March 24, 1953 H. K. MARTIN 2,632,367

EXPANSION JOINT FOR PAVEMENTS AND THE LIKE

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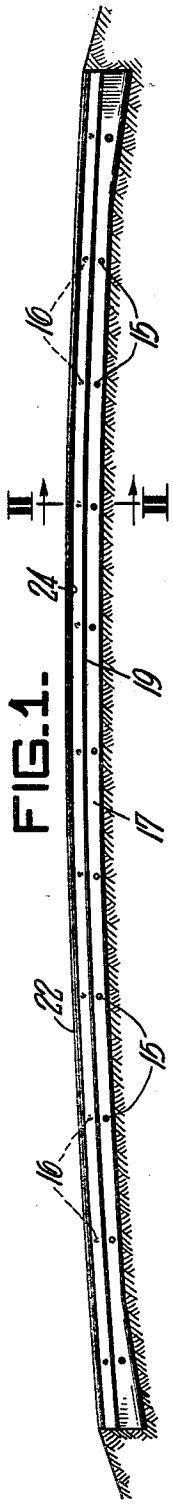


FIG. 1.

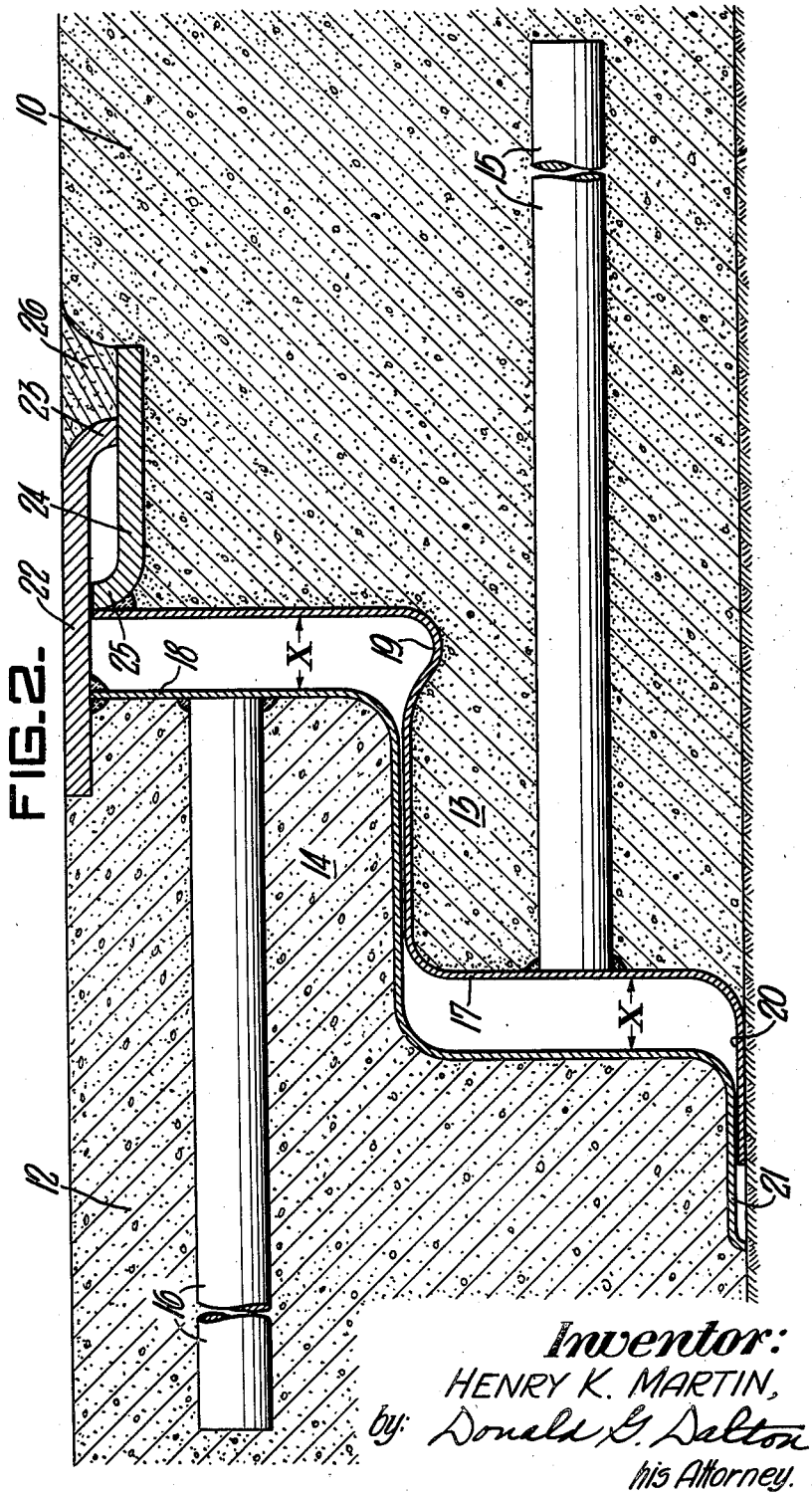


FIG. 2.

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EXPANSION JOINT FOR PAVEMENTS AND THE LIKE

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1 Claim. (Cl. 94—18)

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This invention relates to improvements in expansion joints for pavements and the like and to preformed structural assemblies for constructing such joints.

An object of the invention is to provide improved expansion joints which eliminate the usual tar, asphalt or impregnated felt filler and which also furnish better means for transmitting traffic loads and for water drainage than previous joints with which I am familiar.

A further object of the invention is to provide improved expansion joints which have relatively movable wearing and bearing plates that eliminate the need for the usual tar, asphalt or impregnated felt filler, and in which the adjoining concrete slabs overlap for transmitting loads and which include a novel arrangement of transverse gutters for water drainage.

A further object of the invention is to provide cooperable preformed structural assemblies for constructing expansion joints which have the foregoing improved characteristics.

In accomplishing these and other objects of the invention, I have provided improved details of structure, a preferred form of which is shown in the accompanying drawing, in which:

Figure 1 is a vertical cross-sectional view of an expansion joint which embodies features of the present invention; and

Figure 2 is a vertical longitudinal sectional view taken substantially on line II—II of Figure 1.

The drawing shows a section of pavement or the like which includes two adjoining slabs 10 and 12. Slab 10 has a continuous step-like projection 13 and slab 12 a continuous projection 14 which overlies projection 13. The vertical faces of two slabs are separated, as indicated at X, so that the slabs can move relative to each other, according to the usual principles of expansion joints. A series of longitudinal anchor bars 15 are embedded in slab 10 and extend through its projection 13 to the vertical face of the latter. Similarly a series of longitudinal anchor bars 16 are embedded in slab 12 and extend through its overlying projection 14 to the vertical face of the latter. Therefore the anchor bars reinforce both projections and, since one projection overlies the other, the projections furnish a positive means for transmitting forces of traffic loads from one slab to the next. The anchor bars effectively sustain shear stresses in the projections.

A rolled or stamped metal sheet 17 covers the entire end of slab 10, having an offset to cover its projection 13, and the ends of anchor bars 15 are welded to this sheet. Similarly a rolled or stamped metal sheet 18 covers the entire end of

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slab 12, having a matching offset to cover its projection 14, and the ends of anchor bars 16 are welded to this latter sheet. Sheet 17 has a continuous indentation 19 at the juncture of its offset between the vertical face of slab 10 and the horizontal face of its projection 13. This indentation forms a transverse gutter for water drainage. The bottom end of sheet 17 preferably is bent perpendicularly to form a horizontal segment 20 which underlies the edge of slab 12. The bottom end of sheet 18 is bent perpendicularly to form a horizontal segment 21 which overlies horizontal segment 20. These horizontal segments prevent foreign material from the subgrade beneath the pavement entering the expansion joint.

A metal wearing plate 22 is welded to the upper edge of one of the sheets and its surface is flush with the slab surface. Said wearing plate extends across the joint and has a depending lip 23 at its free edge. A bearing plate 24 is welded to the upper edge of the other sheet and its surface is at a slightly lower level than the slab surface. The outer edge of this bearing plate has an upstanding lip 25. As the pavement or the like expands and contracts, lip 23 on the wearing plate rides back and forth on the bearing plate, and the wearing plate insures that the joint is relatively smooth. Lip 25 on the bearing plate forms an additional transverse gutter for water drainage.

The bearing plates and wearing plates preferably are welded to the sheets before shipment, but it is obvious they could be welded at the location where they are used. For convenience in shipping, the anchor bars preferably are not welded to the sheets until they reach the latter location, but it is obvious they could be welded thereto before shipment. The sheets with the bearing plates, wearing plates and anchor bars welded thereto thus constitute cooperable structural assemblies for constructing the expansion joint.

When the pavement or the like is laid, the structural assemblies for the joint are set in place, and they furnish forms for pouring the paving material. Figure 2 shows a filler 26 between the free edge of the wearing plate and slab 10. This filler is inserted temporarily while the joint is being assembled to prevent the paving materials covering the bearing plate, but can be removed after the material has set.

From the foregoing description it is seen that the present invention furnishes an expansion joint which is particularly effective for transmitting loads and has effective water drainage. The joint is of simple construction and eliminates

the need for the usual tar, asphalt or impregnated felt filler, with the exception of the temporary filler **26**.

While I have shown and described only a single embodiment of the invention, it is apparent that modifications may arise. Therefore, I do not wish to be limited to the disclosure set forth but only by the scope of the appended claim.

I claim:

In an expansion joint between a pair of adjoining slabs, the end of one of said slabs having a continuous step-like projection extending from its lower portion and the end of the other having a continuous overhanging projection extending from its upper portion and supported on said step-like lower projection, said projections having horizontal faces in contact with each other for transmitting loads applied to the top of the joint, the vertical end faces of said slabs being separated to allow for contraction and expansion of the slabs, a series of longitudinal anchor bars embedded in each slab and extending to the end of its projection, a pair of metal sheets one of which conforms with the contour of the end of each slab and covers substantially the entire end thereof including its projection, a drainage gutter formed in the upper horizontal face of said step-like lower projection and the metal sheet covering this projection, said sheets having overlapping horizontal segments at their lower edges extending back under the slab which has the overhanging projection to prevent the entry of foreign material from underneath, the ends of said anchor bars being welded to said sheets, and means at the upper edges of said slabs covering the space therebetween.

HENRY K. MARTIN.

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