

No. 749,812.

PATENTED JAN. 19, 1904.

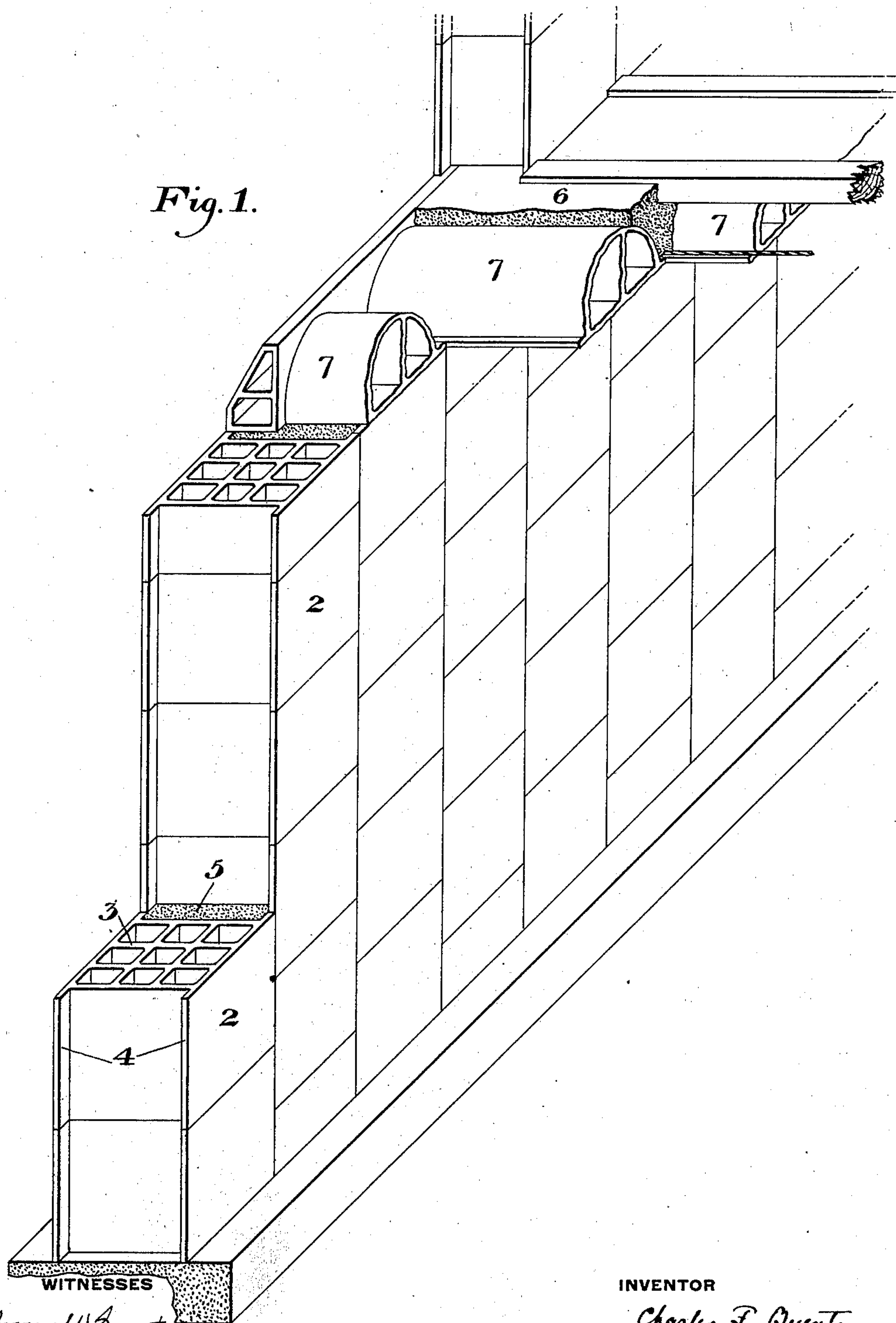
C. F. BUENTE.
FIREPROOF BUILDING CONSTRUCTION.

APPLICATION FILED MAR. 24, 1902.

NO MODEL.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses
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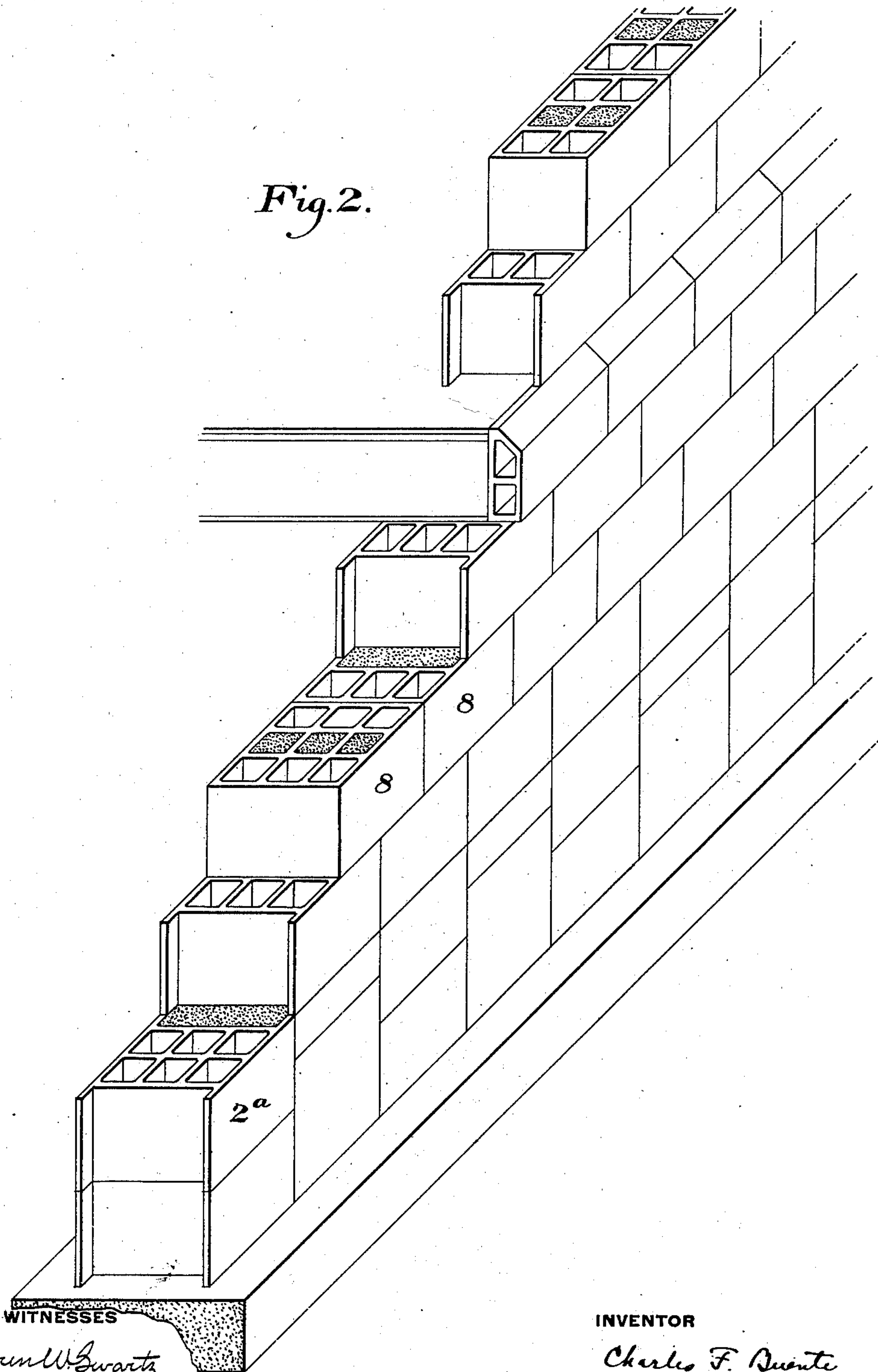
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4 SHEETS—SHEET 2.

Fig. 2.



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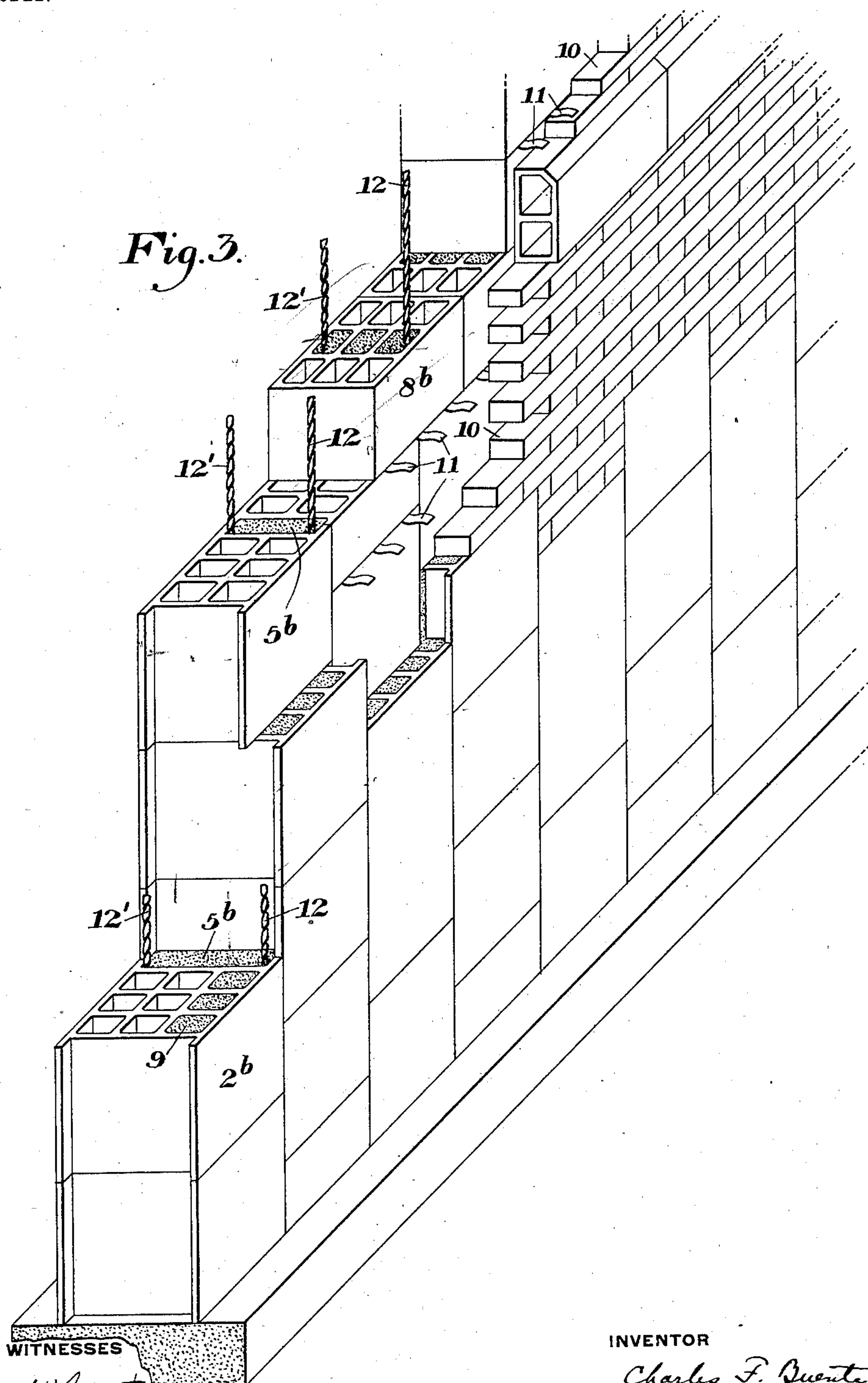
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NO MODEL.

4 SHEETS-SHEET 3.



WITNESSES

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FIREPROOF BUILDING CONSTRUCTION.

APPLICATION FILED MAR. 24, 1902.

NO MODEL.

4 SHEETS—SHEET 4.

Fig. 5.

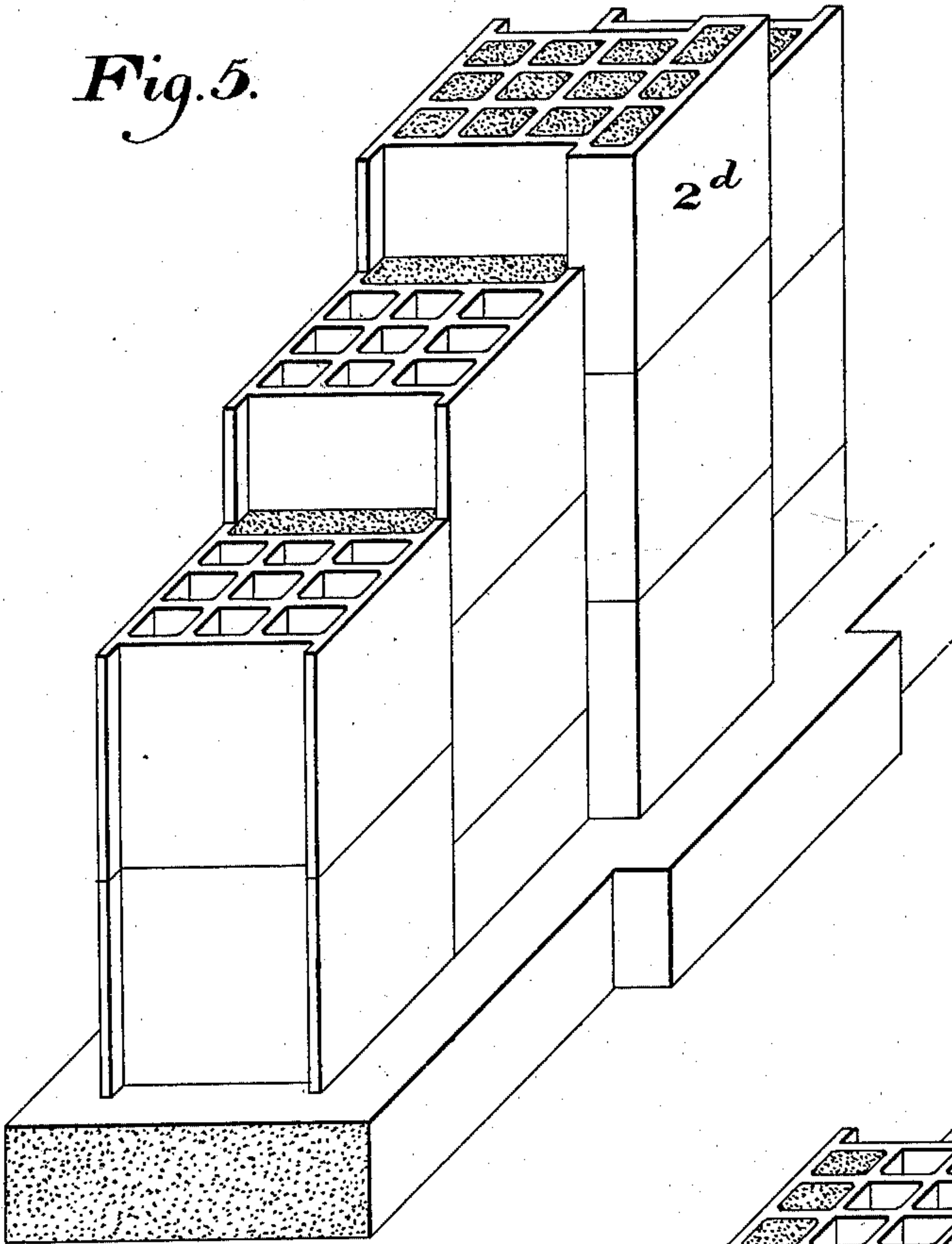
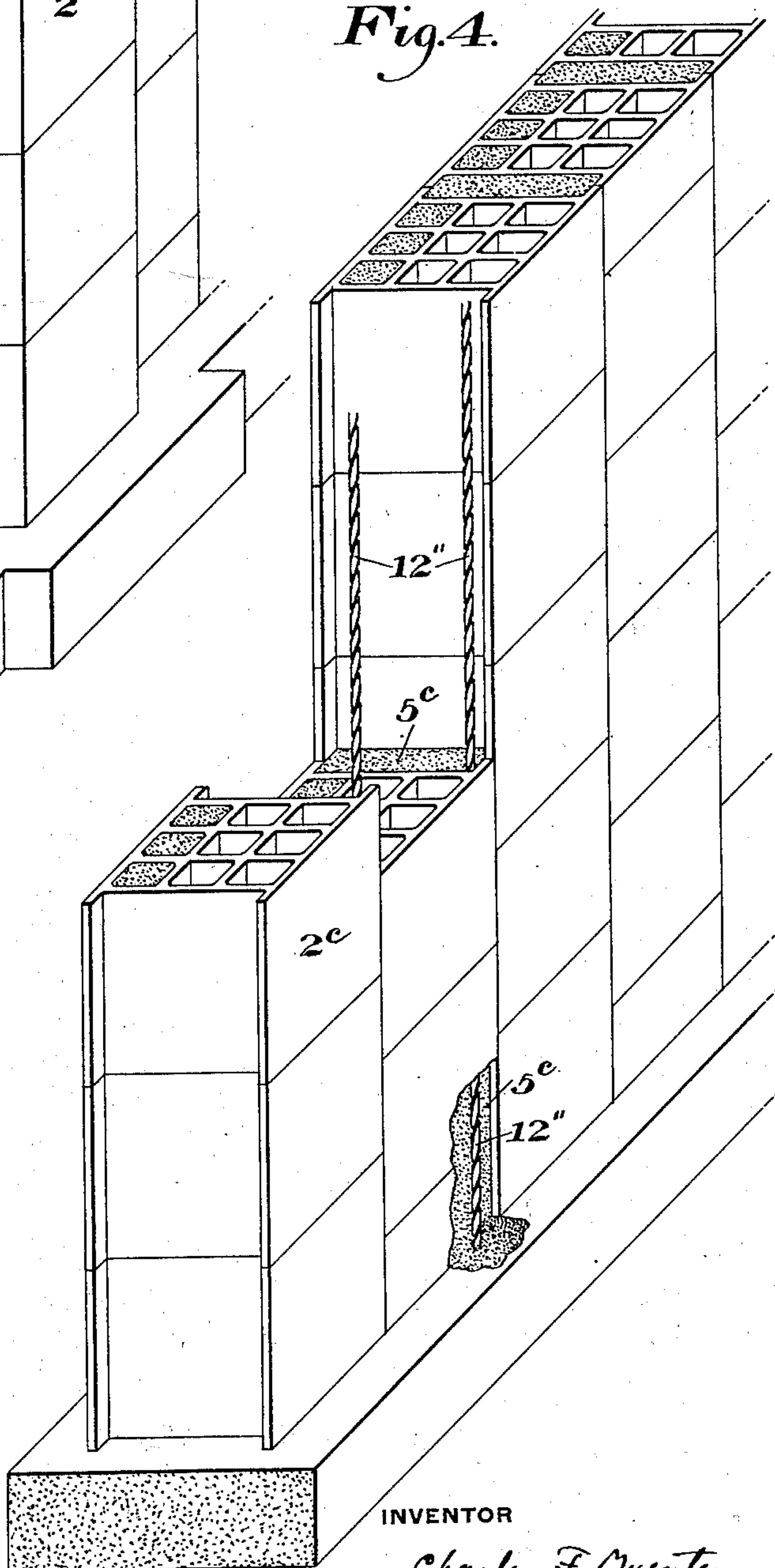


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES FREDERICK BUENTE, OF PITTSBURG, PENNSYLVANIA.

FIREPROOF BUILDING CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 749,812, dated January 19, 1904.

Application filed March 24, 1902. Serial No. 99,718. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FREDERICK BUENTE, of Pittsburg, Allegheny county, Pennsylvania, have invented a new and useful Fireproof Building Construction, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view showing a portion of a wall constructed in accordance with my invention, and Figs. 2, 3, 4, and 5 are similar views showing modified forms of the construction.

My invention relates to the walls of buildings, and is designed to provide a simple and effective construction in which the necessary supporting resistance shall be concentrated at the points where strains are brought thereon and to afford a fireproof-wall of small cost.

In ordinary brick walls only a small percentage of the actual strength of the bricks is utilized for supporting the floor-beams and other parts, and in such case the wall itself constitutes the greater part of the weight to be carried.

My invention greatly reduces the weight of the wall; and it consists in providing a vertical column of concrete beneath each floor-joist, these columns being supported laterally and longitudinally by hollow tiles between the columns.

It also consists of a wall formed of tiles which are provided with vertical registering cavities containing the concrete columns beneath the floor-joists and also in certain constructions and combinations hereinafter described and claimed.

In the drawings, referring to the form of Fig. 1, I show a building-wall consisting of vertical rows of hollow tiles 2, each having hollow cells formed by internal webs 3. The tiles may be of any desirable form and are provided at each side with recesses formed by projecting flanges 4. The flanges and webs extend vertically and are preferably of such width that the cavities formed by the meet-

ing flanges of the tiles of adjacent rows shall be beneath the floor-joists. These tiles are set in the wall with mortar or other binding material, and as the wall is built up the spaces between the adjacent tiles are filled with concrete 5. In order to improve the adhesion of the concrete to the tiles, the inner faces of the concrete-containing spaces may be first plastered with mortar. I have shown in connection with this wall a portion of flooring in which the floor-beams are formed of concrete, (shown at 6,) this concrete being filled in between horizontally-extending tiles 7; but any form of floor joists or beams may be employed, each joist being set upon the vertical cement column in the walls. The inner faces of the tiles are preferably rough to facilitate adhesion of the plaster for the rooms. The exterior faces of the tiles may be made of any desirable shape or contour to give an architecturally-ornamental appearance to the building. The tiles of each vertical row are preferably vertically staggered relatively to those of the next row, so as to break joints vertically therewith, as shown.

In Fig. 2 I show a modified form of the invention, wherein a horizontal as well as a vertical bond is afforded. In this form the tiles are made in two different shapes. The tiles 2^a are similar to those of Fig. 1, while the horizontal rows of tiles 8 are without the end flanges, their joints being staggered horizontally relatively to those of the tiles 2^a. In this way the central cavities of the tiles 8 register vertically with the cavities between the ends of the tiles 2^a and the vertical columns of concrete extend through the cells at the centers of the tiles 8.

In Fig. 3 I show a form of the invention in which the tile wall forms a fireproof frame used in connection with brick or other veneering. In this form, in addition to the concrete 5^b between the ends of the tiles 2^b, I fill the outer cells of the tiles with cement, as shown at 9, thus forming a support for the veneer. The horizontal bond is obtained by the rows of tiles 8^b, as in Fig. 2. The veneer

whether of brick or other material, may be held in place laterally by means of wall-ties 11 of ordinary form, which are set in the joints of the hollow tiles and secured in the veneer.

5 Where a lateral pressure is exerted on the wall, I preferably fill the exterior row of cells in the tiles with concrete, as shown in this figure, and embed in the concrete columns twisted metallic rods 12. The concrete in the
10 exterior cells of the tiles 2^b constitute compression members, while the metallic rods embedded in the inner portions of the columns 5^b form tension members for the lateral pressure. In a very high wall or a wall carrying
15 great weight the columns of concrete may be strengthened laterally to prevent flexure of the column by means of additional twisted metallic rods 12', embedded vertically in these columns.

20 In Fig. 4 I show a simpler form than that of Fig. 3 and without veneering, the rods 12'' being used only in the inner parts of the columns 5^c to act as tension members, the outer cells of the wall being filled with the concrete,
25 as before.

In Fig. 5 I show the invention arranged for carrying a concentrated load at some particular point. In this case the tiles may be enlarged, as shown at 2^a, to form a pilaster, and
30 all of the cells of these vertically-registering piles may be filled with concrete. For the same purpose the cells of any of the normally sized tiles may also be filled throughout a vertical row with concrete to increase the strength
35 at any desired point.

The advantages of my invention result from the saving of weight in the building and in the cost of constructing the walls and foundation. The material of the wall is concentrated
40 beneath the loads to be carried, and those parts which do not support such weights are made light. The use of the metallic reinforcing rods or bars for lateral support permits a still further reduction in the amount
45 of material used and strengthens against lateral strains. The construction is easily adaptable to different styles of walls and can be made highly ornamental at low cost. The hollow walls protect the building from damp-
50 ness and also serve to insulate it against extremes of temperature.

Many variations may be made in the form and arrangement of the tiles, the concrete, floor-beams, &c., without departing from my
55 invention.

I claim—

1. A wall having separated vertical concrete columns, floor-beams supported on said columns, and hollow tiles between the col-
60 umns; substantially as described.

2. A wall formed of hollow tiles with vertically-extending registering cells or cavities,

cement filling a part only of said cavities and forming separated vertical columns, and floor-beams supported on said columns; substan- 65 tially as described.

3. A wall composed of vertically-extending hollow tiles with recesses between their ends, vertical columns of concrete filling said re- 70 cesses, and floor-beams supported on said columns; substantially as described.

4. A wall composed of hollow tiles with vertically-alined cavities, vertical concrete columns filling part of said cavities, metallic rods embedded in said concrete, and floor-beams 75 supported upon said columns; substantially as described.

5. A wall composed of vertical hollow tiles with registering cavities containing vertical columns of concrete supporting the floor- 80 beams, the outer cells only of the tiles being filled with concrete to strengthen the outer part of the wall against compression; substantially as described.

6. A wall composed of hollow cellular tiles 85 with vertically-registering cavities and recesses between their meeting ends, concrete columns filling said recesses and containing embedded metallic rods or bars, and concrete filling the outer cells only of said tiles; sub- 90 stantially as described.

7. A wall composed of hollow tiles with vertically-extending cells, the tiles of one row having spaces between their ends registering with intermediate cells of the next horizontal 95 row, concrete columns filling the spaces between the ends of the tiles of alternate rows and extending through the cells of the other rows, and floor-beams supported on the concrete columns; substantially as described. 100

8. A wall consisting of hollow tiles arranged vertically and containing concrete columns beneath the floor-beams, and veneering 105 secured to the exterior of this wall; substantially as described.

9. A wall having concrete columns beneath the floor-beams, hollow tiles in the spaces between said columns, veneering on the exterior of the wall, and wall-ties connecting the tiles with said veneering; substantially as de- 110 scribed.

10. A wall having wide hollow tiles in its lower part, and upper and narrower hollow tiles, said tiles containing concrete columns beneath the floor-beams, and veneering rest- 115 ing upon the projecting portions of the lower tiles; substantially as described.

11. A wall having wide hollow tiles in its lower portion, the outer cells of which are filled with concrete, upper and narrower hol- 120 low tiles resting on the lower tiles, vertical concrete columns beneath the floor-beams, and veneering resting upon the concrete-filled cells of the lower tiles; substantially as described.

12. A building having a wall formed of hollow tiles, vertical concrete columns inclosed by the tiles which serve as molds therefor, and floor-beams supported on the concrete columns; substantially as described.

upon the concrete columns; substantially as described.

In testimony whereof I have hereunto set my hand.

CHARLES FREDERICK BUENTE.

Witnesses:

F. E. GAITHER,
C. P. BYRNES.

13. A building having a wall formed at least in part of hollow tiles, separated vertical concrete columns filled into vertically-alined cavities in the tiles, and floor-beams supported