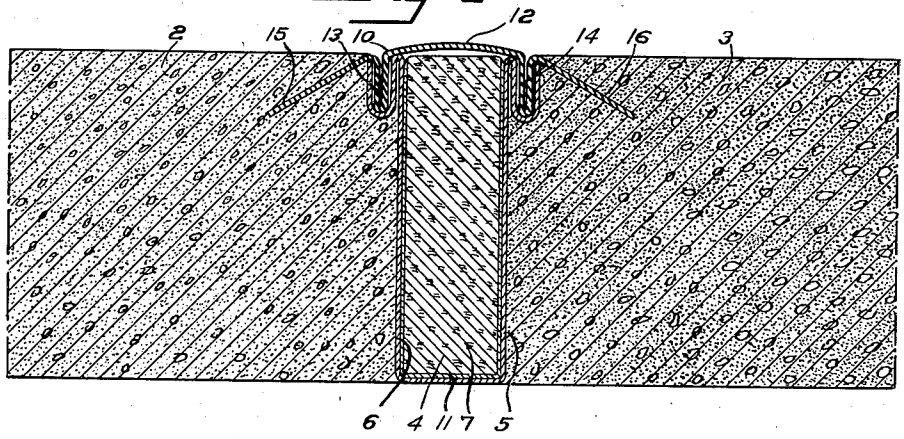
May 6, 1941. W. W. KINZER 2,240,786

EXPANSION JOINT FOR SECTIONAL CONCRETE PAVING AND SIMILAR STRUCTURES

Filed Jan. 3, 1939

Fig 1



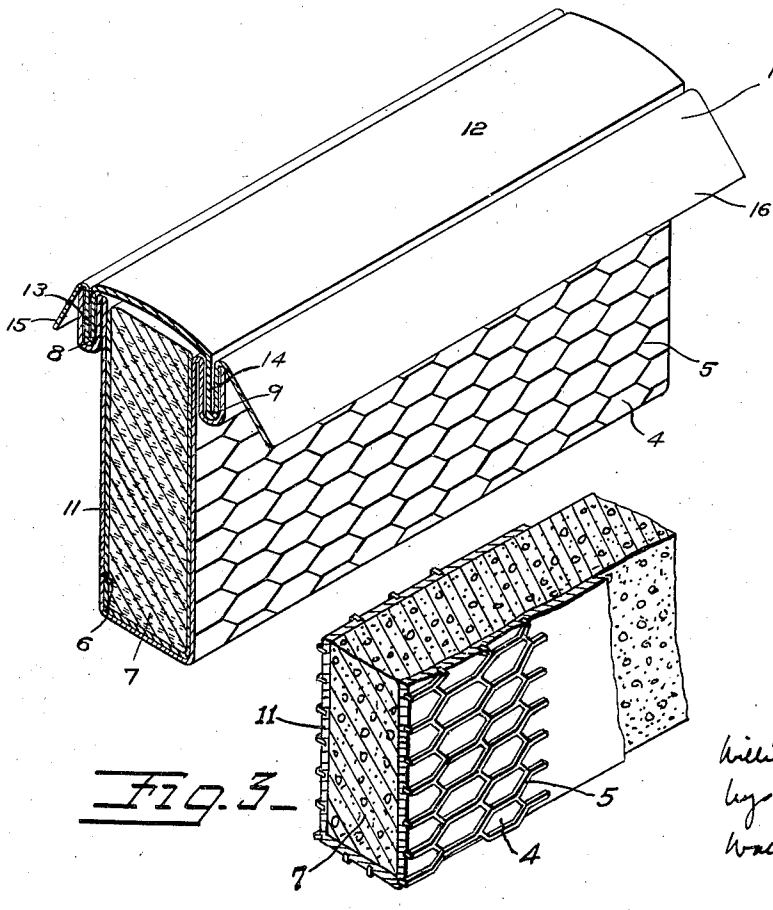


Fig 2

Fig. 3

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EXPANSION JOINT FOR SECTIONAL CONCRETE PAVING AND SIMILAR STRUCTURES

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4 Claims. (Cl. 94—18)

This invention relates to expansion joints for sectional concrete paving and similar structures and, more particularly, to preformed expansion joints for such structures in which the joint is securely bonded or keyed to adjacent sections of concrete paving while permitting expansion and contraction of such sections, and in which a top sealing strip obviates ingress of gravel or other foreign matter which might enter into and interfere with effective operation of the joint.

This invention has for its chief object to provide an expansion joint for concrete paving and similar structures which, while providing a satisfactory and efficient seal between sections, is capable of permitting either expansion or contraction of the sections, and permits a substantial widening or closing of the space between sections while sealing the top of the opening and obviating ingress of foreign matter. An object of the invention is to provide an expansion joint of sufficient strength and rigidity as to eliminate the use of bulk-heads or backing boards as a support for the assembly while casting concrete sections. A further object is to provide a structure in which a secure bond is assured between the joint and adjacent concrete sections. A still further object is to provide a permanent expansion joint which, once constructed, requires no calking or further special attention, and which is securely anchored or bonded to adjacent sections of paving.

This invention relates to a preformed expansion joint, adapted for use in sectional concrete paving and similar structures in which a prefabricated metal sheath is provided protecting a compressible filler seated therein and permitting secure engagement between the filler and adjacent sections of paving. A top sealing strip overlies the compressible filler and is secured to the metal sheath and to adjacent sections of paving, thereby preventing ingress of foreign matter into the joint. The sheath is formed of expanded metal trough or U-shaped to receive the compressible filler and is provided with troughs on opposite longitudinal sides thereof extending longitudinally along its upper extremities for the reception of the sealing strip. The compressible filler may comprise of cork composition, natural cork, rubber, cork and rubber or other suitable material. The top sealing strip may be formed of suitable metal of sufficient strength to receive, without substantial damage, impacts caused by vehicular traffic, and may be chosen to render the joint attractive in appearance as well as for its utilitarian functions.

The attached drawing illustrates a preferred embodiment of my invention, in which—

Figure 1 is a fragmentary transverse sectional view through the expansion joint in use, in which the expanded metal sheath is shown diagrammatically as a solid layer in order to more satisfactorily illustrate the same;

Figure 2 is an isometric sectional view of the preformed expansion joint; and

Figure 3 is a fragmentary view in perspective of the preformed expansion joint shown in Figures 1 and 2, broken away to illustrate the manner in which the expanded metal sheath is embedded in the water resistant coating of the filler strip.

Referring to the drawing, there are shown adjacent sections 2 and 3 of concrete paving provided with an expansion joint indicated in its entirety by the numeral 4. The expansion joint 4 comprises a prefabricated sheath 5 forming a U-shaped frame or trough 6 for the reception of a filler strip 7 of resilient compressible material. The sheath 5 may be formed of expanded metal, perforated and stretched in the form of lattices. The sheath 5, on opposite sides of the U-shaped frame 6 is turned downwardly, outwardly, and upwardly to form inner and outer walls of troughs 8 and 9 extending longitudinally along its upper extremities for the reception of a top sealing strip 10, which is securely held within the troughs 8 and 9. The sheath 5 may be prefabricated to fit any desired sizes of filler strips 7 and sealing strips 10.

The compressible filler strip 7 may be formed with any suitable resilient material such as natural cork, rubber, cork and rubber saturated fibrous material, cork composition agglomerated by a synthetic resin binder or the like. The filler strip 7 is coated with a suitable thermo-plastic, water resistant composition 11, such as asphalt. The metal sheath 5 may be secured to the filler strip 7 by heating the sheath and rolling or imbedding it into the coating 11, or the filler strip 7 may be inserted into the U-shaped frame 6 of the sheath 5 and secured therein by mechanical means such as wires or staples.

The top sealing strip 10 comprises a transverse cap 12 adapted to overlie the top of the filler strip 7, such cap being bent downwardly and upwardly intermediate its edges to provide spaced longitudinally extending ribs 13 and 14 on its under surface adapted to nest or fit within the troughs 8 and 9 of the sheath 5 and be secured therein, and terminates in downwardly inclined edges 15 and 16 adapted to be imbedded within the cast sectional paving. The edges 15 and 16

may be serrated or crimped to assure satisfactory engagement with adjacent sections of paving.

The top sealing strip 10 may be formed of any metal of sufficient flexibility to be shaped as above described, and need be of sufficient strength and rigidity to receive, without substantial damage, impacts occasioned by vehicular traffic. Such strip may be formed of copper or suitable alloys in order to render the joint attractive in appearance as well as to serve the utilitarian functions mentioned above.

In forming the expansion joint 4, sheaths 5 are prefabricated to fit predetermined sizes and shapes of filler strips 7 and sealing strips 10. The sheath 5 is heated, the filler strip 7 positioned in the U-shaped frame 6 thereof and the walls of the U-shaped frame 6 are imbedded in the thermo-plastic water resistant coating 11 on the strip 7. The top sealing strip 10 is placed over the filler strip 7, its ribs 13 and 14 fitting within the troughs 8 and 9 of the sheath 5. If desired, the outer walls of the troughs 8 and 9 may be forced inwardly to securely retain the ribs 13 and 14 of the sealing strip 10 therein. The preformed expansion joint is then ready for use in paving structures or similar assemblies. While the filler strip 7 may have any sectional form, for ease of application as well as simplicity of manufacture, the illustrated rectangular form should be generally satisfactory.

In forming the paving structure, the joint 4 is placed in predetermined position on a roadway and held in place thereon. If desired, the joint may be used with any of the usual dowel bar or load transference assemblies. Concrete is poured on both sides of the joint 4 forming the sections 2 and 3, and penetrating through the openings in the sheath 5 to engage and bond with the filler strip 7. The downwardly inclined edges of the top sealing strip 10 are imbedded in the poured sections 2 and 3 and retain the strip in fixed position in the assembly.

My invention provides an economical preformed expansion joint for sectional paving or similar structures which is capable of compensating for expansion of adjacent concrete sections and permits a substantial widening or closing of the space between such sections without providing an opening for the ingress of foreign matter into the joint. An efficient and secure bond is obtained between the joint and adjacent sections of paving. The joint is of sufficient strength and rigidity to eliminate the use of bulk-heads or backing boards as supports for the assembly during the casting operation.

While I have described and illustrated a preferred embodiment of my invention, it will be understood my invention is not so limited since it may be otherwise embodied within the scope of the following claims.

I claim:

1. A preformed expansion joint adapted for use in sectional concrete paving or similar structures comprising a trough-shaped sheath member adapted to receive a preformed filler and having troughs extending longitudinally along its upper extremities, a resilient compressible filler seated in said sheath, and a sealing strip disposed in spaced relationship to said filler, said strip terminating in downwardly directed edge portions adapted to be embedded in adjacent concrete sections and having spaced longitudinally extending ribs on its under surface fitting within the troughs of said sheath and being held therein.

2. A preformed expansion joint adapted for use in sectional concrete paving or similar structures comprising a U-shaped, expanded metal sheath member adapted to receive a preformed filler and having troughs extending longitudinally along the upper extremities of the legs of the sheath, a resilient, compressible filler seated in said sheath, said filler having a thermoplastic moisture resistant coating thereon in which said sheath is embedded, and a sealing strip overlying said filler and being bent upon itself intermediate its edges to provide spaced longitudinally extending ribs on its under surface fitting and held in the troughs in said sheath, said strip terminating in downwardly inclined edge portions adapted to be embedded in adjacent sections of paving.

3. A preformed expansion joint adapted for use in sectional concrete paving or similar structures comprising a trough-shaped sheath member adapted to receive a preformed filler, the walls of said sheath being turned downwardly, outwardly and upwardly to form troughs extending longitudinally along its upper extremities for the reception of a sealing strip, a resilient compressible filler seated in said sheath, and a top sealing strip overlying said filler and having spaced longitudinally extending ribs on its under surface nested in the troughs in said sheath.

4. A preformed expansion joint adapted for use in sectional concrete paving or similar structures comprising a trough-shaped sheath member adapted to receive a preformed filler, said sheath being turned downwardly, outwardly and upwardly to form troughs extending longitudinally along its upper extremities for the reception of a sealing strip, a resilient compressible filler seated in said sheath, and a sealing strip overlying said filler, said strip terminating in downwardly inclined edge portions adapted to be engaged by adjacent concrete sections and having spaced longitudinally extending ribs in its under surface penetrating into the troughs in said sheath and being held therein.

WILLIAM W. KINZER.