

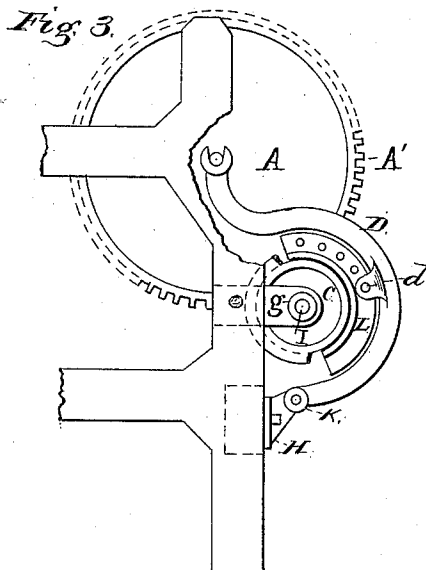
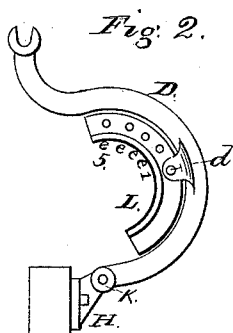
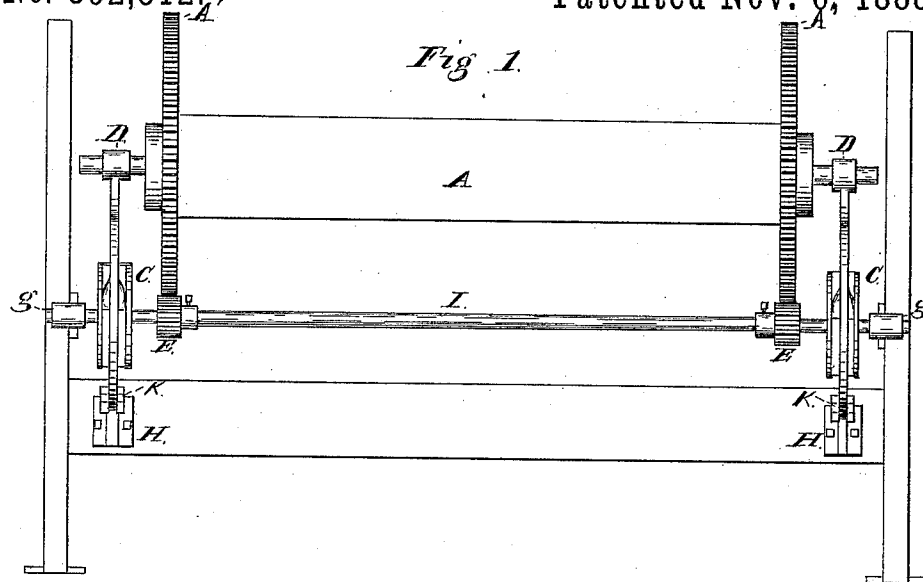
(No Model.)

S. M. HAMBLIN.

LET-OFF MECHANISM FOR LOOMS.

No. 392,512.

Patented Nov. 6, 1888.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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LET-OFF MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 392,512, dated November 6, 1888.

Application filed May 18, 1888. Serial No. 274,302. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN M. HAMBLIN, a citizen of the United States, residing at Plymouth, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Let-Off Mechanism for Looms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the let-off mechanism of looms, and more particularly to that variety in which the warp-yarns are wound upon the warp-beam and drawn off therefrom by the tension of the fabric as it is wound upon the cloth roll and the strain upon the warp in the shedding, the too rapid rotation of the warp-beam being prevented by suitable braking devices applied thereto. It is apparent that in a let-off mechanism of this class wherein the warp-beam is not rotated positively, but by the strain and tension of the warp-yarns themselves, it becomes necessary to provide means for altering the resistance of the braking or friction devices applied to the warp-beam as the diameter of the yarn on the beam diminishes, and consequently the effective leverage for turning the beam also decreases. In order to effect a corresponding diminution in the resistance of the braking apparatus and to maintain a constantly uniform tension on the warp, I have designed mechanism for the accomplishment of this end, making use, as its effective agent, of the weight of the yarn and warp-beam which is constantly diminishing as the weaving proceeds.

My invention consists of the construction and combination of parts now more particularly to be described, and afterward pointed out and specifically presented in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 illustrates my improved devices as they appear in a rear view of the loom. Fig. 2 presents a detail view of the beam-holder and its attached braking-shoe; and Fig. 3 is a side view, partly broken away, of the loom-frame and my improved devices.

Throughout the drawings the same parts are designated by the same letters of reference.

I is a shaft suitably journaled in the loom-frame at *g g*, and on this shaft are fixed the two brake-pulleys C C and the pinions E E, just below the pulleys C C. The brackets H H are attached to the loom-frame, and to these brackets the beam-holders D D are pivoted at K K. Each beam-holder D consists of a piece which passes around and beyond the brake-pulley C and is there provided with a notched bearing to receive an end of the shaft of the warp-beam. Further, it is provided with a brake-shoe, L, which is pivoted to it at *d* at a point suitable to permit of the frictional engagement of the shoe with the pulley C on the shaft I. This shoe L is shaped in the arc of a circle to permit of its close engagement with the pulley C, and is provided with a number of pivot-holes, *e'* to *e''*, to allow it to be adjustably connected to the holder D. The warp-beam A rests in the bearings in the holders D, and is provided with gears A' A', which mesh with the pinions E E on the shaft I.

The operation of my improved mechanism now becomes clearly apparent. It is evident that the weight of the beam and the yarn thereon, acting through the beam-holder D and its attached brake-shoe L, imparts a frictional resistance to the rotation of the pulleys C. This resistance, by means of the shaft I, pinions E E, and gears A' A', is transmitted to the beam A and prevents its too rapid rotation. Now, as the diameter of the yarn on the beam diminishes, and with it the leverage about the axis of the beam, which is effective to turn the warp-beam against the resistance of the braking devices, it is evident that the weight of the warp-beam and yarn must also diminish. In this manner the amount of frictional resistance applied to the pulley C by the weight of the beam and the yarn on it through the holder D and brake-shoe L is also diminished sufficiently to compensate for the decrease of effective leverage about the axis of the warp-beam. In this way I obtain a let-off mechanism simple and economical in its construction and durable, and one which, moreover, accomplishes the end in view—namely, the constant and uniform tension of the warp-yarns throughout.

The duplication of my devices, and more particularly of the pinions E E and gears A' A', effects the steady, even rotation of the

warp-beam and in great measure prevents the jumping of the beam, so common in looms employed in like work or run at a high rate of speed.

5 The provision for the shoe L of the pivot-holes e' to e^5 permits it to be adjusted relatively to the holder D and pulley C in such manner as to vary the amount of frictional resistance it imparts, it being evident that when
10 pivoted at e' the shoe has a fuller, closer, and more effective bearing on the pulley than if pivoted at e^5 .

Having thus described my invention, its construction, and operation, what I desire to secure
15 by Letters Patent of the United States is—

1. The combination of shaft I, pinions E E,

and pulleys C C thereon, with the pivoted beam-holders D D, having the brake-shoes L L, all for the purpose described and set forth.

2. The combination of shaft I, pinions E E, 20 and pulleys C C thereon, with the pivoted beam-holders D D, having the curved brake-shoes L L, provided each with a series of pivot-holes, e' to e^5 , to permit of its adjustment with regard to the beam-holder D and pulley C, all 25 as and for the purpose described and set forth.

In testimony whereof I affix my signature in presence of two witnesses.

STEPHEN M. HAMBLIN.

Witnesses:

THOMAS S. GRYLLS,
ED. WHITTUM.