

J. MITCHELL.
CONSTRUCTION OF BUILDINGS.
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1,013,038.

Patented Dec. 26, 1911.

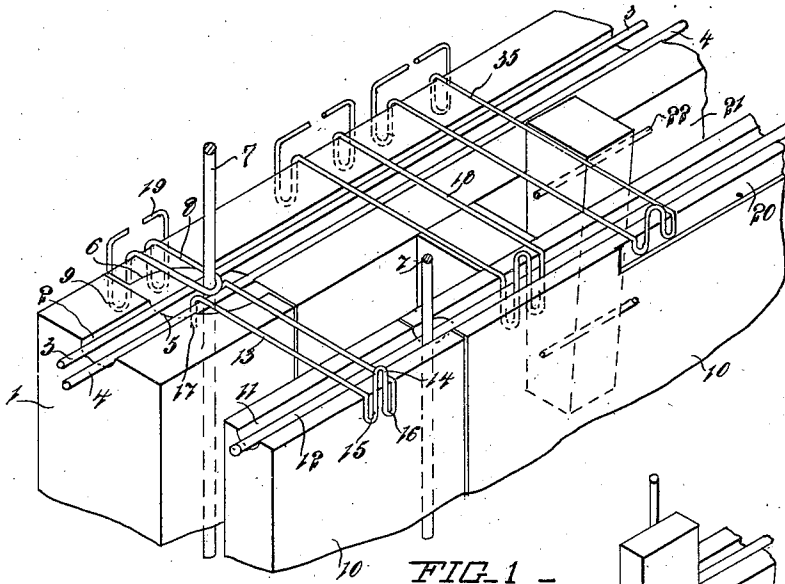


FIG. 1 -

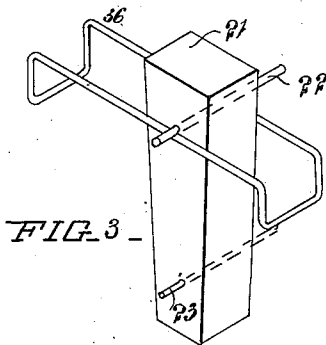


FIG. 3 -

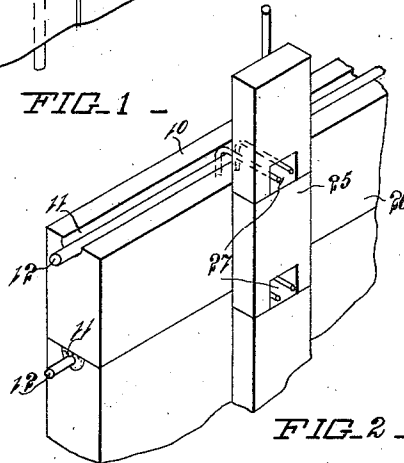


FIG. 2 -

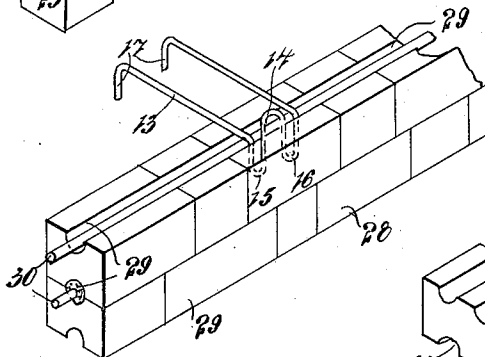


FIG. 4 -

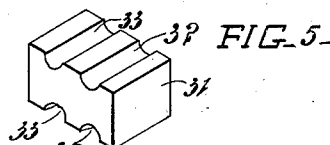


FIG. 5 -

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CONSTRUCTION OF BUILDINGS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN MITCHELL, a citizen of the Dominion of New Zealand, and residing at Arthur street, Ponsonby, in the Provincial District of Auckland, in the Dominion of New Zealand, have invented certain new and useful Improvements in the Construction of Buildings, of which the following is a specification.

This invention relates to the class of buildings which are constructed of slabs of concrete or brick reinforced by vertical and horizontal metal rods.

Among the various objects of the present invention are: first, to provide a peculiar construction and assemblance of building blocks and slabs, to facilitate the employment of advantageous reinforcing rods or braces, whereby to rigidify a wall construction; secondly, to provide novel reinforcing means *per se*, which when incorporated in the wall structure, perform the function of tying the various layers of blocks or slabs thereof firmly together; thirdly, to devise a construction of wall including inner or main slabs or blocks, and an outer veneer or facing wall of stone or reinforcing brick, the inner and outer walls being connected by a peculiar means forming an essential feature of this invention, and fourthly, the provision of other detail devices and means which will be pointed out more fully hereinafter.

My invention is illustrated in the accompanying drawings wherein:—

Figure 1, is a side perspective elevation of a portion of a building having a main wall of concrete-slabs and a veneering or facing wall of stone slabs. Fig. 2, a similar view showing spacing blocks in connection with the slabs of the facing wall. Fig. 3, a perspective elevation of a wedge and gage cramp. Fig. 4, an end perspective elevation of a veneer or facing wall of reinforced slab bricks. Fig. 5, a similar view of one of the slab bricks grooved as a header.

A main wall is composed of slabs 1, and made preferably of concrete, or sand-brick. The top of each slab has a trench 2, designed to receive the horizontal reinforcing rods 3 and 4 and each end of each of the slabs has a curved recess 5 and a tongue 6 so that when two of the slabs are placed in position in a wall with their tongues overlapping, as clearly shown in Fig. 1, these recesses together form a cavity to receive a vertical reinforcing rod 7. The cavities correspond

in superposed slabs so that the rod may pass vertically through them and as the building proceeds a grouting of cement mortar is poured into the cavities around the rod.

The reinforcing rod is held in position during the progress of the building by the wire tie 8, which is bent near its middle to pass around the rod 7, extends across to the back face of the slab, and has its ends bent first down and then upwardly forming loops 9, which engage against the back face of the lower slab and lugs 19 which bear against the face of the slab immediately above. The veneer or facing wall is spaced at any desired distance from the main part of the wall and the slabs 10, of which the facing wall is built have a horizontal trench 11, receiving a reinforcing rod 12, and a grouting of cement, or the cement alone may be used to form a key, the rod being omitted.

The slabs 10 are secured to the horizontal reinforcing rod 4, of the main part of the wall by specially constructed wire ties 13, which are bent as clearly shown in Figs. 1 and 4 into an upwardly projecting loop 14, which bears against the bottom of the slab immediately above the tie, and downwardly projecting loops 15 and 16 which bear against the face of the slab immediately below. The tie extends across the space between the main and facing walls and its ends 17 are bent downwardly to engage over the horizontal reinforcing rod 4. The wire ties 8 and 13 are a permanent feature of the construction and when held in position by the jointing cement of the slabs make very strong work. Immediate wire ties 18 may be used, these are bent at one end similarly to the tie 13 and at the other end similarly to the tie 8. The loops at one end of the tie bear against the face of the main wall while the other end enters the channel 11 in the slabs of the facing wall. If it is desired to conceal the loops of the ties, a rabbet 20 is formed in the face of the slab to receive the end of the tie, the tie shown in the figure being marked 35 and shaped similarly to tie 18. The rabbet is subsequently filled with plaster or cement.

In building the walls the correct distance between the facing and backing slabs is conveniently determined by means of wedge gages, one of which is shown in position between the walls by dotted lines in Fig. 1, and independently in Fig. 3. The wedge 21 is placed between the arms of one of the

permanent wire ties 35, (see Fig. 1) or between the arms of a similar tie 36 shown in Fig. 3, made of stouter wire and designed to be removed from time to time as the building proceeds. A pin 22, passes through the wedge and its ends resting upon the arms of the tie prevent the wedge from falling down. A second pin 23, prevents the wedge from becoming disengaged from the tie when out of use. The slabs of the facing wall are thus held in true position relatively to the main wall by the wire ties and wedges described and are embedded and jointed together with mortar. The space 24, between the walls may be grouted in with fine concrete or the like.

Under some circumstances it is desirable to employ blocking between the facing and main walls, this is shown in Fig. 2. The spacing blocks 25 are integrally formed with or attached to the facing slabs 26, (which are otherwise similar to those described) or may be set up independently in the spaces between the main and facing slabs, the latter arrangement is convenient where the distance or space between the main wall and the facing wall is considerable, as for instance, in forming hollow walls or ventilating or smoke flues. A recess 27, is formed in the foot of each spacing block to receive and protect the wire ties, cement being employed to make a thoroughly good joint. When the spacing blocks are employed the space between the inner wall and the facing is not filled, and in that way a hollow wall is formed which may serve as a ventilating flue or smoke flue. As shown in Fig. 6 recesses may be formed in the ends of the slabs of the facing wall to receive a vertical reinforcing rod 37 in the same manner as the slabs of the main wall.

When the facing wall is of slabs of brick, the slabs are formed as shown in Figs. 4 and 5. The brick slabs 28, have grooves upon the top or upon the bottom, or both top and bottom to receive reinforcing rods and a good jointing bed of rich cement mortar. In the figure a groove 29 is shown in the top of the slabs to receive a horizontal reinforcing rod 30.

As shown in Fig. 5 a brick "header" slab 31 can be made with two grooves 32 and 33 top and bottom. With brick slabs reinforced (say at every fourth course) the employment of the ties as previously described will firmly secure the facing to the main wall. The spaces between the main and facing walls may be filled with liquid cement or concrete or left hollow as described. If left hollow the wire ties may be galvanized or covered with a protecting coat of cement.

The partition walls of a building may be readily formed of slabs either such as are

described herein for the main wall or such as those described in connection with the facing wall.

What I do claim and desire to secure by Letters Patent of the United States is:—

1. In building wall construction, a main inner wall composed of slabs and an outer facing wall spaced from the inner wall and also composed of slabs, ties connecting said walls, spacing members movable between the walls, and means carried by said members and coacting with the ties for limiting the movement of the spacing members.

2. In building wall construction, a main inner wall and an outer facing wall spaced therefrom, ties connecting said walls and composed of spaced elements, and wedges between said walls and spaced elements of the ties.

3. In building wall construction, a main inner wall and an outer facing wall spaced therefrom, ties connecting said walls and composed of spaced elements, and wedges between said walls and spaced elements of the ties, and members carried by said wedges to engage the ties for coöperation, as set forth.

4. In building wall construction, a main inner wall composed of slabs and an outer wall spaced from the inner wall and also composed of slabs, ties connecting said walls, spacing members movable between the walls, means carried by said members coacting with the ties for limiting the movement of the spacing members, the inner and outer walls comprising slabs laid in horizontal courses, horizontal reinforcing rods arranged between the courses of slabs of said walls, said slabs having grooves in which said horizontal reinforcing rods are seated and the aforesaid ties having their opposite end portions received between the courses of slabs and having downwardly turned ends engaging over certain of the horizontal reinforcing rods.

5. A building wall comprising a plurality of horizontally arranged building blocks, the ends of which have spaced portions, vertical reinforcing rods arranged in said spaced portions, and a tie supported on the upper side of a slab adjacent to its end portion and consisting of a wire bent intermediate its ends so as to pass around the adjacent vertical reinforcing rod, the opposite extremities of the wire being bent upwardly and downwardly so as to engage with the outer side of the adjacent building slabs.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN MITCHELL.

Witnesses:

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