

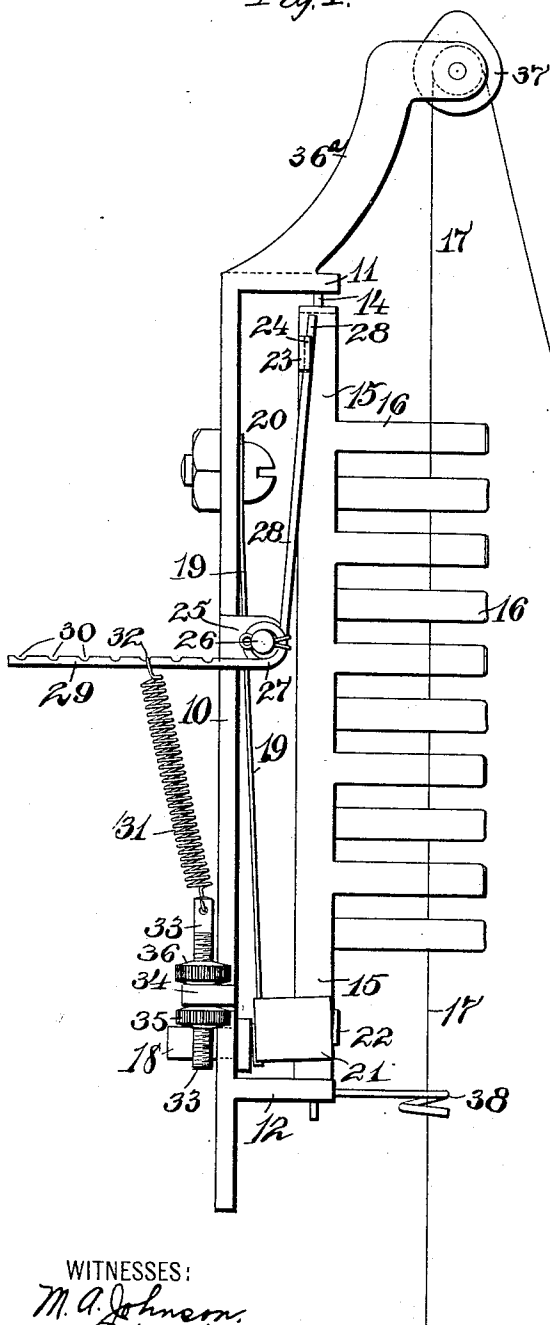
A. CRAWFORD.
TENSION DEVICE.

APPLICATION FILED APR. 24, 1912.

1,064,292.

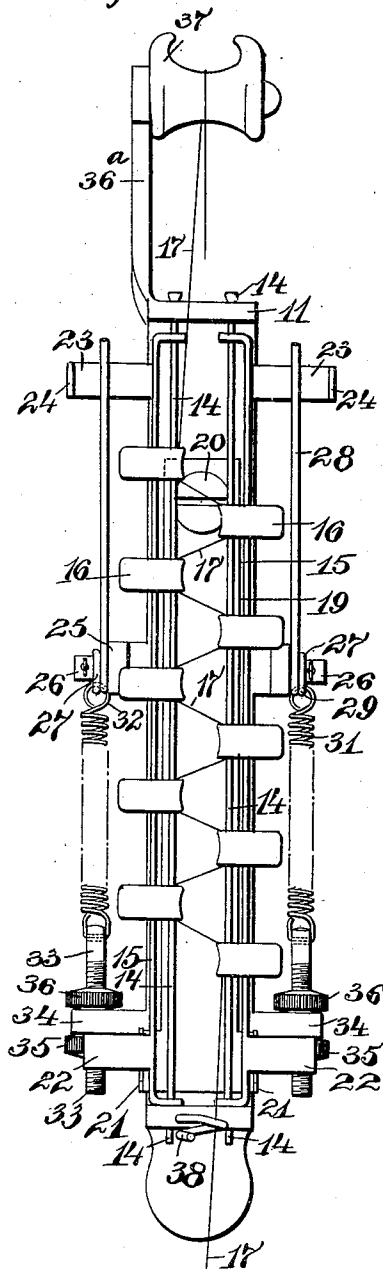
Patented June 10, 1913.

Fig. 1.



WITNESSES:
M. A. Johnson.
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Fig. 2.



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TENSION DEVICE.

1,064,292.

Specification of Letters Patent.

Patented June 10, 1913.

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To all whom it may concern:

Be it known that I, ANDREW CRAWFORD, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Tension Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to a tension device adapted to guide a strand and keep it taut to regulate its being fed, the device being of the type illustrated and described in my patent, issued April 2, 1912, No. 1,021,919.

The invention consists particularly in the means for causing the tension on the arms which guide the thread and which bear on the thread to give it the necessary tension, the tension-causing means being regulated quickly and easily and providing a wide range of adjustment so that a tension device can be used for the finest of strands and can be changed without any tools so that it can be used with heavy and coarse yarn.

The invention is illustrated in the accompanying drawing, in which—

Figure 1 is a side view of the improved tension device, and Fig. 2 is a front view thereof.

The invention consists in any suitable support 10 which has bearings 11 and 12 which project from the main portion of the support and through which pass the pintles 14 on which the bars 15 are mounted so that the bars swing, although other means for pivotally connecting the bars to the support can be used. The bars 15 have arms 16, the arms of the opposed bars being staggered so that they can be swung past each other and caused to gape to provide for a quick insertion of the thread 17. The bars are swung by means of a finger 18 which is normally pressed out by a spring 19 fastened at 20, the spring 19 having forwardly projecting portions 21 which engage the fingers 22 so that when the finger-piece 18 is pressed, the fingers 22 are swung forward and the arms

of the bars are swung toward and past each other. Each of the bars 15 is provided with a wing 23 having a forwardly turned end 24.

The support is provided at its sides with projections 25, these projections being provided with the studs 26, and on each side is mounted a bell-crank of any type, the preferred type, however, being one of wire bent into a loop 27 encircling the stud 26, one free end 28 of each bell-crank extending up and engaging the front of a wing 23. The second free end 29 of each bell-crank is provided with notches 30 which are spaced apart suitable distances. Springs 31 are provided on their ends with loops 32 which can be arranged in the notches 30, the other end of each spring 31 being fastened to a screw 33, the screws 33 passing through bearings 34 on the support, the screw being supplied with tension by the nut 35. A lock-nut 36 may also be provided for insuring the position of the screw 33.

The tension device can be provided with an arm 36^a having a guide 37 mounted thereon, and the bearing 12 may be provided with a suitable guiding loop 38 as will be evident. I have not illustrated any mechanism with which this tension device is used, as it can be used in any place where strands are wound or where an even pull is desired on a strand of any size.

It will be evident from this description that in use if it is necessary to cause tension to a fine strand, the springs 31 are moved in to the notch closest to the fulcrum of the bell-crank where hardly sufficient tension is applied to the swinging bars and their arms on account of the difference in leverage, and this slight tension in turn can be regulated to the finest point by manipulating the nuts on the screws 33. If a heavier yarn is to be used the tension on the spring can be increased by the screw 33, but the quickest method of regulating the tension is by moving the loops of the springs 31 up to notches farther from the fulcrum of the bell-crank so that the arms of the bars are separated by stronger pressure. The stronger pressures in turn can be regulated by means of the screws 33.

The device when constructed as illustrated and described herein I have found to be

steady so that if any uneven, knotted or frayed portions of the strand come in contact with the arms, there is no jumping or violent agitation of the arms of the bars, but the springs steady the arms so that the tension, even under these hard conditions, remains constant.

Having thus described my invention, what I claim is:—

10 1. A tension device comprising a pair of bars in swinging relation to each other and having separated arms adapted to pass, a pivoted bell-crank with one free end engaging a bar to swing it to its open position, a
15 spring engaging the other free end to operate the bell-crank, and means for holding the spring at different points on said last-mentioned free end.

20 2. A tension device comprising a pair of bars in swinging relation, the bars having arms, the arms on each bar adapted to pass the arms on the other, a wire bent into a loop intermediate of its ends, the ends being substantially at right-angles so as to form a
25 bell-crank, a bell-crank being mounted opposite each bar, one end of each bell-crank engaging a bar to hold the bars normally apart, a spring attached to each free end of a bell-crank, and adjustable means for regulating the tension of the springs.

30 3. A tension device comprising a swinging bar having spaced arms, a bell-crank having a free end engaging the bar, the second free end of the bell-crank having notches therein,
35 and a spring adapted to be placed in the

notches to vary the tension on the bell-crank and the bar.

4. A tension device comprising a pair of swinging bars having arms thereon, each bar having a wing extending therefrom, 40 bell-cranks mounted so that a free end of each bell-crank engages a wing of a bar to swing the bars to separate their arms, bearings, screws in the bearings, nuts on the screws, and springs secured to the screws 45 and engaging the free ends of the bell-cranks, said free ends being notched at intervals to provide means for adjustably attaching the springs to the bell-cranks.

5. A tension device comprising a support, 50 bars pivoted at the top and bottom in swinging relation to each other on the support, the bars having arms, a bell-crank mounted on each side of the support and in rear of the arms, each bell-crank having one 55 end engaging a bar to normally pull the bar backward, the second end of each bell-crank projecting to the rear and having notches therein, and springs secured to the support, the springs being adapted to be placed in 60 any of the notches whereby the tension to which the bell-cranks are subjected can be varied.

In testimony, that I claim the foregoing, I have hereunto set my hand this twentieth 65 day of April 1912.

ANDREW CRAWFORD.

Witnesses:

WM. A. MERZ,

MARY M. MERZ.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."