J. Clegg,

Let Off &c. Looms.

NO. 111816. Patented Feb. 14. 1871.

Fig. 1.

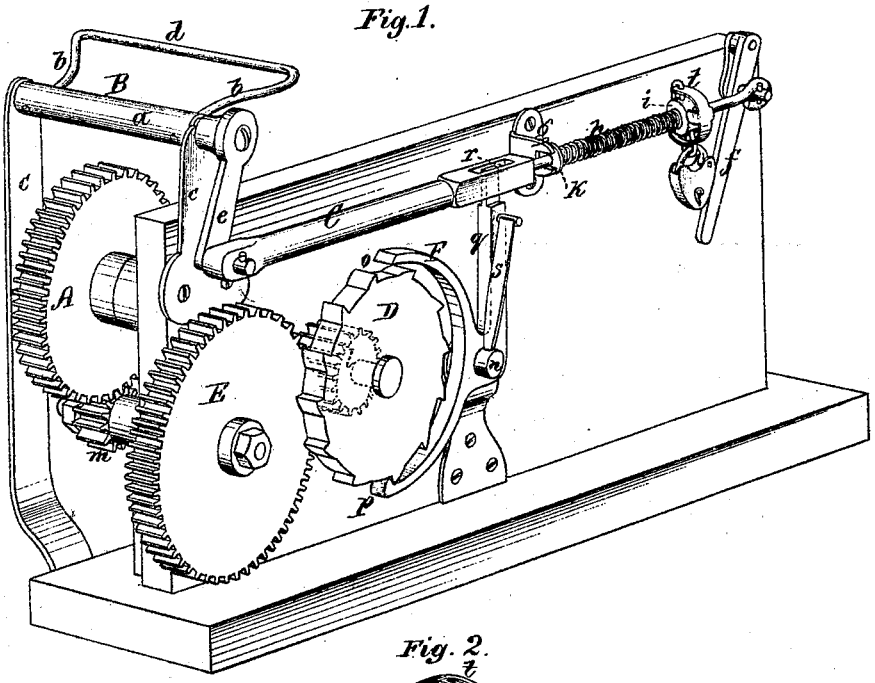

Fig. 2.

Witnesses.
Phil. F. Larner
E. A. Jackson

Inventor.
John Clegg.
By Wm. C. Wood
Attorney.

United States Patent Office.

JOHN CLEGG, OF WARWICK, RHODE ISLAND.

Letters Patent No. 111,816, dated February 14, 1871.

IMPROVEMENT IN LET-OFF MECHANISMS, FOR LOOMS.

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

To all whom it may concern:

Be it known that I, JOHN CLEGG, of Warwick, in the county of Kent and State of Rhode Island, have invented a certain new and useful Automatic Let-off Mechanism for Looms.

My invention relates to that class of let-off motions which is operated automatically by the strain on the warp and the force of the lathe as it beats up the cloth; and consists in a certain novel arrangement of mechanism for connecting the warp-lever and the beam in a simple, inexpensive, and effective manner; and I do hereby declare that the following specification, taken in connection with the drawing furnished and forming a part of the same, is a true, clear, and exact description thereof.

Figure 1 exhibits in perspective the model filed for the purpose of illustration, and represents the side of a loom to which the "let-off" is attached. The beam is not shown, nor is the whole of the warp-lever.

A is a gear-wheel, which is to be attached to the end of the beam in a well-known manner.

B is the warp-lever. It consists of a shaft, *a*, mounted in two bearings, *c*, placed one on each side of the loom above the beam-bearings.

Extending upward and forward from this shaft are two fixed arms, *b*, connected by a rod, *d*.

Keyed to the end of the shaft *a*, extending downward, is an arm, *e*. The warp is drawn from the beam upward and over the bar or rod *d* to the heddles, &c.

C is the actuating-rod. It is connected at one end with the arm *e* of the warp-lever B, and, extending along the side of the loom, is connected at its opposite end with a hand-lever, *f*, pivoted to the frame of the loom.

Midway and attached to the frame of the loom is a forked shoulder, *g*, extending outward from the loom, which loosely embraces in the fork a portion of the actuating-rod. That portion of this rod between the forked shoulder *g* and the hand-lever *f* is smaller in diameter than the remaining portion, and is embraced by an expansive spiral spring, *h*, which engages and bears against a collar, *i*, adjustable on the rod by means of a set-screw, and also at its other end against a washer, *k*, loosely fitted upon the rod, and which in turn bears against the side of the forked shoulder *g*.

The spring *h* is so set as to constantly force, under suitable pressure, the rod C longitudinally toward the front of the loom and away from the warp-lever, to which it is connected.

The collar *i* is shown in Figure 2 on a larger scale, and is provided with a hinged band, *t*, and a padlock for protecting the set-screw against improper manipulation.

D is an escape-wheel. It is mounted upon a stud fixed in the side of the frame of the loom.

Attached to this escape-wheel, on its inner side, is a small pinion-gear, *l*, shown in part in dotted lines.

E is an intermediate gear-wheel, keyed to a short shaft, to which is also keyed, at its opposite end, a smaller pinion-gear, *m*. The gear E engages with the pinion *l*, and the small gear *m* engages with the beam-gear A.

F is an escapement-lever, in proper relation with the escapement-wheel, and mounted upon a stud, *n*, attached to the side of the frame of the loom. It has two fingers, *o* and *p*. The former is a check-finger, the latter a holding-finger, and is provided with a hook at its end which engages with the teeth of the escape-wheel.

This escapement-lever is also provided with a vertical arm, *q*, which extends upward into a slot, *r*, in the actuating-rod C.

A straight flat spring, *s*, attached to the end of the stud *n*, extends upward and is so arranged as to bear against a pin in the side of the arm *q*, and thereby keeps the end or hook of the holding-finger *p* in proper relation with the teeth of the escape-wheel, in a certain degree independent of the action of the actuating-rod.

It will be observed that the slot *r* must be of sufficient length to admit of some considerable longitudinal movement without bringing its ends in contact with the arm *q*, and therefore the spring *s* exercises an independent function in throwing back the arm, thereby securing its prompt and efficient action.

The operation of my let-off will be obvious to any person skilled in the art. As the strain increases on the warp by the beating of the lathe and the weaving of the cloth the warp-lever is depressed, causing the actuating-lever C to operate the escape-lever F, disengaging the hooked holding-finger *p* from the tooth of the escape-wheel, with which it was engaged, and causing the check-finger *o* to engage with the next adjacent tooth and prevent any further movement of the escape-wheel, and thereby permitting the beam to let off the warp in a regular and desirable manner.

Cloth may be woven thick or thin, as desired, by adjusting the collar *i* on the actuating-rod in such a manner as will cause the spring *h* to exercise much or little resistance against the downward pressure of the warp upon the warp-lever.

When it is desirable to loosen up and draw out the warp to a considerable length, a rapid alternating movement of the hand-lever *f* will speedily effect it. Or the beam may be lifted out of its bearings sufficiently to release the gear A from the gear *m*.

As weavers are generally paid by the piece for weaving, it often occurs that they will so set the let-off mechanism that the warp will run freely, and thus work off more goods in length than they would otherwise. This changing of the let-off is easily and quickly

accomplished in all of the so-called friction motions employing a system of levers and weights. With my improved let-off this is not so easily accomplished, as the collar *i* cannot be moved except by the use of tools specially prepared for the purpose; or, if the locking device be used, it cannot be moved except by the proper person, who carries the key. It is possible with the locking device to secure cloth of perfect uniformity throughout a mill. Having once been properly set, it is quite impossible for any variation to occur.

Having thus described my invention,

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

1. The warp-lever B, slotted actuating-rod C, spring *h*, adjustable collar *i*, escapement-wheel D, escapement-lever F, with fingers *o p* and arm *q*, beam-gear A, and suitable intermediate gearing, all constructed, arranged, and operating substantially as described.

2. The collar *i*, provided with a set-screw and suitable locking device, in combination with the automatic spring let-off motion, substantially as and for the purposes specified.

JOHN CLEGG.

Witnesses:

JAMES J. FIELD,

WILLIAM N. THURBER.