

**Jan. 30, 1934.**

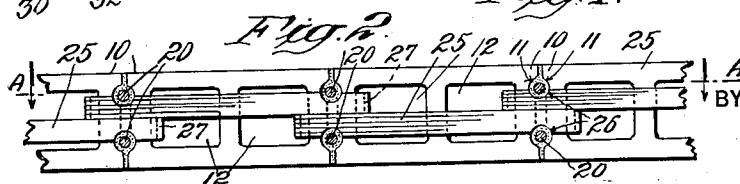
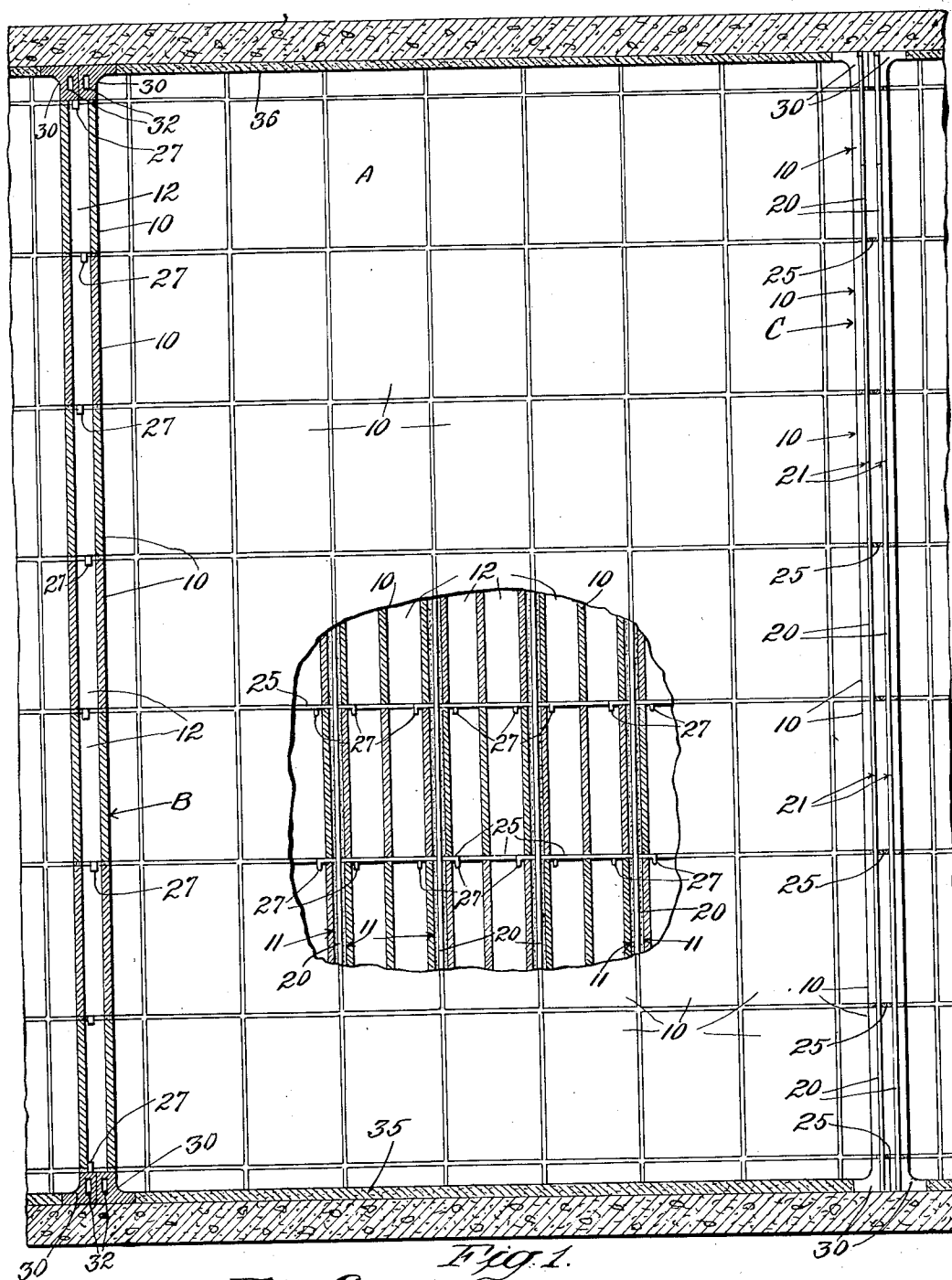
C. R. BALDWIN

**1,945,474**

WALL

Filed March 9, 1932

2 Sheets-Sheet 1



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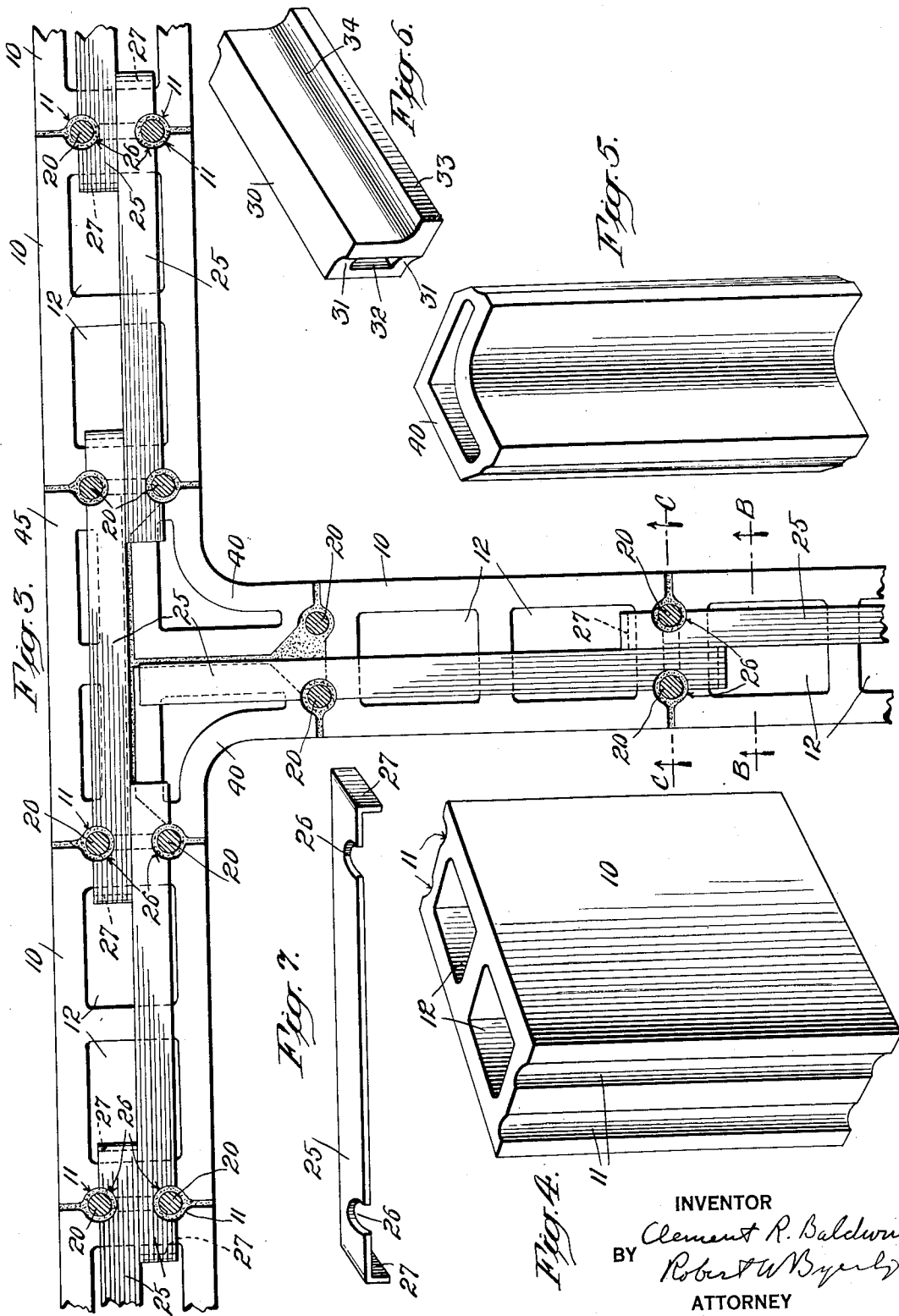
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## UNITED STATES PATENT OFFICE

1,945,474

## WALL

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Application March 9, 1932. Serial No. 597,659

8 Claims. (Cl. 72-42)

This invention relates to walls, and aims to provide a wall of great strength and attractive appearance which may be constructed at small cost.

5 A special object of the invention is to provide an improved wall for prison cells. In the past, it has been customary to guard against the escape of convicts either by providing dungeons with walls of stones so heavy that they cannot easily be moved even if the mortar about them is picked  
10 out, or by providing what might be termed a heavy metal cage. Cells of either of these usual constructions, besides being expensive, are extremely disagreeable and depressive in appearance.  
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A further object of the invention is to provide a cell wall which may be constructed in buildings in which the floors and ceilings are in place. This is of importance, not only in the remodelling  
20 of existing buildings, but also in buildings of ferro-concrete construction wherein one layer of concrete may serve as a ceiling layer for one cell and the floor layer of the cell above it, since no delay in the concrete work will be occasioned  
25 through the necessity for first constructing the various cells on the successive floors.

By my invention, I have provided a cell wall which has the appearance of an ordinary partition and is at the same time capable of resisting  
30 attempts to escape. Furthermore, this wall may be constructed at very small cost.

In accordance with my invention, a wall is constructed of bricks, preferably light, tubed, terra-cotta bricks, which are arranged in straight vertical and horizontal rows, as distinguished from the staggered or overlapping construction customarily used in masonry walls. The bricks are slightly spaced apart and connected by mortar in the usual manner. Embedded within the mortar  
40 between the vertical and horizontal rows of bricks is a strong, sectional metal mesh which is so interlocked with the edges of the bricks that no brick can be removed. Furthermore, the metal members between the rows of bricks obstruct the  
45 spaces between the bricks, so that no peek holes or signalling holes can be made in the wall, even if the mortar be picked out.

While the invention may be embodied in various different constructions, a feature of the invention consists in making the metal mesh of small interlocked pieces which may easily be placed in position by the mason as the wall is built.

55 The annexed drawings illustrate the particular

embodiment of the invention which I now believe to be most desirable:

Fig. 1 is a side elevation of a cell wall A partly broken away to show a part of the wall sectioned on the line A-A of Fig. 2. This figure  
60 also shows the cell floor and cell ceiling in section. It shows also in section two walls B, C, projecting at right angles from the wall A. The wall B at the left of Fig. 1 is sectioned on the line B-B of Fig. 3, while the wall C at the right of  
65 Fig. 1 is sectioned on the line C-C of Fig. 3.

Fig. 2 is a fragmentary top view of one of the horizontal rows of bricks of the wall A; and Fig. 3 is a similar view showing the junction of two walls, such as A and B, that meet at right angles.  
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Figs. 4, 5, 6 and 7 are perspective views of parts used in the wall construction. Fig. 4 shows a brick, Fig. 5 a corner brick, Fig. 6 a pediment brick, and Fig. 7 a metal bar.

The wall A shown in Fig. 1 consists of a number of terra-cotta bricks 10 arranged in straight vertical rows and straight horizontal rows, so that the side faces of all the bricks in each vertical row are aligned and the top and bottom faces of each horizontal row are aligned. Each brick  
80 10 as shown in Fig. 4 contains a pair of vertical grooves 11 in its side faces. Each brick also contains vertical holes 12 which not only serve to make it light but also have other functions hereinafter mentioned.  
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In the wall A, the bricks are set at a slight distance apart to provide for securing them together by mortar in the usual manner. The grooves 11 in the side faces of the bricks provide, between the vertical rows of bricks, vertical passages which contain vertical metal rods 20. The rods 20 preferably fit loosely in these passages to permit placing mortar around them, but the diameter of each rod is greater than the width of the mortar space between the side faces of these bricks, so that the rods and bricks are interlocked regardless of the presence of the mortar. To facilitate the construction of the wall, the rods 20 are most desirably made in sections as shown in the wall C in Fig. 1. The length of each rod  
100 section is such that the division lines 21 between the rod sections fall at or near the middle of a brick, so that the sectional construction of the rods preserves the interlocking between the rods and the bricks and makes it impossible to remove  
105 any one of these bricks, even if all the mortar around it be removed.

Between the horizontal rows of bricks are flat metal bars 25. These bars are interlocked with the vertical rods 20 and preferably also with the  
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bricks. In the form illustrated, each bar 25 contains two recesses 26 which fit around the bars at the two ends of a brick. Each bar 25 also has downturned ends 27 which project into the holes 12 in the bricks on each side of the brick on which the bar is placed. In the form shown, the bars 25 are of such width that the distance from the inner ends of their recesses 26 to their opposite edges is equal to half the distance between the grooves 11 in the edge of each brick 10, so that, by placing bars 10 having their recesses 26 in opposite edges in staggered relation as shown in Fig. 2, a sectional horizontal metal member is provided which is interlocked both with the vertical metal bars and with the horizontal row of bricks below it. The thickness of the bars is about that of the ordinary mortar space, so that they do not cause undue separation of the horizontal rows of bricks.

A particular feature of the invention consists in providing means for preventing the moving of the upper and lower ends of the vertical members of the metal mesh. In the form illustrated, pediment bricks 30 are provided for use at the top and the bottom of the wall. Each brick 30 has in its ends a single groove 31 similar to one of the grooves 11 of the bricks 10. The bricks 30 contain horizontal holes 32. Each brick 30 is provided with a horizontal flange 33 whose upper surface 34 is curved. The front or flanged portion of bricks 30 is of the same length as bricks 10, but the portion back of groove 31 is sufficiently short to provide, between that portion of the edges of adjacent bricks, a clearance as great as the diameter of the rods 20, for a purpose hereinafter to be explained.

The wall may be constructed in successive horizontal layers, as is customary with masonry walls, and, as shown, each brick of the lowest row in the wall is placed upon two bricks 30, rod sections 20 are placed in the vertical passages provided by grooves 11 and 31, and the spaces between the adjacent edges of bricks is filled with mortar. The horizontal bars 25, immediately above the lower bricks 30, are placed with their tabs 27 upward, so that these tabs enter the holes 12 in the bricks 10 above them.

Even when the wall is constructed within a building already provided with floors, no difficulty is encountered in inserting the rod sections 20 in the vertical passages between the edges of the bricks, as the wall is built until the uppermost row of bricks is reached. This last row is built from one end so that the short rod sections 20 may be placed against the edges of the respective bricks of this row before the next adjacent bricks are placed in position.

When the last horizontal row of bricks 10 is in place, two bricks 30 are placed above each of the bricks 10. Since a clearance equal to the diameter of rods 20 is provided between the back portions of the edges of adjacent bricks 30, these bricks may be applied to the projecting ends of the series of rods from opposite sides and snapped into position. The groove edges at the front portions of these bricks engage the ends of rods 20, thereby effectively locking the rods in place.

To provide junctions between the walls of a cell, corner bricks 40 are provided. These bricks are of such size that the clearance between the front portion of their edges and the edges of adjacent bricks 10 is less than the diameter of rods 20. The back portions of the edges of bricks 40 are bevelled, to permit them to be snapped into place.

As shown in Fig. 3, the use of corner bricks 40 and thin bricks 45, similar to the bricks 10, but of one-half the width, provides means for constructing partition walls meeting a main wall at right angles, while preserving the interlocking of the bricks and the metal mesh.

The thin bricks 45 may be used also to provide a facing on the back or other wall of the cell formed by a main wall of the building, so as to give a uniform finish, and pediment bricks 30 and corner bricks 40, having edges whose width is the same as that of bricks 45, may be used at the top, bottom and corners of such a facing to give all the walls of the cell a uniform appearance.

In a completed cell wall constructed as described, the main bricks 10 are all interlocked with the series of vertical rods 20 so that no one of them could be removed even if the mortar at its ends were removed. This is made possible by the fact that the rods are inserted as the wall is built, for, if the rods were placed in position first, the bricks 10 could not be thus positively interlocked with them. The building of the wall within a building is, however, made possible by the pediment bricks 30 and corner bricks 40, which I designate generally as key bricks because they may be applied laterally to the series of rods after the rods are in position. For this reason, the key bricks are not positively interlocked with the rods like the main bricks 10. They are, however, locked into position by the mortar at their ends which includes a portion located between a pair of the rods so that the rods protect it and make it impossible to pick it out.

After such a cell wall has been built within a building, the cell may be given a finished appearance by providing a floor layer 35 and a ceiling layer 36, which further lock the pediment key bricks against separation, and effectively prevent lateral movement of the upper and lower ends of the rods 20.

This application is in part a continuation of my co-pending application filed June 23, 1930, Serial No. 463,008.

What I claim is:

1. A masonry wall, comprising bricks arranged in vertical rows and in horizontal rows, the vertical abutting surfaces of the bricks being flat and containing vertical grooves having a width less than one-half the width of said abutting surfaces, a series of vertical rods between the vertical rows of bricks lying in the grooves in the abutting surfaces of the bricks and greater in diameter than the mortar space between the flat abutting surfaces of the bricks, so that they are positively interlocked with the bricks, and means for preventing lateral movement of the series of rods.

2. A partition wall within a building, comprising a series of parallel rods, rows of bricks between the rods positively interlocked therewith, and pairs of key bricks at an extremity of the wall engaging the series of rods and applicable thereto from opposite sides, and means for preventing the separation of said pairs of key bricks.

3. A partition wall within a building, comprising bricks containing vertical grooves in their vertical edges and arranged in vertical rows with their edge grooves in alignment to form continuous passages, a series of vertical rods between the vertical rows of bricks lying in the grooves in the edges of the bricks and having upper ends extending above the uppermost bricks, pairs of key bricks engaging the upper ends of the series of rods and applicable thereto from opposite sides, a ceiling layer abutting said key bricks and pre-

venting lateral movement thereof, and a floor layer abutting the lowermost bricks and preventing lateral movement thereof.

4. A masonry wall, comprising bricks containing vertical grooves in their vertical edges and arranged in vertical rows with their edge grooves in alignment to form continuous passages, a pediment brick at the bottom of each of said vertical rows, said pediment bricks containing vertical grooves in their vertical edges forming a continuation of the grooves in the other bricks, a floor layer abutting said pediment bricks and preventing lateral movement thereof, and vertical rods between the vertical rows of bricks lying in the grooves in the edges of the bricks and having their lower ends in engagement with the grooves in the pediment bricks.

5. The combination of two partition walls meeting at an angle and each comprising a set of pairs of vertical rods and rows of bricks between the rods interlocked therewith, and a vertical row of key bricks at the intersection of the two walls having at their rear corners recesses inclined at the same angle as the intersection of the walls and a mortar key locked between the rods of a pair of said vertical rods and preventing removal of said key bricks.

6. A masonry wall, comprising bricks having opposed vertical faces containing pairs of grooves and arranged in vertical rows with said grooves in alignment to form continuous passages, pairs of vertical rods between the vertical rows of bricks lying in the grooves in the edges of the

bricks, and mortar between the abutting faces of the bricks, a portion of which is located between the rods of the pair of rods so that the rods prevent access to it.

7. In a masonry wall, a series of pairs of vertical rods, a horizontal row of bricks, whose abutting vertical faces contain recesses extending to the inner corners of the bricks and engaging one rod of each pair of rods, a second similar row of bricks engaging the other rod of each pair of rods and having their inner surfaces adjacent to the inner surface of the first row of bricks, and mortar between the abutting ends of the bricks including a portion between the rods of each pair of rods which serves to lock the two rows of bricks together and is protected from access by the rods.

8. A partition wall within a building, comprising a series of pairs of parallel rods, rows of bricks between the pairs of rods interlocked therewith, and, at an extremity of the wall, a row of key bricks, whose abutting faces contain recesses extending to the inner corners of the bricks and engaging one rod of each pair of rods, a second similar row of key bricks engaging the other rod of each pair of rods and having their inner surfaces adjacent to the inner surface of the first row of key bricks, and mortar between the abutting ends of the key bricks including a portion between the rods of each pair of rods which serves to lock the two rows of key bricks together and is protected from access by the rods.

CLEMENT R. BALDWIN.

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