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E. C. BUNNELL ET AL
WOVEN FABRIC AND METHOD OF MAKING SAME

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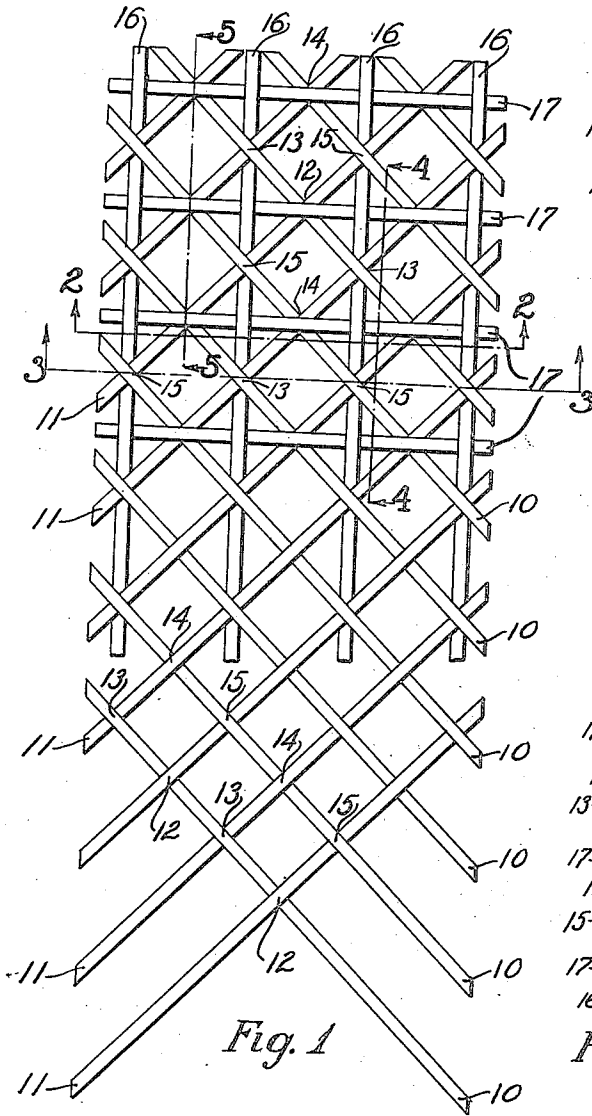


Fig. 1

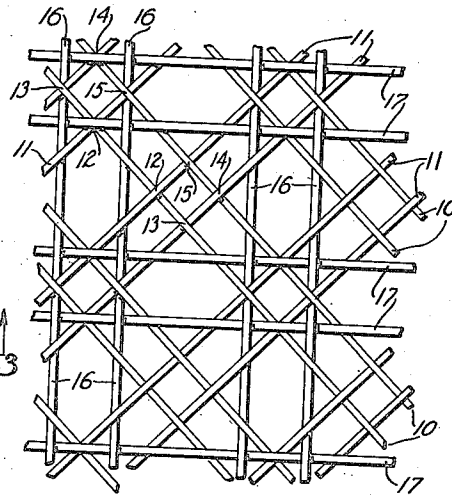


Fig. 6

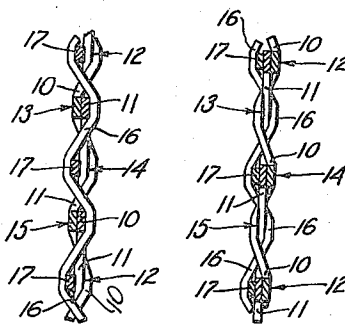


Fig. 4

Fig. 5

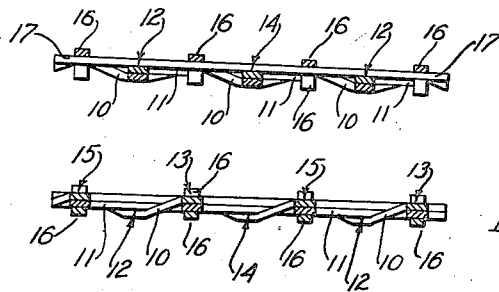


Fig. 2

Fig. 3

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WOVEN FABRIC AND METHOD OF MAKING SAME

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This invention relates to a new woven fabric and a method of weaving the same.

An object of the invention is to provide a new and improved woven fabric of great strength and which may be made up in a variety of designs.

Another object is to provide a fabric as stated and which is woven of metal strands.

A further object is to provide a four-strand woven fabric including woven diagonal strands and longitudinal strands secured to the woven diagonal strands by means of cross-strands.

An additional object is to provide an improved method of making woven fabrics as herein disclosed.

Other objects and advantages will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawing. It is, of course, understood that the invention is not limited to the details shown since changes may be made within the scope of the appended claims and without departing from the spirit of the invention and reference must therefore be had to the claims for a definition of the limitations of the invention.

In the drawing:

Figure 1 is a plan view of a section of our improved fabric, a portion of the same being shown unfinished;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a sectional view on the line 4—4 of Fig. 1;

Fig. 5 is a sectional view on the line 5—5 of Fig. 1; and

Fig. 6 is a plan view of a modified form of fabric.

As shown our improved fabric comprises four strands or four series of strands. Initially the diagonal strands 10 and 11 are interwoven as shown, the diagonal strands 10

passing under one diagonal strand 11, over the next diagonal strand 11 and under the next for the length of the strands 10. Similarly diagonal strands 11 alternate over and under the diagonal strands 10.

Thus, referring to the lower portion of Figure 1 it will be seen that the strand 11 passes over the strand 10 at the intersection 12 and that a strand 10 extends over a strand 11 at the intersection 13 while the same strand 11 extends over another strand 10 at the intersection 14 and said other strand 10 extends over the first strand 11 at the intersection 15.

In making our improved fabric the diagonal strands 10 and 11 are first woven as just described. Next longitudinal strands 16 are applied to one side of the woven diagonal strands or diamond mesh resulting from the weaving of the diagonal strands and such longitudinal strands are secured to said diamond-mesh fabric by means of cross-strands 17.

Any suitable shed forming means may be employed to form a passage for the cross-strands 17. Such shed forming means may either depress the intersections 12, 14 and elevate or crimp the longitudinal strands 16 between the intersections 13, 15; or the reverse may be the operation. It will be seen that the longitudinal strands engage the intersections 13, 15 of the initially woven diamond-mesh fabric and that the cross-lock strands engage the intersections 12, 14.

Figure 2 shows clearly that the cross or lock strands 17 remain straight, being merely inserted into a shed formed by any suitable means as above described. Further, this view discloses the fabric as having been made by elevating the longitudinal strands 16 and depressing the intersections 12, 14 of the diagonal strands to provide the shed for the reception of the cross-strands.

Fig. 3 clearly shows that the diagonal strands 10 are crimped or off-set upwardly and downwardly while the diagonal strands 11

11 remain straight and are inserted through the sheds formed by off-setting or crimping the strands 10.

The sectional views Figs. 4 and 5 disclose the manner in which the longitudinal strands 16 are crimped or pushed through the diamond-mesh fabric, woven from the diagonal strands 10 and 11, during the formation of sheds for the cross strands 17. Additionally, these views clearly show the manner in which the cross strands lock the longitudinal strands to the interwoven diagonal strands.

Fig. 5 in particular shows that the longitudinal strands are maintained in a position projecting beyond the surfaces of the diagonal strands, the longitudinal strands projecting above such surfaces between intersections 13, 15 and disposed below such surfaces at said intersections. Fig. 4 is a sectional view taken closer to the longitudinal strands and showing the relationship of the various strands at the crossing of the intersections 13, 15 by the longitudinal strands.

Fig. 6 is a slightly modified form of the invention showing the manner in which various designs may be worked out by omitting certain of the strands. The fabric here disclosed is made by substantially the same method as the fabric of Fig. 1 but by omitting every third strand of each series. That is, every third diagonal strand 10 and diagonal strand 11 is omitted and every third longitudinal strand 16 and cross strand 17 is omitted. This form of the invention further shows the advantages of having the diagonal strands interwoven. Here at the points where two diagonal strands cross two other diagonal strands and the longitudinal and cross-lock strands have been omitted the interwoven diagonal strands form a rigid structure.

From the foregoing it will be seen that we have provided a four-strand fabric which will be extremely strong and durable and while we prefer for our present purposes that the strands be of metal, and so disclose them, they are not necessarily of any particular material. Also, our improved fabric is preferably made by first weaving diagonal strands to form a diamond-mesh fabric and then reinforcing or strengthening said diamond-mesh fabric by securing longitudinal strands to said mesh through the medium of cross-strands.

Having thus described the invention, what is claimed is:

1. The method of weaving a four-strand fabric consisting in first weaving a diamond-mesh fabric and then attaching longitudinal strands to said diamond-mesh fabric by means of cross strands.

2. The method of reinforcing a woven diamond-mesh fabric consisting in attaching a series of parallel strands to said fabric by a second series of parallel strands arranged at right angles to said first series.

3. A fabric comprising woven diagonal strands, longitudinal strands disposed against the same face of each of said woven diagonal strands, and cross strands disposed against the opposite face of each of the woven diagonal strands and securing said longitudinal strands to the woven diagonal strands.

4. A step in the method of forming a fabric, said step consisting in applying a series of longitudinal and a series of cross lock strands to a previously woven diamond-mesh fabric formed of oppositely disposed diagonal strands.

5. A woven fabric comprising woven diagonal strands, a series of strands disposed against said woven diagonal strands, the strands of said series being disposed against every other intersection of the woven diagonal strands, a second series of strands arranged at right angles to the first-mentioned series of strands, and the strands of the second series disposed against the other intersections of the diagonal strands, the strands of one series locking the strands of the other series to the woven diagonal strands.

6. A fabric comprising woven diagonal strands, longitudinal strands disposed against the outer side of each of said woven diagonal strands and having portions off-set therethrough, and cross strands disposed against the opposite outer side of each of said woven diagonal strands and through the off-set portions of the longitudinal strands and securing the longitudinal strands to the woven diagonal strands.

7. A fabric comprising a woven diamond mesh including a series of crimped strands and a series of straight strands, crimped longitudinal strands disposed against an outer side of each of said woven diagonal strands, and straight cross strands disposed against the other outer side of each of the woven diagonal strands and securing said crimped longitudinal strands to the diamond mesh.

8. The method of reinforcing a woven fabric, said method consisting in applying a series of parallel strands to one side of said woven fabric, pressing portions of the strands of said series through the fabric to form sheds at one side of the fabric, and passing strands of a second series of parallel strands through the sheds thus formed to secure the strands of both series of parallel strands to the woven fabric.

9. The method of reinforcing a woven fabric, said method consisting in applying a series of strands to one side of the woven fabric, and securing said strands to the fabric by means of a second series of strands applied to the fabric.

10. The method of weaving a four strand fabric consisting in weaving a two strand

5 fabric, applying a series of strands to one side of the two strand fabric, applying a series of strands to the opposite side of the two strand fabric and using the applied strands at one side of the fabric to secure the applied strands at the other side thereof.

10 11. A fabric comprising two sets of strands woven together, a third set of strands disposed against the same outer face of each of the strands of said woven strands, a fourth set of strands disposed against the opposite outer face of each of the strands of the two sets of woven strands, and said third and fourth sets of strands securing one another to the woven two strand fabric.

15 Signed at Stratford, County of Fairfield, and State of Connecticut, this 24th day of May, 1930 A. D.

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