A. E. DAVIS.

PAVEMENT AND EXPANSION JOINT THEREFOR.

APPLICATION FILED NOV. 24, 1914.

1,298,018.

Patented Mar. 25, 1919.

3 SHEETS—SHEET 1.

Fig. 1.

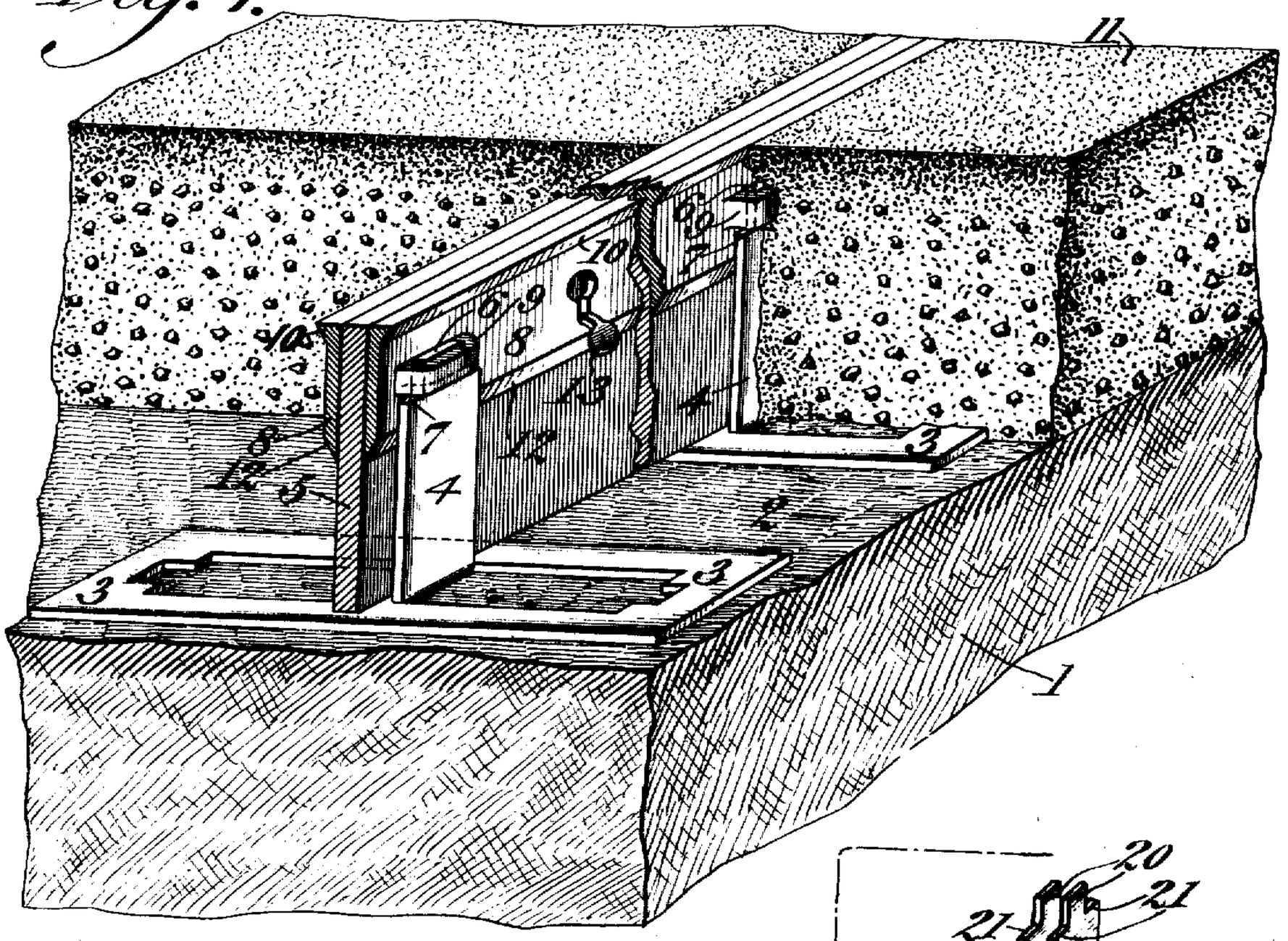


Fig. 2.

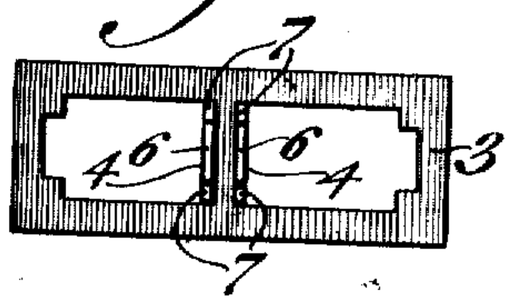


Fig. 4.

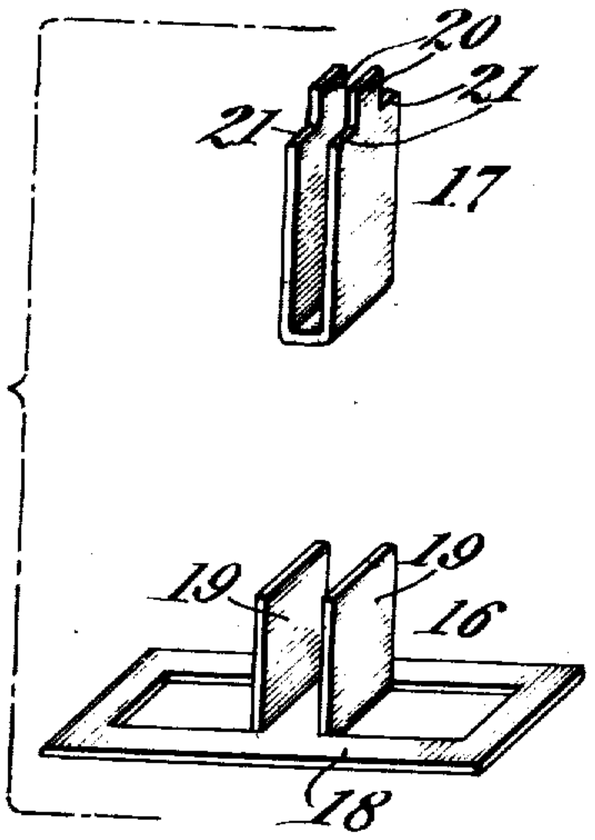
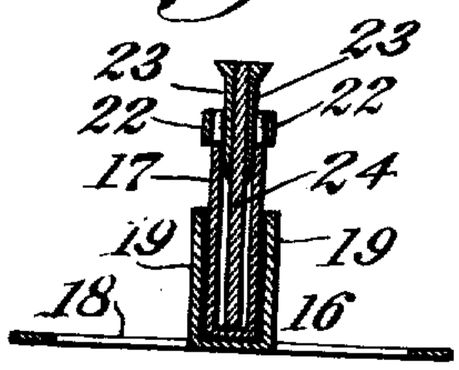


Fig. 5.



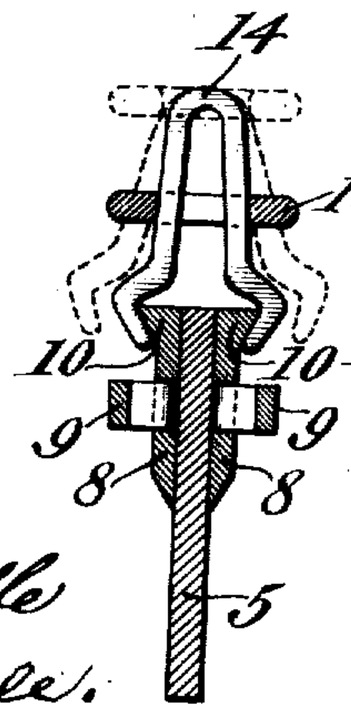


Fig. 3.

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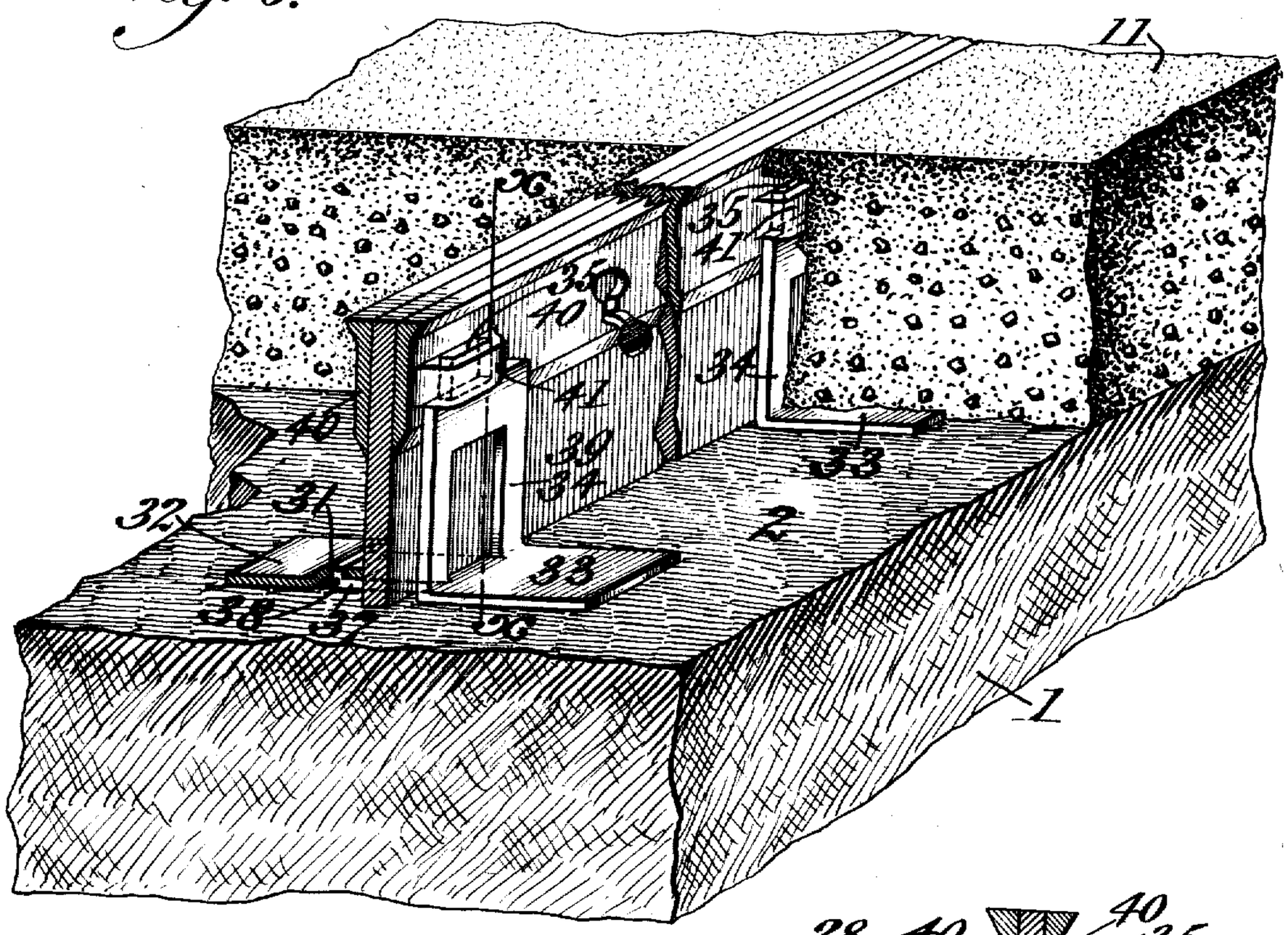
3 SHEETS—SHEET 2.

Fig. 6.



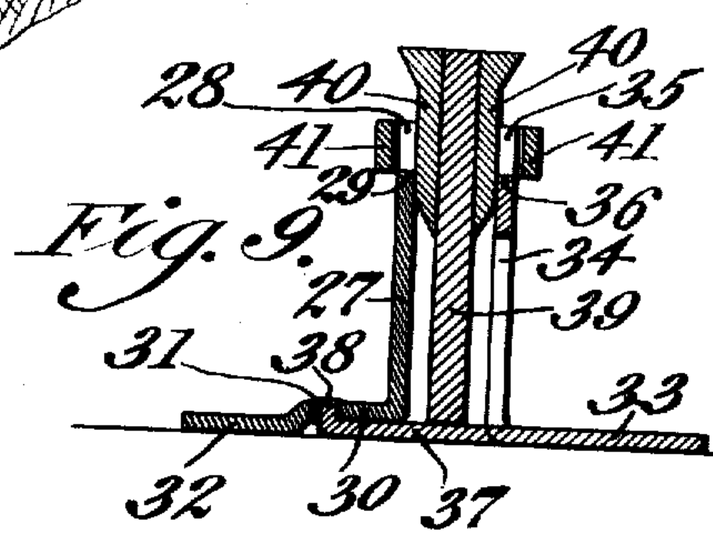


Fig. 9.

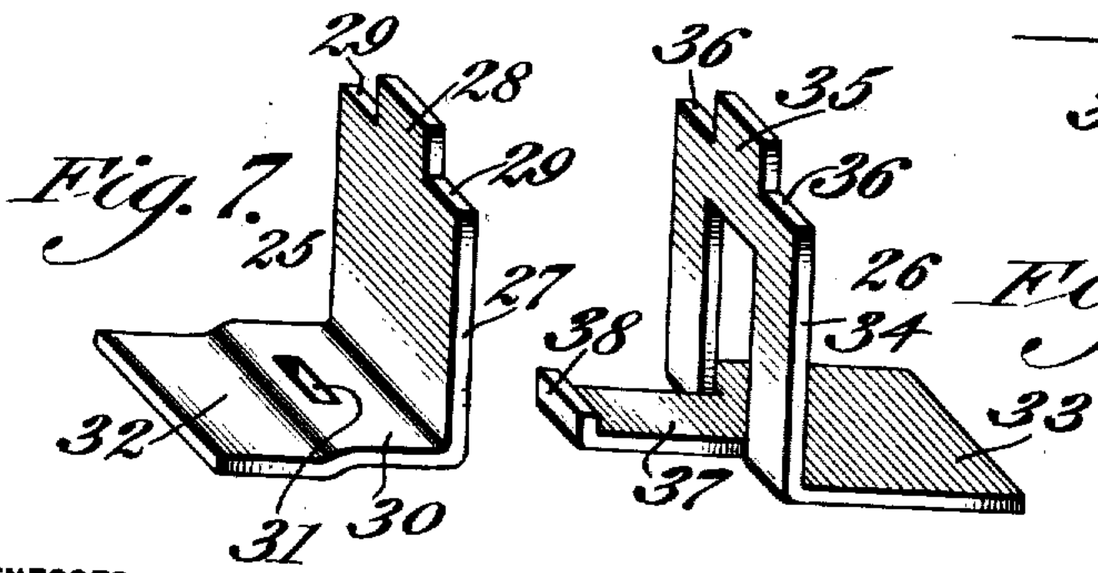


Fig. 7.

Fig. 8.

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3 SHEETS—SHEET 3.

Fig. 10.

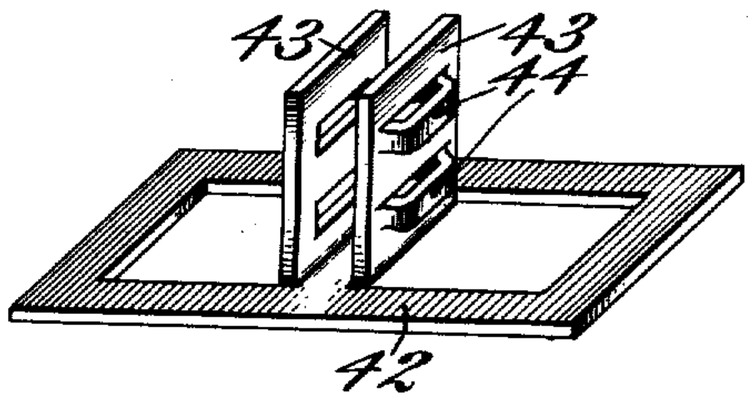


Fig. 11.

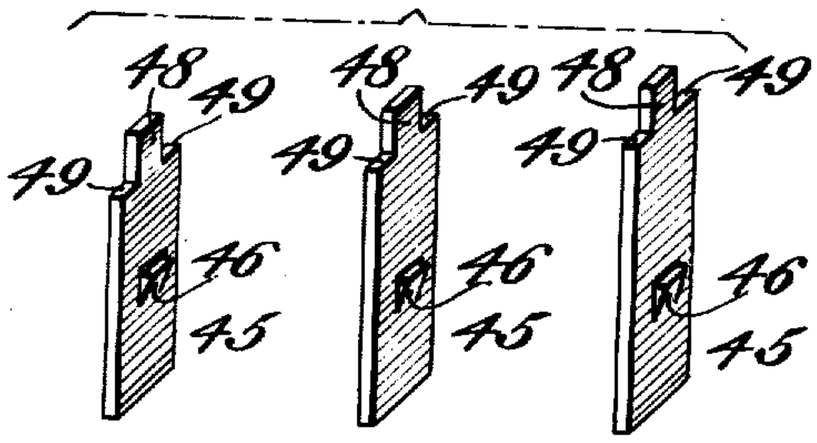


Fig. 15.

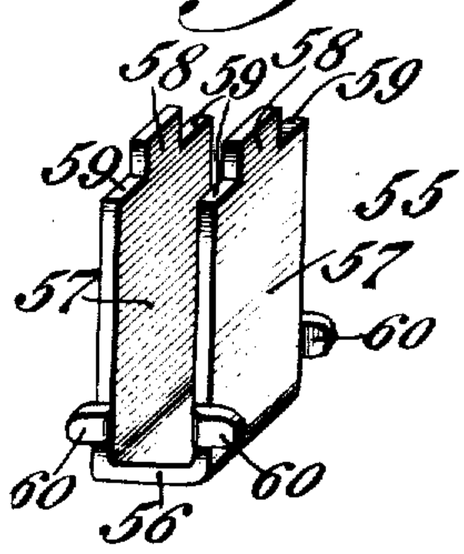


Fig. 12.

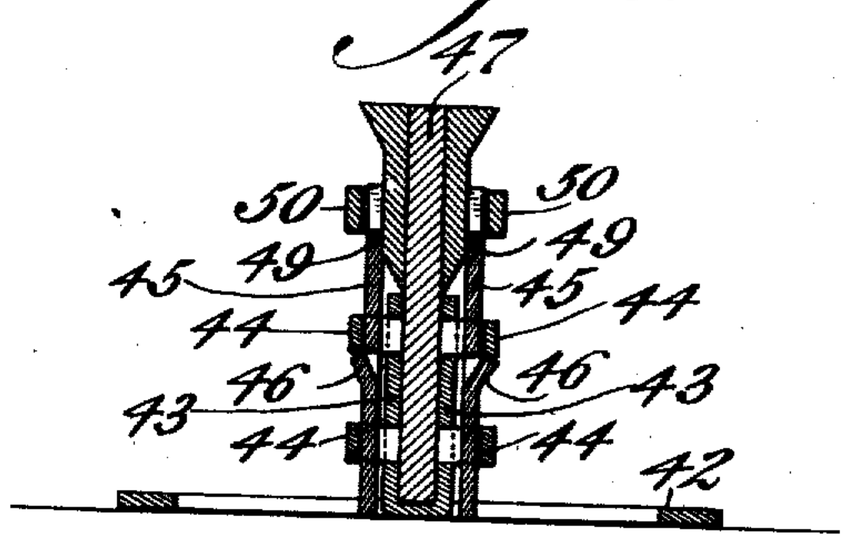


Fig. 16.

Fig. 13.

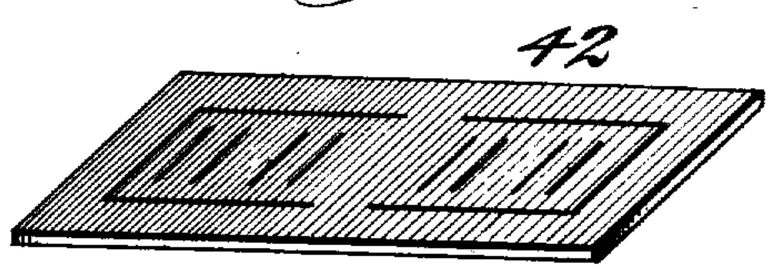
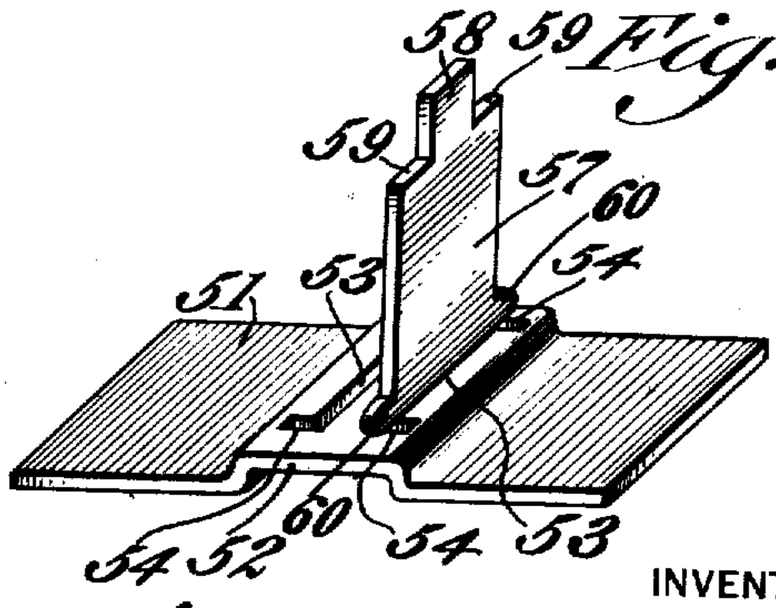


Fig. 14.



WITNESSES

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PAVEMENT AND EXPANSION-JOINT THEREFOR.

1,298,018. Specification of Letters Patent. Patented Mar. 25, 1919.

Application filed November 24, 1914. Serial No. 873,678.

To all whom it may concern:

Be it known that I, ANTHONY E. DAVIS, a citizen of the United States, residing at Philadelphia, county of Philadelphia, State of Pennsylvania, have invented a new and useful Pavement and Expansion-Joint Therefor, of which the following is a specification.

My present invention relates to pavements of the type in which an expansion joint is employed.

In the methods heretofore employed in forming expansion joints the expense to the manufacturer as well as to the road builder is largely increased owing to the fact that in different States of the United States of America the road requirements as to width, crown of the road, and the depth of the road material vary to a considerable degree so that the manufacturer must carry in stock a large amount of material and the road builder must employ skilled labor.

One object of my present invention is to devise a novel expansion joint which is preferably standard or may be readily changed to conform to any desired standard of road requirements.

Another object of my invention is to devise novel means for supporting and alining the joint strip and also the armor which protects the upper edges of the road material.

With the above and other objects in view which will more clearly appear in the detail description, my invention consists of a tread surface or pavement in connection with which a novel expansion joint is employed, said pavement being of any desired type such as blocks of any desired material or monolithic types of construction such as concrete, bitumen bound concrete, macadam, or other types of monolithic paving construction.

It further consists of novel means for supporting and alining the joint strips and the armor therefor.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

For the purpose of illustrating my invention, I have shown in the accompanying drawings those forms thereof which are at present preferred by me, since the same will give in practice satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents in perspective a pavement embodying my invention, certain parts thereof being cut away for the sake of clearness of illustration.

Fig. 2 represents a top plan view of a support employed.

Fig. 3 represents a sectional elevation of a joint strip and armor plates, with a clip for holding them in position.

Fig. 4 represents in perspective another embodiment of my invention.

Fig. 5 represents a sectional elevation of the construction seen in Fig. 4 with the joint strip in place.

Fig. 6 represents, in perspective, a pavement embodying my invention, certain parts being cut away for the sake of clearness of illustration.

Fig. 7 represents, in perspective, a section of the joint strip support seen in Fig. 6.

Fig. 8 represents, in perspective, the other section of the joint strip support seen in Fig. 6.

Fig. 9 represents a section on line x—x, Fig. 6.

Fig. 10 represents, in perspective, another type of joint strip support embodying my invention.

Fig. 11 represents, in perspective, armor supporting means employed in conjunction with Fig. 10.

Fig. 12 represents in sectional elevation and assembled position the parts seen in Figs. 10 and 11 with the joint strip and armor plates in position.

Fig. 13 represents in perspective a blank from which the construction seen in Fig. 10 is formed, the slits having been formed in the blank.

Fig. 14 represents in perspective another embodiment of my invention a portion of one section being removed for clearness of illustration.

Fig. 15 represents in perspective one of the sections employed in conjunction with the base plates seen in Fig. 14.

Fig. 16 represents a sectional elevation showing more clearly the manner in which the sections seen in Fig. 14 are combined.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings.

I have preferred to illustrate my invention in conjunction with a monolithic type of paving construction although it is to be understood that my invention is not limited to such type of road material and that any desired or conventional type of such material may be employed.

Referring first to the embodiments seen in Figs. 1 to 3, inclusive, 1 designates the earth roadbed or prepared foundation the top face of which is level as indicated at 2 and on such top face the supporting and alining members 3 are placed. These members consist of a preferably flat base portion from which the side members 4 are punched and bent substantially parallel to each other so that they are upwardly directed as seen in Figs. 1 and 2 and form a slot to receive a joint strip 5, the bottom of which, in the present instance, rests upon the base 3 and is alined by the side members 4. The latter at their upper ends are provided with an upwardly directed lug or tongue 6 thereby forming shoulders 7. 8 designates armor plates one of which is employed on each side of the joint strip 5 and a portion of an armor plate is bent outwardly as at 9 so that the lug or tongue 6 will extend therethrough and said portion 9 will rest upon the shoulder 7. Each armor plate 8 has its outer face near its upper end forming an inclined wall 10 so that a wedge shaped portion is provided at the top of the bar. The purpose of this is to reduce the likelihood of the breaking of the concrete 11 at the joint as the concrete work is finished with a rounded edge. The outer face of the bar near its lower edge is beveled or inclined as at 12 so that the armor plates will be carried by the supports instead of by the road material such as the concrete 11.

If desired, anchoring elements 13 of any desired type may be employed in order to bond the armor plates with the concrete but it is to be understood that these are not essential and may be dispensed with if desired. During the assembling of the expansion joint, clips 14 of any desired type may be employed to maintain the parts in assembled condition prior to the placement of the paving material, and in the form seen in Fig. 3 the clip consists of spring arms having their free ends conforming to the outer face of the armor plate and the spring arms are locked by means of a ring 15.

In the embodiments seen in Figs. 4 and 5, I have shown a simplified form of my invention in which the section 16 is standard for all road requirements and the section 17 is formed of different height so that it can be used with any desired road requirements. The section 16 is provided with a flat base portion 18 from which are punched the side members 19 which are bent to extend upwardly substantially parallel to each other thereby adapting the same to receive the section 17 which is formed of a sheet of material which is bent substantially U-shaped and the free ends are provided with tongues or lugs 20 thereby forming shoulders 21. The lugs 20 extend between the bent out portions 22 and body portion of the armor plate 23 which latter corresponds in construction to that seen in Fig. 1 and the portions 22 are seated on the shoulders 21. The joint strip 24 is carried by the section 17 and is held in position between the armor plates 23.

In the embodiment seen in Figs. 6 to 9 inclusive I have shown another type of joint strip and armor plate supporting and alining means. 25 and 26 designate sections of the support seen in Fig. 6. The section 25 is provided with a vertically directed portion 27 having a tongue or lug 28 and shoulders 29 and from the bottom of the portion 27 extends a lateral portion 30 provided with an aperture 31 therethrough. The portion 30 terminates in a base portion 32. The section 26 is formed with a base portion 33 and an upwardly directed portion 34 which is provided with a tongue or lug 35 and shoulders 36. 37 designates a locking tongue which is punched out of the vertical portion 34 and forms a continuation of the base portion 33 and at its free end it is provided with an upwardly directed lug 38 adapted to pass into the aperture 31 of the section 25 and interlock the two sections, as will be understood by reference to Figs. 6 and 9. 39 designates a joint strip and 40 designates armor plates corresponding in construction to that seen in Fig. 1, and provided with the outwardly bent portions 41 between which and the body portion of the armor plates the tongues or lugs 28 and 35 extend. The earth road bed or prepared foundation and the concrete correspond to that seen in Fig. 1.

Referring now to the embodiments seen in Figs. 10, 11 and 12, 42 designates the base portion of a support embodying my invention and from which is punched the side plates 43 which are bent upwardly substantially parallel to each other and are slit and punched to form the lateral locking members 44 which are adapted to receive the armor supporting means 45 seen in Figs. 11 and 12. It will be understood by those skilled in this art that the supporting means for the armor must vary in height in accordance with their placement, those at the side of the road being of less height and the height

gradually increasing toward the crown of the road. These armor supporting members are provided with means for interlocking with the side members of the base plate and in order to illustrate one method of accomplishing this result, I have shown the members 45 as provided with the punched out tongues or spring lugs 46 which, when the members 45 are assembled, interlock with the upper of the members 44 in the side plates 43, as will be clearly understood by reference to Fig. 12. The armor plate and the joint strip 47 correspond to those already described in detail in connection with other figures of the drawings, and the members 45 are provided with upwardly extending lugs 48 and shoulders 49 so that the punched out arms 50 will be supported on the shoulders 49.

In the constructions seen in Figs. 14 to 16 inclusive, I have illustrated another embodiment of my invention which is made of sections, the base section being standard and the other section being constructed in such a manner that it can be readily changed to provide for any predetermined height of the armor. In this embodiment, 51 designates the base section which comprises a sheet of material having the central portion upwardly deflected, as indicated at 52, and provided with a plurality of slots 53, the outer ends of which are laterally deflected, as at 54. 55 designates the other section of the device which is formed of sheet material which is bent to have a substantially U-shaped formation with a substantially flat bottom portion 56 and upwardly extending side members 57 arranged substantially parallel with each other. The upper ends of said members 57 are provided with the lugs 58 and shoulders 59. Near the lower end of said members ears 60 are provided which extend laterally so that the sections 55 may be interlocked with the base section 51 by causing the side members 57 to pass through the slot 53 and the ears 60 through the lateral extension 54 of such slot. The ears 60 are then bent outwardly or straightened so that the section 55 is firmly interlocked with the base section 51. The armor in this embodiment is supported by the side plates 55 and the joint strip is positioned between the armor members in a similar manner with that already described with reference to other figures of the drawings.

In all the embodiments of my invention the supporting and alining means for the joint strip and armor plate are preferably formed of sheet metal which can be readily given the desired formation in a punch press thereby reducing the cost of manufacture.

It will be seen that in accordance with my present invention the armor is not supported by the road material but is supported by the earth roadbed or prepared foundation so that it is at all times maintained in proper relation with respect to the joint strip and the joint strip itself is also supported and alined during the process of construction.

Attention is also directed to the fact that in my present invention the expansion joint forms a templet for the finished construction so that the work can always be stopped at a joint thereby enabling one to construct a pavement which is uniform in character throughout the entire construction.

The supports or chairs which support and aline the armor may be constructed of an integral piece of material or may be formed in sections and both of such constructions are within the spirit and scope of my invention.

It will now be apparent that I have devised a novel and useful construction of a pavement and expansion joint therefor which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described the preferred embodiments thereof which will give in practice satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character stated, a supporting and alining member having a base portion, a joint strip resting on said portion, said member being provided with upwardly extending side members spaced from each other, and armor strips supported by said side members.

2. In a device of the character stated, a supporting and alining member having a base portion and provided with upwardly extending sides, and armor strips supported by said sides and spaced thereby from the bottom of said member.

3. In a device of the character stated, a supporting and alining member comprising a laterally extending base portion and side members formed therefrom and upwardly deflected and arranged substantially parallel with each other, and a member seated on said base portion between the side flanges, and provided at its upper end with spaced means to support and position armor strips.

4. In a device of the character stated, a supporting and alining member comprising an integral sheet of material having a base portion and side members formed therefrom and upwardly deflected, and a U-shaped member constructed to fit between said side

members, and provided at its upper end with means to position and support armor strips.

5. In a device of the character stated, a supporting and alining member comprising an integral sheet of material having a base portion and side members formed therefrom and upwardly deflected, and a U-shaped member constructed to fit between said side members, and provided at its upper end with tongues and shoulders to position and support armor strips.

ANTHONY E. DAVIS.

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F. A. NEWTON.