United States Patent

Morton

[15] **3,654,740**

[45] **Apr. 11, 1972**

[54] INSULATING CONSTRUCTION BLOCK

[72] Inventor: **Howard S. Morton,** 2637 N.E. 37th Street, Fort Lauderdale, Fla. 33308

[22] Filed: **Oct. 22, 1969**

[21] Appl. No.: **868,442**

[52] **U.S. Cl.**.....**52/222,** 52/405, 52/312, 250/108

[51] **Int. Cl.**.....**E04b 2/32,** E04c 1/12

[58] **Field of Search**.....52/222, 405–408, 52/420, 421, 312, 415, 361, 242, 716–718

[56] **References Cited**

UNITED STATES PATENTS

3,112,535	12/1963	Kinney	52/222
2,852,933	9/1958	Amundson	52/405
2,852,934	9/1958	Amundson	52/405

FOREIGN PATENTS OR APPLICATIONS

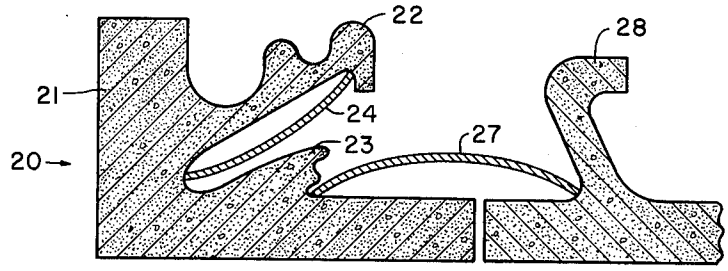
634,256	3/1950	Great Britain	52/312
86,275	9/1958	Denmark	52/312

Primary Examiner—Frank L. Abbott
Assistant Examiner—James L. Ridgill, Jr.
Attorney—Eugene F. Malin

[57] **ABSTRACT**

A construction block having protruding flanged arms positioned on one side shaped so as to hold flexible radiant energy reflectors. The block arms are angled so that the radiant energy reflectors overlap. A corner block provides for the proper mating with either half of the normal construction block.

4 Claims, 3 Drawing Figures



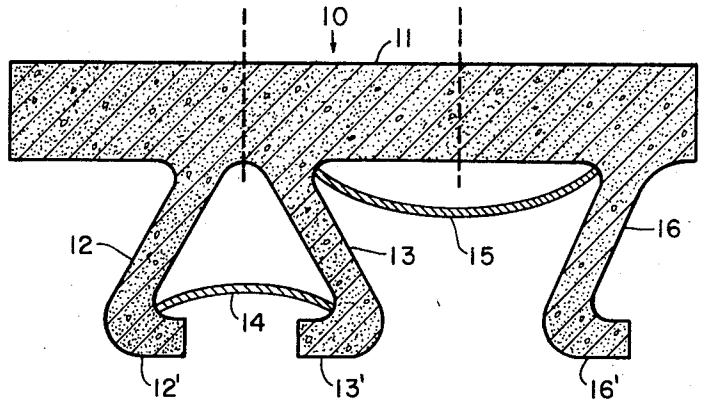


FIG. 1

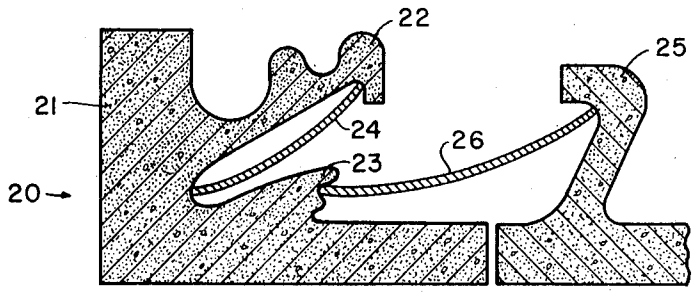


FIG. 2

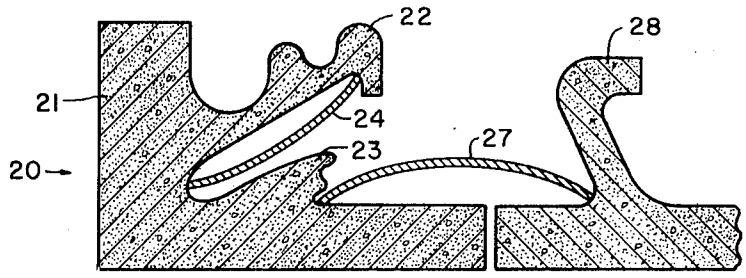


FIG. 3

INVENTOR.
HOWARD S. MORTON
BY

INSULATING CONSTRUCTION BLOCK

BACKGROUND OF THE INVENTION

This invention relates generally to the area of construction of buildings and more specially to a building block with improved insulating characteristics. The use of concrete blocks in construction is well-known in the art. However, construction blocks provide poor insulation characteristics. As a result some type of insulation is normally provided for use with construction blocks. For example, many times insulation is placed down within the blocks, or in other situations, it is somehow fixed to the inside wall of the concrete blocks. The application of insulation by either method is time consuming and costly. Applicant discloses a construction block to which efficient insulating radiant energy reflectors may be easily but firmly attached.

BRIEF DESCRIPTION OF THE INVENTION

A concrete construction block having protruding flanged arms on one side, said flanged arms being angled so as to hold radiant energy reflectors. The radiant energy reflectors are constructed of a resilient material and are held between the flanged arms under tension. The arms are so angled with respect to the block face that the resilient radiant energy reflectors form alternating concave and convex surfaces along the interior wall surface. The angle of protrusion of the arms also permits an overlap of the adjacent reflecting surfaces to insure maximum efficiency. A corner block having a protruding arm adapted to receive a concave or convex reflecting surface provides proper mating with divisible segments of the basic construction block so no break in the continuity of the reflecting surfaces exists at the corners of the building.

It is an object of this invention to provide a construction block with improved insulating characteristics.

It is another object of this invention to provide a building block to which radiant energy reflectors may be easily and quickly attached.

It is still another object of the invention to provide radiant energy reflecting insulation that holds itself in place along the interior walls of the building.

And yet another object of this invention is to provide an overlapping insulating surface.

In accordance with these and other objects which will be apparent hereinafter, the instant invention will now be described with particular reference to the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. 1 shows a top cross-section of the basic building block including radiant energy reflectors.

FIG. 2 shows a corner block in top cross-section mated with a first segment of the basic building block.

FIG. 3 shows a corner block in top cross-section mated with a second segment of the basic building block.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing and in particular to FIG. 1, the basic building block indicated generally at **10** is illustrated. Side **11** faces the exterior part of the building. Along the block side facing the interior of the building, the block has three protruding flanged arms **12**, **13**, and **16**. The protruding arms hold resilient radiant reflecting means, such as metal reflectors **14** and **15**, in one of two shapes. The reflectors **14** and **15** are positioned concavely and convexly respectively relative to the plane of the wall. The pattern is repeated along the wall for each horizontal layer of blocks. Arms **12** and **13** protrude obliquely from the main portion of the block, and the flanged ends **12'** and **13'** are shaped so that the resilient surface **14** is held under tension between the flanged ends **12'** and **13'**. Thus, no other connecting means is required to hold the reflecting surface in place. Likewise, arm **13** also acts with arm **16** to hold reflecting surface **15** in an opposite curvature with respect to the main block and reflector **14**. Thus, each flanged arm serves to hold two adjacent reflecting surfaces, one surface being held between the flanged ends and the other between the arm bases. The flanged arms are so angled (approximately 45°) that the reflecting surfaces overlap with respect to a plane perpendicular to the wall surface. This insures maximum reflection of the radiant energy contained inside the room. The blocks may be broken into thirds along the dotted lines in order to allow fitting and adjustment to a particular wall dimension. In constructing a wall, blocks are bonded adjacent each other so that the pattern of concave and convex reflecting surfaces is repeated even across the bonding boundaries. Bonding may be achieved in any well-known manner, such as with cement.

FIG. 2 shows a corner block indicated generally at **20**. The specific feature of the corner block **20** is the double flange on arms **22** and **23** which is shaped so as to receive a reflecting surface that is curved in either direction. This will allow maximum flexibility in the construction of the building in that the corner brick will be able to be mated in both directions to either half of the main wall building block (FIG. 1) while providing continuity of the reflecting surface. FIG. 2 shows the corner block **20** mated with a half block segment having a protruding flanged arm **25**. Reflecting surface **26** is connected under tension to arm **23** and flange **25**. Another radiant energy reflector **24** is tensioned between flanged arm **22** and the inside of the block to insure the continuity of the reflecting surfaces around the corner. Flange **22** is also designed to be mated with either shape reflector from an adjoining block in a similar manner as flange **23**.

FIG. 3 shows again the corner block **20** with reflecting surface **27** under tension, mated with a second block half having a flanged arm **28**. The reflecting surface **27** is tensioned in the opposite direction to that of surface **26** shown in FIG. 2. It is clear from FIG. 2 and FIG. 3 that arm **23** can be joined with either half of the basic construction block shown in FIG. 1 to provide for tensioning of the reflecting surfaces in either direction. This insures the overlapping pattern of reflecting surfaces regardless of wall dimension.

Variations in flanged arm shape and protrusion angles are possible. The important criteria are that the reflecting surfaces be held firmly in place under tension by the flange arms and that an overlapping of the surfaces is provided to maximize radiant energy reflection.

In one preferred embodiment, the blocks are constructed of concrete. Any other block construction material would be suitable. The blocks are made in any well-known manner. The radiant reflectors may be made of any resilient material that provides a highly reflective surface. The protruding arms in one preferred embodiment extend the entire height of the block.

In operation the construction blocks are bonded together in the usual manner. For each layer of block, the vertical bond between blocks is staggered with respect to the block layer below. However, each block layer is positioned on the lower layer so as to maintain the same protruding arm pattern vertically. After the wall or structure is finished, the resilient reflectors are inserted between the protruding arms of the blocks by hand. The reflectors height could be larger than block height to compensate for the bonding material between block layers. The reflectors must be wider than the distance between the arm contact points in order to provide proper tension. In the preferred embodiment, the arms are so spaced that only one size reflector is needed, i.e. FIG. 1, the distance between arm **12** and arm **13** at the reflector **14** contact points is equal to the contact point distance of reflector **15** positioned between arms **13** and **16**.

Other modifications are possible. For example, the corner block **20**, FIGS. 2 and 3, may be constructed so that reflector **24** is curved in a direction opposite that shown in FIGS. 2 and 3. This would bring the reflector surface and the flange arm **23** closer together, insuring that straight line radiation would hit at least one reflector plate.

Interior wall panels may be attached to the protruding arms of the block. Attachment holes could be placed in flanges 12', 13', and 16', FIG. 1. At the building interior corners, attachment holes could be placed in arm 25, FIG. 2 and arm 28, FIG. 3. Protruding arm 22 may be notched so as to receive a corner segment of a wall panel.

Finally, weakening holes may be placed in the block along the breaking lines (dotted lines in FIG. 1) in order to insure that the block divides more easily and exactly at the break points.

The instant invention has been shown and described herein in what is considered to be the most practical preferred embodiment. It is recognized, however, that departures may be made therefrom within the scope of the invention.

What I claim is:

1. The combination of a plurality of solid wall members and at least one flat resilient reflecting panel for forming an insulated wall comprising, joining means,

said plurality of solid wall members each of which includes a generally flat unbroken first surface, and a second surface spaced from said first surface with at least one projecting arm having a flanged distal end, the distance between said first surface and said second surface being relatively thin with respect to the width of said member, said members connected to one another by said joining means to form a wall, the first surface of each member in the wall lies generally in the same plane, said second surface providing at least one unobstructed first channel lying between and formed by said projecting flanged arms, said flanged arms positioned in a spaced apart relation to provide access to said channel, and

each said flat resilient reflecting panel having a width greater than the width of the channel and having a length equal to the length of the channel across a plurality of said wall members, and said panel connected to and between adjacent projecting flanged arms of the channel and positioned from said second surface, said panel is resilient.

2. The combination of a plurality of solid wall members and at least one flat resilient heat reflecting panel for forming an insulated wall as set forth in claim 1 wherein:

the height of said projecting arms equals the height of said member.

3. The combination of a plurality of solid wall members and at least one flat resilient heat reflecting panel for forming an insulated wall as set forth in claim 2 wherein:

each said member includes a plurality of said arms projecting obliquely with the end flanges projecting back rearwardly over said arms.

4. The combination of a plurality of solid wall members and at least one flat resilient heat reflecting panel for forming an insulated wall as set forth in claim 3 including:

a second channel positioned adjacent said first channel in a side-by-side relation, said two channels comprising a plurality of joined wall members with at least three projecting arms forming said two channels, each adjacent arm projects obliquely outwardly toward an opposite side of said member, two adjacent arms projecting toward each other including flanges project toward one another to define a first channel therebetween, and the third arm projecting obliquely away from the adjacent arm that forms part of said first channel and defines a second channel therebetween,

said first panel lies across the first channel with its sides in contact with joints lying between the arms and the flanges, and

a second panel lies across the second channel with its sides in contact with the joints between the arms and the main body portion, and the first and second panels lie along the entire longitudinal length of the channels.

* * * * *