

No. 615,515.

Patented Dec. 6, 1898.

C. C. ALEXANDER.
TILE AND TILE SETTING.

(Application filed June 7, 1898.)

(No Model.)

Fig. 1.

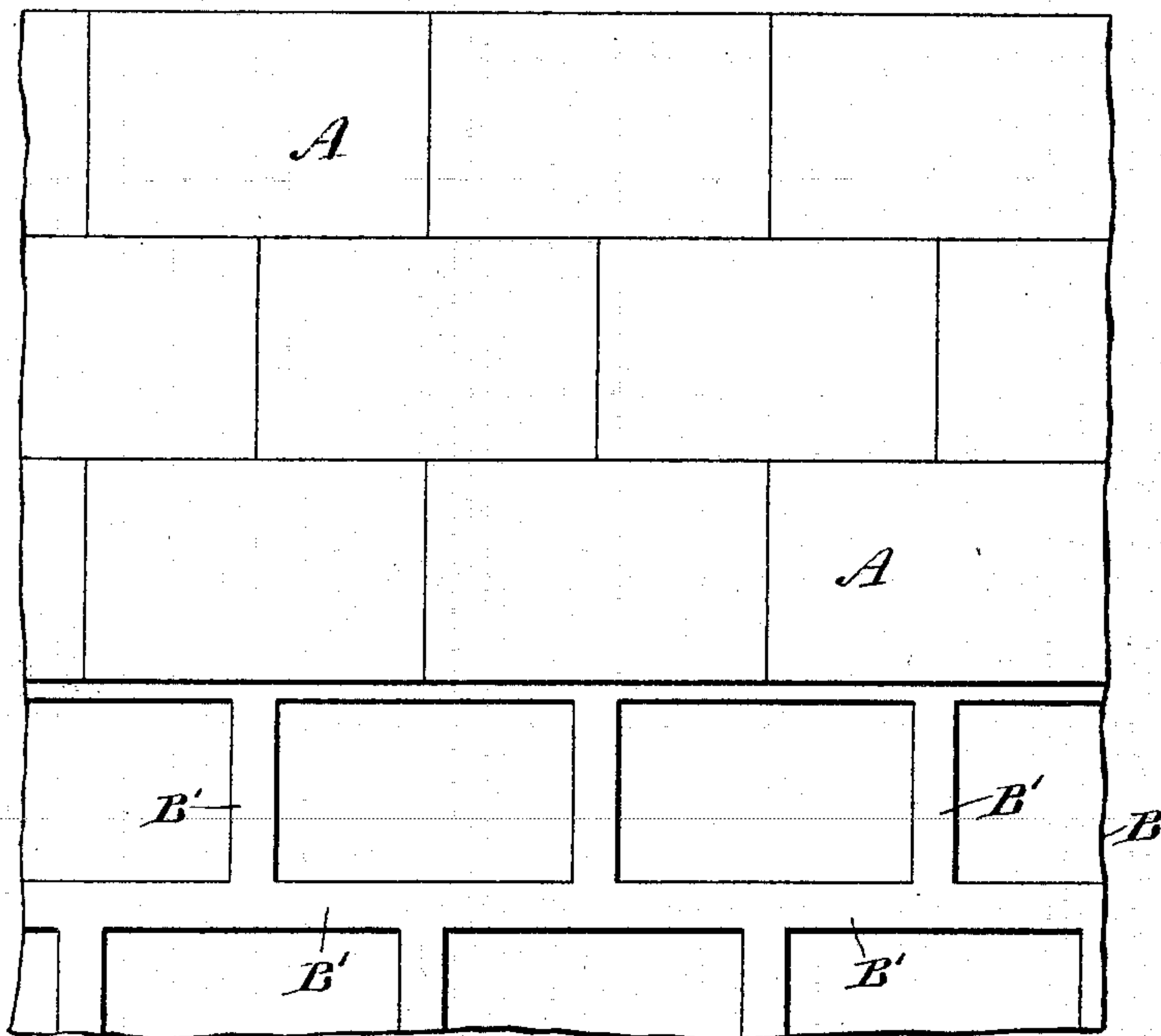


Fig. 2.

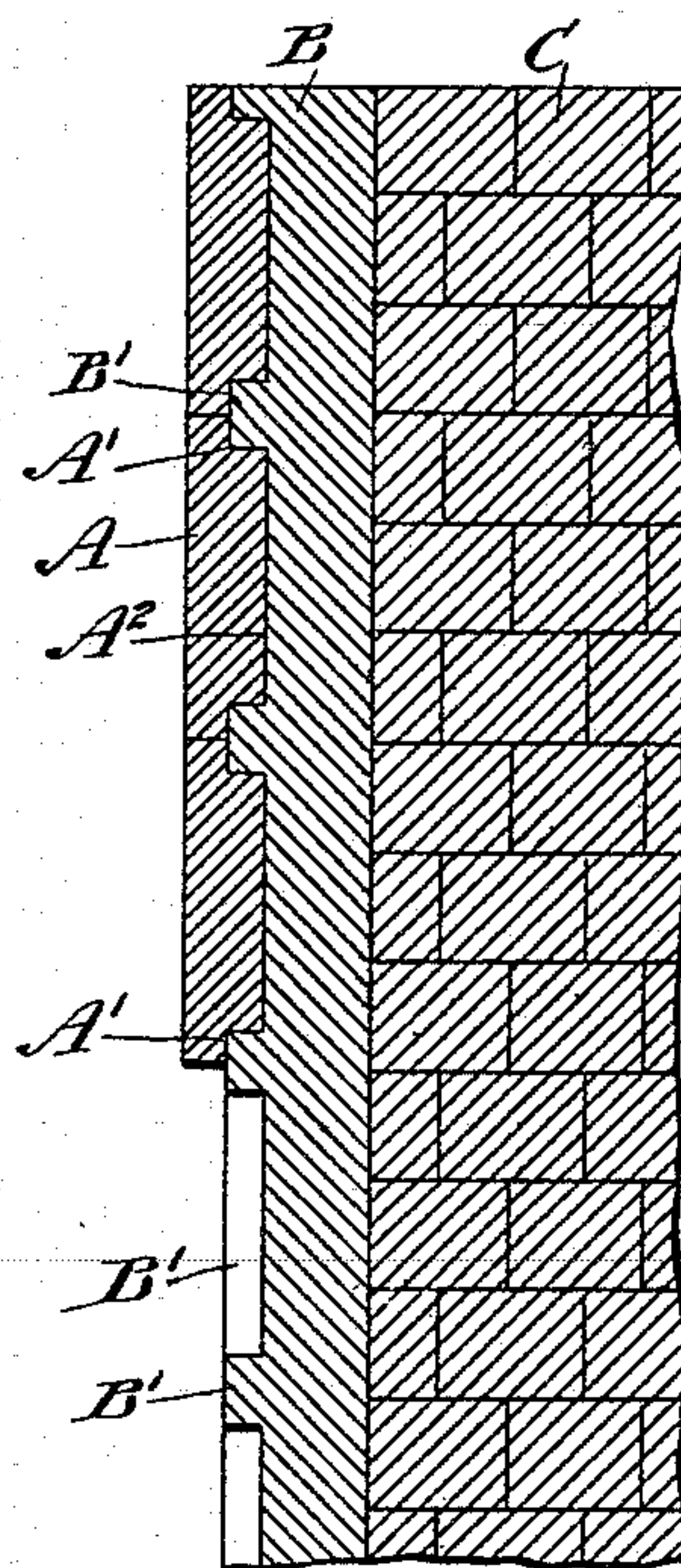


Fig. 4.

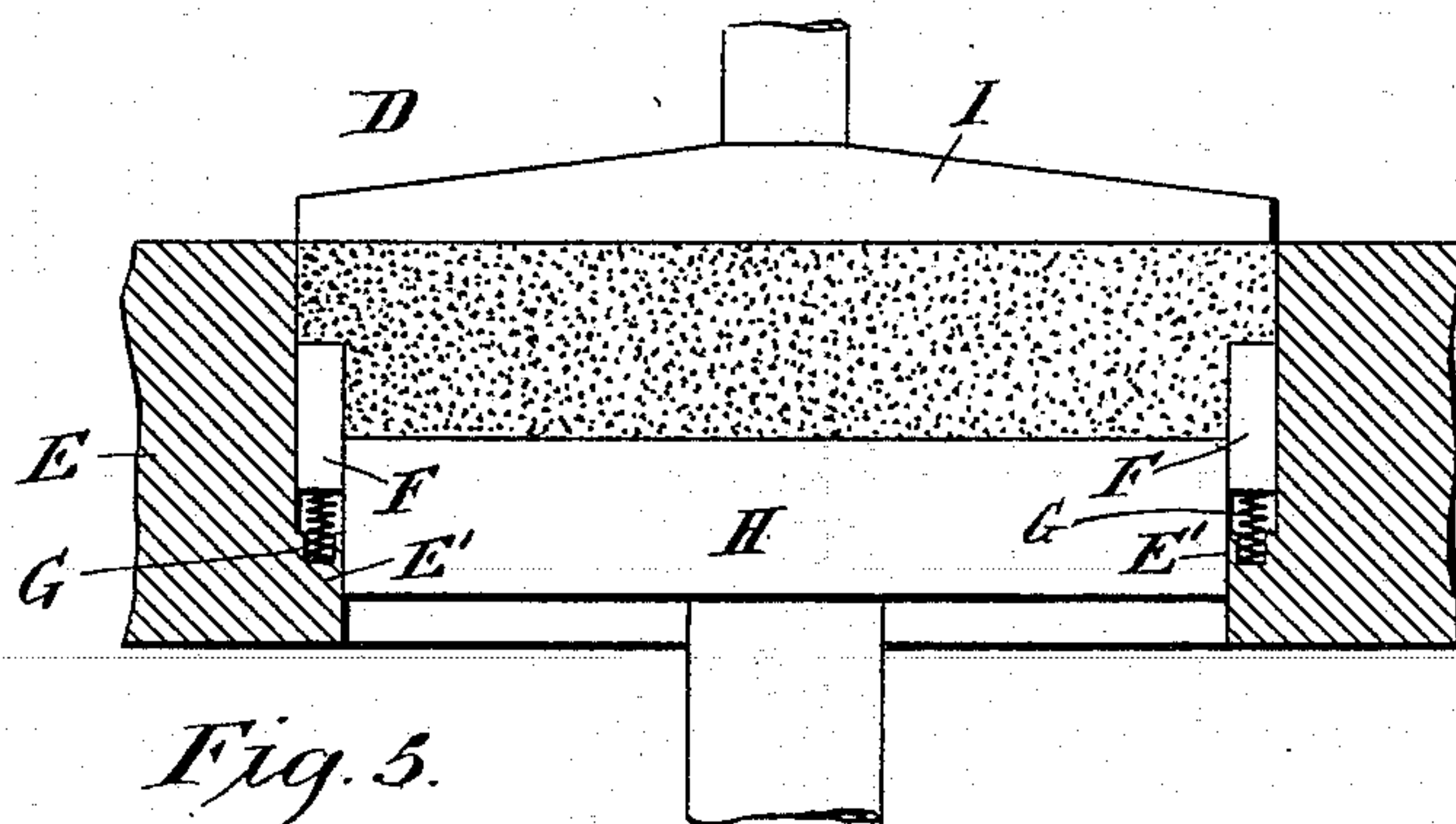


Fig. 3.

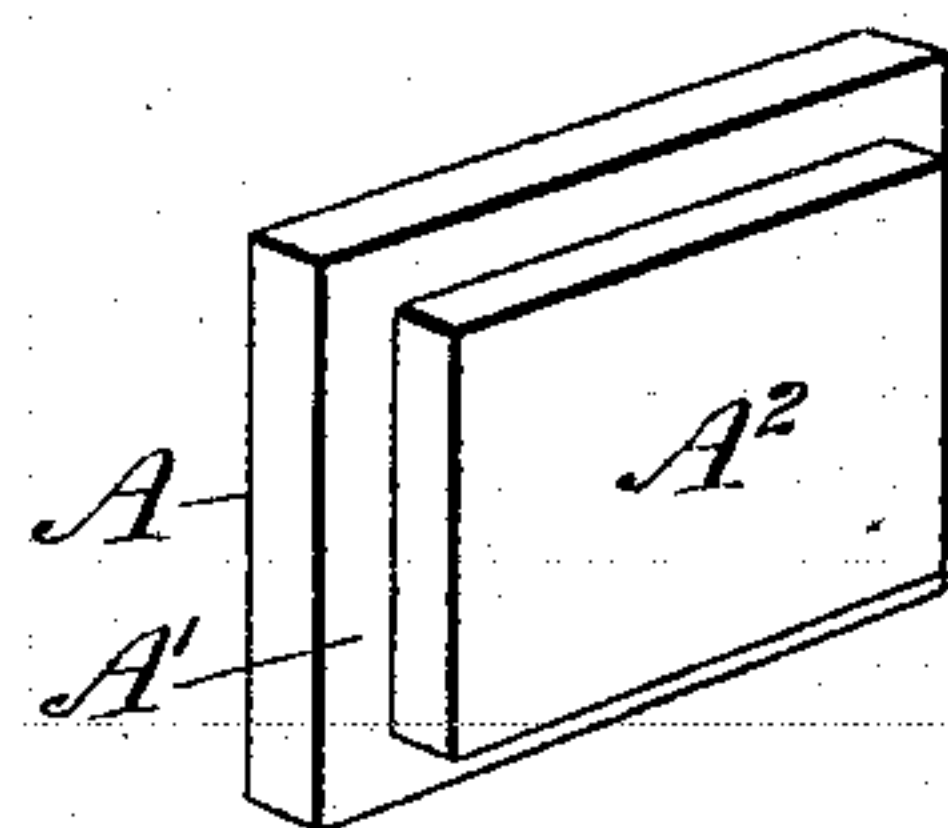
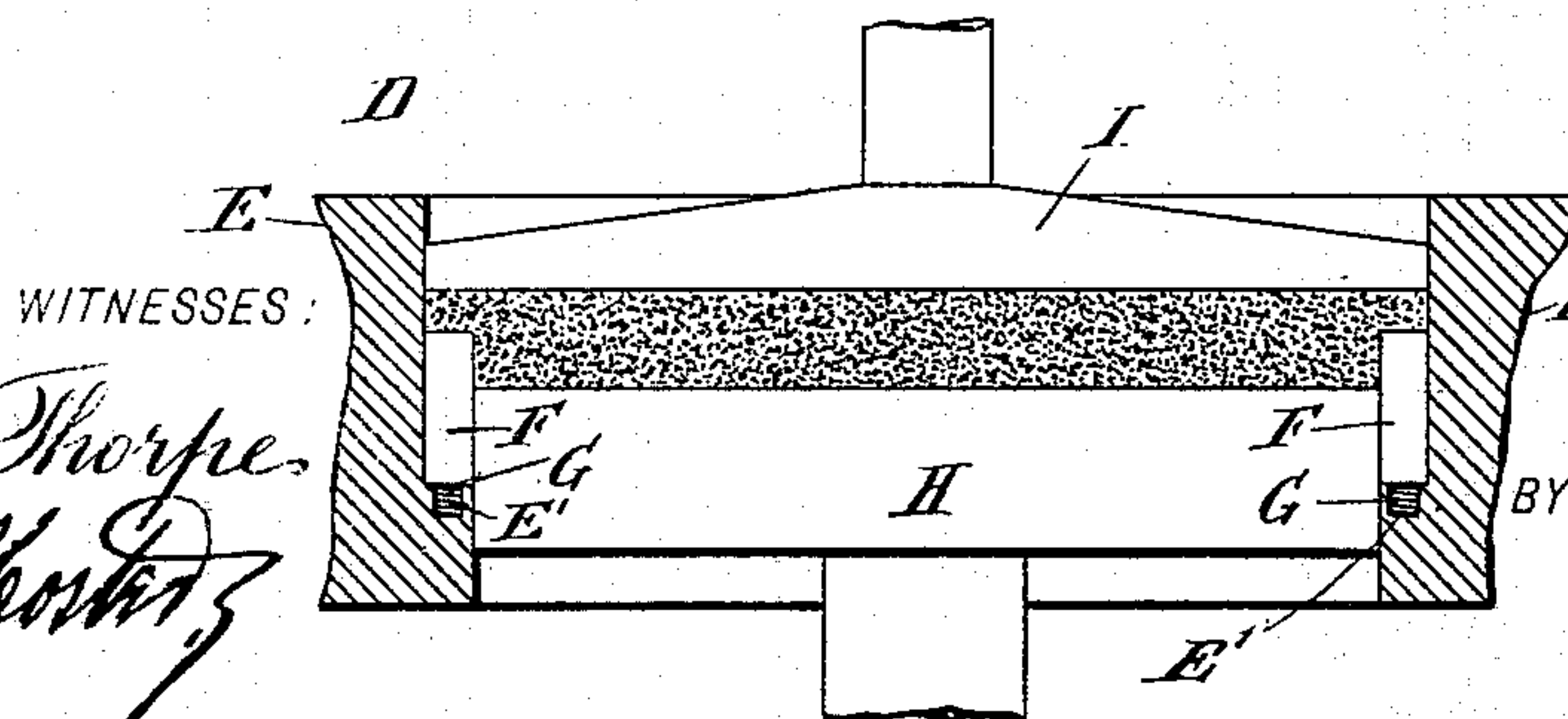


Fig. 5.



WITNESSES:

Edw. Thorpe.
Thos. J. Koster,

INVENTOR

C. C. Alexander.

BY

Munn
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES C. ALEXANDER, OF BAYONNE, NEW JERSEY.

TILE AND TILE-SETTING.

SPECIFICATION forming part of Letters Patent No. 615,515, dated December 6, 1898.

Application filed June 7, 1898. Serial No. 682,812. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. ALEXANDER, of Bayonne, in the county of Hudson and State of New Jersey, have invented certain new and
5 useful Improvements in Tiles and Tile-Setting, of which the following is a full, clear, and exact description.

The object of the invention is to provide certain new and useful improvements in tiles and
10 the manner of setting the same on walls, ceilings, and floors, whereby the tiles are securely held in place without danger of cracking or becoming loose and whereby a perfectly level or
15 smooth tile-face and fine joints are obtained with no interstices between adjacent tiles or between the tiles and the binding material for the lodgment of dust, filth, germs, &c.

The invention consists of novel features and parts and combinations of the same, as
20 will be fully described hereinafter and then pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indi-
25 cate corresponding parts in all the figures.

Figure 1 is a face view of the improvement with some of the tiles removed from the bedding. Fig. 2 is a transverse section of the same. Fig. 3 is a perspective view of
30 the tile. Fig. 4 is a sectional side elevation of the press for making the tile, the parts being in position previous to pressing the material; and Fig. 5 is a similar view of the same with the material pressed.

35 In setting tiles on walls, ceilings, and floors two different methods are at present employed, which are defined in the tiling trade as "floating" and "buttering." The process of setting tiles by the floating method con-
40 sists in placing prepared cement or other binding material upon the wall or floor and spreading the same to the desired level to receive the tiles. Then a section or number of tiles are placed upon or against this floated
45 cement and beaten into the desired position under a flat piece of wood with a hammer. Any tiles that have projecting surface ornaments are carefully pushed or tapped into
50 position with a trowel. In the buttering process a small quantity of cement is first placed upon the back of each tile to which it adheres, and then each individual tile is sep-

arately pushed or tapped into its intended position on the wall or floor, the cement adhering to the floor or wall and thereby se- 55 curing the tile against the same.

The buttering process is not satisfactory for several reasons. A true level or plumb surface cannot well be given to the finished tile floor or wall, as it is almost impossible to 60 place a uniform quantity of cement behind each tile, and it is difficult to adjust the tiles so that the joints or spaces between them will be regular and uniform. Furthermore, this process does not secure a sanitary result, 65 as the cement bedding is not continuous or solid, but leaves interstices between the sections of cement, generally behind the joints between the tiles; and these openings and interstices afford lodgment for moisture, 70 germs, and filth, and are therefore objectionable, particularly in bath-rooms, hospitals, and public buildings.

It is undoubtedly true that tiles are liable to get loose from various causes after being 75 set, and for this reason tiling is not universally employed. Chief among the causes may be mentioned the shrinkage of the cement or binding material which takes place as it dries and is sufficient to force or warp a slabbed 80 section of tiles—say three feet square—fully two inches away from its original level. Furthermore, when tiles are set against wooden partitions or beams or any backing that is not able to resist the force exerted by the 85 shrinkage of the cement bedding or the walls settle and contract from any cause and the bond between the tiles and bedding is not firm enough to resist these adverse conditions, then the result is that the tiles become loose. 90 In the effort to strengthen this bond various depressions or ribs have been molded on the backs of the tiles and many tiles are molded with a number of cells or pockets on the backs; but such tiles are very defective for 95 setting by the floating method, as air is confined in the cells when the tiles are placed against the cement. It is impossible to expel this confined air by beating the tiles in. Hence the permanency of such work depends wholly 100 upon the adhesion of the cement to the parts outside of the cells.

Tiles have been often set with wide joints on walls in imitation of brickwork, and it has

been found that the tiles will not loosen when set in this manner, but the joints are objectionable to many who desire that the tiles shall fit as closely together as possible. Other tiles are ribbed in various ways or have a dovetailed molding on the back, but no form has proven altogether satisfactory in accomplishing the desired result except the dovetailed form, which increases the cost of manufacturing to such an extent that it has prevented its use for general purposes.

With my invention, presently to be described in detail, the tiles are prevented from loosening caused by shrinkage or contraction of the binding material or the settling of walls or floors upon which the tiles are placed. The air is expelled during the setting process, which is similar to the process above described, and each tile is retained, supported, and bound in place by the cement-bedding, so that each individual tile is not dependent in any way on the support of adjacent tiles for the security of its position, and at the same time close joints on the faces of the tiles and wide joints on the backs for the purpose of securing the tile in position are provided.

As illustrated in the drawings, the tiles A are of uniform size and shape, and each is formed on its back at the edges with an annular rabbet A', leaving a projection A² embedded in the cement or other binding material B, placed or floated on the wall C, according to the usual floating method above described.

When the tiles A are placed in position in the binding material, a portion B' thereof passes into the annular rabbet A' of each tile, so as to completely fill the rabbet, and when the binding material sets and shrinks and lateral movement of the material takes place consequent upon contraction, then a pressure is exerted by the binding-material portions B' in an inward direction against the rabbeted edges of the projection A², and thus the material grips or binds the tile securely on the sides, top, and bottom to prevent the tile from falling off, even if the remaining portions of the bond behind the projections A² should be broken.

The tiles A are preferably square or rectangular in shape and abut on their adjacent edges, as is plainly indicated in Figs. 1 and 2, to form perfect joints between adjacent tiles. Each tile, however, is gripped and held in place without the assistance of adjacent tiles by the action of the contracting binding material B' on the corresponding projection A².

It is understood that when the tiles are placed against the floated binding material B and beaten into position, then sufficient binding material is forced into the rabbets to fill them solidly and the air is expelled through the joints between adjacent tiles, so that when

the setting is completed a perfect sanitary result is obtained, as no interstices, air-pockets, or the like are formed between adjacent tiles and the binding material.

The size of the rabbet is preferably about half the thickness of the tile, as indicated in the drawings.

In manufacturing tiles as described I have found that the ordinary tile-press does not answer for forming my tiles of a uniform hardness, as the excess of clay on the outer edges causes the rabbeted edge of the tile to be pressed twice as heavy as the remainder or body of the tile, and hence the latter breaks or cracks in pressing or firing. By the use of the press D (illustrated in Figs. 4 and 5) this difficulty is overcome and the material is pressed uniformly throughout. For this purpose the mold E of the press D is provided with a skeleton frame F for forming the rabbet A', and said frame is mounted on springs G for allowing the frame to yield downwardly until it finally seats itself on the shoulder E' of the mold, as shown in Fig. 5. When the several parts are in the position shown in Fig. 4 and the clay is filled into the mold upon the top of the usual push-up plate H and the plunger I descends, then the clay is pressed and the frame F yields, and hence the material forming the edge of the tile is pressed to the same density as the body portion. When the tile is pressed, then the plunger recedes and the push-plate then pushes the tile upward out of the mold, and in doing so the springs G force the frame F upward to bear against the rabbeted edge of the tile while the discharge of the tile takes place.

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

The herein-described tiling consisting of the tiles having their outer faces formed each in a continuous, unbroken, imperforate plane extended throughout the area within the outer edges of the tile, the edges of the adjacent tiles abutting closely whereby a continuous tile-surface unbroken by cement-lines is provided, such tiles being provided on their rear faces with continuous rabbets forming projections set in from the edges of the tile, the edges of said projections being at right angles to the plane of the tile whereby the tiles may be floated into the binding material and the said material will grip the edges of said projection, and the binding material in which the tiles are floated, all substantially as and for the purposes set forth.

CHARLES C. ALEXANDER.

Witnesses:

THEO. G. HOSTER,
EVERARD BOLTON MARSHALL.