June 1, 1943. I. STAGG 2,320,480

BUILDING STRUCTURE

Original Filed Feb. 16, 1940 2 Sheets-Sheet 1

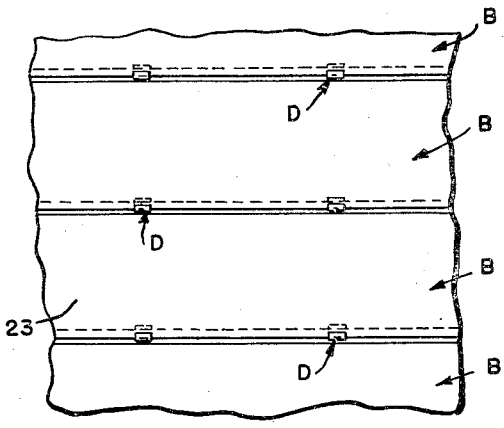


FIG. 1.

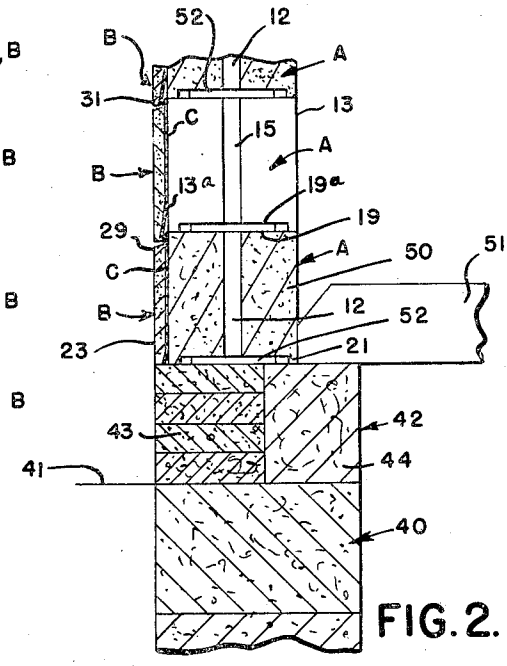


FIG. 2.

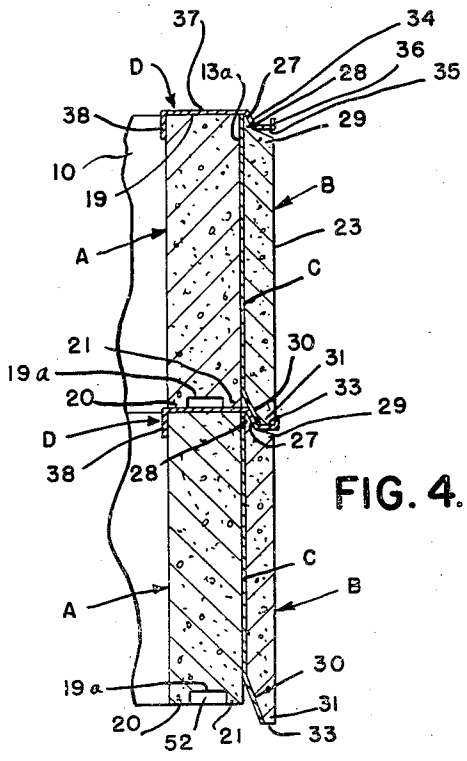


FIG. 4.

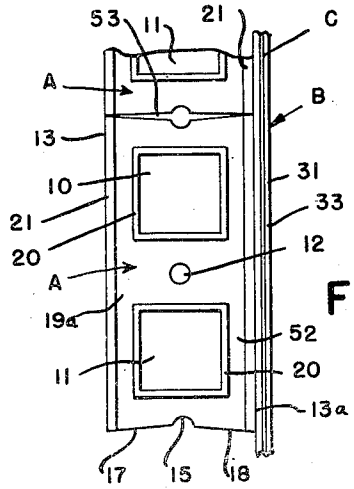


FIG. 3.

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FIG.5.

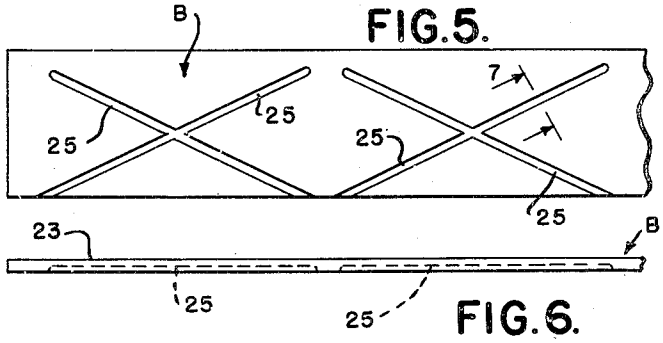


FIG.6.

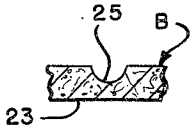


FIG.7.

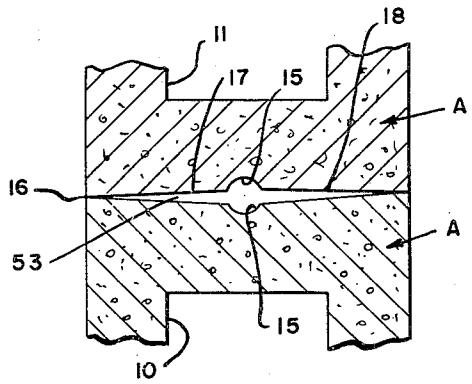


FIG.8.

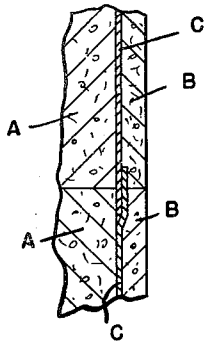


FIG.9.

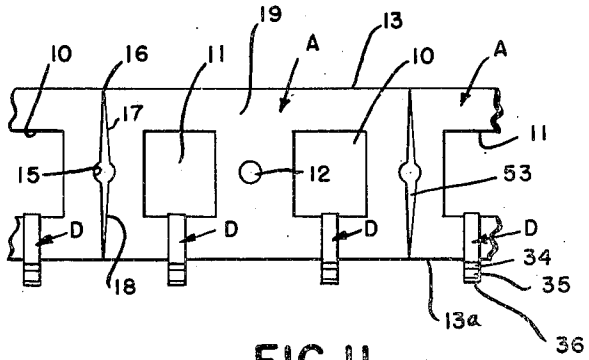


FIG.11.

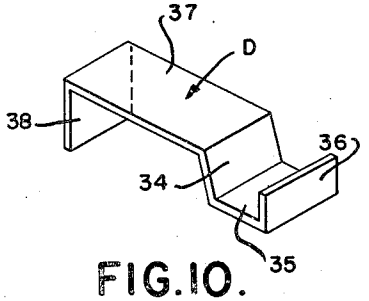


FIG.10.

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UNITED STATES PATENT OFFICE

2,320,480

BUILDING STRUCTURE

Irving Stagg, Garden City, Mich.

Original application February 16, 1940, Serial No. 319,338. Divided and this application June 9, 1941, Serial No. 397,292

6 Claims. (Cl. 72—21)

This invention relates generally to building structures, especially wall structures of buildings, and constitutes a division of my application filed February 16, 1940, bearing Serial No. 319,338.

One of the essential objects of the invention is to provide a wall structure wherein structural blocks are provided with face plates and wherein such face plates are provided with double locks or retainers, preferably at their upper and lower edges, so that they will be effectively held in place when assembled with the structural blocks.

Another object is to provide a wall structure wherein it is unnecessary to cut holes in the opposed faces of the face plates and structural blocks for the reception of securing means for the face plates.

Another object is to provide a wall structure wherein the structural blocks and face plates may be formed independently of each other and of any suitable materials.

Another object is to provide a wall structure wherein the retaining means for the face plates comprises inexpensive stampings or pressed metal members that can be economically made and readily adapted for the purposes set forth.

Another object is to provide a wall structure wherein the parts thereof are constructed and arranged in such a way that a material saving in time, labor and materials may be effected in the construction of the wall.

Another object is to provide a wall structure wherein face plates and/or waterproofing material may overlap the joints between upper and lower structural blocks of adjacent rows.

Another object is to provide a wall structure wherein the outer faces of the face plates on adjacent structural blocks are substantially flush.

Other objects, advantages and novel details of construction of this invention will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawings, wherein:

Figure 1 is a fragmentary elevation of a wall formed from structural blocks and face plates embodying my invention;

Figure 2 is a fragmentary vertical sectional view through a wall structure having therein structural blocks and face plates embodying my invention;

Figure 3 is a bottom plan view of one of the structural blocks, face plates and intermediate weatherproofing material;

Figure 4 is a vertical sectional view through a portion of the wall structure;

Figure 5 is an elevation of the inner side of one of the face plates illustrated in Figure 4;

Figure 6 is a top plan view of the face plate illustrated in Figure 5;

Figure 7 is a sectional view taken substantially on the line 7—7 of Figure 5;

Figure 8 is a horizontal sectional view through the meeting ends of adjacent structural blocks embodying my invention;

Figure 9 is a horizontal sectional view through portions of adjacent structural blocks, face plates, and intermediate waterproofing material embodying my invention;

Figure 10 is a detail view of one of the clips;

Figure 11 is a fragmentary top plan view of adjacent structural blocks, and showing the clips in place thereon for engagement with face plates for said blocks.

Referring now to the drawings, A is a structural block, B is a face plate, and C is waterproofing material of a wall structure embodying my invention.

As shown, the structural block A is a casting formed from plastic material. Preferably this structural block is formed in a suitable mold (not shown) and comprises a mass of cinders and cement. In the present instance the structural block A is substantially rectangular-shape in configuration and is solid except for two vertically extending longitudinally spaced openings 10 and 11 of substantially square cross section and an intermediate opening 12 of circular cross section. The inner and outer faces 13 and 13a of the structural block are substantially vertical and parallel. In opposite ends of the structural block A, preferably at the longitudinal median line thereof, are outwardly opening vertical slots 15 of semi-circular cross section. By referring to Figure 8 it will be noted that these slots are slightly offset inwardly relative to the vertical side edges 16 of the blocks and that the intermediate faces 17 and 18 are flat and incline outwardly from opposite side edges of the slots to the side edges 16 of the blocks. The top and bottom faces 19 and 19a of the structural block A are substantially parallel and are disposed at substantially right angles to the inner and outer faces 13 and 13a of the block. The top face 19 is substantially flat, while the bottom face 19a is provided about the edges of the openings 10 and 11 and along the longitudinal side edges of the block with relatively shallow depending ribs or flanges 20 and 21.

The face plate B is a slab-like casting formed from plastic material in a suitable mold (not

shown). Preferably this face plate has an area greater in a downward direction than the area of the outer face 13a of the structural block A so as to extend slightly below the lower edge of said structural block for overlapping engagement with the upper edge of a face plate upon the next lower block in a wall formation. The outer surface 23 of the face plate is flat and smooth, while the inner face is flat but has crossed diagonally extending grooves 25 therein. In this connection it will be noted that the upper ends of the grooves 25 are spaced slightly below the upper edge of the face plate, while the lower ends of the grooves open downwardly through the lower edge of the face plate.

The waterproofing material C is preferably in sheet form and is located in surface-to-surface relation with the structural blocks A and face plates B. Preferably this waterproofing material may be in strips of sufficient length to overlap a number of structural blocks and joints therebetween in a given row, or may be in shorter lengths for each block. In either instance, such waterproofing material has a greater length than any one structural block A to provide marginal endwise extensions for overlapping the joints between adjacent structural blocks.

Preferably the upper edge of each face plate B is cut away or recessed at 27 to provide a downwardly and outwardly inclined portion 28 and a downwardly and outwardly inclined portion 29, while the lower edge of each face plate is cut away as at 30 to provide a downwardly and outwardly inclined portion 31. When the structural blocks are assembled in a wall formation, the lower edges 33 of the upper face plates B are received in the recesses 27 in the upper edges of the next lower face plates, and the waterproofing material C extends downwardly and outwardly between the inclined portions 28 and 31 so moisture draining down in the grooves 25 in the face plates will flow outwardly onto the inclined portions 29 to the exterior of the wall.

In the present instance the face plates B are held in place upon the structural blocks A by means of clips D which are preferably formed from sheet metal and have inclined portions 34 that are received between the inclined portions 28 and 31, respectively, of the face plates and have stirrup portions 35 that embrace the lower edge portions 33 of the upper face plates. As shown, the upturned flanges 36 of the stirrup portions 35 are upon and flat against the outer sides of the face plates B. As shown, these clips D have relatively narrow, flat portions 37 that extend between the top and bottom of adjacent structural blocks and have downturned inner retaining flanges 38 received within and engaging the adjacent walls of the vertically extending openings 10 and 11 in the structural blocks.

When assembled in a wall formation, as illustrated in Figures 1, 2 and 4, respectively, the structural blocks are arranged in staggered superposed relation upon a suitable foundation. Preferably the lower part 40 of this foundation, i. e., the part below the ground level 41, comprises rectangular blocks devoid of face plates and waterproofing material, while the upper part 42 is composite in construction and preferably comprises an outer section 43 of regular bricks and an inner section 44 of blocks such as those used in the lower part of the foundation.

The lowermost row 50 of blocks are laid on the foundation beyond the ends of joists of beams such as 51 so that the face plates B are substantially flush with the outer faces of the brick 43. The next and succeeding rows of structural blocks are laid with their face plates B substantially flush with the first-mentioned face plates. In this connection the structural blocks are laid so that the square openings 10 and 11 therein are substantially in vertical alignment to provide substantially vertical air ducts in the wall formation.

When several rows of structural blocks are laid, as aforesaid, a suitable bonding material (not shown) may be forced by a hydraulic or mechanical gun, or by any other pressure means, into the circular holes 12 and into the opposed semi-circular holes 15. Such bonding material will flow into and fill the spaces 52 between the depending ribs 20 and 21 and the adjacent upper faces of the next lower blocks and will fill the spaces 53 provided by the inclined faces 17 and 18 at the ends of adjacent blocks to insure proper connections between the respective blocks of the wall formation.

What I claim as my invention is:

1. A wall structure having two block-like castings of substantially uniform thickness throughout their depth arranged one on top of the other with the bottom of the uppermost casting substantially registering with the top of the lowermost casting, the outer upright faces of said castings being substantially flush, separate slab-like face plates of substantially uniform thickness disposed in surface to surface relation upon the outer upright faces of the castings, one face plate upon each casting, the outer upright faces of said face plates being substantially flush, the face plate on the lowermost casting being provided at its upper edge with an upwardly and outwardly opening recess, the walls of said recess extending downwardly and outwardly to direct to the outer faces of the lowermost face plate moisture draining down from between the uppermost casting and face plate thereon, the face plate on the uppermost casting being provided at its lower edge with a depending extension substantially conforming in shape to and received within the upwardly and outwardly opening recess in the face plate on the lowermost casting to substantially conceal said recess, means at the top of the uppermost casting holding in place the face plate on the uppermost casting, and means at the top and bottom of the lowermost casting holding in place the face plate on said lowermost casting, the means at the top of said lowermost casting co-operating with the means aforesaid at the top of the uppermost casting to hold in place the face plate on the uppermost casting.

2. A wall structure having two blocks of substantially uniform thickness throughout their depth arranged one on top of the other with the bottom of the uppermost block substantially registering with the top of the lowermost block, the outer upright faces of said blocks being substantially flush, separate slab-like face plates of substantially uniform thickness disposed in surface to surface relation upon the outer upright faces of the blocks, one face plate upon each block, the outer upright faces of said face plates being substantially flush, the face plate on the lowermost block being provided at its upper edge with an upwardly and outwardly opening recess, the walls of said recess extending downwardly and outwardly to direct to the outer face of the lowermost face plate moisture draining down from between the uppermost block and face plate thereon, the face plate on the uppermost block

being provided at its lower edge with a depending extension substantially conforming in shape to and received within the upwardly and outwardly opening recess in the face plate on the lowermost block to substantially conceal said recess, means at the top and bottom of the uppermost block holding in place the face plate on said block, and means at the bottom of the lowermost block co-operating with the holding means at the bottom of the uppermost block to hold in place the face plate on the lowermost block.

3. A wall structure having two block-like castings of substantially rectangular configuration arranged one on top of the other, the outer upright faces of said castings being substantially flush with each other, separate slab-like face plates disposed in surface to surface relation upon the outer upright faces of said superposed castings, one face plate covering each casting, the outer upright faces of said face plates being substantially flush with each other, the lowermost face plate being provided at its upper edge with a downwardly and outwardly inclined portion, the uppermost face plate extending below the joint between said superposed castings and having a downwardly and outwardly inclined portion opposed to the inclined portion of the lowermost face plate, an imperforate layer of waterproofing material between the opposed upright faces of the uppermost casting and face plate thereon and extending downwardly between the opposed outwardly inclined portions of the upper and lower face plates so that moisture draining down between said waterproofing material and the uppermost face plate will be directed outwardly between said inclined portions toward the outer surface of the lowermost face plate, means at the top of the uppermost casting holding in place the face plate on the uppermost casting, and means at the top and bottom of the lowermost casting holding in place the face plate on said lowermost casting, the means at the top of said lowermost casting co-operating with the means aforesaid at the top of the uppermost casting to hold in place the face plate on the uppermost casting.

4. A wall structure having two block-like castings of substantially rectangular configuration arranged one on top of the other, the outer upright faces of said castings being substantially flush with each other, separate slab-like face plates disposed in surface to surface relation upon the outer upright faces of said superposed castings, one face plate covering each casting, the outer upright faces of said face plates being substantially flush with each other, the lowermost face plate being provided at its upper edge with a downwardly and outwardly inclined portion, the lower edge of the uppermost face plate extending below the joint between said superposed castings and having a downwardly and outwardly inclined portion opposed to the inclined portion of the lowermost face plate, an imperforate layer of waterproofing material between the opposed upright faces of the uppermost casting and face plate thereon and extending downwardly between the opposed outwardly inclined portions of the upper and lower face plates so that moisture draining down between said waterproofing material and the uppermost face plate will be directed outwardly between said inclined portions toward the outer surface of the lowermost face plate, a clip at the top of the uppermost casting holding in place the face plate on the uppermost casting, and clips at the top and bottom of the lowermost casting holding in place the face plate on said lowermost casting, the clip at the top of said lowermost casting co-operating with the clip aforesaid at the top of the uppermost casting to hold in place the face plate on the uppermost casting.

5. A wall structure having two block-like castings of substantially rectangular configuration arranged one on top of the other, the outer upright faces of said castings being substantially flush with each other, separate slab-like face plates mounted in surface to surface relation upon the outer upright faces of said superposed castings, one face plate upon each casting, the outer upright faces of said face plates being substantially flush with each other, the lowermost face plate being recessed at its upper edge and providing a downwardly and outwardly inclined portion, the uppermost face plate extending below the joint between said superposed castings into the recessed upper edge of the lowermost face plate and having a downwardly and outwardly inclined portion opposed to the inclined portion of the lowermost face plate, and an imperforate layer of waterproofing material between the opposed upright faces of the uppermost casting and face plate thereon and extending downwardly between the opposed outwardly inclined portions of the upper and lower face plates so that moisture draining down between said waterproofing material and the uppermost face plate will be directed outwardly between said inclined portions toward the outer surface of the lowermost face plate.

6. A wall structure having two substantially rectangular blocks arranged one on top of the other, the outer upright faces of said blocks being substantially flush with each other, separate slab-like face plates disposed in surface to surface relation upon the outer upright faces of said superposed blocks, one face plate covering each block, the outer upright faces of said face plates being substantially flush with each other, the lowermost face plate being recessed at its upper edge to provide a downwardly and outwardly inclined portion to direct to the outer face of the lowermost face plate moisture draining down from between the uppermost block and face plate thereon, the uppermost face plate extending below the joint between said superposed blocks and having a downwardly and outwardly inclined portion opposed to and substantially concealing the inclined portion of the lowermost face plate, means at the top of the uppermost block holding in place the face plate on the uppermost block, and means at the top and bottom of the lowermost block holding in place the face plate on said lowermost block, the means at the top of said lowermost block co-operating with the means at the top of the uppermost block to hold in place the face plate on the uppermost block.

IRVING STAGG.