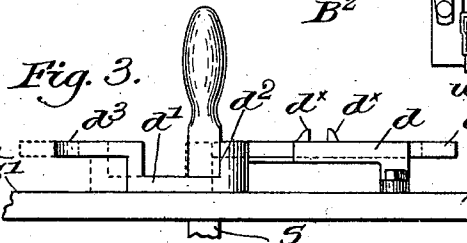
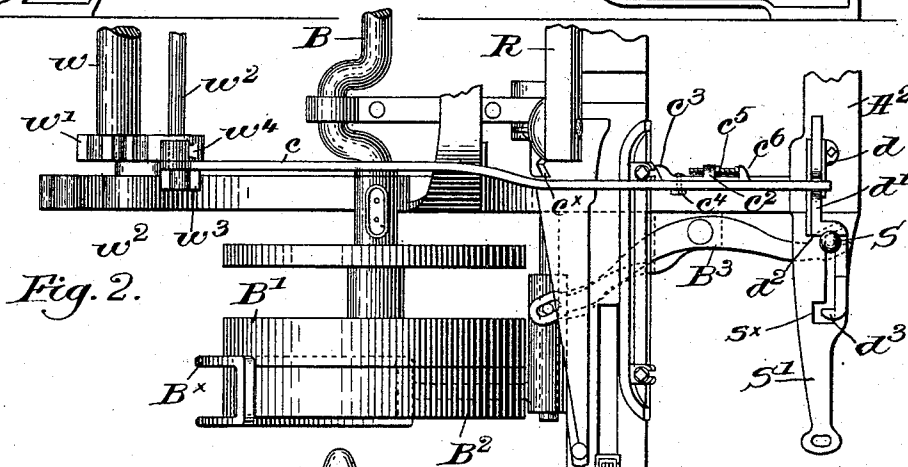
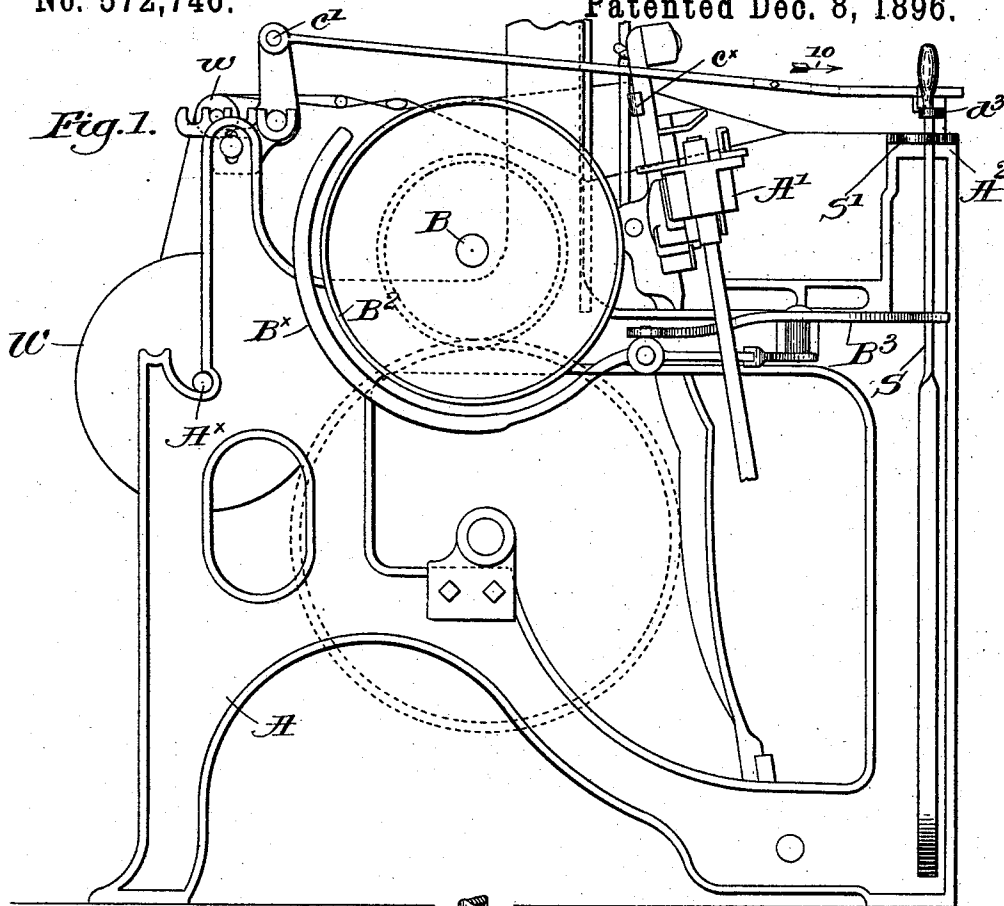


(No Model.)

W. F. DRAPER & J. H. NORTHROP.
LOOM.

No. 572,746.

Patented Dec. 8, 1896.



Inventors:

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attys.

Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM F. DRAPER AND JAMES H. NORTHROP, OF HOPEDALE, MASSACHUSETTS, ASSIGNORS TO THE NORTHROP LOOM COMPANY, OF SAME PLACE AND SACO, MAINE.

LOOM.

SPECIFICATION forming part of Letters Patent No. 572,746, dated December 8, 1896.

Application filed September 19, 1896. Serial No. 606,440. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. DRAPER and JAMES H. NORTHROP, of Hopedale, in the county of Worcester and State of Massachusetts, have invented an Improvement in Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

It is well known in the art of weaving that every time the loom is stopped, whether for breakage of the filling or when the shipper handle or lever is actuated, to piece up warp-threads a thin place or crack will be made in goods where the picks are not numerous. The formation of such thin places is thought to be due to several causes, some of which are the change of tension as the loom slows down, backlash in the bearings, amount of wear in the crank-arms, &c. In our efforts to obviate the formation of such cracks or thin places we have found that by increasing the warp-tension at the time the loom stops such desired object is attained, and accordingly our invention has for its object the production of means to prevent cracks or thin places when the loom stops for any cause whatever.

Figure 1 is a left-hand side elevation of a sufficient portion of a loom to be understood with one embodiment of our invention applied thereto. Fig. 2 is a partial top or plan view of the mechanism shown in Fig. 1; and Fig. 3 is an enlarged detail, in front elevation, of the controlling device.

The loom-frame A, having suitable bearings A^x for the warp-beam W, the lay A', breast-beam A², the crank-shaft B, having fast and loose pulleys B' B² thereon, the belt-fork B^x, the controlling-lever B³ therefor, the shipper-lever S, which operates said lever, and the notched plate S' are and may be all as usual or well known in looms.

The journals of the whip-roll *w* are rotatably mounted in swinging supports *w'*, rigidly connected to a cross rod or shaft *w²*, held in bearings *w³* on the loom sides, only one of such supports and bearings being shown, and one of the supports, preferably the one on the side of the loom nearest the shipper-handle, has an upturned rigid arm *w⁴*. A dog (shown

as a long rod or link *c*) is pivotally connected at *c'* with said arm, the other end of the arm extending toward the front of the loom. A slotted plate *c²*, (see Fig. 2,) having an ear *c³*, is held on the inner side of the arm by a bolt *c⁴* and adjusted by a screw-stud *c⁵*, bearing against a lug *c⁶* on the arm, and we have herein shown a coöperating bunter *c^x* as secured to one of the supports 5 of the reed-cap R.

Upon the top of the breast-beam A² we have shown a guide *d*, in which is mounted a longitudinally-movable controller, consisting of a slide-plate *d'*, having a shoulder *d²* and a hooked outer end *d³*, both extended across the path of the shipper-lever S. The controller is notched or provided with lugs *d^x*, between which the front end of the dog *c* loosely enters, the longitudinal movement of the controller *d'* moving the dog laterally to bring the ear *c³* thereof into or out of the path of movement of the bunter *c^x*.

When the shipper-lever is in the position shown in Figs. 1 and 2 and full lines, Fig. 3, to stop the loom the shoulder *d²* of the controller is engaged and held thereby in such position that the dog will be retained in operative position, and as the lay comes forward the bunter *c^x* will act on the ear *c³* of and move the dog longitudinally in the direction of the arrow 10, Fig. 1. Such movement of the dog swings the whip-roll supports *w'* and raises the whip-roll *w* against the warp, increasing the tension thereof, and this increase of tension is effected every time the loom is stopped for any cause whatsoever. If the loom is running normally, the shipper-lever will be held in the notch *s^x*, and it then engages the hooked end *d³* of the controller *d'*, moving it in the guide *d* into dotted-line position, Fig. 3, the whip-roll then occupying its normal position. This movement of the controller by the shipper-lever is sufficient to so deflect the dog *c* that its ear *c³* will be moved to one side of the path of the bunter, and the latter will not engage and operate the dog in the movement of the lay.

The ear *c³* is preferably made adjustable on the dog *c* to compensate for wear and to accurately adjust the parts.

Inasmuch as the controller for the dog is

governed by the operation of the stopping mechanism for the loom, it will be evident that said stopping mechanism cannot be operated to stop the loom without moving the dog into operative position, so that the warp-tension will be automatically increased upon stoppage of the loom.

Our invention is not restricted to the precise construction and arrangement herein shown, for, so far as we are aware, it is broadly new to increase the warp-tension automatically upon stoppage of the loom.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a loom, normally-inoperative means to act upon and increase the tension of the warp, combined with mechanism operative upon stoppage of the loom, to move said means and thereby increase the warp-tension, substantially as described.

2. In a loom, normally-inoperative means to act upon and increase the tension of the warp, stopping mechanism for the loom, and intermediate devices, controlled by operation of the stopping mechanism, to move the means for increasing the warp-tension, substantially as described.

3. In a loom, normally-inoperative means to act upon the warp between the warp-beam and the fell of the cloth, a dog connected with said means, operative upon stoppage of the loom, and a bunter to cooperate with and move the dog, substantially as described.

4. In a loom, a movable whip-roll, to act upon the warp, combined with mechanism operative upon stoppage of the loom, to move the whip-roll and thereby increase the tension of the warp, substantially as described.

5. In a loom, a movable whip-roll to act upon the warp, stopping mechanism for the loom, and intermediate devices, controlled by operation of the stopping mechanism, to move the whip-roll against and thereby increase

the tension of the warp substantially as described.

6. In a loom, a whip-roll, mounted upon a swinging support, a dog connected with said support, a cooperating bunter, and means operative upon stoppage of the loom to move the dog into position to be engaged by the bunter, whereby the whip-roll will be swung to increase the warp-tension, substantially as described.

7. In a loom, normally-inoperative means to act upon and increase the tension of the warp, a dog connected therewith, the lay, and a bunter thereon to cooperate with said dog, combined with stopping mechanism for the loom, and connections between it and the dog, to move the latter into position to be engaged by the bunter when the stopping mechanism is operated, substantially as described.

8. In a loom, the lay and a bunter thereon, a movable whip-roll, a normally-inoperative dog connected therewith, to be engaged by the bunter, and controlling means for the dog, operative upon stoppage of the loom, to move the dog into operative position, whereby the whip-roll is moved against and to increase the tension of the warp, substantially as described.

9. In a loom, normally-inoperative means to act upon and increase the tension of the warp, a connected dog, a bunter to engage and move the dog, a dog-controller, and a shipper-lever, movement of the shipper-lever to stop the loom operating the controller and thereby bringing the dog into the path of the bunter, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM F. DRAPER.
JAMES H. NORTHROP.

Witnesses:

WM. W. KNIGHTS,
GEORGE OTIS DRAPER.