METHOD OF MAKING REINFORCEMENT UNITS FOR SLABS.
APPLICATION FILED OCT. 24, 1910.

1,005,267. Patented Oct. 10, 1911.

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

WITNESSES

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METHOD OF MAKING REINFORCEMENT UNITS FOR SLABS.


Application filed October 24, 1910. Serial No. 388,696.

To all whom it may concern:

Be it known that I, FRITZ L. METZGER, a resident of Coraopolis, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Methods of Making Reinforcement Units for Slabs, of which the following is a specification.

This invention relates to a method of fabricating metal reinforcement members for concrete slabs and the like.

The object of the invention is to provide a method whereby a flat reinforcement member comprising a series of rods, bars, wires or the like disposed side by side can be conveniently, expeditiously and accurately fabricated.

In the reinforcement of slabs, such as floors, walls, vault roofs and the like it is the practice to embed therein a series of rods or the like, usually placed parallel to each other. Frequently these rods are separate pieces laid in place by the workman at the time the concrete is to be filled in. Another method has been to bend a long rod or bar back and forth into a series of parallel portions united at their ends each to an adjacent similar portion, and thereby forming a fabric in which all of the parallel rods are united. A difficulty with this method is due to the amount of labor necessary to bend the rod in the manner stated and also to the fact that the several parallel members cannot be spaced uniformly or brought exactly parallel to each other, when parallelism is desired.

According to the present method a long rod or bar is bent back and forth to form a series of members or limbs, disposed side by side either in parallelism or other relation, and in such manner that uniformly spaced members are provided and at a minimum labor cost.

The invention comprises the operations or steps hereinafter described and claimed.

In the accompanying drawing Figure 1 is a plan view of a reinforcement fabric constructed according to my method; Fig. 2 is a diagrammatic plan view of apparatus for bending the rod or bar; Fig. 3 is a diagrammatic plan view illustrating the opening out of the bent loops to form the fabric; Fig. 4 is a perspective view of the preferred means for uniting the transverse spacing rod to the parallel members; and Figs. 5 and 6 are diagrammatic views of other forms of fabrics which can be formed by the method.

The most usual form of reinforcing fabric which is fabricated according to my method is illustrated in Fig. 1 and comprises a series of longitudinal members, limbs or portions 1, shown as parallel to each other, and each united at its end to an adjacent similar member by the curved portions 2. To hold the fabric in position with the members 1 properly spaced, there is secured to said members 1, one or more transverse spacing members 3, these preferably being united to the members 1 by means of a sheet metal clip 4 such as shown in Fig. 4 and which is described in Patent 871,210 of November 19th, 1907, to Robert A. Cummings, said clip being formed of spring sheet metal and being of substantially U shape with the limbs 5 slightly flaring apart and provided on their edges with notches or openings 6 for receiving one of the crossing members, the other crossing member being held in the curved upper portion of said clip. The projecting ends of the legs of the clip form spacing members to hold the reinforcing fabric spaced a suitable distance above the form or centering. Any other suitable means for uniting the spacing members 3 to the members 1 may be used in place of the clip illustrated. The members 1 may be formed from either heavy wire, rods, bars or tubes of any desired size or cross sectional shape, either plain or deformed, depending upon the character of the work, the size of the reinforcing slab and the load which it must carry. The transverse spacing members may also be of any suitable material and of any suitable size, but need not be of as heavy weight as members 1.

For conveniently fabricating the main member above described the rod or bar is first bent into a series of loops of substantially the form of the figure 8. This can be conveniently done by means of an oscillating pin carrier 7 mounted to oscillate about the center pivot or trunnion 8 and provided...
at opposite ends with pins 9 and 10 about which the rod or bar is bent, so that by the oscillation of the carrier back and forth said rod or bar is laid on the carrier in loops of substantially the shape of a figure 8, as shown in Fig. 2. As many figure 8 loops will be laid one above the other as is required to make the necessary length or width of fabric. These loops may then be removed from the oscillating carrier and the two free ends of said rod or bar are seized by hand or other suitable means and drawn in the plane of the loops in opposite directions. The effect of this is to open out the loops and form a structure in which the limbs of the figure 8 loops become the parallel portions 1 of the fabric, while the ends of the loops become the uniting portions 2 of the fabric. This will be evident from Fig. 3 in which the full lines indicate two superimposed loops as they come from the carrier, and the dotted lines show the transformation which is effected by drawing the free ends in opposite directions as above described. Fig. 3 shows the principle applied to two complete loops only, but it will be evident that the same principle holds as to any number of loops. By this operation the loops can be opened up until the limbs 1 are brought into perfect or substantial parallelism, as shown in Figs. 1 and 2, in which the distance between the parallel portions is determined by the distance between the pins 9 and 10; or the portions 1 may be brought into any desired relation to each other, such as shown in Fig. 5, in which said portions are in such relation as to form a member of somewhat sinuous form. After being opened up as described, it is desirable to hold the portions 1 in the position to which they may be brought, this being effected by the transverse spacing members 3, which are laid on the opened out fabric and secured at the points of crossing to the members 1. The clips 4 above described are of spring metal and when the legs 5 thereof spring apart the member 1 is drawn against the transverse member 3, thereby frictionally holding the members in this position. The fabric can be opened out in the factory and then shipped to the place of use either in a flat condition, or if the spacing members 3 are of light wire, rods or bands, the fabric can be rolled; or if desired the figure 8 loops can be shipped to the place of using, and there opened out and the transverse spacing members 3 secured thereto if necessary.

Fig. 6 shows a fabric in which one set 1 of parallel members become the spacing members of the other set of parallel members 1, this being effected by bending the rod into a full loop 11 so that one part of the fabric is laid over the other part with the parallel members at right angles.

The overlapping figure-8 loops can be very expeditiously formed by means of the oscillating pin carrier described, so that the labor cost is small. By means of the device described all the loops are of substantially the same shape and size, that is of the same length and of the same width, and the rod or bar does not become kinked or excessively bent. As a consequence the complete reinforcing fabric has the various members uniformly spaced so that they will take such position in the slab as to most effectively take care of the stresses therein. All the reinforcing members by this method also lie in practically the same plane. The labor cost of fabricating the same is low, and a much better and more satisfactory reinforcement is formed than by means of separate rods which require a skilful workman to properly place the same in position in the work.

What I claim is:

1. The method of making a reinforcing unit, consisting in bending a wire, rod or bar into a plurality of figure-8 loops, and then drawing the free ends in opposite directions in the plane of the loops and thereby opening out the loops, forming a fabric having a series of side by side lying portions each united at its ends to similar portions.

2. The method of making a reinforcing unit, consisting in bending a wire, rod or bar into a plurality of figure-8 loops, then drawing the free ends in opposite directions in the plane of the loops and thereby opening out the loops and forming a fabric having a series of side by side lying portions, each of which is united at one end to an adjacent corresponding portion on one side and at its opposite end to the end of an adjacent corresponding portion on the opposite side.

3. The method of making a reinforcing unit, consisting in bending a wire, rod or bar into a plurality of figure-8 loops, then drawing the free ends in opposite directions in the plane of the loops and thereby opening out the loops and bringing their limbs into side by side position, and then securing to said limb portions one or more transverse members.

4. The method of making a reinforcing unit, consisting in bending a wire, rod or bar into a plurality of figure-8 loops, then drawing the free ends in opposite directions in the plane of the loops and thereby opening out the loops and bringing their limbs into side by side position, and then bringing one portion of such opened out fabric over another portion thereof with the rods or bars of the portions crossing.

5. The method of making a reinforcing unit, consisting in bending a wire, rod or bar into a plurality of figure-8 loops, then drawing the free ends in opposite directions
in the plane of the loops and thereby opening out the loops and bringing their limbs into side by side position, and then bringing one portion of such opened out fabric over another portion thereof with the rods or bars of the portions crossing, and uniting said rods or bars at the points of crossing.

In testimony whereof, I have hereunto set my hand.

F. L. METZGER.

Witnesses:

P. W. WINTER,

MARY E. CAHOON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."