April 18, 1939. L. LOGAN 2,154,686

LIGHT TRANSMITTING BUILDING CONSTRUCTION

Filed March 7, 1936

Fig. 1.

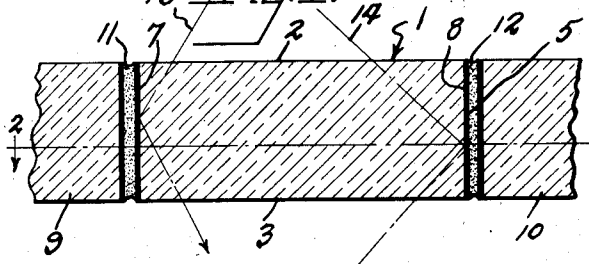


Fig. 2.

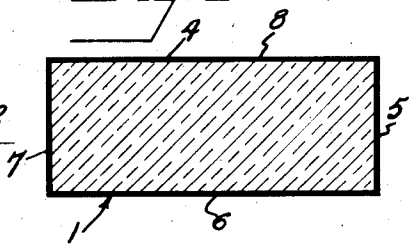


Fig. 3.

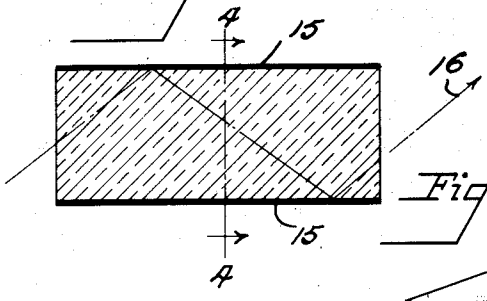


Fig. 4.

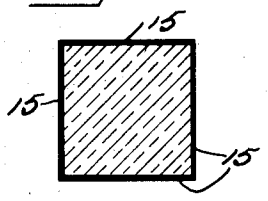


Fig. 10.

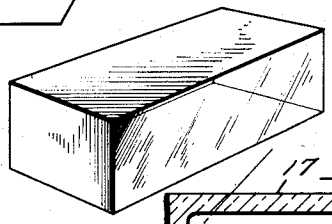


Fig. 5.

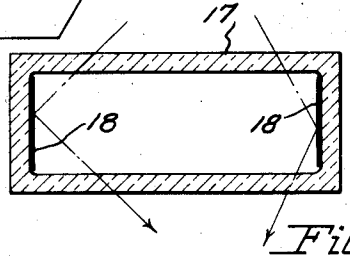


Fig. 6.

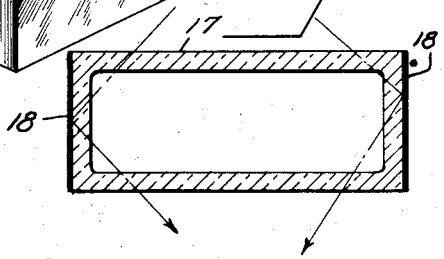


Fig. 7.

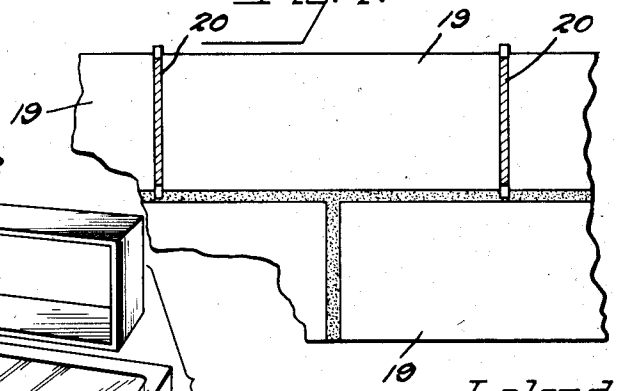
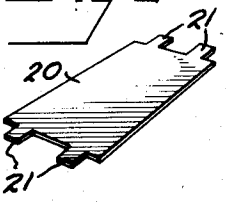


Fig. 8.



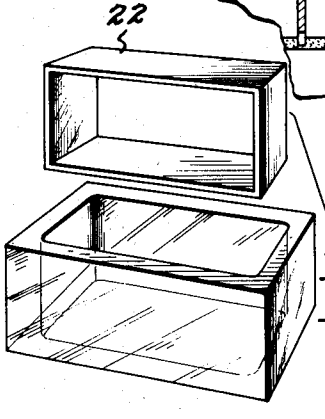


Fig. 9.

Inventor

Leland Logan

By Mason Fenwick & Lawrence

Attorneys

UNITED STATES PATENT OFFICE

2,154,686

LIGHT-TRANSMITTING BUILDING CONSTRUCTION

Leland Logan, Plattsburgh, N. Y.

Application March 7, 1936, Serial No. 67,719

2 Claims. (Cl. 88—60)

This invention relates to transparent and translucent building units such as blocks, bricks or tiles, of glass, synthetic and natural resins, etc., and it has for its main object to provide one or more of the faces of such unit which ordinarily would absorb light or transmit it in directions in which its utility would be lost, with a light-reflecting or mirror surface or surfaces, capable of reflecting the light which strikes said surfaces angularly, back in the direction of the useful beam, thus enhancing the illuminative capacity of the brick.

Another object of the invention is to provide a translucent building unit of the class described either solid or hollow and having one or more of the surfaces thereof coated with a light-reflective film.

A further object of the invention is to provide transparent or translucent building units having reflective plates intercalated between adjacent units in the mortar or other building material courses whereby to render the faces contacted by said plates light-reflective.

Still another object of the invention is to provide a hollow transparent or translucent building unit with an insertable metallic reflective lining adapted to cover one or more of the interior walls of said block.

Other objects of the invention will appear as the following description of several illustrative embodiments thereof proceeds.

In the drawing which accompanies and forms a part of the following specification and throughout the several figures of which the same characters of reference have been employed to designate identical parts:

Figure 1 is a plan view of a building unit embodying the principles of the present invention;

Figure 2 is a front or back elevation;

Figure 3 is a modified form of building unit light-transmitting in a longitudinal direction and having reflective longitudinal faces;

Figure 4 is a section taken along the line 4—4 of Figure 3;

Figure 5 is a vertical section through a hollow transparent or translucent block having reflective surfaces on two opposite interior end walls;

Figure 6 is a similar type of block having the reflective surfaces on the outer opposite end walls;

Figure 7 shows a vertical section of a wall built of transparent or translucent units having reflective plates in the bonding material courses;

Figure 8 is a perspective view of a suggested form of plate;

Figure 9 is a perspective view of a hollow block and a four sided reflective metallic lining adapted to be inserted in said block; and

Figure 10 is a perspective view of a block showing a modified form of the invention in which the reflective surfaces cover all but one face of the block.

One of the recent achievements in the building industry is the perfection of a glass unit which may take the form of a block, brick or tile and used for general structural purposes. For example, a factory can be flooded with daylight if built with translucent walls, decorative effects formerly undreamed of can be obtained in residences by making parts of the walls translucent or transparent and controlled air conditioning accomplished in windowless houses having walls, in whole or in part transparent.

It is obvious that such structures in which these transparent or translucent blocks, bricks or tiles are employed are lighted by daylight transmitted through the units from front to back. This makes available only part of the illumination, for such light as strikes the top and bottom or ends of the block is either absorbed in the mortar joints between the units or transmitted in directions in which its luminosity is wasted.

The present invention has in contemplation the combination in or in association with a transparent or translucent unit as described, of one or more light-reflective walls or faces whereby the light which ordinarily is lost is reflected into the building in the direction of the useful transmitted beam.

Referring now to that form of the invention shown in Figures 1 and 2, a glass parallelepipedal block 1 is shown having the front and back faces 2 and 3 left transparent or translucent, but being coated on its other four faces 4, 5, 6 and 7 with a film or layer 8 of light-reflective material such, for example, as an alloy of quicksilver. Figure 1 shows such blocks built into a wall with the bonding material 11 and 12 between adjacent silvered faces of adjoining blocks. Ordinarily, the bonding material would constitute an obstruction absorbing the light angularly received by the end faces of the block, but Figure 1 shows by the arrows 13 and 14 that the incident light rays impinging upon the end walls of the block are reflected forward into the room or space enclosed by the wall. It is not essential that as many as four faces be coated with the silvering for any lesser number of faces may be so lined, according to the degree of illuminative improvement which may be desired.

Figures 3 and 4 illustrate a form of the invention in which the block is designed to be arranged with its longitudinal dimension transverse with respect to the wall so that the transmitted light passes lengthwise through the block. In this instance the four elongated faces are covered with the silvered coating as shown at 15 and light impinging angularly against one of the silvered surfaces, as indicated by the zigzag arrow 16 in Figure 3, is reflected back to the opposite surface and thence through the inner end of the block.

In those forms of the invention illustrated in Figures 5 and 6, the transparent or translucent block is hollow and the reflective surfaces may be applied either to the inner or outer walls of said block. Figure 5 shows a hollow block 17 having silvered surfaces at the opposite inner ends. These surfaces 18 may be applied in the form of a film, or they may be rigid metallic plates, chromium plated, for example, and cemented in place against the end walls of the block. Figure 6 shows a similar block 17, but in this instance the reflective surfaces 18 which may be either films or plates are applied to the outer end walls of the block.

Figure 7 shows a portion of a wall built up of transparent or translucent blocks 19 which may be either solid or hollow and between which plates 20 are placed in the bonded courses. These plates are preferably of metal and may be chromium plated on both sides or otherwise made capable of efficiently reflecting light. Figure 8 shows a suggestive construction for these plates. They may be formed of sheets, the length and width dimensions of which are slightly smaller than the similar dimensions of the faces of the blocks between which they are to be placed and provided along their edges with projecting lugs 21. When the plate 20 is positioned between adjacent blocks, the bottom lugs 21 may rest in the fresh bonding material bed on the layer of blocks below, and bonding material may be used to point up the shallow crack between the blocks and along the remaining three edges of the plates. The lugs will embed in the bonding material and hold everything secure.

In that form of the invention shown in Figure 9 the hollow block 17 is provided with a four-sided metallic liner 22 having its inner surface plated or otherwise made bright and inserted into the hollow of the block 17 either freely, or fixed by means of a suitable cement.

In that form of the invention shown in Figure 10, five sides of the block have been covered with the light-reflecting film, only the front side, that is to say, the side which faces the interior of the room being left transparent or translucent. Such a block is not light-transmitting and therefore, does not receive its illumination from outside, but under artificial illumination in a room, its reflective surfaces scintillate with reflected images of the interior source of illumination and reflect these back into the room materially lighting the room and producing startling decorative effects.

It will be understood from the above description that my invention is not to be considered exhausted by the several embodiments in which it has been illustrated, but that it consists primarily in the broad concept of combining light-reflecting or mirror surfaces with the transparent or translucent faces of a transparent or translucent block and only secondarily in the specific structures by means of which the invention is physically embodied, and is not confined to the shapes described and illustrated herewith.

What I claim is:

1. Hollow block of light-transmitting substance having at least a light-transmitting face, a parallelepipedal recess therein, and an inserted liner comprising a rigid folded sheet member coincident with certain of the interior faces of said recess which are perpendicular to said light-transmitting face, said liner having its interior side provided with a mirror surface.

2. Hollow block having at least one light-transmitting face, said block having a parallelepipedal recess, the sides of which are parallel with the outer sides of said block, and an inserted liner comprising an endless folded sheet insert fitting said recess and coinciding with those parallel faces of said recess which are perpendicular to the said light-transmitting face of said block, said liner having its interior side formed with a mirror surface.

LELAND LOGAN.