G. B. FRALEY.

PAVING CONSTRUCTION.

APPLICATION FILED DEC. 10, 1915.

1,207,738.

Patented Dec. 12, 1916.

2 SHEETS—SHEET 1.

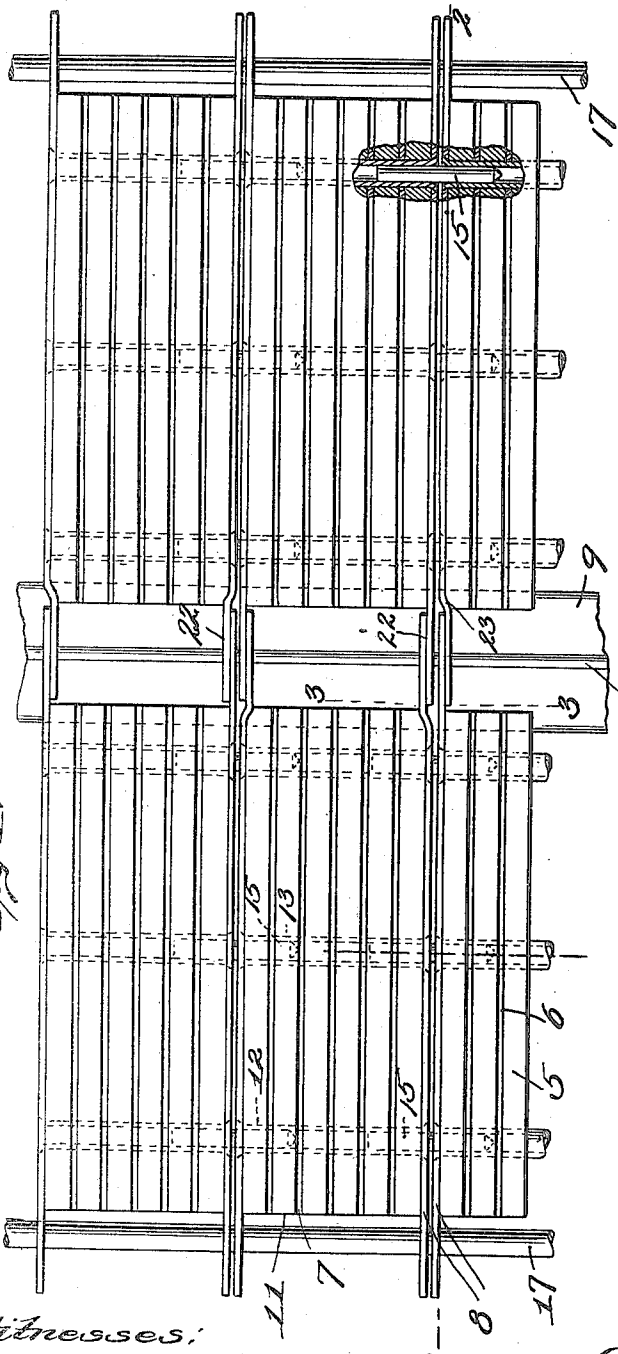

Fig. 1.

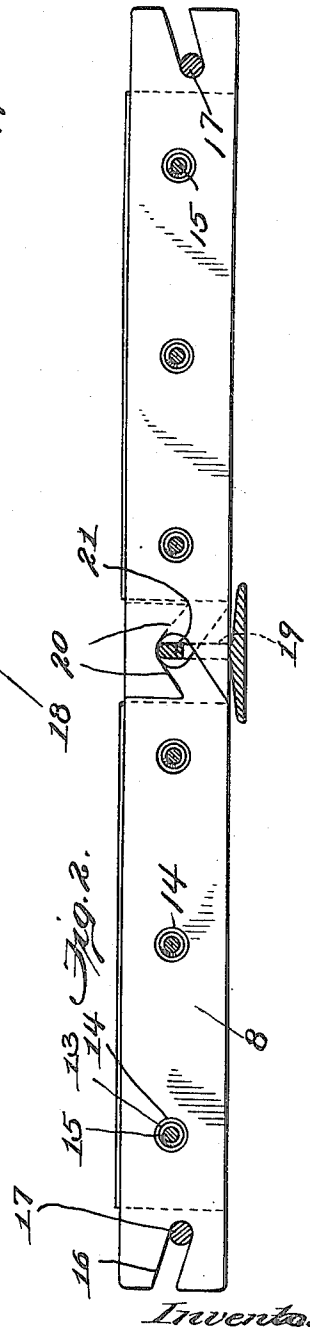

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

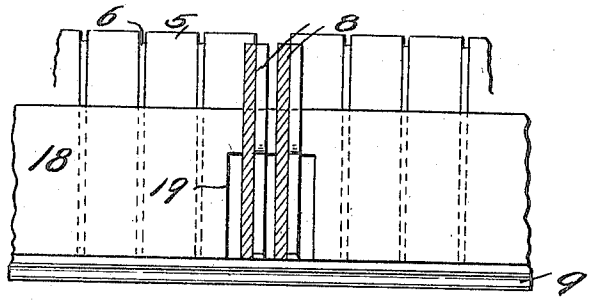


Fig. 4.

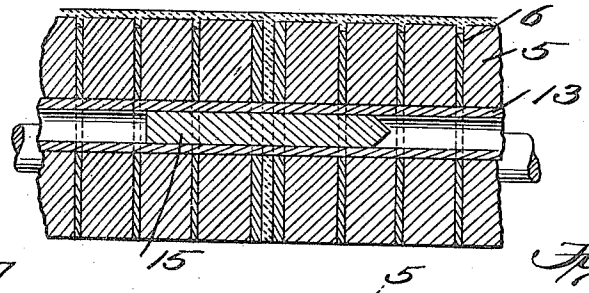


Fig. 6.

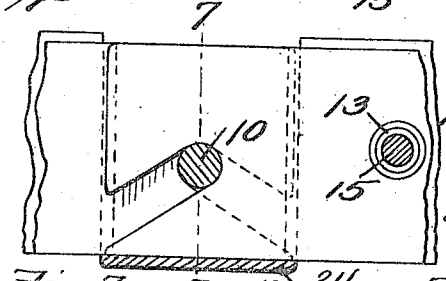


Fig. 5.

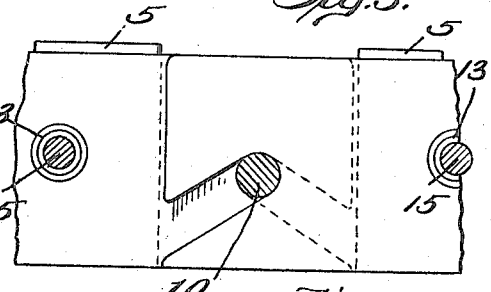


Fig. 7.

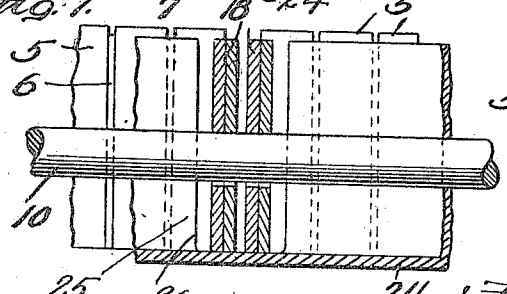


Fig. 9.

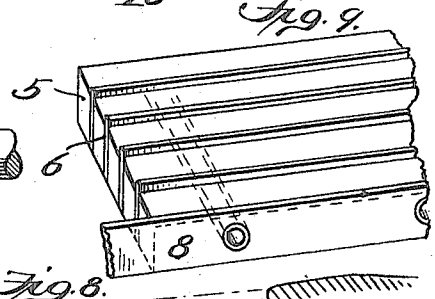
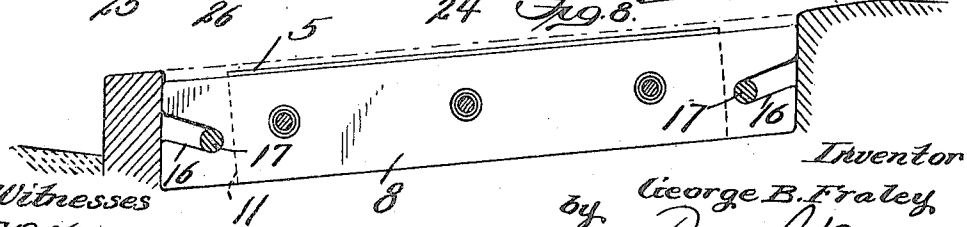


Fig. 8.



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PAVING CONSTRUCTION.

1,207,738. Specification of Letters Patent. Patented Dec. 12, 1916.

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To all whom it may concern:

Be it known that I, GEORGE B. FRALEY, a citizen of the United States, residing at Liberty, in the county of Sullivan and State of New York, have invented new and useful Improvements in Paving Construction, of which the following is a specification.

This invention relates to paving constructions adapted for roadbeds, sidewalks and other purposes, and one object of the same is to provide a series of composite or other sections which may be conveniently and expeditiously laid in contiguous relation and secured against movement by positively applied devices engaging the ends and intermediate portions of the sections, whereby every section tends to positively support adjoining ones so that irregularities in the completed roadbed or walk surface is obviated.

A further object of the invention is to provide a practically dust and frost proof and noiseless roadbed or walk structure made up of sections which are readily removable without destroying them, and also readily replaceable when repair is necessary.

A further object of the invention is to form a roadbed or walk wherein the components are factory made and of such cheap and durable material that there would be no incentive on the part of a manufacturer to substitute inferior grades of material and thereby deteriorate the components.

A still further object of the invention is to form a roadbed or walk of components having a uniform construction, contour and proportions so that the cost of the improved bed or walk will be materially reduced and the assemblage of the similar components facilitated.

With these and other objects and advantages in view the invention consists in the construction and arrangement of the several parts which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a top plan view of a portion of the roadbed embodying the features of the invention. Fig. 2 is a longitudinal section taken in the plane of the line 2—2, Fig. 1. Fig. 3 is a transverse vertical section taken in the plane of the line 3—3, Fig. 1. Fig. 4 is a transverse vertical section taken in the plane of the line 4—4, Fig. 1. Fig. 5 is a detail transverse vertical section of a portion of the improved structure showing a modification. Fig. 6 is a detail transverse vertical section of a portion of the improved structure embodying a modification. Fig. 7 is a transverse vertical section taken in the plane of the line 7—7, Fig. 6. Fig. 8 is a transverse vertical section of a portion of a sidewalk showing the improved structure embodied therein. Fig. 9 is a detail perspective view of a portion of one of the sections showing a further modification and having the metal components thereof projecting above the surface of the composite components to adapt the improved paving construction for use on hills or grades.

The improved paving construction is of a laminated type and composed essentially of alternate components 5 and 6, the components 5 being either formed from a suitable composition of material adapted for the purpose or a single material, and the components 6 are formed from comparatively thin steel in strips of a vertical extent or width slightly less than the corresponding dimension of the components 5 and whereby the upper edges of the components 6 will be slightly below the upper edges of the components 5, thus forming a plurality of longitudinally extending interstices 7 which provide key-ways for a purpose which will be presently explained. It is preferred, however, that the material used in the manufacture of the components 5 be paper and asphaltum in suitable proportions. The improved paving construction also comprises coupling strips 8 which extend transversely thereof, and as shown by Fig. 1 when the paving is used for roadbeds or other areas of considerable width these coupling strips are arranged in contiguous pairs and are longer than the components 5 and 6. The coupling strips when used with a sidewalk organization embodying the remaining features of the invention may be of single form, as shown by Fig. 8 and extend between a curb line and a building line, or if a simplified form of sidewalk is formed the coupling strips 8 may extend between any other marginal limitation. In forming a roadbed it is preferred that the groups or sections of components 5 and 6 and coupling strips 8 be arranged on opposite sides of a central supporting means or intermediary which is engaged by the projecting ends of the said strips 8, said supporting means or intermediary being shown in Figs. 1 and 2 particularly as an inverted T beam 9, and as

shown by Figs. 5 and 6 this supporting means or intermediary is in the form of a rod 10. The components 5 and 6 as well as the coupling strips 8 will all be of such length as to accommodate the work or the roadbed or sidewalk to be formed or produced, and in assembling the said components a predetermined number of the components 5 and 6 is alternately assembled in sidewise contacting relation to produce sections 11 which are alternated with the coupling strips 8. These sections including the components 5 and 6 are transversely bored or otherwise provided with openings 12 adjacent to their opposite ends and at intermediate points, the openings of the components perfectly alining and having hollow or tubular rivets 13 inserted therein and upset at their ends against the sides of the outermost components of each section. The coupling strips 8 also have openings 14 which aline with the openings 12, and where the sections 11 come together against the coupling strips 8 solid bracing pins 15 are inserted and extend through the said openings 14 and for a short distance into the tubular rivets 13 on opposite sides of the said coupling strips so as to maintain the latter in proper position relatively to the sections 11 and also support the entire paving construction, the said pins 15 having the additional function of carriers. These pins are inserted in the manner specified at all the points where the coupling strips 8 alternate with the sections 11, and the strength of the paving construction is materially enhanced or increased by the use of said pins. The outer ends of the strips 8, as shown by Figs. 1 and 2, are formed with upwardly inclined slots 16 which extend through the said outer ends of the strips for engagement with runners 17 at the opposite sides or margins of the roadbed as disclosed by Figs. 1 and 2. The runners 17 are preferably in the form of rods which will be suitably supported or anchored at their ends, and these runners hold the sections in a uniform level arrangement through the medium of the strips 8, the inclination of the slots 16 insuring a positive retention of the opposite ends of the strips 8 with the runners. In the sidewalk construction as shown by Fig. 8 similar runners 17 are also used and the strips 8 extend beyond the sections 11. As shown by Figs. 1 and 2, the inner ends of the strips 8 engage the inverted T-beam or iron 9, the vertical web or flange 18 of the latter being slotted at intervals, as at 19, see Figs. 2 and 3, the said inner ends of the strips 8 being formed with downwardly inclined slots, as at 20, to fit over the upper portion of the vertical web or flange 18 or the rib 21 formed by the slots 19, the inner ends of the strips 8 having their slots 20 in reverse relation to the said rib 21 so as to equally support the inner ends of the said strips. Moreover, it will be seen in Fig. 1 that the inner ends of the strips 8 overlap, as at 22, one strip of each pair of strips projecting inwardly to the center being bent as at 23 to provide sufficient deflection for an interlocking association of the inner ends of the strips 8 extending from the sections on opposite sides of the center of the roadbed and also to provide for an equal support or sustention of the inner ends of all of the strips 8.

As hereinbefore specified, a rod 10 may be substituted for the inverted T-beam or iron 9, as shown by Figs. 5, 6 and 7, but the inner ends of the strips 8 are slotted in the same manner as just explained. The strips 8, as shown by Fig. 8, will have their opposite ends slotted alike or the slots 16 in the strips 8 shown by Fig. 8 will both extend at upward angles of inclination, and in view of this similarity of structure of the strips at their opposite ends they are made reversible. In the form of the slots other variations may be made, and in the arrangement illustrated by Figs. 1, 2 and 3 it will be seen that the lower portions of the inner ends of the strips 8 bear upon the base or the inverted head of the T-beam or iron and the latter, together with the under edges of the sections 11 and the strips 8, are intended to be disposed upon any suitable bed support which may be prepared and consist of rubble or macadam or be simply the ground surface exposed by ditching or digging out the ground a required depth to receive the improved paving construction in any of its forms.

Instead of using the inverted T-beam or iron 9 a channel iron 24, as shown by Figs. 6 and 7, may be substituted, and therewith the rod 10 is associated and held above the bottom as shown a sufficient distance to receive the inner ends of the coupling strips 8, the said channel iron, which is of U-shaped form, having the side flanges 25 vertically slotted, as at 26, to permit the inner ends of the strips 8 to extend into and engage over the rod 10. As hereinbefore indicated, the strips 8 are of the same vertical extent as the components or strips 6 so that the key-ways 7 may be uniformly provided throughout the upper portion of the sections, it being obvious that said key-ways are wider at the points where the strips 8 alternate with the sections. After the parts of the paving construction either for a roadbed or sidewalk are completed or asssociated the open spaces at the center of the roadbed structure and at the outer margin of the latter are intended to be suitably filled or covered as may be desired, for instance by suitable cement, concrete, asphaltum or other material, and the marginal spaces in the structure shown by Fig. 8 may be likewise filled or covered. Over the top of

either the roadbed or sidewalk structure a layer or finishing top coating of liquid asphaltum and sand will be preferably applied, and this finishing or top coating will naturally work down into and fill the crevices between the sections and the coupling strips 8 and thereby form a water-tight joint and also provide a resilient surface.

It is also proposed to subject the roadbed or sidewalk built up in accordance with the features of the invention to pressure by any suitable means to give the same a stable and firm characteristic and it will also be seen that the steel strips or components 6 arranged with their edges uppermost will give material strength to the improved paving construction to sustain traffic weight and wear and tear. Furthermore, the coating or finish covering, which is clearly indicated in Figs. 4 and 8, as well as the filling introduced in the open portions of the improved paving construction will cover and shield all of the parts and result in an exceptionally homogeneous organization which will be found advantageous for general application or service.

As shown by Fig. 9, the improved paving construction or roadbed is illustrated with the components 6 and the coupling strips 8, which are of metal, projecting slightly above the upper surface of the components 5 to adapt the improved construction for use on hillsides or grades and whereby draft animals may readily gain a footing or are enabled to catch their shoe calks against the upper projecting edges of the components 6 and the coupling strips 8 to prevent slipping. This form of the paving construction provides a practical corrugated surface, as it were, and in this particular construction the upper edges of the components 6 and the coupling strips will not be covered by a surface dressing as will be obvious. The remaining features of construction hereinbefore disclosed are the same in the slightly modified form illustrated by Fig. 9.

In addition to the uses of the improved paving construction hereinbefore specified it is proposed to apply the same as a flooring for structural iron buildings, and in this instance the components 5 will be formed of suitable fireproof material or a composition of a fireproof character. A further advantageous application of the improvement is as flooring for laundries, breweries and other interior structures where durability is desired to resist constant tendency to wear. Moreover, the improved structure may be used for bridge roadways in view of the fact that it is much lighter than the very heavy roadways of this class now commonly used.

What is claimed is:

1. In a paving construction, a series of alternately arranged metal and plastic components having close side contact and edges thereof uppermost, the said components being provided with transversely extending securing devices to form independent component groups, supporting devices arranged adjacent to the ends of the groups and along the latter, and coupling means disposed in alternate relation to the groups and having their ends engaging the supporting devices.

2. In a paving construction, a series of alternately arranged metal and plastic components, the plastic components being longitudinally continuous between the metal components, coupling means arranged longitudinally between series of the metal and plastic components at intervals and connected to the latter, and means for engaging the ends of the said coupling means.

3. In a paving construction, a series of alternately arranged metal and plastic components having close side contact with edges thereof uppermost, the plastic components being continuous between the metal components, the metal components being of less vertical extent than the plastic components to form key ways between the components, means extending transversely through the components for holding them in close assembled relation in distinct groups, coupling means extending between the groups and connected to the latter, supporting means engaged by the ends of the coupling means, and a finishing coating applied over the components and engaging the key ways.

4. In a paving construction, a series of alternately arranged metal and plastic components having close side contact with edges thereof uppermost, means extending transversely through the components for holding the latter in close assembled relation, coupling means extending through and connected to portions of the components and having projecting reversely slotted ends, and supporting means extending along the ends of the components and engaged by the slotted ends of the coupling means.

5. In a paving construction, sections composed of alternately arranged metal and plastic components, means for holding the components of each section in closely assembled relation, means for connecting the components of adjacent sections, supporting means arranged along the ends of the sections, and coupling means alternately arranged with relation to the sections and having their ends engaging the said supporting means.

6. In a paving construction, a series of sections having paving characteristics, means for transversely connecting said sections, supporting means near the ends of the sections, and coupling means alternately disposed with relation to the sections and having their ends engaging the supporting means.

7. In a paving construction, a series of alternately arranged metal and plastic components having close side contact and edges thereof uppermost, the said components being provided with transversely extending securing devices to form independent sections, connecting means between the several sections, supporting devices arranged adjacent to the ends of the sections and along the latter, and coupling means disposed in alternate relation to the sections and having their ends engaging the supporting devices.

8. In a paving construction, a plurality of sections having paving characteristics, outer runners along the edges of the sections, a supporting intermediary between the inner ends of the sections, transversely extending means for connecting the sections, and coupling devices alternately disposed in relation to the sections and having projecting ends respectively engaging the runners and supporting intermediary.

9. In a paving construction, a plurality of sections having paving characteristics, outer runners along the edges of the sections, a supporting intermediary between the inner ends of the sections, transversely extending means for connecting the sections, coupling devices alternately disposed in relation to the sections and having projecting ends respectively engaging the runners and supporting intermediary, and a finishing coating and filling material applied over the sections and other parts.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE B. FRALEY.

Witnesses:
WILLIAM B. HAND,
VERA INTEMANN.