Jan. 20, 1959 G. W. KULHAVY ET AL 2,869,356

CONTROL JOINT FOR BUILDING BLOCKS

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Fig. 1.

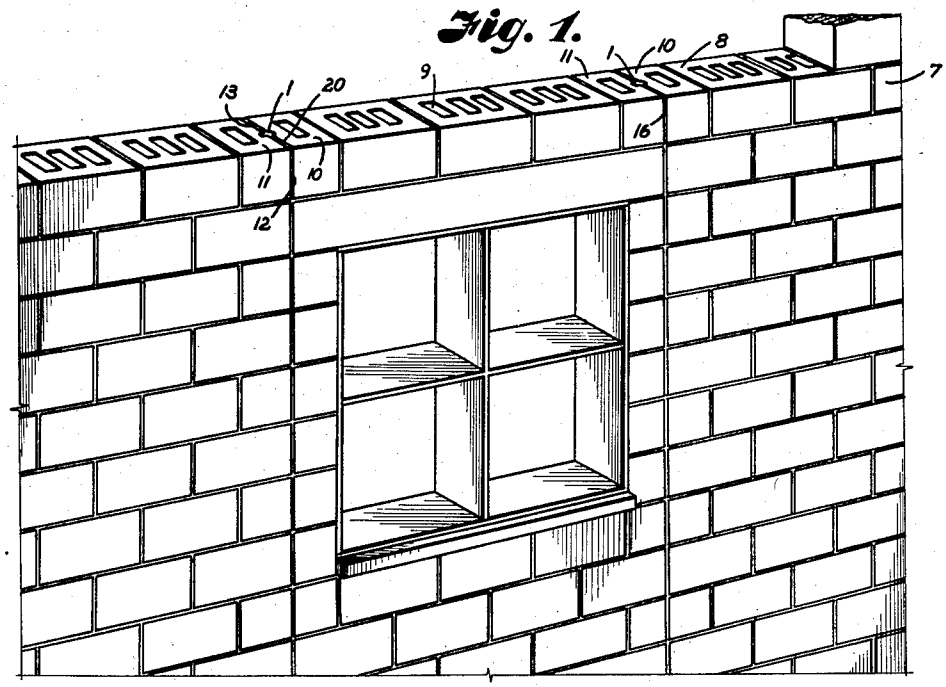


Fig. 2.

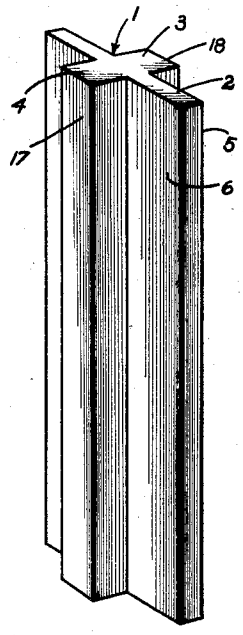
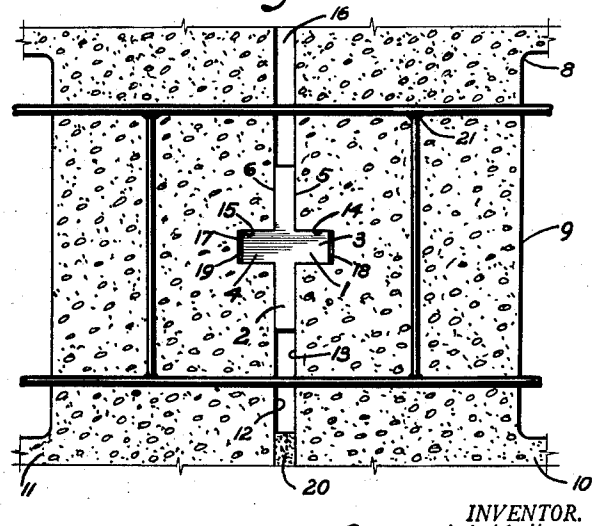


Fig. 3.



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CONTROL JOINT FOR BUILDING BLOCKS

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1 Claim. (Cl. 72—107)

This invention relates to a control joint for building blocks and more particularly to a joint for placement in the walls of building structures to prevent cracking thereof.

The problem of cracking in concrete masonry walls has long been a subject of discussion with block manufacturers, and various methods have been attempted to prevent the cracking of such walls. The principal difficulty is encountered where walls are constructed of brick and concrete blocks or the like. Cracking of the walls of building structures is usually caused by expansion and contraction and unequal settlement of the footings or structures supporting the masonry or movement of the earth from earth pressures or other causes. In some instances shrinkage will cause cracking which vary with weather conditions. Heretofore various reinforcements have been placed in the walls usually horizontally laid on top of a row of the blocks or bricks in the mortar or concrete between the horizontal rows of such blocks. In other instances vertical placement of reinforcing rods has been tried but none of these methods have eliminated cracking in all instances.

The present invention contemplates the placement of a resilient member vertically between two rows of blocks of a wall to allow for contraction and expansion of the walls or settlement thereof without harm to the wall, and still prevent moisture or other elements to penetrate the wall at the joint.

The principal objects of the present invention are, therefore, to provide a wall structure having mating blocks or bricks with vertical recesses in the walls of the mating blocks thereof to receive the oppositely facing flanges of a control joint and the body of the joint comprising flanges extending vertically between two vertical rows of the blocks; to provide a structure of this character which will be resilient to allow the respective sections of the wall to move one with respect to the other without cracking of the wall; to provide a control joint of resilient material such as rubber or the like having a body portion with flanges extending outwardly from the respective sides of the body portion the flanges engaging in vertical recesses in the respective blocks; to provide means for partially closing the space between the blocks not filled by the control joint to prevent moisture and other elements from entering the said space; to provide space between the flanges and the back side of the groove to allow for movement of the blocks laterally away from each other, and to provide a device of this character economical to manufacture and efficient in operation.

In accomplishing these and other objects of the invention we have provided improved details of the structure, the preferred forms of which are shown in the accompanying drawings, wherein:

Fig. 1 is a front view of a wall structure showing the control joint in place between two rows of blocks and extending vertically from top to bottom of the structure.

Fig. 2 is a perspective view of the control joint.

Fig. 3 is a top plan view of blocks showing the control joint in place and the reinforcing rods thereon.

Referring more in detail to the drawings:

1 designates a control joint embodying the features of our invention comprising an elongated body 2 having flanges 3 and 4 extending outwardly from the sides 5 and 6 thereof, to form a substantially cross-shaped member. The device is preferably made of rubber. We do not wish to be limited to rubber but any material having sufficient resiliency to give in response to movement of the walls of the building will be suitable for our purpose. The control joint may be of the length to accommodate the height of the wall of the building or may be made in lengths suitable to the user.

7 designates a wall structure here illustrated to be ordinary cement or concrete blocks. Any suitable block material or bricks may be used as we do not wish to be limited to concrete blocks alone. The blocks 8 have the usual openings 9 and have flat side faces. The mating blocks where the control joint is desired to be used are of special construction. We have found that the control joints may be spaced sixteen feet apart, or even in some cases twenty, but it must extend vertically through the entire height of the wall. Blocks 10 and 11 have their mating faces 12 and 13 provided with vertical grooves 14 and 15 at substantially the center of their width.

In laying up the wall the rows of blocks as indicated at 10 and 11 may be spaced apart as indicated at 16 (Fig. 3) to equal substantially the width of the body member 2 of the control joint 1. The control joint is placed between the rows 10 and 11 of the blocks with the flanges 3 and 4 extending in the vertical grooves 14 and 15. The blocks 10 and 11 are placed tightly against the side faces of the body 2 of the control joint, and the grooves 14 and 15 are of slightly greater depth than the flanges 3 and 4 to leave spaces between the edges 17 and 18 of the flanges and the back wall of the grooves as best illustrated at 19 (Fig. 3). When the wall is completed a plastic calking compound or mortar filling as indicated at 20 may be placed in the space 16 between the rows of blocks 10 and 11 on the outer face of the wall to prevent moisture or other elements from entering therein. The space is not entirely filled so the body 2 may move in said space in response to movement of the walls.

The control joint 1 is preferably made so that the flanges 3 and 4 will fit snugly in the grooves 14 and 15 of the blocks and the blocks placed tightly against the body portion 2 of the control joint so that the blocks will be held together by friction of the blocks on the control joint. We have found that the concrete blocks have a tendency to hold to the rubber control joint so that the rows of blocks 10 and 11 will be held together and there will be no danger of failure of the walls but the control joint will allow for expansion and contraction without cracking of the wall.

If desired, horizontal reinforcing rods may be used between the rows of blocks as is the usual practice. In Fig. 3 we have indicated at 21 a form of reinforcing structure between vertical rows of the blocks embedded in the concrete or mortar therebetween.

It will be obvious from the foregoing that we have provided an improved control joint for building structures which may be placed vertically between rows of mating blocks in a building structure or wall which will allow for expansion and contraction and securely hold the wall in place and eliminate cracking in a manner not heretofore known or used.

What we claim and desire to secure by Letters Patent is:

A control joint in a building wall structure composed of a plurality of preformed masonry blocks disposed in a plurality of superimposed horizontal courses with the

blocks therein secured to adjacent blocks by mortar joints, said wall structure including two wall portions each of which has a substantially flat planar end surface extending for the height of the wall structure and being defined by the flat end faces of the blocks of the associated wall portion, said end surfaces being spaced from one another and defining a continuous vertical seam extending for the height of the wall structure, each of said end surfaces having a continuous vertically extending rectangular channel formed therein at the center of the width of said end surfaces and extending throughout the height of the wall structure, the channels in the end surface of one of said wall portions at one side of the seam being in opposed relation to the channel in the end surface of the other of said wall portions at the opposite side of the seam, each of said continuous channels having a pair of opposed side walls and a back wall, each of said side and back walls being substantially flat and planar, a joint member formed of rubber-like material and including an elongated substantially flat body portion having oppositely facing side faces, said body portion being of a length to extend for the height of the wall structure and of a thickness when initially unstressed greater than the spacing of the end surfaces of the wall portions defining the vertical seam whereby said side faces of the joint member are in tight frictional engagement with said end surfaces throughout the height of the wall portions, said joint member being of a hardness to remain erect and still yield to pressure of said wall portions whereby said side faces of the body portion substantially conform to the portions of each of the end surfaces of the wall portions engaged therewith and said body portion is compressed to a thickness substantially corresponding to the width of the mortar joints between adjacent blocks in the wall structure whereby said body portion is maintained in compression and the frictional engagement between said

wall portions and the body portion resists relative lateral movement of the wall portions, and flanges of rubber-like material formed integral with the body portion and extending outwardly substantially normally therefrom at approximately midway of the width of the body portion, said flanges being of greater thickness than said body portion and having oppositely facing side surfaces and outer end edges extending substantially normally to said last mentioned side surfaces, said flanges extending oppositely into said vertical continuous channels in the end surfaces of the wall portions, the side surfaces of each of said flanges being in tight frictional engagement with the adjacent side walls of the associated channels and conforming thereto, and said outer end edges of said flanges being spaced from the back walls of the associated channels whereby the flanges form keys with the wall portions which in cooperation with the frictional engagement of the end surfaces of the wall portions with the side faces of the body member restrain the wall portions from relative lateral movement whereby the wall portions may expand and contract without cracking the wall structure.

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