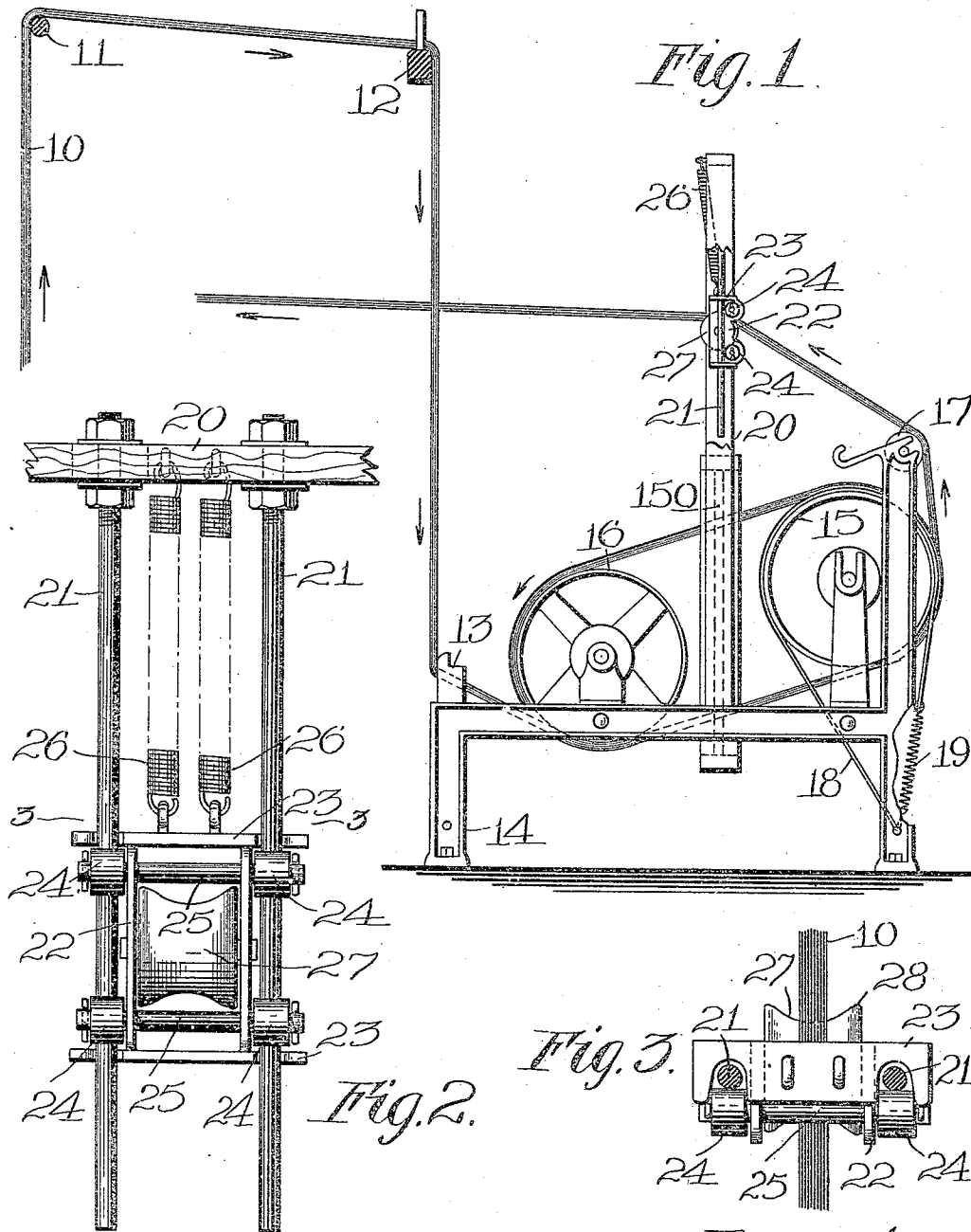


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CHAIN YARN TENSION DEVICE.
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946,379.

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UNITED STATES PATENT OFFICE.

DAVID LOWE, OF FITCHBURG, MASSACHUSETTS.

CHAIN-YARN TENSION DEVICE.

946,379.

Specification of Letters Patent.

Patented Jan. 11, 1910.

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To all whom it may concern:

Be it known that I, DAVID LOWE, a citizen of the United States, residing at Fitchburg, in the county of Worcester and State of Massachusetts, have invented a new and useful Chain-Yarn Tension Device, of which the following is a specification.

This invention relates to a chain yarn tension device for use in connection with beaming, winding or quilling machines and the like, and for use for chains of yarn involving quite different problems from single strands because these chains are composed of a large number of strands or ends of yarn, sometimes several hundred. In machines of this kind it has been customary to provide one of the drums for receiving the yarn with a constant or rigid tension in the form of a brake which always holds back and does not "give or take" or yield with the yarn if one or more strands break, or if the chain of yarn catches, and cannot take up the slack. In such a case, therefore, some damage to the yarn is liable to be done before the machine can be stopped.

The principal objects of the invention are to provide a construction that can be carried in construction within wide limits and adapted to meet individual needs and varying conditions and that will be suitable for use to keep a chain of warp or filling yarn of any kind taut yet with a yielding pressure and even tension at all times so that in case of catching or breakage the tension device will give way or draw back and take up the slack so that the operator can get a chance to stop the machine before any damage is done so that many break outs will be prevented and production increased, and so that poor or weak yarn will run better; and to provide a simple and convenient combination thereof with the usual pair of drums over which the chain of yarn passes and from which it is delivered to the machine which is to receive it.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a side elevation showing a pair of ordinary drums for receiving a chain of yarn, with a preferred embodiment of this invention applied thereto. Fig. 2 is an end view showing the chain yarn tension device on enlarged scale, and Fig. 3 is a sectional view on the line 3—3 of Fig. 2.

In the drawings the chain of yarn 10 is shown as passing over the usual guides 11—12 and through a stationary guide 13 mounted on a frame or tail block 14. From the latter the chain of yarn passes to a pair of drums 15 and 16 around which it is wound one or more times between guide rods 150 and from which it is delivered to a guide roller 17. The drums 15 and 16 and roll 17 are mounted on the frame 14 in fixed bearings. Extending around the drum 15 is a brake band 18 attached to a fixed point on the frame and having a spring 19 for giving a tension to the band so that it acts as a brake and tension device to resist rotation of that roll in one direction.

Fixed to the frame 14 is a support 20 which preferably projects between the drums 15 and 16 and extends to a considerable distance beyond them. In this case it projects vertically from the frame 14. This support is provided with guides in the form of a pair of rods 21 parallel with the support and extending back toward the frame. On these guides is mounted a carriage 22 having a pair of plates 23 at opposite ends, each projecting out over the rods 21 and having notches for receiving them. These projecting portions are all on the same side of the two rods. On the opposite side the carriage is provided with rollers 24 which bear on the rods and are mounted on axles 25 carried by the frame. The carriage is also provided with one or more springs 26 which are connected with the other end of the support at a point beyond the side of the bars opposite that on which the rollers are located. The principal office of these springs is to draw the carriage so as to cause a tension roller on the carriage to be pressed with a yielding tension against the chain of yarn passing over it, and they may draw the carriage in either direction, but are shown as drawing it upwardly or away from the drums and 16. The springs also have another function, as on account of their angular position they draw the rollers on the carriage toward the guide rods and thus permit the carriage to move back and forth very freely on the rods and prevent the end plates 23 from binding thereon. The roll 27 is made with projecting flanges 28 at the end and has a gradual and uniform inclination toward the center so as to be capable of guiding an entire chain of yarn.

On account of the features shown and

specified the device works with a minimum degree of friction and is particularly suitable for use with chains of yarn. As has been stated, it is preferably used with the
 5 ordinary tension device 18.

While I have illustrated and described a preferred embodiment of the invention I am aware that many modifications can be made therein by any person skilled in the art without departing from the scope of my invention as expressed in the claims.

Having thus fully described my invention, what I desire to secure by Letters-Patent is:—

1. In a chain yarn tension device, the
 15 combination of a stationary guide for a chain of yarn, a plurality of drums over which the chain of yarn is adapted to be wound, a tension device for one of said drums, a guide roll for receiving the chain
 20 of yarn from said plurality of drums, and a tension roll located between the guiding roll and the machine to which the chain is to be delivered, and having means for yieldingly moving it away from said drums.

2. In a chain yarn tension device, the combination of a pair of drums for receiving a chain of yarn, a tension device for one of said drums, a tension roll adapted to receive the yarn from said drums and guide it therefrom, and means for yieldingly holding the
 30 tension roll against said chain of yarn.

3. In a chain yarn tension device, the combination of a tail block or frame, a plurality of drums thereon for receiving a chain of
 35 yarn, a tension device on the tail block or frame for one of said drums, a support extending from said tail block or frame, a guide on said support, a roll movable along said guide for receiving the chain of yarn
 40 from said drums, and means for holding said roll against the chain of yarn with a yielding pressure.

4. In a chain yarn tension device, the combination of a frame, drums thereon for receiving a chain of yarn, a support on said
 45 frame projecting therefrom, guide rods ex-

tending along said support, a carriage having rollers mounted on said guide rods and movable therealong, a tension roller mounted on said carriage to move therewith, and
 50 means for normally moving said carriage in such a direction as to hold said tension roller against the chain of yarn with a yielding pressure.

5. In a chain yarn tension device, the combination of a support, a pair of rods extending along the support, a carriage having rollers engaging said rods, springs for normally holding said carriage in a certain position, and a roll on said carriage adapted
 60 to receive the chain of yarn and to bear against it with a yielding pressure due to the springs.

6. In a chain yarn tension device, the combination of a support, a pair of rods extending along the support, a carriage having
 65 rollers engaging said rods, springs for normally holding said carriage in a certain position, a roll on said carriage adapted to receive the chain of yarn, and projections on
 70 the carriage extending across the sides of said rods opposite the rollers.

7. In a chain yarn tension device, the combination of a support, a pair of rods extending along the support, a carriage having
 75 rollers engaging said rods, springs for normally holding said carriage in a certain position, and a roll on said carriage adapted to receive the chain of yarn, said springs being connected with a stationary part of the support and extending at an angle from the carriage on the side of the rods opposite the rollers to cause the rollers to remain in engagement with the rods.

In testimony whereof I have hereunto set
 85 my hand, in the presence of two subscribing witnesses.

DAVID LOWE.

Witnesses:

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 C. F. WESSON.