United States Patent [19]

Altmann

[11] **3,885,600**

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[54] **METHOD AND TEMPLE APPARATUS FOR GUIDING FABRIC LENGTHS THROUGH TEXTILE WEAVING MACHINES**

[76] Inventor: **Jack G. Altmann,** Kirchenrainstrasse 21, CH-8630 Tann-Ruti, Switzerland

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[52] **U.S. Cl.** **139/292;** 26/63; 26/65

[51] **Int. Cl.** **D03j 1/22**

[58] **Field of Search** ..... 139/292, 294–301, 139/291 R; 26/65, 63

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Primary Examiner—James Kee Chi

Attorney, Agent, or Firm—Elliott Pollock

[57] **ABSTRACT**

A continuous length of fabric is guided through a textile machine by pinching the fabric over its entire width, and by periodically releasing the pinching action and pulling on the length of fabric to transport said fabric while stretching the fabric outwardly in opposing directions at its selvedges. The guiding and stretching steps are performed by a temple comprising a guiding and tensioning element mounted for rotation within a housing and including a free-floating tubular portion positioned across the full width of the fabric and adapted to selectively engage a portion of the housing to pinch the fabric therebetween. The guiding and tensioning element further includes two temple cylinder sections having oppositely inclined pinned temple rings respectively disposed in the selvedge zones of the fabric to stretch the fabric outwardly during rotation of said element without relative gliding of the fabric over the element.

2 Claims, 5 Drawing Figures

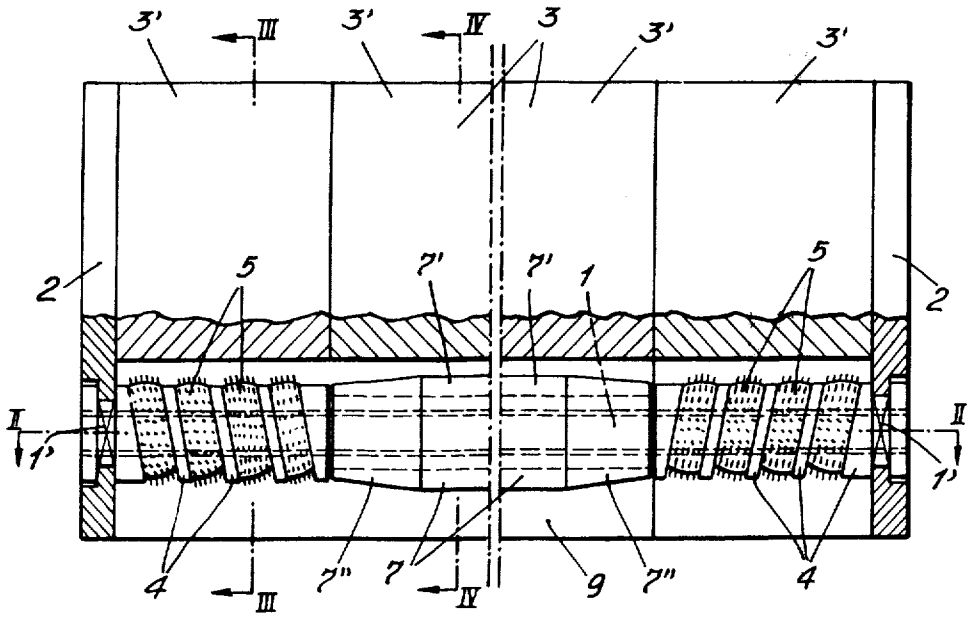


Fig.1

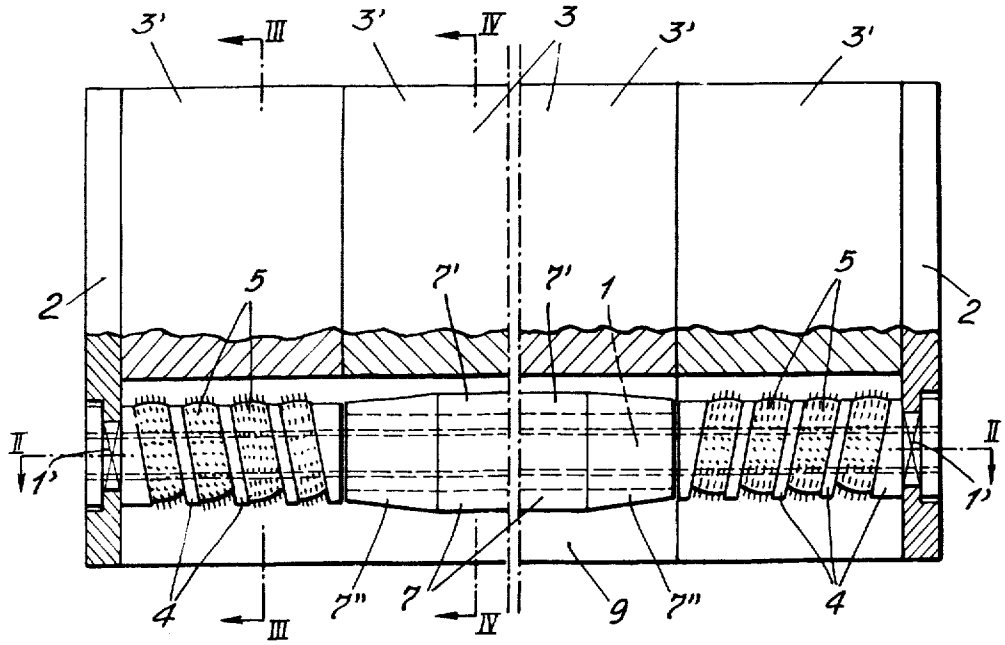

3'
III
3'
IV
3
3'
3'
2
5
7'
7'
1
5
2
II
1'
II
1'
4
III
7"
7
IV
9
7"
4

Fig.2

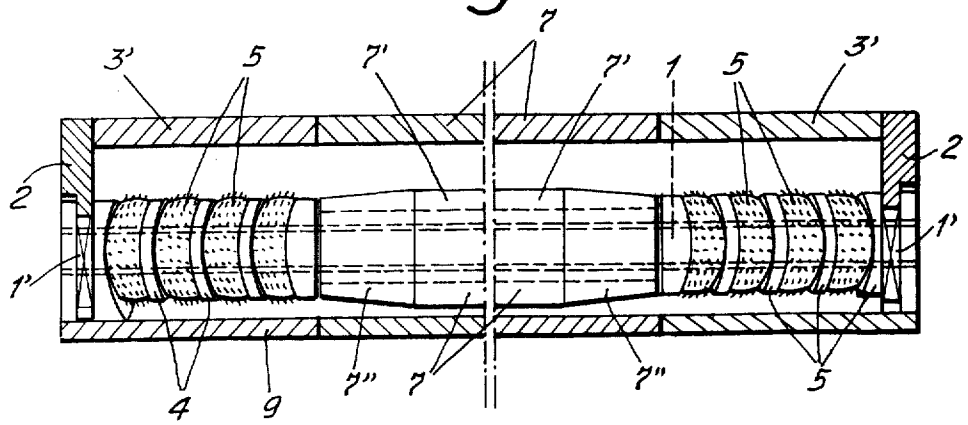

7
3'
5
7'
7'
1
5
3'
2
2
1'
1'
4
9
7"
7
7"
5

Fig.3

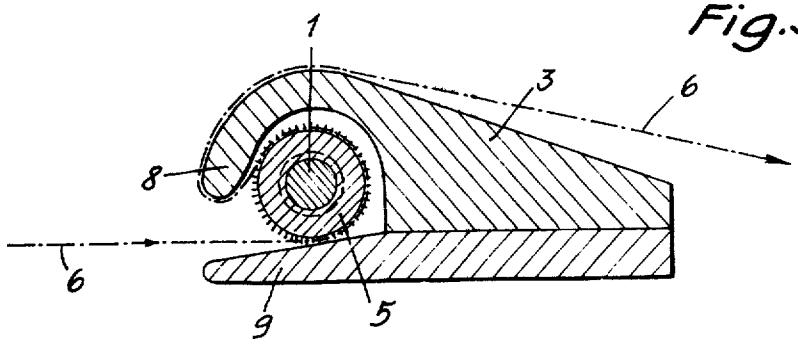


Fig.5

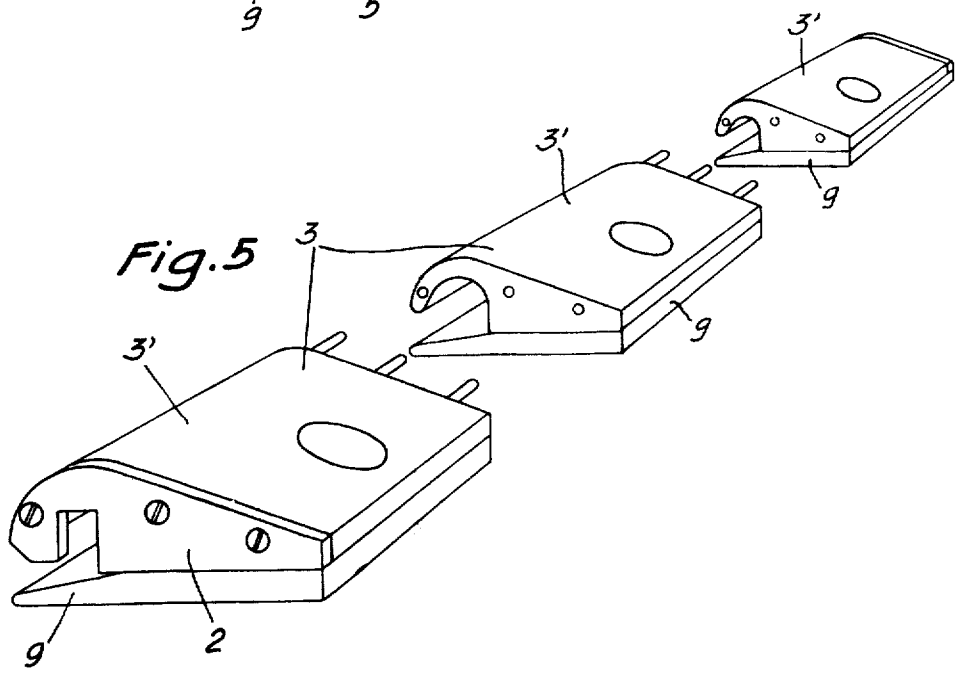
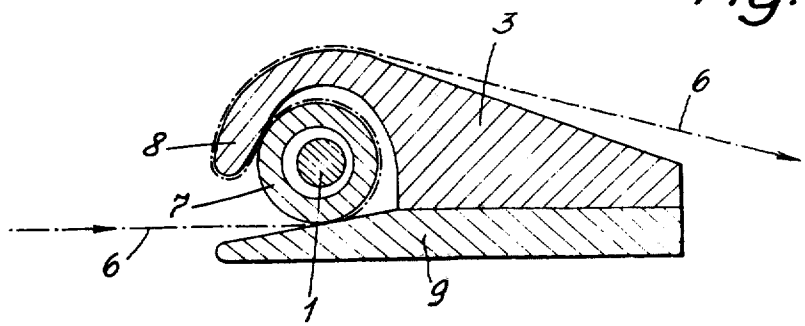


Fig.4



METHOD AND TEMPLE APPARATUS FOR GUIDING FABRIC LENGTHS THROUGH TEXTILE WEAVING MACHINES

Among the existing types of temples for weaving machines, there are two distinctive groups. One group comprises temples which hold the fabric in the selvedge zones only and stretches the fabric outwards. The other group consists of full-width temples.

Temples which hold the fabric at the selvedges only have the disadvantage that the pressure of the beat-up of the reed against the fabric is transmitted to the next guiding point of the fabric, which is the breast beam. This point is several inches from the fell of the cloth and therefore extensive tension is required for the beat-up. The tension causes breakages of the warp yarns. Another disadvantage of this group of temples is the presence of different lengths of the fabric from the fell of the cloth to the breast beam, caused by the looping of the fabric around the temple cylinders. This causes a deformation of the straightness of the weft and therefore of the design. In extreme cases it creates waviness of the selvedges.

The second group of temples, the full-width temples, cannot avoid a contraction of the fabrics weft wise. By reason of this contraction, the warp ends in the selvedges do not pass at straight angle through the weaving reed. This causes extensive friction between yarn and reed and leads to excessive yarn breakages.

SUMMARY OF THE INVENTION

The present invention is characterized by a procedure wherein the fabric is pinched over its full width and, at the same time is stretched at its selvedges without relative gliding between the fabric, and the guiding and tensioning elements.

The temple employed to execute the procedure contains a center part to guide and pinch the fabric over its full width and, in extensions thereof located in the selvedges-zones of the fabric, includes elements to hold and stretch the fabric weft-wise.

BRIEF DESCRIPTION OF THE DRAWINGS

The drawing shows one embodiment of the invention, in particular:

FIG. 1 is a top view of the temple with a partial section through its housing.

FIG. 2 is a vertical longitudinal section taken on line II — II of FIG. 1.

FIG. 3 is a perpendicular cross-section taken on line III — III of FIG. 1 and in the direction of fabric movement.

FIG. 4 is a perpendicular cross-section taken on line IV — IV FIG. 1 and in the direction of fabric movement.

FIG. 5 is a perspective drawing of the temple housing.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the several figures, like numerals of which refer to like parts throughout, element 1 is a center rod, which is mounted in housing 3, consisting of housing portions 3' and associated base plate 9. Rod 1 cannot move axially by reason of the stops 1' in the sidewalls 2 of the housing 3. Elements 4, 5 on the center rod are elements of the known Dutcher temple cylinder and are positioned in the selvedges-zones of the fabric. They consist of a variable number of inclined bearings 4 and a like number of pinned needle rings 5. Between the two temple cylinders 4, 5, and over the center rod 1 is placed a free floating guide-rod 7. This rod 7 is free floating because the diameter of its central bore is larger than the diameter of the center rod 7. The free floating guide-rod consists of several segments 7', 7'', and the parts 7'' adjacent to the temple-cylinders are conical to give a smooth passage to the temple-cylinders. In order to adapt the temple to the width of fabric 6, the housing 3, the free floating rod 7 and the temple-cylinders 4,5 are made of interchangeable segments. By adding or taking away such segments the total width of the temple can be adapted to the width of the fabric.

The fabric guide-rod 7 is pressed against the lip 8 and a base plate 9 of the housing 3 (FIG. 4) by the tension of the fabric 6. As a result the fabric 6 is pinched over its full width and the temple-cylinders 4,5 are not in contact with the housing (see FIG. 3).

At the moment of the beat-up of the reed, the tension in the fabric is cancelled out at the fabric-entrance of the housing 3 and so is the pinching-effect of the fabric guide-rod 7 against the base plate 9 of the housing. The fabric 6 can now be pulled at the fabric-exit 8 until the fabric guide-rod 7 starts again its pinching effect against the lip 8 and the base plate 9 and this occurs while the weaving reed moves away from the fell of the cloth. The fabric guide-rod 7 then again pinches the fabric until the next beat-up of the reed.

During each transportation of the fabric 6 caused by the beat-up of the reed and the pulling at the fabric exit, the temple cylinders 4,5 expand the fabric weftwise.

I claim:

1. A structure for guiding and expanding a continuous length of fabric through a textile machine comprising means operative to selectively pinch the fabric over its full width between the selveges to guide said fabric and to hold it in place, said structure being further operative to periodically release said pinching action while said length of fabric is being pulled thereby to effect transport of said fabric, and being operative to positively stretch said fabric outwardly in opposing directions at its selveges while said fabric is being transported and thereafter to repinch the fabric over its full width between the selveges to terminate said transport, said structure comprising a temple which includes an elongated guiding and tensioning element mounted for rotation within a housing, said guiding and tensioning element including a radially free-floating and freely rotatable tubular portion positioned across the full width of said fabric between its selveges and adapted to move in a radial direction toward and into engagement with a portion of the housing to selectively pinch the fabric therebetween, and said element further including two temple cylinder sections positioned at opposite ends of said free-floating and freely rotatable tubular portion and having oppositely inclined pinned temple rings respectively disposed in the selvege zones of the fabric so that the pins thereof penetrate through the selveges and thereby, due to the opposing inclinations of the temple rings, stretch the fabric outwardly weftwise during the free rotation of said tubular portion without relative gliding of the fabric over said tubular portion or temple rings.

2. The structure of claim 1 wherein said housing, said tubular portion, and said temple cylinder sections are each fabricated of removable and addable segments to permit the total length of said temple to be adjusted to correspond to the width of the length of fabric being guided and transported.

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