April 6, 1937. A. H. SCHAFFERT 2,076,505

AIR CUSHION JOINT

Filed Oct. 22, 1934

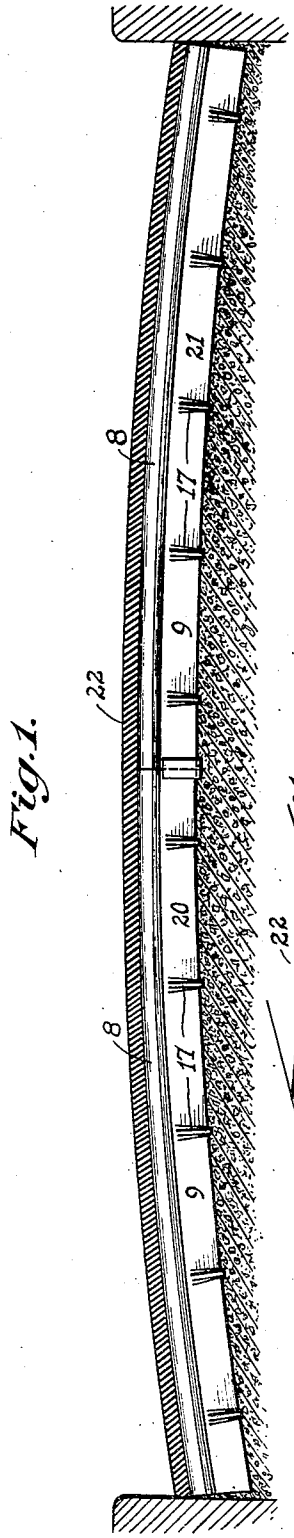


Fig. 1.

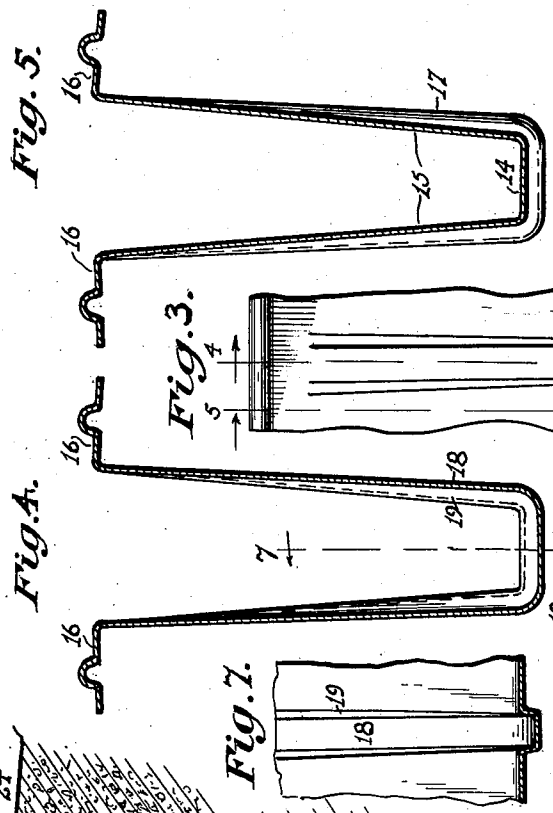


Fig. 5.

Fig. 3.

Fig. 4.

Fig. 7.

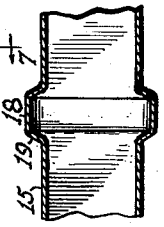


Fig. 6.

Fig. 2.

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AIR CUSHION JOINT

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1 Claim. (Cl. 94—18)

The present invention relates to expansion joints such as are widely used in the building of concrete roads to allow for the expansion and contraction of the material of the road. More particularly it relates to the type known as "air cushion" joints in which the sections of concrete are separated by a body of air which is covered by a sealing strip, usually of asphalt material.

Previously used joints of the air cushion type have been composed of pluralities of separate straight sections, which sections were placed in the road in end to end relation, each section being positioned at an angle to the adjacent ones. This method resulted in joints having top surfaces made up of a plurality of chords, and as concrete roads are transversely curved in a uniform crown, the tops of the joints and the road surfaces were not parallel curves to the distance between them, and consequently the spaces between sections to be filled with sealing material, varied. In order to conform with the variations, the filling has sometimes been done with melted material.

It has been found that a pre-formed strip of asphaltum has certain material advantages over a poured filler, but when a preformed filler is used with the type of joint above described, it is necessary to trim the top of such strip to make it conform to the crowned surface of the road.

The object of the present invention is to provide a joint and particularly an air cushion joint which is longitudinally curved to conform to the crown of a road.

In the accompanying drawing:

Figure 1 is an elevation showing the joint in position in a roadway which is shown in section.

Figure 2 is a perspective view partly in section showing the joint inserted in a road.

Figure 3 is an enlarged elevation of a portion of the lower V-shaped member of the joint.

Figure 4 is a sectional view taken on the lines 4—4 of Figure 3.

Figure 5 is a sectional view taken on the lines 5—5 of Figure 3.

Figure 6 is as sectional plan view taken on lines 6—6 of Figure 3.

Figure 7 is a sectional plan view taken on lines 7—7 of Figure 4.

The air cushion joint is composed of an upper or cap member 8 and a lower or base member 9.

The upper or cap member is preferably formed of material which will resist corrosion since it is important that it last for a comparatively long period of time. Copper alloys have been found suitable. Advantageously it comprises a top wall 10 and downwardly extending side walls 11, terminating in outwardly extending flanges 12 which are shaped and rebent to engage portions of the base section. The top wall 10 may be formed with a central longitudinally extending channel 13.

The lower member 9 may be formed of ferrous and relatively light material since it is unimportant that it resist corrosion after the concrete of the road has set. This member may be channel-shaped, comprising a bottom wall 14 and side walls 15, which terminate at their tops in outwardly extending flanges 16 shaped to interlock with the rebent flanges 12 of the cap member, as shown in Figure 2.

In order to longitudinally curve the lower member 9, the material of the side walls is deformed at intervals in a manner which longitudinally contracts the lower portion of the member.

This is done by forming longitudinally spaced, outwardly extending corrugations 17 of special form in the lower portion of the side walls 15 and the bottom 14. These corrugations begin at a point below and spaced from the flanges 16 and comprise outer walls 18 and side walls 19 which at the point of the beginning are at a very slight angle to the walls 15, but which increase their angularity to such walls to substantially right angles as they approach the bottom of the member 9. Thus the corrugations are greatest in outward extent from the walls 15 at their lowermost points, from where they taper inwardly until they merge with the said walls. Due to this formation of the corrugations, an increasing amount of the material of the walls 15 from top to bottom is bent from the plane of the walls, and there is a consequent shortening of the lower portion of the member, with an attendant longitudinal bending thereof.

Advantageously a complete air cushion joint is composed of two similar sections 20, 21 joined together as by welding of their meeting ends.

In order to seal the joint to prevent moisture and dirt from entering the pocket formed therein, a preformed sealing strip 22 is placed in the space between the sections of the concrete over the top of the cap strip 8. The strip 22 is formed with a projection 23 which lies in the channel 13 and the sides thereof are shaped to conform with the edges 24 of the concrete sections.

An air cushion joint of this type has many advantages. It is of the same contour as the surface of the road which allows a preformed sealing strip to be used without trimming. It is simple to manufacture, and inasmuch as it is in

one piece when positioned in the road, it is easy to install. It is less expensive to install than a joint made up of a plurality of straight sections. Finally it forms an efficient and durable air cushion joint.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

What I claim:

In an expansion joint for embedment in a concrete road, a channel shaped strip having a bottom wall, upwardly extending side walls joined to the bottom wall by angular corners, and a plurality of spaced corrugations extending transversely of the bottom wall, around the corners and into the lower portions of the side walls to longitudinally curve the strip, the said corrugations upwardly tapering to merge with the side walls, and forming lugs for interengaging with the concrete of a roadway in which the joint is embedded.

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