Sept. 20, 1932. M. C. SHELTON 1,878,992

REENFORCEMENT FOR CONCRETE AND THE LIKE

Original Filed Oct. 19, 1927

FIG. 1.

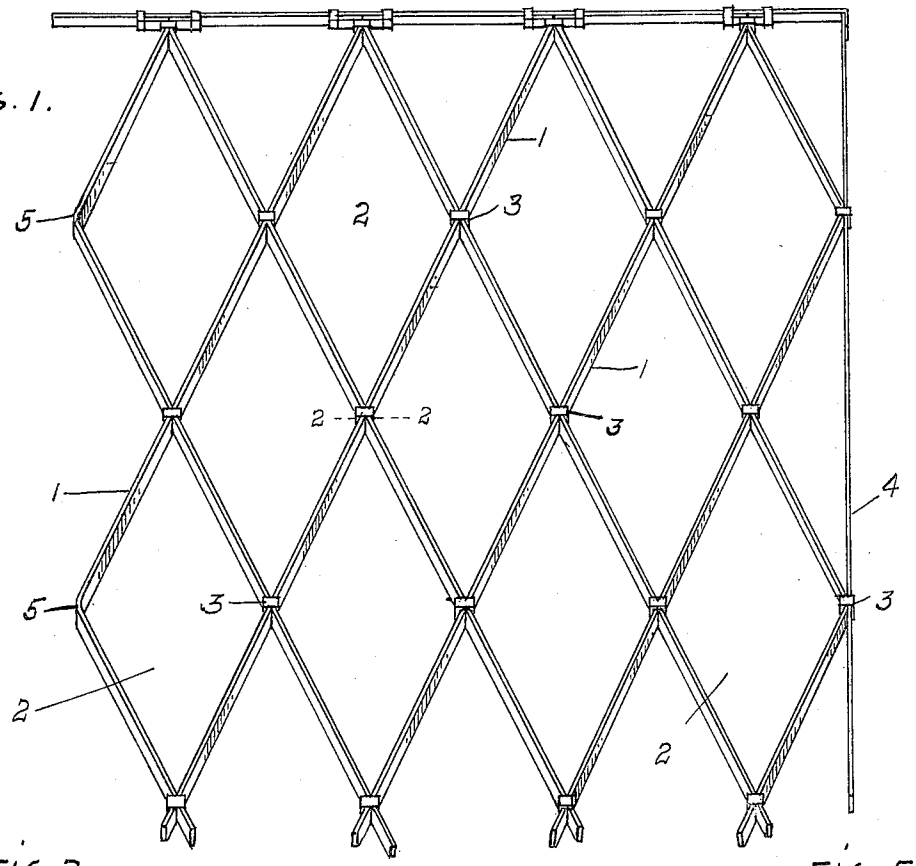



FIG. 2.

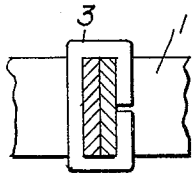



FIG. 3.

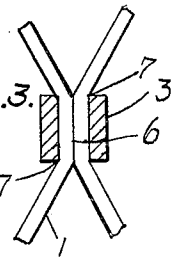



FIG. 4.

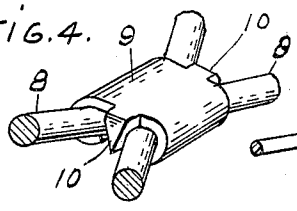



FIG. 5.

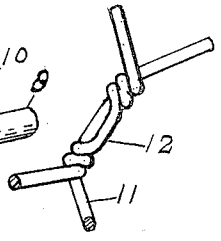
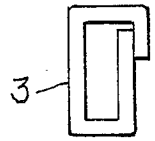



FIG. 6.




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## REENFORCEMENT FOR CONCRETE AND THE LIKE

Application filed October 19, 1927, Serial No. 227,269. Renewed February 29, 1932.

This invention relates to reenforcing means for concrete and similar materials and one feature of the invention is the provision of a plurality of metallic bars so shaped that when assembled in web formation the openings therein will be substantially diamond-shaped, whereby longitudinal strain will be equally resisted from all directions.

A further feature of the invention is in so constructing the reenforcing member that the bars will extend longitudinally with the concrete structure being built.

A further feature of the invention is in so arranging the bars forming the web structure that it will present its greatest strength in a manner to exert the greatest resistance against the load and give the greatest bondage effect.

A further feature of the invention is the provision of means for interlocking the various bars constituting the web, so that all parts of the web will be rigidly locked together.

A further feature of the invention is the provision of means for locking any number of the web sections together, when placed side by side, whereby a single web formation may extend the full width of the surface being laid.

A further feature of the invention is to provide means for holding the interlocking means against undue slippage or yielding movement.

Other objects and advantages will be hereinafter more fully set forth and pointed out in the accompanying specification.

In the accompanying drawing which is made a part of this application,

Figure 1 is a perspective view of a section of reenforcing material interlocked together.

Figure 2 is an enlarged sectional view through a section of the web structure as seen on line 2—2, Fig. 1.

Figure 3 is a detail sectional view of a pair of bars showing flattened meeting surfaces at their point of contact.

Figure 4 is a detail perspective view of a modified form of web and interlocking means therefor.

Figure 5 is a perspective view of a further modified structure,

Figure 6 is an edge elevation of a different form of clip.

Referring to the drawing, 1 indicates the bars of which the web structure or reenforcing member is formed, each bar being bent to form substantially semi-diamond shaped sections along its length which, when united with an adjacent bar, will form substantially full diamond-shaped openings, 2, throughout the extent of the web structure.

In the form of bars shown in Figs. 1 and 2, the bars are preferably flat and set edgewise to the load stress thereon, and are preferably extended lengthwise of the concrete structure or road surface being built, thereby enhancing the lateral bondage and practically eliminating cracking or seaming of the concrete, due to expansion and contraction, as well as causing the concrete to expand and contract with the expansion and contraction of the fabricated metal.

The several bars forming the web structure are clamped in fixed relation with each other by means of clips, 3, which are so arranged that they will extend substantially entirely around the abutting portions of the bars 1, or around the abutting side rails, 4, and the outer bar of the section.

These clips 3, are of such weight and construction as to form a very rigid substantially non-yielding fabric when properly clamped around the several bars and by connecting the abutting edges of the several web sections, a continuous fabrication may be formed substantially the full width of the concrete surface, if desired.

The abutting faces, 5, of the contacting portions of the several bars, 1, may be so curved that the edges of the clips, 3, will bear against portions of the bars, or flat contacting faces, 6, may be formed (see Fig. 3), thus preventing any possibility of the clips moving longitudinally of the bars, 1.

In the form of bars shown in Fig. 4, round rods, 8, are used instead of the flat bars, although said rods may be square, if preferred. In this structure the edges of the clips 9, are bent around the abutting rods,

while the ends of the clips are provided with tongues, 10, which are forced downwardly between the rods, thus securely and rigidly interlocking the rods together.

In Fig. 5, the abutting edges of the rods, 11, are twisted together for interlocking them, thus dispensing with the clips, if desired, although it will be understood that clips may be clamped around the twisted portions, 12, if deemed necessary for more permanently interlocking the rods.

In some instances, one end of the clip may overlap the opposite end thereof as shown in Fig. 6, thus causing the clip to entirely surround the interposed bars.

I am aware that different devices have been provided for reenforcing concrete and like plastic substances, but none of these structures, so far as I am aware, have provided any means for bracing the web structure from all angles and so clamping the several bars constituting the fabric together, as to render the fabric very rigid and practically non-yielding.

The bars may be shipped from the steel mills in knocked-down condition and then assembled at their shipping destination, thus permitting a greater number of bars to be shipped at one time, but if preferred, the bars may be fabricated in more or less narrow sections and shipped in this manner. When the web sections have reached their destination, they are laid side by side and the abutting portions of the contacting bars of the various sections locked together in the manner shown, thus forming a continuous web section of any desired width.

After the bars have been finally fabricated, a rail, similar to the rail, 4, may be extended across the ends of the fabricated web and attached thereto by clips or otherwise.

What I claim is:

1. In a reenforcing means for road surfaces and the like, a plurality of flat bars adapted to rest edgewise to the upper and lower surfaces of the material in which they are embedded, said bars having a plurality of bends adapted to form substantially diamond shaped openings when the bars are fabricated together, clips adapted to be clamped around the abutting portions of said bars for securing them rigidly in fabricated formation, and tongues on said clips adapted to be forced between the bars adjacent the bends therein.

2. In a reenforcing means for road surfaces or the like, a plurality of bars, said bars having a plurality of bends adapted to form substantially diamond shaped openings when the bars are assembled in web formation, said web sections extending lengthwise of the road surface in which they are embedded, clips for locking the abutting portions of the bars together in rigid formation, the side edges of said clips engaging adjacent portions of the bars around which they extend, and means on the clips adapted to be forced between the abutting portions of the bars.

3. In a reenforcing means for plastic material, a plurality of elongated bars, each having a plurality of substantially triangular shaped bends forming substantially diamond shaped openings when the bars are assembled together, and bands adapted to be placed around said bars at their points of union, the ends of said bands being arranged for engagement with said bars to prevent endwise slippage of the bars.

4. In a reenforcing means for plastic material, a plurality of elongated bars, each having a plurality of substantially triangular shaped bends, a plurality of bands adapted to surround said bars and hold them in fabricated relation, and means at the ends of the bands adapted to be forced into interlocking relation with said bars.

In testimony whereof, I affix my signature.

MAURICE C. SHELTON.