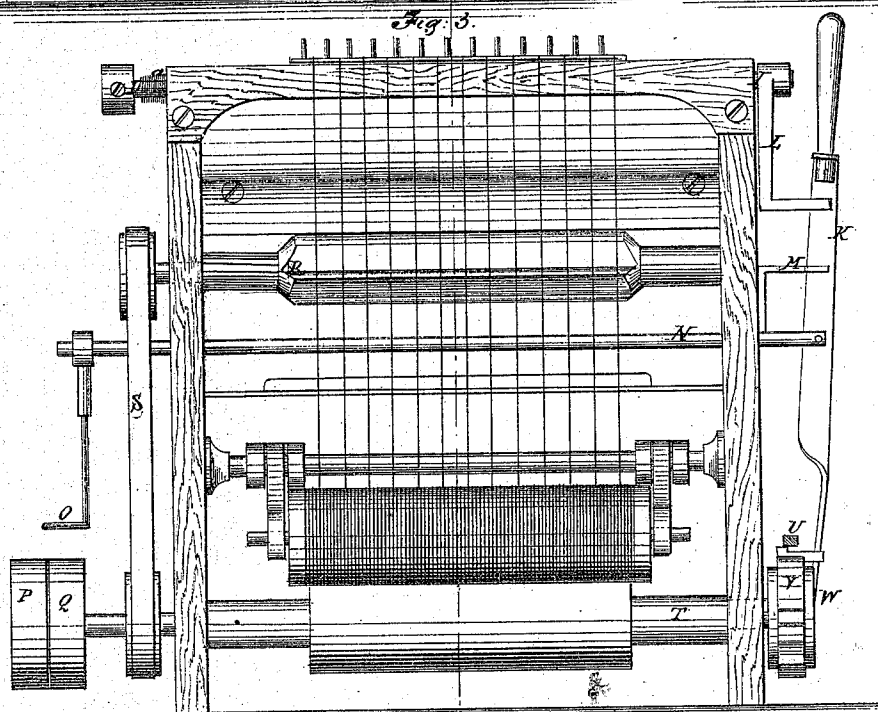
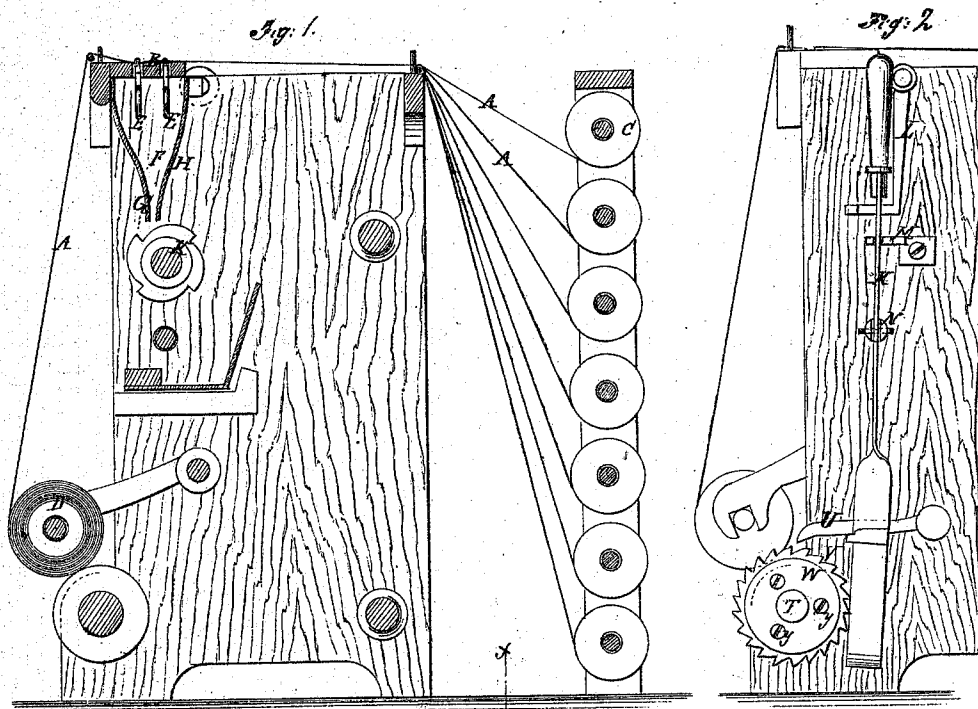
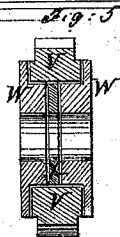
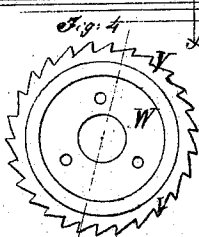


PAUL WILSON & JAMES HUNTER.
 Improvement in Stop Motions for Warping-Machines.
 No. 115,403. Patented May 30, 1871.



Witnesses:

Chas. Nida
 Wm. G. C. Smith



PER

Inventors:

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UNITED STATES PATENT OFFICE.

PAUL WILSON AND JAMES HUNTER, OF MANCHESTER, NEW HAMPSHIRE.

IMPROVEMENT IN STOP-MOTIONS FOR WARPING-MACHINES.

Specification forming part of Letters Patent No. 115,403, dated May 30, 1871.

To all whom it may concern:

Be it known that we, PAUL WILSON and JAMES HUNTER, of Manchester, in the county of Hillsborough and State of New Hampshire, have invented a new and Improved Stop-Motion for Warpers; 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 stop-motions for warping-machines; and it consists in a novel arrangement of apparatus for throwing off the belt-shipper, to be set in action by a hook or detector of wire let fall when a thread breaks upon a revolving grooved roller. It also consists in a novel construction of a friction ratchet-wheel applied to the roller for driving the warp-beam, and used, together with a holding-pawl, to be let fall upon it by the shipper-lever at the same time that the latter is thrown off to arrest the said roller and warp-beam as soon as may be after the belt is thrown off.

Figure 1 is a front elevation of a warping-machine having our improved stop-motion applied to it; Fig. 2 is a sectional elevation of the machine taken on the line *xx* of Fig. 1; Fig. 3 is a partial end elevation; Fig. 4 is an elevation of the friction ratchet-disk, with one of the side pieces or collars round; and Fig. 5 is a sectional elevation of the complete disk on the line *xx*.

Similar letters of reference indicate corresponding parts.

The warp-threads *A* pass over the slotted board or plate *B* in being transferred from the bobbins *C* to the warp-beam *D*, and each thread has a hook or link of wire, *E*, suspended from it over a trough, *F*, extending across the machine, and having a long narrow slot or opening, *G*, at the bottom. The side *H* of this hopper is pivoted at the top by journals *I*, resting in suitable bearings in the frame of the machine, and projecting beyond said frame. The journal on the side on which the belt-shipper *K* is, is provided with a crank, *L*, which comes against the said shipper when the side *H* of the trough is turned outward on its pivots, and dislodges said belt-shipper from the

notched holder *M*, whereupon it throws the rod *N* and the belt-guide *O* to the left, shifting the belt from the fast pulley *Q* to the loose one, *P*. The moving of the side *H* of the trough is effected by the grooved roller *R*, which is kept constantly in motion by the belt *S* working from the driving-shaft and the hooks *E*, the latter being received by said roller in its grooves when let fall by the breaking of a thread, and being carried forward or forced against the side *H*. The slot *G* is made sufficiently narrow for the hooks to be presented to it edgewise or endwise, and the bottom of the trough is so low that the hook cannot pass through on account of being stopped by contact with the roller. The said hooks are, therefore, so held in the mouth of the trough that the roller cannot turn without moving the side *H*.

We also propose to construct the friction ratchet-wheel for the main shaft *T*, used to arrest the motion due to the momentum after the belt is shifted, by a stop-pawl, *U*, let down upon it by the belt-shipper *K* of a ratchet-ring, *V*, of two collars, *W*, an elastic ring, *X*, and clamping-bolts *Y*, the said disks being keyed to the shaft so as not to turn, but capable of moving toward each other, or one being capable of moving toward the other, and being so clamped against the elastic ring as to force it out against the ring *V* with more or less force, the said ring *X* being fitted in the holes of the ring *V*, and the collars having parts fitted to the hole in the said ring. This arrangement affords a ready means of adjusting the said friction-wheel to have more or less friction, and to stop the roller *T* and the warp-roller more or less promptly, as may be required. The swinging part *H* of the hopper is held in position by a spring, *a*, coiled around one of the journals, and suitably attached to it and the frame.

Instead of having one side only of the trough to swing for moving the tripping-bar *L*, the whole trough may be arranged to swing together, and produce the same result.

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

1. The combination, with the belt-shipper *K*, of the grooved roller *R*, the dropping-hooks

or detectors, and the trough F, the latter having one or both sides pivoted, and carrying the cranked bar L, said cranked bar being arranged with the shipper, substantially as specified.

2. The friction ratchet-wheel for arresting the momentum of the driving-shaft, constructed and arranged substantially as specified.

The above specification of our invention signed by us this 31st day of March, 1870.

PAUL WILSON.
JAMES HUNTER.

Witnesses:

GEO. W. MABEE,
T. B. MOSHER.