

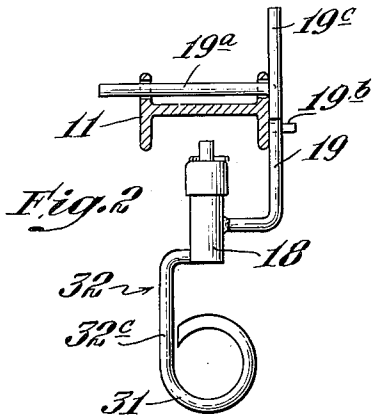
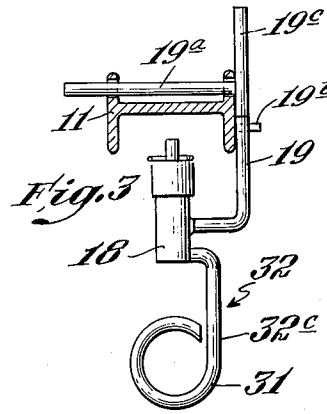
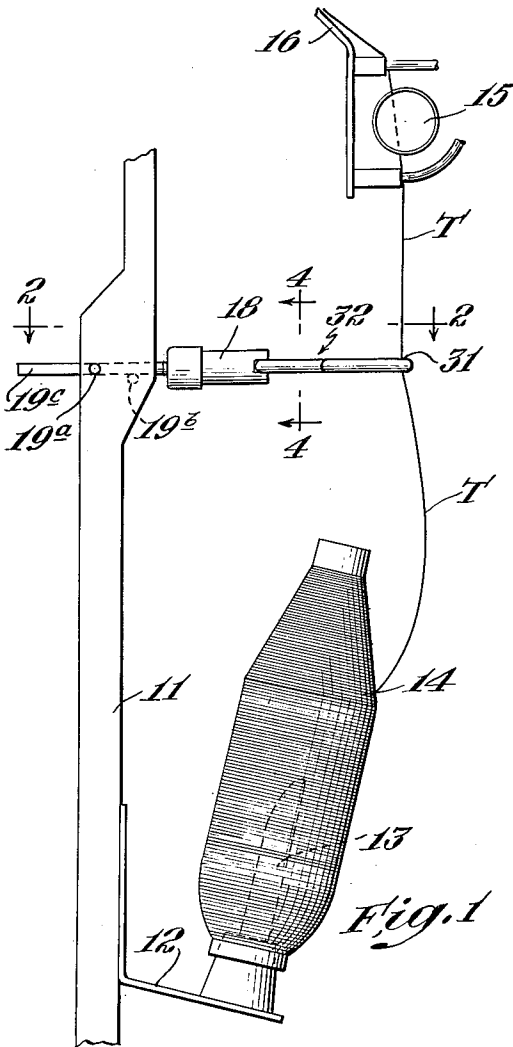
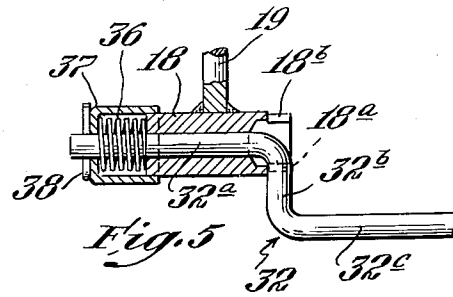
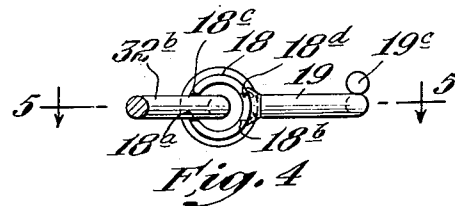
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THREAD GUIDE

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THREAD GUIDE

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1 Claim. (Cl. 242—157)

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This invention relates to thread guides for textile machines adapted for self-threading of a whirling running strand such as the ballooning thread in such machines as spinning, twisting or winding machines.

In ring spinning or twisting, if the winding bobbin is rotated in a counterclockwise direction, the balloon of the spinning thread running toward the traveler whirls in a counterclockwise direction as viewed from above, and when such bobbin, which has been so rotated during the spinning or twisting is later used as a supply as in rewinding in a winding machine, and the thread is drawn off overend therefrom, the balloon of unwinding thread will also whirl in a counterclockwise direction. On the other hand, if the bobbin is rotated in a clockwise direction in spinning, the balloon of spinning thread will whirl in a counterclockwise direction, and later when such bobbin is used as a supply, the thread drawn off overend therefrom, the balloon of unwinding thread will also whirl in a clockwise direction.

However generally a strand guide arranged for self-threading by a whirling strand in a machine such as a spinning, twisting or winding machine will only be self-threading as to thread whirling in one particular direction of rotation, that is, clockwise or counterclockwise. Thus as a practical matter a change from counterclockwise rotation to clockwise rotation in spinning would normally entail considerable work in changing such strand guides in the spinning machines and also in winding machines used for rewinding from the bobbins from the spinning machines. This difficulty is avoided by my invention in which provision is made for easy shifting of a strand guide to accommodate either direction of whirling of the strand.

Although applicable generally to whirling strands in such operations as spinning, twisting or winding, the invention will for simplicity be described as applied to a winding machine such as shown in United States Patent No. 2,286,189, as a substitute for the balloon controlling device 30 of that patent.

In the drawings,

Fig. 1 is a left side elevation of the lower portion of a single unit of a traveling spindle winding machine similar to that of said Patent No. 2,286,189, showing the present invention applied thereto;

Fig. 2 is a horizontal sectional view taken on the line 2—2 of Fig. 1, showing the strand guide in position to accommodate a counterclockwise whirling balloon of thread;

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Fig. 3 is a view similar to Fig. 2 showing the strand guide in position to accommodate a clockwise whirling balloon of thread;

Fig. 4 is a fragmentary vertical sectional view taken on the line 4—4 of Fig. 1; and

Fig. 5 is a fragmentary horizontal sectional view taken on the line 5—5 of Fig. 4.

The winding machine shown in Fig. 1 includes a vertical frame element 11 carrying near its lower end a bracket 12 from which extends a peg 13 adapted to receive the supply bobbin 14 from which the thread T is unwound. The thread T runs generally upwardly in the form of a whirling balloon, through eye 31, more particularly described below, then through a suitable tension device 15 and over a cover plate 16 onto the winding package, not shown.

The eye 31 is formed as the outer end of an arm indicated generally at 32, and defines a generally circular passage for the whirling thread, confining and guiding the thread, the middle of the central passage of the eye being generally in prolongation of the bobbin 14 although not necessarily exactly so.

As will be seen from Fig. 2, the eye 31 is provided with an entrance adapted to allow a whirling thread to thread itself into the eye. As arranged in Fig. 2, the eye will thus receive automatically a counterclockwise whirling thread that runs around the outside of the eye until threaded into the eye by encountering the outer portion of arm 32. Fig. 3 shows the same eye after having been rotated to a reverse position, bottom-side-up, approximately 180° from its position of Fig. 2 and now arranged to receive a clockwise whirling thread in a similar manner. The axis of the central passage of the eye is substantially in the same location in the two positions of Fig. 2 and Fig. 3.

The eye 31 can be of more complicated structure than shown in the drawings, but the eye should be constructed so that in one position, such for instance as in Fig. 2, a counterclockwise whirling thread can thread itself into the eye, and so that in a reversed position of the eye, approximately 180° from such one position, a clockwise whirling thread can thread itself in the eye.

As shown in Fig. 5 the arm 32 includes a rear portion 32^a, a laterally extending portion 32^b, and an offset outer portion 32^c, this outer portion 32^c merging into the eye 31 as shown in Fig. 2.

The mounting for the eye 31 includes a cylindrical casing 18 in which the rear portion 32^a of arm 32 is rotatably mounted, the axis of rotation 55 of the arm approximately intersecting the middle

of the eye, so that the arm 32 and its eye 31 can be rotated from the position of Fig. 2 to the position of Fig. 3. The arm and eye are detained against the tendency of the unbalanced weight of the offset portion 32^c to rotate the eye into a vertical plane, incapable of receiving a whirling thread. For this purpose the outer end of casing 18 is formed with stop shoulders such as shown at 18^a and 18^b, shoulder 18^a being adapted to support the offset portion 32^a in the position of Fig. 2, as better shown in Fig. 4, and shoulder 18^b being adapted to support the offset portion 32^a in the other operating position of the eye shown in Fig. 3.

To more positively prevent any accidental displacement of the eye from either the position of Fig. 2 or that of Fig. 3, the eye is preferably positively indexed in its two positions. For this purpose the casing 18 is preferably provided with two further shoulders 18^c and 18^d, which together with shoulders 18^a and 18^b define slots for receiving the laterally extending portion 32^b of arm 32 in the two operating positions of the eye. Arm 32 is urged rearwardly or to the left in Figs. 1 and 5 by a compression spring 36 which acts upon the arm through a cap 37 and a cotter pin 38. The arm can be manually pulled forward from its normal position shown in the drawings to disengage its laterally extending portion 32^b from the shoulders 18^a and 18^c or 18^b and 18^d as the case may be, and then turned to the opposite position, whereupon it will snap backwardly into place and remain there, held by the spring 36.

To change from counterclockwise to clockwise rotation of the whirling thread, or vice versa, the several eyes of the machine can be quickly turned to either the position of Fig. 2 or the position of Fig. 3 from the opposite position.

The casing 18 or equivalent mounting for the eye can be held in any suitable manner by an adjacent element of the machine, and may be pivotally held so as to permit the eye to be swung out of the way of the bobbin, to facilitate change of bobbins. As shown, the casing 18 is secured to a supporting wire 19 having a laterally bent portion 19^a that is pivotally supported in holes in the upright 11 of the winding unit. With this construction the wire 19 is normally supported by a pin 19^b in the operating level shown. Wire 19

may carry a rearwardly extending piece 19^c, welded thereto, to serve as a crank arm for raising the eye in connection with the use of an automatic bobbin supplying mechanism as explained in said Patent No. 2,286,189.

I claim:

A strand guide for textile machines comprising an arm and a mounting therefor, the arm being rotatable about its axis and longitudinally movable in the mounting, the arm being bent to provide a laterally extending portion and a longitudinally extending offset outer portion, such outer portion having thereon an eye having a central passage for a whirling strand, the mounting having recesses to receive the laterally extending portion of the arm in two positions of the arm to index the eye in two positions approximately 180° apart, and a spring biasing the arm to urge the laterally extending portion thereof to seat in one or the other of said recesses, the arm being releasable from such seating by longitudinal shifting in opposition to said spring and being rotatable about its axis from one such position to the other while under the biasing force of the spring, so that upon approximately 180° rotation of the arm from one of such positions, the spring then seats the arm in said other position, the eye being self-threading as to clockwise whirling thread in one of said positions and being self-threading as to counterclockwise whirling thread in the other of said positions.

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