

July 9, 1963

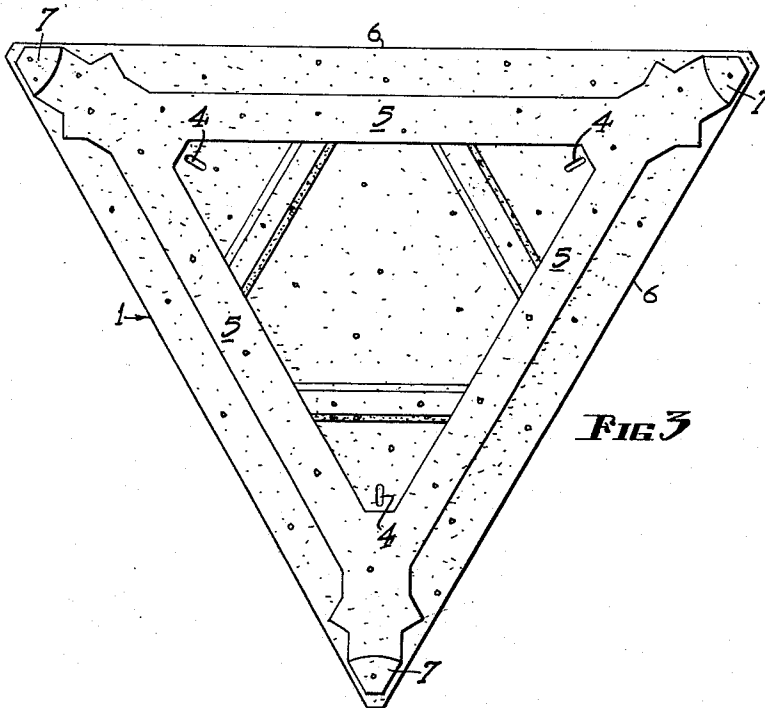
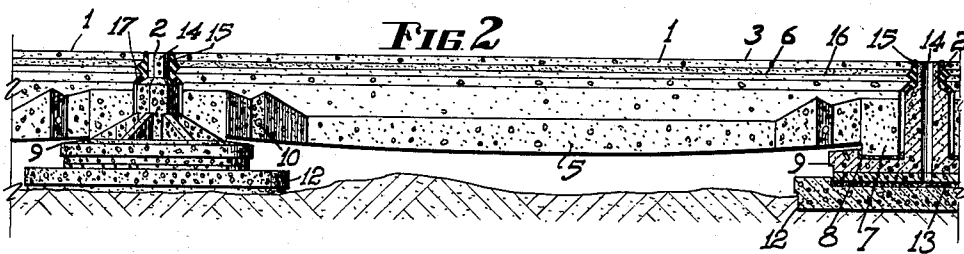
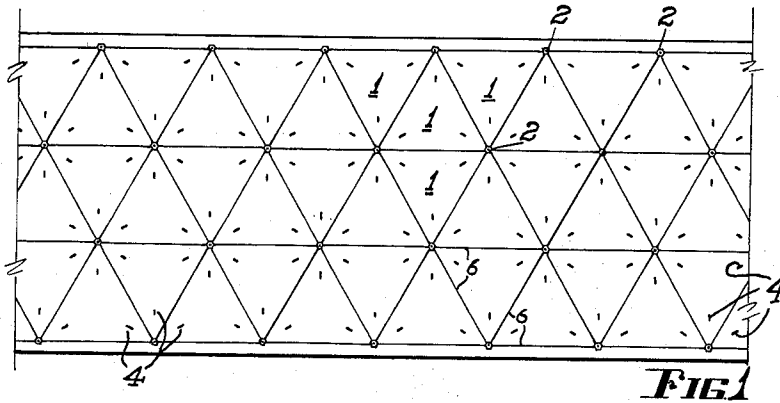
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3,096,695

FOUNDATION FOR BUILDINGS, ROADS OR THE LIKE

Filed Oct. 31, 1958

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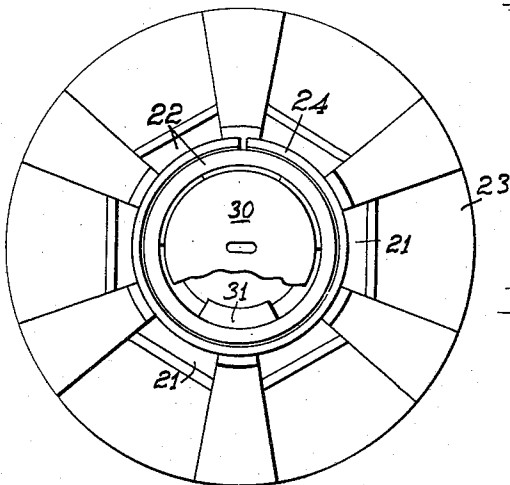
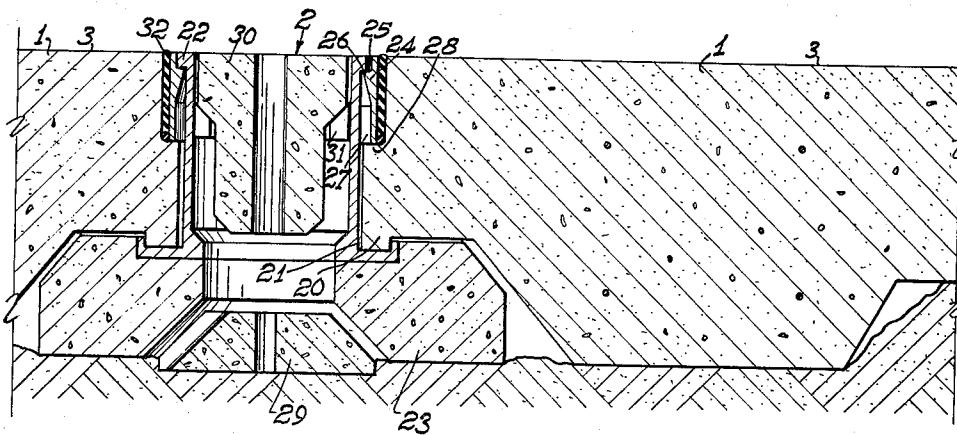
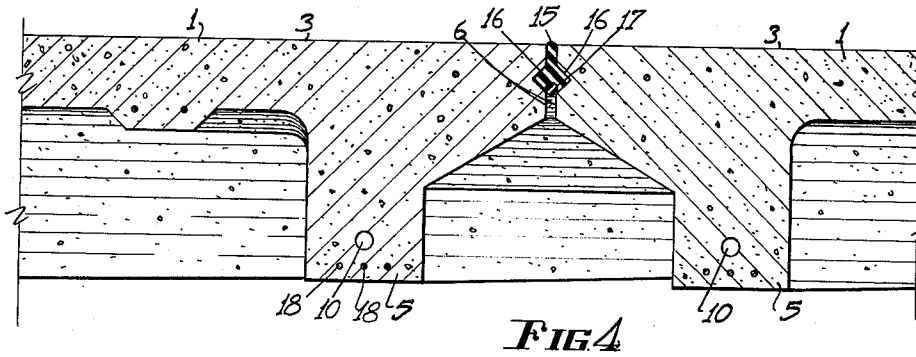
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FOUNDATION FOR BUILDINGS, ROADS OR THE LIKE

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3 Claims. (Cl. 94-11)

This invention relates to an improved road structure which may be used wherever a road surface is required to carry vehicular or other traffic or pedestrians or the like.

At the present time road structures are usually formed by placing concrete or other load-bearing means directly onto the ground, sometimes in the form of rectangular slabs of substantial size, or alternatively in continuous long lengths and wherein the load bearing means simply lies on the ground or on a specially prepared bed.

When a road structure of the above type requires repairs, it is necessary to remove the damaged or worn sections and to replace the entire section. The effecting of the repair is made extremely difficult if a portion of a section to be repaired has sunk, in which case it is necessary to build up the sunken portion or lower the remaining section to the level of the sunken portion.

It is also found with roads that it is necessary to form the road surface for a considerable length and either leave the road as is to be subject to the influence of normal traffic or else supply special machinery in an attempt to reinforce the road to the point where it will be able to carry a load, and its top surface will not be deformed when subject to load.

The object of this invention is to provide an improved road structure in which laying is simplified and in which repairs can be effected in a much simpler manner than heretofore, and if it should be necessary to level the road surfaced by either raising or lowering some sections of it, this also will be readily allowed by means of the structure involved.

Briefly the invention contemplates a road structure formed of a series of triangular road sections placed together with their edges adjacent each other and in the same plane, to form a continuous mosaic road surface, and providing joining members at the junctions of the corners of the triangular road sections to transfer at least part of the load from any one triangular section through the joining member to the corners of the other engaged triangular sections at each junction.

According to an embodiment of the invention the triangular sections themselves rest on the ground and the joining members serve to interconnect the corners of the triangular sections to maintain the contemplated structure in the correct plane, the joining members in this case having no need to carry any heavy or substantial load.

In the invention the road sections are of triangular construction and suitably dimensioned and reinforced where necessary, and by utilizing sections in the shape of equilateral triangles it is possible to join any number of these sections by their corners to form a roadway, it being possible to remove any of the triangular road sections and replace them or to simply remove part of the roadway and to reinstate it at a different level, or the like.

In order however that the invention may be more fully understood the embodiments referred to will now be described with reference to the accompanying drawings in which:

FIG. 1 is a plan of a roadway constructed according to the invention,

FIG. 2 is an enlarged transverse section of portion of a roadway showing the joining members taking the weight

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of the structure, the triangular sections being held clear of the ground,

FIG. 3 is an underside view of one of the triangular sections,

FIG. 4 is a still further enlarged section showing the joint between two triangular sections,

FIG. 5 is a further enlarged view but showing the invention in which the joining members are not the main load transferring members but serve to interconnect the corners of the triangles in the case where the triangular sections themselves rest on the ground, and

FIG. 6 is a plan view partly broken away of the joining member shown in FIG. 5.

Referring first to FIGS. 1, 2, 3 and 4, a series of triangular road sections 1 are placed to form a mosaic road structure interconnected at the corners by joining members 2 located at the junctions of the sections.

Each triangular road section 1 comprises a surface section 3 with suitable reinforcing built up on weight carrying beams 5 which run parallel to the sides 6 of the triangular road sections, the beams 5 having at their ends depending key sections 7 which engage recesses 8 in the base portion 9 of the joining members 2, these depending key sections 7 thus forming the actual weight transferring means between the corners of the triangular sections 1 and the joining members 2 and at the same time as they engage in the recesses 8 forming a lateral tie which prevents the triangular sections 1 from pulling away from the joining members 2.

In this way a completely flexible structure results which consists of a series of the joining members 2 arranged in a pattern and all carrying and being interconnected with the triangular road sections 1 so that the road sections 1 can not rise or fall independently at the corners where they rest on the joining members but should any particular joining member 2 sink or rise, the triangular sections can move correspondingly without fracture and it is then a simple matter to lift off one or more of these sections by inserting lifting hooks in the apertures 4, and to reposition the particular joining member 2 to again level the structure.

The beams 5 can be suitably reinforced in any desired manner and preferably these have hollows 10 extending longitudinally through them through which post-stressing reinforcing may be placed if such is found desirable.

It will be seen that the base portion 9 of the joining members 2 engage slabs 12 which are placed on the ground, a filling 13 of sand being placed between these members to allow accurate truing-up.

Each of the joining members 2 has an upwardly disposed stem 14 which extends from the base portion 9, and between the upper part of the stem 14 and the edges or sides 6 of the triangular road sections 1 is disposed a plastic jointing strip 15 formed of any suitable material, the strip being positively held in position by having a projection on it engaged in a groove 16 along the edge of the triangular road sections 1, this joining member allowing the road to be sealed against the ingress of moisture in that it forms a flexible joint between the various triangular road sections where they meet and also with the top part of the stem 14 of the joining members 2. The stem 14 is apertured with a hole for handling purposes, and also for introducing the filling 13.

In FIG. 4 the jointing strip 15 is shown in more detail, as are also the grooves 16 into which the strip fits. Instead of using a strip it would of course be possible to use a bitumastic filler or similar material which can be poured into the joint, in such a case a core piece 17 being first of all placed into the bottom of the gap which is to be filled to prevent the material from running through.

FIG. 4 also shows more particularly the hollows 10

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through which the post-stressing rods can be placed, but of course the beams 5 will have the normal reinforcing members 18 placed therein at required localities.

In FIGS. 5 and 6, the triangular road sections 1 are provided with key sections designated 20 which fit into recesses 21 in a metal sleeve 22 which is formed to be integral with the concrete block 23 forming the main part of the joining member 2.

As in this case the triangular sections 1 rest on the ground, both upward and downward forces can exist on the ends or corners of these triangular sections 1 and therefore it is necessary to provide an upper lock also which was not required in the first described embodiment, the upper lock in this case comprising a split ring 24 which is driven over the upper end of the sleeve 22 and which has on it a shoulder 25 co-operating with a shoulder 26 on the sleeve 22 when the ring is driven down into position.

When located, the base 27 of the ring 24 presses on to the shoulder 28 at the corner of each triangular road section 1 and in this way the key section 20 is held down into the recess 21 and the triangular road sections 1 are therefore locked to the joining member 2 in an up and down direction as well as being prevented from moving out radially from the joining member 2 by the action of the key section 20 and the recess 21.

The sleeve 22 is made of substantial size and is provided with a plug 30 which may be withdrawn when required to give access to the block 23 on which the triangular road sections 1 rest, the purpose of this being to allow the roadway to be levelled or adjusted by withdrawing soil from beneath the roadway or pumping soil into place.

To allow the roadway to be lifted, a further block 29 is provided which rests on the ground but is not attached to the block 23, and when the plug 30 is removed, it is possible to place a jack onto the block 29 and to engage it beneath projections or lugs 31 disposed around the inner periphery of the metal sleeve 22, a jack having been so placed can then lift the metal sleeve 22 and thus the block 23 after which soil can be forced in beneath same and beneath the adjacent lower surfaces of the triangular road sections 1 to build up the level at this point.

Sealing strips 32 are of course again used to prevent the ingress of water between the sections of the roadway and also around the joining members 2.

By changing the shape of some of the triangles, or the width of the joints a curve may be formed in the road.

From the foregoing it will be realized that a simple and effective form of road construction is envisaged which consists of a series of triangular road sections of such shape that the sections can be fitted together as required to give the complete road surface, but all of the sections are interconnected at their corners by joining members which are so arranged that the whole structure can be maintained in correct operating position and can be adjusted as circumstances require this to be attended to.

What is claimed is:

1. A road structure comprising a plurality of triangular road sections disposed in a common plane and arranged to form a continuous mosaic road surface, each triangular road section having a corner thereof meeting with the corners of two other road sections to form a junction therewith, separate joining members at the junctions formed by the triangular sections for joining corresponding sections together comprising a base and an upstanding metal sleeve extending therefrom, a sand fill hole being provided in each said base member extending centrally therethrough, said upstanding metal sleeve forming an opening in correspondence with said sand fill hole, lugs on the metal sleeve extending inwardly into said opening, a recess in each said base member being provided around the metal sleeve, and downwardly projecting key sections

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on the corners of said road sections engaged in said recesses for preventing lateral displacement of said road sections and thereby connecting said road sections together.

2. A road structure comprising a plurality of triangular road sections disposed in a common plane and arranged to form a continuous mosaic road surface, each triangular road section having a corner thereof meeting with the corners of two other road sections to form a junction therewith, separate joining members at the junctions formed by the triangular sections for joining corresponding sections together comprising a base and an upstanding metal sleeve extending therefrom, a sand fill hole being provided in each said base member extending centrally therethrough, said upstanding metal sleeve forming an opening in correspondence with said sand fill hole, lugs on the metal sleeve extending inwardly into said opening, a recess in each said base member being provided around the metal sleeve, downwardly projecting key sections on the corners of said road sections engaged in said recesses for preventing lateral displacement of said road sections and thereby connecting said road sections together, said upstanding metal sleeve including lugs extending outwardly therefrom and constituting an upper shoulder facing said recess, and a split ring encircling the metal sleeve and in contact with the upper shoulder and the corners of adjacent road sections at the corresponding junction to prevent movement of said corners of the triangular members between said shoulder and the recess.

3. A road structure comprising a plurality of triangular road sections disposed in a common plane and arranged to form a continuous mosaic road surface, each triangular road section having a corner thereof meeting with the corners of two other road sections to form a junction therewith, separate joining members at the junctions formed by the triangular sections for joining corresponding sections together comprising a base and an upstanding metal sleeve extending therefrom, a sand fill hole being provided in each said base member extending centrally therethrough, said upstanding metal sleeve forming an opening in correspondence with said sand fill hole, lugs on the metal sleeve extending inwardly into said opening, a recess in each said base member being provided around the metal sleeve, downwardly projecting key sections on the corners of said road sections engaged in said recesses for preventing lateral displacement of said road sections and thereby connecting said road sections together, said upstanding metal sleeve including lugs extending outwardly therefrom and constituting an upper shoulder facing said recess, a split ring encircling the metal sleeve and in contact with the upper shoulder and the corners of adjacent road sections at the corresponding junction to prevent movement of said corners of the triangular members between said shoulder and the recess, a block centrally located beneath each of said base members, and a plug detachably supported in said sleeve, said plug and block being provided with aligned apertures opening into said sand fill hole in the base member.

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