Nov. 21, 1933. W. J. TURNER 1,935,823

PAVEMENT

Filed Sept. 11, 1931

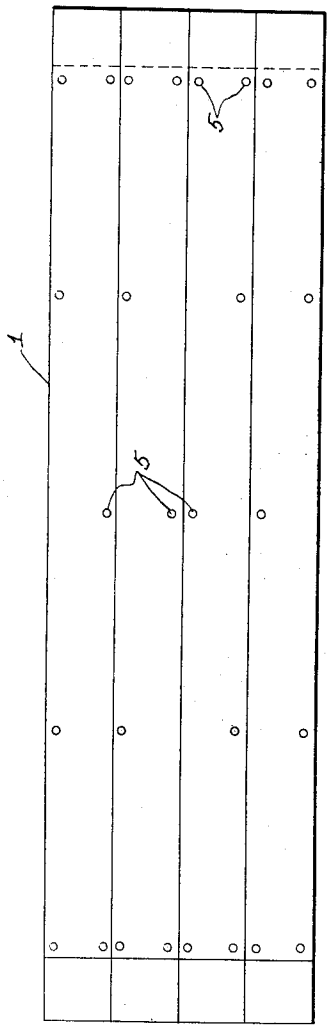


Fig. 1

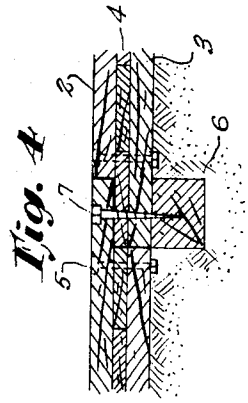


Fig. 4

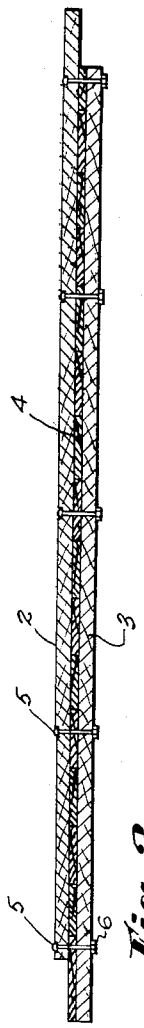


Fig. 2

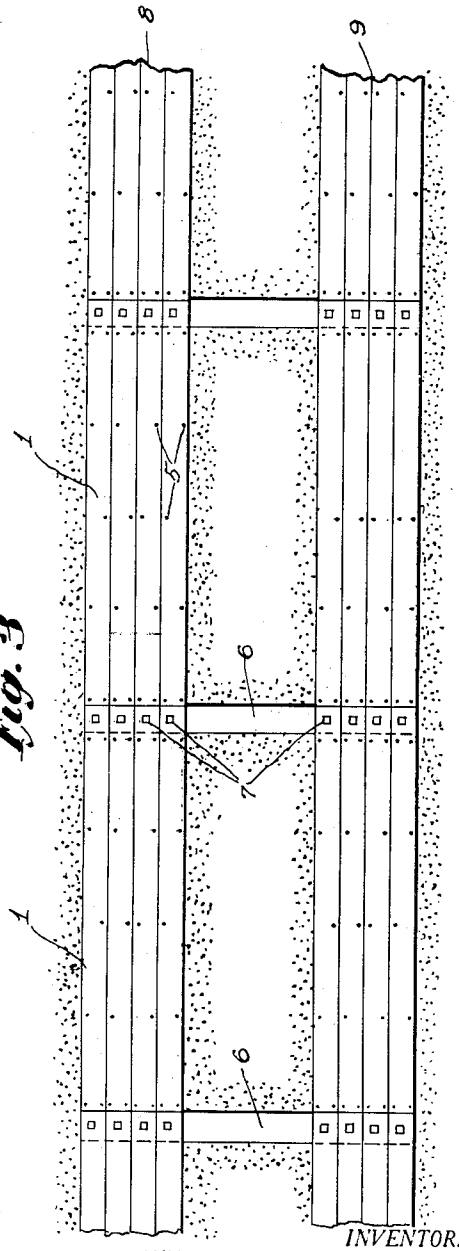


Fig. 3

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PAVEMENT

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Serial No. 562,275

6 Claims. (Cl. 94—4)

This invention is a pavement for roads, and the object of the invention is to provide an economical pavement that may be expeditiously laid and which will last for long periods.

Speaking generally, the pavement of this invention is essentially a wooden pavement embodying a series of laminated sections or units, each of which is composed of a plurality of plies of lumber. In one form of the invention, the units are composed of a plurality of plies of lumber with the boards or timbers of adjacent plies extending in angular relation to one another. The timbers or boards are bolted, screwed, riveted or otherwise secured together to form a section which may be handled as a unit so as to permit a number of these units to be readily assembled to form a roadway pavement.

An important feature of the invention resides in the fact that where the respective units join one another to form the pavement, the adjacent ends of such units rest upon a transverse member which may be termed a tie, there being one tie in each joint, and the attaching means for securing the consecutive units together extend not only through the units, but into the tie to serve to anchor the ends of the unit firmly in position.

The roadway of the present invention may be made in the form of spaced apart, parallel strips, each of which strips comprise a succession of units as stated, and the space between these strips may be filled in with earth or other suitable paving material. On the other hand, the strips forming the roadway may be placed with their contiguous edges in contact so as to provide an uninterrupted pavement in a transverse direction. In any event, the ties connect the several strips and hold them in proper transverse relation, so that they cannot spread or shift with respect to one another.

An important feature of the invention resides in the fact that the units may be individually fabricated at a factory and shipped to the place where they are to be laid and there assembled without the use of machinery, and by unskilled labor. The pavement as laid may comprise an uncovered lumber facing or such face may be covered with tar and sand, asphalt or other suitable facing material as hereinafter more fully described.

Features of the invention, other than those adverted to, will be apparent from the hereinafter detailed description and claims, when read in conjunction with the accompanying drawing.

The accompanying drawing illustrates one practical embodiment of the invention, but the construction therein shown is to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a face view of a unit or section embodying the present invention.

Figure 2 is a longitudinal section through such unit.

Figure 3 shows a series of units assembled to form a road comprising spaced apart strips.

Figure 4 is a fragmental transverse section of the pavement taken at a tie.

Referring to the drawing, I have shown in Figure 1, one unit which constitutes the preferred form of this invention. This unit bears the reference character 1 and is shown in Figs. 1–4 as comprising a plurality of plies of lumber. The boards which comprise the top ply 2 and the bottom ply 3 run longitudinally of the unit and interposed between these plies are boards 4 which extend in a transverse direction. The several plies 2, 3 and 4 are secured together by bolts or rivets 5, and in practice I preferably employ carriage or flat head bolts placing the head of the bolt at the top and the nut 6 at the bottom with an appropriate washer between the nut and the ply 3. The bolts 5 securely bind the plies together to form a unit of medium weight which may be handled conveniently.

It may be noted that the upper and lower plies 2 and 3 are staggered at their ends to provide elements of a half-lapped joint, and the intermediate ply 4 extends to overlie the projecting end of the lower ply 3, but that it is not extended to underlie the projecting portion of the upper ply 2. With this arrangement, the opposite ends of the unit are complementary, so that a series of these units may be positioned end to end and will form with one another half-lapped joints.

In utilizing these units to build a road to form a pavement therefor, the units are positioned in succession for example as shown in Figure 3, and between the joints at the ends of the successive units is positioned a transverse tie 6. Lag screws 7 are adapted to be passed through the joints of the respective units and screwed into the ties 6 which are embedded in the ground as shown in Figure 4, and constitute firm anchorages for the pavement as well as efficient spacers for the respective strips 8 and 9, as shown in Figure 3. If a strip pavement is desired, the strips 8 and 9 may be spaced apart as shown in Figure 3, and the space between these strips may be filled in with dirt, gravel or any suitable paving material. However, if a full road width

is desired, the units may be positioned in edge abutting relation and in sufficient members to give the desired width of pavement, all of these units being secured to the ties as stated to form a firm, permanent construction.

The surfaces of the pavement may be left in their natural form, although in practice, it is entirely feasible to cover them with a thin coating of tar or bituminous sand which forms a protective, non-skid covering well adapted to take the wear of heavy traffic. In practice, the units are preferably creosoted to render them more durable and these elements may be creosoted after fabrication or the lumber forming the units may be creosoted before assembly as may be desired.

Experience with a road of the character described has shown that it is not affected by contraction, expansion, heat or cold. It may be laid practically on top of the ground and even in an ordinary earth foundation will give highly satisfactory surface. No special form of foundation is required. The ties are merely embedded in the earth and the section secured thereto to form the road. The work may be carried on by unskilled hand labor and without the requirement of machinery. The lumber used may be rough mill scrap which takes creosote well and which is thoroughly efficient for the purposes here intended. Accordingly, the pavement may be economically manufactured.

An important practical advantage of this pavement is that it may be used as soon as it is laid. No waiting is required as is the case with concrete, asphalt and other similar types of well known pavement. Furthermore, in the event of damage to any particular unit or units, the arrangement is such that the damaged unit can be readily taken out and replaced in a few minutes and without serious interruption of traffic.

In the preferred construction of Figs. 1–4, it will be noted that the top and bottom plies 2 and 3 are made of relatively thick lumber, while the intermediate ply is of thinner material. The advantage of this arrangement is that if the earth under any particular unit should become soft and form an improper support for the unit, so that the unit is flexed longitudinally under heavy loads, there will be no tendency to crack or break the intermediate, transverse lengths of lumber because such lumber being thinner will bend without breaking and nevertheless is of sufficient strength to tie the longitudinally extending lumber of the other plies firmly together. Furthermore, from the standpoint of economy, the center ply may be made thinner than the outer plies which actually take the wear. It may be noted in this regard that the units are reversible and if one side becomes unduly worn, the unit may be turned over and double wear may be had therefrom.

If it is desired that these units be reversible, the bolts should be countersunk at the bottom ply or these plies should be riveted together so that both sides will be substantially flush.

In the foregoing detailed description, I have set forth two practical embodiments of the invention, but the invention is to be understood as fully commensurate with the appended claims.

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

1. A pavement comprising a plurality of units, each of which is formed of a plurality of pieces of lumber arranged in laminated relation, each unit being jointed at its opposite ends to interfit with the corresponding joints of adjacent units, a tie underlying each joint, means passing substantially vertically through each joint to secure the units to one another and to the tie.

2. A pavement comprising a plurality of units laid end to end, and means for securing together the contiguous ends of adjacent units, each of said units embodying three plies of lumber, the upper and lower plies of which comprise lumber extending in a longitudinal direction and the intermediate ply of which is of lumber of less thickness than the upper and lower plies and extending in a transverse direction, all of the plies of each unit being permanently secured together to permit each unit to be handled as one piece.

3. A pavement comprising a plurality of units laid end to end, and means for securing together the contiguous ends of adjacent units, each of said units embodying three plies of lumber, the upper and lower plies of which comprise lumber extending in a longitudinal direction and the intermediate ply of which is of lumber of less thickness than the upper and lower plies and extending in a transverse direction, and ties extending transversely beneath the joints between the successive units, all of the plies of each unit being permanently secured together to permit each unit to be handled as one piece.

4. A pavement embodying two parallel strips, each of which strips comprises a succession of multi ply lumber units positioned end to end and each of which is provided at its opposite ends with half-lapped joint elements interfitting with corresponding elements on the contiguous ends of adjacent strips, ties extending transversely beneath said strips to underlie the joints between the successive elements thereof, and means passing substantially vertically through the lapped joints of said elements and into the ties to secure the elements to one another and to the ties.

5. A pavement embodying two parallel strips, each of which strips comprises a succession of multi ply lumber units positioned end to end and each of which is provided at its opposite ends with half-lapped joint elements interfitting with corresponding elements on the contiguous ends of adjacent strips, ties extending transversely beneath said strips to underlie the joints between the successive elements thereof, means passing through the lapped joints of said elements and into the ties to secure the elements to one another and to the ties, and paving material in the space between the strips and covering and concealing the ties.

6. A pavement comprising a plurality of units, each of which units is composed of a plurality of plies of lumber with the lumber of the outermost plies of both faces of the unit extending longitudinally of the unit and of the same length, but with the lumber of each facial ply adapted to extend beyond one end of the other facial ply to provide at the opposite ends of the unit stepped joints, said units being positioned end to end with the stepped joints of successive units in lapped relation, and means passing through the lapped portions of the units for securing said lapped portions of the successive units to one another to form a continuous pavement.

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