Reynolds & Barker,

Warping Mach.

No. 100,070 Patented Feb. 22, 1870.

Fig. 1

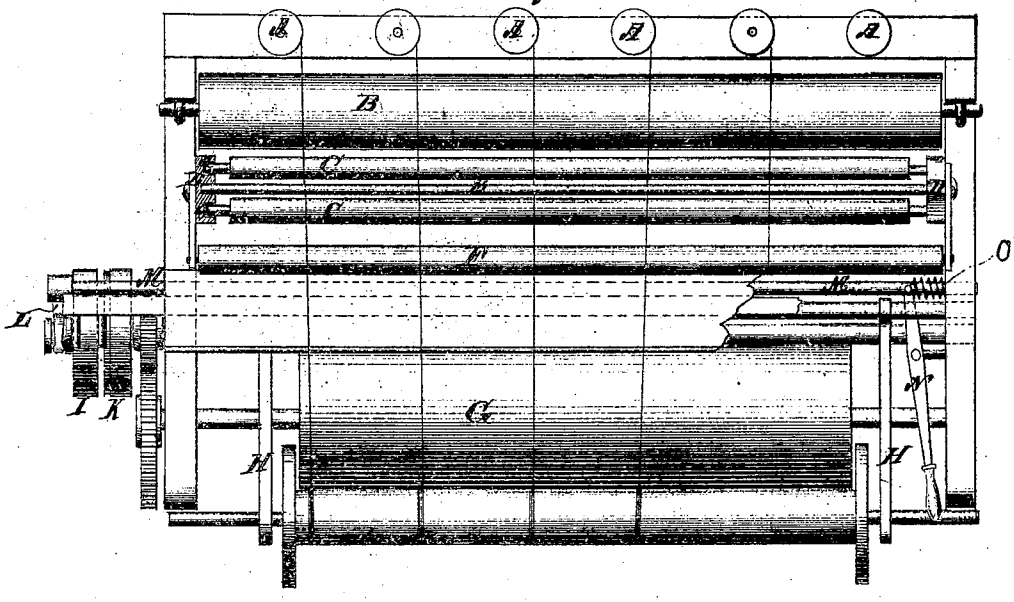
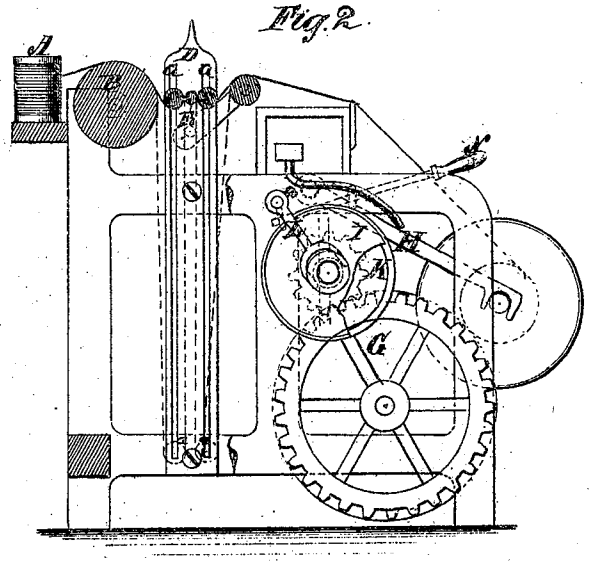


Fig. 2



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ROSCOE C. REYNOLDS AND CYRUS I. BARKER, OF LEWISTON, MAINE.

Letters Patent No. 100,070, *dated February* 22, 1870.

IMPROVEMENT IN WARPING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, ROSCOE C. REYNOLDS and CYRUS I. BARKER, of Lewiston, in the county of Androscoggin, and State of Maine, have invented a new and useful Improvement in Warping-Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to improvements in warping-machines, and consists in so arranging the driving-mechanism of the warping-roller that it may, by the movement of a hand-lever, be started and run slowly and gradually increased to the required motion before the belt is shipped to the fast pulley. The object being to first take up the slack of the yarn given off by the spools in consequence of being continued in motion at the time of stopping by their momentum longer than the roller, and to start the spools into motion again without breaking the yarn.

Figure 1 represents a plan view of our machine, partly broken away, and

Figure 2 represents a transverse section of the same.

Similar letters of reference indicate corresponding parts.

The warping-machine, consisting of the spool-spindles A, roller B, tension-rollers C, slotted posts D, guide-rod E, roller F, drum G, warp-beam supports H and their adjuncts, is similar to those now in use.

Our invention consists in arranging one of the driving-pulleys I K, preferably the loose one I, to slide on the shaft to and from the other, and in providing friction surfaces between them, so that before the belt is moved onto the fast pulley, the machine may be set in motion slowly and gradually, without subjecting the yarn to sudden and undue strains.

We also provide a crotch, L, sliding rod M and hand-lever N for moving the sliding wheel.

Also a spiral spring, O, for keeping the pulleys apart when not required to come together. We propose to employ any arrangement of means for sliding the movable pulley which will be most convenient.

These machines are required to stop suddenly when a thread breaks, and they are commonly provided with stopping apparatus for effecting the same automatically. When they stop, the spools often run longer than the roller or warp-beam, and give off slack yarn, which is taken up by the falling of the tension-roller C, the journals of which work up and down in the grooves *a* of the posts D.

When the machines are set suddenly in motion at the usual speed, the slack is taken up and the tension-rollers drawn up against the upper walls of the slots with such force as to cause the threads to break. To avoid this it is now the common practice to turn the large roller by hand until the rollers C are brought up and the threads drawn taut from the spools.

Now, our invention has for its object to obviate the time and labor of turning the machine by hand in this way, by drawing the loose pulley, which is in motion when the machine is standing still, up against the other, so as to set it in slow motion until the slack is taken up, after which the friction is increased and the machine set into full motion, and the belt is shifted onto the fast pulley, the full speed being thus put on without damage to the yarn.

Having thus described our invention,

We claim as new and desire to secure by Letters Patent—

The arrangement of fast and loose pulleys on the driving-shaft of a warping-machine, to be brought into frictional contact for imparting a slow movement to the machine at starting, through the medium of the frictional action of the loose pulley (moving at full speed) on the fixed pulley, previous to shifting the belt, all substantially as specified.

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