

Sept. 5, 1944.

M. KNIGHT

2,357,525

WALL CONSTRUCTION

Filed Sept. 17, 1941

2 Sheets-Sheet 1

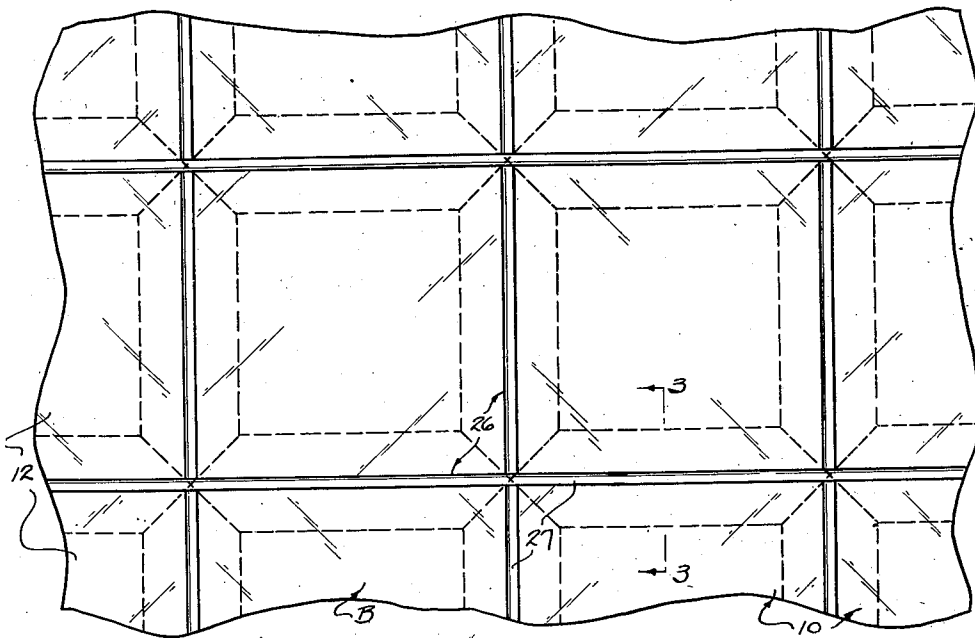


Fig. 1.

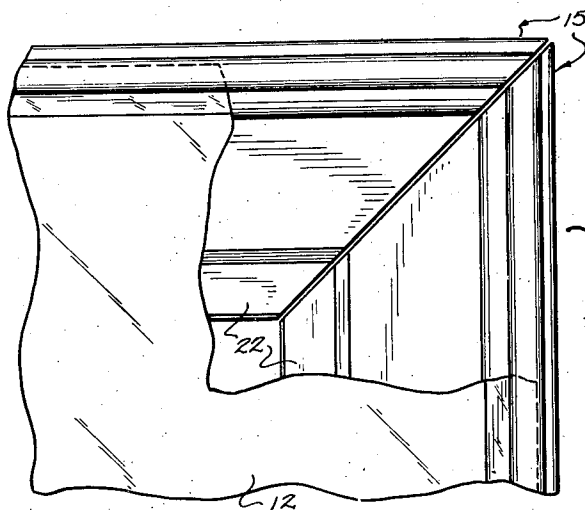


Fig. 2.

Inventor
MILTON KNIGHT.

34
Frank Finner
Attorney

Sept. 5, 1944.

M. KNIGHT

2,357,525

WALL CONSTRUCTION.

Filed Sept. 17, 1941

2 Sheets-Sheet 2

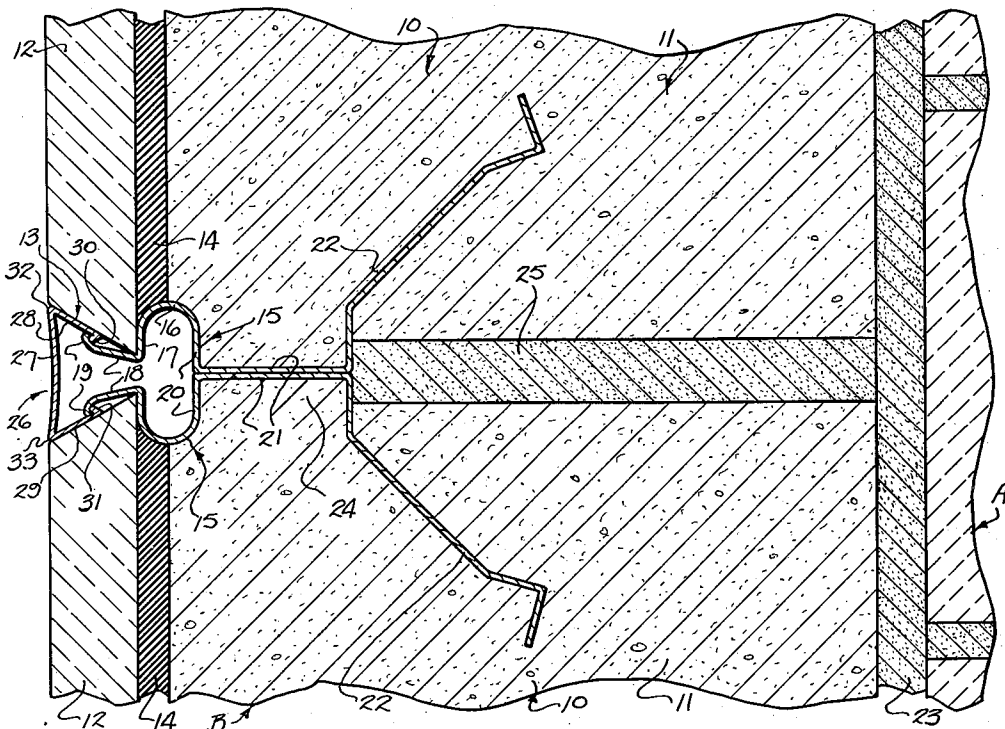


Fig. 3.

Fig. 5.

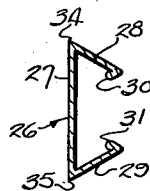


Fig. 6.

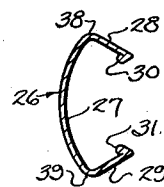


Fig. 7.

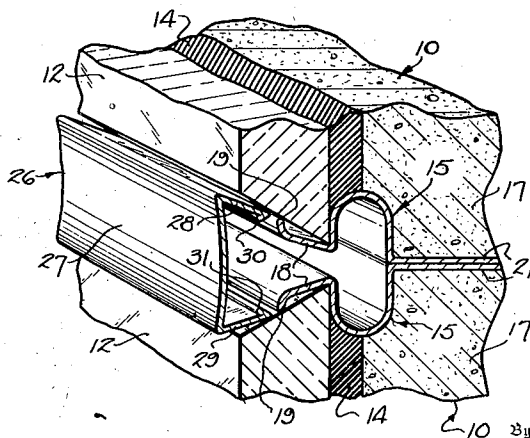


Fig. 4.

Inventor
MILTON KNIGHT.

Frank J. J. J.
Attorney

UNITED STATES PATENT OFFICE

2,357,525

WALL CONSTRUCTION

Milton Knight, Perrysburg, Ohio, assignor to
Libbey-Owens-Ford Glass Company, Toledo,
Ohio, a corporation of Ohio

Application September 17, 1941, Serial No. 411,165

4 Claims. (Cl. 72—107)

The present invention relates to the construction of building walls and to the provision of an improved building unit for use in the construction of such walls.

The building unit herein provided consists generally of a composite block comprising a body portion preferably formed from a cementitious material and an ornamental facing therefor, consisting preferably of a sheet or plate of opaque structural glass. The ornamental face plate is secured to the body portion of the block by an interposed layer of adhesive material, such as an asphaltic mastic cement, and also by mechanical fastening means in the form of metal frame members arranged at the edges of the block and engaging both the ornamental face plate and body portion.

In constructing a wall with building blocks of this type, the blocks are laid up in courses one upon the other in substantially the same manner as cut stone, granite or terracotta, being preferably anchored to a rear or foundation wall. When the blocks are laid up in this manner, the ornamental face plates of horizontally and vertically adjacent blocks are spaced slightly from one another and these spaces are ordinarily filled with a suitable pointing or caulking material, usually in the form of a putty-like mastic, to close the joints between the blocks. The use of such pointing material has not, however, proven entirely satisfactory because of its tendency to crack and in some cases to fall out, resulting in an undesirable and unsightly appearance as well as exposing the joints between the blocks permitting water and moisture to find its way rearwardly therebetween.

An important object of this invention is to eliminate the usual pointing or caulking material with its attendant disadvantages and to provide in lieu thereof improved means for closing the joints between the vertically and horizontally adjacent blocks.

Another important object of the invention is the provision of a novel form of finishing strip which is disposed between the face plates of adjoining blocks and firmly secured in place by the metal frame members arranged at the edges of said blocks.

Another important object of the invention is the provision of a metal finishing strip having portions thereof interengaging portions of the metal frame members of adjacent blocks and serving as a mechanical anchor to effectively secure the ornamental face plates against accidental displacement.

A further important object of the invention is the provision of a metal finishing strip in the form of a wedge-shaped clip insertable between the face plates of adjacent blocks in interlocking relation with the metal frame members thereof and serving not only to "point up" the wall but also lock the ornamental face plates against displacement and connect the adjacent blocks together.

Other objects and advantages of the invention will become more apparent during the course of the following description, when taken in connection with the accompanying drawings.

In the drawings, wherein like numerals are employed to designate like parts throughout the same:

Fig. 1 is a front elevation of a portion of a wall constructed of building blocks provided by the present invention;

Fig. 2 is a front view of one of the ornamental face plates and metal frame members associated therewith, the face plate being partially broken away to more clearly show the metal frame members;

Fig. 3 is a vertical section through the wall taken substantially on line 3—3 of Fig. 1;

Fig. 4 is a perspective section showing two adjacent blocks and the metal finishing strip in position for attachment thereto; and

Figs. 5, 6 and 7 are sectional views showing three different forms of finishing strips.

With reference now to the drawings, there is disclosed in Fig. 3 a rear or foundation wall A of any suitable construction and a front or exterior wall B made up of the improved building blocks 10 provided by this invention. Although the building blocks used in constructing the wall B may be of any desired contour, they are ordinarily rectangular as shown in Fig. 1, as this is the most conventional shape. Each building block 10 is of a composite construction comprising a body portion 11 preferably formed of a suitable cementitious material such as concrete, Haydite, gypsum or the like, and an ornamental facing 12 preferably consisting of a sheet or plate of opaque structural glass although ceramic tile or face plates of other materials may be used in some cases.

The face plate 12 covers substantially the entire front surface of the body portion 11 and is provided with the outwardly beveled peripheral edges 13. Interposed between the face plate and body portion is a relatively thick, substantially uniform layer of adhesive material 14, preferably an asphaltic mastic cement. This layer of

adhesive material serves not only to bind the ornamental facing to the body portion but also permits relative expansion and contraction between the two without danger of the facing becoming broken. The layer of adhesive material also serves to cushion the facing against shock and blows, thereby increasing its resistance to breakage.

Arranged at each edge of the block is a metal holder 15 and these holders cooperate to form a frame preferably extending entirely around the perimeter of the block and serving to mechanically secure the face plate 12 to the body portion 11. Each of the metal frame members 15 consists of a single length of metal shaped to provide a longitudinally extending channel portion 16 which is received directly behind the face plate 12. The outer wall 17 of the channel portion 16 constitutes a shoulder which abuts the rear surface of the face plate 12 and extending forwardly from said shoulder is a flange 18 disposed opposite the respective beveled edge 13 of the face plate and terminating in an inwardly curved lip 19 which normally engages the beveled edge of the said face plate as shown in Fig. 4.

The inner wall 20 of the channel portion 16 of each metal frame member 15 constitutes a shoulder which engages the outer surface of the body portion 11, said shoulder 20 projecting slightly beyond the flange 18 and extending at substantially right angles with respect thereto is a relatively wide, flat load-bearing surface 21 which is disposed opposite the body portion 11 of the block. Formed integral with and constituting a continuation of the load-bearing surface 21 is an inwardly directed flange 22 embedded in the body portion of the block.

In the manufacture of the block 10, the glass or other face plate 12 is first laid horizontally in a mold and one of the metal frame members 15 positioned at each edge of the face plate in such a manner that the outer shoulder 17 of the channel portion 16 thereof rests upon the rear surface of said face while the lip 19 of the flange 18 engages the respective beveled edge 13 of the facing. Suitable clamping means are provided for maintaining the metal frame members in proper position and the mastic or other adhesive material 14 in a semi-liquid state is then poured upon the back of the face plate to cover substantially the entire surface thereof to form a layer of the desired thickness. The concrete, Haydite or other cementitious material forming the body portion 11 is then cast on top of the layer of mastic to cover the same and completely fill the space defined by the metal frame members as well as to embed the flanges 22 of said metal frame members therein. The body portion is then allowed to set, whereupon the block upon being removed from the mold is ready for use.

In constructing the wall B, the blocks 10 are laid up in courses to form a plurality of vertical and horizontal rows as shown in Fig. 1. When laying up the blocks 10 they are preferably spaced from the back wall A and interposed between the two is a layer of mortar 23. Due to the fact that the load-bearing surfaces 21 of the metal frame members 15 project beyond the edges of the face plate 12, there will be formed around the edges of the body portion 11 a continuous load-bearing ledge 24 which also projects slightly beyond the edges of the face plate in a plane parallel with the plane thereof. Consequently, when the blocks are laid up in courses in a wall with the load-

bearing surfaces 21 of adjacent blocks in engagement with one another, the face plates of adjoining blocks will be spaced slightly from one another, and it has been heretofore customary to fill these spaces with a putty-like pointing or caulking material to close the joints between the blocks and give the wall a finished appearance.

When the blocks 10 are mounted in place, the body portions 11 of vertically adjacent blocks will also be spaced from one another inwardly of the load-bearing surfaces 21 and this space can be filled with a layer of mortar 25. With such a construction, the structural load of the wall will be borne entirely by the body portions 11 of the blocks with none of the load being placed upon the face plates 12. In other words, the load of one block is transferred directly to the body portion of the next lower block and each block takes the full strain of the blocks above it. Since it is impossible for the vertically adjacent face plates 12 to engage one another when the blocks are set in place in this manner, strain upon the face plates will be reduced to a minimum, thereby eliminating breakage and chipping thereof. While the load bearing surfaces 21 are shown in Fig. 3 as directly contacting one another, they may be slightly spaced by a relatively thin layer of mortar, and in such case the load of one block will be transferred to the lower block directly through this layer of mortar.

The construction of the block is such that the face plate does not support any of the load of the wall when the block is set into the wall, while the layer of mastic 14 between the face plate and body portion takes care of any differences in expansion and contraction between the two materials, thus minimizing the danger of breakage of the face plate under expansion and contraction. Also, the uniform layer of mastic provides a cushion for the face plate to minimize the liability of breakage thereof.

As pointed out above, the putty-like pointing material heretofore used to fill the gaps between the edges of adjacent face plates has not proven entirely satisfactory as there is a tendency for such pointing material to crack upon drying and sometimes fall out of the joints between the blocks presenting an unsightly and objectional appearance as well as allowing water or moisture to find its way inwardly between the blocks. According to this invention, the use of putty-like pointing material is eliminated and in lieu thereof there is provided a novel form of metal finishing strip 26. The finishing strip 26 comprises a face portion 27 and rearwardly directed integral side or wing portions 28 and 29 having their free edges rebent inwardly to provide hook portions 30 and 31 which are received behind the lips 19 on the flanges 18 of the metal frame members 15. The finishing strip 26 is preferably formed of relatively thin metal having sufficient resiliency to permit the wing portions 28 and 29 thereof to be forced inwardly toward one another when installed so as to conform to and snugly engage the beveled edges 13 of adjacent face plates. The flanges 18 of the metal frame members 15 also have sufficient resiliency to permit them to be forced outwardly by the wing portions 28 and 29 of the finishing strip 26 so that the hook portions 30 and 31 of said finishing strip can snap behind the curved lips 19 of said metal frame members and be interlocked therewith. From the above, it will be seen that when the finishing strip 26 is interlocked with the metal frame members 15 in the manner illustrated in Fig. 3, it will be firmly secured in

place. In addition to acting as an ornamental finishing strip to cover the joints between adjacent blocks, the metal strip 26 also serves to prevent accidental displacement of the ornamental face plates 12. In other words, the finishing strip is substantially wedge-shaped in cross section and the engagement of the wing portions 28 and 29 thereof with the beveled edges 13 of the face plates 12 will result in a locking wedge action serving to mechanically anchor the facing. The metal finishing strip can be easily and quickly installed and also serves to connect adjacent blocks together.

The finishing strip 26 may of course have any desired profile and four different forms as shown in Figs. 4 to 7. In Fig. 4, the face portion 27 of the finishing strip is somewhat concave and connected with the wing portions 28 and 29 by the slightly rounded corners 32 and 33. In Fig. 5, the face portion 27 is flat and connected with the wing portions 28 and 29 by sharp corners 34 and 35. On the other hand, in Fig. 6, the face portion is concave and connected with the wing portions by the relatively wide rounded corners 36 and 37 while, in Fig. 7, the face portion is convex and connected with the wing portions by the slightly rounded corners 38 and 39. The only difference between the various forms of finishing strips described above is in the cross sectional contour thereof; the mechanical features of construction thereof as well as the purpose and function of each being the same.

It is to be understood that the form of the invention herewith shown and described is to be taken as the preferred embodiment of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. In a wall construction, a plurality of blocks arranged one upon the other, each block comprising a body portion, a face plate secured to said body portion and metal frame members arranged at the edges of the block and having portions engaging said body portion and flanges disposed opposite the edges of said face plate, the face plates of adjacent blocks being spaced from one another, and a finishing strip arranged between the adjacent edges of the face plates of adjoining blocks and having portions interengaging the flanges of the metal frame members of said adjoining blocks between said flanges and the edges of the face plates, said finishing strip being installed after the blocks have been set in place.

2. In a wall construction, a plurality of blocks

arranged one upon the other, each block comprising a body portion, a face plate secured to said body portion and metal frame members arranged at the edges of the block and having portions engaging said body portion and flanges disposed opposite the edges of said face plate, the face plates of adjacent blocks being spaced from one another, and a finishing strip arranged between the adjacent edges of the face plates of adjoining blocks and having wing portions interlocked with the flanges of the metal frame members of said adjoining blocks between said flanges and the edges of their respective face plates, said finishing strip being installed after the blocks have been set in place.

3. In a wall construction, a plurality of blocks arranged one upon the other, each block comprising a body portion, a face plate secured to said body portion and having beveled edges and metal frame members arranged at the edges of the block and having portions engaging said body portion and flanges disposed opposite the beveled edges of said face plate and having inwardly curved outer edges, the face plates of adjacent blocks being spaced from one another, and a finishing strip arranged between the adjacent edges of the face plates of adjoining blocks having a face portion and rearwardly directed wing portions provided with hook portions received between the flanges of the metal frame members and the beveled edges of the face plates of said adjoining blocks and interlocked with the curved outer edges of the flanges of said metal frame members, said finishing strip being installed after the blocks have been set in place.

4. In a wall construction, a plurality of blocks arranged one upon the other, each block comprising a body portion, a face plate secured to said body portion and metal frame members arranged at the edges of the block and having portions engaging said body portion and flanges disposed opposite the edges of said face plate and having inwardly directed outer edges, the face plates of adjacent blocks being spaced from one another, and a finishing strip arranged between the adjacent edges of the face plates of adjoining blocks having a face portion and rearwardly directed wing portions provided with hook portions received between the flanges of the metal frame members and the edges of the face plates of said adjoining blocks and interlocked with the inwardly directed outer edges of the flanges of said metal frame members, said finishing strip being installed after the blocks have been set in place.

MILTON KNIGHT,