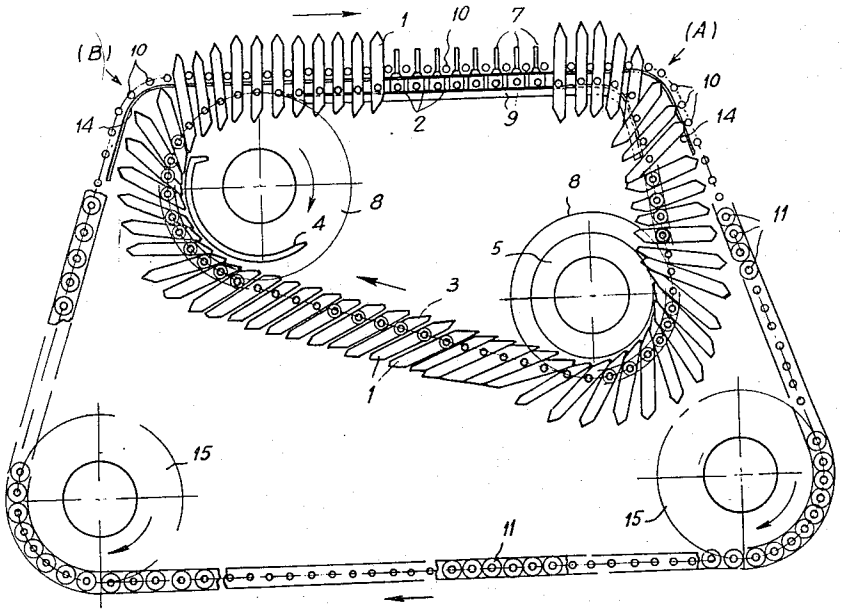
Jan. 26, 1954 E. L. DOTTI 2,666,958

TEXTILE MACHINE

Filed July 14, 1950

Fig. 1



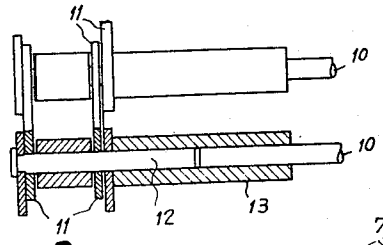


Fig. 3

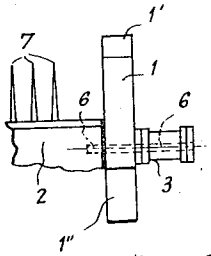


Fig. 2

INVENTOR
EUTERIO L. DOTTI
By Emory P. Croff Atty.

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TEXTILE MACHINE

Euterio L. Dotti, Santa Fe, Argentina

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8 Claims. (Cl. 19—127)

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The present invention refers to certain improvements in textile machines, additional to Patent No. 2,596,764, dated May 13, 1952, same being the outcome of repeated practical experiments effected with fibre-freeing and carrying devices, said devices being adapted to machines of the kind comprising a plural number of rows of teeth which, acting after the manner of combs, condition the textile fibres in a horizontal and parallel fashion.

The object of aforementioned co-pending U. S. patent is to provide machines of the kind specified, i. e., such as are employed for the drawing of long-fibre textile materials, flax, hemp, jute, etc., with means capable of being intercalated between each row of comb-teeth, said means acting as fibre-separating means along the entire working length of the rows, thus correctly separating said fibres and obtaining a substantially uniform drawing and parallelizing, the fibres not being damaged in any way during the process.

Experience obtained during trials made while actually manufacturing said improved machines, has brought out the need for greater precision in the uniform reciprocal intercalation of the freeing members and the combing teeth.

With that purpose in view a series of experimental studies have been made, resulting in an improvement of the system covered by co-pending U. S. Patent 2,596,764, granted May 13, 1952; this improvement consists in providing the corresponding rows of combs with guiding means which, along the stretch or operative portion constituting the main bed of the fibres, is capable of being combined with the succession of spaces that are arranged between the plurality of freeing members represented by the rods, and of being inserted therebetween with an exactness which it has so far not been possible to attain.

The exactness of this particular successive reciprocal arrangement of both members, has a direct influence on the good working of the machine, much higher yields being assured as regards preservation and mean length of the fibres is concerned.

Another object of the invention implied by these improvements, resides in the means themselves which are to be employed for coupling the tooth-support and rod-member assembly to its corresponding independent chains. The constructive simplicity of this means permits quick adaptation of the series of members that are to be secured to said chains. The machine itself can thus be assembled in less time.

The invention likewise envisages other accessory objects, as will be made clear during the course of the present description.

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In order that the present invention may be more clearly understood and readily put into practice, a preferred embodiment of same will now be described with particular reference to attached drawing, in which:

Figure 1 is a diagrammatical illustration of a partial elevation view of that section of the machine which performs the combing, parallelizing and fibre-freeing operations.

Figure 2 is a view showing the manner in which the teeth or comb supports are adapted to their respective chain, and

Figure 3 is likewise a detail view of a chain segment, showing the manner in which each rod-member is joined thereto.

Like numerals represent like or similar parts throughout the several figures of the drawings.

As is well-known, machines for the treatment of fibres, such as drawing or sliver frames, etc., for effecting the combing and parallelizing of the fibres comprise a drawing bed, generally consisting of pairs of rollers, inlet and drawing rollers, separated by a distance which is related to the length of the fibres being treated. Freely floating fibre-support means are placed between the rollers.

According to Patent No. 2,596,764, said means consist of a bed comprising transversal rows of combs, and a plurality of freeing rods intercalated between said rows. The purpose of this arrangement is to allow the fibres coming from the feed rollers to be subjected to treatment by the teeth and to be carried by the rows of rods which, at a certain moment and by the lowering action of the teeth, free the fibres from same and carry them, set in a parallel fashion, towards the drawing rollers of the machine.

The improvements of said co-pending U. S. Patent 2,596,764, granted May 13, 1952 consist in the arrangement of the freeing means—rods—which are successively placed between each row of teeth that form the combs properly speaking. These rods are fixed by their ends to respective independent transversal chains, free with regards to the chains or bands of combs. Both chains and/or bands are driven by appropriate rollers or wheels.

One of the objects of the present invention is to provide guiding means for each row of teeth-combs, consisting of a member 1 fixed to each of the ends of teeth-carrying bars 2, arranged crosswise and successively over an endless chain 3 or similar part. As is shown in Figures 1 and 2,

said member 1 is specially shaped. Thus, for example, whereas its sides are substantially flat (Figure 2) its edges, at their corresponding upper and lower ends, are provided with a particular shape.

Above, said member finishes in a double-bevelled point 1' enabling it to be inserted quickly and safely between the freeing rods, as will be seen further on; whereas below it is provided with a chamfered portion 1'' which obliges each member to occupy individaully, when in operation, an inclined position on coming into contact with stationary cam means 4 and 5, respectively.

Fingers or guide members 1 are connected, at one side, to chain 3 whereas the other side is connected with the end of the teeth-supporting bars 2 by lodging a stem 6 which passes through the body of the member and the chain and is tightly lodged in said cross bar 2. In this manner, said member is capable of swinging action, together with the bar, or independently of the chain. Aforementioned stem, therefore, acts additionally as a spindle for articulating and joining the links of the chain.

According likewise to said Figures 1 and 2, each tooth-bearing bar is provided with a plural number of teeth 7 arranged in rows to form lines of combs, as is usual in all the machines of this kind, each of said bars being adjacently arranged over chain 3, leaving space free in between. In this manner, the endless chain, with its combs and members, acts uninterruptedly and is controlled by one of the wheels 8 of chain 3, which may be a drive wheel, being guided over guide plates 9 which cooperate in the alignment of combs 7 and members 1.

The fibre-freeing members, consisting, as will be remembered, of rods 10 are crosswise arranged, in a mutually parallel relation, in a plane different from the plane of operation of teeth-bearing bars 2. Said rods 10 are coaxially mounted with regard to the hinge or pivot pins 12 of the links forming an endless chain 11.

As in the former case, said pivot pins 12 which, passing through the chain are projected into what is about one-half the extension of a tubular coupling member or sleeve 13, the remainder of which receives an end of said rod 10. As this arrangement is repeated in the other, opposing chain, the rods are securely adjusted and can, nevertheless, easily be replaced and assembled.

In the same way as comb-bearing endless chain 3, the above last-mentioned chain can be laterally guided over specially provided plates, alignment being obtained by means of guide plates 14. Control of this chain is effected, as in similar cases, by chain wheels 15.

Once the machine is operating in the accustomed manner, i. e., in the direction indicated by the arrows of Figure 1, teeth 7 are synchronously displaced together with fibre-freeing rods 10 along a horizontal upper bed of the machine, that is to say, in the active combing and drawing zone of the fibres. Chain 11 and its corresponding rods are differently displaced outside of said zone.

In this manner it is arranged that the series of comb-forming teeth behave in accordance with the position in which they are placed by the guide runs of the members. In this way, in the final portion *a* of the course followed by said teeth, precisely where the combs disengage from the rods, the lower chamfered portion 1'' of said members 1 contacts the circumferential periphery of cam means 5, said portions 1'' being thus inclined in the direction of the displacement of the chain; this inclination is made possible by the particular arrangement of the members and bars 2 within the chain, by means of pin or stem 6.

Once relative inclination of the members and combs is effected, same is maintained until chamfered surface 1'' again contacts the periphery of the other guide run 4, along which the members diverge slightly until arriving at the upper end, where they are arranged perpendicularly to the horizontal plane of rods 10. This signifies that, finally, said members are placed vertically, ready for the insertion of teeth between each pair of rods. The last phase of this operation is assisted by guide plates, such as 9, or by the circular course itself imposed by chain wheel 8 corresponding to end *b*. When the teeth enter between the rods, the guide members lose contact with cam means 4.

The foregoing clearly shows the exactness with which each row of teeth is intercalated between each pair of rods; in the same manner its withdrawal from the opposite end *a* is to be effected in slidable engagement with the row of teeth or combs between each pair of said rods.

The invention as described and illustrated may be clearly understood, and no further explanations will be required by those versed in the art.

Inasmuch as the present description refers to preferred embodiments incorporating the principles of the invention, same may be changed or modified in its construction or details without thereby departing from the scope thereof, as clearly defined in the following claims.

I claim:

1. In a textile machine, the combination, comprising, a movable endless chain means, means mounting and moving the chain means in a plane, a plurality of teeth carrying bars in spaced relation pivotally carried by the chain means and laterally thereof, an equal plurality of guide members each rigid with a bar, a pair of movable endless chains, a plurality of rods carried in spaced relation by the pair of chains at one side thereof and aligned with the bars and guide members, means mounting and moving the pair of chains in a plane other than the plane of movement of the first chain means, and cam means engageable with the guide members and moving same and the teeth of the bars rigid therewith into a space between a pair of adjacent rods and other cam means removing the guide member and teeth from the spaces.

2. The combination according to claim 1 and wherein the guide members are oppositely beveled at one end insertible between the rods and beveled on one side at the other end engageable with the cam means.

3. The combination according to claim 2 and wherein the cam means are curved plates.

4. The combination according to claim 1 and wherein each of the pair of chains includes pivot pins extending beyond one side of the chain and sleeves each receiving a pivot pin and rods each received by a sleeve.

5. In an improved textile machine the combination comprising a plurality of spaced comb-like rows of teeth, movable endless flexible means carrying the rows of teeth, operable means moving the flexible means and rows of teeth in a plane, means supporting a section of the rows of teeth for movement in a horizontal plane, a plurality of rods disposed in the plane of move-

ment of the rows of teeth and in spaced relation to permit successively a row of teeth to enter a space between the rods, a pair of movable endless flexible means carrying between them the plurality of rods, means supporting a section of the rods for movement in a horizontal plane and aligned with the horizontally supported section of the rows of teeth, a plurality of guide members each affixed to a row of teeth and pivoted on the first flexible means for inserting its row of teeth in a space between the rods, and cam means engageable with corresponding ends of the guide members to dispose same in position for inserting the rows of teeth successively in the spaces between the rods.

6. The combination of claim 5 and wherein each row of teeth includes a bar and each guide member is a finger affixed to an end of a bar and beveled on opposite sides at one end and chamfered at the other end for engagement with the cam means.

7. The combination according to claim 6 and wherein the cam means are curved plates.

8. The combination according to claim 5 and wherein each flexible means of the pair is a link chain and each rod is carried by the link pins of the pair of chains.

EUTERIO L. DOTTI.

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