

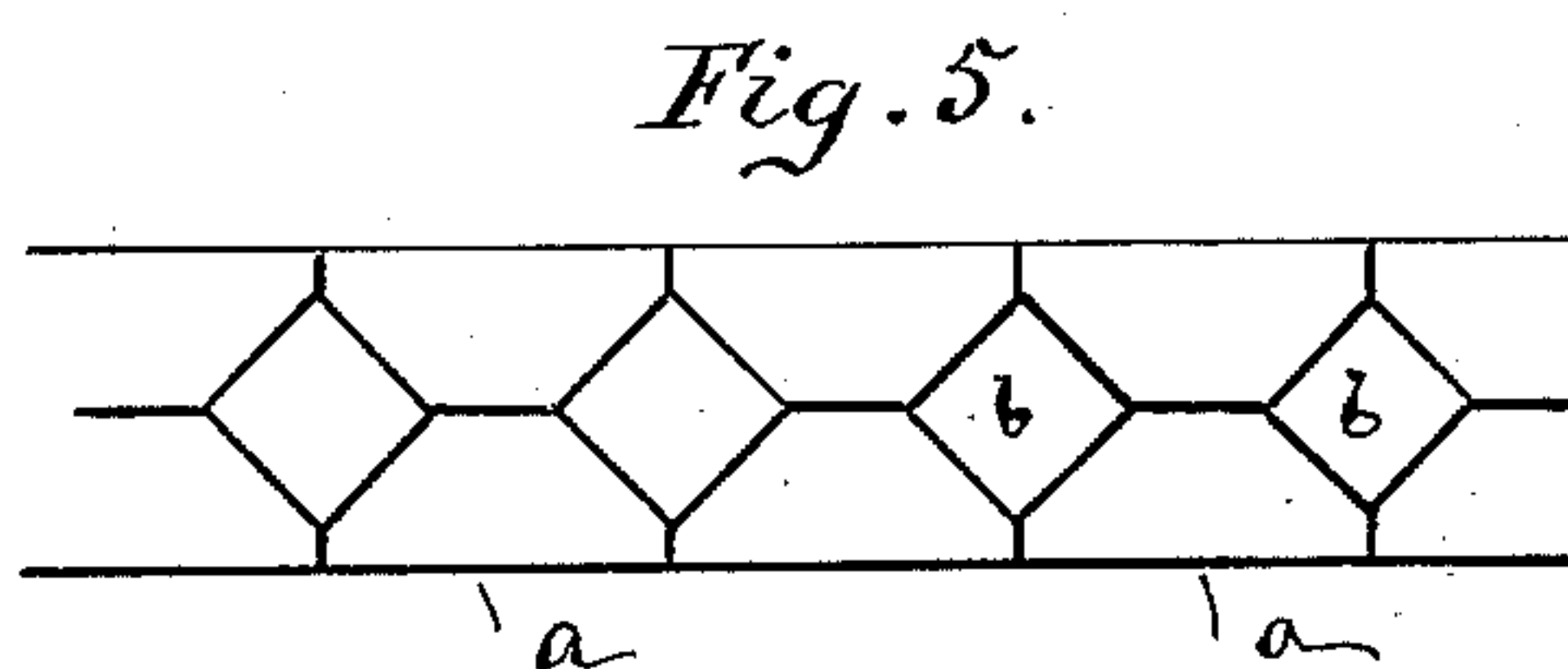
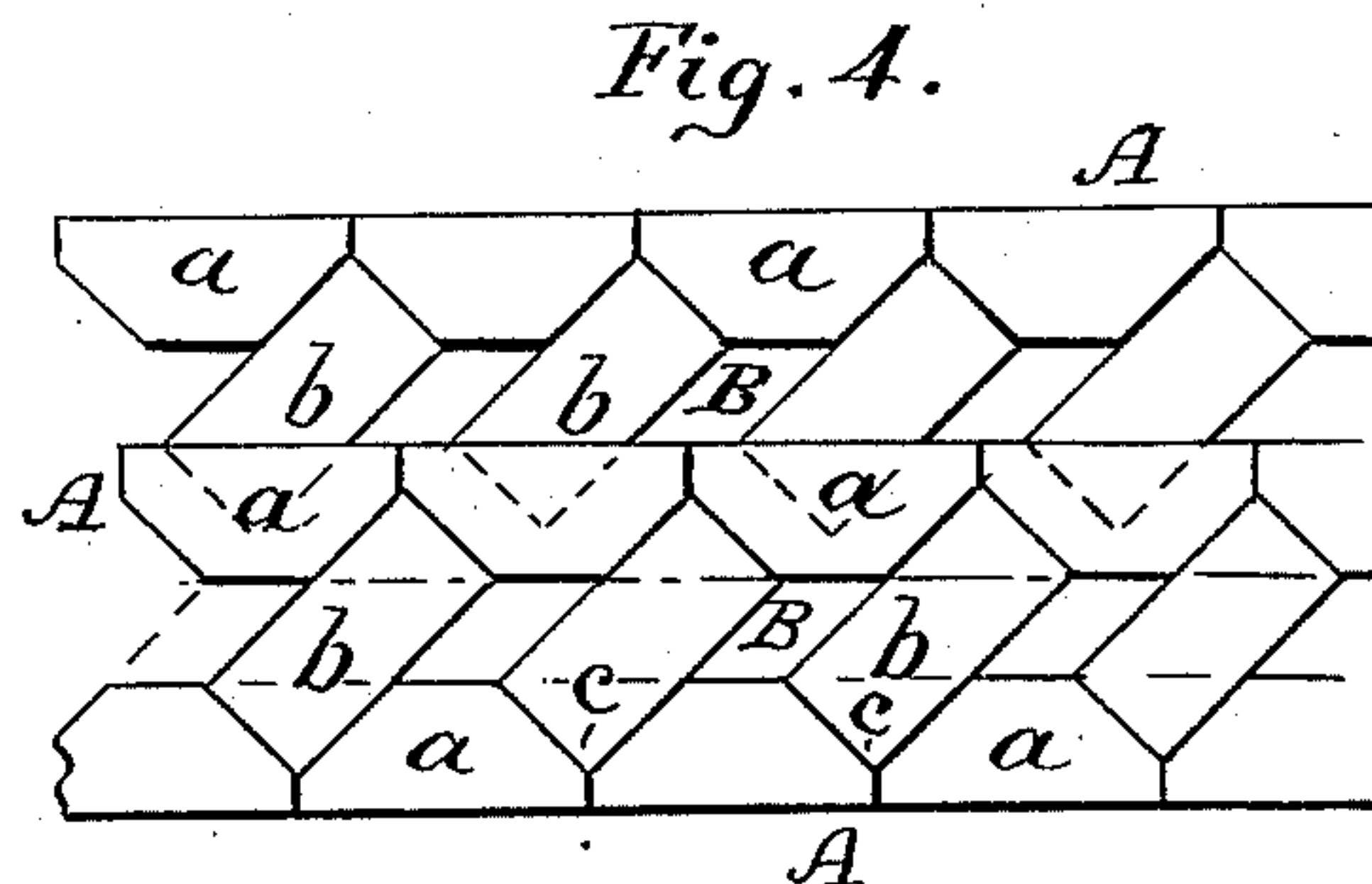
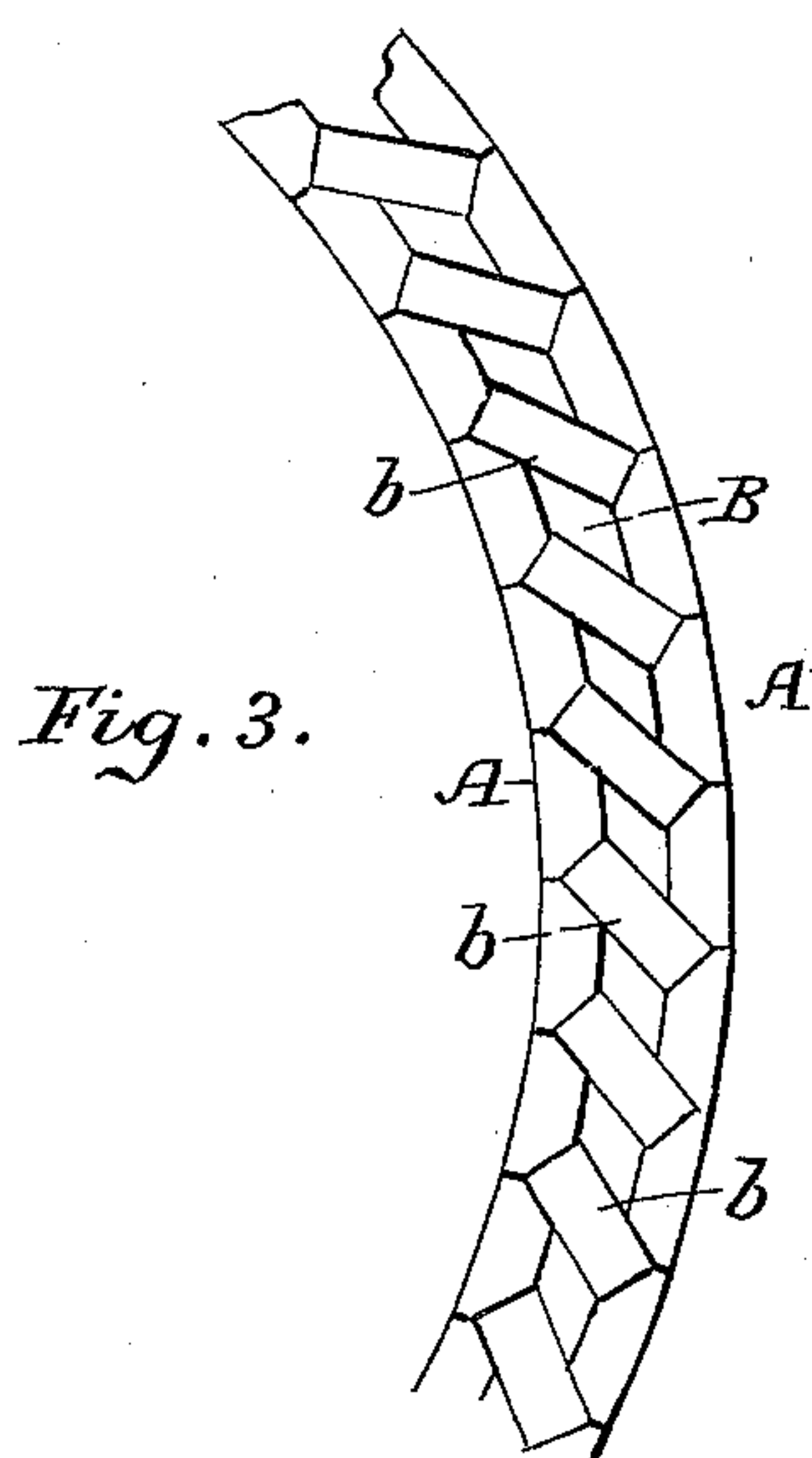
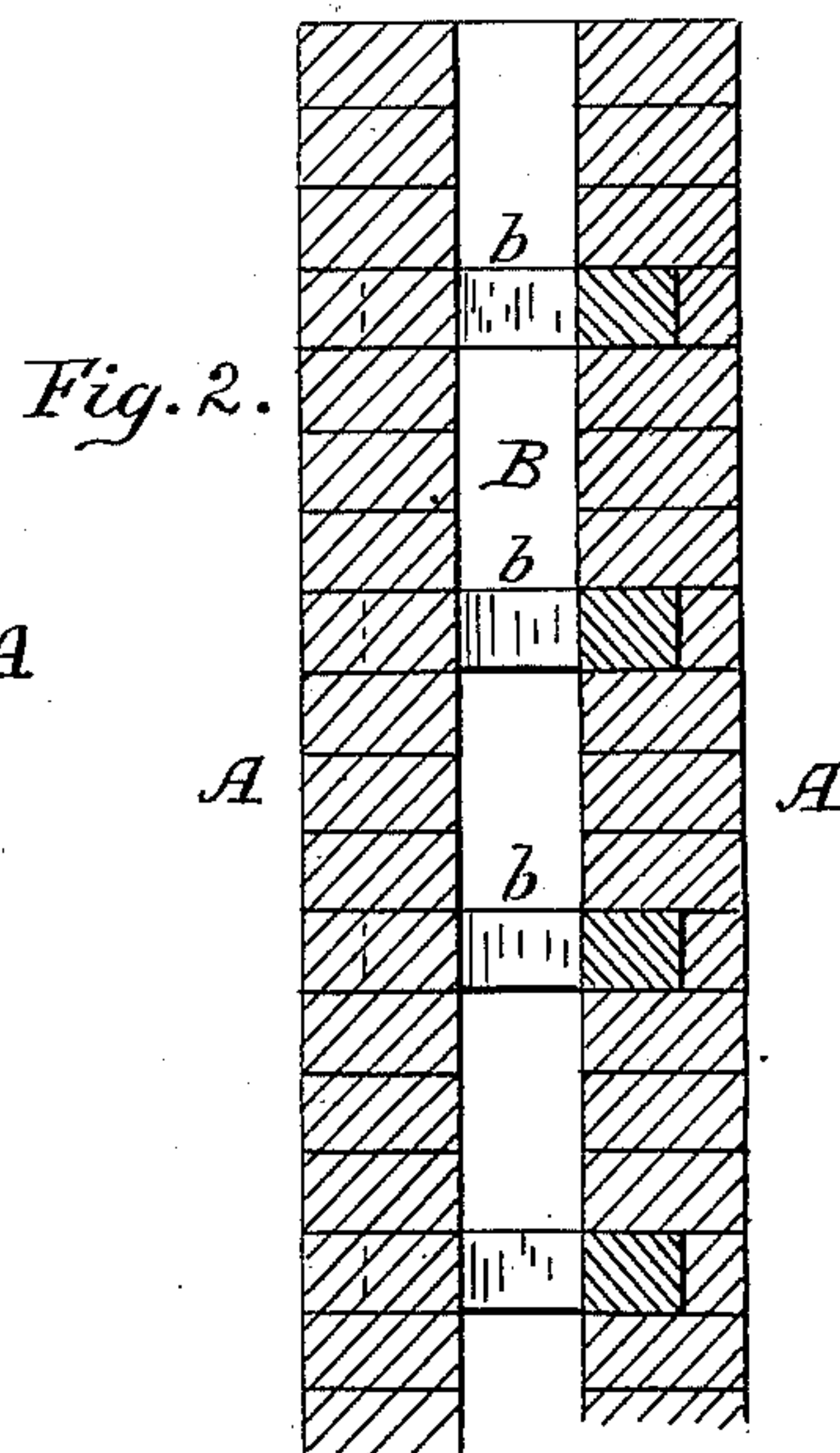
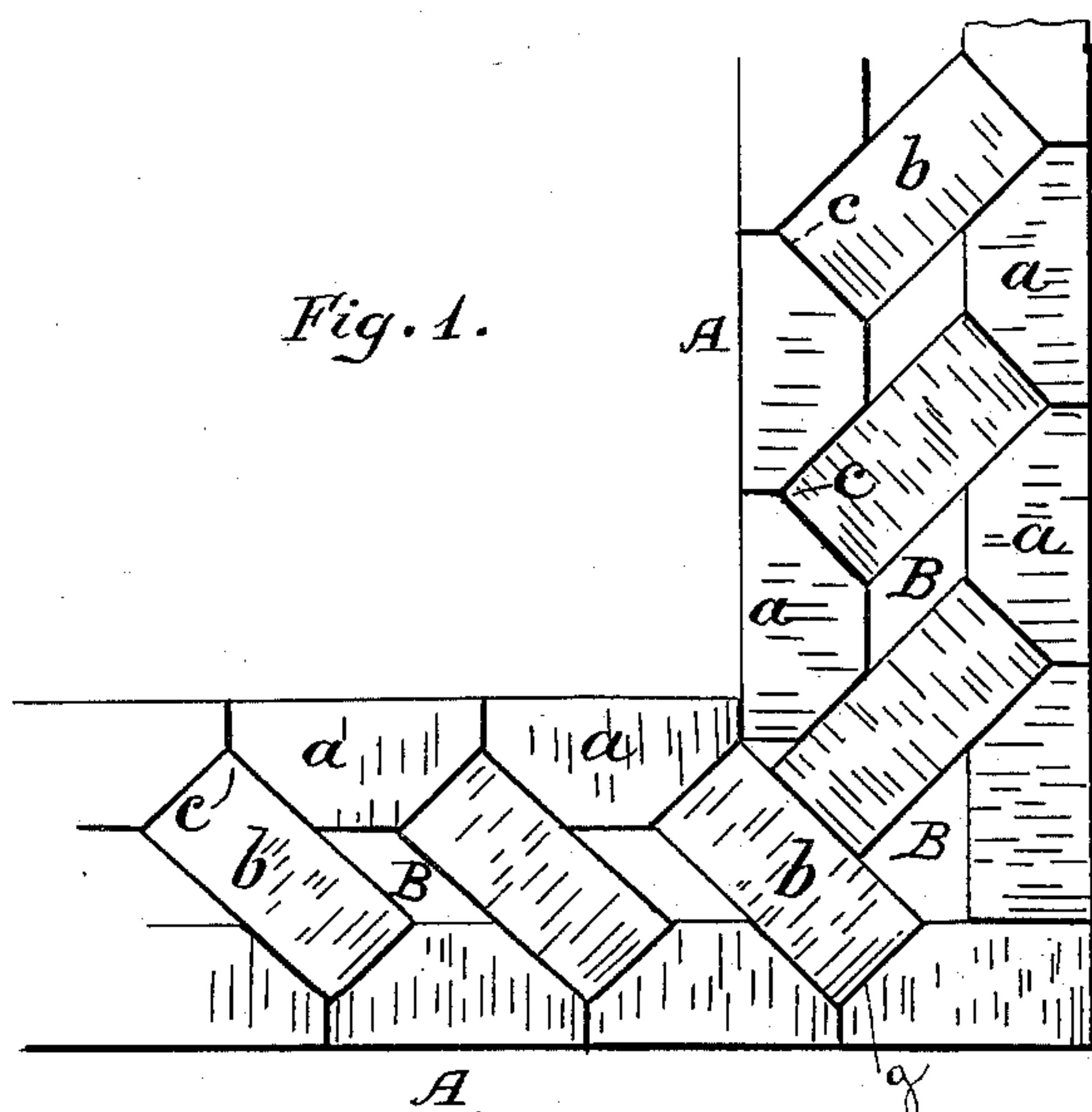
(No Model.)

W. P. ANDREWS.

BUILDING WALLS.

No. 336,465.

Patented Feb. 16, 1886.



Witnesses :  
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# UNITED STATES PATENT OFFICE.

WILLIAM P. ANDREWS, OF DANA, IND., ASSIGNOR TO HIMSELF, FREDERICK TAYLOR, JAMES OSBORN, AND THOMAS S. HOOD, OF SAME PLACE.

## BUILDING-WALL.

SPECIFICATION forming part of Letters Patent No. 336,465, dated February 16, 1886.

Application filed October 7, 1885. Serial No. 179,256. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM P. ANDREWS, a citizen of the United States of America, residing at Dana, in the county of Vermillion and State of Indiana, have invented certain new and useful Improvements in Building-Walls, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to walls of brick or other materials, of masonry construction, especially hollow walls.

Heretofore walls having air-chambers have consisted, mostly, of a main outer wall and an inner stretcher-course connected with the main wall by headers placed at right angles to the line of the walls. This construction makes it necessary to fill with bats the space equal to the thickness of the air-chamber at one or both ends of the binders, in which filling operation much time and labor are required in clipping and fitting the bats, and header-courses thus constructed are exposed to and become conductors of moisture between the outer and inner walls, causing such a hollow wall to become as damp and cold on the inside as a solid wall, and when such a wall having its main wall on the outside becomes wet it dries very slowly. I avoid these difficulties by the construction of a wall having binding-courses consisting of stretchers with beveled corners placed on both sides of the wall, and rectangular obliquely-arranged binders placed between and entirely inclosed by the stretchers, as hereinafter more fully set forth and claimed.

In the accompanying drawings, Figure 1 illustrates in plan view a hollow wall provided with my improvements. Fig. 2 is a vertical section of the same. Fig. 3 represents my improvements applied to walls of circular structure. Fig. 4 represents a plan showing a wall having two air-chambers. Fig. 5 shows in plan the improvements applied to a solid wall.

A designates my improved binding-course, consisting of the side stretchers, *a*, and obliquely-arranged rectangular binders *b*. The stretchers are made with their inner corners beveled, forming recesses *c* at their ends the proper size and shape to receive the rect-

angular ends of the binders, which are placed in oblique positions across the air-chamber B of hollow walls, as shown in the drawings. The binders and cornered stretchers are not used in every course of brick in the wall, but only in as many courses as may be deemed requisite to thoroughly bind the wall.

Fig. 2 shows a wall provided with a binding-course to every four courses of brick in the wall; but ordinarily a binding-course is required in every sixth or seventh course only.

A wall having my improved binding-courses may be constructed with two air-chambers, as illustrated in Fig. 4 of the drawings. In such construction the binders of the two divisions of the wall should not be on the same level or in the same course; but the binders in the inner division should preferably be at least one course of bricks above the binders in the other division.

In building a solid wall the cornered stretchers *a* are used with square blocks *b* or "half-bats," placed obliquely for binders, the inner edges of the stretchers forming joints at the center line of the wall, as shown in Fig. 5 of the drawings.

All the walls constructed with my improvements as set forth show the same work on both sides, no headers appearing on either side of the walls, which is desirable in some cases—for example, in walls around inclosures.

The only forms of brick required and used in my improved walls are the ordinary rectangular brick and square bats and the brick having the beveled corners.

It is evident that the angles or inclinations of all the beveled parts of the stretchers adapted to fit the rectangular binders placed obliquely in the wall cannot be all the same, the ends and sides of the binders requiring different inclinations of the bevels. The exact inclinations required for the different beveled parts depend upon the inclinations of the binders, and the inclinations of the binders depend upon the size of the air-chambers. In some cases the two ends of the stretchers are not beveled precisely alike—as, for example, at the corners of walls, as shown at *g* in Fig. 1 of the drawings.



Patterns are readily made for all the different angles required.

While the ordinary size brick may be used for the binders and for the stretchers, with 5 their corners beveled, the invention is not limited to the use of such brick, but brick whose length is equal to three or four times their width, or any other desired proportion, may be used. The binders *b*, extended into 10 the recesses between the beveled parts of the stretchers, as set forth, firmly bind the walls, and, being entirely inclosed by the stretchers, the binders are well protected from the weather, and bricks having ends too rough 15 for use as ordinary headers may be used for these interior or blind binders. If these binders are laid with cement mortar, they are practically non-conductors of moisture, preventing dampness from passing to the inner wall 20 and securing a dry wall.

This improved wall, either with or without an air-chamber, is well adapted for various structures, for example, in building battered walls—such as the walls of smoke-stacks— 25 in which the length and angle of the binders may be increased or lessened to vary the size of the air-chambers and walls as required, in building kilns, safe-vaults, partition-walls, and pressed-brick walls, the inclosed binders 30 obviating the necessity of expensive headers often required in the ordinary walls, and in building small cheap dwellings and school-houses.

In building walls with my improved binding courses no bats are required for filling spaces 35 of irregular sizes, and hence the time and labor required in fitting bats for such spaces are saved, and thus firm, smooth, dry, and cheap walls may be constructed.

What I claim as new is— 40

1. The binding-course of a wall of brick or other material, of masonry construction, consisting of the combination, with the side stretchers, *a*, placed lengthwise with and on both 45 sides of the wall, and having their inner corners beveled, of the interior rectangular ties, *b*, placed in the recesses between the beveled parts of and entirely inclosed by the stretchers substantially as and for the purposes described.

2. The binding-course of a wall of brick or 50 other material, of masonry construction, consisting of the combination, with the interior rectangular binders, *b*, placed at any required oblique angle to the line of the wall, of the side stretchers, *a*, placed on both sides of and hav- 55 ing their inner corners beveled at the required angles to fit and entirely inclose the rectangular binders, substantially as and for the purposes described.

In testimony whereof I have affixed my sig- 60 nature in presence of two witnesses.

WILLIAM P. ANDREWS.

Witnesses:

G. O. NEWTON,  
J. M. TAYLOR.