July 12, 1938. W. H. WEST 2,123,819

SHUTTLE BOX TENSION RELEASING MEANS

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Fig. 1.

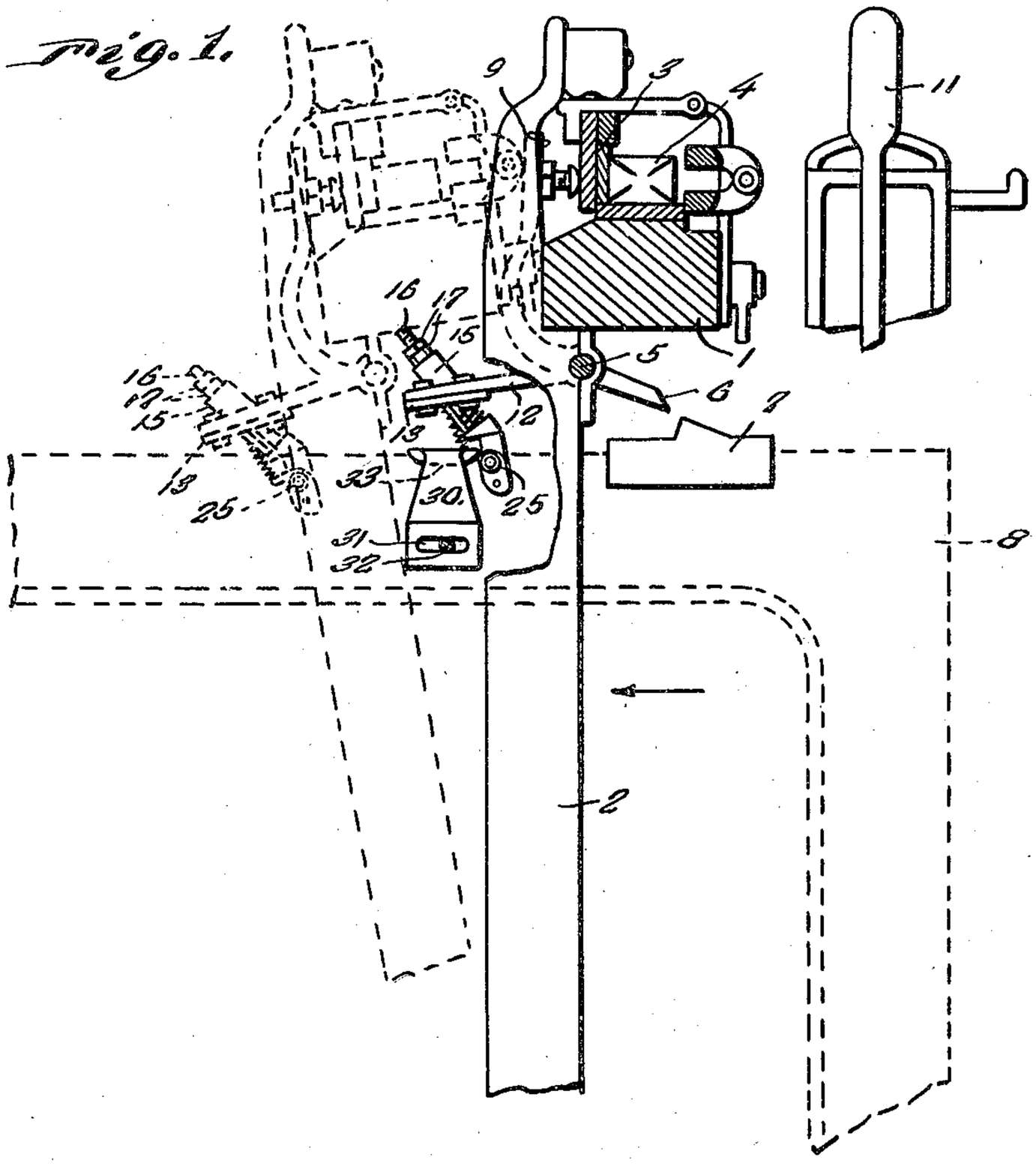


Fig. 5.

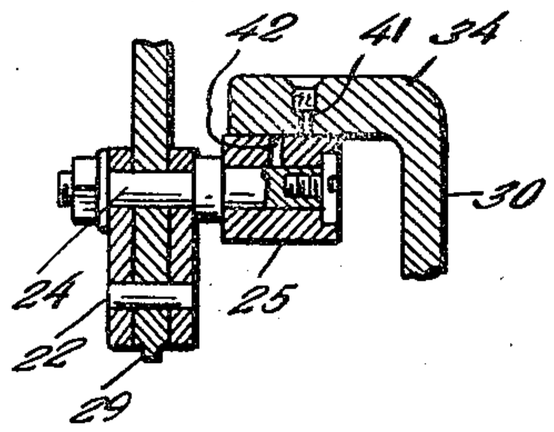
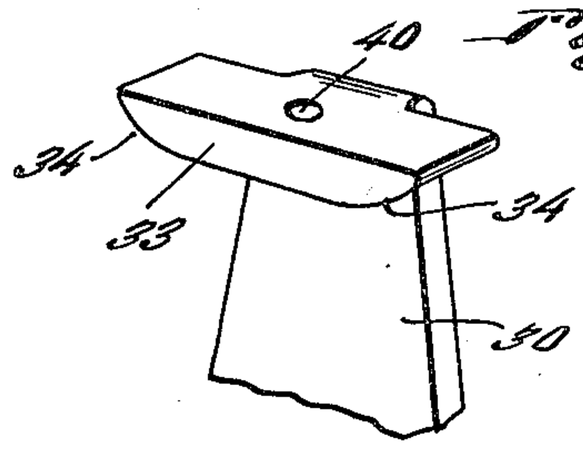


Fig. 6.



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SHUTTLE BOX TENSION RELEASING MEANS

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Fig. 2.

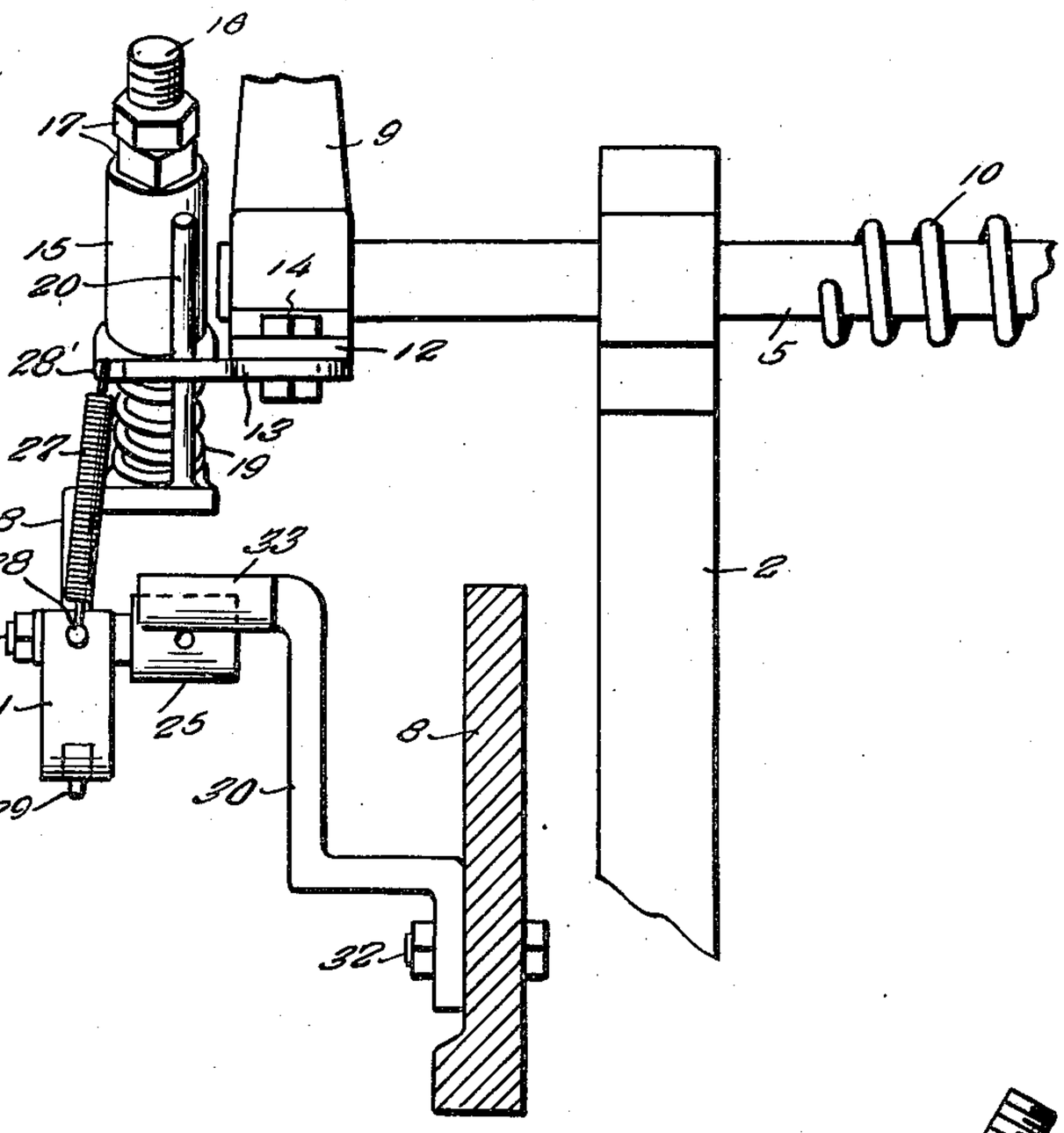


Fig. 3.

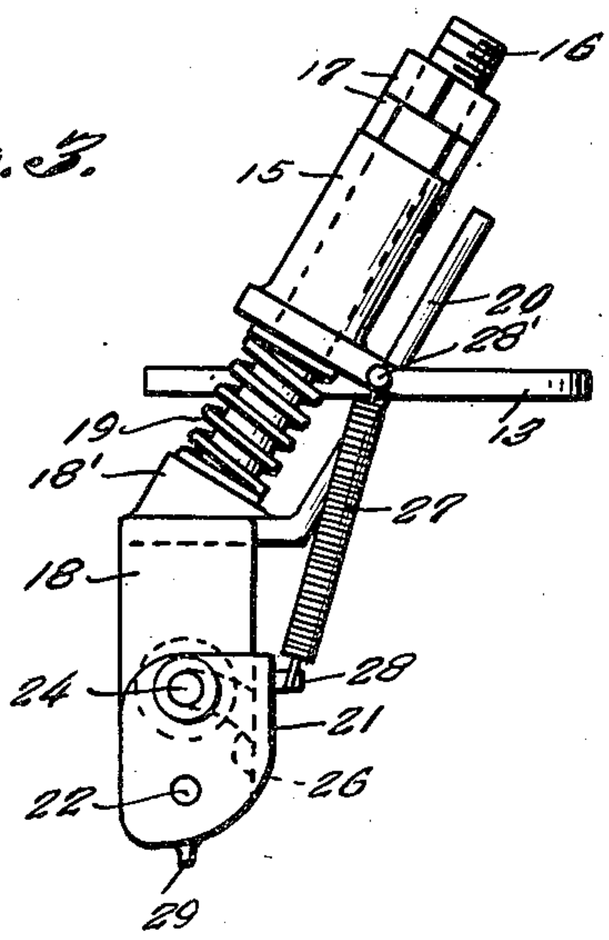
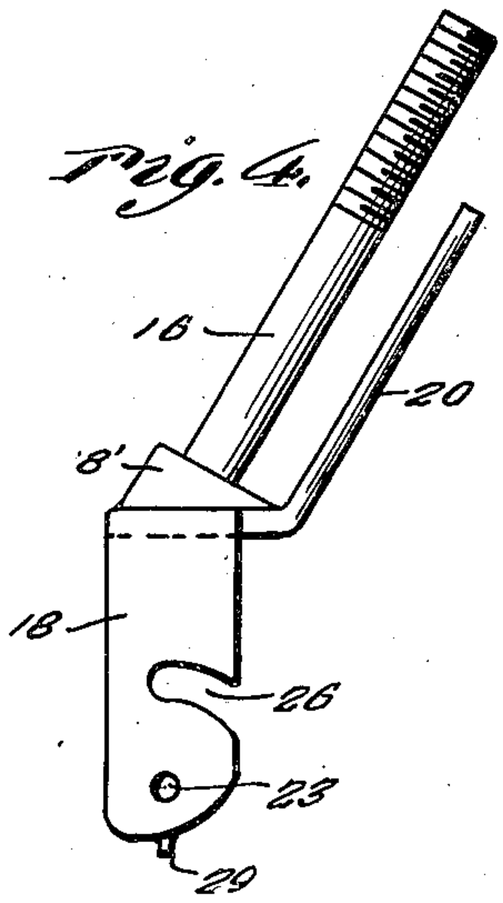


Fig. 4.



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UNITED STATES PATENT OFFICE

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SHUTTLE BOX TENSION RELEASING MEANS

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Application July 10, 1937, Serial No. 153,015

9 Claims. (Cl. 139—187)

This invention relates to a shuttle box tension releasing means, the present invention being an improvement on that disclosed in an application filed by me on April 15, 1937, Serial No. 137,113.

The general object of the present invention is to provide means for releasing the shuttle box tension by a roller carrying member supported on an arm attached to the dagger shaft and the roll of which is adapted to pass under a cam head of a stationary member attached to a part of the loom frame.

Another object of the invention is to provide means which are spring controlled to permit the roller to swing to inoperative position in case of an emergency stop, so as to prevent damage in the parts of a loom.

This invention also consists in certain other features of construction and in the combination and arrangement of several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a sectional elevation of the lay and associated parts of a loom with the invention applied thereto.

Figure 2 is a fragmentary rear view.

Figure 3 is a side view of the roller carrying member and the parts associated therewith.

Figure 4 is a view of the body part thereof.

Figure 5 is a detail sectional view showing how the roller engages the cam head and showing the lubricating means.

Figure 6 is a perspective view of the cam head and its supporting part.

In these drawings, the numeral 1 indicates the lay supported by the swords 2, the shuttle box being shown at 3 with a shuttle 4 therein. The numeral 5 indicates the dagger shaft, a dagger being shown at 6 and the frog is shown at 7 and is carried by a part of the frame 8. The tension device of the box is actuated by the tension or binder fingers 9, attached to the shaft 5. The spring of the shaft 5 is shown at 10 and the shipper handle is shown at 11. All of these parts are of the usual or any suitable type and in carrying out my invention I provide an arm 12 on the shaft 5 to which is attached a bracket 13 having a slot therein through which the bolts 14 pass so that the bracket is adjustably connected to the arm. The bracket has formed therewith a rearwardly and upwardly extending tubular part 15 through which passes a stud 16 having a threaded upper end to receive the nuts 17. An angle member 18 is formed with or connected to the lower end of the stud 11 and a spring 19 encircles the stud 16 and has one end bearing against the tubular part 15 and its other end against a projecting part 18' on the top of the member 18. A rod 20 extends upwardly from the member 18 and passes through a hole in the bracket 13 and prevents turning movement of the body parts 16 and 18 in the bracket. The spring tends to yieldingly hold the part 18 in lowered position but the tension of the spring and the position of the part 18 relative to the bracket 13 can be adjusted by the nuts 17. A substantially U-shaped member 21 fits over the lower end of a part 18 and is pivoted at its lower end to the lower end of said part 18 by a pin 22 which passes through the two parts of the member 21 and through a hole 23 in the lower end of the part 18, said lower end of the part 18 being rounded to permit swinging movement of the part 21, as shown in Figure 4. A shaft 24, made in the form of a bolt, passes through the two limbs of the member 21 at the top thereof and carries a roller 25, the shaft passes through an arcuate slot 26 in the member 18 when the member 21 is held in a position snugly fitting the lower part of the member 18 by a spring 27 which has one end connected to a projection 28 on the member 21 and the other end to a part 28' of the bracket 13. A projection 29 on the lower end of the member 18 limits downward swinging movement of the member 21 against the action of the spring 27.

A bracket 30 is adjustably connected to a part of the frame 8 by having a slot 31 in its base through which a bolt 32 passes, the bolt passing into the frame 8 and said bracket has its major portion offset from the frame and has its upper end horizontally arranged and formed with an elongated cam head 33, the ends at the under face thereof being rounded as shown at 34 while the rest of the under face is substantially straight.

The roller carrying assembly and the cam head carrying bracket are so located that as the lay nears the rearward limit of its movement the roller 25 will engage the rounded end of the cam head and thus be caused to pass under the head which will move the roller assembly and the arm 12 to which it is attached downwardly and this will cause a rocking movement of the shaft 5 which results in a rearward movement of the arm 9 so that the tension on the shuttle in the box is relieved.

The parts are so constructed and arranged that before the shuttle reaches the opposite box the tension relieving means are in inoperative position so that the tension means will be in operative position and thus act on the shuttle entering said opposite box.

If a shuttle should fail to arrive in the shuttle box the arm 12 will be in a high position on the

forward stroke of the lay and thus the roller 25 will strike an end of the cam end high up so as to cause the member 21 to swing outwardly on its pivot 22 and against the action of the spring 27 and this will prevent the invention from interfering with the loom parts and thus avoid damage as might result if the roller was firmly carried by the member 18. The member 21 is so formed and arranged on the part 18 that it tends to drop on its pivot 22 but is held in raised position by the spring 27 so that said member 21 will readily be moved downwardly and outwardly on its pivot when it strikes the end of the cam when a shuttle fails to arrive in the shuttle box.

In order to lubricate the parts I make the cam head of hollow construction and place absorbent material therein and lubricant can be introduced into the hollow through an opening 40 in the top face thereof and the lubricant can pass from the lower face through an opening 41 and enter a hole 42 in the roller 25 so as to lubricate the interior part of the roller which rotates on the shaft 24.

From the foregoing it will be seen that I have provided simple means for releasing the tension on the shuttle at the end of the backward motion of the lay, with means for preventing the invention from interfering with the loom parts when the stop motion comes into action.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

Having described the invention what is claimed as new is:—

1. In a loom including a shaft and tension fingers carried thereby, an arm on the shaft, a tubular supporting member attached to the arm, a lug passing through the tubular part and having a supporting member at its lower end, spring means yieldingly holding the lug in a lowered position, means for adjusting the tension of the spring and the position of the lug in the tubular part, a roller carried by the supporting member, and a cam head on a part of the loom frame under which the roller is adapted to pass, whereby the shaft is rotated to swing the fingers to tension releasing position.

2. In a loom including a shaft and tension fingers carried thereby, an arm on the shaft, a tubular bracket connected with the arm, a stud passing through the tubular part and having its upper end threaded, nuts on said threaded end, an angle-shaped part connected with the lower end of the stud, a spring on the stud between the tubular part and said angular part, a roller carried by the angular part and a stationary cam head supported from the loom frame and under which the roller passes for rocking the shaft to move the fingers to releasing position.

3. In a loom including a shaft having tension fingers thereon, an arm on the shaft, a tubular bracket connected with the arm, a spring-pressed member having a part passing through the tubular part of the bracket, a member pivoted to the lower end of the last-mentioned member, a shaft carried by the pivoted member, a roller on the shaft, a cam head attached to a part of the loom frame under which the roller passes, whereby the first-mentioned shaft is moved to move the fingers to releasing position and spring means for normally holding the pivoted member in operative position.

4. In a loom including a shaft having tension fingers thereon, an arm on the shaft, a tubular bracket connected with the arm, a spring-pressed member having a part passing through the tubular part of the bracket, a member pivoted to the lower end of the last-mentioned member, a shaft carried by the pivoted member, a roller on the shaft, a cam head attached to a part of the loom frame under which the roller passes, whereby the first-mentioned shaft is moved to move the fingers to releasing position and spring means for normally holding the pivoted member in operative position, and means for lubricating the roller engaging face of the cam head and the roller.

5. In a loom including a shaft and tension means carried thereby, an arm on the shaft, a roller carrying member depending from the arm, means for adjusting the member lengthwise of the arm, means for adjusting the member vertically on the arm, a cam head on a part of the loom and under which the roller is adapted to pass to move the shaft to tension releasing position and means for adjusting the cam on said part of the loom frame.

6. In a loom including a shaft and tension means carried thereby, an arm on the shaft and extending rearwardly, a roller carrying member adjustably connected with the arm, a roller at the lower end of the member, a cam connected with a part of the loom frame and of elongated form and having the ends of its under face curving upwardly and outwardly to the top face, the roller passing under the cam as the lay of the loom nears the rearward limit of its movement.

7. In a loom including a shaft and tension means carried thereby, an arm on the shaft, a first member depending from the arm, a second member pivoted to the lower end of the first member, a roller carried by the second member, spring means for normally holding the pivoted member in operative position and a cam head fastened to a part of the loom frame and having a downwardly and inwardly curved end for directing the roller under the cam as the lay of the loom nears the rearward limit of its movement.

8. In a loom including a shaft and tension means carried thereby, an arm on the shaft, a roller carrying member depending from the arm and having a roller at its lower end, a member connected with a part of the loom frame and having a cam head at its upper end of elongated form with an end curving downwardly and inwardly for directing the roller to the under side of the cam head as the lay of the loom nears the rearward limit of its movement.

9. In a loom including a shaft and tension means carried thereby, an arm on the shaft, a roller carrying member depending from the arm and having a roller at its lower end, a member connected with a part of the loom frame and having a cam head at its upper end of elongated form with an end curving downwardly and inwardly for directing the roller to the under side of the cam head as the lay of the loom nears the rearward limit of its movement, and yieldable means constructed and arranged to swing the roller to inoperative position if the roller should strike the cam head in a high position on the forward stroke of the lay.

WILLIAM H. WEST.