Nov. 29, 1938. J. P. FAGAN 2,138,270

ROAD SURFACE AND PAVING BLOCKS FOR FORMING SUCH SURFACE

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Fig. 1.

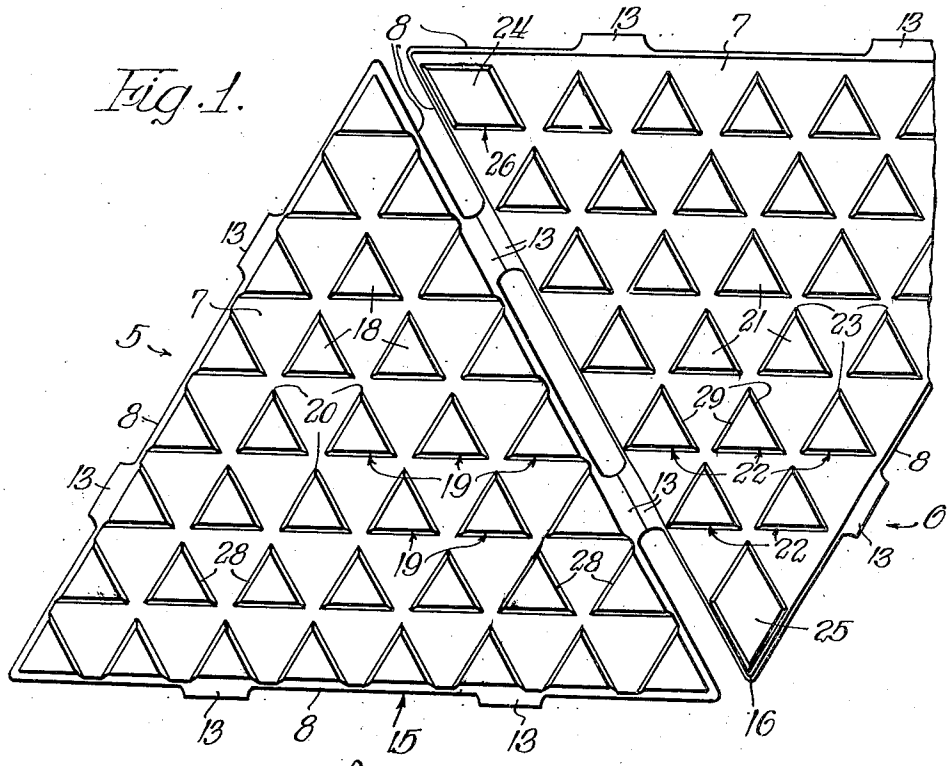


Fig. 4.

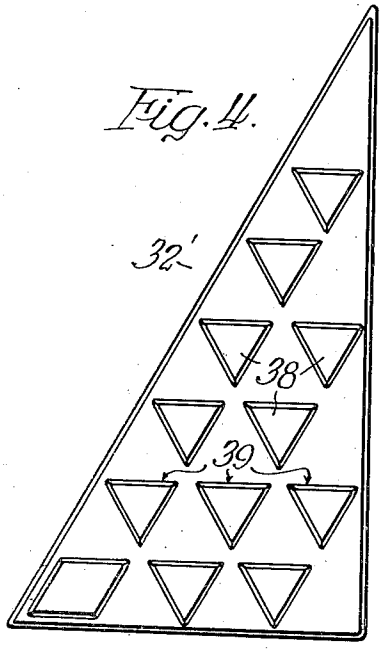
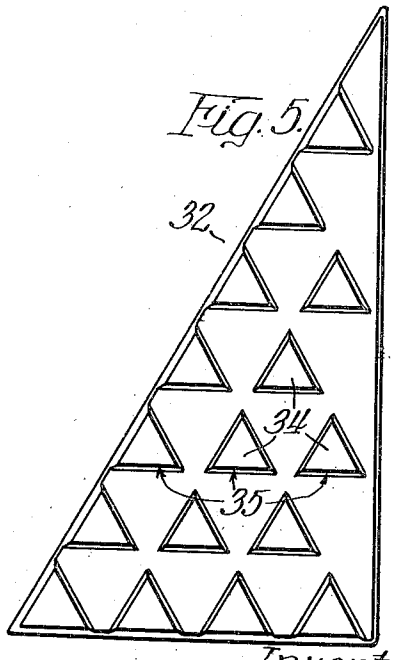


Fig. 5.



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Fig. 2.

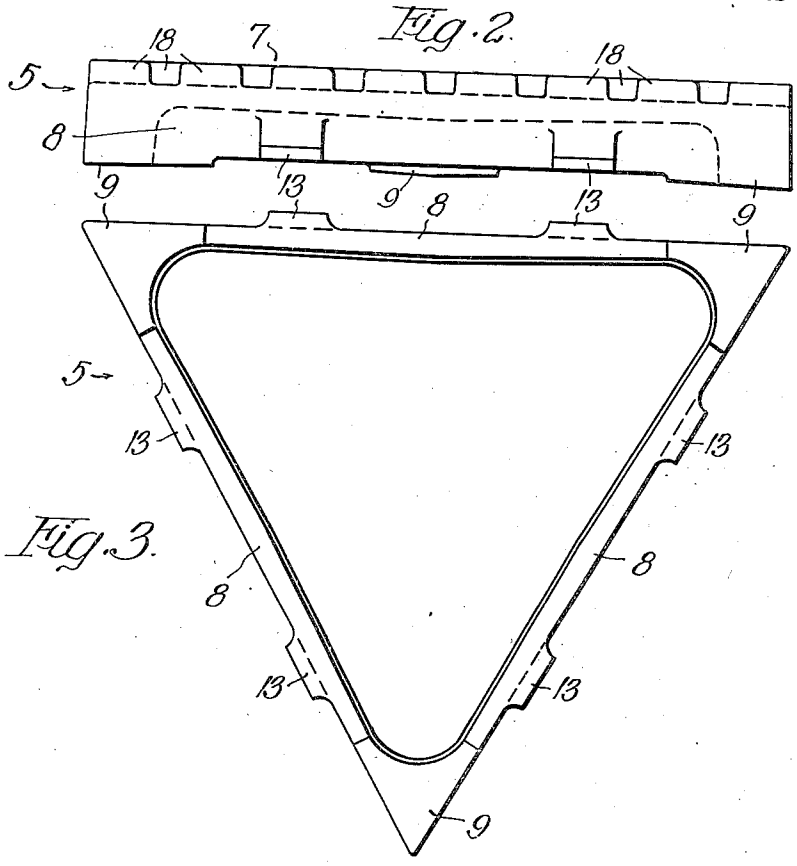
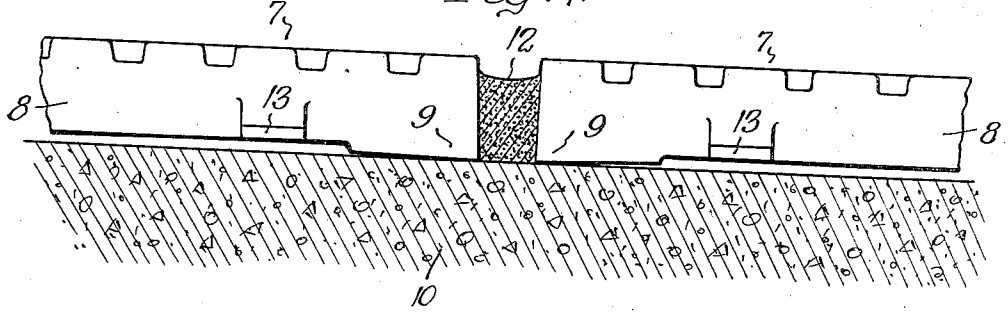


Fig. 3.

Fig. 7.



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Fig. 6.

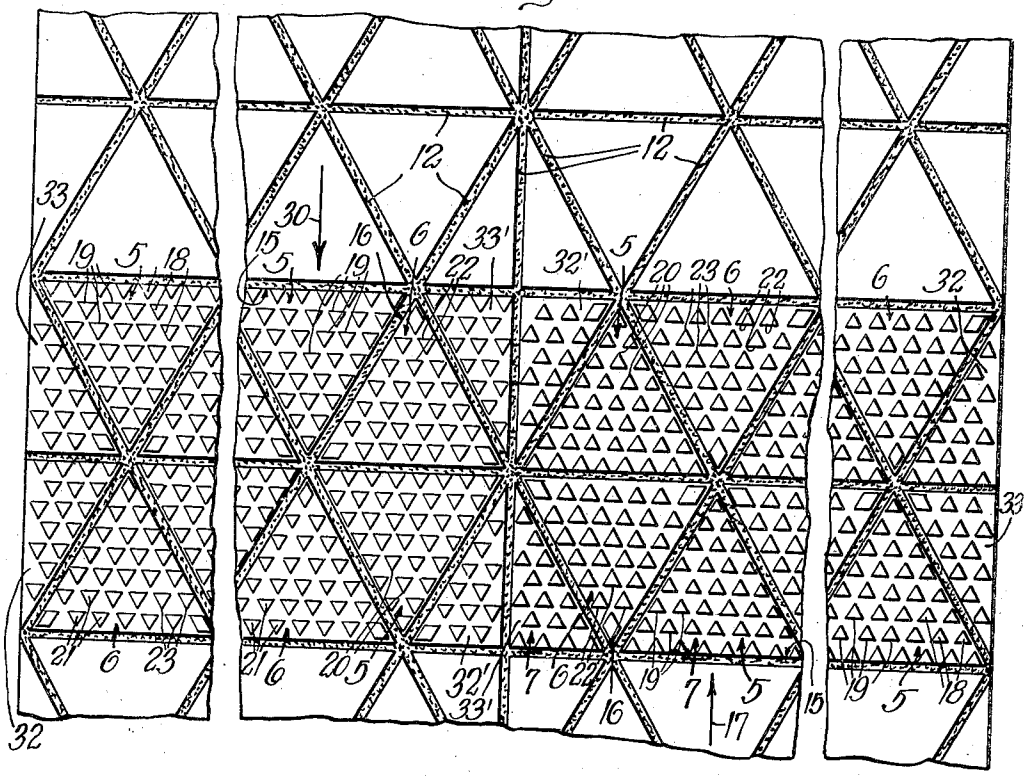


Fig. 9.

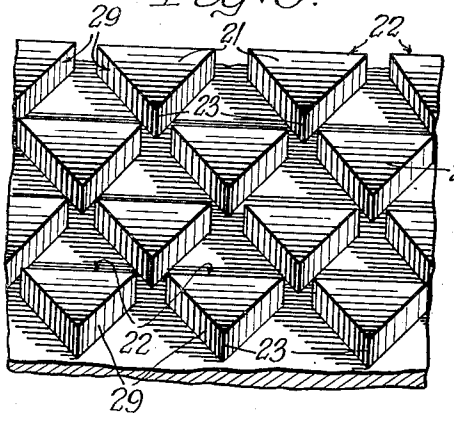
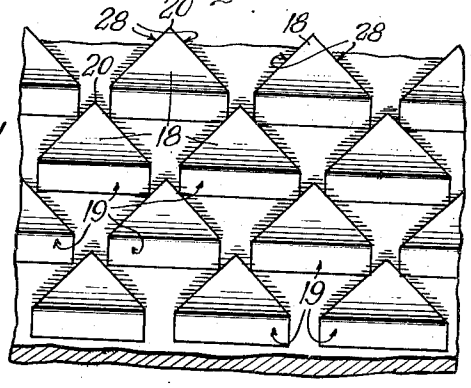


Fig. 8.



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UNITED STATES PATENT OFFICE

2,138,270

ROAD SURFACE AND PAVING BLOCKS FOR FORMING SUCH SURFACE

John P. Fagan, Chicago, Ill., assignor to Interlake Iron Corporation, Chicago, Ill., a corporation of New York

Application March 2, 1936, Serial No. 66,524

10 Claims. (Cl. 94—11)

This invention relates to improvements in road surfaces and paving blocks for forming such surfaces, and has to do with improved light reflecting and non-slip projections therefor.

A road surface usually falls in the class of non-luminous bodies and, as such, depends for its illumination upon reflected or diffused light.

One of the main objects of my invention is to provide projections which will produce in front of a vehicle travelling upon the road more direct reflection of the light rays from the lamps of the vehicle and thereby increased illumination in front of the vehicle, at the same time less glare in the opposite direction and, in a two-way road, less illumination of the opposite side of the road where the travel is in the opposite direction.

It is a more specific object of my invention to provide metal paving blocks, each having a plurality of integral projections provided with upstanding surfaces presented toward and disposed in front of the vehicle substantially normal to the direction of travel, and defined in the opposite direction by obliquely disposed upstanding surfaces; also an arrangement of the blocks with the projections oppositely disposed on opposite sides of the road, whereby on one side of the road the projections provide upstanding surfaces presented toward and disposed substantially normal to the direction of travel on that side of the road, and are defined in the opposite direction by obliquely disposed upstanding surfaces, and on the opposite side of the road the projections provide upstanding surfaces presented toward and disposed substantially normal to the opposite direction of travel on that side of the road, and are defined in the opposite direction by obliquely disposed upstanding surfaces.

Another more specific object of my invention is to provide sets of triangular metal paving blocks adapted to be juxtaposed and interfitted with sides of alternate blocks and apices of the intervening blocks presented toward the direction of travel, and with oppositely disposed projections on the upper surfaces of said blocks, whereby all of said projections may present upright surfaces toward and substantially normal the direction of travel and obliquely disposed upstanding surfaces in the opposite direction.

Another more specific object is to provide half blocks with similar projections oppositely disposed for filling or finishing purposes, and which will carry out the opposite effects produced upon opposite sides of the road by the other sets of blocks.

Further objects and advantages of my invention will appear from the following detailed description, taken in connection with the accompanying drawings, in which:

Figure 1 is a plan view of two juxtaposed and interfitted blocks embodying the present invention;

Figure 2 is a side elevation of one of the blocks shown in Figure 1;

Figure 3 is an under side view of one of the blocks shown in Figure 1;

Figure 4 is a plan view of one of the half blocks for filling and finishing purposes;

Figure 5 is a plan view of another half block;

Figure 6 illustrates, in plan and partially broken away, a portion of a road surface embodying the present invention;

Figure 7 is a fragmentary vertical section taken on the line 7—7 of Figure 6;

Figure 8 illustrates a portion of one side of a road surface embodying the present invention, with the light reflecting and non-slip projections in perspective and showing the increased illumination provided where the upstanding surfaces are presented toward and disposed substantially normal to the direction of travel; and

Figure 9 is a view similar to Figure 8, illustrating a portion of the opposite side of the road surface and showing the decreased illumination provided at that side by the oblique surfaces of the projections.

Referring to the drawings, the paving structure shown comprises two sets of triangular metallic blocks, the blocks of one set being indicated by the reference character 5 and the blocks of the other set are indicated by the reference character 6.

The blocks 5 and 6 are preferably formed of cast iron, and each has an upper load-carrying portion 7 with integral marginal side walls 8 extending downwardly from the upper load-carrying portion and forming three supporting feet 9 respectively depending from the apices of the blocks below the remaining portions of the side walls for supporting the blocks upon a rigid supporting foundation 10, with the lower edges of the side walls between the feet 9 spaced slightly above and out of contact with the supporting foundation.

The marginal side walls 8 may slope outwardly and downwardly from the tops of the blocks, as shown, to facilitate removal of the blocks

from the molds, and with the other advantages set forth in United States Letters Patent to Francis G. Small, No. 2,018,581, dated October 22, 1935, but I contemplate within the scope of the present invention making the slope in the opposite direction or omitting the slope entirely, and making the outer surfaces of the marginal side walls vertical.

The blocks shown are not provided with internal reenforcing ribs, but ribs such as those shown in the above patent to Francis G. Small are contemplated within the scope of the present invention.

The blocks 5 and 6 are laid on the foundation 10 of reenforced concrete or like rigid material, with the feet 9 resting directly or otherwise supported upon the foundation. The upper surface of the foundation 10 is preferably leveled to provide the desired support, and a filling or sealing material 12 of asphalt, bitumen, or the like, is applied or otherwise provided between the marginal side walls 8 of adjacent blocks. The side walls 8 are preferably in sealing contact with the sealing material 12 for their full lengths, and this sealing material acts as a binder and to seal the hollow spaces within the blocks. Of course a layer of material like the sealing material 12 may be provided on the surface of the foundation 10, with the feet 9 passing through this layer and resting upon the foundation as disclosed in the above patent to Francis G. Small, all within the scope of the present invention.

The blocks 5 and 6 are laid in juxtaposition, with a small gap between them for the sealing material 12. The desired spacing of the blocks may be secured by coacting spacing lugs 13 formed integral with and extending laterally from the lower edges of the marginal side walls 8 between the feet 9 and thereby elevated, with the lower edges of the portions of the side walls between the feet 9 above the lower ends of the feet.

The sealing material or filling 12 between the blocks 5 and 6 serves generally to retain the blocks in position and to protect the foundation. The sealing or filling material is of yielding character when set to permit expansion and contraction of the blocks under variations in temperature, thereby preventing buckling of the road surface.

The blocks 5 and 6 are interfitted with the sides 15 of the blocks 5 and the apices 16 of the blocks 6 presented toward the direction of travel indicated by the arrow 17 in Figure 6. Where the road is a two-way road, the blocks 5 and 6 are reversed on the opposite side of the road, with the sides 15 of the blocks 5 and the apices 16 of the blocks 6 presented toward the opposite direction of travel on that side of the road.

Each block 5 has a plurality of integral triangular studs or projections 18 on its upper surface. These studs or projections 18 are disposed so that the upstanding sides 19 thereof are presented toward and positioned substantially normal to the direction of travel indicated by the arrow 17 in Figure 6, and with the apices 20 of said projections opposite the sides 19 presented in the opposite direction.

Each block 6 has a plurality of similar integral triangular studs or projections 21 on its upper surface. The disposition of these studs 21 in respect to the blocks 6 carrying the same is opposite to the disposition of the studs 18 in respect to the blocks 5, so that when the blocks are interfitted as shown, the upstanding sides 22 of the studs 21 are also presented toward and positioned substantially normal to the direction of travel indicated by the arrow 17 and with the apices 23 of said studs 21 opposite the sides 22 presented in the opposite direction. Integral diamond-shaped studs or projections 24 and 25, at the apices of the blocks 6, complete the sets of studs on these blocks. The studs 24 have upstanding sides 26 presented toward and positioned substantially normal to the direction of travel indicated by the arrow 17. The studs 24 and 25, in addition to completing the stud layouts on the blocks 6, break up the uniformity of spacing of the lugs over the road surface, and thereby the harmonics, whereby to reduce the hum of tires of the vehicles traveling upon such surface and to reduce the stopping distance on the surface.

The upright surfaces 19 and 22 being all presented toward and substantially normal the direction of travel indicated by the arrow 17, more direct reflection of the light rays from the lamps of the vehicles traveling upon the road in the direction indicated by the arrow 17 is produced, thereby utilizing more efficiently the light rays and producing increased illumination in front of the vehicle. By the same token that the direct reflection is increased and better illumination provided in front of the vehicle, the amount of light passing on beyond the projections 18 and 21, and thereby the glare upon vehicles approaching in the opposite direction, is reduced. This disposition of the apices 20 and 23 of the projections 18 and 21 in the opposite direction presents obliquely disposed upstanding surfaces 28 and 29 in that direction, with reduced direct reflection and reduced illumination by the lamps of approaching vehicles.

Where the road is a two-way road, with travel on one side indicated by the arrow 17 and travel on the other side of the center of the road indicated by the arrow 30 (Figure 6), the blocks 5 and 6 are oppositely disposed on opposite sides of the road, the blocks 5 and 6 being disposed, as already pointed out, with their sides 15 and apices 16, respectively, toward the direction of travel on the right-hand side of the road, and the blocks 5 and 6 being oppositely disposed with the sides 15 and apices 16 presented toward and disposed substantially normal the opposite direction of travel on the left-hand side of the road. This presents the upright surfaces 19 and 22 toward and substantially normal to the direction of travel on the right-hand side of the road, and the surfaces 19 and 22 in the opposite direction and toward and substantially normal to the opposite direction of travel on the opposite side of the road. As a result, and in addition to the advantages above set forth, increased illumination is provided in front of the vehicles in each lane or on each side of the road, with reduced illumination of the opposite side of the road, thereby providing a definite line of demarcation between the opposite sides of the road in each direction. The effect of the brighter illumination on the right-hand side of the road and reduced illumination on the left-hand side of the road is shown in Figures 8 and 9.

The studs or projections 18 and 21 are preferably arranged in rows parallel to the sides 15 of the blocks 5, and the blocks are preferably laid with these sides 15 normal to the direction of travel. The blocks are preferably laid with the rows of studs 21 of the blocks 6 aligned, or substantially aligned, with the rows of studs 18 on

the blocks 5. Further, the studs in the respective transverse rows are preferably staggered as shown, with the surfaces 19 and 22 overlapping the surfaces 19 and 22 of the studs of next adjacent rows further to increase the direct reflection and thereby the illumination in front of the vehicle.

The half blocks, 32, 32', 33, and 33' (Figures 4 and 5) are provided for filling in and finishing the sides and center of the road, as shown in Figure 6. These blocks are preferably formed of cast iron, and each has an upper load-carrying portion with integral marginal side walls extending downwardly from the upper load-carrying portion and forming three supporting feet respectively depending from the apices of the half blocks below the remaining portions of the side walls for supporting these half blocks upon the supporting foundation 10, similar to the blocks 5 and 6.

The integral triangular projections 34 on the half blocks 32 are identical with and positioned similar to the integral triangular projections 18 on blocks 5, and these half blocks 32 are adapted to be arranged in one direction along the right-hand edge of the road and in reverse position along the left-hand edge of the road, as shown in Figure 6. The upstanding surfaces 35 are thus presented toward and disposed normal the opposite directions of travel on the opposite sides of the road, and the apices opposite these sides are presented in the opposite direction.

The integral triangular projections 38 on the half blocks 32' are identical with and position similar to the integral triangular projections 21 on the blocks 6, and these half blocks 32' are adapted to be laid in reverse directions along the center of the road. The upstanding sides 39 are thus presented toward and substantially normal the opposite directions of travel on the opposite sides of the road. The half blocks 33 and 33' are arranged in reverse order along opposite sides and the center of the road, with the projections thereon arranged to carry out the effect shown and described.

The half blocks 32, 32', 33, and 33' are shown without spacing lugs, but it is to be understood that these half blocks may be provided with spacing lugs similar to those on the blocks 5 and 6.

I do not intend to be limited to the precise details shown or described.

I claim:

1. A road surface comprising triangular paving members arranged in pairs with adjacent members provided with upstanding triangular projections presenting upstanding light reflecting faces, the apices of said upstanding triangular projections pointing in opposite directions relative to each individual paving member and the pairs of paving members being arranged to form a parallelogram with the apices of said upstanding triangular projections pointing in the same direction with respect to said parallelogram, said paving members being arranged with the apices of all of said upstanding triangular projections pointing in one direction on one side of the road and with the apices of all of said upstanding triangular projections pointing in the opposite direction on the opposite side of the road.

2. A road surface comprising triangular paving members arranged in pairs with adjacent members provided with upstanding triangular projections presenting upstanding light reflecting faces, the apices of said upstanding triangular projections pointing in opposite directions relative to each individual paving member and the pairs of paving members being arranged to form a parallelogram with the apices of said upstanding triangular projections pointing in the same direction with respect to said parallelogram, said paving members being arranged with the apices of all of said upstanding triangular projections pointing in one direction on one side of the road and with the apices of all of said upstanding triangular projections pointing in the opposite direction on the opposite side of the road, and half blocks for filling in and finishing the sides and center of the road, the half blocks on one side of the road having upstanding triangular projections presenting upstanding light reflecting faces with the apices of said upstanding triangular projections pointing in the same direction as the apices of the upstanding triangular projections of the pairs of adjacent triangular paving members on the same side of the road and with the half blocks on the other side of the road having upstanding triangular projections presenting upstanding light reflecting faces with the apices of said upstanding triangular projections pointing in the same direction as the apices of the upstanding triangular projections of the pairs of triangular paving members on the adjacent side of the road.

3. Paving means comprising a paving block, triangular tread projections on the upper surface of said block, said tread projections having upstanding light transmitting sides, each tread projection on said block having one of its light transmitting sides presented in one and the same direction and one of its apices presented in the opposite direction.

4. Paving means comprising a triangular paving block, triangular tread projections on the upper surface of said block, each of the tread projections on said block having three upstanding light transmitting sides and each tread projection on said block being disposed with its light transmitting sides parallel with and presented toward the respective sides of the block and with its apices presented away from the respective sides of the block.

5. Paving means comprising a triangular paving block, triangular tread projections on the upper surface of said block, each of the tread projections on said block having three upstanding light transmitting sides and each tread projection on said block being disposed with its apices presented toward the respective sides of the block and with its light transmitting sides presented away from the respective sides of the block.

6. Paving means comprising pairs of triangular paving blocks with each block of each pair of blocks having triangular tread projections on the upper surface thereof, each tread projection having three upstanding light transmitting sides and three apices, each tread projection on one block of each pair of blocks being disposed with its light transmitting sides parallel with and presented toward the respective sides of the block and with its apices presented away from the respective sides of the block, and each tread projection on the other block of each pair of blocks having its light transmitting sides presented away from and its apices presented toward the respective sides of said other block.

7. Paving means comprising pairs of equilateral triangular paving blocks with each block of each pair of blocks having triangular tread projections on the upper surface thereof, each tread

projection having three upstanding light transmitting sides and three apices, each tread projection on one block of each pair of blocks being disposed with its light transmitting sides parallel with and presented toward the respective sides of the block and with its apices presented away from the respective sides of the block and each tread projection on the other block of each pair of blocks having its light transmitting sides presented away from and its apices presented toward the respective sides of said other block, and pairs of right angle triangular filler blocks with each block of each of said last pairs of blocks having triangular tread projections on the upper surface thereof, each tread projection on each of said filler blocks having one of its light transmitting sides parallel with and presented toward one of the sides of the block and the other block of each pair of filler blocks having one of its apices disposed toward one of the sides of said last mentioned blocks.

8. Paving means comprising pairs of triangular paving blocks with each block of each pair of paving blocks having triangular tread projections on the upper surface thereof, each tread projection having three upstanding light transmitting sides and three apices, the blocks on one side of the road being disposed with one light transmitting side of each tread projection presented in one and the same direction and with one apex of each tread projection presented in the opposite direction and the blocks on the opposite side of the road being disposed reversely with respect to the blocks on said first mentioned side of the road so that one apex of each of said latter blocks is presented in the direction in which the light transmitting sides of the projections on said first blocks are disposed and with the light transmitting sides of the projections on said latter side of the road presented in the opposite direction.

9. A road surface formed of pairs of triangular paving blocks laid reversely with respect to each other along the opposite sides of the road and with a block of each pair of the blocks on each side of the road laid reversely with respect to the other block, triangular tread projections on the upper surface of each block, said tread projections having upstanding light transmitting sides, each tread projection on one side of the road having one light transmitting side presented toward and disposed at substantially right angles to the direction of travel on that side of the road, and each tread projection on the opposite side of the road having one of its apices presented in the direction in which the light transmitting sides of the tread projections on the first mentioned side of the road are presented.

10. A road surface having triangular tread projections thereon, said tread projections having upstanding light transmitting sides, each tread projection on one side of the road having one of its light transmitting sides presented in one direction and each tread projection on the opposite side of the road having one of its light transmitting sides presented in the opposite direction.

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