

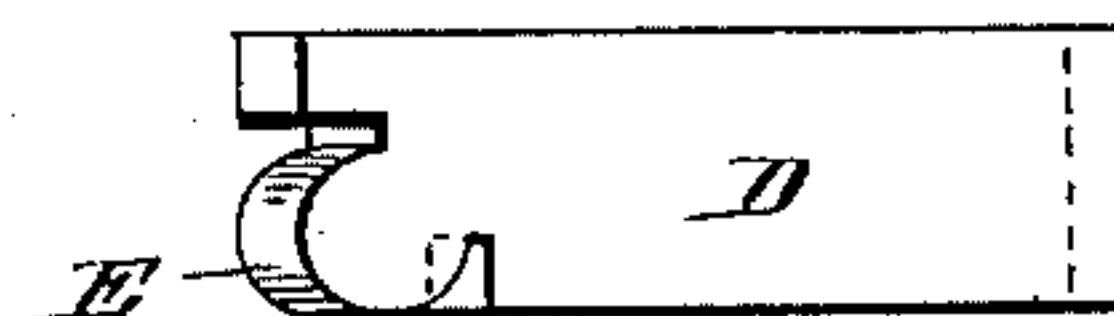
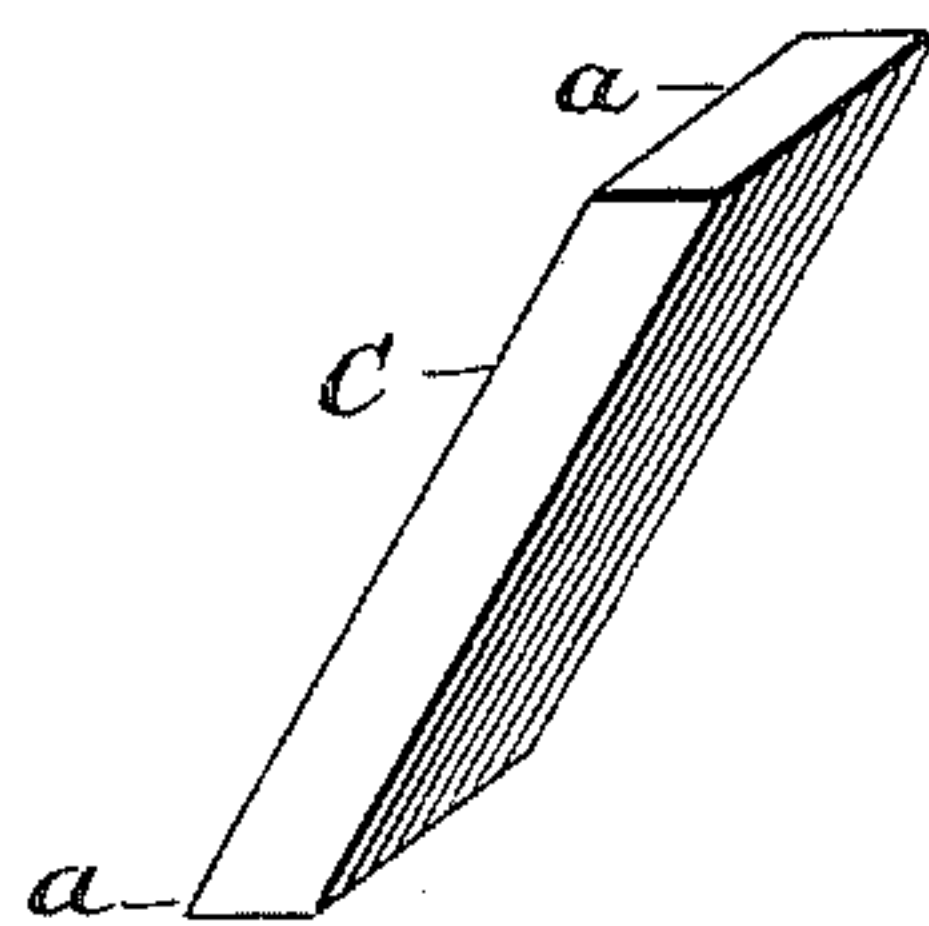
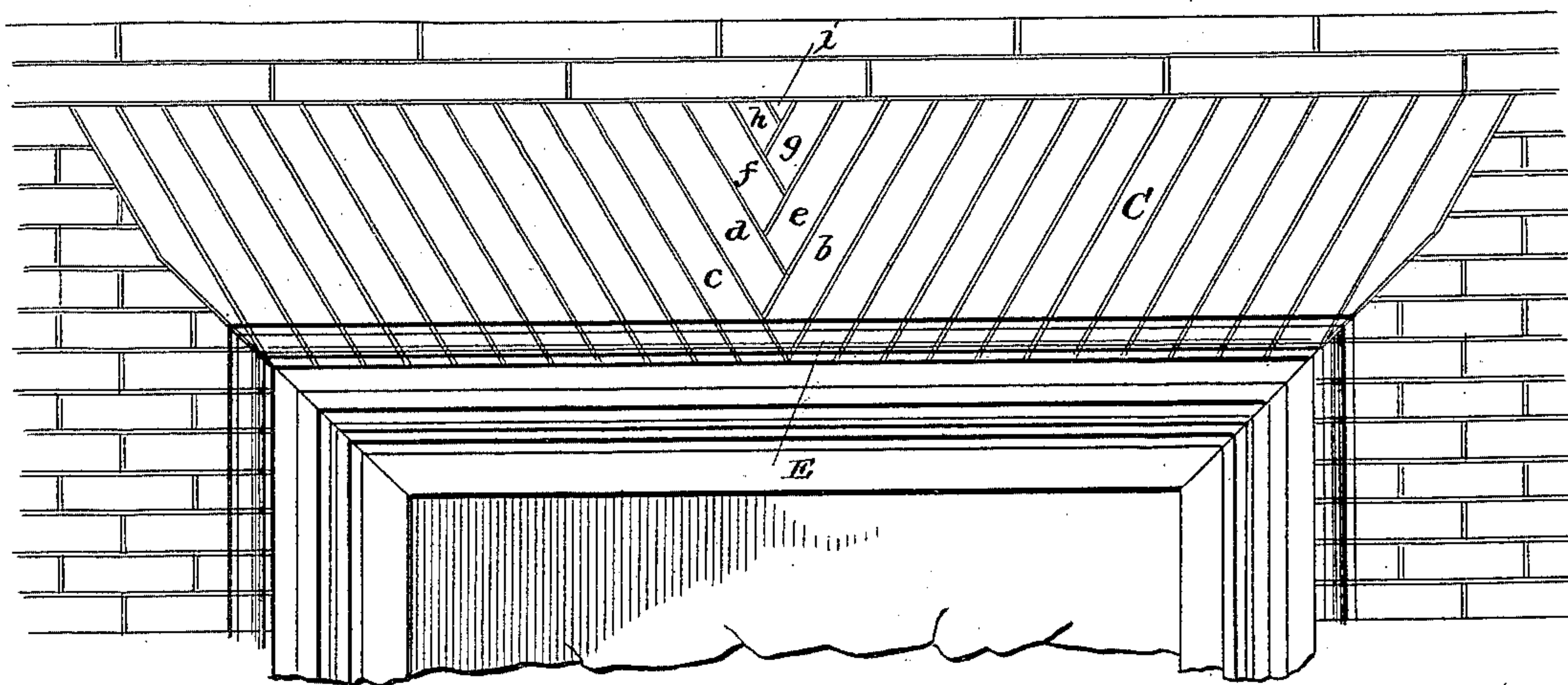
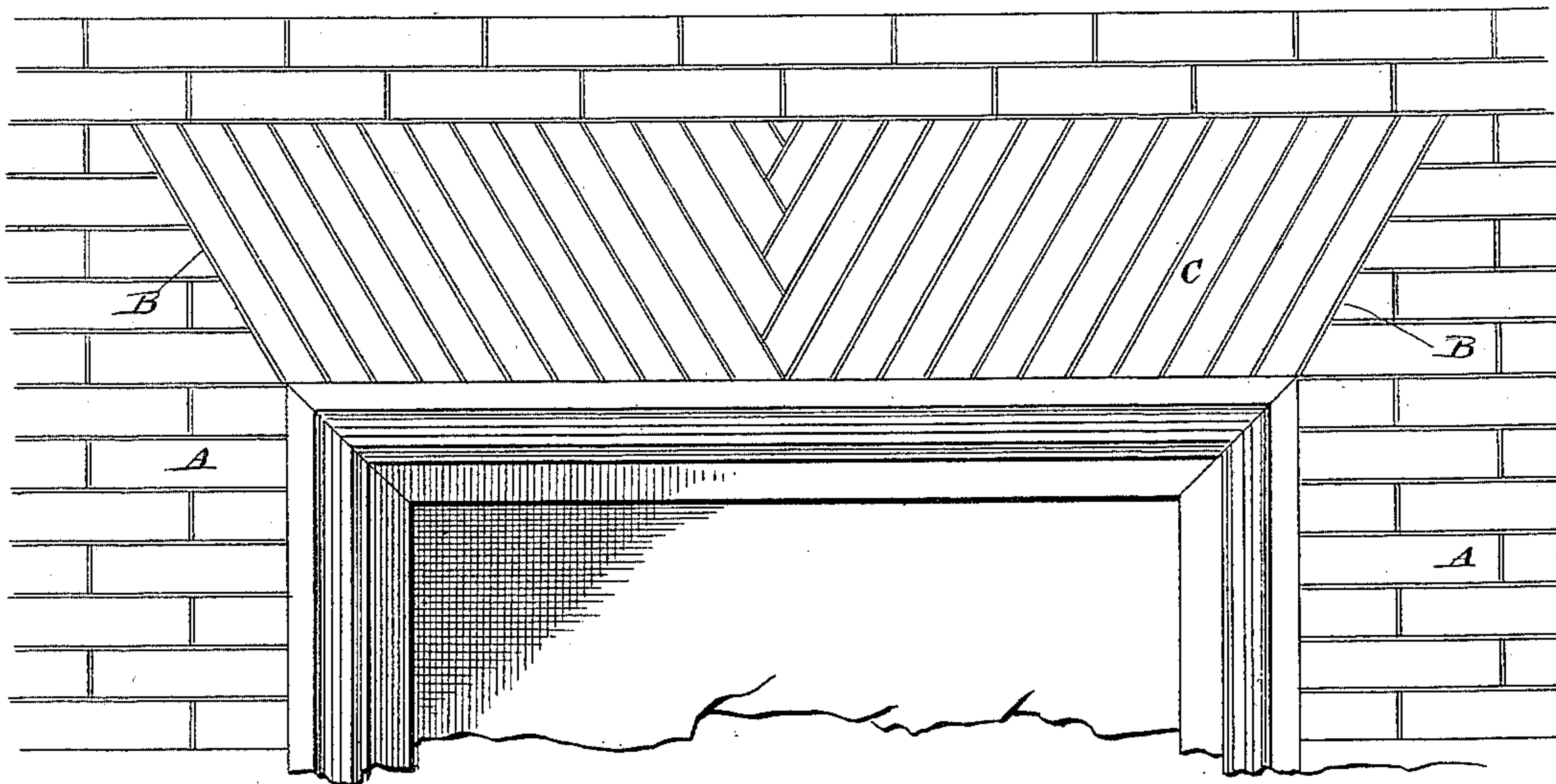
(No Model.)

J. C. ANDERSON.

FLAT ARCH AND BRICK FOR BUILDING THE SAME.

No. 394,048.

Patented Dec. 4, 1888.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

JAMES C. ANDERSON, OF HIGHLAND PARK, ILLINOIS.

## FLAT ARCH AND BRICK FOR BUILDING THE SAME.

SPECIFICATION forming part of Letters Patent No. 394,048, dated December 4, 1888.

Application filed June 9, 1888. Serial No. 276,614. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES C. ANDERSON, a citizen of the United States of America, residing at Highland Park, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Flat Arches and Bricks for Building the Same, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to the construction of flat arches of brick-work commonly used over the doors and windows of brick buildings and to the peculiar construction of the brick for forming the same.

The object of my invention is to avoid the cutting and grinding of each brick or voussoir of the arch to a separate form in taper of the bricks or voussoir and the angles of the ends to conform to a horizontal plane. It may be proper to state in this connection that in constructing all flat arches in brick-work, and more especially in pressed-brick work, it has been impracticable to mold the bricks in suitable form to member with each other in laying the arches, for the reason that each brick going to make up the arch must be of a different taper from the other. Besides, the lines of form across the ends of the brick must be angular to the face part of the same, and it has been heretofore found impracticable to press such bricks and force the same out of the molds. It has therefore been required in all cases in constructing these arches to cut and grind each of the bricks, to a particular taper which varies to suit the position of each individual brick in the arch, and at the same time to cut and grind off the ends of each of the bricks to a particular angle, which angle varies according to the position of each of the bricks in the arch. This cutting and grinding is not only difficult and expensive, but leaves the raw edge of the brick so cut and ground exposed to view at the soffits, rendering them not only unsightly, but liable to disintegration after the skin has been broken on the same. In all first-class pressed-brick work it is the practice to provide the corners and reveals about window and door jambs with elaborate contour moldings of brick-work, which mold-

ings are extended around the intrados or soffits of the circular arches, and it has been highly desirable to carry these molding contours across the intrados or soffits of the straight arches; but this has proved impracticable for the reason that no means have been provided heretofore for forming a molding contour across the end or corner of a brick angular to the plane of the side thereof, and it will be seen that, even were it possible to form an angular molding to meet the demand for one of the bricks in the arch, separate dies would have to be provided for each brick of the arch to conform to the angular position of the respective brick going to make up the same.

My invention therefore consists of the construction of flat arches above the doors and windows of buildings, said arches being composed of bricks of uniform thickness and width and having the ends thereof beveled, so that the upper and lower edges of the arch will be on a horizontal plane.

Referring to the drawings, Figure 1 is a front view of a portion of a building, showing a plain flat arch above the window. Fig. 2 is also a front view of a portion of a building, showing a flat arch above the window, the lower portion of said arch ornamented with a molding. Fig. 3 is a view in perspective of a brick from which the plain flat arch shown in Fig. 1 is made. Fig. 4 is a side view of a brick from which the arch made in Fig. 2 is made, and having an ornamental molding. Fig. 5 is an edge view of the brick shown in Fig. 4.

In an application filed of even date herewith, Serial No. 276,616, I have shown and described a machine for making the peculiar form of brick which I use in the construction of flat arches, and such forms no part of this application.

A indicates the walls of the building, which are made of bricks and sloped or beveled off, as shown at B, to form abutments for the brick or voussoirs composing the arch.

C are the brick or voussoirs composing the flat arch, and are made of a uniform thickness and width, instead of tapering, as is usual in arch-brick. The ends of the brick C are made beveled, as shown at a, so that when laid in



the arches the ends will be in a perfect horizontal plane, thus making the lower side of the arch lie perfectly flat on the window-frame, and at the same time produce a flat upper surface or extrados, on which are placed the bricks forming the superstructure. The beveled ends of the brick may be made at any desired angle to correspond with the angle of inclination of the bricks forming the arch.

10 In forming or laying up the arches the piers or abutments are first made beveled to the proper angle. The bricks C are then laid from each end of the arch until the center is reached. The bricks being laid in an inclined or slanting position to conform to the angle of the abutment, the tops or extrados are some distance apart when the lower ends of the bricks touch each other at the center or other point in the arch, and a wedge-shaped cavity is 20 formed, which is filled up with bricks of uniform thickness in the following manner: Instead of using the ordinary keystone or wedge-shaped block to fill the cavity, the shorter bricks, *b*, are used, the lower end of the first brick in the key course resting on the 25 lower end of the brick *c*. A brick, *d*, which is still shorter than the brick *b*, is now placed in position, its lower end resting on the side of the lower end of the brick *b*. The remainder 30 of the cavity is filled up in like manner with the bricks *e*, *f*, *g*, *h*, and *i*, forming the key course, each brick being reduced in length as the extrados or back of the arch is reached. The angle of the bevel on the ends of the 35 brick is preserved from first to last, so that the strain or weight of superstructure is distributed to the bricks on both sides of the key-course, and the downward thrust is directed toward the abutment and sustained by the 40 same, thus producing what has been heretofore unattainable in this class of arches—viz., a flat arch which will support a weight or re-

sist a thrust equal to an arch made of compass-brick. When it is desired to enrich or ornament the intrados of the arch, the bricks 45 D (shown in Figs. 4 and 5) are used, said bricks being rounded or enriched at the corner with the molding E. The ends of the bricks D, together with the molding E, are also beveled, for a purpose already indicated. 50

What I claim, and desire to secure by Letters Patent, is—

1. A flat arch for architectural purposes, composed entirely of bricks of uniform thickness without making the mortar joints thicker 55 at the top of the arch than below, as set forth.

2. A flat arch for architectural purposes, composed entirely of bricks of uniform thickness, said brick being beveled at their ends, as set forth, whereby the extrados and intrados of the arch will lie in a horizontal 60 plane.

3. A flat arch of the character described, the bricks of the key course being arranged to have their lower ends impinge alternately 65 against the ends of the contiguous key-brick of the arch.

4. A flat arch of the character described, having the bearing of the lower end of the respective key-voussoirs to rest on the sides 70 of each other for sustaining the downward thrust.

5. A brick for the construction of flat arches having both its ends beveled in the same direction, one of the ends being provided with a molding, E, which is also beveled, as set forth. 75

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

J. C. ANDERSON.

Witnesses:

WM. H. ALLEY,

W. H. H. YOUNG.