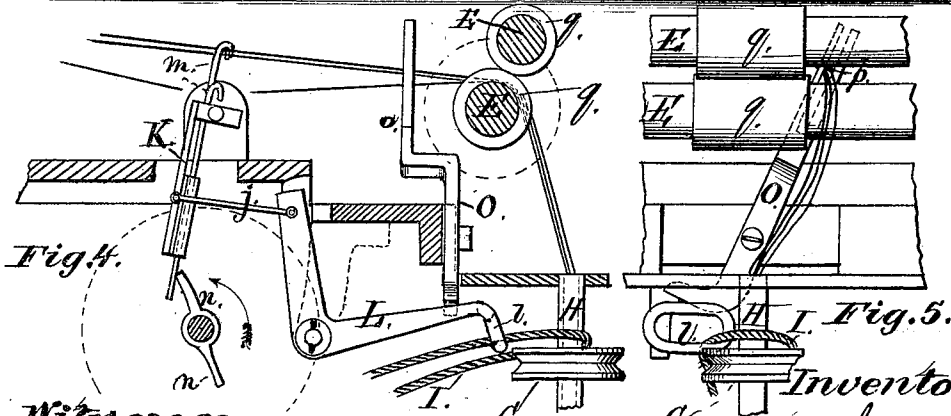
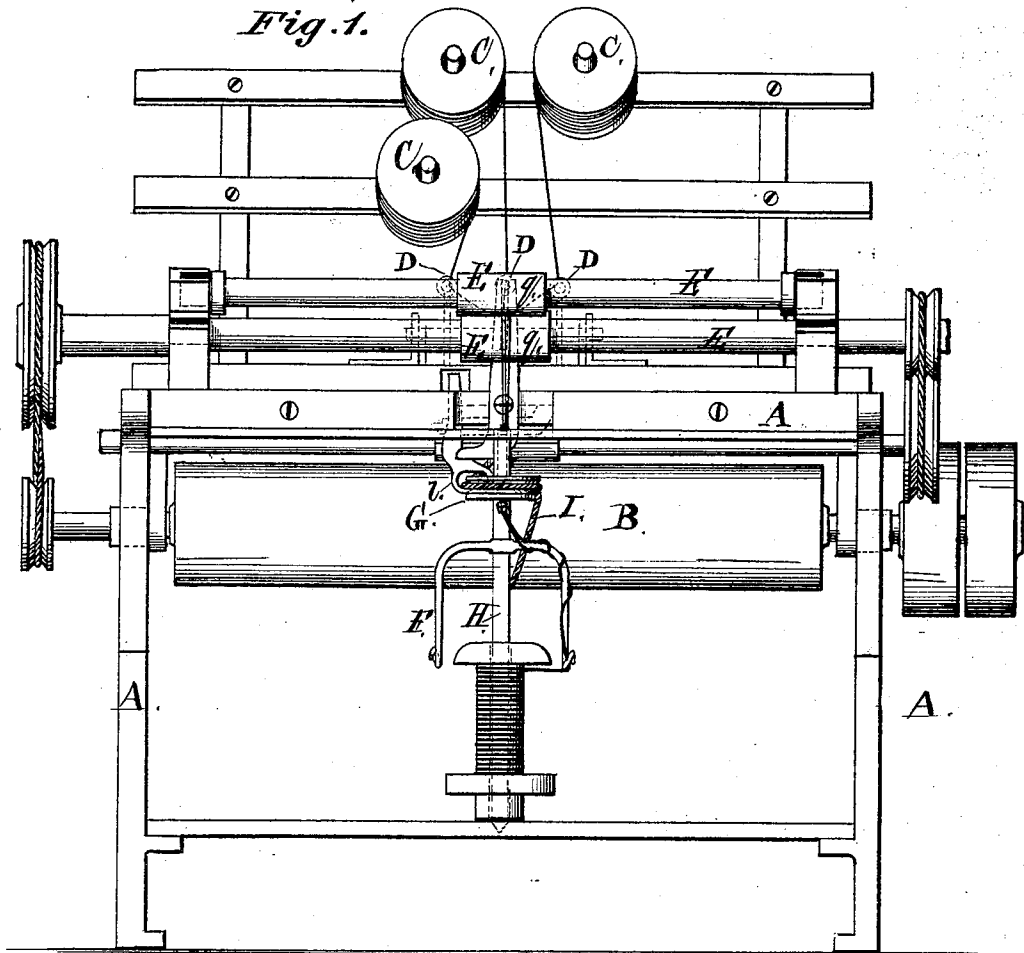


A. J. MILSTEAD.

Stop-Mechanisms for Twisting-Machines.

No. 141,158.

Patented July 22, 1873.



Witnesses.

W. L. Perrini.

Samuel B. Moulton

Inventor.

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John J. Halsted.

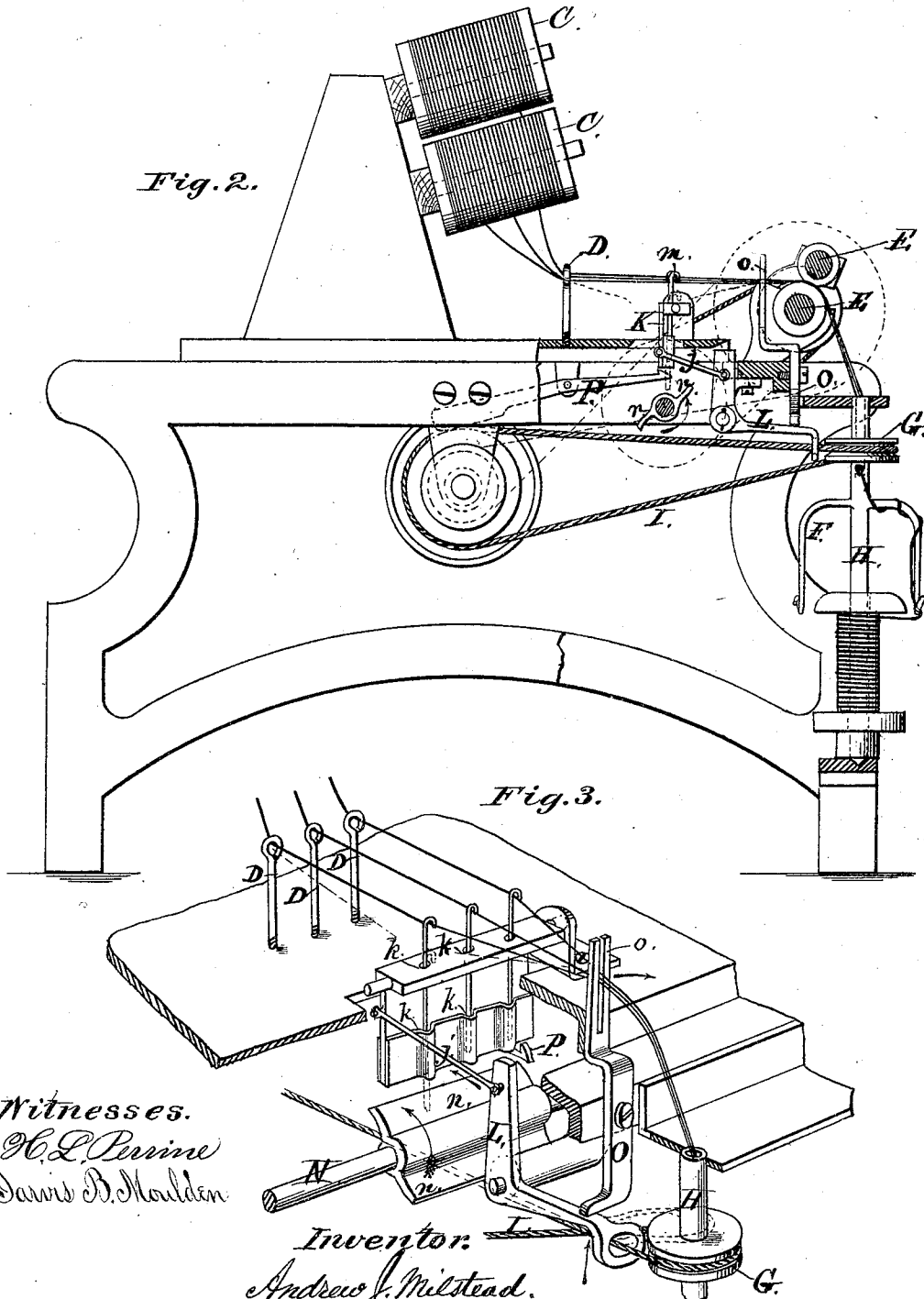
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Witnesses.

H. L. Purine
Davis B. Moulden

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UNITED STATES PATENT OFFICE.

ANDREW J. MILSTEAD, OF WOODBERRY, ASSIGNOR OF ONE-HALF HIS
RIGHT TO WILLIAM E. HOOPER & SONS, OF BALTIMORE, MD.

IMPROVEMENT IN STOPPING MECHANISMS FOR TWISTING-MACHINES.

Specification forming part of Letters Patent No. **141,158**, dated July 22, 1873; application filed
May 28, 1873.

To all whom it may concern:

Be it known that I, ANDREW J. MILSTEAD, of Woodberry, Baltimore county, and State of Maryland, have invented certain Improvements in Stop-Motion for Twisters; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention is applicable to all machines which give a twist to yarn, and has for its object the preventing of "single" from "running in," and consequently the preventing of large "knots," while at the same time it entirely avoids the necessity of purposely breaking or cutting the yarn when a thread breaks or a spool runs out. It consists, primarily, in the mechanism hereinafter described, whereby upon the breaking of a thread the band is automatically thrown out of engagement with the whirl of the flier, and the twisting stopped. It further consists in the mechanism hereinafter described, whereby upon the breaking of a thread the yarn is automatically thrown from the boss of the rollers, or from that portion of the rollers which causes its delivery to the flier, thus causing the delivery to cease. It further consists in the combination of these two sets of devices in such manner that both shall automatically act in unison upon the breaking of a thread, to effect promptly not only the movement of the flier but also the delivery of yarn to the flier, thus saving or avoiding much waste, and also avoiding a large knot, as it is technically termed, by spinners, caused by the running down of the single after a break has occurred. It further consists in certain details hereinafter set forth.

Figure 1 represents a front elevation of a frame-work with my improvements applied thereto; Fig. 2, an end view, a portion of the frame being cut away the better to display the mechanism; Fig. 3, a detached perspective view of the working parts; and Figs. 4 and 5, front and side views, respectively, in detail, showing the positions assumed by the stop-motion devices upon the breaking of a thread or the running out of a spool.

In the drawings which illustrate my invention, A is a frame, serving the purpose of representing my improvements; B, a drum; C C C, a set of yarn-spools; D D D, yarn-guides; E E, delivery-rolls; F, a flier; G, the whirl on a spindle, H, of the flier; and I, the belt or cord from the drum to the whirl. These parts, being of ordinary construction, need no special description.

I will now describe the first-named part of my invention. K is a pendulous swing-frame, projecting through and beneath the twister-frame A, and connected by a link or links, *j*, from its lower end to the rear end of a slipping-lever, L, the latter being provided with a loop, *l*, through which passes the cord or belt I. The lever L is so shaped and hung that upon being pulled backward by the link its rear end will descend and its forward or loop end be raised, and by rising lift the belt entirely off from the whirl G. This action is effected as follows: The pendulous frame K is provided with a series of vertical holes, *k*, to receive drop-wires *m*, one for each thread, each wire having a hook by which it may be suspended from the thread, the thread, in its normal condition of tension when the delivery and twisting are going on regularly, keeping the drop-wire properly elevated. But when a thread breaks or its spool gives out, its drop-wire instantly sinks in the swing-frame, and its lower end comes within the path of the wings *n* on shaft N, driven from the shaft of one of the rollers, and whose direction of revolution is such that the wing bears backward the swing-frame, thereby pulling the link *j*, and through it the slipping-lever L, and compelling the forward or loop end of such lever to force upward the belt and ship it from the whirl, thus causing an immediate cessation of the twisting.

I will now describe the devices and their operation for stopping the delivery of yarn to the flier. O is a lever pivoted to the frame-work or other part of the twisting-frame, having an upright part, *o*, slotted as seen at *p* in Fig. 5, and through this slot the threads pass on their passage to and between the delivery-rolls. The lower arm of this lever I make of such form or place in such position that when the end of shipper-lever L rises to free the

whirl from its driving-belt, it will by the same act come in contact with such lower arm, and by its continued rising swing it laterally, and thereby force its upper arm to swing in the opposite direction, and thus bear away or carry the threads with it far enough sidewise to free them from the bite or pressure of the rolls or their bosses, as seen in Fig. 5. By this action it will be seen that the delivery must instantly cease, inasmuch as the rolls or their bosses cease to exert any action on the threads.

In case the rolls have no bosses, as shown at *g*, but be of about uniform diameter throughout their lengths, then I provide in them at proper places annular grooves, into which the thread may be shifted by the lever *O*, so as to prevent its being pressed upon and delivered by the rolls.

This lever *O* may be a right-angled lever pivoted at its angle. It is evident it would then receive and impart the same movements, or its form, as also that of the shifting lever *L*, may be otherwise, so long as they perform the functions above assigned to them. *P* is a weighted latch-lever, the weighted end of which, during the proper running of the mechanism, is held up by the swing-frame; but when the frame is pulled backward upon the breaking of a thread or end its latch is freed and the weighted end drops, and the latch catches and holds the swing-frame away from and clear of the revolving wings or flanges *n*.

It will now be seen that a most important feature of my improvement is that the operator is not obliged to break or cut the yarn, nor are any devices needed to break or cut it in order to stop either the delivery or the twisting; and that consequently much time and

labor are saved, much piecing avoided, a large amount of waste is prevented, and consequently there is great economy resulting from my improvements, and the yarn produced is better and more uniform, and has less flaws.

Whenever either of the spools runs out the stop-motion devices automatically perform their duties, both of arresting the action of the delivery and of the twisting, the action being the same as when a thread breaks.

I claim—

1. The described mechanism, arranged to automatically throw the band from the whirl or pulley of any given flier upon the breaking of its thread, without thereby arresting the motion of any other flier.

2. As a means for throwing the yarn laterally out of the bite or action of the rollers, the swing-lever *O* hung on a center and arranged to vibrate, as set forth, in combination with the lever *L*, swing-frame *K*, and drop-wires *m*, arranged to operate, as described, upon the breaking of a thread back of the feed-rollers.

3. The combination, with the swing-frame *K* and the revolving winged shaft *N*, of the weight latch-lever *P*, automatically operating, when a thread breaks, to hold the frame and its drop-wires into the position in which they are swung by the revolving wings.

4. The combination of the described band-shifting devices or their equivalents with the described yarn-shifting devices or their equivalents, substantially as and for the purpose set forth.

ANDREW J. MILSTEAD.

Witnesses:

JAS. H. SMITH,
JAMES E. HOOPER.