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CORDED WOVEN FABRIC

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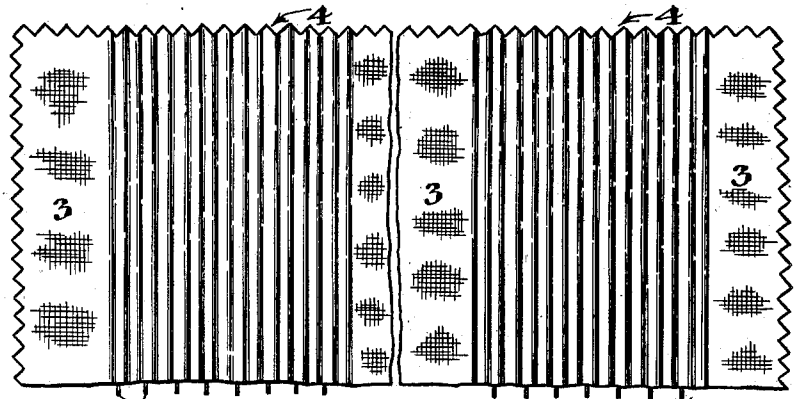


FIG.1

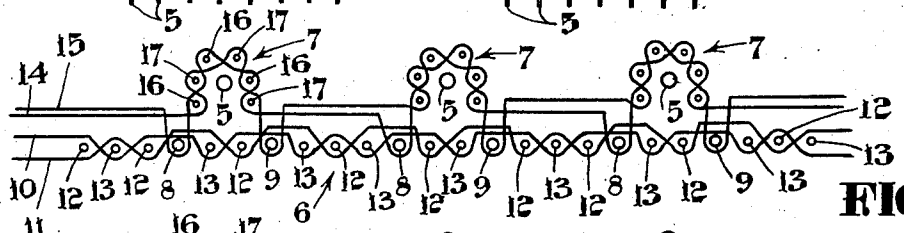


FIG.2

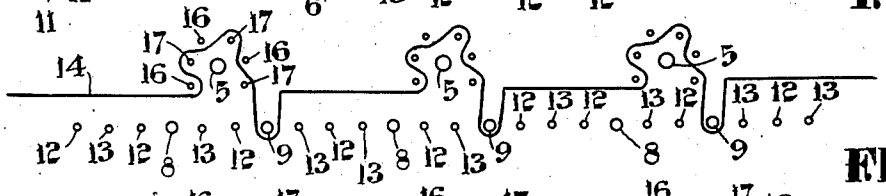


FIG.3

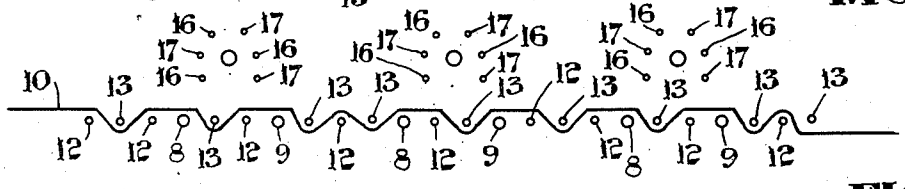


FIG.4

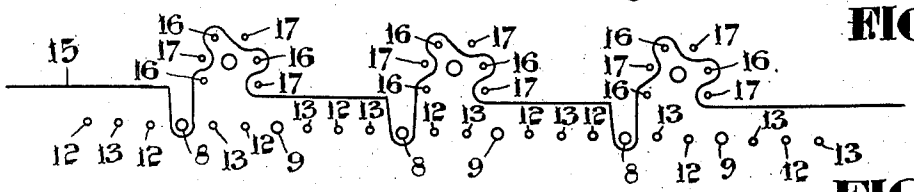


FIG.5

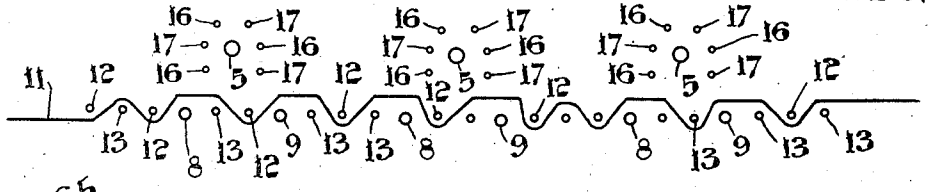


FIG.6



FIG.7

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CORDED WOVEN FABRIC

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Application October 13, 1938, Serial No. 234,749

5 Claims. (Cl. 139—384)

This invention relates to the manufacture of woven fabrics in which relatively large textile reinforcing cords are laid in one or more sections of the fabric to give said section or sections a required degree of stiffness.

The object of the invention is to provide an improved cord stiffened fabric in which the reinforcing cords extend in the warp wise direction of the fabric and are laid in place between woven face and back plies of the stiffened section so that the back of said section is substantially as smooth and flat as the back of the unstiffened portions of the fabric.

Another object of the invention is to provide a cord stiffened fabric in which the stiffening cords are sufficiently water repellent to ensure that the stiffened sections of the fabric will retain their original stiffness after repeated washings.

Another object of the invention is to provide a generally improved cord stiffened fabric in which each stiffening cord comprises a braided covering enclosing a plurality of yarns twisted together to form the center or core of the cord, said core and braided covering being preferably sized and then treated with a suitable water repellent finish.

Proceeding now to a more detailed description reference will be had to the accompanying drawing, wherein—

Fig. 1 is a plan view of the improved fabric produced in accordance with this invention.

Fig. 2 is a cross section through one of the stiffened sections of the fabric appearing in Fig. 1. In this view the various warp, weft and binder threads of the stiffened section are shown spread out to clearly illustrate the nature of the weave.

Fig. 3 is a view illustrating the manner in which the first pick of the face ply of the stiffened sections of the fabric is woven.

Fig. 4 is a view showing the manner in which the first pick of the back ply of the stiffened section is woven.

Fig. 5 is a view showing the manner in which the second pick of the face ply is woven.

Fig. 6 is a view showing the manner in which the second pick of the back ply is woven.

Fig. 7 is a view illustrating the construction of one of the stiffening cords embodied in my improved fabric.

The fabric appearing in Fig. 1 comprises flexible sections 3 alternating with stiffened sections 4 in which the reinforcing cords 5 are incorporated, as hereinafter explained. Any suitable weave may be employed in producing the flexible sections 3 but the stiffened sections 4 are woven so that each section includes a back ply 6 which forms the back covering of the stiffening cords 5 and a plurality of woven face plies 7 which are secured to the back ply 6 by binder threads 8 and 9 to form individual front coverings for the cords 5. The manner in which the back ply and the various face plies of each cord stiffened section are woven and secured together by the binder threads is clearly illustrated in Figs. 2 to 6 inclusive. As here shown, the back ply 8 is formed by the weft threads 10 and 11 and the warp threads 12 and 13. The weft threads 10 pass over the warps 12 and under the warps 13, while the weft thread 11 passes under the warps 12 and over the warps 13. It will also be noted that the two wefts 10 and 11 of the back ply are passed over all of the binder threads 8 and 9. Each face ply 7 is formed by the interwoven weft threads 14 and 15 and the warp threads 16 and 17. The weft threads 14 pass under the warps 16, over the warps 17, over the binder threads 8 and under the binder threads 9. The remaining face ply wefts 15 pass over the face warps 16, under the face warps 17, under the binder threads 8 and over the binder threads 9. It will thus be seen that each cord 5 is held to the face of the woven back ply 6 by an individual cord covering formed by one of the face plies 7 of the woven section and that each of said face plies is secured to the back ply 6 at opposite sides of the cord by the binder threads 8 and 9.

With this method of weaving, the back of the cord stiffened sections 4 of the fabric are left substantially as smooth and flat as the back of the flexible sections 3. In other words the cords 5 and the face ply cord coverings 7 form outstanding ribs on the face of the back ply 6.

Another feature of the invention resides in the construction of the stiffening cords 5. As shown in Fig. 7 each cord comprises a plurality of yarns 6*a* twisted together to form a core enclosed by a braided covering 6*b*. The yarns 6*a* are sized separately to increase their stiffness before being twisted together to form the core. After the braided covering has been applied to the core, the cord, as a whole, is treated with a suitable size and then given a suitable water repellent finish which serves to hold the size in the cord so that it will retain its stiffness after the repeated washings.

Having thus described my invention, what I claim is:

1. A woven fabric made of warp threads, weft threads and stiffening cord warps, the fabric

having a stiffened area and a non-stiffened area, the stiffened area comprising a back ply of fabric covering a series of stiffening cords and a face ply surrounding each stiffening cord on one side and holding it securely to the back ply, the stiffening cords comprising a plurality of sized yarns tightly bound by a braided covering.

2. A woven fabric made of warp threads, weft threads, stiffening cord warps, and binder threads, the fabric having a stiffened area and a non-stiffened area, the stiffened area comprising a back ply of fabric covering a series of stiffening cords and a face ply surrounding each stiffening cord on one side and holding it to the back ply, the cord covering portions of the face ply being securely held to the back ply by binder threads located at opposite sides of each stiffening cord, said stiffening cords comprising a plurality of sized yarns tightly bound by a braided covering.

3. A woven fabric as set forth in claim 2 in which certain weft threads of the face ply pass under certain of the binder threads and over the remaining binder threads, the remaining weft threads of the face ply being passed over the first mentioned binder threads and under the last mentioned binder threads.

4. A woven fabric as set forth in claim 2 in which certain weft threads of the facing ply pass under the binder thread at one side of a stiffening cord and over the binder thread at the opposite side of the stiffening cord, the remaining weft threads of the facing ply being passed over the first mentioned binder thread and under the second mentioned binder thread.

5. A woven fabric as set forth in claim 2 in which all the weft threads of the back ply pass over the binder threads, the weft threads of the facing ply being interwoven with said binder threads and serving to hold the same tightly against the wefts of the back ply.

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