

Sept. 16, 1969

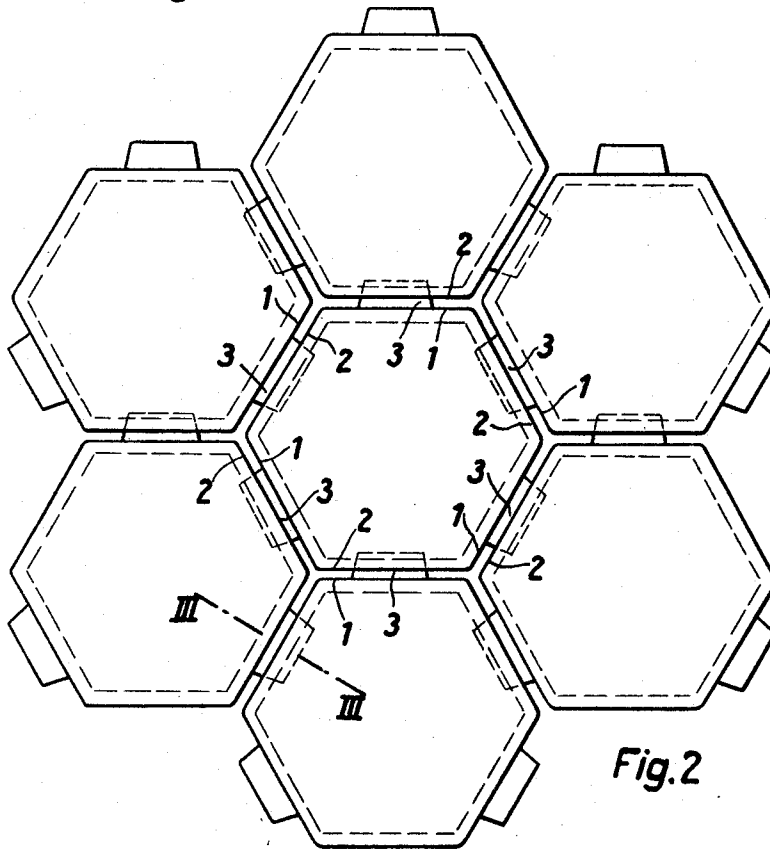
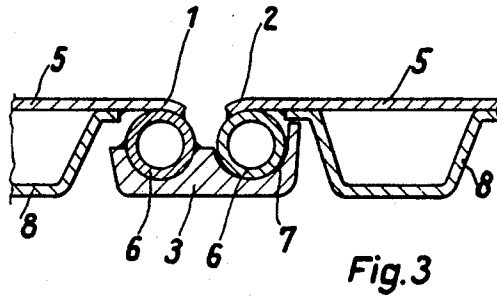
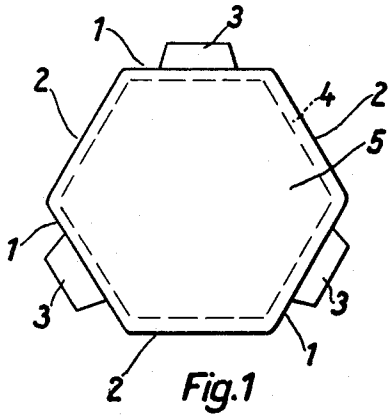
T. BILLER

3,466,986

TRACK FOR WHEEL AND TRACK LAYING VEHICLES

Filed Jan. 6, 1967

2 Sheets-Sheet 1



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TRACK FOR WHEEL AND TRACK LAYING VEHICLES

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2 Sheets-Sheet 2

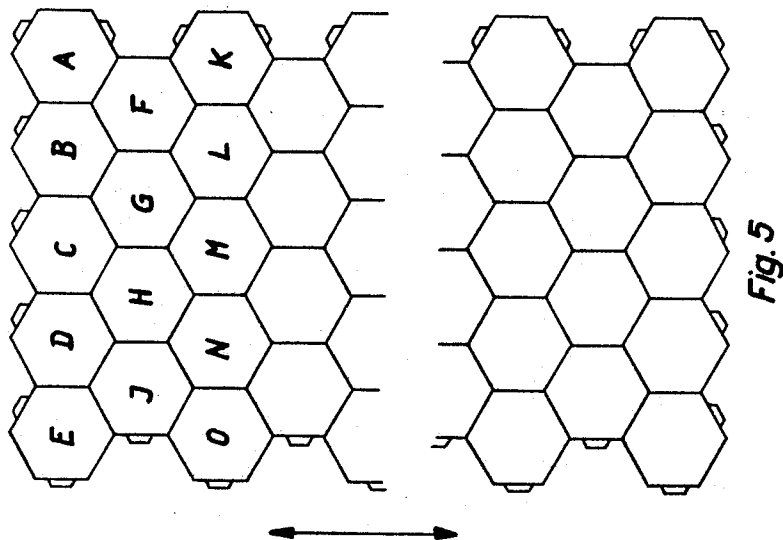


Fig. 5

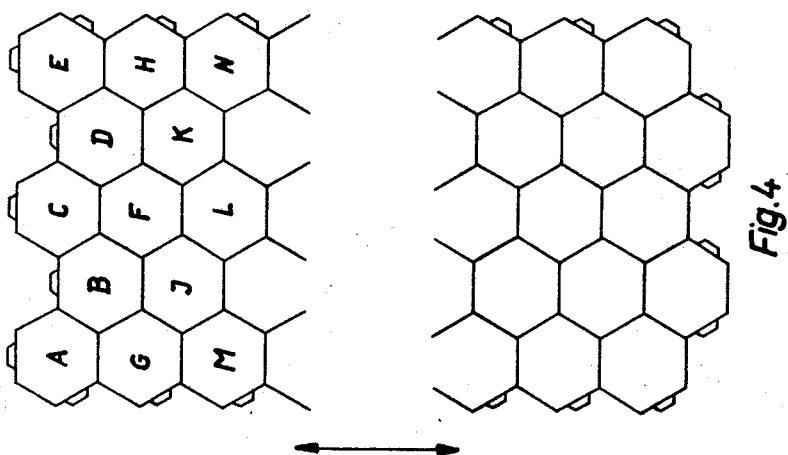


Fig. 4

1

2

3,466,986

TRACK FOR WHEEL AND TRACK LAYING VEHICLES

Theodor Biller, Dusseldorf, Germany, assignor to Thyssen Rohrenwerke Aktiengesellschaft, Dusseldorf, Germany

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9 Claims

ABSTRACT OF THE DISCLOSURE

A composite roadway for wheel equipped and for track laying vehicles which includes a plurality of plate means each having an even number of sides, while the said plate means are so arranged with regard to each other that each two adjacent plate means has two sides facing each other while one of the two sides has a holding element extending below the other one of the two sides and engaging a portion thereof from below, while simultaneously supporting the same and permitting pivotal movement of said two sides relative to each other.

The present invention relates to a track for wheel equipped and track laying vehicles, said track comprising a plurality of plates adapted to be connected to each other and to be used numerous times. Tracks of triangular, square shaped or hexagonal plates have become known which are connected at their corners by multipart couplings. When building up tracks of this type, frequently the difficulty is encountered simultaneously to grasp and connect the adjoining corners of the plates to be interconnected, and this difficulty makes itself particularly felt in view of the weight of the plates when the tracks to be built up are on uneven ground.

The foremost drawback, however, is seen in the fact that these plates rest against each other at the corners only, consequently, when unfavorable loads in the vicinity of the marginal area of a plate are encountered, especially when the plate is hollow, considerable bending stresses occur which may result in a permanent deformation of the plate or may even cause a break in the plate. Moreover, when one longitudinal side of a plate bends, an additional unevenness occurs with regard to the adjacent plate so that also the latter will, under an unfavorable load be bent or damaged. The deformed or damaged plates have to be withdrawn and to be replaced by new ones because otherwise, a continuous movement of the wheel equipped and track laying vehicles will not be possible.

It is, therefore, an object of the present invention to provide a track, roadway, or the like, which will overcome the above mentioned drawbacks.

It is another object of this invention to provide a track, roadway, runway, or the like, for wheel equipped and track laying vehicles, which not only will facilitate the building up of such track, roadway, runway, or the like, from plates, but will also effectively prevent a bending and damaging of such plates.

These and other objects and advantages of the present invention will appear more clearly from the following specification in connection with the accompanying drawings, in which:

FIGURE 1 is a top view of an individual plate for use in connection with the building up of tracks, roadways, runways, or the like.

FIGURE 2 illustrates a top view of six plates according to the invention in an interconnected or assembled manner.

FIGURE 3 is a section taken along the line III—III of FIG. 2.

FIGURES 4 and 5 respectively illustrate a top view of two tracks, or roadways, with a different arrangement of the plates with regard to the longitudinal direction of the track or roadway.

The track or roadway according to the present invention, is characterized primarily in that at least one edge of each two adjoining plate edges is equipped with a holding element that extends below the other edge and supports the same, while extending in the direction of the edge. Thus, the connection of the plates is effected along the plate over a relatively large length of the holding elements. Due to this connection, at the same time the edges of the plates are effectively supported because the adjacent or neighbor plates are employed for transmitting the forces.

Between each two edges of a plate which are equipped with a holding element, a holding element-free edge may be located. The holding element-free plate edges may have their bottom side provided with bead-shaped reinforcements, and are caught below in a hook-shaped manner and are supported by the holding elements of the adjacent plates. Preferably, the bead-shaped reinforcement extends over the entire circumference of the plate and the holding elements are rigidly connected to the bead-shaped reinforcement. The holding elements may also be displaceable or tiltable but will be arrestable in their holding position which affords greater flexibility as to the arrangement and assembly which is particularly advantageous for the marginal areas of the roadway. The said bead-shaped reinforcement may be in the form of a pipe connected to the plate, and the holding elements are preferably connected to said pipe by welding or riveting. According to a further development of the invention the bead-shaped reinforcement together with the holding elements forms a forged or cast, preferably one piece element.

Preferably, the plates have the basic shape of a regular hexagon, or the shape of a square. However, also other plate shapes, especially with an even number of edges, for instance, diamond-shaped plates may be employed.

Referring now to the drawings in detail, the plate or plate mounting 5 illustrated in FIG. 1 has its edges 1 equipped with holding elements 3 provided with a pair of arcuate saddles, said holding elements protruding beyond the outer contour of the plate. Between each two edges 1 equipped with holding elements 3, there is located an edge 2 which is free from a holding element. The edges of plate 1 are all the way around the plate provided with a bead-shaped reinforcement 4 which, as clearly shown in FIG. 3, may be formed by a pipe 6 received in one of said saddles and welded to a plate mounting 5, the holding elements 3 being welded to pipe 6.

As will be seen from FIG. 3, the holding element 3 of the left plate catches by means of its hook-shaped opening 7 behind the bead-shaped reinforcement of the adjacent right-hand plate, which reinforcement is formed by pipe 6. For purposes of reinforcing the plates 5, there is provided a sheetmetal member 8 with a stiffening corrugation or flute, member 8 being connected to the plate mounting 5.

As will be seen from FIG. 2, of each two adjoining plate edges 1 and 2, one edge 1 has a holding element 3 catching below the other edge 2. When viewing the central plate, it will be obvious that its three holding elements 3 catch below three adjacent plates, whereas the holding element-free edges 2 are caught below by the holding elements 3 of the three other adjacent plates. The still free edges of these plates are followed by an

additional plate when the track or roadway is being built up, so that a coherent roadway, runway, or the like will be formed which will adapt itself to the terrain in a highly satisfactory manner.

FIGS. 4 and 4 respectively illustrate two possible arrangements of the plates with regard to the direction of the roadway as indicated by the arrows. The assembly of the roadway will now be set forth. According to FIG. 4, plates A to E can, without difficulty, be interconnected by placing the same, one adjacent to the other. Plate F is then in vertical position with the downwardly pointing holding element moved to the free edge of plate C until the holding element catches below the bead-shaped reinforcement. By turning plate F into a horizontal position, the hook-shaped holding element will pull itself below the edge of plate C, which edge is provided with the bead-shaped reinforcement. At the same time, the holding element-free edges of plate F will be located in the adjacent still open holding elements of plates B and D. The assembly of plates G, H, I, etc. is effected in an analogous manner.

With the track or roadway according to FIG. 5, plates A to E are likewise interconnected by simply placing the same adjacent to each other. The additional rows are, starting with plate F, connected in the same manner to the first row as has been described in connection with the assembly of plate F in FIG. 4.

If the holding elements are displaceable or tiltable, they may, if desired, after insertion of the plate be placed in their effective position and arrested therein. In such instance, all plate edges may be provided with holding elements.

As will be evident from the above, the plates according to the present invention, in contrast to heretofore known tracks or roadways composed of plates, not only form a unit over which a vehicle can pass without interruption, and in which the elements are interlocked and support each other, but which will also effectively prevent damage to the plate edges by excessive load while the arrangement according to the invention permits an assembly of the plates and interlocking thereof, without additional loose couplings or closing members. It will be evident that the assembly time for a track or roadway according to the invention is considerably reduced over heretofore known tracks or roadways.

It is, of course, to be understood that the present invention is, by no means, limited to the particular structures shown in the drawings, but also comprises any modifications within the scope of the appended claims.

What I claim is:

1. A plate for use as a component of a composite roadway having a plurality of identical plates and intended for wheel equipped and for track laying vehicles, which has an even number of sides defining a polygon with a top surface and a bottom surface, bead-shaped reinforcing means connected to said bottom surface and arranged near the outer periphery of said plate, and hook-shaped holding means fixedly connected to said reinforcing means and having an arcuate seat protruding beyond the respective adjacent side for pivotally receiving bead-shaped reinforcing means of another identical plate of said composite roadway, only every other side of said plate being provided with said holding means.

2. A plate for a roadway according to claim 1, in which

said bead-shaped reinforcing means and said hook-shaped holding means form a single piece in unity at every other side of said plate.

3. A plate for a roadway according to claim 2, in which said bead-shaped reinforcing means and said hook-shaped holding means are welded together in said single piece.

4. A plate for a roadway according to claim 2, in which said bead-shaped reinforcing means and said hook-shaped holding means are cast solidly together with said single piece.

5. A plate for a roadway according to claim 2, in which said bead-shaped reinforcing means and said holding means are forged together in said single piece.

6. A plate for a roadway according to claim 3, in which said bead-shaped reinforcing means is a tubular pipe.

7. A plate for a roadway according to claim 1, in which there are edges defined by said sides, said bead-shaped reinforcing means and said hook-shaped holding means extending longitudinally of said side edges and particularly for major distance longitudinally of said side edges.

8. A plate for a roadway according to claim 1, in which there are edges defined by said sides of said polygon which is a hexagon of which only three alternate side edges include said hook-shaped holding means and of which three remaining alternate side edges include said bead-shaped reinforcing means.

9. In a composite roadway formed by multiple components collectively interconnected for wheel equipped and for track laying vehicles to traverse thereon, each of said multiple components comprising: a plate means having an identical polygonal shape of at least four side edges with a top surface and a bottom surface each correspondingly provided with respect to each said plate means, bead-shaped reinforcing means connected to said bottom surface longitudinally of said side edges for a major distance thereof near the outer periphery of each of said plate means, said bead-shaped reinforcing means existing alone and exclusively with only alternate side edges, and hook-shaped holding means fixedly connected to said bead-shaped reinforcing means and having an arcuate seat protruding beyond each of the respective adjacent remaining alternate side edges for pivotally receiving said bead-shaped reinforcing means of another identical plate means of said composite roadway, only every other side of said plate means being provided alternately with said hook-shaped holding means for collectively coupled edge clamping interfit of said plate means pivotally arrested by interfit of said alternate side edge bead-shaped reinforcing means and said hook-shaped holding means of each of said identical plate means.

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JACOB L. NACKENOFF, Primary Examiner