

(No Model.)

A. E. RHOADES.
WARPING MACHINE.

No. 478,523.

Patented July 5, 1892.

Fig. 1.

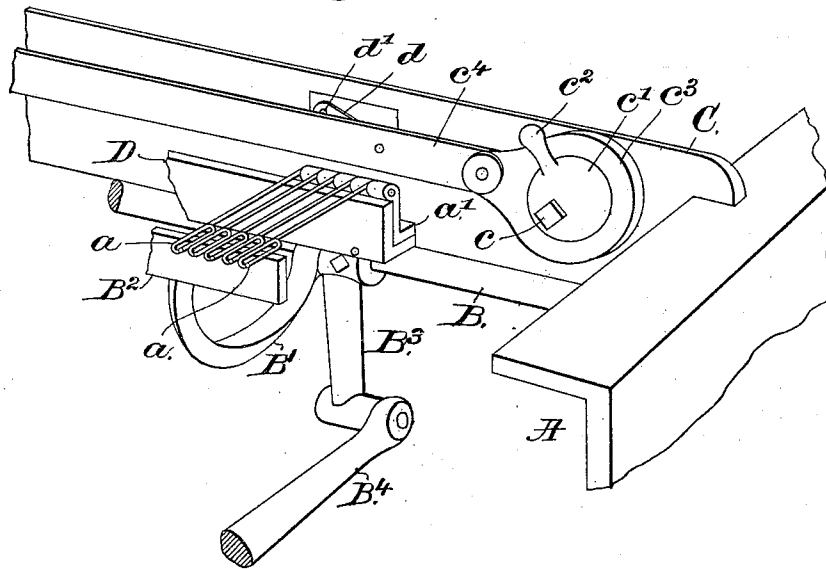
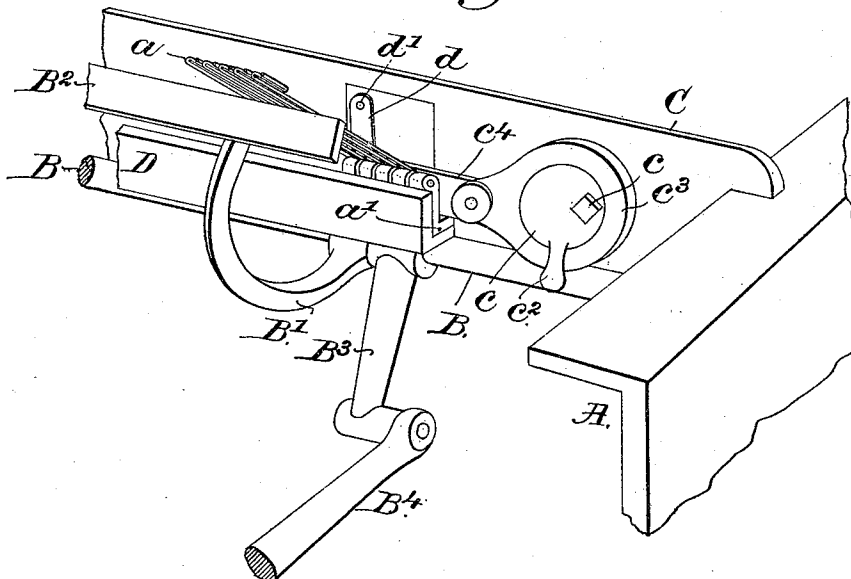


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

ALONZO E. RHOADES, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO THE
HOPEDALE MACHINE COMPANY, OF SAME PLACE.

WARPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 478,523, dated July 5, 1892.

Application filed March 11, 1892. Serial No. 424,502. (No model.)

To all whom it may concern:

Be it known that I, ALONZO E. RHOADES, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Warping-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

It is customary in warping-machines to joint the drop-wires upon blocks or feet which are slipped one after the other into a holder which nearly surrounds the said blocks. With such holders, whenever a drop-wire becomes bent or injured, it is necessary in order to remove it from the holder to also remove all the other blocks at one or the other side of it; also, when the number of spools is changed from which the yarn is unwound it becomes necessary to add or remove wires. To save this unnecessary labor is the chief object of this invention.

My invention consists, essentially, in the combination, with a holder and a series of blocks having attached drop-wires, of a pivotally-supported locking device movable toward and from said blocks and whereby the entire series of blocks may be readily clamped or left free, in order that any one block wherever located may, when the series is unclamped, be quickly removed from the holder without disturbing any of the adjacent blocks.

Figure 1 in perspective shows a sufficient portion of a warping-machine of usual construction to enable my invention to be understood, the locking device being shown as in a position to leave the blocks to which they are attached free to be removed from the holder, the drop-wires being all shown down; and Fig. 2 is a similar view, but with the locking device in position to hold the blocks, the feeler-bar being partially elevated.

In the drawings, A represents part of the frame-work of a warping-machine; B, a rocking shaft therein having an attached arm B', provided with a feeler B², and having an arm B³ and a pin upon which is jointed a link B⁴, operated in the usual manner to rock the shaft B.

a represents a series of drop-wires, and a'

the separate blocks or feet upon which they are jointed.

The parts so far described are and may be substantially as in other warping-machines, with the exception of slight variations in the shape of the blocks or feet.

In practice the drop-wires *a* stand in substantially vertical position, the warp-threads at that time passing one through each of the eyes of the drop-wires.

C represents a cross-bar having a suitable stud *c*, upon which I have mounted, as represented, an eccentric *c'*, herein shown as provided with a handle *c²* by which to readily operate it. This eccentric is embraced by an eccentric-strap *c³*, jointed to a bar *c⁴*, which at suitable points will be pivotally supported upon radius-bars *d*, pivoted at *d'* upon the cross-bar C. In practice there will be two or more of these radius-bars to support the bar *c⁴*, the said radius-bars supporting the bar *c⁴* and connecting it with the bar C as ordinary parallel rollers are connected together.

The bar *c⁴* constitutes a locking device for the entire series of blocks or feet *a'*, and the eccentric and eccentric-strap constitute one form of actuating device for the locking-bar.

The holder D, on which the blocks or feet *a'* rest, is represented as L-shaped.

In Fig. 1 the locking-bar is elevated, and when in that position any block, with its attached drop-wire, may be readily removed from the holder without disturbing any other block or wire; but by turning the eccentric or suitably moving the locking-bar into the position shown in Fig. 2 said bar comes upon the projecting portions of the blocks or feet and locks all of the said blocks or feet in position upon the holder.

The holder is supported in proper manner from the cross-bar C.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the holder, a series of drop-wires, and a series of separate blocks or feet to which the said drop-wires are jointed, of a pivotally-supported locking-bar movable toward and from said blocks, thereby to co-operate with and keep the blocks

or feet on the said holder, substantially as described.

2. The combination, with the holder, a series of drop-wires, and a series of blocks or feet to which the said drop-wires are jointed, of a
5 pivotally-supported locking-bar to co-operate with and keep the blocks or feet on the said holder, and devices to actuate said locking-bar on its pivotal supports to raise and lower it

with relation to the said blocks, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALONZO E. RHOADES.

Witnesses:

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