May 8, 1962 A. MARSDEN 3,033,086

REINFORCEMENT FOR MASTICS, MORTAR AND THE LIKE

Filed April 14, 1958

FIG. 1.

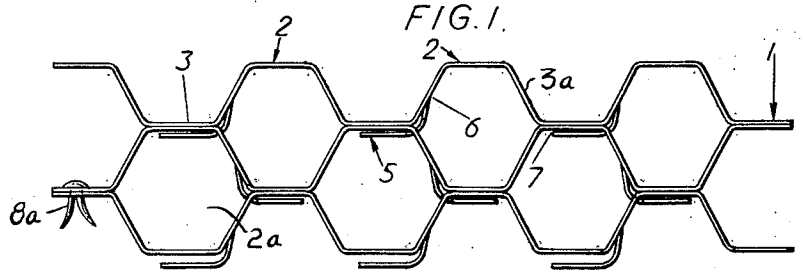


FIG. 2.

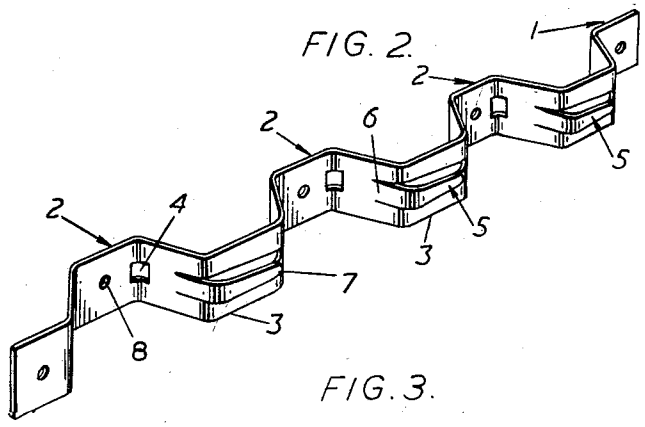


FIG. 3.

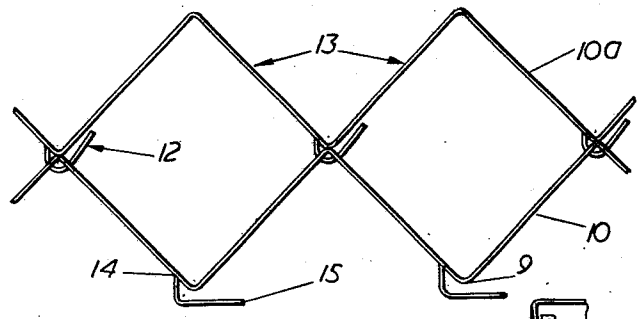
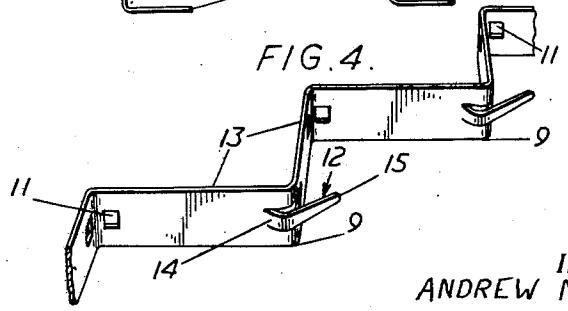


FIG. 4.



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REINFORCEMENT FOR MASTICS, MORTAR AND THE LIKE

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7 Claims. (Cl. 94—8)

This invention relates to reinforcement for mastics such as bituminous materials, mortar and the like used as surfaces for ships' decks, flooring and so forth.

It is known to provide such reinforcement in the form of bent metal strips laid on edge and so bent into zig-zag shape that enclosed cells are formed when strips are laid side by side in contact with one another. Various methods of holding the strips together are known. Thus the strips may be formed with holes that register when the strips are laid, and rivets or other devices passed through the holes. The insertion of such fastening devices represents a high proportion of the cost of manufacture.

Again, when successive legs in the zig-zag are at right angles to one another and of equal length, so that square cells are formed by putting alternate apices of adjacent strips in contact with one another, rods have been passed through the registering holes, each rod passing diagonally through two or more of the squares, that is to say, through three or more pairs of registering holes. The assembly of the strips and rods on the site is awkward with the unskilled labour usually available.

It is accordingly an object of this invention to provide simple constructions of strips which can be inter-engaged and assembled more readily than hitherto.

Another object of the invention is to provide a reinforcement composed of identical elements that are self-engaging.

Yet another object of the invention is to provide a reinforcement capable of easy assembly, each successive element that is fitted to the assembly sliding into engagement with a motion parallel to that of previous elements as they were fitted.

A further object of the invention is to provide a reinforcement which, when formed by the interengagement of the elements themselves, can be restrained from disengagement by a minimum of small clips or like devices.

In the present invention a plurality of metal strips are laid on edge side by side and are joined by tongue and slot connections.

The invention will be more fully explained in the following description of two constructions of metal work embodying it, which are shown in the accompanying drawings in which:

FIGURE 1 is a plan of one construction;

FIGURE 2 is a perspective view of a strip for use in the construction shown in FIGURE 1;

FIGURE 3 is a plan of the second construction; and

FIGURE 4 is a perspective view of a strip for use in the construction shown in FIGURE 3.

The metal work shown in FIGURE 1 comprises metal strips **1** bent to form half-hexagons **2** which are joined by connecting lengths **3**. The connecting lengths of one strip all lie in the same vertical plane when they are laid on edge as shown, and each is as long as one side of each half-hexagon. Slots **4** are cut in each strip at one of the apices where the middle side of each half-hexagon meets a sloping or inclined side, and a tongue **5** is stamped out of each strip from those parts of the strip that are close to apices where the same sloping sides **3***a* of the half-hexagons meet the adjacent connecting lengths. The root **6** of each tongue lies in the sloping side, but the tip **7** and the greater part of the length of each tongue is stamped from the connecting length and points in a direction parallel thereto. Two adjacent strips are assembled by laying them both on edge on a flat surface and then laying the connecting lengths of one strip in line with the middle sides of the half-hexagons of the other, and sliding one strip relative to the other until the tongues **5** of one strip slide through the slots **4** of the other. This forms hexagonal cells **2***a*. The greater part of the length of each tongue is shaped to lie parallel to the connecting length from which it is stamped out, and is separated sufficiently from this length to enable the tongue to clear the metal of an adjacent strip when entering a slot therein. The metal need be bent through only a small angle to form the tongues, and this is a great advantage.

The interengagement of the tongues of one strip with the slots of another prevents these two strips from separating in a direction at right angles to the plane of their meeting surfaces, but does not prevent them sliding apart in the direction opposite to that in which they slide to engage. Such sliding can however be prevented if a small hole **8** in each strip is brought into register with a similar hole in the adjacent strip, a split pin **8***a* is fitted through both holes, and the free ends of the pin are then splayed apart. At least one hole **8** is provided in each strip.

The tongues of adjacent strips in the construction shown in FIGURE 1 point in opposite directions. A reinforced flooring containing this construction of metal work is thus more stable than one containing assembled strips whose tongues all point in the same direction. The strips in the latter flooring would tend to slide apart if the floor were subjected to persistent strain in the direction opposite to that in which all the tongues point.

FIGURE 3 shows assembled strips **10** and **10***a* of zig-zag shape, the legs **13** of the zig-zag being all of the same length and at right angles to one another, so that the resultant cells are square. At alternate apices where the legs **13** of the zig-zag meet, each strip is formed with slots **11**. At the apices **9** where no slots are made tongues **12** are stamped out of the strips, the root **14** of each tongue lying in one leg of the zig-zag and the tip **15** and most of the body of the tongue being stamped out of the leg that forms the other side of the corresponding apex. Each tongue is shaped to form a right angle when viewed in plan, and the side of the angle that terminates at the tip **15** of the tongue lies parallel to the line passing through the mid point of each leg **13** of the strip. Two adjacent strips are assembled, once they have both been laid on edge on a flat surface, by bringing the slotted apices of one into line with the tongued apices of the other and sliding the tongues **12** through the slots **11**. When two adjacent strips are assembled they can be locked in position relative to each other by bending the tips **15** of the engaged tongues inwards towards the strip from which these tongues project. The tongues **12** of the strip **10***a* are so bent in FIG. 3.

The construction shown in FIGS. 3 and 4 may be modified by forming a tongue at each apex of every alternate strip, and making slots at each apex of the remaining strips, but this is not so convenient because it means that the strips are not all interchangeable.

The strips as shown in FIGURE 2 may with advantage be assembled in the factory into lattices containing many strips. The lattices may then be sent to the site where the metal work is to be laid. The strips shown in FIGURE 4 are best assembled on the site, but since a single strip is apt to flex and not to pack easily, it is useful in the factory to assemble strips in pairs which are comparatively rigid, before despatch.

I claim:

1. A reinforcement for mortar, bitumen or the like comprising a metal strip bent back and forth to lie between two parallel planes and including parts at angles

to such planes, each bending line being at right-angles to the centre line of the strip and lying in one of the said parallel planes, said strip being formed adjacent one of said planes with a plurality of tongues and said parts being provided adjacent the other plane with a plurality of slots, a plurality of said strips being adapted to be assembled on edge and side by side in contact with one another to form cells, the tongues extending outward of the space between the planes, the tips of said tongues all pointing in the same direction and all lying along a common straight line parallel to said planes and at right-angles to said bending lines and the slots of the strip being open in a direction parallel to said common straight line and each including a portion at no greater distance inward from the adjacent plane than the amount of the extension of the tongues from the other plane, whereby said tongues are adapted to receive the tips of the tongues of an adjacent strip as the tongues interengage with the slots by moving one strip relative to the other in a direction parallel to the said said common straight line.

2. A reinforcement comprising a plurality of strips as claimed in claim 1 assembled on edge and side by side in contact with one another with the tongues of each strip engaged in the slots of an adjacent strip.

3. A reinforcement according to claim 1, in which said strip is bent to form half-hexagons, said half-hexagons being spaced apart from one another by links connecting said parts each equal in length to a side of a half-hexagon to form hexagonal cells, each tongue being bent out of a connecting length with its root in an inclined side of a half-hexagon and its tip pointing in a direction parallel to the connecting lengths, and each slot being at the junction between an inclined side and the next side of a half-hexagon.

4. A reinforcement comprising a plurality of strips as claimed in claim 3 assembled on edge and side by side in contact with one another with the tongues of each strip engaged in the slots of an adjacent strip.

5. A reinforcement according to claim 4, in which the tongues of individual strips point in the opposite direction to the tongues of adjacent strips, the slots being in the junction between said inclined sides and the next sides of the half-hexagons which are parallel to said connecting sides and the slots being in the same inclined sides as the roots of the tongues.

6. A reinforcement for mortar, bitumen and the like comprising a plurality of metal strips bent into zig-zag shape so as to lie between two parallel planes, each bending line being at right angles to the centre line of the strip and lying in one of the said parallel planes, said strips being formed by a succession of legs meeting at apices and each perpendicular to the legs adjacent to it so that the apices lie in parallel planes, said strips also being formed with a plurality of tongues adjacent the apices alternately in each of said planes and a plurality of slots cut adjacent to the apices in the other plane, said tongues extending outward of the space between the planes, said strips being assembled side by side and on edge to form square cells, the tips of the tongues of each strip all pointing in the same direction and all extending along a common straight line parallel to said planes, which line is at right angles to said bending lines, said tongues being bent to right angled shape, the part nearest the root lying perpendicular to said common straight line and the part nearest the tip lying along said common straight line, and the tongues of assembled strips being in engagement with the slots of adjacent assembled strips, said slots being open in a direction parallel to said common straight line and each including a portion at no greater distance inward from the adjacent plane than the amount of extension of the tongues from the other plane, the tongues interengaging with the slots by moving one strip relative to the other in a direction parallel to the said common straight line.

7. A reinforcement according to claim 6, in which at least one said tongue is mounted at every alternate apex and at least two said slots at each other apex.

References Cited in the file of this patent

UNITED STATES PATENTS

917,355	Phillips	Apr. 6, 1909
1,737,412	Dunker	Nov. 26, 1929
1,804,804	Pattison	May 12, 1931
1,974,279	Jones	Sept. 18, 1934
1,982,109	Keown	Nov. 27, 1934

FOREIGN PATENTS

307,635	Italy	Feb. 1937