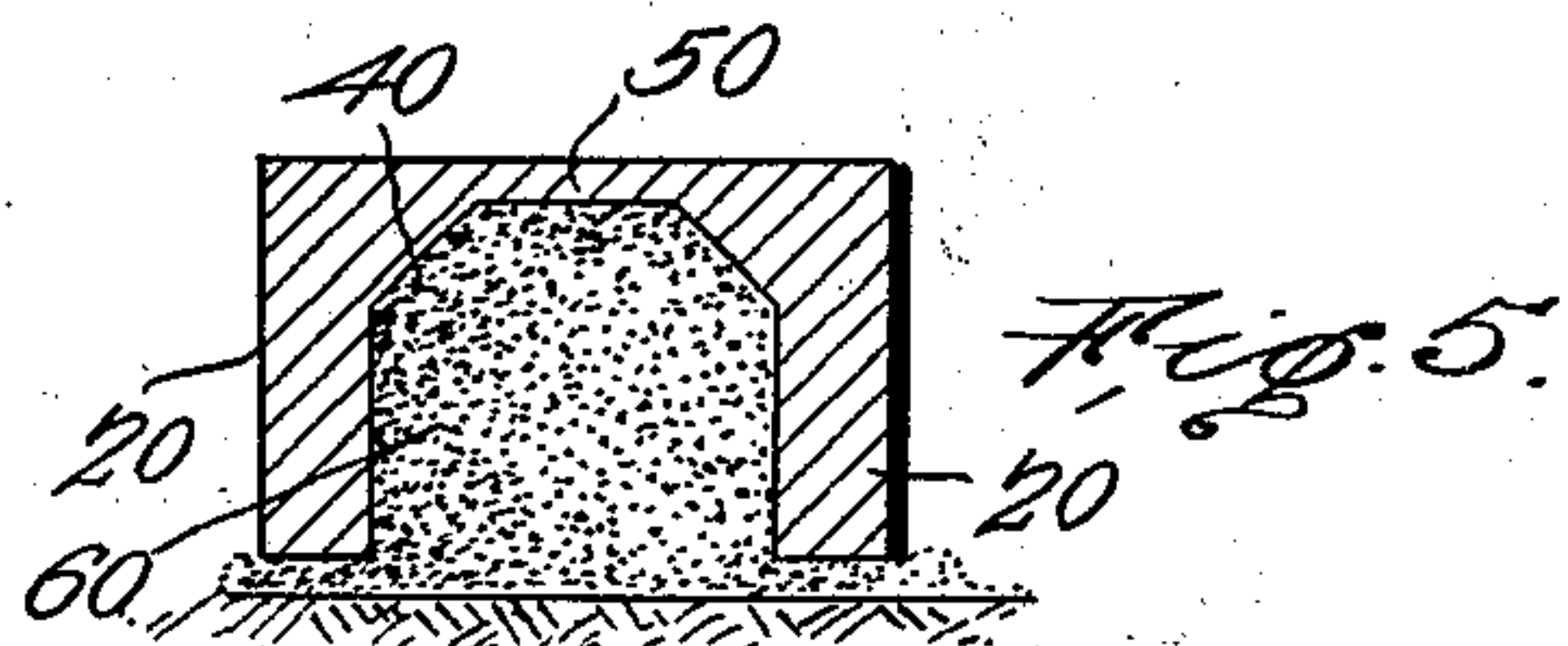
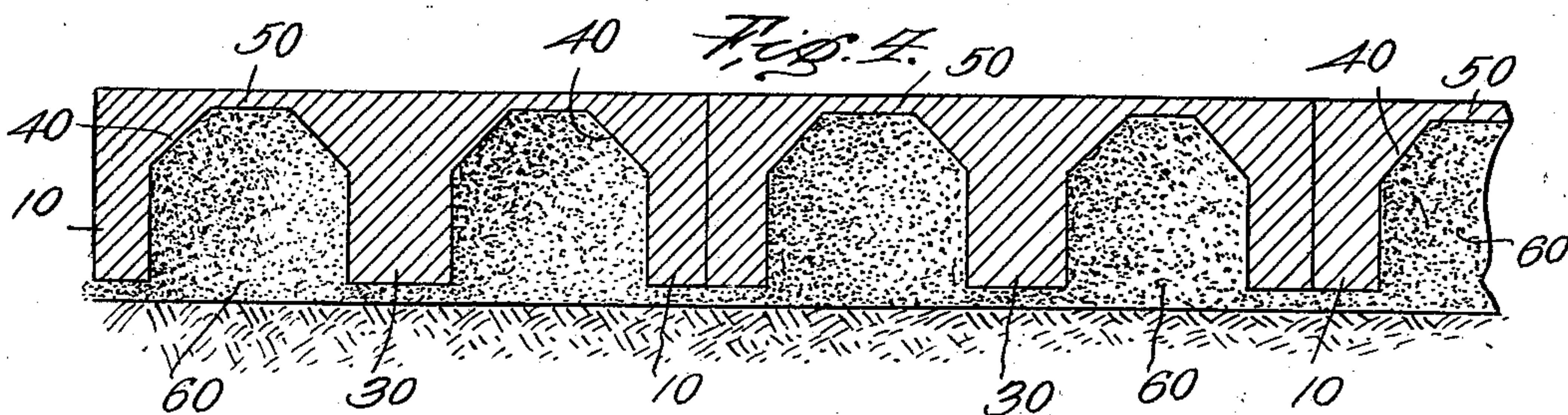
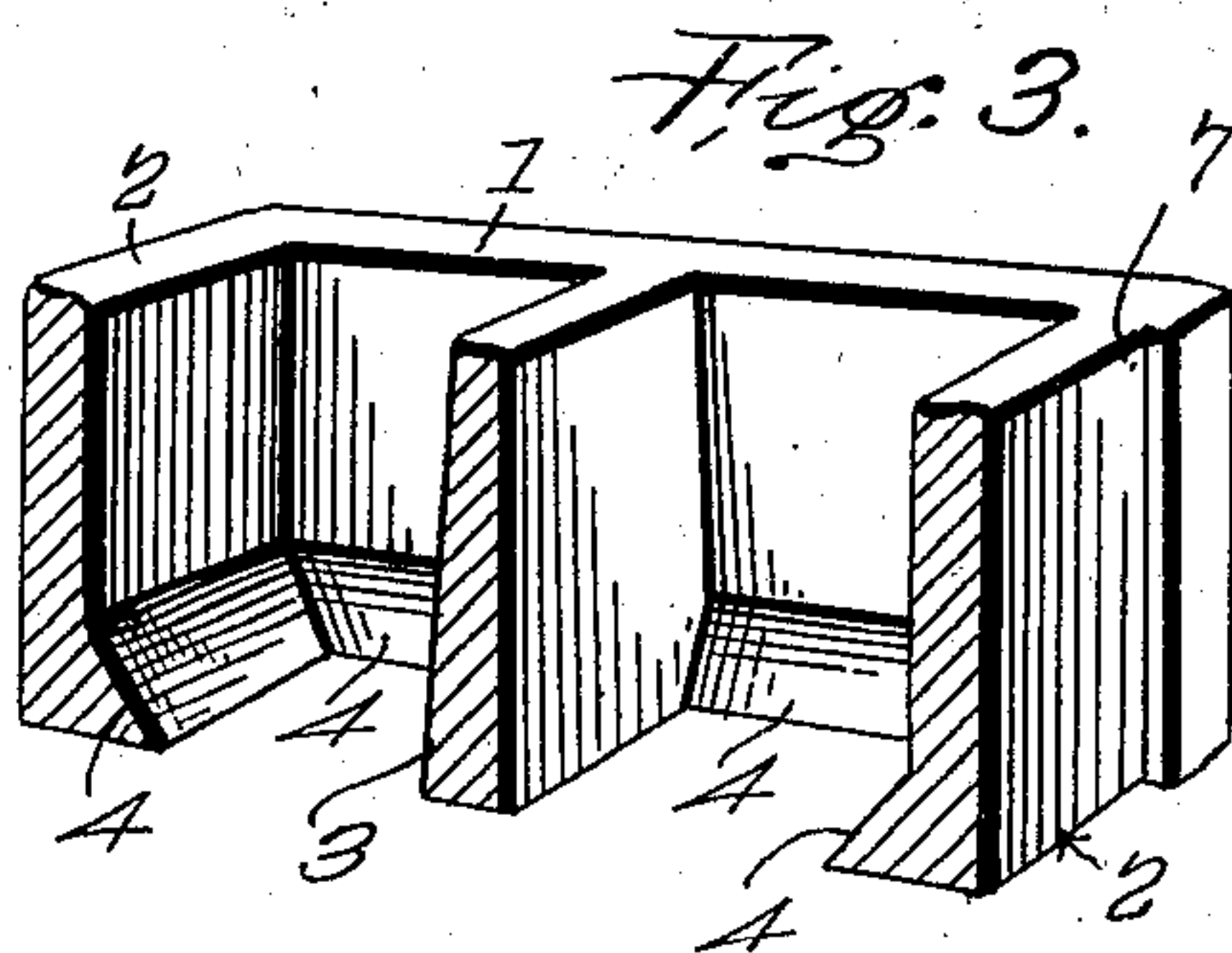
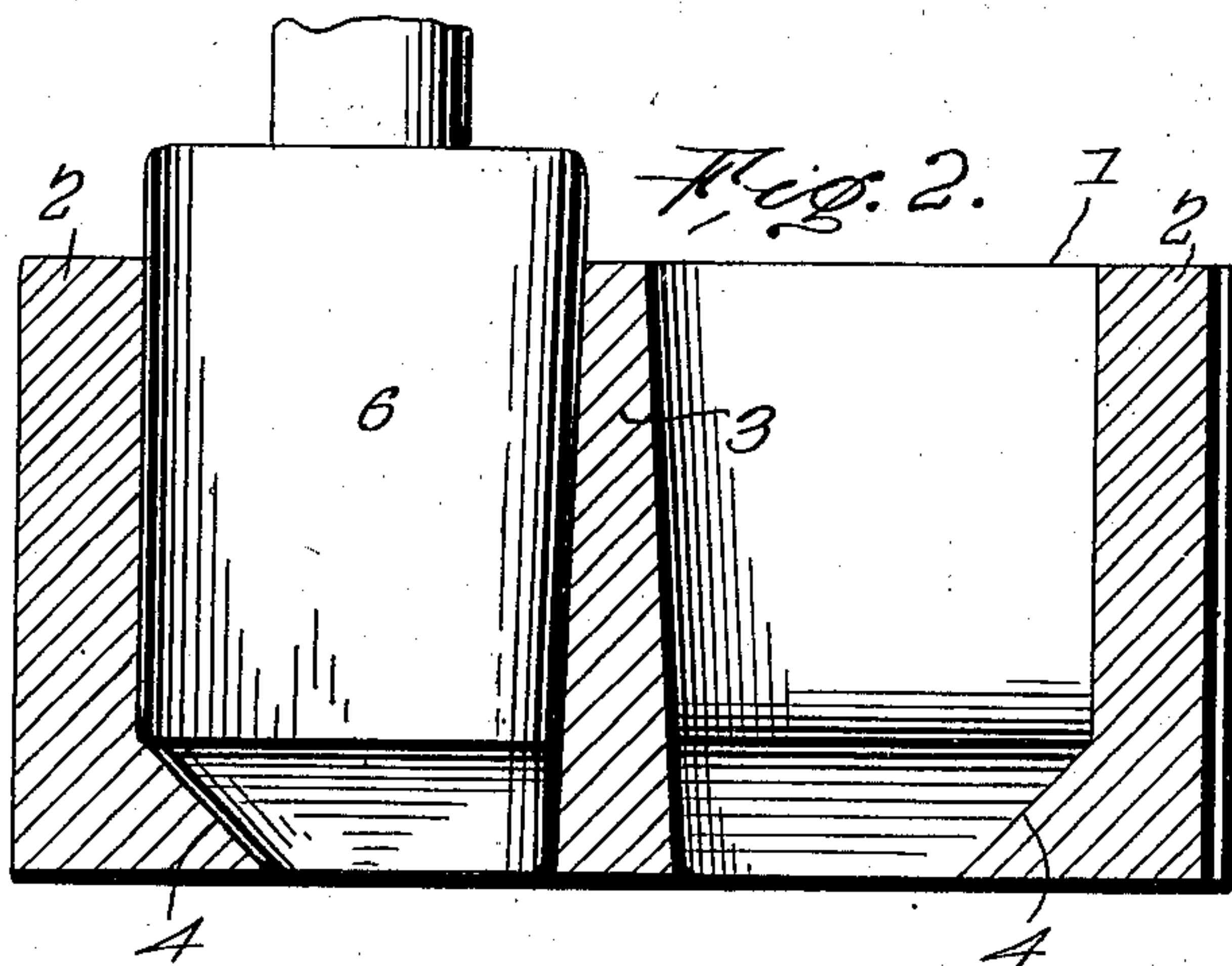
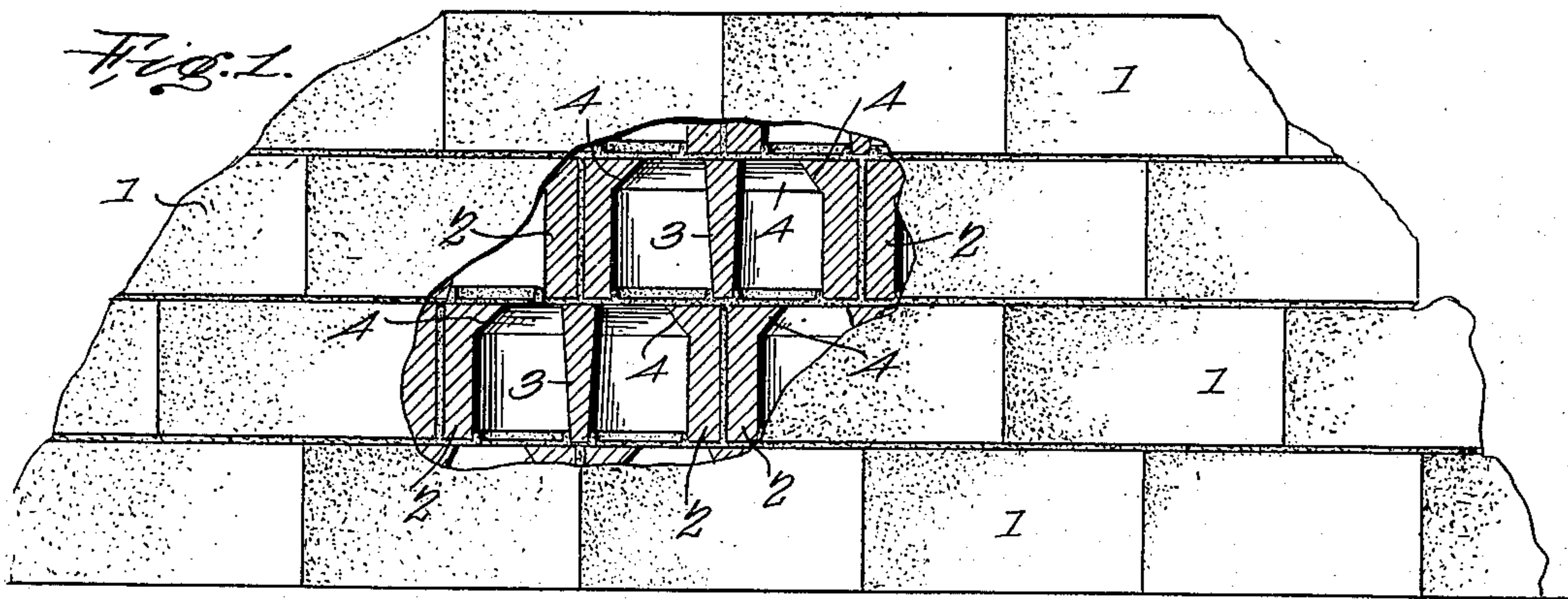


E. S. LAFFERTY.

BUILDING TILE.

(Application filed Jan. 23, 1902.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

ERASTUS SIMMONS LAFFERTY, OF GALESBURG, ILLINOIS.

BUILDING-TILE.

SPECIFICATION forming part of Letters Patent No. 702,103, dated June 10, 1902.

Application filed January 23, 1902. Serial No. 90,967. (No model.)

To all whom it may concern:

Be it known that I, ERASTUS SIMMONS LAFFERTY, a citizen of the United States, residing at Galesburg, in the county of Knox and State of Illinois, have invented a new and useful Building-Tile, of which the following is a specification.

The invention relates to building tiles or bricks of the class known in the art as "hollow" tiles, wherein each element is provided with one or more vertically-disposed openings, which when the tiles are laid in courses in the construction of a wall communicate to form continuous dead-air spaces, thus reducing the heat-conducting properties of the wall and tending to insure increased dryness. A further advantage of the present forms of hollow tiles or bricks is that the drying thereof is facilitated and the uniform burning thereof is made possible, thus reducing to the minimum the liability of cracking, and thus producing imperfections which reduce the strength and efficiency of the article.

It is the object of my invention to retain the above-named advantages of hollow tiles or bricks and also to provide an article of this class wherein the bearing or supporting surface upon which the superposed tile or brick rests is increased without increasing the amount of material used in the construction thereof, and, in fact, with a reduction of the material usually employed, and at the same time to increase the strength and rigidity of the tile, insure the uniform distribution of the weight applied to the bearing or supporting surface thereof, provide for effecting a substantial key, whereby the superposed tile is secured against horizontal displacement with relation to the supporting-tile, and to insure a more perfect and uniform bearing or supporting surface by a condensation of the material at the upper portion of the walls of the tile.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims, it being understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

In the drawings, Figure 1 is an elevation, partly in section, of a section of wall constructed of tiles embodying my invention. Fig. 2 is a sectional view of the improved tile inverted and showing, arranged in a cavity thereof, a press-plunger constructed to form the desired interior contour. Fig. 3 is a sectional perspective view of a tile, showing the exterior end cavity and interior reduced flanges. Fig. 4 is a longitudinal section of a modified construction of tile, adapted particularly for paving, arranged in a cement bed. Fig. 5 is a transverse sectional view of the form of tile shown in Fig. 4.

Similar reference characters indicate corresponding parts in all the figures of the drawings.

In the illustration of tiles embodying my invention I have shown only representative forms having the well-known general features of construction consisting of side walls 1, end walls 2, and a transverse central web 3, thus forming two air spaces or cavities, each of which is bounded by said web, one of the end walls, and portions of the side walls; but it will be understood that the hereinafter-described novel features of my improved tile are equally applicable to forms of tiles wherein a greater number of air spaces or cavities are provided, as when a plurality of intermediate webs are employed.

The essential feature of my improvement resides in the enlargement or increase in the area of the bearing or supporting surface of the tile without increasing the exterior dimensions; but by decreasing the air space or opening at each side of the plane of the bracing-web, this reduction being effected by means of a flange or flanges 4, extending inward from the walls or shell of the tile, the upper surface of this flange or lip being flush with the upper edges of the walls of the shell and the thickness of the flange or lip being gradually and continuously reduced as it approaches the center of the opening. In practice I prefer to construct these flanges or lips with their lower surfaces at angles of approximately forty-five degrees to the planes of the inner surfaces of the walls of the shell and to extend these angularly-disposed lower surfaces of the flanges or lips until they almost intersect the planes of the upper sur-

faces of the same to produce an approximate knife-edge which bounds the air space or opening in the plane of the upper surface of the tile; but it is not necessary in order to carry out my invention that these flanges or webs should terminate in the aforesaid knife-edges. On the other hand, under some circumstances which I have contemplated, it may be desirable to entirely close the air spaces or openings in the plane of the upper surface of the tile by providing a web which is continuous with the inner reduced edges of the flanges or lips and which in practice is of a thickness varying from one-sixteenth to an eighth or three-sixteenths of an inch. In the modified constructions illustrated in Figs. 4 and 5 the side and end walls 10 and 20, the former of which are connected by the transverse web 30, are increased in thickness toward their upper edges to form inwardly-extending flanges or lips 40, said flanges or lips being tapered continuously in thickness toward the centers of the cavities of the tile to an approximate intersection of the lower surfaces of said flanges with the upper surfaces thereof, and connecting the inner reduced portions of these flanges or lips are inclosing-webs 50, which when the tile is used for paving purposes forms a continuation of the upper surface of the tile to provide an unbroken tread. In laying the tile as paving the cement 60 comes in contact with the under surface of the closing-web to form a sufficient backing for the same. Also this form of tile when designed for paving purposes is usually made of only about one-half the thickness or depth of the tile which is designed for building purposes.

I have found in practice that by providing the upper portions of the vertical elements or walls of the shell with enlargements or by thickening them toward their upper edges, as above described, to form the inwardly and continuously tapered flanges or lips of which the lower surfaces converge toward the upper surfaces as they approach the center of the open space or cavity in the tile, the pressure applied to the bearing or supporting surface of each tile is distributed uniformly and is conveyed effectively to the shell, so that even in case of the bearing of a superposed tile upon the inner portion of one of the flanges the weight is conveyed by the flange to the wall of the shell and is supported as effectively and with as little tendency to break down the flange or otherwise injure the tile as though the weight were applied in the vertical plane of the walls. The increased bearing or supporting surface of the tile provides for an extended or increased application of cement, whereas the comparatively reduced edges of the walls of a superposed tile embed themselves in the cement on the bearing-surface of the lower tile, and thus cause the cement to bulge upward in contact with the inner surfaces of the lower edges of the tile, or, in other words, into the cavity of the tile,

and thus form an effective key for preventing relative transverse displacement of the tiles.

A further advantage of the reduction of the flanges or lips toward their inner edges is that the quantity of the material necessary in the construction of the tile is reduced, whereas the efficiency remains uniform, and the effective application of the heat in drying and burning is facilitated without tending to cause splits or cracks in the tile adjacent to its bearing-surface. Moreover, in the construction of a tile having the beveled lower surface or flange I am enabled to effect a material condensation of the substance of the tile, and thus guard against flaws in the bearing-surface and at the same time provide for an increased strength at that point. The manner in which this is effected is illustrated in Fig. 2, wherein a plunger 6, having a suitably-tapered lower end, is shown at the limit of its forward or downward movement in pressing the tile. Lateral pressure may be effected by any suitable mechanism forming no part of my present invention; but it will be seen that the downward movement of the plunger either subsequent to or during the lateral compressive movement of other forming elements will have the tendency to force the material which is in advance of the plunger toward the sides, and thus condense the material which forms the flanges or lips. This same forming-plunger may be used in connection with the construction of either of the tiles illustrated—namely, whether provided with a reduced opening or with a closing-web, the formation of the web being effected by terminating the movement of the plunger short of the bottom of the die. It will be understood, moreover, that in the construction of tiles, as herein described, a slight imperfection or flaw consisting in the imperfect formation of the opening in the top of the tile will have no effect in detracting from the value of the tile, because owing to the extreme thinness of the web, due to the reduction of the flanges or lips toward the center of the open space or cavity of the tile, the necessary opening may be produced by the workman simply by striking a blow of a hammer or by means of the handle of a trowel upon the center of the web of material by which the opening is bridged.

A further and material advantage of the construction of tile embodying my invention resides in the fact that the strengthening of the upper edges of the walls and the extension of the flanges continuously to connect the side and end walls at their angles provides for a substantial reduction in the thickness of the body portions of all of the walls and also of the transverse or bracing web, and I have found in practice that the thickness of the body portions of the walls can be reduced to an extent equal to and even greater than that necessary to provide the requisite material to form the flanges, so that the weight

of the completed tile does not exceed and is even less than that of the ordinary tile (without the flanges) and yet produces a tile of greater strength and capable of greater resistance both to a crushing and to a transverse strain.

In practice I prefer, moreover, to provide a tile at one end with an exterior countersink or recess 7 for the reception of cement to connect the adjacent extremities of tiles arranged in the same course.

Having described the invention, what is claimed is—

1. A hollow tile having its wall or walls increased in thickness near one edge to provide an inwardly-extending flange or lip reduced in thickness toward the center of the cavity of the tile.

2. A hollow tile having its wall or walls provided with an inwardly-extending flange or lip which is continuously reduced in thickness toward the center of the cavity of the tile, and of which the outer surface is flush with one of the bearing or supporting surfaces 25 of the tile.

3. A hollow tile having its wall or walls provided, flush with one of the bearing or supporting surfaces of the tile, with an inwardly-extending flange, which is continuously re-

duced in thickness toward its inner edge, and with its inner surface disposed obliquely to the plane of the surface of the wall. 30

4. A hollow tile having its wall or walls provided near one edge with a reduced inwardly-extending flange or lip having an outer flat surface flush with the adjacent bearing or supporting surface of the tile, and having its inner surface disposed obliquely to the plane of the wall. 35

5. A hollow tile provided at one of its bearing or supporting surfaces with a flange extending inward from the wall of the tile, the upper and lower surfaces of the flange or web being arranged in intersecting planes. 40

6. A hollow tile provided adjacent to one of its bearing or supporting surfaces with a strengthening flange or lip extending inward from the wall, and also provided in one of its solid end walls with an exterior terminal countersink or recess. 45 50

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ERASTUS SIMMONS LAFFERTY.

Witnesses:

RUTH A. DAVIS,
BERTHA SEARLE.