Oct. 1, 1935. F. R. HIGLEY 2,015,897

PAVING MEANS

Filed Dec. 9, 1932 2 Sheets-Sheet 1

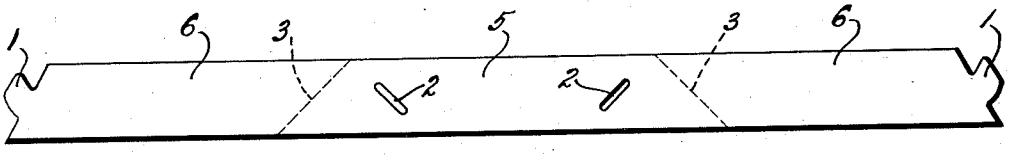


Fig. 1.

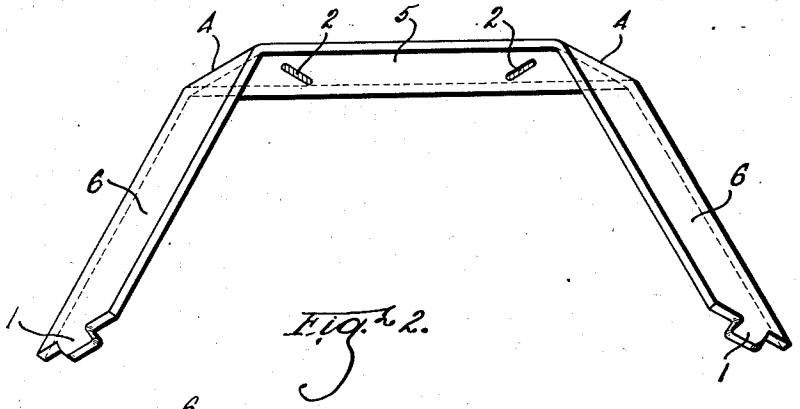


Fig. 2.

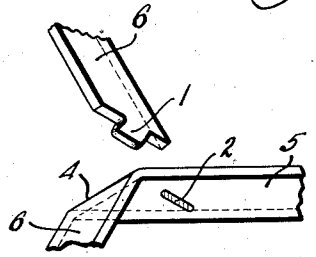


Fig. 3.

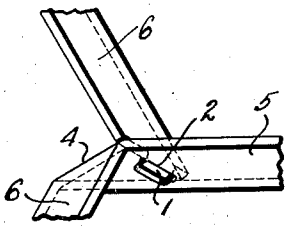


Fig. 4.

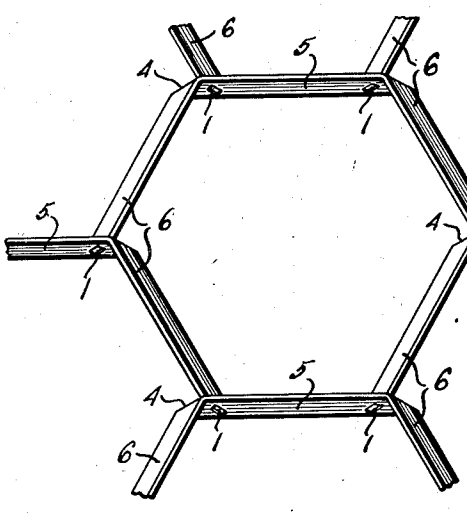


Fig. 5.

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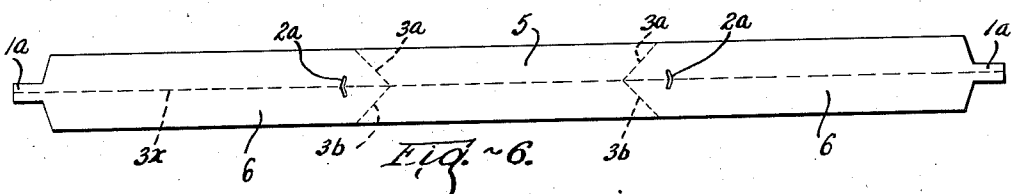


Fig. 6.

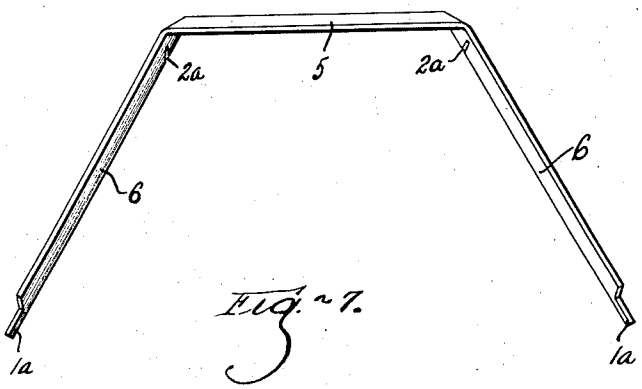


Fig. 7.

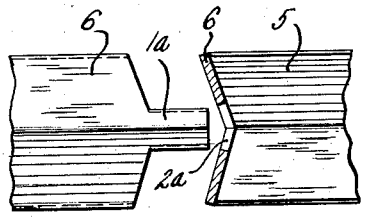


Fig. 8

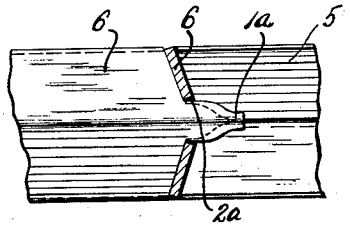


Fig. 9.

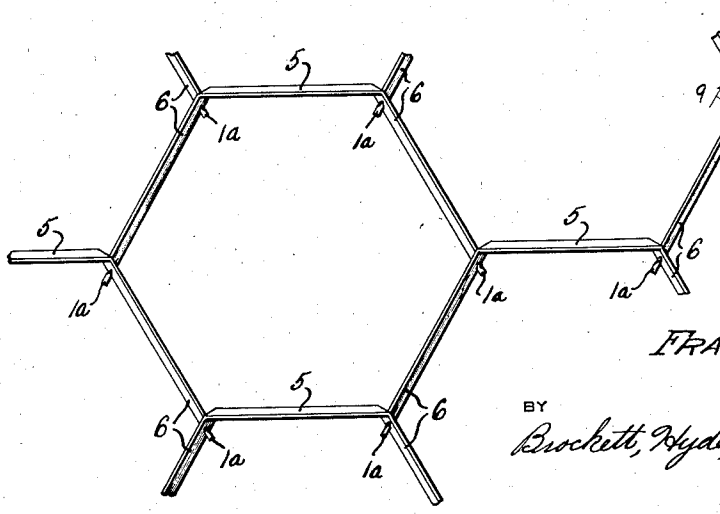


Fig. 10.

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PAVING MEANS

Frank R. Higley, Cleveland Heights, Ohio

Application December 9, 1932, Serial No. 646,548

10 Claims. (Cl. 94—8)

This invention relates to means for covering a surface with a mat of interlocked slabs, as of concrete or the like, and more particularly the invention has to do with the separator means by which a grille is constructed, overlaid upon the surface to be covered, which grille comprises a form in which the concrete is poured.

Such a general arrangement, and the method of its operation, is disclosed in the copending application of Carl C. H. Tommerup, Serial No. 568,966, filed October 15, 1931, and the objects of this invention are, briefly, improvements over the form of separator unit there disclosed.

The separator unit of this invention, and the interlocking relation of slabs produced by the practice thereof, is the result of simple and inexpensive bends in the stock strip of which the unit is made.

The exact nature of this invention together with further objects and advantages thereof will be apparent from the following description taken in connection with the accompanying drawings, in which Figs. 1–5 illustrate an elementary form of the invention and Figs. 6–10 illustrate another embodiment thereof, other modifications thereof being readily apparent.

More specifically, Fig. 1 is a development illustrating a blank from which the separator unit is formed; Fig. 2 is a plan view of the unit produced from the blank of Fig. 1 by bending; Figs. 3 and 4 are details illustrating the manner of assembly of the units, and showing the parts respectively before and after assembly; and Fig. 5 is a plan view illustrating a grille made up by assembly of a number of units like that illustrated in Fig. 2. Figs. 6–10 correspond with Figs. 1–5, Fig. 6 illustrating a blank from which a unit is made; Fig. 7 is a plan view of the unit made from Fig. 6; Figs. 8 and 9 are enlarged elevation views illustrating the manner of assembly of the units of Fig. 7, Fig. 9 comprising a sectional elevation as in the plane of line 9—9, Fig. 10; and Fig. 10 illustrates a grille formed by assembly of units such as that of Fig. 7.

With reference now to Figs. 1–5 of the drawings, the blank illustrated in Fig. 1 is cut from a stock strip of sheet metal or the like. The ends are sloping as indicated and are provided with tongues 1. Intermediate the ends are a pair of slots 2 obliquely disposed. The unit of Fig. 2 is made from the blank of Fig. 1 simply by bending along the obliquely transverse lines 3. The unit thus comprises a pair of bends 4 with a stretch 5 between the ends and stretches 6 beyond the bends, the tongues 1 extending from the free ends of the stretches 6. The three stretches lie generally in a common plane, but each comprises a panel defining a plane not perpendicular to the common plane of the unit. Adjacent panels slope in opposite directions with respect to the general plane but all three panels preferably have the same slope from the general plane. The angularity of adjacent stretches in their common general plane is 120°.

The bends 4 are preferably so located that the upper edges of the panels formed by the three stretches will be of equal length. Consequently the lower edges will be of unequal length, and with the slopes related as shown Fig. 2 the lower edge of the intermediate panel 5 is greater than those of the outer panels 6.

The slope of the slots 2 is such that, as shown Figs. 3 and 4, a pair of similar units having their members disposed in a common general plane, may be joined by insertion of the tongue 1 of one unit into one of the slots 2 of the other unit. The slots are located adjacent the bends 4 whereby when two units are so joined, the upper extremities of the adjacent panels thereof will meet as indicated Fig. 4 to define three 120° angles about a common point in the upper plane of the units.

The slope of the panels is determined by the obliqueness of the bends therebetween, which in turn obviously determines the slope of the slots.

Thus as indicated Fig. 5, a grille may be made up of a plurality of similar units whose upper edges combine to form a hexagonal pattern, each hexagon of which is equilateral. As to each hexagon of the grille, the lower edge of the unit panel forming its side, however, will deviate from the upper edge, and the arrangement is such that the deviation will be in opposite direction on adjacent sides. Thus for each hexagon three alternate sides slope outwardly and the other three sides slope inwardly.

After such a grille is formed by assembly of units on a horizontal surface as indicated Fig. 5, and after the interstices of the grille are filled with concrete or the like and the filler is allowed to set, the result will obviously be a mat of rigid hexagonal slabs the upper surface of the mat showing a uniform hexagonal pattern. Each slab is interlocked with three alternate adjacent slabs, having its edges underlying the corresponding edges of said adjacent slabs. And similarly each slab is interlocked with the other, alternate, three adjacent slabs, having its edges overlying the corresponding edges thereof. Thus no slab of the mat may be displaced either

downwardly or upwardly with respect to its surrounding slabs, yet there may be angular motion between adjacent slabs, so that the mat as a whole is flexible.

Where the slab sizes are to be large, so that the stretches or panels of the units will have considerable length, they may be given strength against flexure by suitable deformations, while still defining generally the sloping planes described.

With reference now to the modification of Figs. 6–10, the blank of Fig. 6 is provided with centrally located tongues *1a* projecting straight outwardly from its ends. Its slots *2a* are of the bent form indicated, and it is bent along the obliquely transverse lines *3a* and *3b*, and also bent or creased along the longitudinal line *3x*, to form the unit shown Fig. 7. The direction of bend at the crease line *3x* is opposite on adjacent sides of the bends *3a* and *3b* as indicated. There being two bends *3a* and corresponding bends *3b* the unit as before has three stretches, adjacent stretches running from bends therebetween. Each stretch, however, now comprises a pair of panels lying in planes sloping from each other and also sloping from the general plane of the unit, and joined with each other along the crease line *3x*. Thus the unit comprises six panels in all, none of them perpendicular to the general plane and each angularly related to all of the others. In fact it will be observed that the unit of Fig. 7 comprises in effect a pair of units such as that of Fig. 2 overlaid upon each other with reverse angularity and with edges joined with each other on a line corresponding with the crease line *3x*. Owing to the creases running therealong, to give each unit stretch a V-form in transverse section, the stretches have rigidity.

As indicated Figs. 8 and 9 assembly of units may be had generally as before, the tongues *1a* entering the slots *2a* to properly located the units one with another. As shown Fig. 7 the general relation of adjacent stretches is with 120° angularity, so that a hexagonal grille as shown Fig. 10 may be made up of a plurality of units so assembled. The units may be secured in their assembly by pinching together the angularly related ends of the projecting tongues *1a*, as indicated at Fig. 9, or the same result would be had by flattening the tongue ends and bending them in the reverse direction.

The mat may be formed as before by pouring concrete into the grille and allowing it to set. When the mat is thus formed, each slab will be interlocked with each of its surrounding slabs, each edge of each slab being of V-form in transverse section, concavely on three alternate sides and convexly on the other three sides. Thus the mat as a whole is flexible as before although each of its slabs is inflexible.

While I have illustrated and described but two forms of my invention, it will be apparent that many modifications are possible. For example by increasing the number of longitudinally extending bends or creases in the blank, each stretch of the unit may be made to comprise a correspondingly greater number of panels. Thus, just as the form of Fig. 7 is derived from the form of Fig. 2 by employing a single longitudinal crease, producing a transverse stretch section of V characteristic, with two sets of panels, so by employing two longitudinal creases, a section of Z characteristic would be obtained with three sets of panels, and similarly by employing three longitudinal creases a W characteristic section with four sets of panels, would be obtained. In each case the panels of a set lying adjacent and on the same side of a crease line, if they have slope, should have slope in opposite directions in adjacent stretches.

However, it is not essential that all sets of panels have slope. By making a pair of corresponding portions of the bend lines between creases perpendicularly transverse of the blank, a set of panels may be produced which will define planes perpendicular to the general plane of the unit.

While in the examples illustrated and described, each unit is shown as comprising three stretches, disposed at 120° angular relationship, and while such arrangement is preferable, it is not essential to the invention. For example, the unit might have but two stretches disposed at 120° from each other, so that a hexagonal grille might be assembled, employing three units of two stretches each where as above illustrated and described two units of three stretches each are employed. Similarly a rectangular pattern might be made by employing two stretches per unit and disposing them at 90°, in which event of course the angles of the bent lines would be of increased obliqueness.

What I claim is:

1. A separator unit for the purpose described, comprising a pair of angularly related stretches of strip material arranged end to end in generally flat panels to define planes not perpendicular to the general common plane of said stretches.

2. In a separator unit for the purpose described, a pair of angularly related adjacent stretches comprising panels defining planes not perpendicular to the general plane of said stretches, adjacent panels having contiguity along straight lines.

3. In a separator unit for the purpose described, a pair of angularly related adjacent stretches comprising panels defining planes not perpendicular to the general plane of said stretches, adjacent panels being joined by bends along straight lines.

4. A separator unit for the purpose described comprising a strip bent to provide a pair of angularly related stretches running from the bend, said bend including a portion running obliquely transverse of the strip whereby the adjacent panels of said stretches will define planes which are not perpendicular to the general plane of the unit.

5. A separator unit for the purpose described comprising a strip bent obliquely to provide contiguous angularly related stretches defining planes not perpendicular to the general plane of the unit.

6. A separator unit for the purpose described comprising a strip bent to provide a pair of angularly related stretches running from the bend, said bend being oblique across said strip, whereby said stretches will define planes which are not perpendicular to the general plane of the unit.

7. A separator unit for the purpose described comprising a strip bent to provide a plurality of angularly related stretches, said bends being obliquely transverse of the strip and of opposite slope but in a common direction, whereby said stretches may define edges of a thick polygon with its adjacent edges sloping in opposite directions.

8. A separator unit for the purpose described

comprising a strip bent to provide a plurality of angularly related stretches each stretch being longitudinally creased to provide a plurality of angularly related panels, the creases being in opposite directions in adjacent stretches.

9. A separator unit for the purpose described comprising a strip bent to provide a plurality of angularly related stretches each stretch being longitudinally creased to provide a plurality of angularly related panels, the creases being in opposite directions in adjacent stretches, and the bends between adjacent panels being obliquely transverse of the strip.

10. A separator unit for the purpose described comprising a strip bent to provide a pair of angularly related stretches running from the bend, said strip being creased along a longitudinal line, oppositely in said stretches, whereby each stretch will define a pair of planes, and each of the planes defined by said pair of stretches will be angularly related to all the other planes so defined.

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