June 6, 1939. M. E. CAPOUCH 2,161,333

EXPANSION JOINT

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FIG. 1.

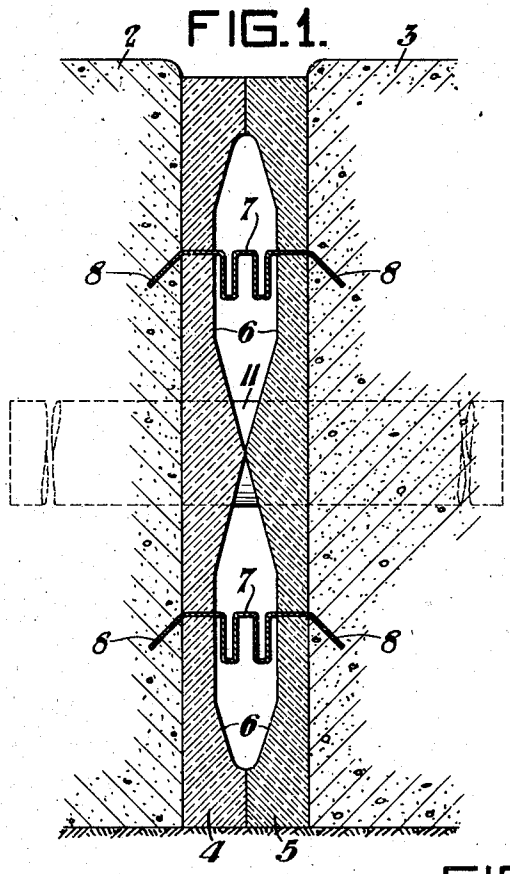


FIG. 3.

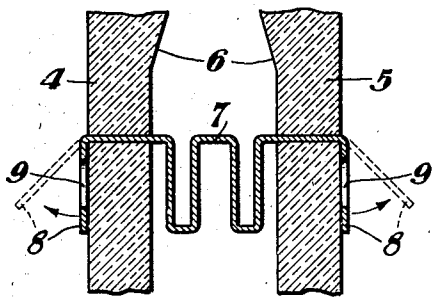


FIG. 4.

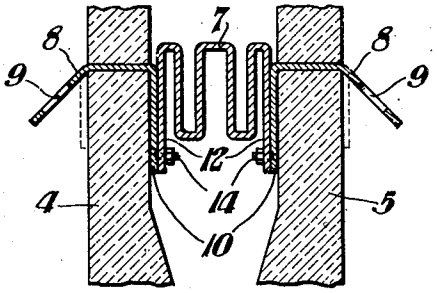
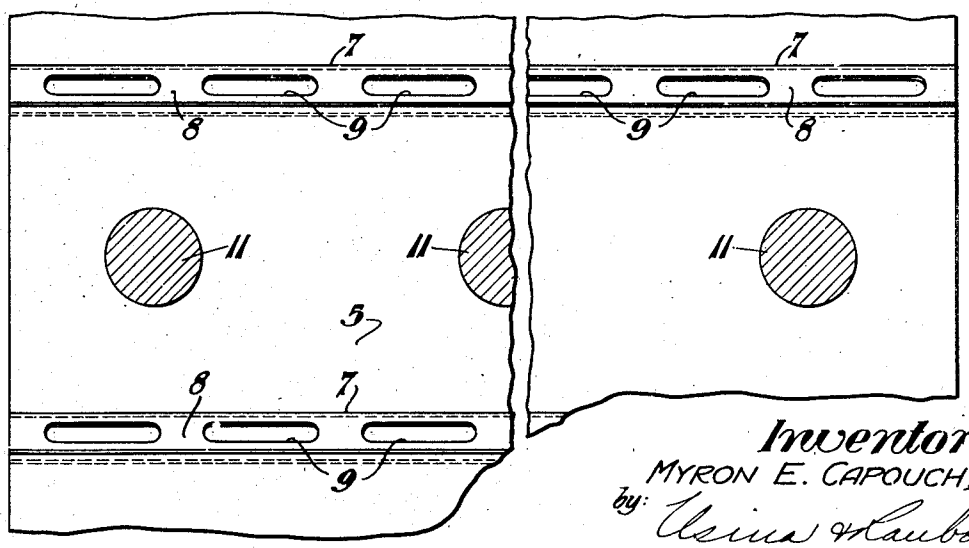


FIG. 2.



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FIG. 5.

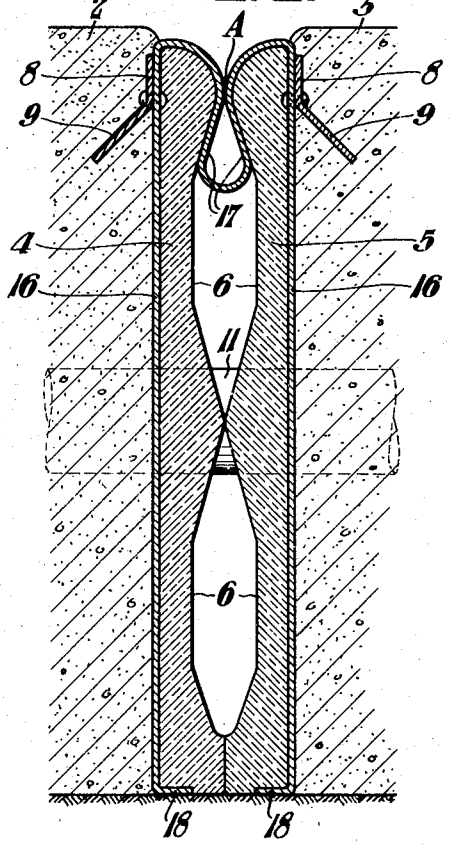


FIG. 7.

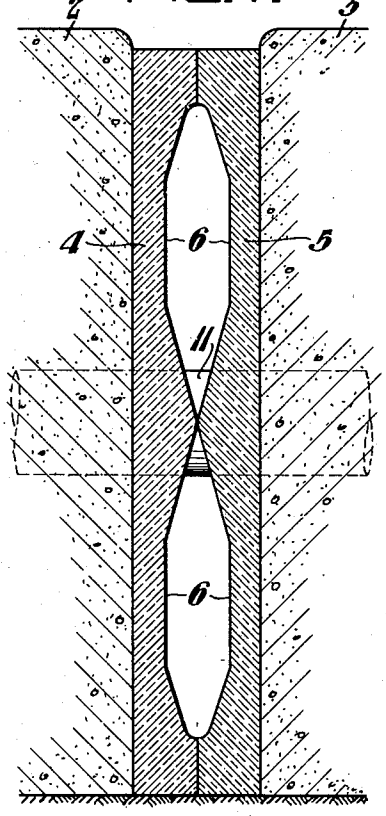


FIG. 6.

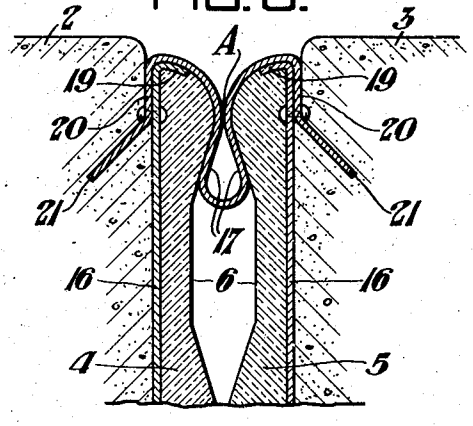
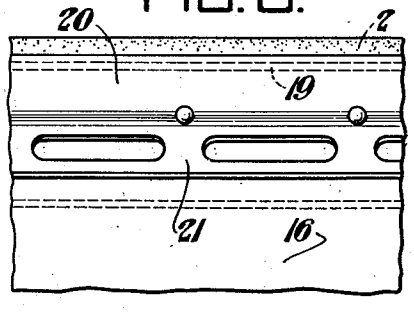


FIG. 8.



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UNITED STATES PATENT OFFICE

2,161,333

EXPANSION JOINT

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Application June 23, 1937, Serial No. 149,973

6 Claims. (Cl. 94—18)

The present invention relates to expansion joints for concrete roadways and pavements, and more particularly to a premolded expansion joint.

Expansion joints are in many cases constructed of premolded asphalt or an asphalt composition and, due to temperature changes, the compound is squeezed up onto the surface of the roadway or pavement and subsequently dissipated by the wheels of traffic moving over the surface of the roadway or pavement.

An object of this invention is to prevent the dissipation and squeezing up of the joint material upon the surface of the pavement or roadway.

Other objects and advantages will become apparent as the description proceeds, in which:

Figure 1 is a vertical sectional view through a section of roadway showing the construction of the present invention;

Figure 2 is a side view of the joint construction;

Figure 3 is an enlarged detailed sectional view of the construction of the metallic seal shown in Figure 1;

Figure 4 is an enlarged detailed sectional view of another form of seal construction;

Figure 5 is a vertical sectional view of another form of joint construction;

Figure 6 is a detailed sectional view of a modified form of seal construction as shown in Figure 5;

Figure 7 is a sectional view of the joint without the metallic seal construction; and

Figure 8 is a detailed side elevation of the seal shown in Figure 6.

In the drawings, the numerals 2 and 3 represent adjacent sections or slabs of a concrete roadway or pavement. These concrete sections are usually spaced a suitable distance apart to allow for expansion and contraction of the joint due to temperature changes. Positioned in the space between said adjacent concrete sections is a premolded expansion joint filler comprising complementary slabs 4 and 5. These slabs are molded or cut so as to provide, upon their inner faces, a corrugated surface between their respective ends. The inner surface of the end portions of the complementary preformed slabs abut each other to form a seal; while the inner portions adjacent the ends are molded or cut away so as to provide an air space or pocket 6 on each side of the central portions of said complementary slabs, which likewise abut each other. In such a construction, when the concrete sections 2 and 3 contract in respect to each other, the air spaces 6 in the preformed expansion filler joint will provide sufficient air space for the lateral movement of the slabs 4 and 5 without extrusion of the filler material, which may be asphalt or an asphalt composition over the surface of the roadway or pavement. The premolded slabs 4 and 5 may, if desired, be made in two or more sections adapted to extend transversely across the roadway or pavement and if such be the case, the respective sections may be secured together in any desired or conventional manner.

Through this expansion joint, at regularly spaced intervals, dowel-bars 11 or other load transmission devices are positioned, which may be of any desired shape and length.

As shown in Figure 1, the slabs 4 and 5 may be provided with a metallic seal, said seal being placed in the top and bottom of the joint at a point within the air spaces or pockets 6. This metallic seal 7, as shown in Figure 1, is so constructed and arranged as to have a cross-sectional shape substantially that of the letter W or similar to that of a portion of a sylphon. However, the particular shape may be changed as desired, as will be seen from the construction shown in Figures 5 and 6.

The seal 7 extends through each complementary slab 4 and 5, and is provided with laterally extending flanges or tongues 8 having suitable openings 9 to permit the concrete to settle in and around the flanges 8 so as to provide an anchoring means for the joint. This metallic seal may be positioned between the slabs 4 and 5 while they are being preformed, or may be secured thereto in any desired manner prior to the shipping of the slab sections. This prevents the slab sections from compressing during shipment, as the seals 7 form sufficient supporting means to prevent them from compressing at the air spaces.

Instead of providing a unitary seal, as shown in Figures 1 and 3, the seal 7 may be constructed as shown in Figure 4 wherein the main body portion thereof is substantially identical with that shown in Figures 1 and 3.

However, the flanges 8 may be a separate part and are provided with downwardly extending portions 10 adapted to abut the flanges 12 and be rigidly secured thereto, as at 14, in any conventional manner. The flanges 8 may be positioned against the outer surface of said slabs 4 and 5 prior to shipping, as shown in Figure 3. However, when the joint is to be placed in position, said flanges are bent up into the position shown in Figure 1, or the dotted line position in Figure 3.

In the construction shown in Figure 5, the expansion joint comprises, in addition to the complementary slabs 4 and 5, metallic side-walls 16 surrounding said slabs 4 and 5 and extending up and over the top portions of said slabs 4 and 5 and downwardly into the air space 6, forming an inverted loop.

The downwardly extending portions 17 contact each other at the point indicated at "A" in Figure 5. The opposite ends of the side-walls 16 are bent inwardly to form flanges 18 which engage the bottom ends of slabs 4 and 5. Secured to the side walls by welding, riveting or in any other conventional manner, are the flanges 8 having the openings 9 of similar construction to that shown in Figures 2 and 3.

The construction shown in Figure 6 is substantially the same as shown in Figure 5 but, instead of having the side-walls 16 extend upwardly over the top ends of the slabs 4 and 5, they terminate in flanges 19. A seal 20 is riveted, welded or otherwise secured in any conventional manner to the side-walls 16 and is provided with the laterally extending portions 21 similar to the flanges 8 with the laterally extending portions, and extends up over the top ends of the slabs 4 and 5 and down into the air space 6, forming an inverted loop which tends to seal the expansion joint against the infiltration of water or other extraneous matter.

The inverted loop, as shown in Figures 5 and 6, extends transversely across the entire roadway or pavement and thereby forms a complete metallic seal for the expansible slabs 4 and 5, said inverted loop may also extend down the ends of the joint.

If desired, the preformed slabs 4 and 5 may comprise the expansion joint without the addition of the metallic seal, as shown in Figures 1 to 6, inclusive. Such a construction is illustrated in Figure 7. The slabs 4 and 5 are constructed as specifically described in Figure 1.

While I have shown and described specific embodiments of the present invention, it will be understood that I do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of the invention as defined by the following claims.

I claim:

1. An expansion joint for concrete roadways and pavements comprising preformed complementary expansible filler slabs, said filler slabs positioned between adjacent roadway sections so as to provide spaced pockets between said filler slabs, a metallic member surrounding said preformed slabs and extending downwardly between the inner faces of said slabs, said downwardly extending portion forming a seal for the top of said expansion joint and laterally extending flanges secured to said metallic member whereby said joint is securely held by adjacent concrete sections of the roadway.

2. An expansible joint for concrete roadways and pavements comprising preformed complementary expansible filler slabs, said filler slabs so constructed and arranged as to provide spaced pockets, a metallic covering for said preformed filler slabs and a metallic seal secured to said covering, said metallic seal extending downwardly into said pockets and forming an inverted loop.

3. In an expansion joint for concrete roadways and pavements, a filler for said joint comprising preformed complementary slabs having a smooth outer surface, the inner surface of each slab being constructed and arranged to form when abutted with each other spaced pockets, said pockets extending from a point midway of said filler blocks outwardly to a point adjacent the top and bottom edges of said blocks and a metallic seal for said slabs positioned in said pockets and extending through said filler slabs and provided with flanges whereby said joint is securely held by the adjacent concrete sections of the roadway.

4. An expansion joint for concrete roadways and pavements comprising premolded complementary filler slabs so constructed and arranged as to provide spaced air pockets between said filler slabs and a metallic seal for said slabs, said seal positioned in said pockets and extending through said filler slabs for anchorage in the concrete.

5. An expansion joint for concrete roadways and pavements comprising preformed complementary expansible filler slabs, said filler slabs constructed and arranged to provide, when assembled, internally spaced pockets at the top and bottom portions thereof so that when said concrete roadway or pavement contracts, the pockets formed by said complementary slabs will provide sufficient space for lateral movement of the slab material without extrusion of the material over the surface of the roadway or pavement and a seal positioned in said pockets and extending through said filler slabs for anchoring the filler slabs to the concrete sections.

6. An expansion joint for concrete roadways and pavements comprising preformed expansible filler slabs, said filler slabs positioned in abutting relation so as to provide spaced pockets confined within the outer walls of said filler slabs, and a metallic seal positioned within each of said pockets and extending through said slabs, said seal having laterally projecting apertured flanges extending into the concrete roadway or pavement so that the concrete of the roadway may pass through the apertures in said flanges for anchoring said joint in position.

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