

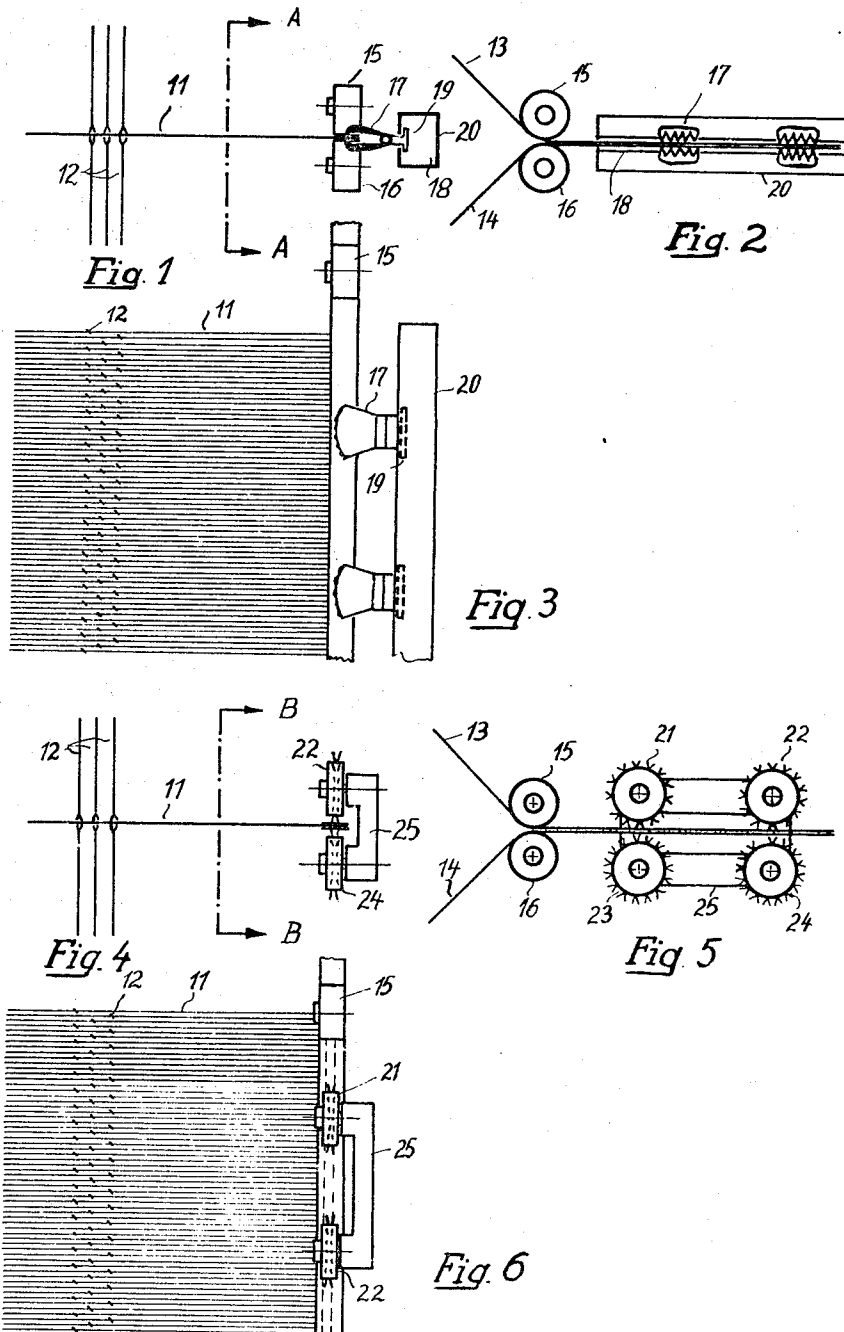
April 30, 1968

H. MEIERHOFER

3,380,133

DEVICE FOR SECURING WARP THREADS

Filed Dec. 8, 1965



INVENTOR
HUGO MEIERHOFER
BY *Licke & Craig*
ATTORNEYS

1

3,380,133

DEVICE FOR SECURING WARP THREADS

Hugo Meierhofer, Uster, Switzerland, assignor to

Zellweger, Ltd., Uster, Switzerland

Filed Dec. 8, 1965, Ser. No. 512,345

Claims priority, application Switzerland, Dec. 18, 1964,

16,435/64

8 Claims. (Cl. 28—44)

ABSTRACT OF THE DISCLOSURE

In a machine for drawing in warp threads clamps slideable transversely to the threads are provided in engagement with the tapes securing the ends of the threads. Also, spiked rollers having their axes of rotation parallel to the threads may engage on opposed sides of the tapes to secure it from movement in the direction of the threads.

This invention relates in general to weaving machines and more particularly to a device for holding the ends of drawn-in warp threads for use on machines for drawing in warp threads.

In the machines used to draw in warp threads, the ends of the warp threads, once they have been drawn in, have to be fixed or secured in place so as to prevent them from becoming entangled with one another; this complicates the introduction of the warp and the harness into the loom. There are numerous methods of securing the warp threads. In one method the ends of the warp threads are inserted, after they have been drawn in, between two self-adhesive tapes which are then pressed together so that the end of each warp thread is anchored in proper position adjacent the next. As the drawing-in operation progresses, the adhesive tape with the row of threads anchored in it is stretched perpendicularly of the direction in which the drawn-in warp threads extend by means of a stretching device. In cases where the warp threads have only limited elasticity, this lateral force is strong enough to hold the adhesive tape stretched over the entire width occupied by the warp threads after they have been drawn in and anchored in position.

However, in cases where the warp threads to be drawn in are of a highly elastic material, each warp thread is stretched elastically when it is drawn in so that, after it has been anchored in position on the adhesive tape, it has a tendency to return to its original form and, by doing so, exerts a considerable lateral pull on the tape. As a result, the lengthwise force exerted on the adhesive tape by the stretching device is no longer strong enough to keep it stretched because each warp thread exerts a pull transversely of the direction in which the tape is stretched. The result is that the warp threads together with the tape are pulled back toward the healds and hence interfere with, or even completely obstruct, the drawing-in operation.

An object of the instant invention is to obviate the disadvantages inherent in prior art arrangements by relatively simple and economic means.

Another object of the instant invention is to provide means for securing warp threads against elastic longitudinal movement after drawing in of the warp threads.

A further object of the instant invention is to provide means for grasping the securing means for the warp threads so as to provide only for movement transverse to the threads.

According to the invention, there is provided a device for use on machines for drawing in warp threads, the said device serving to hold the ends of the warp threads after they have been drawn in and comprising thread-holding components provided with guides which permit the thread-

2

holding components to move only in a direction perpendicular to the direction in which the held threads extend.

These and other objects, features and advantages will become more apparent from the following specific description of the invention when taken in conjunction with the following drawings, wherein:

FIGURE 1 diagrammatically illustrates a warp thread zone of a machine for drawing warp threads between the healds and the holders in the plane of the layer of warp threads;

FIGURE 2 is a side elevation taken along line A—A of FIGURE 1;

FIGURE 3 is a top plane view of the device illustrated in FIGURE 1;

FIGURE 4 is a side view of a second embodiment of the invention;

FIGURE 5 is a side elevation taken along line B—B in FIGURE 4; and

FIGURE 6 is a top plane view of the device illustrated in FIGURE 1.

Only those components which form an actual part of the invention and those associated elements essential to the description of a device according to the invention have been shown in the drawings. All the remaining components of machines for drawing in warp threads omitted for the sake of clarity are of conventional configuration and are assumed to be well known.

As shown in FIGS. 1, 2 and 3, threads 11 are drawn through the eyes of healds 12, and terminate in a holder consisting, for example, of two self-adhesive tapes 13 and 14 which are reeled off from feed rollers (not shown) and stuck or pressed together between pressure rollers 15, 16. Before the tapes pass between the pressure rollers, each warp thread is inserted between them so that it is held fast by the adhesive of the tapes.

In accordance with the invention, self-adhesive tapes can also be replaced by a stitching or sewing machine (not shown) mounted near the pressure rollers 15, 16 and arranged to stitch each warp thread to at least one of the tapes 13 or 14 which, in this case, are not adhesive, so as to join the warp thread firmly to the tape.

Following the insertion of a warp thread, the tapes 13, 14 move forward so that, the completed layer of drawn-in warp threads includes an edge formed by the tapes.

If the warp threads 11 now exert a pull on the tapes 13, 14 due to the elastic stretch which they underwent on drawing-in, the ends of the warp threads, together with the tapes, are pulled towards the healds 12, despite the stretch conventionally applied along the length of the tape. The invention avoids this by the provision of components which grip and hold the tape at fairly short intervals and which in turn can only move along a direction perpendicular to the warp threads due to their support within a rigid guide.

In the construction shown in FIGS. 1, 2 and 3, these components are in the form of clamps 17 attached to a runner 19 adapted to slide along a slot 18 formed in a rail 20. The clamps 17 are arranged at regular intervals along the tapes 13, 14 and hold the tapes at a uniform distance from the rail 20 so that the warp threads, and tapes, are prevented from being pulled back.

In the device of FIGS. 4 to 6, the same function as performed by clamps 17 in FIGS. 1-3 is performed by spiked wheels 21, 22, 23, 24 which are mounted in pairs so as to be rotatable on a fixed support 25, and between which the tapes 13, 14 together with the warp threads are drawn. The plane of the spiked wheels extends substantially perpendicularly to the warp threads so that the tapes 13, 14 cannot be axially displaced once they have been penetrated by the spikes on the wheels.

In addition, it is possible to use both forms of guides in combination with one another, for example, by providing near the drawer-in, spiked wheels as well as sliding clamps for additionally stretching the layer of warp threads over its entire width.

While I have shown and described several embodiments in accordance with the present invention, it is understood that the same is not limited thereto but is susceptible of numerous changes and modifications as known to a person skilled in the art and I therefore do not wish to be limited to the details shown and described herein but intend to cover all such changes and modifications as are encompassed by the scope of the appended claims.

I claim:

1. In a machine for drawing in warp threads the improvement essentially consisting of a device for holding the ends of said warp threads after they have been drawn through the respective heddles comprising:

thread engaging components for securing the ends of the warp threads relative to one another, means grasping said thread engaging components at plural closely spaced points thereof, and guide means securing said grasping means for movement thereof with said thread engaging components only perpendicular to the direction in which said warp threads extend.

2. A device as defined in claim 1 wherein said thread engaging components include a pair of self-adhesive tapes pressed together with said warp threads inserted therebetween.

3. A device as defined in claim 2 wherein said guide means include at least one rail and said grasping means includes a plurality of opposing clamping members slidable along said rail.

4. A device as defined in claim 2 wherein said grasping

means includes a plurality of spiked wheels engaging said thread engaging components and lying in a plane transverse to the length of said threads.

5. A device as defined in claim 1 wherein said thread engaging components include a tape to which the end of each warp thread is stitched in spaced relation.

6. A device as defined in claim 5 wherein said guide means include at least one rail and said grasping means includes a plurality of opposing clamping members slidable along said rail.

7. A device as defined in claim 5 wherein said grasping means includes a plurality of spiked wheels engaging said thread engaging components and lying in a plane transverse to the length of said threads.

8. A device as defined in claim 6 wherein said grasping means additionally includes a plurality of spiked wheels engaging said thread engaging components and lying in a plane transverse to the length of said threads.

References Cited

UNITED STATES PATENTS

468,914	2/1892	Ingersoll	28—44
2,230,494	2/1941	Kieke	28—44
1,342,876	6/1920	Sinderson	28—42
1,383,195	6/1921	Field et al.	28—44
2,738,176	3/1956	Hargenrater	28—22 X
2,786,257	3/1957	Bauer	28—32
2,942,324	6/1960	Altenweger	28—22

FOREIGN PATENTS

10,652	2/1898	Sweden.
787,839	12/1957	Great Britain.

MERVIN STEIN, *Primary Examiner*.

35 JAMES KEE CHI, *Assistant Examiner*.