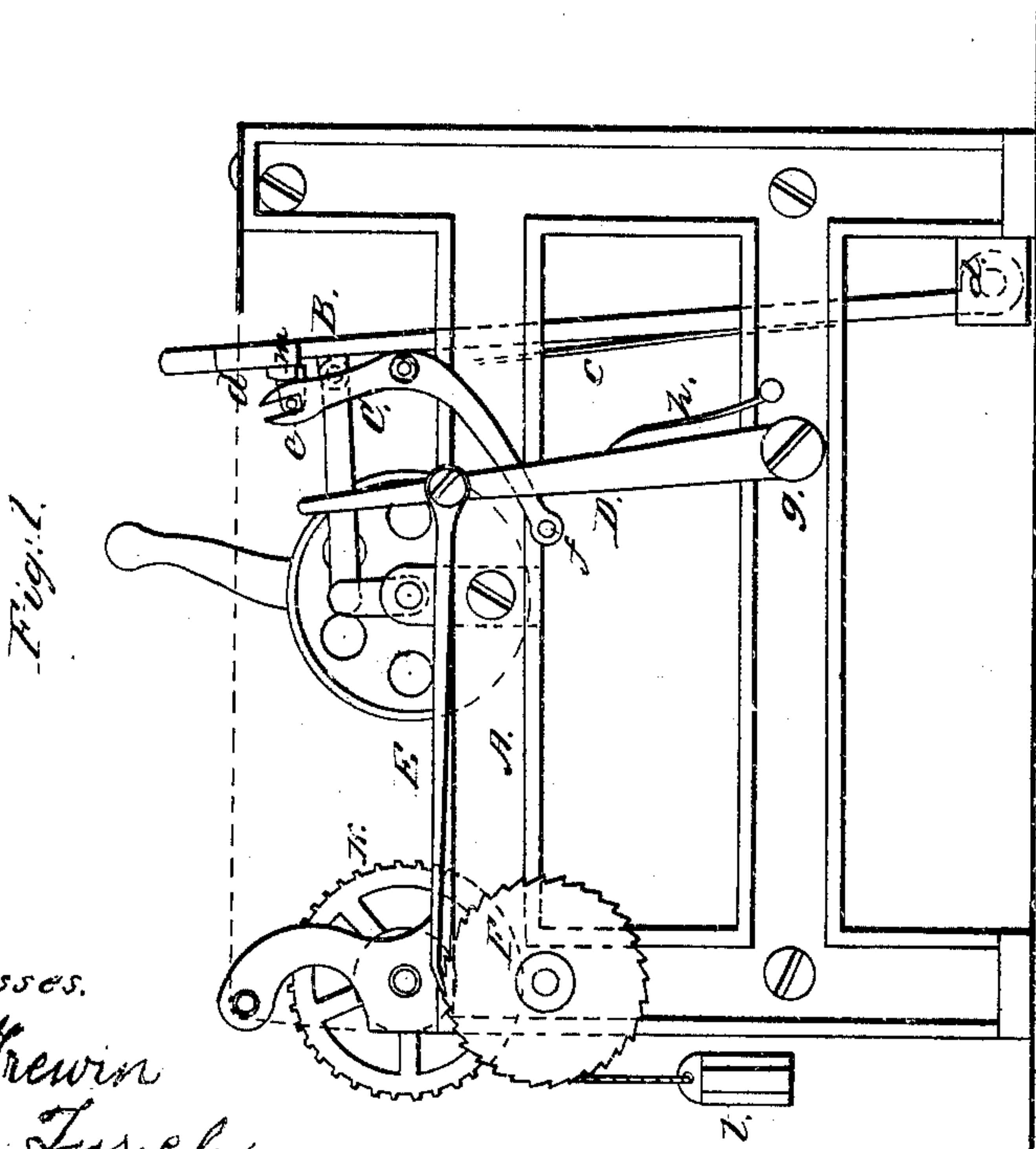
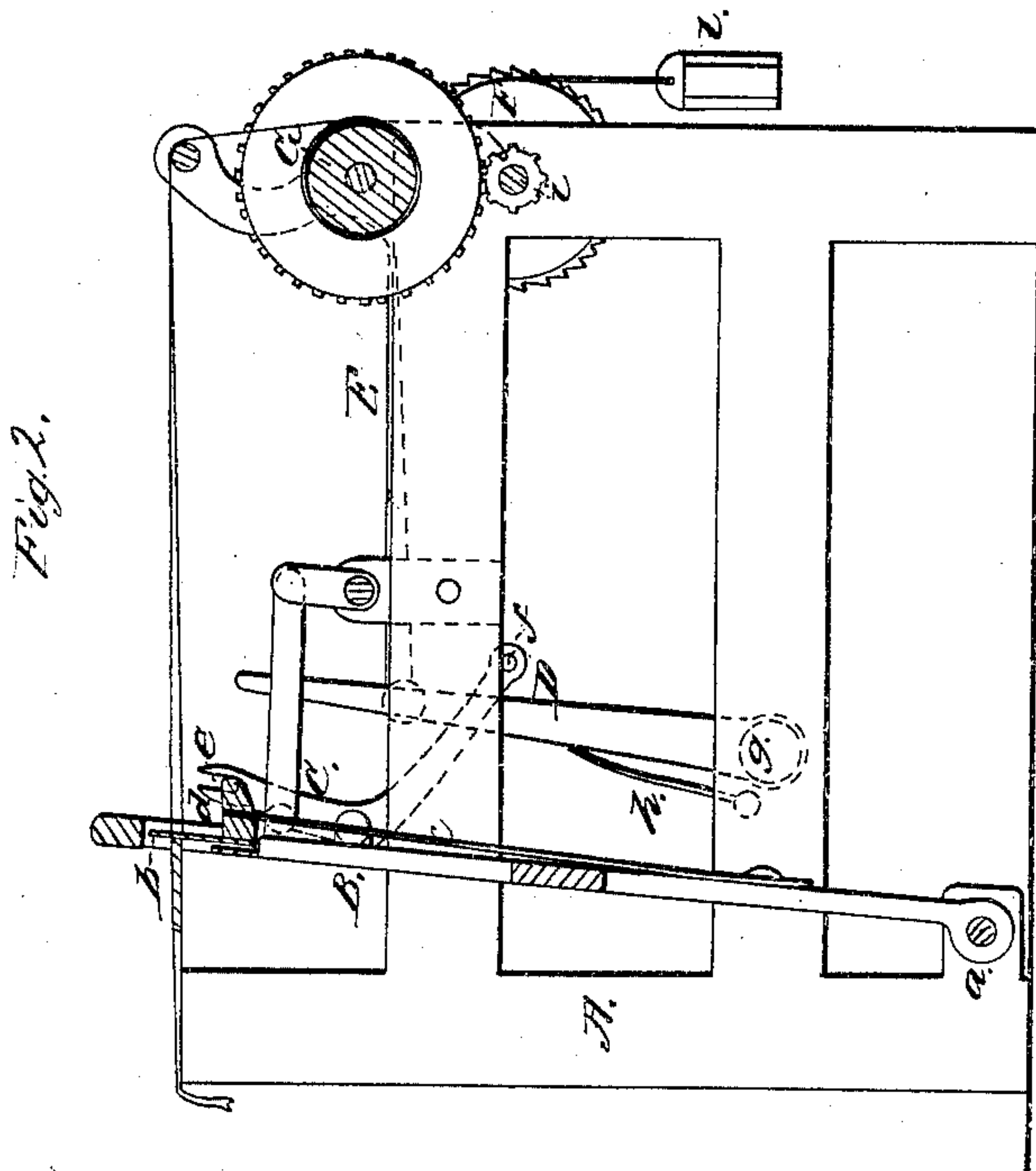


S. Estes.
Let-Off for Loan.

N^o 49,950.

Patented Sept. 12, 1865.



Witnesses.
Wm Brewin
Thos Lusch

Inventor.
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UNITED STATES PATENT OFFICE.

SAMUEL ESTES, OF NEWBURYPORT, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND C. O. MORSE; AND SAID ESTES ASSIGNS HIS RIGHT TO HIRAM LITTLEFIELD.

IMPROVEMENT IN LET-OFF MOTIONS FOR LOOMS.

Specification forming part of Letters Patent No. 49,950, dated September 12, 1865.

To all whom it may concern:

Be it known that I, SAMUEL ESTES, of Newburyport, in the county of Essex and State of Massachusetts, have invented a new and Improved Let-Off Motion for Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation of this invention. Fig. 2 is a longitudinal vertical section of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to govern the let-off motion of a loom by the power with which the batten strikes the finished fabric in beating up.

The invention consists in making the reed, or that part of the batten which comes in contact with the woven fabric in beating up, yielding and combining it, by means of levers, pawl, and ratchet-wheel, with the yarn-beam in such a manner that when the batten moves forward and its yielding portion comes in contact with the woven fabric in beating up, the pawl is drawn back more or less, according to the force which said yielding part of the batten has to overcome in beating up, and when the batten falls back the yarn-beam is turned in proportion to the motion previously given to the pawl, and consequently the let-off motion is regulated by the force of the blows exerted by the batten in beating up, and the texture of the fabric produced is of uniform density throughout.

A represents the frame of a loom, of any desired construction, in which the batten B is made to oscillate on the rod or rocker *a* in the usual manner. The reed *b*, or that portion of the batten which comes in contact with the finished fabric in beating up, is connected to the main part of the batten by means of springs *c*, and it is provided with a projection, *d*, from which a pin, *e*, extends in the forked end of a bell-crank lever, C. This lever is hinged to one of the swords in such a position that it oscillates with the batten outside the frame A. From its loose end extends a pin, *f*, and when the reed *b* or yielding portion of the batten comes in contact with the finished fabric in beating up, the springs *c* yield and the pin *f*

of the bell-crank lever comes in contact with a lever, D, that is attached by a pivot, *g*, to the frame A. A spring, *h*, has a tendency to throw this lever in the direction toward the yarn-beam, and when the pin *f* strikes said lever it moves in the direction from the yarn-beam against the action of the spring *h*.

From the lever D extends a pawl, E, which engages with a ratchet-wheel, F, and this wheel is secured to an arbor, *i*, on which is mounted a pinion, *j*, that gears in a cog-wheel, *k*, secured to the end of the yarn-beam G. The arbor *i* is held at rest when not acted upon by the pawl E by the friction-strap and weight *l*. When the batten moves forward to beat up, the pawl E is caused to move in the direction of the arrow marked on it in Fig. 1 by the action of the pin *f* of the bell-crank lever C on the lever D, and when the batten falls back the lip *m* projecting from the batten strikes the upper end of the lever D and causes the same, with the pawl, to move in the direction opposite the arrow marked on said pawl in Fig. 1, and thereby the ratchet-wheel F is turned and the yarn-beam is caused to let off a quantity of yarn, which depends upon the amount of motion imparted to the pawl E. If the batten beats up hard the yielding portion thereof recedes more than it does when the batten beats up light, and consequently more yarn is let off in the former case than in the latter. The quantity of yarn let off is thus made dependent entirely upon the force of the blows exerted by the batten in beating up, and a texture of uniform density is produced. If for some reason the weft-thread gives out, or if no weft is put in, the batten on its next stroke will not beat up, and no yarn is let off; but as long as the weft is put in regularly, and the tension of the yarn-beam remains uniform, the density of the texture will also be uniform from beginning to end.

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

Making that part of the batten of a loom which comes in contact with the finished fabric yielding and combining it, by suitable levers, C D, pawl E, and ratchet-wheel F, or their equivalents, with the yarn-beam G, substantially as and for the purpose set forth.

Witnesses: SAMUEL ESTES.

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