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SEALED-JOINT CONSTRUCTION FOR MASONRY BLOCK WALLS

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Fig. 1

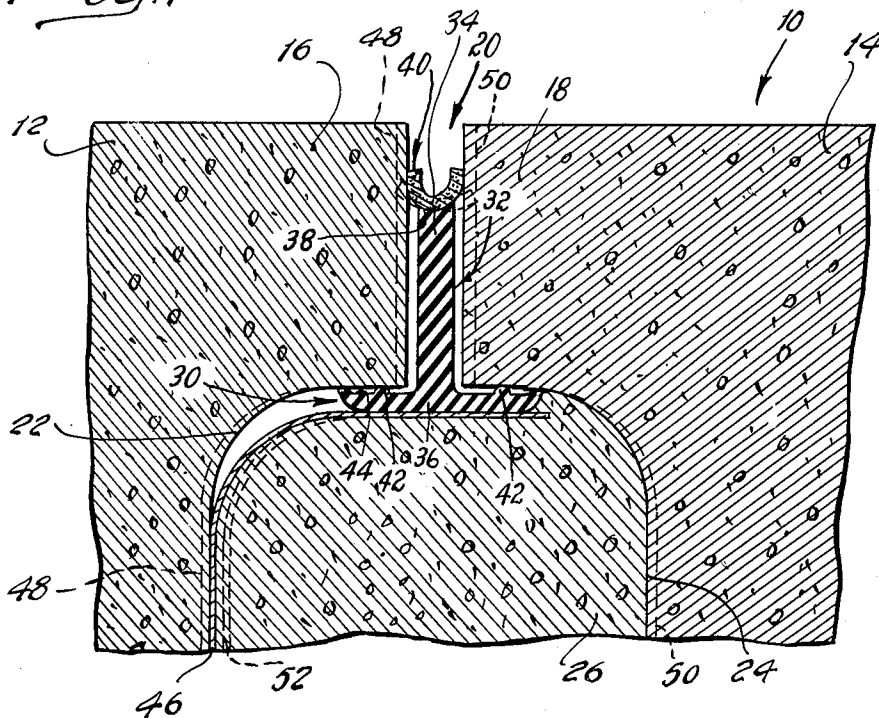
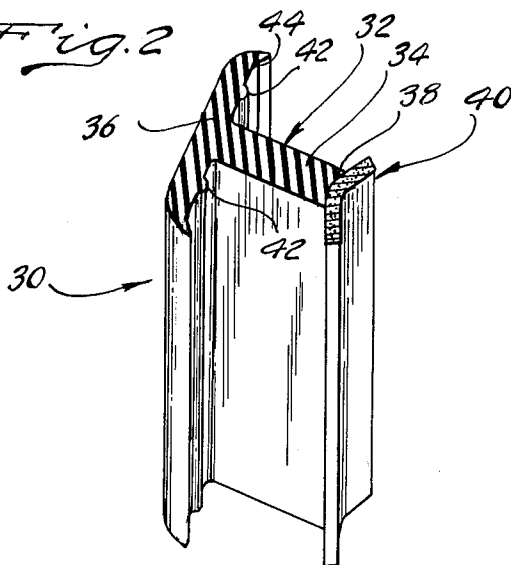


Fig. 2



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3,137,973 SEALED-JOINT CONSTRUCTION FOR MASONRY BLOCK WALLS

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1 Claim. (Cl. 50—346)

This invention relates to building structures and, in particular, to sealed-joint masonry block wall constructions and sealing devices for intentional joints provided for controlling the effects of the relative motion of adjoining portions of such masonry block walls. Such joints are known, according to their purpose to those skilled in the trade, as construction joints, expansion joints and control joints.

One object of this invention is to provide a sealed-joint masonry block wall construction and resilient sealing element therefor which will effectively prevent the passage of water or vapor through the joint and which will continue to perform this function without disfiguring the wall in the occurrence of relative motion of the adjoining wall portions, as would occur in the shrinkage of masonry, thermal expansion and contraction and uneven settling of the wall portions.

Another object is to provide a sealed-joint masonry block wall construction and resilient sealing element therefor, as set forth above, wherein the sealing function is automatically performed in response to the sustained pressure of opposed paired masonry portions upon the sealing element, thereby maintaining the sealing element in a compressed form and accordingly closing the potential passageways around the sealing element through which moisture would otherwise pass.

Another object is to provide a sealed-joint masonry block wall construction and resilient sealing element therefor, as set forth above, wherein the sealing element is acted upon by the several masonry blocks and a secondary sealing stage between each block and a cast masonry core occupying the widening of the joint separating the two blocks.

Another object is to provide a sealed-joint masonry block wall construction and resilient sealing element therefor, as set forth in the object immediately preceding, wherein the sealing element and a core liner separating the cast core from one of the adjoining masonry blocks prevent the formation of a bond across the joint between the two blocks which would otherwise disfigure and weaken the masonry construction or prevent the adjustment of the two wall portions according to the intended purpose of the joint.

Other objects and advantages of the invention will become apparent during the course of the following description of the accompanying drawings, wherein:

FIGURE 1 is a horizontal section showing a portion of masonry block wall construction having a joint in which is installed a resilient joint take-up sealing element according to one form of the invention; and

FIGURE 2 is a perspective view, shown partially in horizontal section, of a short length of the joint take-up sealing element shown in FIGURE 1.

Referring to the drawings in detail, FIGURE 1 shows a part of a conventional masonry block wall, generally designated 10, which is formed by a multiplicity of courses of masonry blocks of standard manufacture. The wall 10 has two wall portions 12 and 14 with adjacent spaced-apart masonry block ends 16 and 18 respectively thereof, producing a vertical gap or joint, generally designated 20. The joint 20 continues in a vertical direction through the other masonry block courses above and below

(not shown). The block ends 16 and 18 have mutually opposite central vertical recesses 22 and 24 similarly continuing vertically through the other masonry block courses, forming a widened part or cavity of the joint 20 which is substantially filled by a core 26 of concrete or other cast-in-place material.

The resilient joint take-up sealing element, generally designated 30, includes a resilient vertical bar 32 of approximately T-shaped cross-section and of elastic deformable material, such as hard rubber. The bar 32 has a stem or web portion 34 and a head or flange portion 36. Attached to the web portion 34 by a layer of adhesive substance 38 is a resilient vertical sealing strip 40 of slightly arcuate cross-section and of an elastic deformable material, such as rubber, having greater flexibility than the bar 32. The sealing element 30, which generally consists of the bar 32 and sealing strip 40, is manufactured in lengths corresponding to the height of a multiplicity of block courses, such as four courses.

The resilient sealing element 30 is partially disposed within the narrow portion of the joint 20 with the flange portion 36 being a projection into the widened part of the joint 20. A primary sealing point is created by the resilient arcuate sealing strip 40 which is of substantially uniform thickness throughout and which is bent into approximately U-shaped position (FIGURE 1) with its opposite edges pressed against the spaced-apart block ends 16 and 18. From FIGURES 1 and 2 it will be evident that the sealing strip 40 is relatively thin in proportion to its width in that its thickness is a minor fraction of its width. A secondary sealing point is created by a pair of vertical bead ribs 42 upon the inner surface 44 of the flange portion 36, wherein the bead ribs 42 are pressed against the side surface of the block recesses 22 and 24. The cast core 26 sustains its initial pressure against the flange portion 36 to force the bead ribs 42 into their sealing position. A vertical core liner 46 of approximately U-shaped cross-section (partially illustrated in FIGURE 1) separates the core 26 from the masonry block end 16.

In the installation of the joint take-up sealing element 30, the vertical joint 20 is left dry or without a mortar filling as the courses of masonry blocks are laid up. When the mason has laid the lowest course or courses through which the separate length of the bar 32 is to run, the bar 32 is installed in the joint 20 in the position described above and the remainder of the courses are built up around it. The core liner 46 is then installed in position and the core 26 is cast in place.

In the operation of the joint take-up sealing element 30, the element 30 automatically compensates for relative motion of the wall portions 12 and 14 vertically or toward and away from one another, wherein such motion produces variation in the width of the joint 20. The joint 20 is widened by such phenomena as masonry shrinkage or thermal contraction within the wall portions 12 and 14 wherein the spaced-apart block ends 16 and 18 move into positions indicated by the dotted lines 48 and 50. In consequence, the sealing strip 40 tends to resume its original slightly-arcuate shape (as shown in dotted lines in FIGURE 1), its opposite edges remaining pressed against the spaced-apart block ends 16 and 18. The sealing bead ribs 42 slide along the side surfaces of the block recesses 22 and 24 so that their sealing performance is unimpaired. In the event of expanding of the joint 20, the core liner 46 prevents bond from forming between the core 26 and the masonry block walls portion 12 so that a gap forms therebetween, as indicated by the dotted lines 48 and 52 in FIGURE 1.

On the other hand, narrowing of the joint 20 merely compresses the sealing strip 40 further into U-shaped position and further narrowing of the joint 20 compresses

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the stem portion 34. Again in this instance, the sealing bead ribs 42 merely slide along the side surfaces of the block recesses 22 and 25 so that their sealing performance is unimpaired. The cast core 28 generally locks the wall portions 12 and 14 against such shifting as would cause one block to project out from the other so that the sealing bead ribs 42 will retain contact with the side surfaces of the block recesses 22 and 24.

What I claim is:

A sealed-joint masonry block wall structure comprising a plurality of masonry block courses disposed in superimposed relationship, each course including a pair of spaced-apart masonry blocks having vertical oppositely-facing recesses in their adjoining ends, and a vertical gap or joint therebetween with an enlarged cavity formed by said recesses, said joint being continued in said plurality of masonry block courses above and below said course; an elongated resilient sealing element including a resilient vertical bar of approximately T-shaped cross-section having a web portion disposed in said joint and a flange portion disposed against the wall of said cavity across said joint and transversely to said web portion, said flange portion on the side thereof adjacent its junction with said web portion having a surface of substantially flat cross-section with vertical sealing bead ribs of elastic deformable material thereon disposed on opposite sides of said web portion in laterally-spaced relationship thereto and in continuous contact with said cavity wall, said flange portion on the side thereof opposite said junction having a surface of at least partly convex cross-section, said resilient sealing element having a sealing strip of greater

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width than the cross-sectional width of said web portion and of material of greater flexibility than the material of said T-shaped bar secured transversely to said web portion in spaced relationship to said flange portion and spanning said joint with its opposite edges in compressed engagement with said block ends; a cavity liner engaging said flange portion of said sealing element on the opposite side thereof from said ribs and separating the end surface of one of said masonry blocks from said cavity; and a core of cast-in-place material substantially filling said cavity and engaging and urging said cavity liner against said flange portion and into sealing engagement with said block ends on opposite sides of said joint.

References Cited in the file of this patent

UNITED STATES PATENTS

1,723,306	Sipe	Aug. 6, 1929
1,877,729	Chaffee	Sept. 13, 1932
1,958,011	Moore	May 8, 1934
2,066,005	Jenkins	Dec. 29, 1936
2,708,016	Penton	May 10, 1955
2,996,845	Cipriani et al.	Aug. 22, 1961
3,035,375	Williams	May 22, 1962
3,099,110	Spaight	July 30, 1963

FOREIGN PATENTS

495,853	Canada	of 1953
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OTHER REFERENCES

Architectural Record (a publication), May 1956, p. 393.
