F. G. JORDAN.

REVERSIBLE REINFORCED CONCRETE AND ASPHALT COMPOSITION PAVING FLAG.

APPLICATION FILED FEB. 28, 1919.

1,326,741. Patented Dec. 30, 1919.

2 SHEETS—SHEET 1.

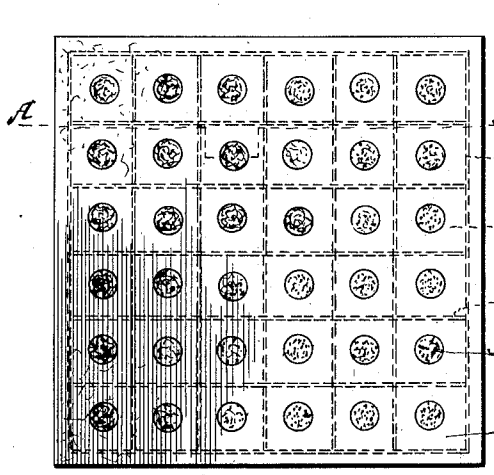


Fig. 1.

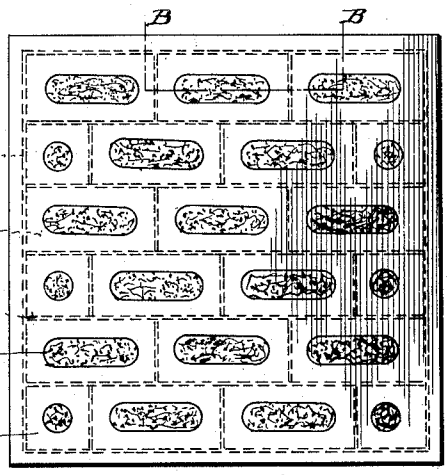


Fig. 2.

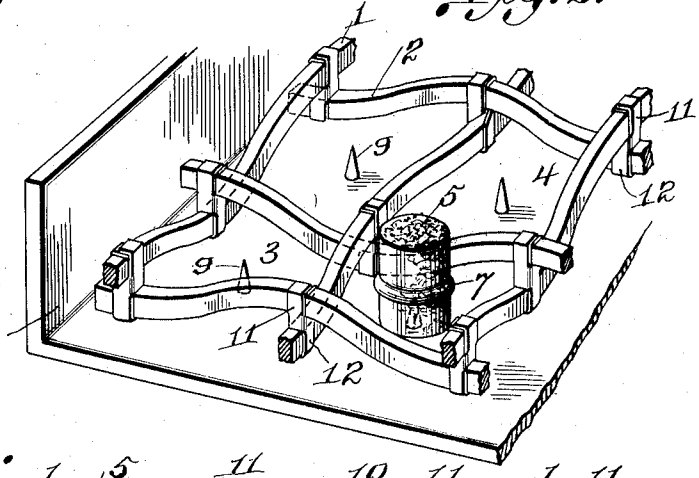


Fig. 3.

Fig. 4.

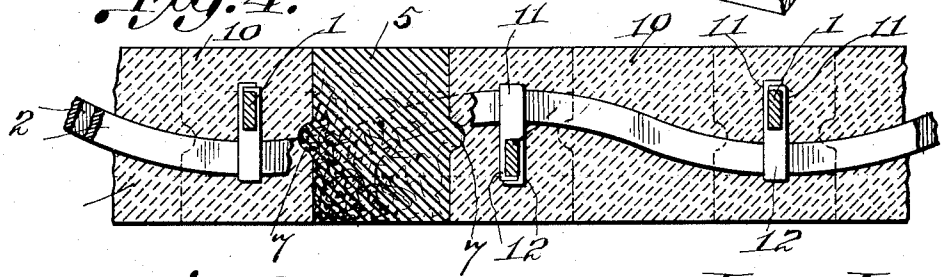
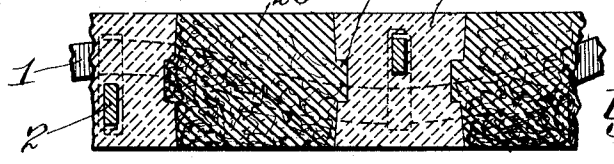


Fig. 5.



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2 SHEETS—SHEET 2.

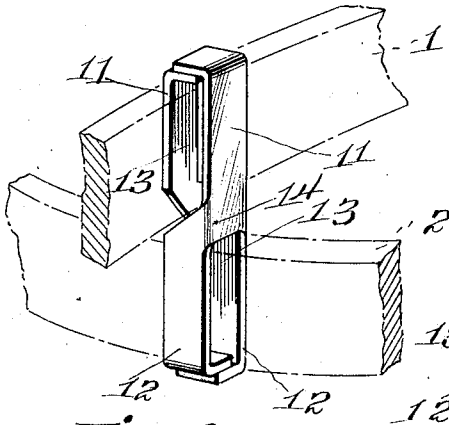


Fig. 6.

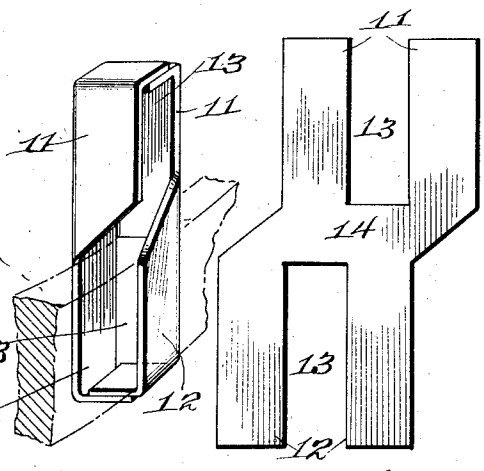


Fig. 7.

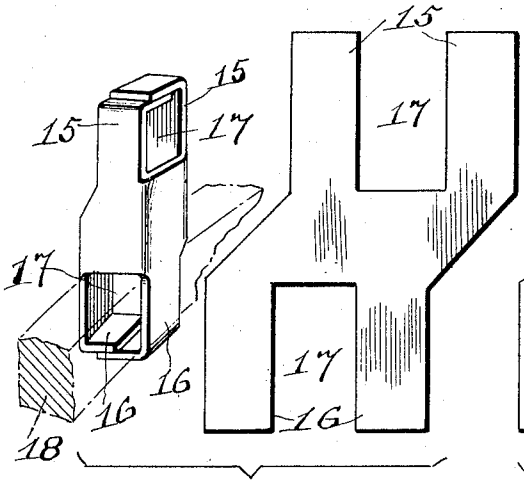


Fig. 8.

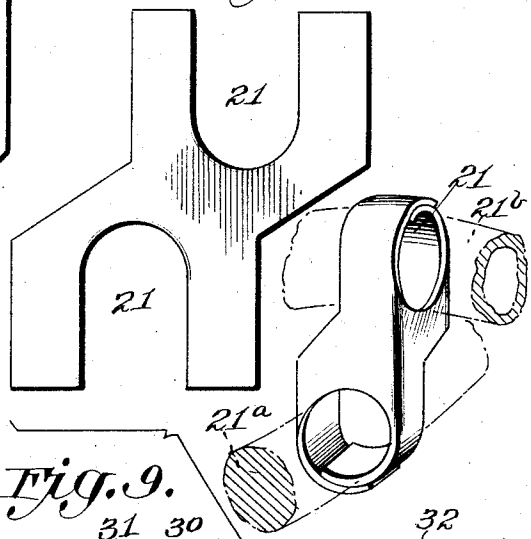
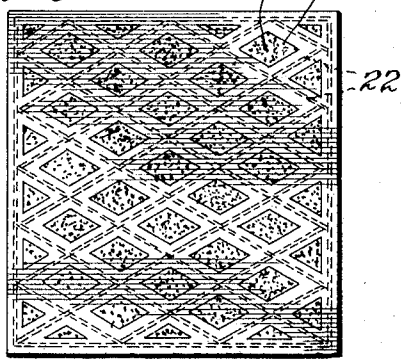


Fig. 9.

Fig. 10.



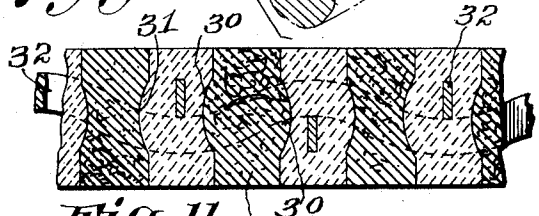


Fig. 11.

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UNITED STATES PATENT OFFICE.

FREDERICK G. JORDAN, OF CEMENT, WASHINGTON.

REVERSIBLE REINFORCED CONCRETE AND ASPHALT COMPOSITION PAVING-FLAG.

1,326,741. Specification of Letters Patent. Patented Dec. 30, 1919.

Application filed February 28, 1919. Serial No. 279,777.

To all whom it may concern:

Be it known that I, FREDERICK G. JORDAN, a citizen of the United States, residing at Cement, Washington, have invented certain new and useful Improvements in Reversible Reinforced Concrete and Asphalt Composition Paving-Flags, of which the following is a specification.

This invention relates to reversible reinforced paving flags, slabs or blocks composed of concrete and asphalt, and having double faced non-slipping tread surfaces, such as shown and described in my application entitled "Machine for manufacturing paving flags," filed April 29th, 1919, Serial No. 293,435, and allowed Oct. 15th, 1919.

The prime object of the invention is to furnish reversible truss-reinforced paving units as slabs, blocks or flags of minimum weight composed of such material as concrete or cement, asphaltic composition or other substance of light weight as a complete unit or article of manufacture, and affording non-slipping surfaces.

A further object of the invention is to provide paving flags composed of different compositions or material molded or pressed with metallic ties or truss and affording non-slipping surfaces on both sides of the flags.

A still further object of the invention is to provide reversible flags composed of a plurality of moldable material having metallic truss-forming webs molded therein and forming a composite or unitary paving flag.

An object still further of the invention is to provide a factory made slab, flag or tile, comprising reinforced concrete and geometric shaped fillings or sections constituting composite parts of the slab or tile and forming non-slipping tread surfaces on both sides of the slab or flag.

An object still further of the invention is to provide a novel and peculiar reinforcing truss of light weight adapted to be molded in and with a paving slab or flag preparatory to utilizing or setting the slabs into a floor or pavement, and to furnish a peculiar tie bracket or support for holding and locking the truss members at an angle to each other.

It is common to employ transparent fillings in connection with slabs or vault covers, and it is well known that pavements, roadways, blocks, and steps have had non-slipping surfaces applied thereto, but these do not embody a non-slipping element or material molded together with and constituting a composite part of a slab or flag so that the latter is reversible, thereby affording utility of either face thereof as a tread surface, nor do the said well known devices aim at the relative weight of the materials of which they are composed, nor do said devices comprise a reversible truss-reinforced slab or flag composed entirely of concrete or cement and asphaltic or other material forming non-slipping surfaces on opposite sides of the slab.

Various other objects, advantages, and improved results in the construction and combination of elements will be found in the invention now to be described in detail.

In the accompanying drawings forming part of this application:

Figure 1 is a surface view of a slab or flag embodying the invention.

Fig. 2 is a similar view, partly broken away, showing the same truss with different forms of non-slipping slab members.

Fig. 3 is a perspective view of part of a molding frame showing the truss and block therein.

Fig. 4 is an enlarged section view of part of a slab taken on the dotted line A—A Fig. 1.

Fig. 5 is a similar section of part of a slab taken on the dotted line B—B, Fig. 2.

Fig. 6 is a perspective view of one of the truss tie clips or supporting brackets.

Fig. 7 is a similar view showing this clip reversed, its blank, and a pair of truss webs.

Figs. 8 and 9 showing modifications of the brackets and their blanks.

Fig. 10 is a surface view of part of a slab showing a modified or diagonal form of truss and non-slipping treads.

Fig. 11 is a sectional view of part of a flag or slab showing a further modification and without the clips.

In carrying out my invention I employ a binding truss composed preferably of thin steel webs 1 and 2 placed at an angle with respect to each other and curved edgewise throughout their length and the length and breadth of a proposed slab or flag, so that each web presents concaved and convexed edges perpendicular to the thickness or depth of the slab, and the crossing of the plates forms square and oblong openings 3 and 4 as shown in Figs. 1 and 2 respectively, of the drawings. This truss is suspended

centrally in a suitable molding frame preparatory to applying the material forming the slab.

The non-slipping material may consist of asphaltic composition or any other substance or composition capable of being shaped or molded into non-shrinkable blocks or sections, and of such character as to form non-slipping tread surfaces for the slab, but for the purpose of this application I employ asphalt or asphaltic composition and mold the same into non-shrinkable blocks of variously desired shape as 5 and 6, preparatory to applying them as part of a slab or flag. These blocks have lugs or tongues 7, and are of the same depth or thickness as the proposed slab so as to extend through the latter from one face to the other, and are preferably flush with said faces. These blocks as 5 and 6 are placed central of the truss openings 3 and 4 within a molding frame as 8 and are held or temporarily anchored in such position by pins or spurs 9 projecting from the bottom of the molding frame 8. With the truss and the sections 5 and 6 in said position, a body 10 of material as concrete, cement, or similar composition is filled into the molding frame through the truss openings and around the non-slipping blocks so as to form a composite slab, tile, or flag. Then the same is pressed, dropped, bumped, or otherwise shocked, so as to produce the utmost density and solidity in the finished slab.

The slabs or flags may be produced complete and ready for use by a machine specially devised therefor, which shall form the subject of a separate patent application.

The intersection or crossing points of the truss webs are provided with a special connecting or tie bracket having pockets shaped to conform with the shape of the webs, and said brackets or supports are preferably composed of bendable steel and comprise double forked members formed by two pair of vertical prongs 11 and 12 having a space forming a pocket or socket 13 between the prongs of each pair. Said pockets or sockets are vertically opposite each other, and the prongs are connected by a bracket member 14, so that one pair of prongs is vertically opposite the socket formed by the other pair of prongs, as more clearly shown in Figs. 6 and 7. The free end of the said prongs is bendable for clenching in overlapped position over the truss members in molding the slabs so as to tie the truss members rigidly together, and to embed the whole truss structure within the slab, leaving a body of slab material between the truss and the tread surface on each side of the slab.

The clips or tie brackets shown in Figs. 8 and 9 are as stamped out and have prongs 15 offset with respect to the prongs 16, so as to form, as in Fig. 8, wide sockets 17 for square truss bars 18, and as shown in Fig. 9, U-shaped sockets 21 for round truss rods 21^a, or for tubes 21^b. These features hold the truss webs opposed vertically and the free ends of these prongs will be clenched.

Referring to the modification shown in Fig. 10, the truss webs 22 are arranged diagonally and form diamond shaped openings 23, and the non-slipping blocks 24 are diamond shaped so as to present two tread surfaces on each face or side of the slab. The same clip or tie brackets may be used in this form of slab by widening the socket enough to permit running the truss webs diagonally therethrough.

Adverting to Fig. 5 of the drawings, it will be seen that the non-slipping blocks 25 or sections are beveled from the protrusion, tongue or lug 25^a thereof to each of the outer faces and the concrete or cement body 25^b is wedged around and locked with said blocks so as to form a bond or fixed tie between the blocks and the said body. Obviously the lugs or protrusions 7 and 25 are not confined to any particular shape, and the shape of the blocks may be varied as desired.

Referring to Fig. 11 of the drawings, the non-slipping tread sections 29 are convexed or bulged at 30, or they may have concaved portions as 31. In this figure the truss webs 32 are shown as engaging each other, and without the clips or brackets.

In order to facilitate the bonding of the body of concrete or cement with the truss, the latter may be galvanized, or dipped in a hot solution and sanded prior to being placed in a mold.

It is most desirable to produce an impervious slab of minimum weight for the purpose of expeditious handling, transportation, and laying into pavement position. Therefore I have found such trusses as hereinbefore described, to be of the lightest attainable strength and durability. I have also found that such materials as asphaltic (bituminous or petroleum) blocks or cores, in a degree softer than the concrete or cement body, not only affords lightness in the slab but the tread surfaces of such blocks or cores will wear off slightly in advance of the tread surface of said body thereby producing slightly uneven tread surfaces which not only form a non-slipping surface but a foot hold or grip. Obviously the shape, construction and material of the truss affords a novel reinforcement of the slabs and permits a minimum thickness of the slabs, and by employing blocks of such composition, as hereinbefore mentioned, other suitable compositions of low specific gravity, such as bitumen and tar, coke, pumice, slaked lime, and the like, not only produces a practical non-slipping tread on both faces of the slab but reduces the weight of the

slab, and by reason of the composition and combination of these materials and light steel trusses, a commercial slab or flag of standard hardness and strength is produced, practically impervious and unaffected by heat and cold or other elements to which pavements built *in situ* are usually exposed.

It will be understood that having the non-slipping material or blocks extend through the slab not only affords corresponding tread surfaces on each face of the slab but permits either face of the slab to be laid in or upon a side walk foundation or roadway bed or foundation of concrete, or where the natural foundation is solid and well drained, the slabs may be merely laid on a sand coated bed. There being no difference in the faces of the slabs the usual great loss of time and labor is saved in laying the same.

It will also be understood that any one or more slabs comprising a pavement or walk may be removed and reversed without disturbing or fracturing any other remaining slab or slabs, that the slabs may be manufactured in great quantities and reserved in stock for use as desired or as occasion may demand, that the slabs may be manufactured in standardized size or any desired size, and shape, and that the material constituting the non-slipping tread surfaces may be varied in color and design as desired for ornamental purposes.

I do not wish to be understood as confining myself to any particular one or more of the materials hereinbefore mentioned, to the size, shape, or configuration of the slabs and their component parts, nor to the application of the slabs, but reserve the right to make such changes and variations in the compositions and in the truss and its tie brackets in the manufacture and practical application of the slabs and their component parts as may not be inconsistent with the claims to follow.

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

1. As a new article of manufacture, a reversible paving slab composed of a body of concrete, asphalt blocks having the concrete molded therebetween, and a skeleton truss comprising arched members interlocked crosswise between said blocks and surrounded by the concrete so as to expose both ends of the blocks for non-slipping treads.

2. As a new article of manufacture, a concrete slab having an open interlocked truss embedded therein, and a plurality of composition molded blocks central of the truss openings and extending through the concrete so as to form non-slipping treads on opposite faces of the slab.

3. A reversible paving slab comprising a main body of concrete, an open truss comprising arched cross members enveloped by the concrete, and a plurality of composition blocks held in the truss openings by the concrete and extending through the concrete so as to form non-slipping tread surfaces on opposite faces of the slab.

4. A reversible paving slab composed of a body of material such as concrete, a reinforcing truss, and a plurality of blocks composed of material as asphalt of lighter specific gravity than said body and set in said truss preparatory to molding said body therebetween so as to extend through said body for forming double faced non-slipping tread surfaces on opposite sides of the slab.

5. A reversible paving slab comprising a main body of concrete, a reinforcing truss comprising interlocked arched members inclosed by the concrete and having block openings containing portions of the concrete, and blocks held in the openings by said concrete portions and extending through the same so as to form double faced non-slipping tread surfaces on opposite faces of the slab.

6. In a reversible paving slab or flag, a plurality of blocks, the thickness of which shall determine the thickness of the slab, a body of concrete retaining the blocks so that their ends are exposed on opposite sides of the slab for non-slipping treads, and a metallic reinforcing truss embedded in the concrete between the blocks.

7. In a reversible paving slab or flag, a body of concrete, a plurality of blocks held by the concrete so as to expose the ends of the blocks on opposite sides of the slab, metallic truss members embedded in the concrete and having concaved and convexed portions crossing each other, and tie brackets connecting said members at their crossings.

8. The combination with a composition paving slab truss comprising a plurality of metallic bars having arched relation for surmounting and crossing each other edgewise, of a tie bracket having pockets of various size and shape for the bars and holding the bars running in one direction vertically over the bars running in the other direction.

9. A reversible paving slab comprising a main body of concrete, a plurality of asphalt blocks having said body molded around them so as to expose both ends of the blocks, whereby double faced treads are formed on sides of the slab.

In witness whereof I hereunto set my hand in the presence of two witnesses.

FREDERICK G. JORDAN.

Witnesses:
J. Ross Colhoun,
C. T. Belt.