

E. L. MORRILL.

SLASHER.

APPLICATION FILED APR. 6, 1909.

949,732.

Patented Feb. 15, 1910.

Fig. 1.

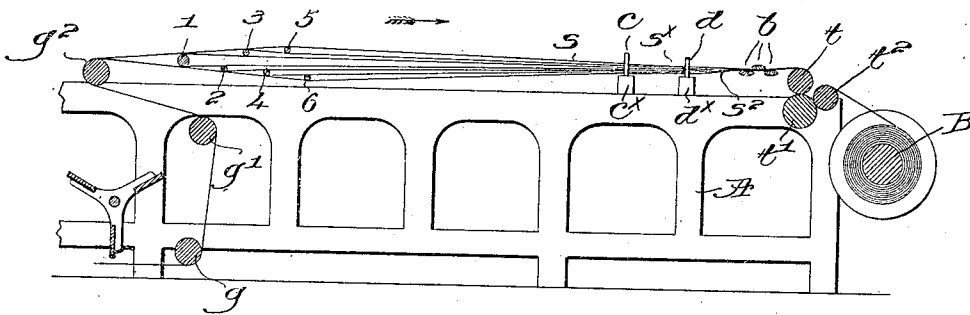


Fig. 2.

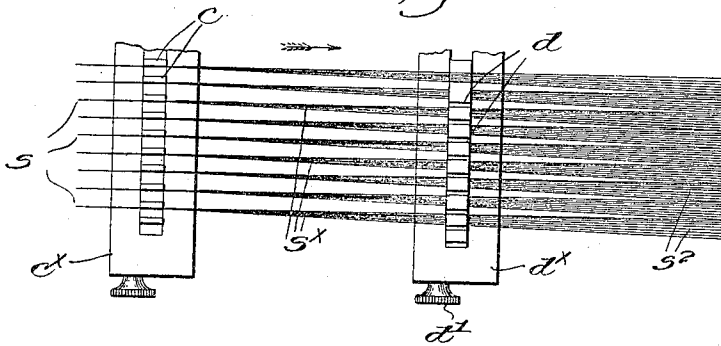


Fig. 3.

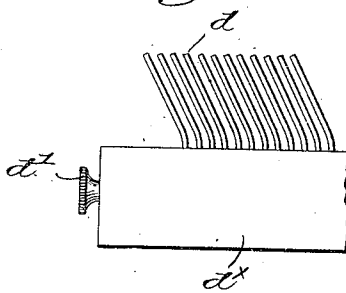
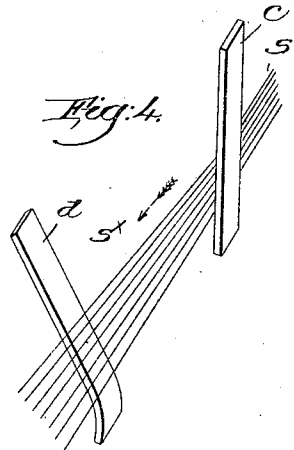


Fig. 4.



Witnesses,
Edward G. Allen.
Joseph M. Ward.

Inventor,
Ernest L. Morrill,
by Lewis E. Gregory,
attys.

UNITED STATES PATENT OFFICE.

ERNEST L. MORRILL, OF SACO, MAINE, ASSIGNOR TO DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

SLASHER.

949,732.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ERNEST L. MORRILL, a citizen of the United States, and resident of Saco, county of York, State of Maine, have invented an Improvement in Slashers, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates particularly to slashers for warp-yarns, and it has more especial reference to that portion of the slasher which acts upon and controls the warp as it passes from the drying instrumentality to the beam upon which the sized warps are wound.

The slasher is designed, briefly, to effect the following results, viz:—to coat each thread of the warp with size in such manner that the size will penetrate to a greater or less extent and adhere to each thread without the threads adhering to each other; to dry the sheet of warp after sizing; to run the desired number of threads onto the beam of a loom in an even sheet and in such manner that the sheet will unwind when the beam is in the loom without obstruction and pass through the shed-forming and cloth-making devices without unnecessary breakage and with a minimum of trouble to the weaver. To effect these results the warp threads from the desired number of section beams are passed through the size box or tank and thence to heated drying cylinders or drums, and as the sizing and drying tend to cause the threads to stick together splitting or separating bars are introduced to divide the sized and dried warp horizontally into as many sheets as there are section beams. The split warp is then passed through a comb the teeth of which divide such warp into a series of flat bands or sheaths, as they are frequently termed, each sheath in practice being composed of a plurality of warp threads, usually one or more from each section beam. Each group of threads forming a sheath is thus positioned so that the threads are substantially one above another, so that the sheaths travel toward the beam in substantially vertical, parallel planes, and as they near the beam each ribbon-like band or sheath must turn through an angle of about 90 degrees in order that the series of sheaths

shall lead onto the beam in the form of a sheet, the beam being mounted to rotate on a horizontal axis.

Heretofore the actual turning of a band or sheath as it nears the beam has been uncontrolled, so that sometimes the band would turn to the right and then to the left, or the warp threads composing it would roll over one upon another to a greater or less extent, and adjacent sheaths would often turn in opposite directions, before reaching the flattening and tension devices adjacent the beam. As a result of this irregular action much trouble has frequently been experienced after the beam was placed in the loom, as the warp threads would form “draws,” due to the turning or rolling of the threads upon each other, such “draws” interfering seriously with the operation of the loom.

My present invention has for its object the production of means whereby this irregular turning of the sheaths is obviated, so that the hit and miss turning, rolling or twisting of the threads of a sheath upon each other is absolutely prevented. As a result the threads of a sheath are positively and automatically repositioned so that they are caused to lie side by side as they near the beam, the change in angularity or turning of the sheath from its travel in a vertical plane to a substantially horizontal plane being effected always in one and the same direction.

Inasmuch as the threads cannot roll or turn over upon each other the formation of “draws” is practically eliminated or reduced to such a minimum that the troubles arising from their presence in the loom are of little moment, and the slasher performs properly the objects for which it is designed.

I obtain the desired results in a very simple, positive and efficient manner, requiring a very slight change in the slasher.

One practical embodiment of my invention is herein illustrated, in connection with a sufficient portion of a slasher to be understood, and the novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a longitudinal sectional view of a portion of a slasher, with one embodi-

ment of my invention applied thereto, details of construction being omitted for the sake of clearness in illustration; Fig. 2 is an enlarged top plan view of a portion of the usual expansion comb and the novel means for effecting the positive change in the angularity of the sheaths as they travel toward the beam; Fig. 3 is a view of a part of the sheath turning means, looking at Fig. 2 from the right hand; Fig. 4 is a perspective detail on a large scale to show the operation of my invention in effecting the turning of the sheaths.

Referring to Fig. 1 the side frame A of the slasher sustains in usual manner guide rolls g, g', g'' , around which the sized and dried sheet of warp passes to the splitting or separating bars 1, 2, 3-6, by means of which the warp is divided horizontally into as many sheets as there are section beams (not shown) in the creel. These splitting rods or bars are in practice adjustably mounted on the side frames of the slasher in usual manner and form no novel part of my invention, and accordingly are not illustrated or described in detail.

The loom beam B, Fig. 1, the tension rolls t, t', t'' adjacent thereto, and the flattened binding or smoothing bars b which are designed to smooth out and maintain flat the sheet of warp passing to the beam B, are and may be all of usual construction and operate in well known manner.

From the splitting rods the divided sheets of warp threads pass through the upright, parallel teeth c of the usual expansion comb, the comb-box c^* being mounted on the slasher frame at such a distance from the splitting rods that a group of threads constituting a sheath s passes between adjacent teeth or dents, the comb being of well known construction, the lateral separation of the teeth being provided to vary the intervening spaces according to the character of the warp being treated.

In general practice each sheath s is composed of a group or plurality of warp threads, one or more from each of the section beams, and from Figs. 1, 2 and 4 it will be seen that such threads are positioned or arranged substantially one above another, so that the several sheaths s travel toward the beam B in upright and substantially vertical parallel planes.

As the beam is mounted with its axis of rotation horizontal, as are the tension rolls t, t', t'' , and inasmuch as the binding and smoothing bars b are horizontal it is manifest that the several separated sheaths must be turned from their vertical planes of movement through an angle of 90 degrees before they can be re-assembled in the form of a flat sheet to be wound upon the beam B. Heretofore this bending, turning or changing of the sheaths or ribbon-like bands s of

warp threads has been left to chance, so that sometimes the turn or bend would be right-handed, sometimes left-handed, and not infrequently the group of threads comprising a sheath would roll or turn over each other into more or less of a loose rope-like mass and in such condition would pass onto the beam. These inequalities and irregular turning would inevitably cause "draws" in the loom, and greatly interfere with the proper operation thereof. To prevent this and to cause the sheaths to turn positively and accurately all in the same direction is the object of my present invention, and in the present embodiment thereof I effect the desired result by means of a second comb the box d^* thereof being supported transversely on the slasher frame between the comb teeth c and the binding bars b , said box being provided with a series of parallel but inclined or diagonal teeth or dents d .

In practice the lower ends or shanks of the teeth d are parallel and vertical and are adjustable laterally within the box d^* precisely as is now the case in the ordinary expansion comb, adjustment being effected by means of the thumb-nut d' shown in Figs. 2 and 3. As this is an old construction I have not illustrated it herein, but such lateral adjustment may be effected substantially as shown in United States Patent No. 602,771, granted to Rhoades April 19, 1898. Now as the sheaths s pass from the teeth c of the usual comb in upright parallel planes of travel they are brought against the upper faces of the inclined teeth d of the second comb, and thereby the sheaths are bent, turned or deflected, as at s^* , Figs. 2 and 4, from their vertical planes of travel. As the teeth d are parallel and hence of equal inclination it will be obvious that all of the sheaths are turned or bent positively and in the same direction, and to the same extent, so that as the sheath bent at s^* passes toward the binding bars b , as at s'' , Fig. 2, the threads composing it are re-positioned. That is, instead of lying one above another they are caused to lie side by side, each band or sheath turning or bending about its lower edge, the threads above the lowest one turning each in its own proper path into its new position. The sheaths are thus brought into a common flat sheet of warp as they pass into the control of the binding and smoothing bars, and as the sheaths are all turned in the same direction there is no possibility of the warp threads rolling or twisting over each other and passing onto the beam in an irregular manner.

In practice I prefer to set the second or turning comb so that its teeth are offset laterally from the corresponding teeth c of the first comb, and from the side to which the sheaths are turned, in order that the tension thereby exerted upon the threads com-

posing the sheaths will cause them to press firmly against the upper faces of the inclined teeth *d*, thus insuring a more positive turning action upon said sheaths.

5 My invention practically obviates the formation of "draws" in the warp and causes the warp threads to draw off smoothly and evenly from the beam in the loom.

While I have shown one practical embodiment of my invention herein which has proved thoroughly successful and efficient in actual practice my invention is not restricted to the precise construction and arrangement herein shown and described for 10 various changes or modifications may be made by those skilled in the art without departing from the spirit and scope of my invention as set forth in the claims appended hereto.

20 Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a slasher, means to separate the warp into a series of substantially parallel sheaths each containing a plurality of warp threads located substantially one above another, a beam on which the sheaths are wound, said beam having its axis of rotation at right angles to the paths traveled by the sheaths, and means to cooperate with the sheaths and cause the component threads thereof to turn in the same direction from their original paths into a single plane parallel to the axis of the beam and approach 30 the beam substantially side by side.

2. In a slasher, means to separate the warp into a series of ribbon-like sheaths each containing a plurality of warp threads traveling in a substantially vertical plane, a horizontal beam on which the sheaths are wound, and means to act positively upon and turn the ribbon-like sheaths from their original planes of travel to a substantially horizontal plane as they approach the beam, 40 whereby the threads in a sheath are prevented from rolling or twisting as they are wound on the beam.

3. In a slasher, means to separate the warp into a series of sheaths each composed of a plurality of warp threads, said sheaths traveling in parallel planes, a beam on which the sheaths are wound, and means to act simultaneously and positively upon the several sheaths and turn them in the same direction from their respective parallel planes of travel into a single plane with their com- 55

ponent threads side by side as they approach the beam.

4. In a slasher, means to separate the warp into a series of bands each composed of a plurality of warp threads positioned one above another, a beam on which said bands of threads are wound, and means to cooperate with the several bands and turn them in the same direction to re-position the threads substantially side by side in each band as they approach the beam. 60 65

5. In a slasher, means, including a comb having upright teeth, to separate the warp into a series of sheaths each composed of a plurality of warp threads positioned one above another, a beam on which the sheaths are wound, and a deflecting comb intermediate the first comb and the beam, having its teeth inclined, to act upon the sheaths and re-position the group of threads in each to approach the beam side by side. 70 75

6. In a slasher, a beam on which the warp threads are wound, a transverse comb having upright teeth between which travel groups of warp threads, the threads of a group being positioned substantially one above another, and a second comb between the first comb and the beam, said second comb having its teeth laterally offset from the teeth of the first comb and inclined, to act upon the groups or sheaths of threads and deflect or turn them in the same direction, to thereby re-position side by side the threads in such groups or sheaths as they approach the beam. 80 85 90

7. In a slasher, means to act upon and separate the warp into a series of sheaths traveling in parallel vertical planes and each composed of a plurality of warp threads one above another, a horizontal beam on which the series of sheaths are wound, devices adjacent the beam to direct the threads thereto in the form of a sheet, and means intermediate said devices and the separating means to positively engage and turn in the same direction the several sheaths from their parallel vertical planes of travel and cause each group of threads to lie side by side as they approach the said devices adjacent the beam. 100 105

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ERNEST L. MORRILL.

Witnesses:

FRED E. WHITMAN,

HARRIETT L. WHITNEY.