April 24, 1934. R. M. CHRISTENSEN 1,955,905

WARP STRAND GUIDE FOR WEAVING MACHINES

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Fig. 1.

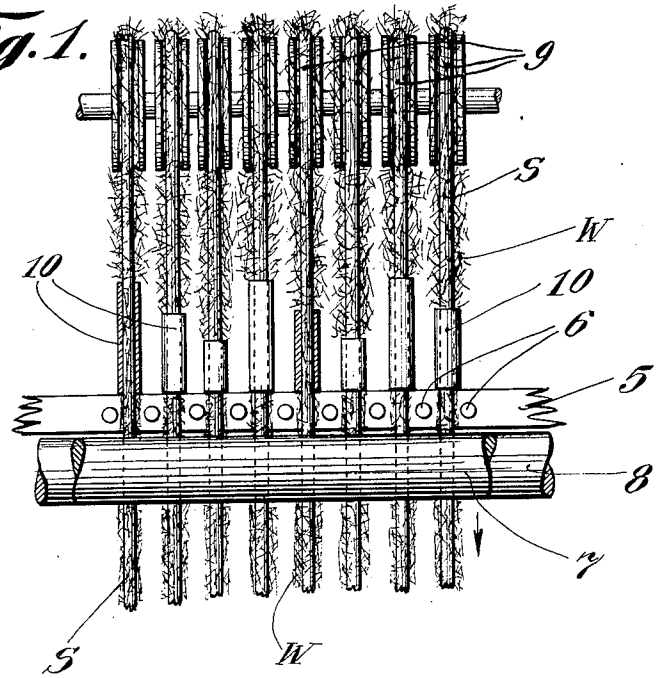
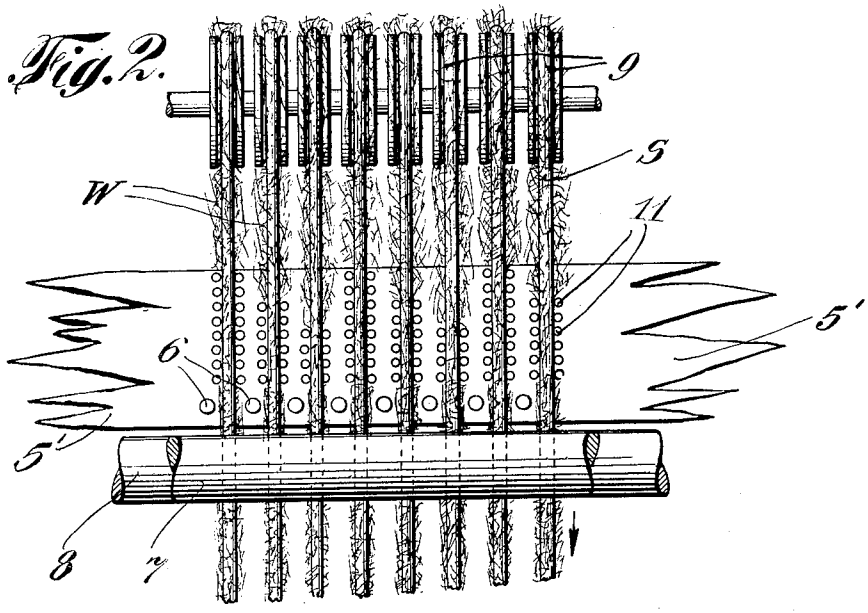


Fig. 2.



INVENTOR
R. M. Christensen
BY C. P. Goepel
his ATTORNEY

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WARP STRAND GUIDE FOR WEAVING MACHINES

Richard M. Christensen, New York, N. Y.

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2 Claims. (Cl. 139—97)

This invention relates to warp strand guides for weaving machines, and has for its primary object and purpose to provide a loom or weaving machine for weaving sisal hemp or like strands of loosely twisted materials with means for guiding the warp strands through the machine and for compressing the loose fibers or "whiskers" of the individual strands to prevent entanglement thereof as the warp strands approach the point at which the weft strands are interwoven therewith. In this manner, I produce in a fabric composed of such material, greater uniformity in the mesh of the fabric, and also obviate possible stoppage or interruption in the operation of the loom.

It is another object of the invention to provide a means for the above purpose which is of an exceedingly simple character and may be readily applied and used in connection with a loom without structural alterations therein or material increase in the cost thereof.

With the above and other objects in view, the invention consists in the improved warp strand guide means for weaving machines and in the construction and arrangement of the several parts thereof as will be hereinafter more fully described, illustrated in the accompanying drawing, and subsequently incorporated in the subjoined claims.

In the drawing, wherein I have illustrated only so much of the machine as will suffice to enable my present improvements to be clearly understood, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a plan view illustrating one embodiment of the invention as applied to the warp strands in the loom or weaving machine, and

Figure 2 is a similar view illustrating a slightly modified form of the device.

Referring in detail to the drawing, 5 designates a guide rail of the loom in which suitably spaced upstanding pins 6 are secured and between which the individual warp strands indicated at S are drawn over said rail and between the lower rolls 7 and 8 respectively, which apply pressure upon said strands and prevent the individual strands from slipping at the point adjacent to which the weft strands are interwoven therewith. The warp strands are drawn from suitable reels over the guide sheaves 9, the said warp strands in the illustrated embodiment of the invention, consisting of loosely twisted sisal hemp which has numerous loose fibers or "whiskers" as indicated at W.

When the fabric to be produced is of comparatively close weave, and the spaced warp strands are correspondingly close to each other, the said fibers or whiskers W of adjacent strands become entangled to such an extent as to frequently compel the stoppage of the machine, since the entangled strands cannot be drawn therethrough and interwoven with the weft strands. In order to obviate this difficulty, I provide means for preventing such entanglement of the strand fibers, without resorting to cumbersome sizing.

As shown in Fig. 1 of the drawing, for the above purpose, I may provide the tubes indicated at 10 loosely surrounding each of the strands F, and the tubes associated with adjacent strands being of relatively different lengths. The tubes are of different lengths, since if of the same length the fibers of the strands will all be on the horizontal and being spread out by the tubes, would extend from one strand to the other and entangle with each other. As, however, these tubes are of different lengths the spreading out of the fibers would necessarily be at different levels, and no entanglement can take place. This difference in lengths enables a very compact machine to be produced. There is sufficient friction between these strands and the inner walls of said tubes so as to cause said tubes at one of their ends to always abut closely against one edge of the rail 5. Thus as the individual strands are drawn through these guide tubes 10, the fibers of adjacent strands are separated from each other and are compressed closely upon the body of the strand so that when the strands leave the tubes and pass over the rail 5 and between the rollers 7 and 8, the fibers or whiskers are in a compacted or compressed mass and have no opportunity of becoming entangled before the weft strands are interwoven with said warp strands.

In Fig. 2 of the drawing, I have shown a different form of the invention in which a relatively wide rail 5' is provided and in advance of the spaced pins 6 thereon the closely spaced rows of nails 11 are impaled in said rail, the individual strands passing between the pairs of nail rows, and adjacent pairs of nail rows being of relatively different lengths. Thus, the individual hemp strands as they pass between these rows of nails 11, will be closely engaged and the protruding fibers or whiskers thereon closely compressed on the body of the strand in the same manner as when the tubes 10 above referred to are employed.

From the foregoing description, the construc-

tion and several advantages of the present invention will be clearly and fully understood. It will be seen that I have provided a very simple and efficient means whereby the weaving of hemp strands or other loosely twisted materials may be successfully accomplished to produce a fabric of the desired uniform mesh or weave and without frequent stoppage of the machine or damage thereto due to the entangling of the fibers of the adjacent strands. The device herein described is more particularly designed for the weaving of comparatively heavy and rough fabric material of the kind from which the wash cloth shown and described in Patent No. 1,577,174, issued to me on the 16th day of March, 1926, is manufactured.

I have herein shown several simple and practical forms of my present improvements, but it will be also understood that the desired results might also be obtained from various alternative forms thereof, and I accordingly reserve the privilege of resorting to all such legitimate changes therein as may be fairly considered within the spirit and scope of the invention as claimed.

I claim:—

1. In a machine for weaving loosely twisted hemp strands, a guide rail with spaced upstanding pins therein through which the warp strands pass, means associated with each of the strands and supported on said guide rail, said means having a passage between walls spaced substantially the width of the strands to compress individual projecting fibers of the strands upon the body of the strand, as the strands pass through said passage and the fibers are pressed by said walls of the passage.

2. In a machine for weaving loosely twisted hemp strands, a guide rail having spaced upstanding pins therein through which the warp strands pass, and tubes loosely surrounding each of the warp strands and abutting at one of their ends against the guide rail, said tubes projecting from the rail in a direction opposite to the direction of movement of the strands, the tubes on adjacent strands being of relatively different lengths and acting to closely compress the projecting strand fibers upon the body of the strand and thereby prevent entanglement of the fibers of adjacent strands.

RICHARD M. CHRISTENSEN.