

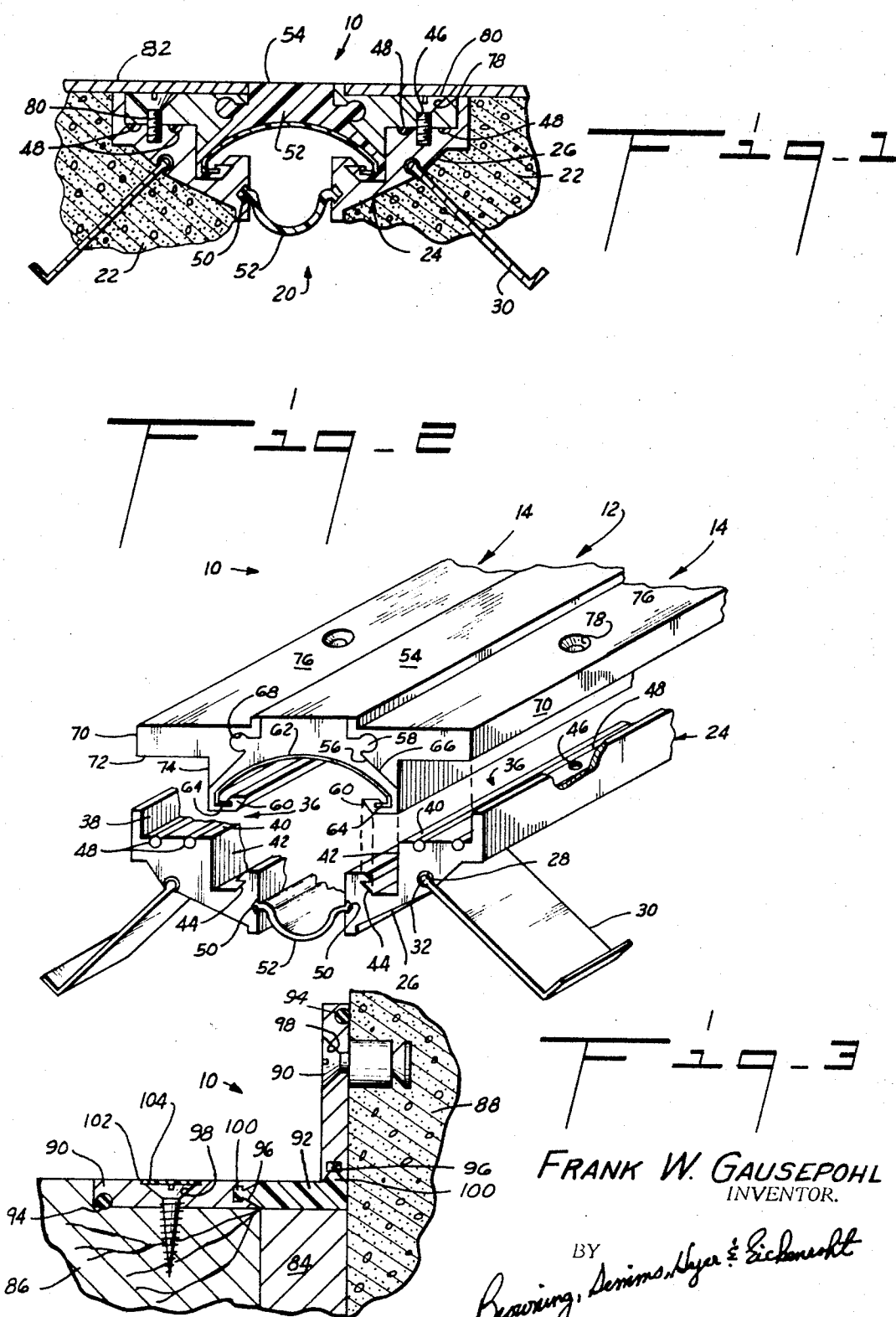
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EXPANSION JOINT COVER

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EXPANSION JOINT COVER

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6 Claims

ABSTRACT OF THE DISCLOSURE

An expansion joint cover assembly for structural sections disposed in spaced relationship having an elongated joint therebetween. The cover is formed of an elongated bridging member of sufficient width to span the joint to be covered and a pair of elongated mounting members secured to the structural members adjacent the joint. The bridging member is formed of resilient material and is provided with a pair of bulb-shaped longitudinally-extending tongues, one tongue on each face confronting the mounting members. Each tongue is lockingly engaged with a bulb-shaped groove in the confronting face of the mounting member.

Background of the invention

This invention relates to cover assemblies for covering the intentional joints between structural sections of buildings, which joints are prone to vary in position relative to each other. Such cover assemblies are commonly known as expansion joint covers.

It has been the practice in the construction field, in constructing buildings using a plurality of structural sections, to space the individual structural sections from each other whereby portions of the structural sections confront each other across an intermediate zone. Such an intentional joint is commonly known as an expansion joint and allows relative movement of the structural sections in response to temperature changes and thereby arrests cracking. The expansion joint or space between the sections, if left exposed, is unsightly and provides an interruption in the integrity of the building as well as providing defective weatherproofing. Therefore, it is desirable that an expansion joint cover be provided which seals out all deleterious material and accommodates the relative movement of the sections. Numerous types of expansion joint covers have been used for this purpose; however, those heretofore used have been difficult to use and install and have not accommodated movement of the structural members in all directions. Moreover, in the case of expansion joint covers for floors, there has been a tendency for gaps and voids to develop which are not only unsightly in appearance but are also a safety hazard.

It is the purpose of the present invention to provide an expansion joint cover which is easy to install, which accommodates movement of the adjacent structural members in all directions, and which eliminates gaps and voids.

Summary of the invention

The expansion joint cover assembly of the present invention provides a conformable cover for structural sections disposed in spaced relationship having an elongated joint therebetween. The cover is formed of an elongated bridging member formed of resilient material and of sufficient width to substantially span the joint to be covered and a pair of elongated mounting members secured to the structural sections adjacent the joint. The mounting members are mechanically bonded to the bridging member whereby universal movement of the

structural sections is accommodated. To mechanically bond the mounting members to the bridging member, the bridging member is provided with a pair of bulb-shaped longitudinally-extending tongues, one tongue on each face confronting a mounting member. Each tongue is lockingly engaged with a groove in the confronting face of the mounting member. By having such construction universal movement of the structural members is accommodated and gaps and voids are eliminated. If the expansion joint cover is to be utilized as a cover for a floor joint a resilient support member may be incorporated in the bridging member.

Brief description of the drawings

FIG. 1 is a cross-sectional view of the expansion joint cover installed in an expansion joint located between two sections of concrete;

FIG. 2 is an exploded view of the expansion joint illustrated in FIG. 1;

FIG. 3 is a cross-sectional view of the expansion joint cover in a corner installation.

Description of the preferred embodiment

Expansion joints in the building construction field are used primarily to permit the expansion and contraction of the structural sections resulting from changes in temperature. Expansion joints are used between sections of floor, particularly concrete, between walls and floor, between walls and ceiling, and in corners. Expansion joints may also be used at the peak of various types of roofs. The expansion joint cover of the present invention is capable of being used for all the various types of expansion joints.

An expansion joint cover serves several functions, for example, it improves the aesthetic appearance of the structure by covering the void; however, more importantly, it prohibits deleterious material from getting into the joint which could fill up the void and prohibit future expansion. The expansion joint cover, as well as the expansion joint itself, has to be capable of expanding and contracting throughout the design range.

The expansion joint cover 10 of the present invention is basically comprised of an elongated, bridging member 12 of sufficient width to span the joint which is to be covered and a pair of elongated mounting members 14 which are lockingly secured to the bridging member 12. The completed assembly is then installed over the expansion joint by securing the mounting members 14 to the structural members of the building.

Referring now to the drawings wherein like reference numerals will be used throughout the several views to designate like parts, it can be seen, particularly in FIGS. 1 and 2, that an expansion joint cover of the present invention may be applied to an expansion joint 20 located in a floor between two sections 22 of concrete. While the expansion joint cover 10 is basically comprised of an integral assembly formed of a bridging member 12 and two mounting members 14, it may be desirable in new construction to incorporate a pair of base members 24 in the floor sections 22 of the joint 20 at the time the concrete is poured. The expansion joint cover 10 is then later attached to the base members 24 which are rigidly located in the concrete 22 on opposite sides of the expansion joint 20.

Each base member 24 is formed of an elongated extruded aluminum strip. Each base member 24 has an outer side 26 which contacts the concrete 22 in which the base member 24 is imbedded. The surface 26 of the base member 24 which will be in contact with the concrete 22 may be provided with a protective coating of zinc-chromate. The outer side 26 of the base member 24 is contoured to eliminate air pockets in the concrete. A

bulb-shaped groove 28 extends along the length of the side 26. L-shaped anchors 30 having bulb-shaped ends 32 are located in the groove 28 at spaced increments, see FIG. 2. The anchors 30 are positioned so that they will be covered by the concrete 22 and, therefore, maintain the base member 24 rigidly in place at the edge of the expansion joint 20.

The inside surface of the base member 24 is designed to form a mounting pad 36 for the expansion joint cover 10. The mounting pad 36 is formed of a vertical wall 38 which extends downwardly from the top of the base member 24. Intersecting the vertical wall 38 is an inwardly extending horizontal surface 40 which is intersected by a second vertical wall 42 which terminates in a generally V-shaped pocket 44. When the two elongated base members 24 are properly aligned adjacent an expansion joint 20 the horizontal surfaces 40—40 of the two opposing parallel longitudinally-extending base members 24—24 form a coplanar mounting surface for the expansion joint cover 10. The vertical walls 38 and 42 form vertical alignment surfaces for the longitudinal edges of the expansion joint cover 10.

In order that the expansion joint cover 10 may be secured to the base members 24, the horizontal surface 40 of the base member 24 is provided with a plurality of spaced threaded apertures 46. To assure that moisture does not flow from the threaded member which is engaged in the threaded aperture 46, strips of vinyl may be positioned in grooves 48 which extend longitudinally along the surface 40 and spaced on both sides of the line of threaded apertures 46. If desired, the base members 24 may be provided with grooves 50 in which is positioned an elongated flexible moisture shield 52.

The expansion joint cover 10 for the floor-type installation is formed of an elongated bridging member 12 to which is mechanically bonded two elongated mounting plates 14. The bridging member 12 may be formed of a plastic vinyl which meets standard CB-230-60 and which is the voluntary recorded standard for vinyl weatherstripping published by the U.S. Department of Commerce, having a durometer hardness in the range of 70 to 75. The bridging member 12, as can be seen in FIG. 1, has a generally arched-shaped cross section 52 with a flat top surface 54 which is the exposed area of the expansion joint cover 10 and angularly inclined outer walls 56. A longitudinally-extending, bulb-shaped mounting plate engaging tongue 58 extends along each angular side wall 56 of the bridging member 12. The bottom ends of the bridging member 12 are formed into V-shaped hook portions 60 which are designed to be inserted in the V-shaped pockets 44 of the base member 24. An arch-shaped support member 62 which may be formed of rigid vinyl PVC extends along the bottom wall of the arch-shaped bridging member. The support member 62 has two opposed, inwardly facing horizontal flanges 64 which are engaged by a lip of the the V-shaped hook portions 60, see FIG. 2.

The mounting plates 14 are elongated strips of extruded aluminum and have resilient strip-engaging side walls 66 which mate with the angularly inclined outer walls 56 of the bridging member 12. Located in such side wall 66 is a longitudinally-extending bulb-shaped groove 68 in which the longitudinally-extending bulb-shaped tongue 58 of the bridging member 12 is positioned. The positioning of the tongue 58 in the groove 68 mechanically bonds the mounting plates 14 to the bridging member 12 making the expansion joint cover 10, in effect, an integral assembly.

The two mounting plates 14, once they are assembled with the bridging member 12, have mounting surfaces which engage the mounting pad 36 of the base members 24. As can be seen in FIGS. 1 and 2, the mounting surfaces consist of vertical walls 70 which form the longitudinal edges of the expansion joint cover 10, horizontal surfaces 72 and vertical walls 74. The horizontal surface 72 extends inwardly from the vertical wall 70 and the

two horizontal surfaces 72—72 of the two mounting plates 14 form a horizontal surface which mates with the coplanar horizontal surfaces 40—40 of the base members 24. The vertical wall 74 extends downwardly from the horizontal surface 72. The two vertical walls 74—74 of the mounting plates 14 mate with the opposing vertical walls 42—42 of the base members 24. Therefore, the expansion cover 10 makes a snug fit with the base members 24—24. At the same time, the V-shaped hook portions 60 are engaged with the V-shaped hook-shaped pockets 44 of the base member 24 locking the expansion joint cover 10 in position. Assembly is facilitated since the V-shaped pockets 44 of the base members 24 have a lip over which the V-shaped hooks 60 may slide.

Spaced along the top surface 76 of the mounting plates are a plurality of countersunk apertures 78 which mate with the threaded apertures 46 in the base member 24. Threaded members 80 may be threadedly engaged with the threaded apertures 46 to securely attach the expansion joint cover 10 to the base members 24—24.

As can be seen in FIG. 1, the top surfaces 76 of the mounting plates 14 are slightly lower than the plane of the top surface 54 of the bridge member 12. Such construction provides a recess so that tile 82 or other flooring material may be brought up close to the bridging member 12 and be coplanar therewith. In such case, the flooring material 82 will cover the threaded members 80. If desired, the top surfaces 76 of the mounting plates 14 may be coplanar with the top surface 52 of the bridging member 12.

As can be seen, the expansion joint cover 10 completely covers the expansion joint 20, prohibiting any moisture, dirt or deleterious material from entering the expansion joint 20. At the same time, the resilient member accommodates expansion or contraction of the structural members 22 in all directions. Since the mounting members 14 are mechanically bonded to the bridging member 12, it is virtually impossible to remove the bridging member 12 without actually disassembling the entire cover and, therefore, is a detriment to vandalism. Since the resilient member 12 had arch-shaped cross-section, upon contraction of the joint 20 the plastic material will tend to flow toward ends of the arch and keep the top surface 54 of the bridging member 12 coplanar with the adjacent floor. The rigid vinyl support member 62 will prevent the vinyl in the bridging member from valleying.

While the foregoing has shown the invention applied to an expansion joint formed between two slabs of concrete forming a floor, the expansion joint cover 10 may also be utilized on an expansion joint between a concrete and wooden floor or between two sections of wooden floor. Also, the expansion joint cover 10 may be utilized to cover an expansion joint between a wall and a floor, regardless of types of material used. Moreover, the expansion joint cover may be used to cover the expansion joint between a wall and ceiling or for a corner. An expansion joint cover applied in a corner installation is illustrated in FIG. 3. In the illustration shown, the expansion joint 84 is between a wooden floor 86 and a concrete wall 88. The wooden floor 86 is recessed to receive one of the mounting plates 90. The other mounting plate 90 is attached directly to the concrete wall 88. As in the expansion joint cover illustrated in FIGS. 1 and 2, the mounting members 90 are mechanically bonded to a bridging member 92 which expands and contracts with the expansion joint 84. The floor mounting plate 90 is an elongated strip generally rectangular in cross-section. The outer longitudinal bottom edge which is most distant from the expansion joint 84 is provided with a groove 94 in which is placed a sealant to prevent seepage under the mounting plate 90. The longitudinal edge of the mounting plate 90 facing the expansion joint 84 is provided with a longitudinally-extending, bulb-shaped groove 96. The mounting plate 90 is also provided with a plurality of countersunk apertures 98 through which wood screws are

threaded to attach the mounting plate 90 to the wooden floor 86. The mounting plate 90 for the concrete wall 88 is similarly formed of an elongated strip generally rectangular in cross-section. It, likewise, has a groove 94 extending along the distant longitudinal edge in which is placed a sealant to prevent seepage behind the mounting plate 90. The longitudinal edge of the mounting plate facing the expansion joint 84 is provided with a longitudinally-extending, bulb-shaped groove 96. Accordingly, the mounting plates 90 are mechanically bonded to the bridging member 92 to mate the expansion joint cover 10. If desired, the top surface of the wall mounting plate 90 may be recessed so that a coat of plaster or other finishing material may cover the mounting screws. The floor mounting plate 90 may be provided with a longitudinally-extending, dovetail groove 102 in which may be positioned a longitudinally-extending strip 104 of vinyl which will conceal the screw heads. As in the case of the expansion joint shown in FIGS. 1 and 2, the bridging member 92 will accommodate expansion or contraction of the structural members in all directions. Moreover, the expansion joint cover is so constructed that there will be no seepage of moisture behind the expansion joint 84 and, further, the expansion joint cover will prevent the entry of deleterious materials into the expansion joint 84.

As can be seen from the foregoing, the expansion joint cover is so designed that it will permit relative movement in all directions of the structural sections to which it is attached. Such movement will be accommodated without voids or gaps between the bridging member and the mounting plate and without bridging of the bridging member. Accordingly, the expansion joint will be sealed to prevent the entrance of water, moisture or other deleterious material.

The invention having been described, what is claimed is:

1. An expansion joint cover assembly for structural sections disposed in spaced relationship and defining an elongated joint therebetween, said assembly comprising:

(a) a pair of parallel elongated base members adapted to be secured to the outer face of the structural sections in opposed relationship,

each base member having an expansion joint cover mounting surface formed of an elongated vertical wall extending from the top of the base member, a horizontal surface extending inwardly therefrom and a vertical surface at the end thereof, the vertical surface terminating in a generally V-shaped pocket, the horizontal surfaces forming a coplanar mounting surface and the vertical walls being in opposed parallel relationship forming vertical alignment surfaces;

(b) an elongated cover plate assembly for spanning the joint in covering relation thereto, formed of an elongated bridging member, having a generally arch-shaped cross-section with a flat top surface, angularly inclined outer walls, and elongated hook-like portions at the ends to engage the V-shaped pockets on the base members to releasably latch the bridging member thereto, said bridging member further having an elongated bulb-shaped tongue extending along the angularly inclined wall, and

two elongated mounting members, one on each side of the arch-shaped bridging member, the side of the mounting member opposing the arch-shaped bridging member having an elongated bulb-shaped groove to receive the bulb-shaped tongue of the bridging member thereby mechanically bonding the mounting members to the bridging member, the mounting members having a horizontal mounting surface and vertical alignment

surfaces which extend from each end of the horizontal surface, the horizontal surfaces of the mounting members overlying the coplanar horizontal mounting surfaces of the base members and the vertical alignment surfaces lying adjacent the opposed vertical alignment surfaces of the base members;

(c) means detachably securing the mounting members to the base members.

2. The expansion joint cover assembly set forth in claim 1 in which a rigid vinyl support member is positioned about the inner wall of the bridging member with its ends supported by the base members to provide additional support for the bridging member against the movement toward the base members.

3. The expansion joint cover assembly set forth in claim 1 in which the base members are provided with opposed elongated grooves in which an elongated moisture shield is engaged.

4. The expansion joint cover assembly set forth in claim 1 in which each base member is provided with an elongated groove in the surface opposing the structural sections and a plurality of L-shaped anchors are disposed in said groove to engage the structural sections to rigidly secure the base members to the structural sections.

5. An expansion joint cover assembly for structural sections disposed in spaced relationship and defining an elongated joint therebetween, said assembly comprising two base members for attaching to the structural sections on opposite sides of the joint, two elongated cover mounting members attached to the base members in parallel spaced relationship on opposite sides of the joint, an elongated cover member of resilient material located between and attached to the cover mounting members to close the joint between the two spaced structural sections and to stretch and compress without suffering permanent deformation as required to maintain the space between the cover mounting members closed as the cover mounting members are moved apart and together by the expansion and contraction of the structural sections, said joint cover assembly being further characterized by said cover member being generally arch-shaped in cross section with the lower edges thereof hook-shaped and each base member having an elongated groove receiving one of said hook-shaped ends of the arch-shaped cover member to releasably hold the cover member in position spanning the joint and to support the cover member against deformation toward the base members.

6. The expansion joint assembly of claim 5 further provided with an arcuate support member positioned under the resilient material of the cover member with its ends supported by the base members to provide additional support for the cover member against deformation toward the base members.

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