Y. WIDDUP & S. J. THOMPSON.

LET-OFF MECHANISM FOR LOOMS.

No. 189,002. Patented March 27, 1877.

Fig: 1.

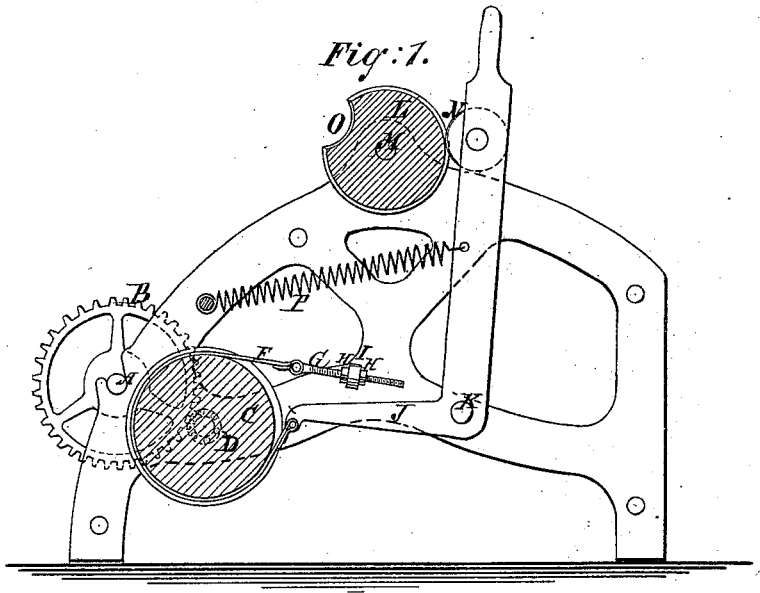
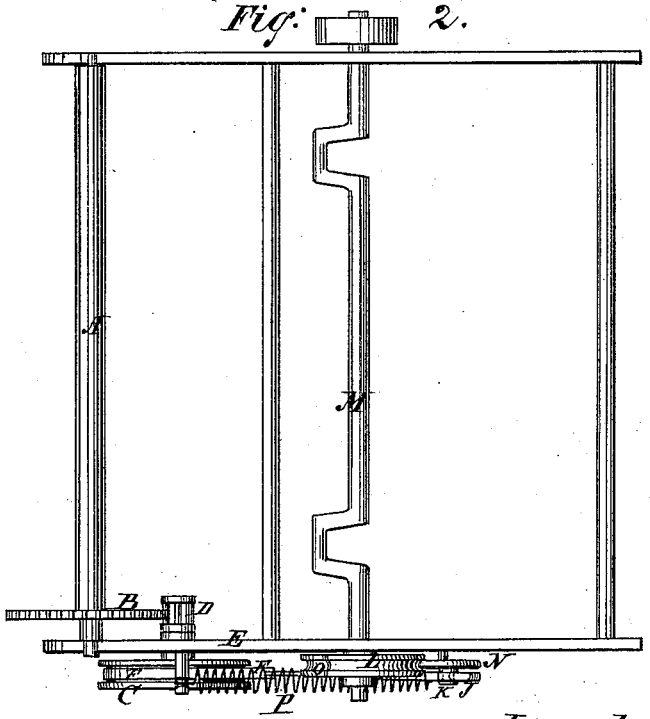


Fig: 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

YOUNG WIDDUP AND SAMUEL J. THOMPSON, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN LET-OFF MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. **189,002**, dated March 27, 1877; application filed November 29, 1876.

To all whom it may concern:

Be it known that we, YOUNG WIDDUP and SAMUEL J. THOMPSON, both of Newark, Essex county, and State of New Jersey, have invented new and useful Improvements in Let-Off Mechanism for Looms, of which the following is a specification:

Our invention consists of a friction-band working on a wheel or drum geared with the warp-roll, and connected to an elbow-lever, which is held against a wheel or drum on the loom crank-shaft, in which wheel there is a cavity in which the lever or a friction-roll on it drops when the loom beats up, so as to relieve the friction and allow the warp-roll to turn for the delivery of the warp.

Figure 1 is an end elevation of a loom and section of the two drums referred to, showing our invention. Fig. 2 is a top or plan view of the same.

A is the warp-roll, which gears by the spur-wheel B with the shaft of the friction-drum C by the pinion D. This drum C, which in this example is located outside of the loom-frame E, but may be inside of said frame, if preferred, has a friction-band, F, working on it, which, from the upper side of the drum, has its end connected by the adjusting-screw G and adjusting-nuts H to the stud I of the loom-frame, so that the tension of the band may be varied at will by adjusting the nuts along the screw. From the lower side of the drum the friction-band extends to, and is connected with, the end of the horizontal arm of the elbow-lever J, which is pivoted at its elbow to the loom-frame by the stud K. Near the upper end of the upright arm the lever J ranges along the periphery of a wheel or drum, L, on the loom crank-shaft M, and by means of a friction-roll, N, mounted upon said lever bears against the periphery of said wheel, which has a notch, O, so located that when the loom beats up the roll N drops into the notch or is pulled thereinto by the spring P to relax the friction-band and allow the warp-roll to turn by the strain imparted to the warp by the beating of the reed. The lever is then forced back and the friction applied again as the notch passes away from the roll.

It will be seen that the operation of this mechanism differs from other contrivances in that the yarn-roll is almost entirely relieved of friction when turned by the yarn, so that it is free to be turned as far as necessary for delivery of the requisite amount, and the pull of the yarn has to turn it only in the delivery, and will turn it more or less, according to the size of the roll, with less irregularity of the tension of the yarn than when the pull has to overcome the constant friction of the let-off mechanism, as in the common arrangements. In other words, both the release of the friction to allow the yarn to turn the roll and the application of the friction to stop the turning are positively effected, thus allowing entire freedom to the roll for turning it, and powerful friction for holding it when it is not required to turn. It is, however, desirable to have a little friction while the roll is turning to prevent it from jerking forward too far, and it is for this reason that the band is connected to the loom-frame from the upper side of the drum, so that it will rest on the drum and contribute the friction of its weight to retard the roll against moving too far.

The friction-band may, of course, be arranged on a drum on the warp-roll or its shaft if desired; but it is preferred to gear the friction-drum with the warp-roll, as shown.

It will also be noticed that this arrangement of the let-off mechanism is very advantageous in respect of the facility with which the roll can be relieved of the friction when the loom is stopped for turning the roll by hand for mending the ends or for other purposes, which may either be done by swinging the lever forward a little to take the roll N out of the groove in the face of the drum, and then swinging the lever to one side of the drum, so that the spring will pull it back, or the crank-shaft may be turned around until the roll N drops into the notch.

By the nuts H and the screw G the friction-band may be adjusted for more or less tension, according to the requirements of the fabric.

In the practical use of this improved let-off the fabrics made are uniform in the number of threads to the inch throughout the whole length.

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

1. The combination of the wheel or drum L, mounted on the loom crank-shaft, and having the notch O in its periphery, the elbow-lever J pivoted to the loom-frame, and with or without the friction-roll N and the friction-band F, with the friction drum or wheel C, and the warp-beam A, substantially in the manner described.

2. The combination of the loom crank-shaft M, the notched wheel or drum L thereon, the elbow-lever J, friction-band F, drum C, and spring P, the band being connected to the frame from the upper side of the drum C, and to the lever from the lower side, and also being adjustably connected to the frame, substantially as described.

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