March 10, 1936. W. REINERS ET AL 2,033,738

APPARATUS FOR BEAMING YARN

Filed Jan. 21, 1935

Fig. 5.

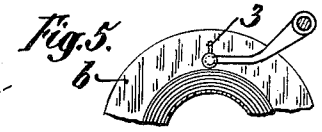


Fig. 1.

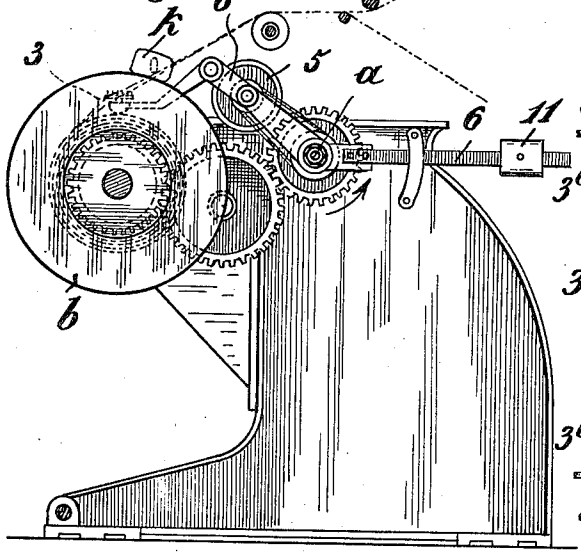


Fig. 4.

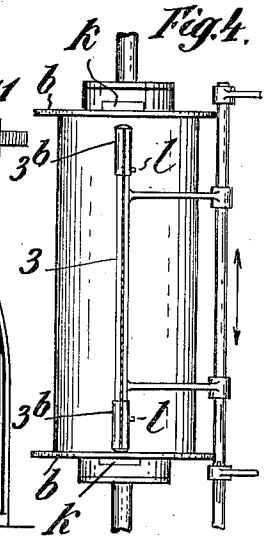


Fig. 2.

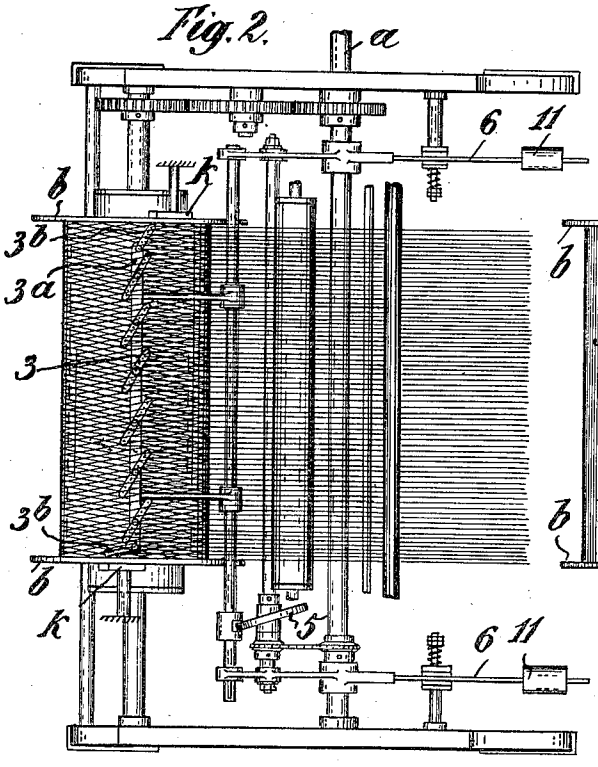
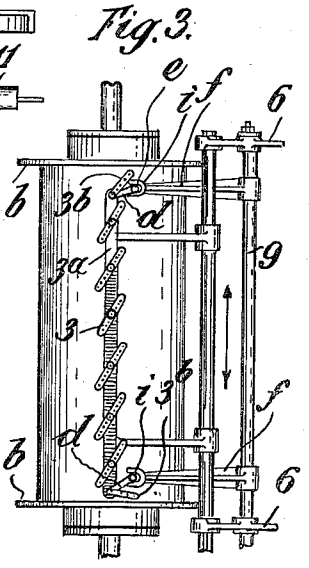


Fig. 3.



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APPARATUS FOR BEAMING YARN

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Application January 21, 1935, Serial No. 2,828
In Germany April 9, 1934

8 Claims. (Cl. 28—32)

Our invention relates to an apparatus for beaming yarn and constitutes a further improvement of the beaming apparatus described and claimed in our co-pending application for Letters Patent Serial Number 606,240.

In beaming slippery or very delicate yarns, such as artificial silk, in cross winding for bleaching, dyeing and like purposes it has been found advisable to provide the beam with the usual flanges, in order to support the yarn body at its ends.

In order to enable the thread guide comb with such flanged beams, to be disposed as close as possible to the place where the thread runs onto the beam and, if required, to adjust the marginal threads more densely, as disclosed in our above-mentioned prior specification, the present invention provides that the two ends of the guide comb are made displaceable, for instance, arranged hingedly or resiliently, so that while the comb traverses between the flanges of the beam its resilient or hinged ends alternately run against the flanges and are folded, collapsed or turned over in such a manner, that the marginal threads of the yarn ribbon automatically adjust themselves more densely. Furthermore, as with increasing diameter of the yarn body the movable ends of the guide comb would glide beyond the edge of the flanges of the beam, our invention further provides fixed stops above the edges of the flanges, against which stops the displaceable ends of the comb abut.

With great winding speeds this gliding of the displaceable ends of the thread guide comb along the flanges of the beam might cause certain disturbances. In order to avoid this, our invention further provides for positively guiding these displaceable guide comb ends by means of levers fixed thereto and stationary stops co-operating with these levers, so that the ends of the guide comb no longer touch the flanges of the beam at all and, consequently, no fixed stops are required for them above the flanges.

In order that our invention may be clearly understood and readily carried into effect, three embodiments of the same are illustrated schematically in the accompanying drawing by way of example, in which:

Figure 1 is a side elevation with parts in section of a beaming apparatus according to the invention and represents the first embodiment thereof,

Figure 2 is a top view of Figure 1,

Figure 3 is a fragmentary top view similar to Figure 2 and shows the second embodiment,

Figure 4 is likewise a fragmentary top view similar to Figure 2 and shows the third embodiment, and

Figure 5 is a detail of Figure 4 in vertical section.

In all these figures, 3 denotes the thread guide comb, which, together with its traversing cam 5, is carried by arms 6 swingingly mounted on a shaft *a* and balanced by means of counterweights 11.

In the embodiment according to Figures 1 and 2 the flanges of the beam are of greater diameter than the finished yarn body. The guide comb 3 is disposed so as to traverse between the flanges. It may have its dents arranged in a continuous straight line, like in the embodiment of Figures 4 and 5, or may be subdivided as shown in Figures 1–3. In all these embodiments the two ends of the guide comb are made displaceable in accordance with the length of the comb traverse. In the embodiment shown in Figures 1–3 the two end sections 3*b* of the guide comb 3 are mounted on the comb carrier 3*a* each on a vertical pivot and are under the action of springs (not shown) in such a manner as to run alternately onto the two flanges *b*, *b* of the beam during the to and fro motion of the comb, are swung inward and, when receding from the flanges, swing back to their original position under the action of their springs. Consequently the cross winding fully extends up to the flanges and, in addition, the marginal threads adjust themselves more densely in the vicinity of the flanges *b*, *b*, since the swinging end sections 3*b* of the guide comb during their being swung by the flanges form a gradually increasing angle with the comb carrier 3*a*. Since, further, the swinging end sections 3*b* of the comb at the end of the winding-up operation would advance beyond the flanges *b*, *b*, fixed stops *k* may be provided against which the end sections 3*b* of the comb alternately strike, so as to be rocked as previously by the flanges themselves.

With great winding-up speeds, however, the repeated striking and gliding of the comb sections 3*b* on the flanges *b*, *b* may cause certain disturbances. In order to avoid this, the two end sections 3*b* of the comb may have fixed to each of them an arm *d* which by a pin *e* engages in the bifurcated end *i* of an arm *f*, see Figure 3 The two arms *f* are mounted on a shaft 9 which is carried by the arms 6 and is therefore coupled with the shaft carrying the comb carrier 3*a*, so that the arms 6 execute an upward motion together with the guide comb, according to the increasing diameter of the yarn body on the beam. In this manner the two swinging end

sections 3b of the comb, due to their being hingedly connected to the bifurcated ends i of the arms f and pivotally supported on the comb carrier 3a, are positively guided during the traverse of the comb in such a manner as to remain always separated by a little from the flanges b, b, whereby any contact whatever with the latter is prevented.

In the embodiment represented in Figures 4 and 5 the thread guide comb 3 extends in a continuous straight line and its two ends 3b are in the form of separate tubular pieces which surround the tube-shaped main portion of the comb and are under the action of springs (not shown) lodged within the main portion. These springs serve in known manner to guide the dents of the comb and permanently urge outwards the separate end sections 3b. Stop pins l fixed in the main comb portion and co-operating with slots provided in the end sections 3b serve to limit the outward motion of the latter in accordance with the length of the comb traverse. The position of the guide comb shown in Figure 4 shows how the one end section of the comb is in contact with the respective flange b, whereby the dents at this place adjust themselves correspondingly more densely, whilst the opposite end section is separated from its flange, so that here the marginal threads run onto the beam in their normal spacing. In this embodiment two fixed stops k or traverse-limiting arms f may be provided, to prevent the resiliently mounted end sections 3b of the comb from gliding beyond the flanges b, b or touching them at all directly.

What we claim and desire to secure by Letters Patent is:—

1. In an apparatus of the class described comprising a flanged beam, a traversing thread guide comb having displaceable ends adapted to cause a reduction of the length of the comb when touching the respective flange of the beam during the comb traverse.

2. In an apparatus of the class described comprising a flanged beam, a traversing thread guide comb having displaceable ends adapted to cause a reduction of the length of the comb when touching the respective flange of the beam during the comb traverse, and fixed stops adapted to cooperate with said comb ends like said beam flanges with increasing diameter of the yarn body on the beam.

3. In an apparatus of the class described comprising a flanged beam, a traversing thread guide comb having separate end sections mounted on vertical pivots provided on the central comb portion and adapted to be turned when striking said beam flanges during the comb traverse.

4. In an apparatus of the class described comprising a flanged beam, a traversing thread guide comb having separate end sections mounted on vertical pivots provided on the central comb portion, arms rigid with said end sections, stationary arms hingedly connected to said first-named arms and adapted to stop them together with said comb end sections so as to prevent contact of the latter with said beam flanges.

5. In an apparatus of the class described comprising a flanged beam, a traversing thread guide comb of approximately the same width as the distance between the flanges of the beam, said comb having displaceable ends to allow the main body of said comb to reciprocate while the edges of the ribbon of the threads are confined within said flanges by inward displacement of said ends.

6. In an apparatus of the class described comprising a flanged beam, a traversing thread guide comb of approximately the same width as the space between the flanges of the beam, the ends of said comb being movable with respect to the body of the comb to allow said ends to be displaced inwardly as said comb traverses, to confine the ribbon of threads within the flanges of the beam.

7. In an apparatus of the class described comprising a flanged beam, a thread guide comb having displaceable ends adapted to reduce the length of said comb, means for traversing said comb, and means for displacing each of said ends inward and outward as it approaches and recedes from its adjacent flange.

8. In an apparatus of the class described comprising a flanged beam, a traversing thread guide comb having separate end sections mounted on vertical pivots provided on the central comb portion, and means connecting said end sections with a non-reciprocating part of the machine to cause said end sections to swing back to avoid contact with the beam flanges.

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