fig. 22, to correspond with the form in which they are necessarily made for lapping each other, and said tongues and grooves will be formed in cross-section, as represented in Fig. 23—that is to say, so that the upper side of the tongue forms a little gutter through which the water that may find its way down the joint thereto will escape down to the eaves, and thus be prevented from leaking through the roof. *X* represents the hollow spaces of these blocks, which will extend from near the lower ends to the point in the upper part, where they begin to taper down to be overlapped by the block above.

I propose to make these blocks considerably thinner in the middle of the upper side than at the edges, as shown in the end view, Fig. 23, as another means of economizing material.

Y represents a rib, which will be formed on the end tier of the roof-blocks to overlap the ends of the roof.

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

1. The blocks having partition-connections *m*, substantially as specified.
2. The said blocks having joist and eaves-trough brackets *k t*, substantially as specified.
3. The said blocks having the end grooves and tongues crooked to match the tiers of different thickness, substantially as specified.
4. The base-blocks having base-ribs *q* and mop-board rib *r*, substantially as specified.
5. The arrangement of the lap-joints *p q r s* of the roof-blocks, substantially as specified.
6. The arrangement of the ridge-joint *t u*, substantially as specified.
7. The arrangement of the tongues *d* of the roof-blocks for carrying off the water, substantially as specified.

THOS. B. RHODES.

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