No. 790,805. PATENTED MAY 23, 1905.

J. SALATHE & J. TAMBERLIN.

SILK THROWING MECHANISM.

APPLICATION FILED APR. 29, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

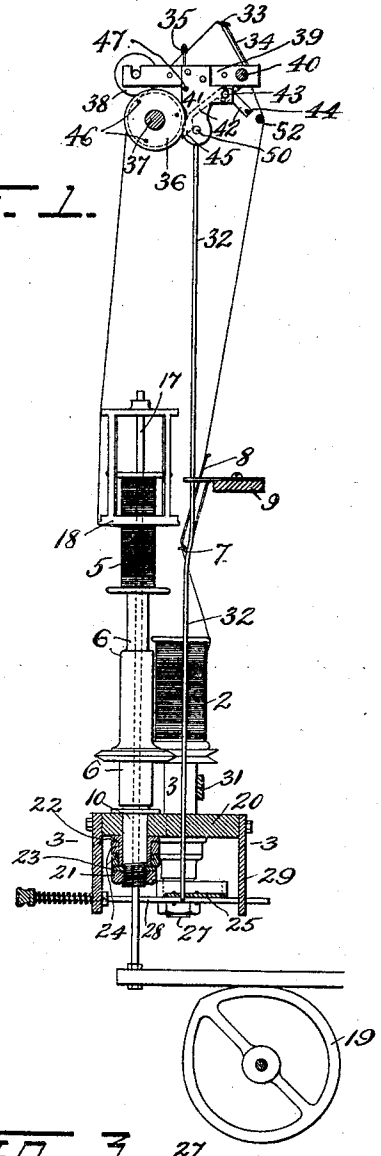


Fig. 2.

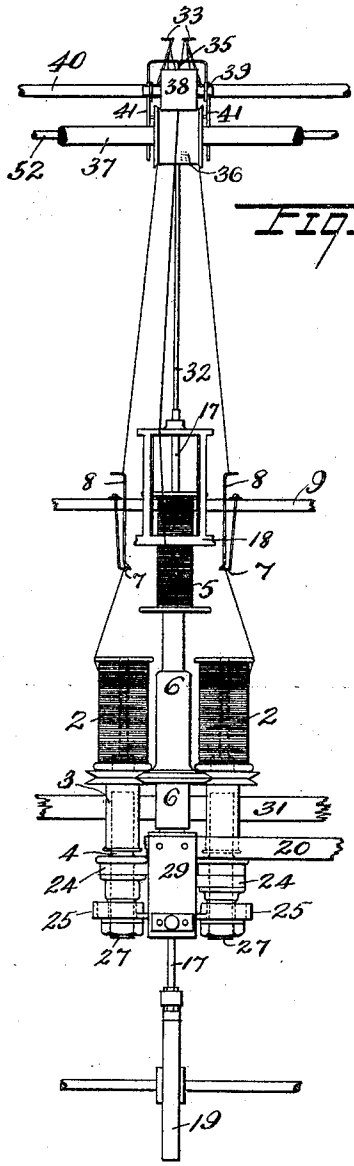
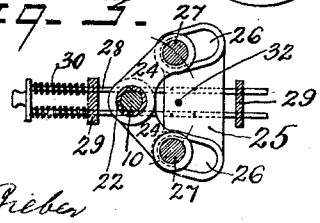


Fig. 3.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 5.

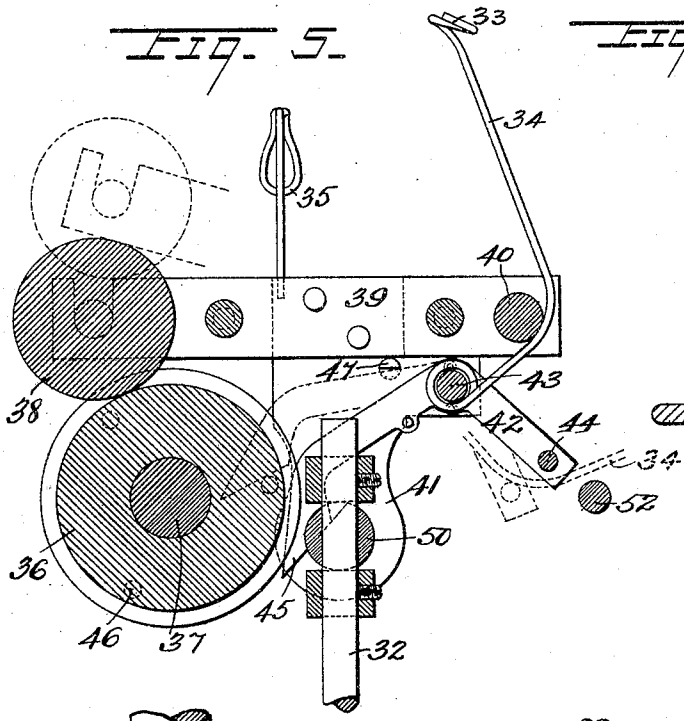
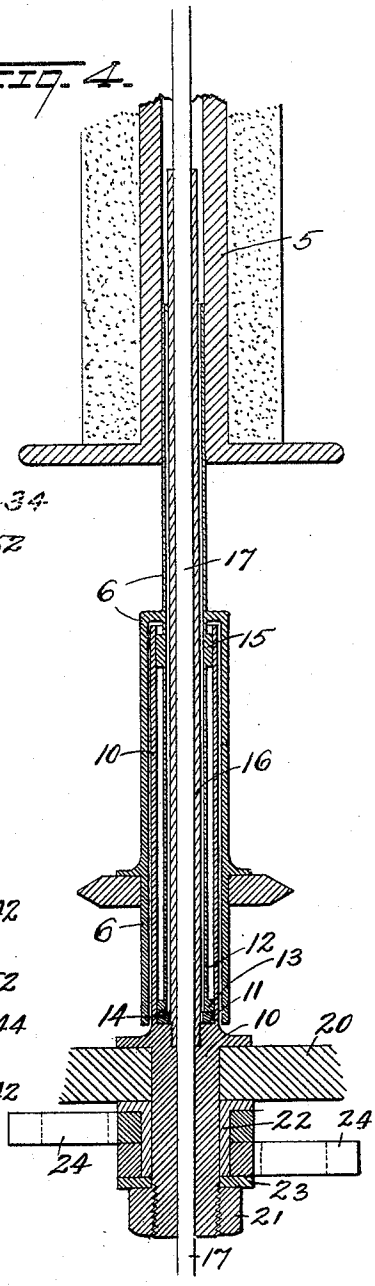


Fig. 4.



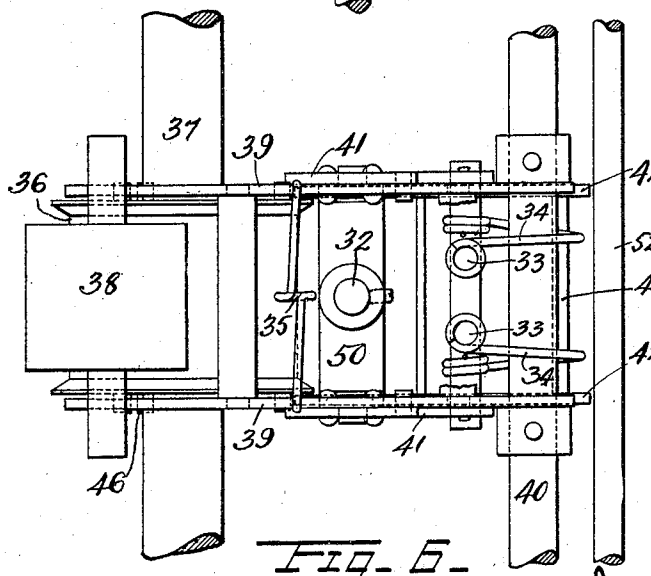


Fig. 6.

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UNITED STATES PATENT OFFICE.

JACOB SALATHE AND JOHN TAMBERLIN, OF PHŒNIXVILLE, PENNSYLVANIA.

SILK-THROWING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 790,805, dated May 23, 1905.

Application filed April 29, 1904. Serial No. 205,527.

To all whom it may concern:

Be it known that we, JACOB SALATHE and JOHN TAMBERLIN, citizens of the United States, residing in Phœnixville, county of Chester, State of Pennsylvania, have invented certain new and useful Improvements in Silk-Throwing Mechanism, of which the following is a specification.

Our invention relates to that class of spinning-machines in which the silk threads are simultaneously drawn off of two or more spools, twisted in the same direction, then brought together, and wound with a reverse twist upon a third spool.

The object of our invention is to provide an improved mechanism for this purpose, and more especially to provide improved means for automatically stopping the spools and feed-rolls in case of breakage.

The invention is fully described in connection with the accompanying drawings, and the novel features are particularly pointed out in the claims.

Figure 1 is a partly-sectional elevation of a portion of a silk-throwing machine embodying our invention. Fig. 2 is a front elevation of the same at right angles to Fig. 1. Fig. 3 is a sectional plan taken on the line 3 3 of Fig. 1. Fig. 4 is an enlarged vertical section showing in detail our improved spindle-bearing for the winding-spool. Figs. 5 and 6 are respectively a vertical section and plan, to enlarged scale, of the feed-roll and connected stop mechanism.

The spools 2 2, upon which are contained the threads that are to be separately twisted, are each suitably mounted upon a pulley-sleeve 3, inclosing a bolster-case 4, and the third spool 5, upon which is to be wound the twisted-together threads, is rotated in a reverse direction by engagement of said pulley-sleeve 3 of the spools 2 with the pulley-sleeve 6, upon which the spool 5 is mounted. The threads from the spools 2 2, after being carried through separate guide-eyes 7 and around guide-fingers 8 on the frame-rail 9, extend upward, as usual, to the feed-roll mechanism, from which they are delivered to the third spool and wound upon the latter after being firmly twisted together. This general operation is well known, and our invention relates to the improvements in construction hereinafter particularly described and pointed out.

The pulley-sleeve 6, upon which the winding-spool 5 is carried, loosely incloses the bolster-case 10 and is carried upon the step-bearing 11 within the latter by means of the concentric tubular spindle 12, forming part thereof and extending into the bore of the bolster-case, in which it is centered by a bottom collar 13, bearing upon a suitable step-bearing washer or seat 14 and by an upper collar 15. A central tubular bolster 16 within the bolster-case 10 rises through the pulley-sleeve 6 and provides a passage-way for the central carrier-rod 17, upon which is carried the guide-ring 18, to which the required up-and-down movement is transmitted by means of a cam 19 or other suitable means.

The bolster-case 10 is firmly secured to the spindle-rail 20 of the machine by means of a nut 21 upon its lower end, with a distance-sleeve 22 and washer 23 strung thereupon between said nut and the bottom of the spindle-rail to provide for carrying the spools 2 2 upon radius-arms 24 24, pivoted upon said distance-sleeve, as hereinafter described.

The novel construction of winding-spool spindle and bearing shown is fully described and claimed in a separate application, filed August 16, 1904, Serial No. 220,891.

The spindles upon which the single-thread spools 2 are mounted in our improved mechanism are carried by the free outer ends of the radius-arms 24, which swing upon the distance-sleeve 22 on the depending portion of the bolster-case 10 of the winding-spool 5, as previously described. The swing of these arms upon the axis of the spool 5 is controlled by a sliding plate 25, which is formed with oblong openings 26 and 26, oppositely inclined to the direction of its movement and engaging the depending ends 27 27 of the bolster-cases of the single-thread spools 2. This sliding plate 25, as shown, is fixed to rods 28 28, which are suitably guided in

rigid brackets 29 29 on the spindle-rail 20 and are provided with springs 30, which tend to move the said plate so as to spread apart the radius-arms 24 24; but during the operation of the machine the plate is held in such position as to bring the pulley-sleeves 3 3 of the spools 2 into proper contact with the driving-belt 31, whereby they are normally rotated. This is effected by means of a drop-rod 32 from the feed-roll mechanism above the spools, the lower end of which normally enters a hole in the sliding plate 25 to lock the latter. The raising of this rod to release the plate, and thereby permit the withdrawal of the spools from the operating-belt by the action of the springs 30, is effected as hereinafter described.

The threads from the spools 2 are carried upward from the guide-fingers 8 over the fixed rod 52 of the machine and through guide-eyes 33 33 at the extremities of the separate swinging guide-eye arms 34 34, from which latter they are brought together in the central twisted guide-eye 35 and then passed between the main feed-roll 36 on the driven shaft 37 of the machine and its friction-roll 38 bearing thereon down to the traveler 18 and the third spool 5, upon which the united threads are wound.

The feed-roll 38 is carried in a vertically-swinging frame 39, which is pivoted on a fixed rod 40 of the machine, so that said roll normally bears upon the main roll 36 to insure the feeding of the threads from the spools 2. This swinging frame also carries the drop-rod 32, the lower end of which is adapted to engage or disengage the sliding plate 25 already referred to, the upper end of said rod being adjustably connected, as shown, to a transverse bar 50, journaled in brackets 41, depending from the pivoted frame 39, so that the raising of the latter will simultaneously throw the coöperating feed-roll 38 out of engagement with the main roll 36 and indirectly effect the movement of the spools 2 out of contact with the operating-belt 31, as previously described. To provide for automatically effecting this raising of the frame 39, and thereby suspending the operation in case of a thread breaking, we employ, in connection with the swinging guide-eye arms 34, a pair of swinging levers 42, as shown, pivoted upon a transverse rod 43, carried by the frame 39. The arms 34, which are also shown pivoted upon this rod, are each retained in raised position during the normal operation of the machine by the tension upon the thread passing through the guide-eye end thereof to the feed-rolls. In case either thread is broken, however, the corresponding arm 34 will fall upon the lever-bar 44, and thereby cause the pawl end 45 of the lever to swing into the path of a projecting pin or pins 46 on the feed-roll 36 and against a stop 47 on the frame 39, so that said pin in passing will contact with the pawl end 45 and lift it, together with the frame 39, sufficiently to raise the lower end of the drop-rod 32 above the slide-plate 25 and permit the retraction of the latter by the springs 30, whereby the spools 2 are thrown out of operating contact with the driving-belt 31. The frame 39 will then be maintained in raised position by the drop-rod 32, which bears upon the top of the retracted guide-plate 25 until the trouble is remedied, when the parts are returned to normal operating position by merely pushing forward the slide-plate against the pressure of the springs 30 until the drop-rod again falls into engagement with it.

What we claim is—

1. In a silk-throwing mechanism the combination with the spindle-rail and the winding-spool spindle mounted therein, of radius-arms arranged to swing upon the axis of said winding-spool spindle, separate delivery-spool spindles carried by said arms and arranged to drive said winding-spool spindle, a spreading mechanism for said arms, and means for locking the same.

2. In a silk-throwing mechanism the combination with the spindle-rail and the winding-spool spindle and bearing, of radius-arms pivoted upon the depending bolster-case of said bearing, separate delivery-spool spindles carried by said arms and arranged to drive said winding-spool spindle, and a spreading mechanism for the said arms with means for locking the same.

3. In a silk-throwing mechanism the combination with the spindle-rail and the winding-spool spindle mounted therein, of the pivoted radius-arms carrying separate delivery-spool spindles arranged to drive said winding-spool spindle, a sliding device arranged at right angles to the spindles and engaging said arms to close or spread the same, and a drop-rod engaging or disengaging said device.

4. In a silk-throwing mechanism the combination with the main feed-roll having peripheral projections, of a swinging frame carrying a coöperating top roll, a catch-lever pivoted to said frame, separate guide-eye arms for the single threads pivoted to the frame concentric with said lever and each arranged to fall upon said lever when its supporting-thread breaks whereby said lever is swung into the path of said projections to raise the frame, and means for supporting the frame in raised position, substantially as set forth.

5. In a silk-throwing mechanism the combination with the spool-spindles, a throwing-out mechanism therefor comprising a perforated slide-plate, and with the main feed-roll located above said spindles and provided with peripheral projections, of a swinging frame carrying a coöperating top roll, a catch-lever pivoted to said frame, pivoted

guide-eye arms for the threads arranged to fall upon and tilt said lever to effect the raising of the frame as desired, and a drop-rod carried by said frame and arranged to normally lock said slide-plate in operative position and to bear upon the latter when raised by said frame, substantially as set forth.

In testimony whereof we affix our signatures in the presence of two witnesses.

JACOB SALATHE.
JOHN TAMBERLIN.

Witnesses:
JOHN J. CARTER,
L. H. HOWELL.