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C. J. HARTER.

TENSION DEVICE FOR WINDING ROLLS.

APPLICATION FILED MAY 20, 1907.

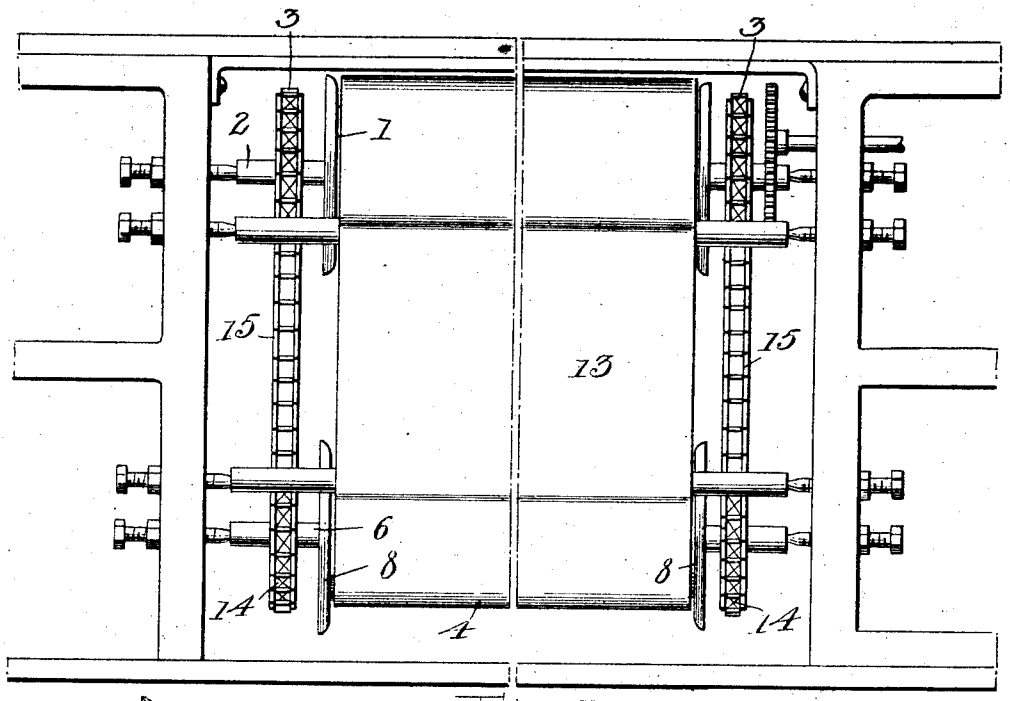


Fig. 1.

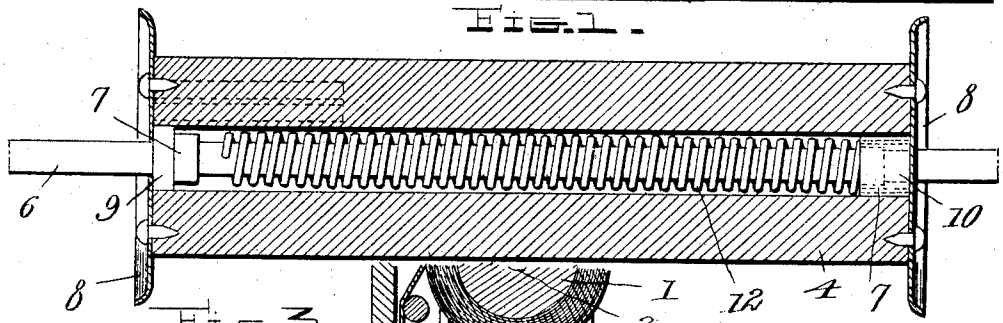


Fig. 3.

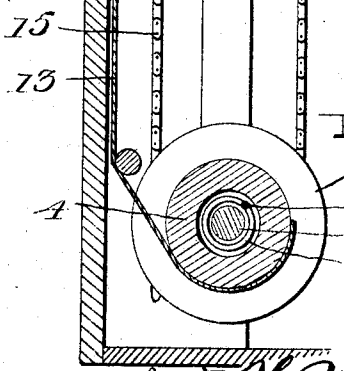


Fig. 2.

Witnesses

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TENSION DEVICE FOR WINDING-ROLLS.

No. 879,261. Specification of Letters Patent. Patented Feb. 18, 1908.

Application filed May 20, 1907. Serial No. 374,627.

To all whom it may concern:

Be it known that I, CLARENCE J. HARTER, a citizen of the United States, residing at Ilion, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Tension Devices for Winding-Rolls; and I do 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.

This invention relates to improvements in tension devices for winding rolls.

The object of the invention is to provide a device for indicator winding rolls whereby the proper tension will at all times be imparted to the indicator ribbon or web, and to compensate for the difference in the diameter of the winding rolls caused by the winding on or off of the ribbon.

With this object in view the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front view of two indicator winding rolls, showing the indicator ribbon wound thereon, and the manner in which the rolls are geared together for operation; Fig. 2 is a vertical, cross sectional view of the same; and Fig. 3 is a longitudinal sectional view through the lower winding roll, showing the arrangement of the tension device therein.

Referring more particularly to the drawings, 1 denotes the upper winding roll, which is here shown as being fixedly mounted upon an operating shaft, 2, on the ends of which are fixedly mounted sprocket gears, 3. Below the upper roll, 1, is arranged a lower winding roll, 4, said roll being provided with a longitudinally disposed bore, 5, through which is adapted to be inserted an operating shaft, 6.

On the shaft 6 at a suitable distance from the ends of the roll 4 are secured stop collars, 7. On the roll 4 are secured by screws, or other suitable fastening devices, circular disks, 8, the diameters of which are somewhat larger than the diameter of the roll, thereby providing radially projecting flanges at the ends of the roll, which serve to guide and hold the ribbon in place thereon. In the disks 8 are formed centrally disposed bearing apertures around which, and adapted to project into the bore 5 of the roll, are bearing sleeves, 9 and 10, through which, and the apertures in the disks, the ends of the shaft 6, project. The inner end of the sleeve 9 bears against the stop collar 7 at this end of the shaft. The bore of the sleeve 10 on the disk at the opposite end of the roll is provided with an annular enlargement, whereby the inner end of said sleeve is adapted to engage and fit over the collar 7 on this end of the shaft, as shown.

Arranged on the shaft 6 of the lower roll within the bore 5 is a coiled tension spring, 12, one end of which is secured to the shaft 6, and the opposite end to the sleeve 10 on the disk 8, which is secured to this end of the roll, thereby connecting the roll with the spring. By arranging the spring and connecting the same to the shaft and roll as hereinbefore shown and described, said roll will be turned by the shaft through the medium of a spring and the roll will also be permitted to turn to a limited degree, independently of the shaft.

The ends of the shafts 2 and 6 are journaled in suitable bearings formed in a supporting frame, and adapted to be wound on and off said rolls is an indicating ribbon, or web, 13, one end of which is secured to the upper roll, and the opposite end to the lower roll. On the projecting ends of the shaft 6 of the lower roll are fixedly mounted sprocket gears, 14, which are connected by sprocket chains, 15, to the gears, 3, on the shaft of the upper roll, whereby when motion is imparted to the chains, 15, the shafts of the upper and lower rolls will be simultaneously turned.

By providing a spring connection between the lower roll and its operating shaft, the tension of the indicating ribbon will be automatically regulated, and it will be understood that when the upper roll has less ribbon wound thereon than the lower roll, that the spring will cause said lower roll to lag behind or turn more slowly than its shaft, and that when the upper roll has more ribbon on it than the lower roll, said lower roll will revolve faster than the shaft and wind up the spring, the action of the spring thus compensating for the difference in the size of the roll.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention may be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the prin-

ciple or sacrificing any of the advantages of this invention as defined in the appended claim.

Having described my invention, I claim:

A tension device of the character described, comprising a lower winding roll having formed therein a central longitudinally disposed bore, apertured bearing disks secured to the opposite ends of said roll, bearing sleeves arranged on the inner sides of said disks to project into the bore of said roll, an operating shaft arranged through said bearing sleeves and the bore of the roll, stop collars on said shaft, a coiled spring arranged on said shaft within the bore of the roll, one end of said spring being secured to the shaft and its opposite end to the bearing sleeve of one of said disks, an upper winding roll shaft, a winding roll fixedly mounted on said shaft, sprocket gears fixedly mounted on the opposite ends of said operating shafts, and sprocket chains connecting said sprocket gears to simultaneously turn said shafts, substantially as described.

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

CLARENCE J. HARTER.

Witnesses:
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