June 1, 1937. R. G. WILLIAMS 2,082,316

ROAD TIE OR SUPPORT

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Fig. 1.

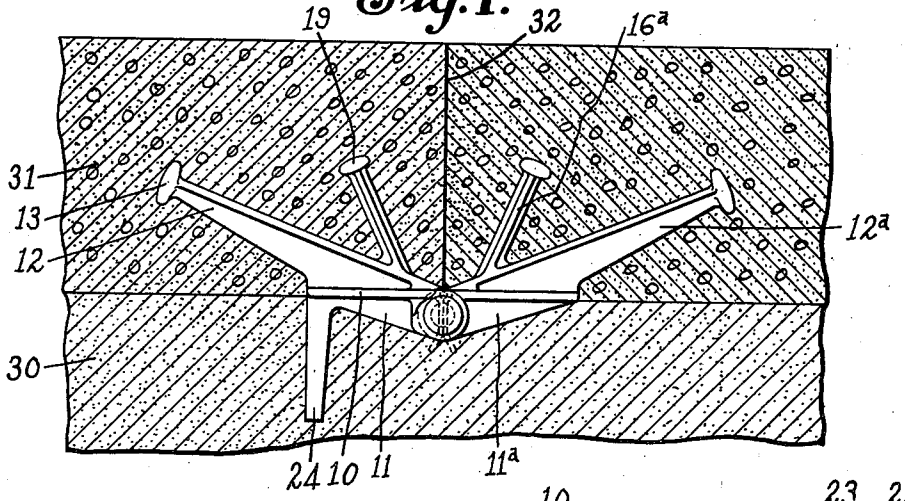


Fig. 2.

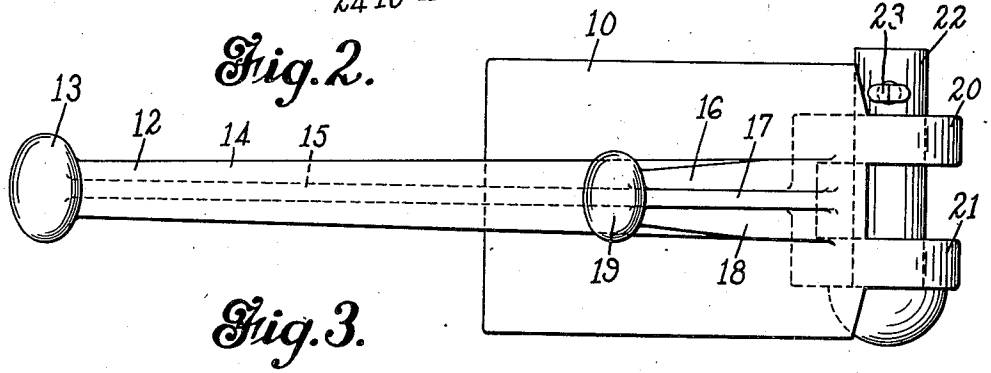


Fig. 3.

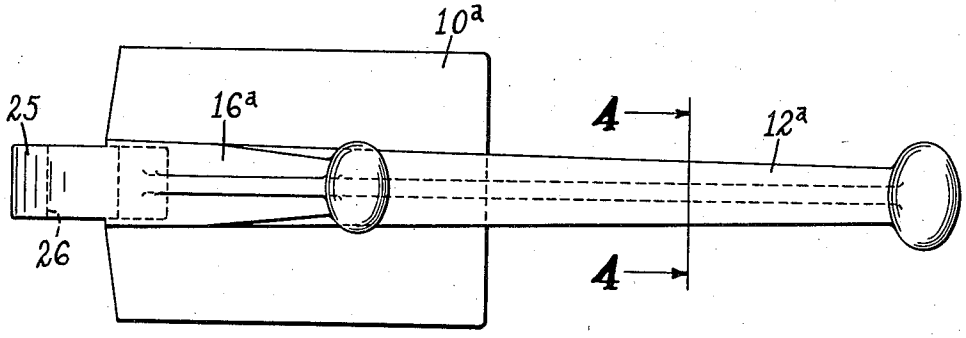
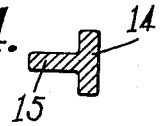


Fig. 4.



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Fig. 5.

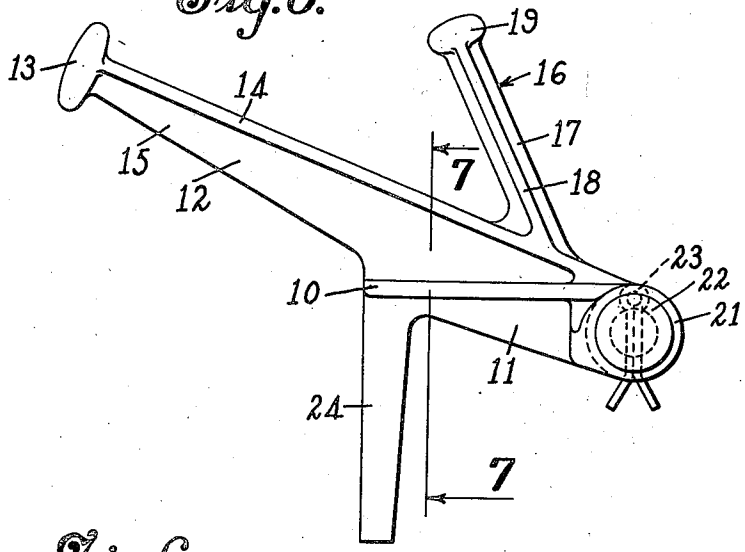


Fig. 6.

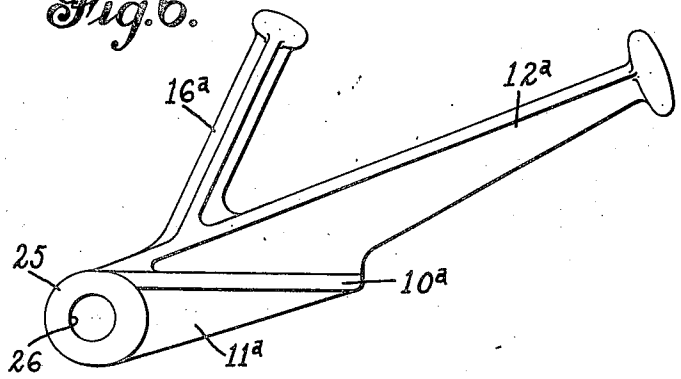
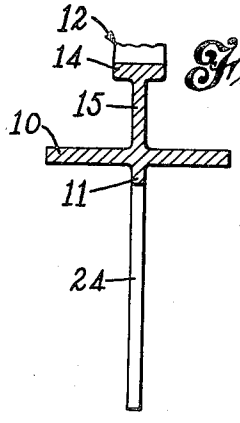


Fig. 7.



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ROAD TIE OR SUPPORT

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6 Claims. (Cl. 94—18)

This invention relates to a road tie or support, and more particularly to a device adapted to be used in connection with the slabs of a concrete road, for example, to prevent these slabs from pulling apart, either laterally or vertically.

In the construction of a concrete road, it is normally the custom to "pour" one lane or one strip of the roadway at a time. This strip or slab, as it is sometimes called, is permitted to harden and then the adjacent strip or slab is "poured". As a result, in a two-lane road, for example, there is a longitudinal joint or fissure, as it may be called, between the two slabs of the road. It is quite usual to place in this fissure between the two slabs, some material which will provide an expansion joint, in that it will be compressible to some extent and allow for some expansion and contraction.

It will be seen, therefore, that the two longitudinal strips of such a roadway are laid separately and very often have no connection, one with the other. In such case, one or both of the slabs or strips may move laterally, thus opening up the fissure or crevice between the two lanes of the road. This is, of course, undesirable not only because it creates a rough spot in the road, but because water or moisture may remain in this crevice and freeze, and thus inflict serious damage upon the concrete. Also, one or both of the slabs of the road may settle or may be raised up due to freezing and thawing in the wintertime, and thus a shoulder may be created extending longitudinally of the road due to the fact that one slab is higher than the other.

One object of the invention is the provision of a road tie which may be embedded in the concrete of the slabs forming the road and tie two adjacent slabs together to prevent or minimize harmful relative movements therebetween.

Another object of the invention is the provision of a road tie adapted to be secured in the concrete of the road slab so as to span the joint therebetween, the parts of the road tie being jointed so as to permit a certain amount of movement between the road slabs to which it is connected, but which will prevent such relative movement designed to make a rough place in the road.

A still further object of the invention is to provide a road tie such that it may be readily positioned and secured in the bed of a concrete road and will hold the adjacent slabs of the road together.

A still further object of the invention is the provision of a relatively cheap and inexpensive road tie which may be readily embedded in the concrete road bed when the road is made, and which will span the joint between two adjacent slabs of the concrete road and prevent to a large extent relative movement between these slabs.

To these and other ends, the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the drawings:

Fig. 1 is an elevational view of a road tie or support embodying my invention, the tie being shown in position in a road bed, the latter being shown in section;

Fig. 2 is a top plan view of one of the sections or parts of the device;

Fig. 3 is a similar view of the mating section;

Fig. 4 is a sectional view on line 4—4 of Fig. 2;

Fig. 5 is a side elevational view of the part of my device shown in Fig. 2;

Fig. 6 is a side elevational view of Fig. 3; and

Fig. 7 is a sectional view on line 7—7 of Fig. 5.

To illustrate a preferred embodiment of my invention, I have shown a road tie consisting of two hinged parts. In general, these two parts are substantially alike, but as they differ in some features, they will be described separately.

The left-hand section of the tie, as shown in Fig. 1, comprises a base plate or body portion 10 which is substantially flat on its upper and lower surfaces, except that substantially centrally disposed of its lower surface is a longitudinally and downwardly extending flange 11. Projecting upwardly and outwardly from this base plate is a relatively long arm or prong 12 which stands at a relatively sharp acute angle with the surface of the base plate so that it projects from the base plate more in a horizontal direction than in a vertical direction. This prong or projection 12 is provided with an enlarged or knob-like end 13 and, as shown in Fig. 4, is T-shaped in cross section, having a flat upper portion 14 and a centrally disposed downwardly projecting flange 15. This prong extends from a point adjacent the inner edge of the base plate 10, and the flange 15 is joined with the plate throughout the length of the latter.

Near the base of this prong and adjacent the inner edge of the plate 10, a second prong 16 rises from the flat portion 14. This prong 16 also extends in an inclined direction but at a relatively sharp acute angle with respect to the vertical, so that it extends more in a vertical direction than in a horizontal direction from the base plate. This prong is also flanged, as

shown at 17 and 18 and is provided with an enlarged head 19.

Adjacent its inner edge, a pair of perforated lugs 20 and 21 project from the base plate 10, the perforations in these lugs being adapted to receive a pin or bolt 22 through which a cotter pin 23 may be inserted to hold the two parts of the tie together.

Adjacent its outer end, a spur 24 projects downwardly from the base plate 10, this spur being adapted to be sunk into the subgrade of the road bed, as will be hereinafter described, to hold the tie or that part thereof to which it is attached in place while the road is under construction.

The other or right-hand section of my device comprises a base plate 10^a having a flange 11^a and the prongs 12^a and 16^a which are similar in all respects to the corresponding parts heretofore described in connection with the left-hand section of the device. One of the principal points of difference between the halves or sections of the device is that the right-hand section is provided with a single perforated lug 25 having an opening 26 therein, which lug is adapted to be received between the lugs 20 and 21 heretofore described, so that the parts may be secured together by the insertion of the bolt or pin 22 through the aligned perforations of the lugs 20, 25 and 21. It will be noted that the two sections of my device also differ in the omission of the spur 24 from the right-hand section. With these two exceptions, the two sections of the tie are alike in all substantial respects.

In the use of my device, the base 10 will, as shown in Fig. 1, be disposed at substantially the level of the subgrade or road base 30 and at the lower level of the concrete road surface 31. When the road is under construction, the two sections of the device are taken apart and that shown as the left-hand section in Fig. 1 is employed with that half of the road which is first constructed. The pin 22 is inserted through lugs 20 and 21 so that the openings in these lugs will not be filled by concrete, and the section of my device shown in Fig. 2 is placed on the surface of the subgrade or foundation with the spur 24 embedded or sunk into the subgrade to hold the device in position. It will be apparent that it is so disposed that the center of the pin 22 will lie approximately below the joint 32 between the two halves of the road. The plate 10 will lie substantially on the surface of the subgrade and below the concrete for this side of the road, or the left-hand side as shown in Fig. 1, and it will be seen that the prongs 12 and 16 will be effectually embedded in the concrete so that my device will be secured without danger of breaking out. The end of the prong 12 of my device extends in a lateral direction to such an extent that it leaves a considerable thickness of concrete between its end and the joint 32 so that it will hold against lateral dislocation of the slabs without danger of breaking out. The prong 16 projects upwardly rather than laterally, and its principal function is to hold to the concrete during any relative vertical movements of the slab.

After the concrete 31 has been poured at the left-hand side of the road, the bolt or pin 22 is removed from the lugs 20 and 21, and the right-hand section of my device is secured in place by disposing the lug 25 between the lugs 20 and 21 and reinserting the bolt or pin therethrough. It will be apparent that the right-hand section will be held in place by the pin, and that a member such as the spur 24 shown on the left-hand section is not essential. The concrete at the right-hand side of the road is now poured and my device will have been completely installed.

It will be understood, of course, that these devices may be placed in the road at any desired intervals as may be necessary in accordance with climatic conditions. It will also be understood that an expansion joint may or may not be provided at 32 between the concrete slabs, for the reason that my device will prevent any appreciable separation of the two halves of the road. It will also be appreciated that while my device will hold the two sections of the road against lateral displacement relatively to each other and against relative vertical displacement, the hinge or joint about the pin 22 will permit some angular movement of the two slabs in that it will permit the outside shoulders of the slabs to settle or raise to some extent without breaking the tie or breaking it out of the concrete. If the tie were not jointed and at the same time bridged the joint between the two slabs of the road, any movement of the shoulders of the slabs relatively to the center of the road would probably either cause the tie itself to break, or cause the concrete to break about the tie.

While I have shown and described a preferred embodiment of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the appended claims.

What I claim is:

1. A road tie or support comprising a pair of hinged members, each of said members being adapted to be secured to one of two adjacent sections of a road bed, with the hinge between said members lying substantially in the plane of the joint between the sections and disposed substantially at the bases of the sections.

2. A road tie or the like comprising a member adapted to be secured to the edge of a road section, a second member adapted to be secured to an adjacent road section at the edge thereof meeting the first section, said members being pivotally secured together to permit relative movement therebetween, and said pivot being disposed substantially in the vertical plane of the meeting edges of said sections and in a horizontal plane below the bases of the sections.

3. A road tie or the like comprising a pair of members, means connecting the meeting edges of said members for relative movement therebetween, each of said members consisting of a body portion and inclined upwardly and outwardly directed spurs upon the upper surface of said body portion by which it may be secured to the road pavement, and said body portion comprising a relatively flat plate.

4. A road tie or the like comprising a pair of members, means connecting the meeting edges of said members for relative movement therebetween, each of said members consisting of a body portion and means upon the upper surface of said body portion by which it may be secured to the road pavement, said body portion comprising a relatively flat plate, and said securing means comprising a pair of prong-like elements projecting upwardly in an inclined direction from said plate.

5. A road tie or the like comprising a pair of rigid members pivotally secured together, means carried by said members adapted to be embedded in the concrete of the road and secure said mem-

bers one to each of two adjacent road sections, with said pivot disposed adjacent the base of the concrete.

6. A road tie or the like comprising a member adapted to be secured to the edge of a road section, a second member adapted to be secured to the adjacent section at the edge thereof meeting the first section, said members being pivotally secured together to permit relative movement therebetween, and said pivot being disposed substantially at the base of said sections to permit relative pivotal movement of said sections in a downward direction.

ROLLAND G. WILLIAMS.