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(54) Stretcher for tubular knitwear

(57) A tubular knit fabric stretcher comprising: pulleys (14) for the advancement of fabric (4), said pulleys be-ing carried by two stretcher arms (5, 6) that are coupled to transmission belts (13), the lower advancement pulleys (14') of each arm (5, 6) are inclinable, thereby impart-ing to fabric (4) an advancement comprising a rightward (d) or leftward (s) helical component.

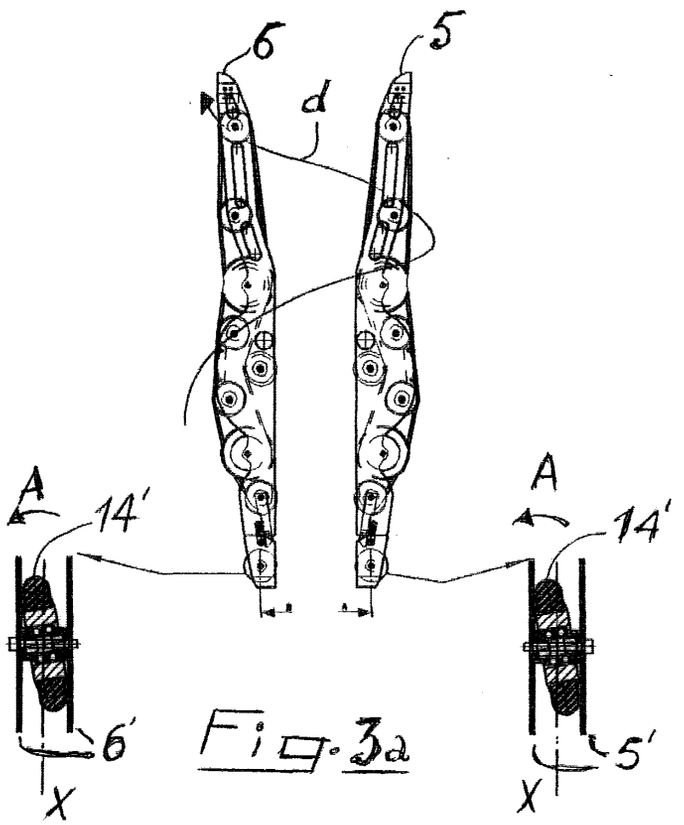


Fig. 3a

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Description

[0001] The object of the present invention is a stretcher for tubular knitwear fabric, to be applied in particular to calenders and other machines for the treatment of tubular fabric.

[0002] It is known that in the course of tubular knitwear fabric finishing stretchers are used to stretch and spread the tubular item in order to ease the finishing operations.

[0003] Thus in calendering, which is usually the last finishing operation, it is necessary to use a stretcher in order to achieve a uniform steaming and to adjust the width of the tubular item onto the desired value.

[0004] There are known tubular fabric stretchers having arms provided with fabric advancement wheels, such as described in patent PCT/IT99/00344 issued to the same proprietor of the present invention.

[0005] In order to prevent the fabric from advancing under twist, the present invention offers the possibility of causing the fabric to take an advantageous helical ad-vancement motion.

[0006] The features, advantages and the solution of the above-mentioned technical problem will be evident from the detailed description hereinbelow of a preferred, non limiting embodiment of the subject stretcher, said embodiment being illustrated in a merely exemplary, non limiting way in the accompanying figure, in which:

Figure 1 shows a front view of the stretcher;
Figure 2 shows an enlarged fragmentary horizontal cross-sectional view of the stretcher through line II-II of Figure 1; and
Figures 3a and 3b schematically illustrate the two helical advancement directions of the fabric, respec-tively.

[0007] Referring now to figure 1, the subject stretcher is comprised of stanchions 1 and 2 in which the various control and drive mechanisms are contained.

[0008] Said stanchions support the per se known steamer 3, inside which the tubular fabric is caused to run after passing through the stretcher.

[0009] Said stretcher is comprised of the stretcher arms 5 and 6, which in turn are held on the hereinbelow described support devices.

[0010] Within stanchions 1 and 2, motor means herein-in-below described transmit the motion to the upper drive wheels 7a, and thus means not shown in the figure can de-termine the displacement in opposite directions of the stretcher arms 5 and 6, so as to possibly change the width of the tubular fabric.

[0011] The upper drive wheels 7a are coupled to the similar lower wheels 7b through means that are specified hereinbelow.

[0012] As can clearly be seen from figures 1 and 2, the stretcher arms 5 and 6 are provided with wheels or rings 8 that are suitably shaped and are arranged in front of the convex part the drive wheels 7a and 7b are provided with. The latter in turn exhibit the supports 9 that carry the inclined axis (12) wheel pairs 10 and 11. Said wheels 10 and 11 are spaced apart with their periph-eral parts from the circumferential outlines 8' of rings 8, this being due to the magnetic attraction force, as will be described the later on.

[0013] The transportation of the tubular for fabric 4 is obtained by means of belts 13 that are wound around the set of idle pulleys 14 on arms 5 and 6 along the outlines of the drive wheels 7a and7b and of the rings 8.

[0014] As can clearly be seen from figure 1, both of the inclined wheels 10 our motor driven as they are coupled to one another by means of an elastic belt 15 that is wound on drive wheels 7a and7b.

[0015] In a similar way, the inclined wheels 11 our motor driven as they are coupled by means of an elastic belt with the same drive wheels 7a and 7b.

[0016] Said motor drive has the advantage that the transportation of the fabric is markedly improved.

[0017] In particular, the supports 9 consist of fork shaped ????? 16 for the adjustment of the working angles of arms 5 and 6.

[0018] The wheels 10 and 11 are kept spaced apart from the rings 8 by means of magnets 17 and 18 that respec-tively attract arms 5 and 6 outwards as shown by arrows B. said rings 8 carried by arms 5 and 6 remain spaced apart from the inclined wheels 10 and 11, and are at-tracted against the drive wheels 7a and 7b by said mag-nets 17 and 18, and the fabric is advanced between belts 13 and the drive wheels 7a and 7b.

[0019] It is moreover to be pointed out that the at-traction force of magnets 17 and 18 can be adjusted, thereby assuring that rings 8 are spaced apart from the inclined wheels 10 and 11.

[0020] Said adjustment is obtained by means of a mechanism that takes the magnets 17 and 18 closer to a farther from arms 5 and 6 respectively. In fact magnets 17 and 18 are coupled to said mechanism that is provided with an adjustment hand grip 19 that is adapted to move closer or farther the magnets 17 and 18 to and from sup-ports 17' and 18' that are fixed to bars 5 and 6. ten Finally, guards 20 are provided above the mechanisms carrying the adjustment handgrips 19.

[0021] The apparatus is operated as follows: the tubular fabric 4, that usually consists of various tubular pieces that are sewn together, is introduced upwards, as can be seen from figures 1 and 2, between wheels 10 and 11 and ring 8 and between ring 8 and wheels 7a and 7b of each arm and is thus transported upwards as indicated by arrow A upon rotation of the drive wheels 7a and 7b that are coupled to rings 8 and to pulleys 14 that are mounted on the arms 5 and 6, said arms being kept in position and sustained by the attraction force of magnets 17 and 18.

[0022] When a larger width of the tubular fabric is desired to be obtained, the arms 5 and 6 are displayed relative to one another until they reach the maximum

dis-tance shown in the positions of figure 1.

[0023] The novelty of the present invention concerns the inclination in either direction of the lower pulleys 14' for the advancement of fabric 4 with the consequent advancement of fabric 4 with a right (d) or left (s) heli-cal component, as it is clearly shown in figures 3a and 3b, respectively.

[0024] To be more precise, according to figures 3a and 3b pulley 14' is comprised between the branches 5' and 6' that form arms 5 and 6, respectively.

[0025] In the case of figure 3a pulley 14' is inclined at an angle relative to line X in the direction of arrow A.

[0026] Similarly, in the case of figure 3b pulley 14' is inclined at an angle relative to line X in the direction of arrow B.

[0027] The above inclinations are obtained by aligning in either direction the axis of rotation of pulley 14'.

[0028] Changes can be carried out in the present invention in the practical application features of design details, nonetheless remaining in the scope of the invention as it is claimed hereinafter.

Claims

1. A tubular fabric stretcher comprising: pulleys (14) for the advancement of the fabric (4), said pulleys being carried by two stretcher arms (5, 6) and coupled to transmission belts (13), **characterized in that** the lower pulleys (14') for the advancement of each arm (5, 6) can be inclined thereby imparting to fabric (4) a helical ad-vancement in the right direction (d) or in the left di-rection (s) according to the inclination direction (A, B) of said lower pulleys (14').

2. A tubular fabric stretcher according to claim 1, **characterized in that** the pulleys (14') can be inclined between the branches (5', 6') of arms (5, 6) of the stretcher.

Fig.1

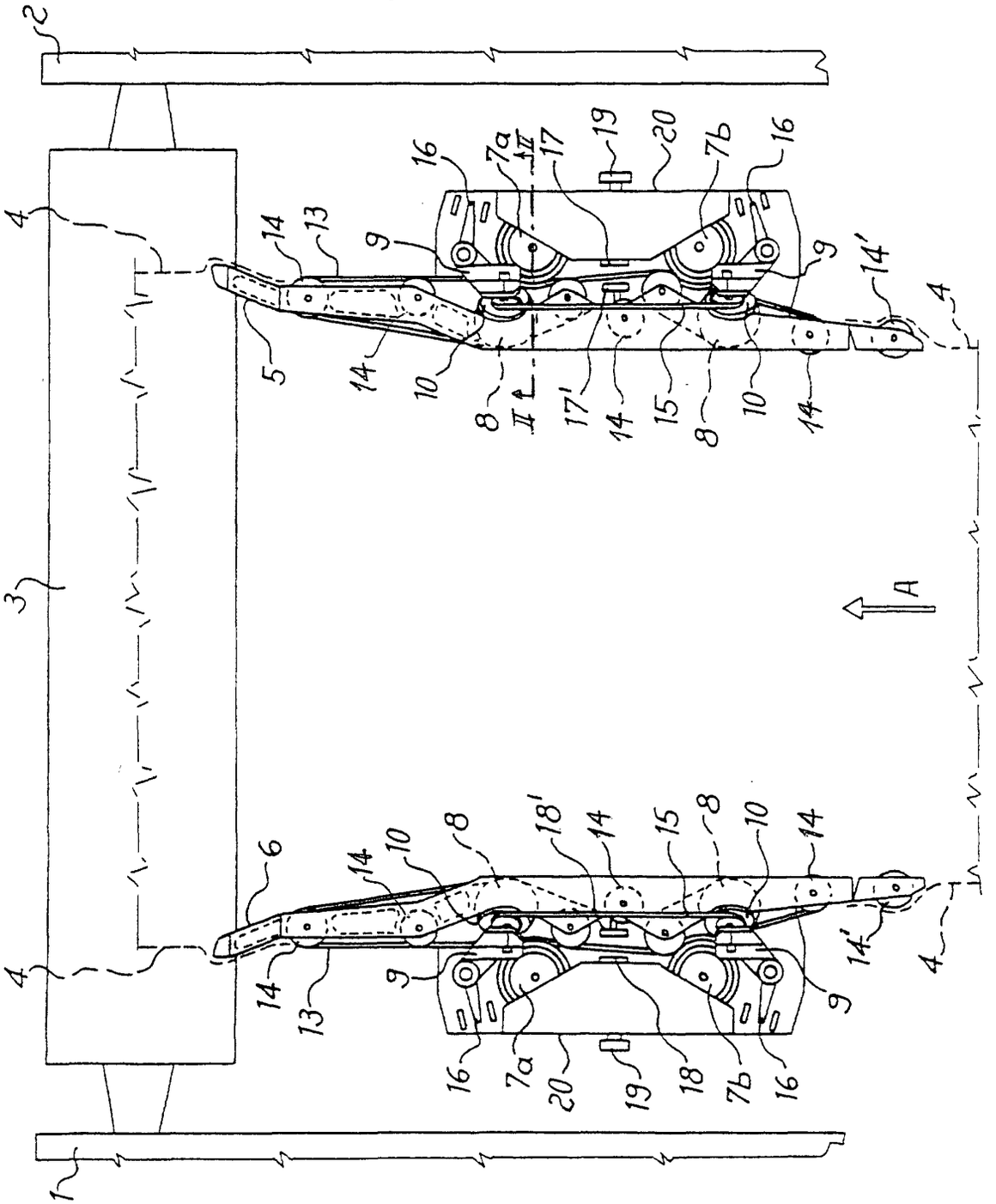
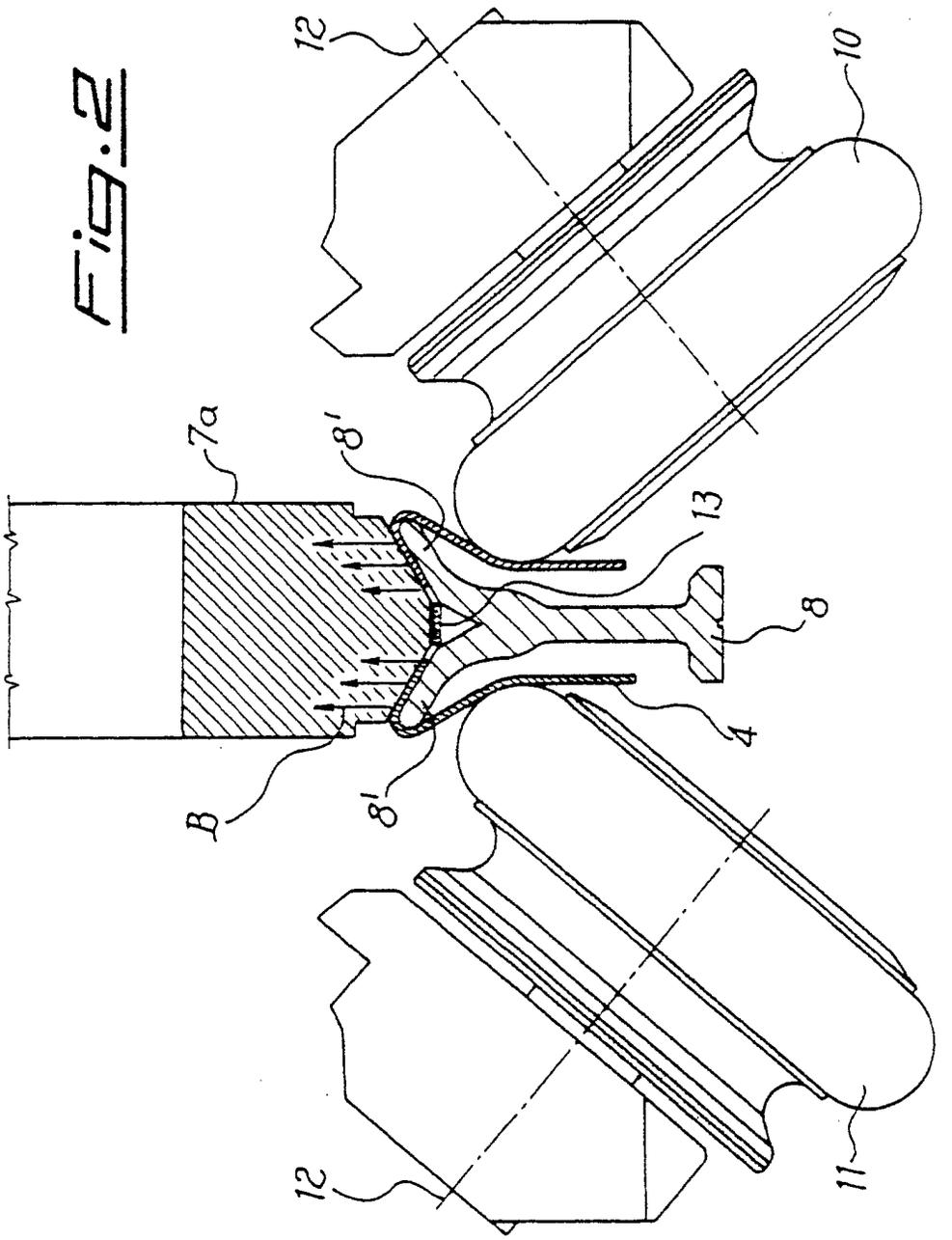


Fig.2



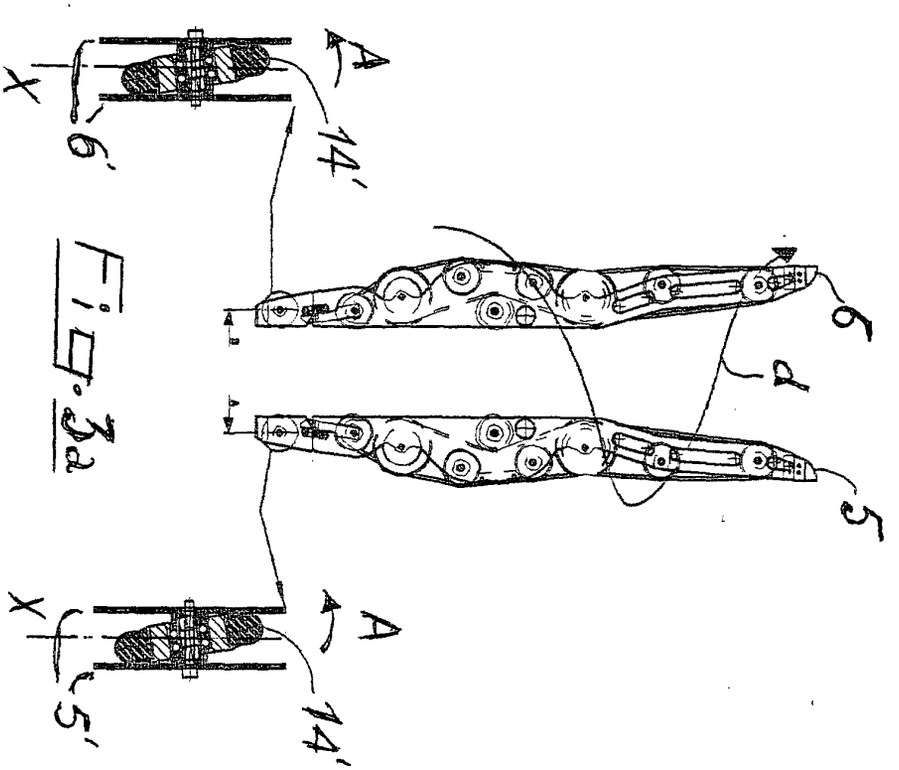


Fig. 3a

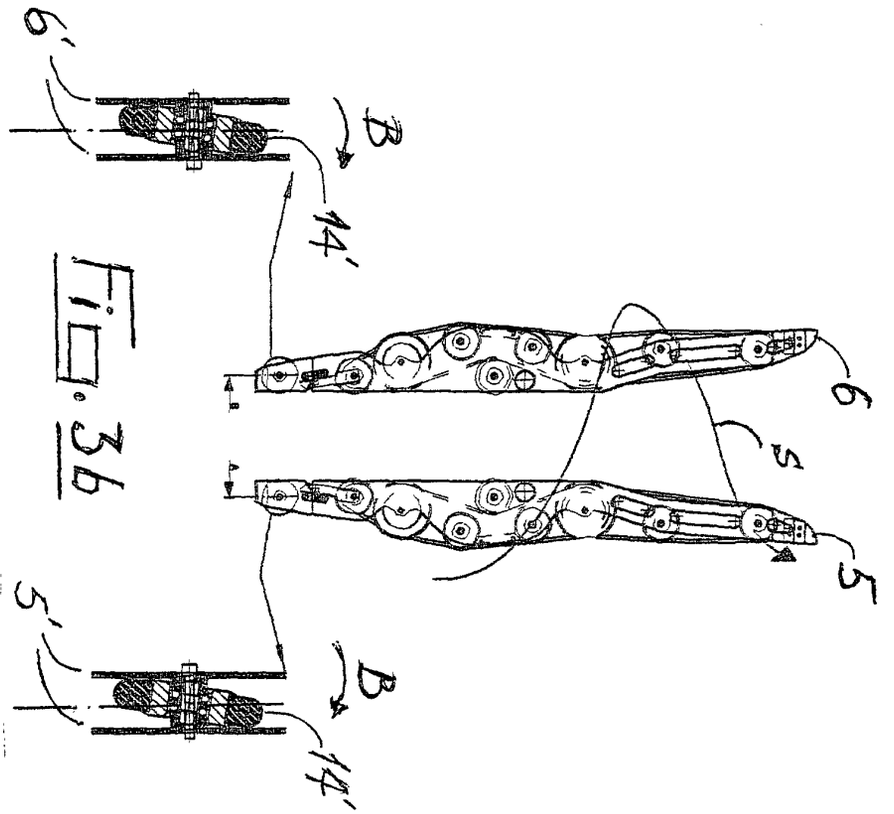


Fig. 3b