

Jan. 19, 1943.

I. STAGG
BUILDING STRUCTURE
led Feb. 16, 1940

2,308,790

2 Sheets-Sheet 1

FIG.1.

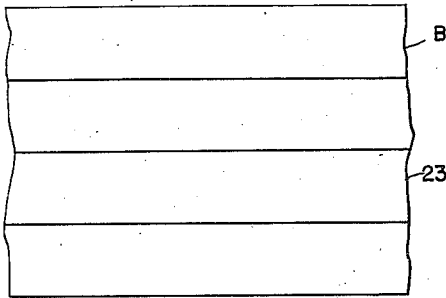


FIG.2.

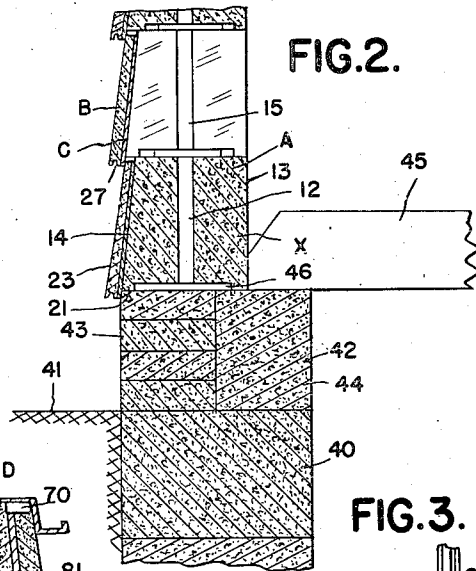


FIG.4.

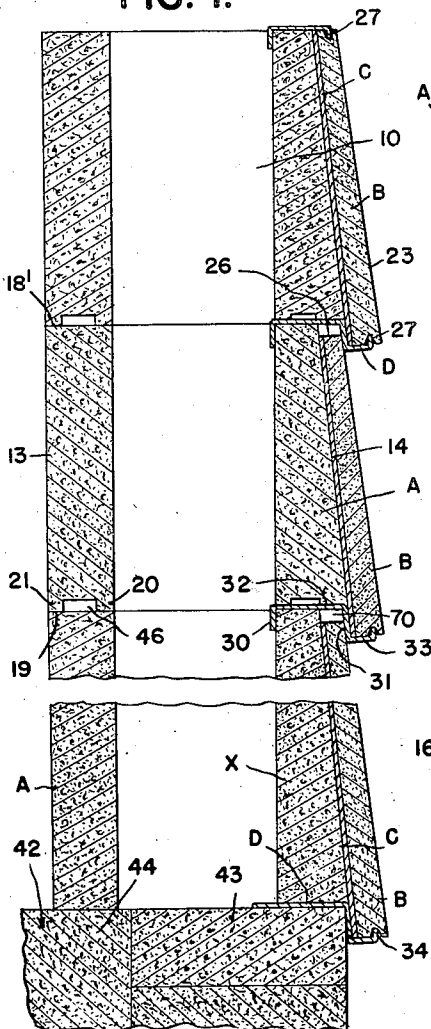


FIG.3.

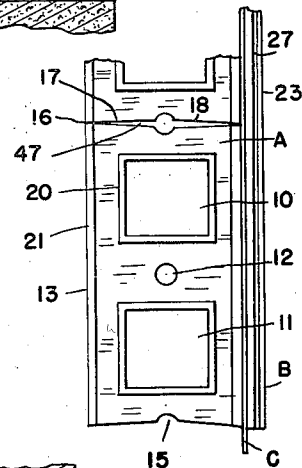


FIG.14.

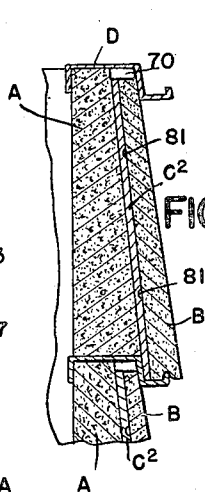
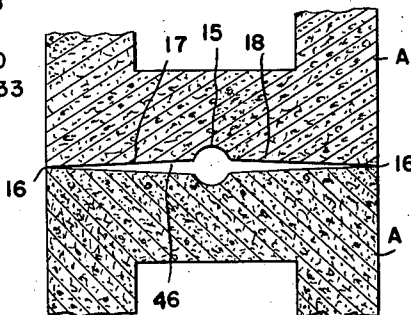


FIG.8.



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2 Sheets-Sheet 2

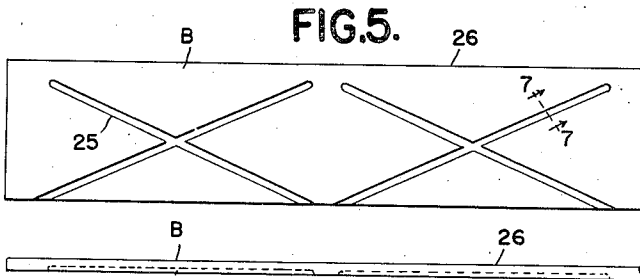


FIG. 5.

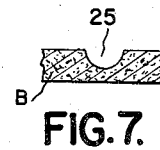


FIG. 7.

FIG. 9.

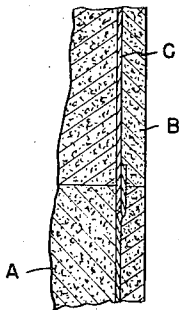
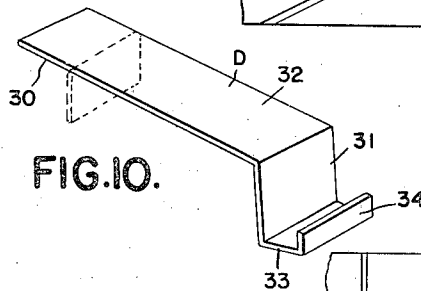


FIG. 10.

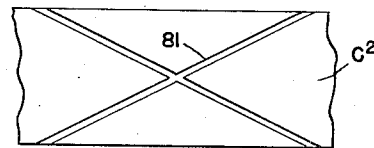


FIG. 15.

FIG. 11.

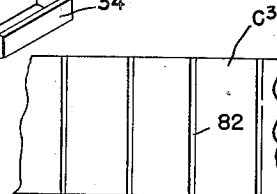


FIG. 16.

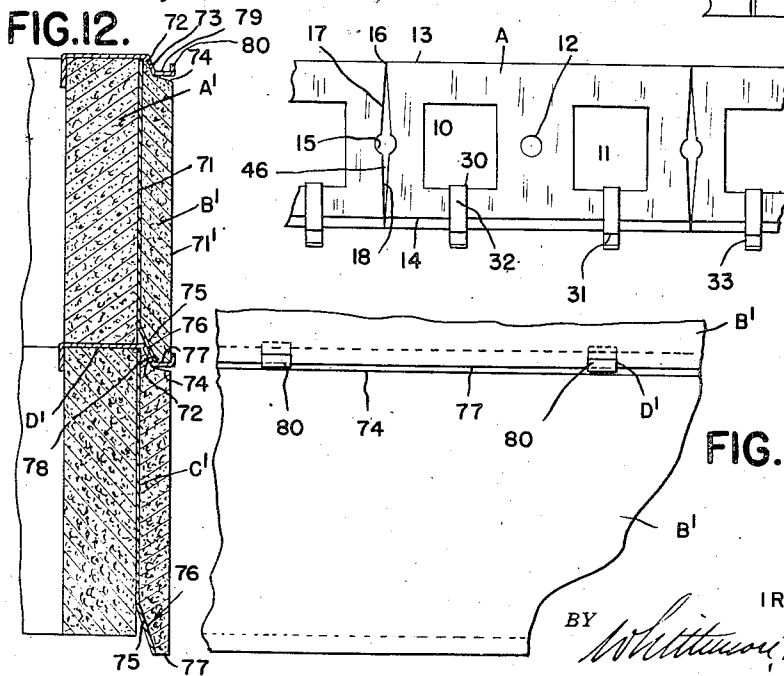


FIG. 12.

FIG. 13.

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UNITED STATES PATENT OFFICE

2,308,790

BUILDING STRUCTURE

Irving Stagg, Garden City, Mich.

Application February 16, 1940, Serial No. 319,338

10 Claims. (Cl. 72-21)

This invention relates generally to building structures and refers more particularly to wall structures of buildings.

One of the essential objects of the invention is to provide a structure of this type wherein structural blocks having face plates capable of producing on the outer sides of the walls of the building a wood siding or shingle effect, are utilized in the construction of such walls.

Another object is to provide a structure wherein the face plates are detachably secured to the body portions of the blocks so that they may be readily removed when desired for any purpose.

Another object is to provide a structure wherein the 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 body portions of the blocks.

Another object is to provide a structure wherein the locks mentioned are of such a character that they are normally concealed.

Another object is to provide a structure wherein the locks may be adjusted laterally as desired relative to the body portions of the blocks to compensate for any irregularity in thickness of the face plates or block structure or of suitable waterproofing material used between the face plates and body portions of the blocks.

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

Another object is to provide a structure wherein face plates of different types, styles or color may be readily assembled with the body portions of the blocks.

Another object is to provide a structure wherein the face plates may if desired be impregnated with a coloring substance prior to being assembled with the body portions of the blocks, so that it is unnecessary to paint such face plates after they have been assembled with the body portions of the blocks.

Another object is to provide a structure wherein the assembly of the face plates with the body portions of the blocks is such that (1) play between the parts is provided to facilitate removal of the face plates from their retaining means; (2) spaces for air are provided at advantageous points in the wall structure; (3) adjacent upper and lower face plates overlap and cooperate with the waterproofing material to provide a weather-tight joint, and (4) provision is made for draining off to the exterior of the wall any moisture

caused by condensation of air upon the inner sides of the face plates.

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

Another object is to provide a structure wherein the retaining means for the face plates are inexpensive stampings or pressed metal members that can be economically made.

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

Another object is to provide a structure wherein either or both the face plates and waterproofing material may overlap the joints between adjacent ends of the body portions of the blocks in any given row.

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

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 blocks embodying my invention;

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

Figure 3 is a bottom plan view of one of the blocks;

Figure 4 is a fragmentary vertical sectional view through superposed blocks of the type illustrated in Figure 3;

Figure 5 is an elevation of the inner side of the face plate of one of the blocks 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 on the line 7-7 of Figure 5;

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

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

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

Figure 11 is a fragmentary top plan view of the

adjacent body portions of the blocks, without the face plates, and showing the clips in place;

Figure 12 is a vertical sectional view through a slight modification;

Figure 13 is a fragmentary outside elevation of the structure shown in Figure 12;

Figure 14 is a fragmentary vertical sectional view through another modification;

Figure 15 is a fragmentary elevation of the waterproofing material shown in Figure 14;

Figure 16 is a fragmentary elevation of another modified form of waterproofing material.

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

As shown, the body portion A is a casting formed from plastic material. Preferably this body portion is formed in a suitable mold (not shown) and comprises a mass of cinders and cement. In the present instance, the body portion A is substantially rectangular-shape in configuration and is solid except for two vertically extending openings 10 and 11 of square cross section at spaced points longitudinally thereof and an intermediate opening 12 of circular cross section. The inner face 13 of the body portion A is flat and substantially vertical, while the outer face 14 is flat and inclines downwardly and outwardly. In opposite ends of the body portion 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 block and that of 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 block. The top and bottom faces 18' and 19 of the body portion A are substantially parallel and are disposed at substantially right angles to the inner face 13 of the body portion. The top face 18' is substantially flat, while the bottom face 19 is provided about the edges of the openings 10 and 11 and along the longitudinal side edges of the body portion A with relatively shallow depending ribs or flanges 20 and 21.

The face plate B is also a 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 14 of the body portion A so as to extend slightly below the lower edge of said body portion for overlapping engagement with the upper edge of a face plate of a lower block in a wall formation. Preferably this face plate is a relatively thin slab-like member and tapers upwardly from its lower to its upper edge. The outer face 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 plate, while the lower ends of the grooves open downwardly through the lower edge of the face plate. With the exception of the uppermost face plate in a wall structure, the upper edge 26 of each face plate is smooth and flat. The upper edge of the uppermost face plate and the lower edges of the other face plates are preferably provided with longitudinally extending grooves or channels 27 which may extend throughout the length thereof or at spaced points thereof as desired to receive portions of suitable retaining

means such as the clips D. In the present instance, these clips are formed from sheet metal and preferably comprise relatively narrow strap-like members having downturned inner and outer flanges 30 and 31, respectively, and an intermediate substantially flat portion 32. Except for the clips at the top of the wall structure, the outer flange 31 of each clip is provided at its lower edge with a substantially L-shaped stirrup-like extension 33 for supporting engagement with the lower edge of an adjacent face plate B. At the top of the wall structure the outer flange 31 is devoid of such extensions.

The waterproofing material C is preferably in sheet form and is located in surface-to-surface relation with the body portion A and face plate B. Preferably this waterproofing material may be in strips of sufficient length to overlap a number of body portions and joints therebetween of blocks in a given row, or may be in shorter lengths for each block. If the latter, then such material has a greater length than the body portion A to provide marginal endwise extensions for overlapping the joints between adjacent blocks.

When assembled in a wall formation as illustrated in Figure 1, the 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 X of blocks are laid on the foundation beyond the ends of joists or beams such as 45 so that the face plates B overhang the outer face of the brick 43. The next and succeeding rows of blocks are laid with their face plates B overhanging the face plates of the adjacent lower blocks and with the square openings 10 and 11 in vertical alignment. Thus, a wood siding effect is produced, and moisture caused by condensation of air coming in from the outside to the waterproofing material C will drain down the grooves 25 in the face plates to the exterior of the wall structure. Moreover, the aligned square openings 10 and 11 provide vertical air ducts in the wall formation, as illustrated in Figure 4 for insulating and other advantageous purposes.

When several rows of blocks are laid, a suitable bonding material may be forced by a hydraulic or mechanical gun or by any other pressure means (not shown) into the circular holes 12 and into the opposed semi-circular holes 15. Such bonding material will flow into and fill the spaces 46 between the depending ribs 20 and 21 and the upper face of the lower blocks and will fill the spaces 47 provided by the inclined faces 17 and 18 at the ends of the blocks.

In the process of construction, the face plates B are formed in suitable molds (not shown) and may if desired be impregnated with a suitable coloring substance to obviate the necessity of painting after being assembled with the body portions A of the blocks. Likewise, the body portions A may be formed in suitable molds (not shown). Any suitable plastic material may be used in the formation of the body portions A and face plates B. Likewise, the waterproofing material C may be formed of any suitable substance in sheet form. Actually the face plates B and body portions A are castings, however in so far as

my method of assembly is concerned, it is apparent that either or both may be otherwise constructed if desired. In this connection it will be appreciated that initially the clips D for the face plates B of the blocks of the lowermost row X are laid on top of the foundation as illustrated in Figure 4. Preferably when this is done the flanges 30 of such clips are not turned down as yet but are flat endwise extensions of the intermediate portions 32 so that the clips may be shifted laterally on the foundation as desired to position the downturned flange 31 at the proper distance outwardly relative to the outer face of the foundation for proper engagement with the face plates B of the lowermost row of blocks. The body portions A of the blocks of the lower row X are then laid on top of the clips on the foundation. The waterproofing material C is then placed in the stirrup portions 33 of the clips so as to lie against the outer faces of the body portions A of the lower row, then the face plates B for the body portions of the blocks in the lowermost row are placed over the waterproofing material C so that the grooves 27 in the lower edges of said plates receive the upturned flanges 34 of the stirrup portions 33 of the clips. More clips D are then laid on the upper faces of the body portions A of the blocks of row X, and the procedure just mentioned is followed again. This is repeated for each succeeding upper row of blocks until the uppermost row Z of the wall is laid. In this instance, the clips are applied to the upper surface of the body portions A of said row so that the inner flanges 30 may be turned down over the outer edges of the openings 10 and 11 in said body portions and so that the outer flanges 31 may engage the grooves 27 in the upper edges of the face plates B for the body portions of the blocks in said uppermost row.

When it is desired to remove any face plate B, the one to be removed is slipped upward in the space 70 to clear the stirrup portions 33 of the clips and may then be withdrawn outwardly and downwardly relative to said clips. The waterproofing material C may then be removed if desired.

In Figures 12 and 13 I have illustrated a slight modification wherein the outer faces 71 and 71', respectively of the body portions A' and face plates B' of the blocks are substantially vertical instead of inclined so that the outer faces of adjacent blocks are substantially flush. In this construction, however, the upper edge of each face plate B' is cut away or recessed at 72 to provide a downwardly and outwardly inclined portion 73 and a downwardly and outwardly inclined portion 74, while the lower edge of each face plate is cut away as at 75 to provide a downwardly and outwardly inclined portion 76. When the blocks are assembled in a wall formation, the lower edges 77 of the upper face plates B' are received in the recesses 72 in the upper edges of the lower face plates, and the waterproofing material C' extends downwardly and outwardly between the inclined portions 73 and 76 so moisture draining down in the grooves 25 in the face plates will flow outwardly on the inclined portions 74 to the exterior of the wall. In this construction the clips D' also have inclined portions 78 that are received between the inclined portions 73 and 76 of the face plates and have stirrup portions 79 that embrace the lower edge portions 77 of the upper face plates. As shown, the upturned flanges 80 of the stirrup

portions 79 are upon the outer sides of the face plates B' instead of in grooves such as 27 in Figure 4. Otherwise, the clips D' are the same as in Figure 4.

In Figures 14, 15 and 16 I have illustrated another modification wherein the drainage grooves 81 for the moisture are in the outer face of the waterproofing material C² instead of in the inner sides of the face plates C as in Figure 5. As shown, these grooves 81 may be crossed as in Figures 14 and 15, or may extend vertically in the face plate C³ as at 82 in Figure 16. In each instance they will direct the moisture downwardly and outwardly toward the outside of the wall.

What I claim as my invention is:

1. A wall structure having two block-like castings wider at the bottom than at the top thereof arranged one on top of the other with the bottom of the uppermost casting projecting outwardly beyond the narrower top of the lowermost casting, the outer faces of said castings inclining downwardly and outwardly from the top to the bottom thereof, separate slab-like face plates disposed in surface-to-surface relation upon the outer inclined surfaces of the castings, one face plate upon each casting, the face plate on the uppermost casting extending downwardly below the bottom of the uppermost casting and overlapping the outer surface of the face plate on the lowermost casting, 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 cooperating with 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 block-like castings wider at the bottom than at the top thereof arranged one on top of the other with the bottom of the uppermost casting projecting outwardly beyond the narrower top of the next lower casting, the outer faces of said castings inclining downwardly and outwardly from the top to the bottom thereof, separate slab-like face plates disposed in surface-to-surface relation upon the outer inclined surfaces of the castings, one face plate upon each casting, the face plate on the uppermost casting extending downwardly below the bottom of the uppermost casting and overlapping the outer surface of the face plate on the next lower casting, a strap-like member mounted on the top of the uppermost casting for holding in place the face plate on the uppermost casting, and strap-like members at the top and bottom of the next lower casting for holding in place the face plate on said next lower casting, the strap-like member at the top of said next lower casting cooperating with the strap-like member aforesaid at the top of the uppermost casting to hold in place the face plate on the uppermost casting.

3. A wall structure having block-like castings wider at the bottom than at the top thereof arranged one on top of the other with the bottom of the uppermost casting projecting outwardly beyond the narrower top of the next lower casting, the outer faces of said castings inclining downwardly and outwardly from the top to the bottom thereof, separate slab-like face plates disposed in surface-to-surface relation upon the outer inclined surfaces of the castings, one face plate upon each casting, the face plate on the uppermost casting extending downwardly below

the bottom of the uppermost casting and overlapping the outer surface of the face plate on the next lower casting, a strap-like member mounted on the top of the uppermost casting for holding in place the face plate on the uppermost casting, and strap-like members at the top and bottom of the next lower casting and having substantially L-shaped end portions for holding in place the face plate on said next lower casting, the base of the L-shaped strap-like member at the top of said next lower casting forming a stirrup-like seat for the lower edge of the face plate on the uppermost casting, and the upright part of the L-shaped strap-like member at the top of said next lower casting overlapping the upper edge of the face plate on the next lower casting, the base of the L-shaped strap-like member at the bottom of said next lower casting forming a stirrup-like seat for the lower edge of the face plate on said next lower casting.

4. A wall structure having two block-like castings wider at the bottom than at the top thereof arranged one on top of the other with the bottom of the uppermost casting projecting outwardly beyond the narrower top of the lowermost casting, the outer faces of said castings inclining downwardly and outwardly from the top to the bottom thereof, separate slab-like face plates disposed in surface-to-surface relation upon the outer inclined surfaces of the castings, one face plate covering each casting, the face plate on the uppermost casting extending downwardly below the bottom of the uppermost casting and overlapping the outer surface of the face plate on the lowermost casting, means at the top and bottom of the uppermost casting holding in place the face plate on said casting, and means at the bottom of the lowermost casting cooperating with the holding means at the bottom of the uppermost casting to hold in place the face plate on the lowermost casting, a space being provided between the outwardly projecting bottom of the uppermost casting and the upper edge of the said lowermost face plate so that the said lowermost face plate may initially be slid upwardly in said space away from and free of the holding means aforesaid at the bottom of the lowermost casting and subsequently withdrawn from said space to be removed entirely from the wall structure.

5. A wall structure having block-like castings wider at the bottom than at the top thereof arranged one on top of the other with the bottom of the uppermost casting projecting outwardly beyond the narrower top of the next lower casting, the outer faces of said castings inclining downwardly and outwardly from the top to the bottom thereof, separate slab-like face plates disposed in surface-to-surface relation upon the outer inclined surfaces of the castings, one face plate upon each casting, the face plate on the uppermost casting extending downwardly below the bottom of the uppermost casting and overlapping the outer surface of the face plate on the next lower casting, and means carried by the castings for holding the face plates thereon, including a member at the top of the uppermost casting for holding in place the face plate on the uppermost casting, and members at the top and bottom of the next lower casting for holding in place the face plate on said next lower casting, the member at the top of said next lower casting cooperating with the member aforesaid at the top of the uppermost casting to hold in place the face plate on the uppermost casting.

6. A wall structure having block-like castings wider at the bottom than at the top thereof arranged one on top of the other with the bottom of the uppermost casting projecting outwardly beyond the narrower top of the next lower casting, the outer faces of said castings inclining downwardly and outwardly from the top to the bottom thereof, separate slab-like face plates disposed in surface-to-surface relation upon the outer inclined surfaces of the castings, one face plate upon each casting, the face plate on the uppermost casting extending downwardly below the bottom of the uppermost casting and overlapping the outer surface of the face plate on the next lower casting, and means carried by the castings for holding the face plates thereon, including a member at the top of the uppermost casting for holding in place the face plate on the uppermost casting, a member at the top of said next lower casting having a depending portion overlapping the outer surface of the face plate on said next lower casting and cooperating with the member aforesaid at the top of the uppermost casting to hold in place the face plate on the uppermost casting, and a member at the bottom of said next lower casting cooperating with the member aforesaid at the top of said next lower casting to hold in place the face plate on said next lower casting.

7. A wall structure having block-like castings wider at the bottom than at the top thereof arranged one on top of the other with the bottom of the uppermost casting projecting outwardly beyond the narrower top of the next lower casting, the outer faces of said castings inclining downwardly and outwardly from the top to the bottom thereof, separate slab-like face plates disposed in surface-to-surface relation upon the outer inclined surfaces of the castings, one face plate upon each casting, the face plate on the uppermost casting extending downwardly below the bottom of the uppermost casting and overlapping the outer surface of the face plate on the next lower casting, and means carried by the castings for holding the face plates thereon, including a member at the top of the uppermost casting having a portion overlapping the outer surface of the face plate on the uppermost casting, and members at the top and bottom of the next lower casting for holding in place the face plate on said next lower casting, the member at the top of said next lower casting having a portion overlapping the outer surface of the face plate on said next lower casting and having a portion cooperating with the member aforesaid at the top of the uppermost casting to hold in place the face plate on the uppermost casting, clearance being provided between the upper edge of the face plate on said next lower casting and the bottom of the uppermost casting so that the face plate on said next lower casting may be slid upwardly to be disengaged from the member aforesaid at the bottom of said next lower casting preliminary to being withdrawn entirely from said next lower casting.

8. In a wall structure, the combination with a foundation, of block-like castings wider at the bottom than at the top thereof arranged one on top of the other with the bottom of the lowermost casting resting on top of said foundation and the bottom of the next upper casting projecting outwardly beyond the narrower top of the lowermost casting, the outer faces of said castings inclining downwardly and outwardly from the top to the bottom thereof, separate slab-like face plates disposed in surface-to-surface relation upon the

outer inclined surfaces of the castings, one face plate upon each casting, the face plate on the lowermost casting extending downwardly below the top of said foundation and overlapping the outer face thereof, the face plate on the next upper casting extending downwardly below the top of the lowermost casting and overlapping the outer face of the face plate on the lowermost casting, and clips at the top and bottom of said castings for holding the face plates on said castings, the clip at the bottom of the lowermost casting being between said casting and the foundation and having a downwardly extending substantially L-shaped portion overlapping the outer surface of the foundation and forming a seat for the lower edge of the facing plate on the lowermost casting, the clip at the top of the lowermost casting being between said casting and the next upper casting and having a portion extending laterally over the upper edge of the face plate on said lowermost casting, the last mentioned clip having a downwardly extending substantially L-shaped portion overlapping the outer surface of the face plate on the lowermost casting and forming a seat for the lower edge of the face plate on the next upper casting, clearance being provided between the upper edge of the face plate on the lowermost casting and the laterally extending portion of the last mentioned clip so that the face plate on the lowermost casting may be slid upwardly to be disengaged from the clip at the bottom of the lowermost casting preliminary to being withdrawn entirely from said lowermost casting.

9. A wall structure having block-like castings wider at the bottom than at the top thereof arranged one on top of the other with the bottom of the uppermost casting projecting outwardly beyond the narrower top of the next lower casting, the outer faces of said castings inclining downwardly and outwardly from the top to the bottom thereof, separate slab-like face plates dis-

posed in surface-to-surface relation upon the outer inclined surfaces of the castings, one face plate upon each casting, the face plate on the uppermost casting extending downwardly below the bottom of the uppermost casting and overlapping the outer surface of the face plate on the next lower casting, and means carried by the castings for holding the face plates thereon, including clips disposed between and projecting outwardly from the castings, each clip having a portion extending over and with a clearance between the upper edge of one face plate, thence downwardly between said face plate and the overlapping portion of the next higher adjacent face plate with an outward extension beneath the latter forming a seat therefor, the clearance between the upper edge of each face plate and clip thereover permitting each face plate to be raised so as to be disengaged from the clip therebeneath preliminary to being removed entirely from said castings.

10. The combination with a building wall formed of a vertical series of building blocks, each having an outer face inclining outward from top to bottom to project beyond the upper end of the next lower block, of a facing for said wall comprising a corresponding vertical series of facing plates and clips anchored between said blocks, each clip extending outward above and with a clearance between the upper edge of the facing plate for one block, thence downward between said plate and the overlapping portion of the plate thereabove with an outward extension beneath the lower edge of the latter terminating in an upward extension interlocking therewith, the clearance between the upper edge of said plate and the clip thereabove permitting the raising of said plate to disengage its lower edge from the clip therebeneath to remove the plate from the wall.

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