F. CRAWFORD, SR.

THREAD GUIDE AND GUARD FOR STOP MOTIONS.

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1,172,950.

Patented Feb. 22, 1916.

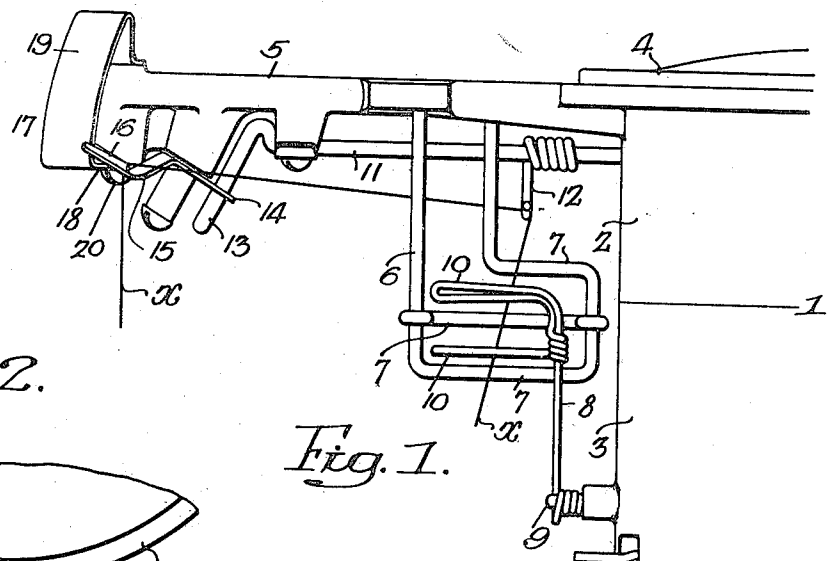


Fig. 2.

Fig. 1.

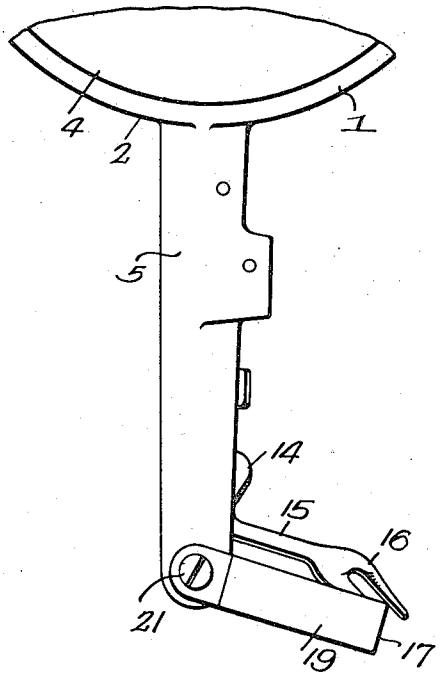


Fig. 3.

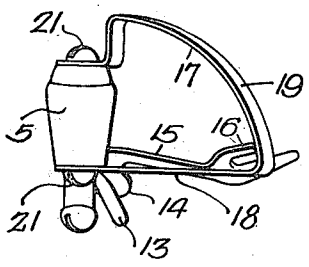
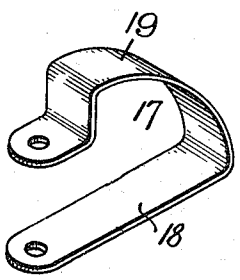


Fig. 4.



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UNITED STATES PATENT OFFICE.

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THREAD-GUIDE AND GUARD FOR STOP-MOTIONS.

1,172,950. Specification of Letters Patent. Patented Feb. 22, 1916.

Application filed November 3, 1915. Serial No. 59,452.

To all whom it may concern:

Be it known that I, FRANK CRAWFORD, Sr., a citizen of the United States, and a resident of New Brunswick, county of Middlesex, State of New Jersey, have invented certain Improvements in Thread-Guides and Guards for Stop-Motions, of which the following is a specification.

My invention relates to certain improvements in stop motion of the type of the patent granted to me on the 12th day of December 1893, No. 510,839.

The object of the present invention is to provide a guard which will also act as a thread guide in threading the trip lever. This object I attain in the following manner, reference being had to the accompanying drawings, in which:

Figure 1 is a side view of sufficient of a stop motion to illustrate my invention; Fig. 2 is a plan view of a portion of Fig. 1; Fig. 3 is an end view of Fig. 2; and Fig. 4 is a perspective view of the combined thread guide and guard.

My invention is particularly adapted for use in connection with the stop motions of knitting machines which automatically stop the mechanism when a thread is broken or when a thread becomes knotted. In this type of machine the thread has a tendency to release itself from the arm as it is unwound from the bobbin and heretofore it has been the practice to use a plain bar to prevent the thread disengaging from the hook of the arm. It has also been an exceedingly difficult matter to thread the hook of the arm and by my improvement this can be accomplished with but little trouble and the thread guide also acts as a means to prevent the withdrawal of the thread from the hook.

Referring to the drawings, 1 is the casing made in two parts 2 and 3 and having a cap plate 4.

5 is a bracket projecting from the upper casing and this bracket carries the trip mechanism of the stop motion.

In the upper portion of the casing is the mechanism for regulating the tension devices which control the hook mechanism which is actuated when there is a knot in the thread, and the lower casing 3 contains the mechanism which is controlled by the trip devices when the thread is broken. The action of this mechanism stops the rotation of the knitting machine.

Depending from the frame 5 is a frame 6 having three cross bars 7, in the present instance.

8 is an arm, preferably made of wire, pivoted to a shaft 9 extending into the casing 3 and the upper end of this wire is bent to form two bars 10 so located in respect to the arm 7 that if a thread is broken the arm 8 is released and falls but when the thread is in position, as in Fig. 1, the arm is held by the thread which is indicated at *x*.

Mounted in bearings on the under side of the bracket 5 is a rock shaft 11 having a hook 12 located above the frame 6 around which the thread passes and at the opposite end of the shaft is an inclined arm 13, which engages the thread arm 14 of the lever 15 having the form 16 at its outer end shaped as clearly shown in Figs. 3 and 4. This trip lever is held in its normal position by a spring within the casing 2 and this spring can be adjusted so as to vary the tension and as a thread leads from the bobbin through the hook of the lever 15 and passes around a hook 12 down between the arms 10 and bar 7 to the needles, any knot or unevenness in the thread will engage the hook and will cause it to move diagonally downward and this motion will rock the shaft and will cause the hook 12 to disengage the thread. This will immediately release sufficient slack to cause the arm 8 to be released and to stop the mechanism of the knitting machine.

The above described mechanism forms no part of the present invention which relates solely to the use of a guard which will also act as a guide in threading the hook after the thread is broken.

Secured to the end of the bracket is a combined guard and guide 17 which has a horizontal portion 18 and a curved upper portion 19. The hook portion of the lever has one arm extending a greater distance than the other and the long arm rests against the inner edge of the guard 17, while the short arm extends into the space between the two sections 18 and 19 of the guard so that the thread is then loosely held in the hook of the arm and thus the guard prevents the thread from releasing itself when being thrown out by its motion as it is unwound from the bobbin. If the thread breaks, the knot releases the

stop mechanism and the fork of the lever has to be threaded again, all that is necessary is to draw the thread down over the curved portion of the guard and as the inner arm extends beyond the guard the thread will pass the hook. It is then looped over the hook 12 and is passed down through the arms 10 and bars 7 and is again attached to its particular thread. The lower member 18 of the guard is attached to the arm 5 by a screw 20 and the upper member is bent, as shown, and is attached to the upper surface of the arm by a screw 21.

While I have illustrated a construction of stop motion in connection with my improved guard, it will be understood that the details of construction may be modified without departing from the essential features of the invention.

In the drawing I have shown a single bracket 5 projecting from the casing, but there are usually two or more brackets, depending upon the type of machine to which the stop motion is applied.

I claim:

1. The combination in a stop motion, of a forked element; stop mechanism actuated by said element; and a combined guard and guide located in such a position in respect to the fork of the element that it will close the space between the arms of the fork and will hold the thread in position and will also act as a thread guide, one of the arms of the fork extending beyond the guard so that when a thread is placed on the guard it will be directed into the fork of the element.

2. The combination in a stop motion, of a bracket; stop mechanism carried by the bracket; a forked lever pivoted to the bracket and connected to the stop mechanism; a guard located at the end of the bracket beyond the lever and having a forked portion, one arm of the fork of the lever extending beyond the guard so that when a thread is drawn over the guard it will enter the fork of the lever.

3. The combination in a stop motion, of a casing; a bracket extending from the casing; stop mechanism carried by the bracket including a pivoted lever having a forked end, one arm of the fork extending beyond the other; a guard secured to the bracket beyond the lever and consisting of a plate bent to form a lower horizontal portion located below the fork of the lever; and a curved upper portion extending above the fork of the lever, said guard being of such a length that the long arm of the fork will project beyond the end of the guard so that when a thread is passed over the guard it will enter the fork of the lever and the horizontal portion of the guard will prevent the thread from being detached from the fork as it is unwound from the bobbin.

FRANK CRAWFORD, Sr.