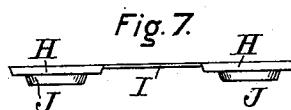
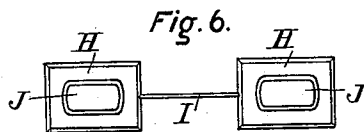
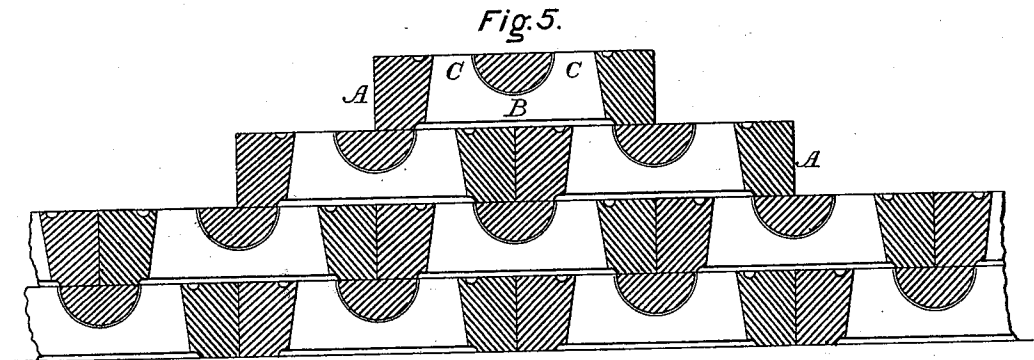
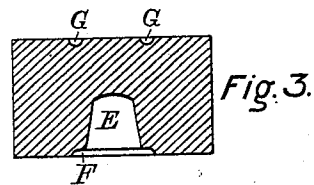
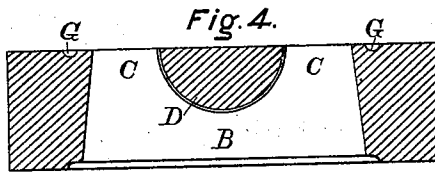
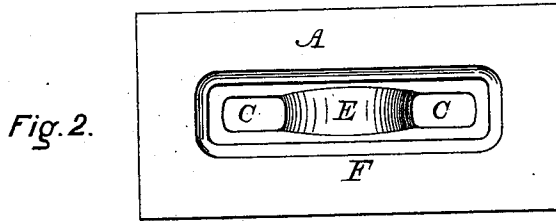
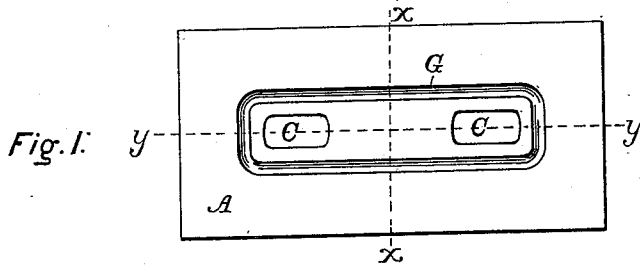


(No Model.)

W. L. WOODS & J. E. RUEBSAM.
BRICK OR BUILDING BLOCK.

No. 563,351.

Patented July 7, 1896.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM L. WOODS AND JOHN E. RUEBSAM, OF WASHINGTON, DISTRICT OF COLUMBIA.

BRICK OR BUILDING-BLOCK.

SPECIFICATION forming part of Letters Patent No. 563,351, dated July 7, 1896.

Application filed February 23, 1895. Renewed November 20, 1895. Serial No. 569,589. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM L. WOODS and JOHN E. RUEBSAM, citizens of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Bricks or Building-Blocks; and we do hereby 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.

Our invention relates to improvements in bricks or building-blocks; and the object is to produce a brick or block having perforations through it, so that in forming a wall with said bricks a clear passage for the circulation of air is left from the bottom to the top, thus preventing frost from penetrating through the wall, and forming a non-conducting wall against heat, cold, and dampness, and affording a means of ventilating the adjacent rooms, while at the same time providing a much stronger wall than has heretofore been possible where hollow bricks have been used.

Our invention consists in the particular construction and arrangement of the several parts of the brick, as will be more fully described hereinafter, and particularly pointed out in the claims, reference being had to the accompanying sheet of drawings, and the symbols of reference marked thereon, which constitutes a part of this specification, and in which—

Figure 1 represents a top plan view of our brick. Fig. 2 represents a bottom plan view of the same. Fig. 3 represents a vertical transverse section of the brick on line X X of Fig. 1. Fig. 4 represents a vertical longitudinal section of the brick drawn on line Y Y of Fig. 1. Fig. 5 represents a vertical longitudinal section of a wall built of our bricks on a line drawn through the vertical longitudinal center of a row of said bricks. Fig. 6 represents a bottom plan view of an instrument used in laying the bricks to prevent the mortar from entering the openings, and Fig. 7 represents a side elevation of the same.

The same symbols of reference indicate identical parts throughout the several views.

A represents a brick of the ordinary standard form and dimension, although it is ob-

vious that they may be made of any other convenient size or shape. In the center of said brick is an opening B, preferably proportioned as to its length and width so as to leave an equal thickness of material in the sides and ends of the brick, for purposes hereinafter mentioned. This opening is tapering in form from the bottom upward, for the purpose of enabling the core of the mold to be easily drawn therefrom, and for the purpose of conferring additional strength to the brick, as will hereinafter more fully appear. Said opening is continuous from one end to the other for about half the vertical thickness of the brick, and it then branches into two openings C C at the top. Between the said openings C C the clay is left integral with the body of the brick and is in the form of an inverted arch longitudinally of the brick, as shown at D, Fig. 4, and is also in the form of an arch transversely of the brick, as shown at E, Fig. 3. This arch shape of the material left between the two openings C C of the brick affords the greatest amount of resisting strength against vertical pressure that is possible for that amount of material, as will be obvious to those acquainted with the mechanical properties of the arch. Each end of the opening C C is arch-shaped, so as to avoid sharp corners and a consequent tendency to start a check or crack in the brick in drying, handling while green, or burning.

Surrounding the opening B, at the bottom thereof, is a groove F, which cuts out the sharp lower corner of the material adjacent to said opening. On the upper side of the brick is another groove cut into the flat surface thereof, as shown at G. These grooves register with each other when one brick is laid upon another in constructing a wall, and they serve the double purpose of forming a key to prevent displacement from lateral pressure against the brick, and at the same time they afford a receptacle for the mortar which is pressed from between the bricks in the process of laying a wall, and prevent an undue quantity of the mortar from being pressed into the opening and thus obstructing the free passage of air through the wall. The space left between the groove G and the edges of the openings C constitutes a shelf for

the retention of any surplus mortar that might overflow said groove, thus preventing the slightest obstruction of the openings C, as will hereinafter more fully appear.

5 As a further means of preventing the mortar from entering the openings, we employ an instrument such as shown in Figs. 6 and 7. This instrument consists of two blocks H H, of wood or other suitable material, joined together by means of a stout wire I, which serves
10 as a handle, and at the same time allows a certain quantity of mortar to be spread between the two upper openings of the brick. These blocks are made of the thickness of a
15 layer of mortar, and of a sufficient width and length to extend to the groove G, and are provided with tapering extensions J on the bottom, of a size to fit the two upper openings of the brick, thus preventing lateral displacement of the instrument while the mortar is
20 being spread. This instrument is placed over the openings in the top of the brick previous to applying the mortar. The mortar is then spread around it, the thickness of the blocks serving as a gage to determine the quantity
25 of mortar to be used. The wire handle being small does not prevent the mortar from being spread across the center of the brick between the two openings, and the instrument can be
30 easily lifted out by means of the handle without displacing the mortar. By this means the whole resisting strength of the brick against vertical pressure is utilized. It is obvious that this instrument may be lengthened by
35 adding more of the blocks H, and connecting them by wires I, as shown and described. One of the advantages resulting from the use of this instrument, aside from that of preventing the openings from being obstructed
40 by mortar, consists in the fact that it compels the use of a uniform quantity of mortar. The importance of this cannot be overestimated when the fact is considered that a lack of uniformity in the quantity and in the spreading
45 of mortar in brick-laying is a prolific source of weakness in structures built of brick masonry. Moreover, by the use of this instrument the mortar can be as quickly applied as by the old method, to say nothing of the absolute
50 uniformity in quantity thus assured.

The advantages possessed by a brick constructed as above described are many and obvious. The perforations enable the fire to penetrate the interior when the brick is being
55 burned, thus causing it to be burned more evenly than would otherwise be possible. This fact alone compensates for the decreased quantity of material in the brick consequent upon the perforations. The arched piece in

the center bears the strain of the vertical
60 pressure of the two solid ends of the bricks above it and the increased thickness of the solid ends at the top compensates for the lack of material consequent upon the opening in the lower part of the brick above them, as
65 will be seen by reference to Fig. 5 of the drawings. Thus it will be seen that every part of each brick which is weakened by the openings is compensated for by the shape of the bricks above and below it, at their points of
70 contact, as they are laid in the wall. The result is that a wall laid with our bricks, and by the use of our methods, not only possesses the well-known advantages of being hollow, but possesses a strength fully as great as a
75 wall built of solid bricks as they are ordinarily burned and laid.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A new article of manufacture, consisting of a brick or building-block, having an opening in the center of the lower half thereof, extending longitudinally of the same and branching into two openings in the top of said
85 brick, said upper openings being separated by the arch-shaped partition, D, substantially as set forth.

2. A new article of manufacture consisting of a brick having an opening tapering from
90 the bottom upward, a groove, F, located adjacent to the opening at its lower edge and communicating therewith, and a registering groove, G, in the top face of the brick, substantially as set forth.

3. A new article of manufacture consisting of the brick A having an opening, B, tapering from the bottom upward, and branching into two openings, C, said openings separated by the arch-shaped partition, D, the groove, F, located in communication with the lower
100 edge of the opening, F, and a registering groove G, on the top surface of said brick, substantially as described.

4. An article of manufacture consisting of
105 a brick, A, having an opening, B, branching into two openings, C, each of said openings having rounded corners, the openings, C, being separated by the arch-shaped partition, D, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM L. WOODS.
JOHN E. RUEBSAM.

Witnesses:

N. CURTIS LAMMOND,
GEORGE W. COX, Jr.