

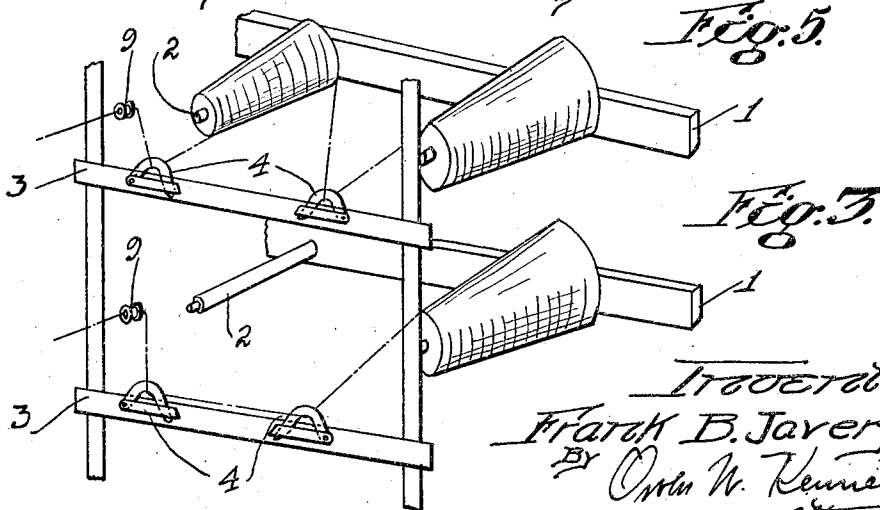
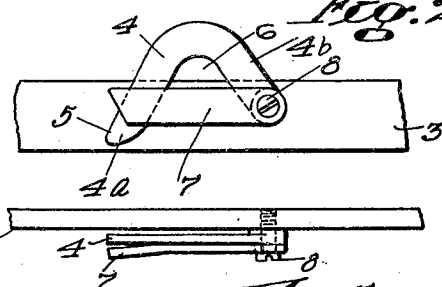
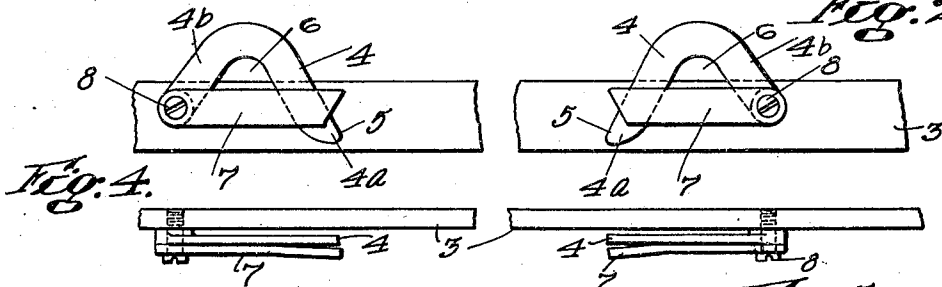
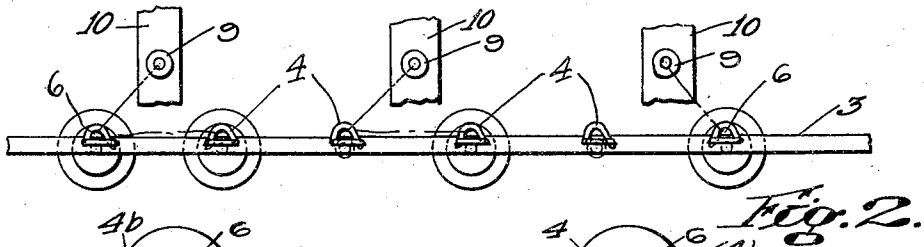
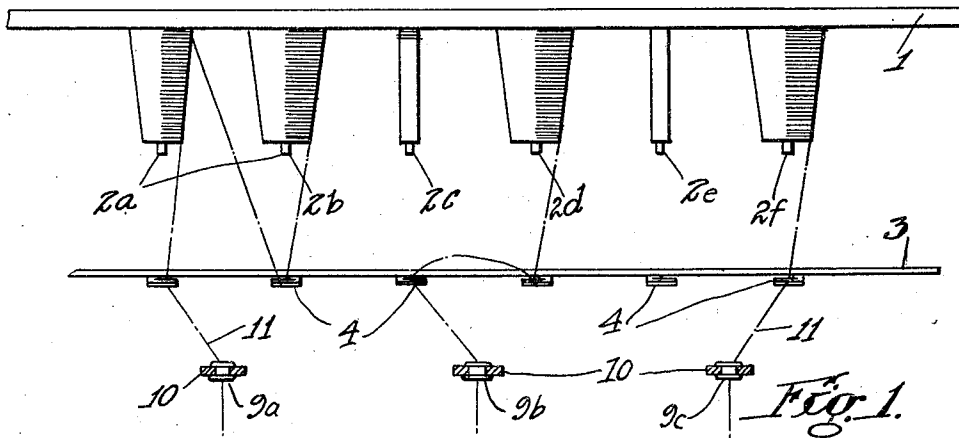
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1,765,590

THREAD CONTROLLING DEVICE FOR CREELS

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UNITED STATES PATENT OFFICE

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THREAD-CONTROLLING DEVICE FOR CREELS

Application filed December 14, 1927. Serial No. 239,988.

My invention relates to creels, or spool stands, such as are employed for supporting a plurality of spools or yarn packages, so that yarn or thread may be evenly led from the packages for winding on a warp beam, or for any other purpose.

My invention relates particularly to that type of creel in which the threads are drawn from the ends of the packages in the general direction of the longitudinal axes of the packages; this type of creel being known in the art as an end delivery creel, as distinguished from that type of creel in which the threads are drawn tangentially from the cylindrical packages. In end delivery creels, as heretofore constructed, it has been customary to arrange the spindles, in pairs, with their longitudinal axes converging towards a point equi-distant from the ends of the spindles, from which point the yarn is adapted to be drawn from a package of either spindle of the pair, although with this arrangement, the inclined spindles take up considerable space.

In the patent to the Raymond C. Longvall, No. 1,676,864, issued July 10, 1928, and assigned to the Warp Compressing Machine Company, there is shown and described an improved arrangement of creel spindles whereby yarn may be drawn continuously from a pair of spindles with their axes in parallel relation as distinguished from the above described divergent relation of spindle axes. With all the spindles parallel, as disclosed in the aforesaid patent No. 1,676,864, it is possible to provide more spindles in a given space than has been heretofore been possible, with the resulting reduction in overall dimensions of the creel employing a given number of spindles.

By the present invention, I also employ an arrangement of spindles with their axes in parallel relation, and in addition, provide an improved means for insuring the continuous drawing of thread from a pair of spindles so that the thread will draw easily from the butt end of an exhausted spindle to the head of a fresh spindle. My improved thread controlling device is particularly adapted for use with creels operating with

high delivery speeds, wherein it is essential that the changing of the thread from one spindle to another must be accomplished without any checking of the passage of the thread which might cause it to break. The above and other advantageous features of my invention will hereinafter more fully appear with reference to the accompanying drawings in which

Fig. 1 is a plan view of an improved spindle arrangement embodying my invention.

Fig. 2 is a front view of the parts shown in Fig. 1.

Fig. 3 is a perspective view of a section of a creel.

Fig. 4 is a fragmentary view showing a pair of my improved thread controlling devices on an enlarged scale.

Fig. 5 is a plan view of the devices shown in Fig. 4.

Referring first to Figs. 1 and 3, a portion of the creel stand is illustrated therein which consists of a number of vertically spaced horizontal spindle rails 1, each carrying a series of horizontally spaced spindles 2^a, 2^b, 2^c, 2^d, etc. extending in parallel relation from the rails 1. The creel also comprises vertically spaced horizontal bars 3 disposed in front of the rails 1, with each bar 3 carrying a plurality of pairs of oppositely disposed thread guides 4, 4.

As best shown in Figs. 4 and 5, each thread guide 4 consists of an inverted V-shaped member, one arm 4^a of which is longer than the other arm 4^b with the end of the longer arm 4^a rounded as shown at 5. The short arm 4^b of each thread guide 4 is secured to a bar 3 so that the junction of the divergent arms 4^a and 4^b is above the upper edge of the bar 3, thus leaving an enclosed space 6 in substantial alignment with the axis of the spindle 2 with which the thread guide is associated. As clearly shown in Fig. 4, the guides 4 for a pair of spindles 2^a and 2^b are so disposed that the longer arms 4^a extend in opposite directions and towards each other, the rounded end 5 of each arm 4^a terminating just above the lower edge of the bar 3 which carries the guides 4, with each arm 4^a being spaced

from the face of the bar 3 as shown in Fig. 5.

Each thread guiding device also comprises a finger 7 which is secured to the bar 3 by the same screw 8 or other fastening means which secures the arm 4^b to the bar 3 and the finger 7 may be welded to the guide 4, if desired. Each finger 7 extends across the bar 3 just below its upper edge, with its end portion in front of and bent away from the arm 4^a as shown in Fig. 5 so that a thread may pass easily between the arm 4^a and the finger 7.

As shown in Fig. 2, each pair of spindles 2^a and 2^b or 2^c and 2^d and oppositely facing guides 4 have associated therewith a thread eye 9 located equi-distant from the ends of the spindles and in a plane somewhat above the bar 3 which carries the guides 4. The thread eyes 9 may be supported in any suitable manner, as by means of uprights 10 arranged to carry the thread eyes 9 in vertical rows. Referring now to Fig. 1 and particularly the left hand pair of spindles 2^a and 2^b, it will be seen that a thread 11 leads from the left hand thread eye 9^a through the space 6 in the thread guide 4 directly in line with the left hand spindle 2^a of the pair in question, which is shown as being nearly exhausted. The thread 11 continues from the base of this left hand spindle 2^a to the front of the bar 3 where it passes over the guide 4 and then rearwardly through the space 6 to the front end of the full package on the right hand spindle 2^b of the pair in question. As the thread 11 is drawn through the thread eye 9^a, the upward draft on the thread tends to hold it at the top of the opening 6, so long as any thread remains on the spindle 2^a which is in substantial alignment with this opening 6.

However, as the last turn on the left hand spindle 2^a is removed therefrom, the slack thread between the base of the spindle 2^a and the right hand guide 4 is rapidly taken up thereby subjecting the thread to a draft substantially at right angles to its former course as shown with respect to the middle pair of spindles 2^c and 2^d in Fig. 1 and the lower pair of spindles in Fig. 3.

As previously pointed out the arm 4^a of each guide 4 slopes downwardly and is spaced from the finger 7 and the bar 3, so that the new pull on the thread in a direction substantially parallel to the bar 3 results in the thread clearing itself from the downwardly sloping arm 4^a which is rounded at its end to permit easy movement of the thread underneath it. As the thread passes underneath the end of the arm 4^a, the slack is quickly taken up and the draft on the thread is then shown for the right hand pair of spindles 2^c and 2^d in Fig. 1, that is from the front of the full package on

the spindle 2^f through the space 6 on the right hand guide 4 to the thread eye 9^b. The thread will then continue to draw from the fresh package on the extreme right hand spindle 2^f until it is exhausted, during which time the creel operator has a chance to place a fresh package on the left hand spindle 2^e of the right hand pair and then draw the thread from the end of this package to the left hand guide 4 and back over the top of the guide to the base of the package on the right hand spindle 2^f.

With each pair of spindles threaded as described above, it is obvious that a creel is adapted to operate continuously with the throw over from one spindle to another taking place automatically each time a spindle is exhausted. It is evident that a thread will free itself from a guide 4, as shown for the middle pair of spindles 2^c and 2^d in Fig. 1, without subjecting the thread to any strain, due to the fact that there is considerable slack to be taken up before the thread is actually clear from the guide 4. Consequently, the thread can be drawn off at a high rate of speed without the change over from one spindle to another in any way checking the passage of the thread; thus, the chance of the thread breaking during the change over is substantially eliminated.

I claim

In a device of the class described, a pair of spindles in parallel relation, means for drawing thread endwise from said spindles, with the point of draft located between said spindles and equidistant therefrom, and a pair of thread holders in alinement with said spindles, with the thread passing from one spindle through one holder back to the base of the second spindle and from thence through the second holder to the point of draft, the draft on the thread retaining it in said second holder until the second spindle is exhausted, whereupon the thread automatically draws through the first holder.

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