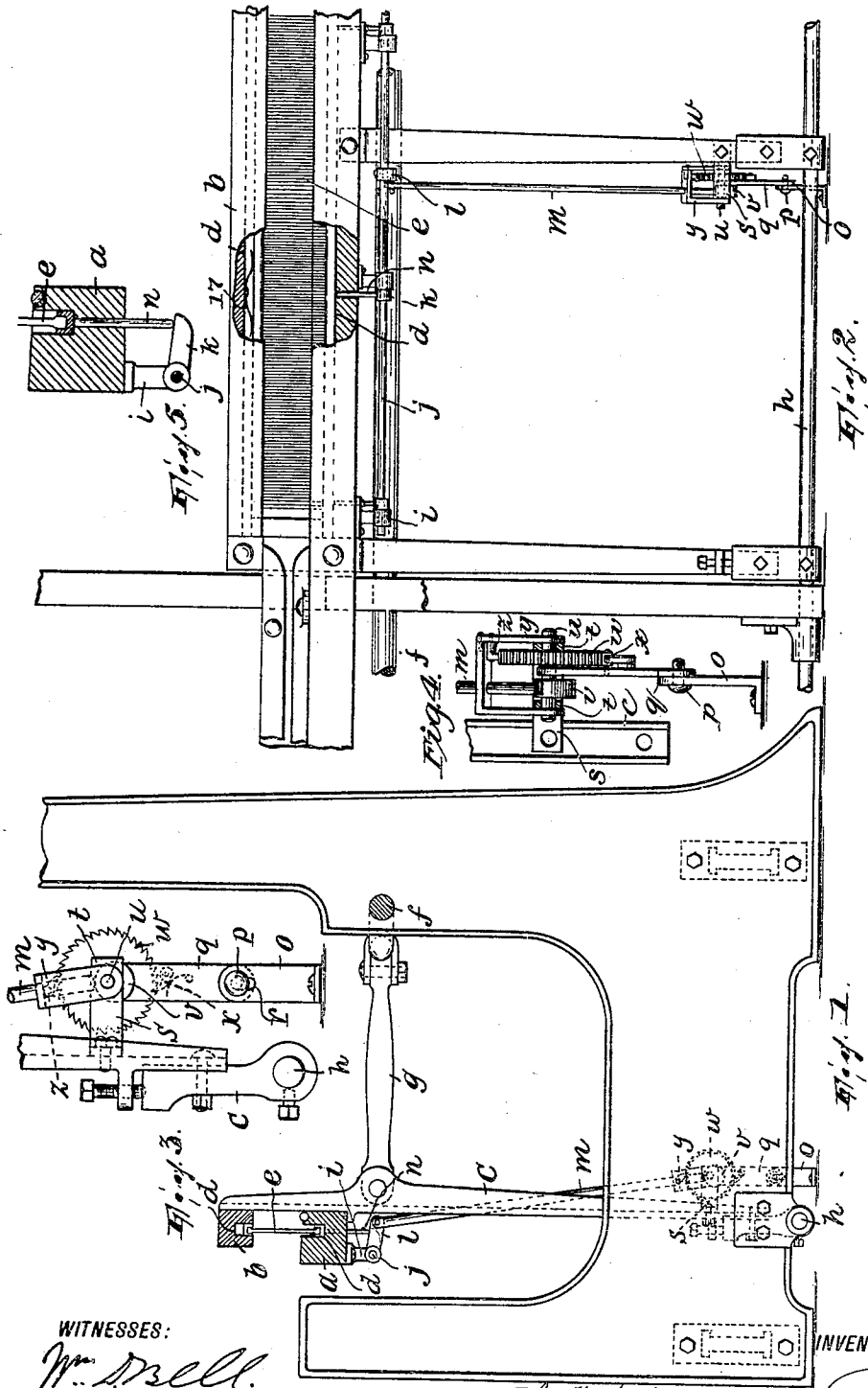


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LOOM.

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979,114.

Patented Dec. 20, 1910.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN WARBURTON AND ARTHUR GARDINER, OF PATERSON, NEW JERSEY.

LOOM.

979,114.

Specification of Letters Patent. Patented Dec. 20, 1910.

Application filed April 12, 1910. Serial No. 554,958.

To all whom it may concern:

Be it known that we, JOHN WARBURTON and ARTHUR GARDINER, citizens of the United States, residing in Paterson, Passaic county, and State of New Jersey, have invented a certain new and useful Improvement in Looms; and we 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention relates to looms and it has for its object to provide means for imparting a substantially vertical movement to the reed whereby to prevent the threads of the warp from cutting grooves in the dents of the reed, it being well known that the formation of such grooves not only reduces the efficiency of the reed but results in damage to the threads of the warp.

In carrying out our invention we have so constructed and arranged the parts of the mechanism whereby movement is imparted to the reed that the latter will have substantially no movement at the time when the reed is active in beating up, movement at that time being undesirable because of the sawing action which the dents of the reed would exert on the fell of the cloth. We have also had in mind so to construct and arrange the parts of said mechanism that on successive advances of the reed to the fell of the cloth it shall stand at different elevations, it being obvious that, inasmuch as the greatest wear exerted by the warp threads on the reed dents comes at the moment of beating up (because the contraction of the cloth relatively to the warp produces a convergence of the warp threads toward the cloth), if the reed and batten reciprocated in the same cadence the wear of the warp threads on the reed dents would always occur at the same places on the latter.

Our invention consists in employing, with a reciprocatory loom batten and a reed movable therein, means, actuated by the batten, for effecting movement of the reed upon movement of the batten.

Our invention further consists in means for moving the reed substantially vertically in the batten structure in such manner that

the reed shall be substantially stationary at the moment of beating-up.

Our invention still further consists in means for moving the reed substantially vertically in the batten structure whose action shall be so timed with respect to those of the batten that it will cause the reed to occupy different elevations on succeeding beatings-up of the batten.

The invention will be found fully illustrated in the accompanying drawings, wherein,

Figure 1 is a side elevation of a loom equipped with our improved reed controlling mechanism, the batten appearing in section and only so much of the loom being shown as is necessary for the purpose in hand; Fig. 2 is a front elevation of what is seen in Fig. 1, the batten appearing partly broken away; Fig. 3 is an enlarged side elevation showing certain parts in full lines which appear in Fig. 1 in dotted outline; Fig. 4 is a rear elevation of what appears in Fig. 3; and, Fig. 5 is a sectional view of the batten appearing in Figs. 1 and 2, showing the construction and arrangement of the parts carried thereby.

*a* is the lay or batten and *b* the hand-rail both carried by the lay-swords *c* in the usual manner and formed with opposed grooves *d* permitting the reed *e* received therein to have limited vertical movement. The batten structure is reciprocated in the usual manner from the crank-shaft *f* by the pitmen *g*, the lay-swords being carried by the rock-shaft *h* journaled in the loom frame.

In suitable brackets *i* in the batten is journaled a rock-shaft *j* carrying arms or cranks *k* projecting under the reed and also having a crank *l*. To this crank is pivotally connected a rod *m*. The reed is supported on the several arms *k* by the pins *n* guided for vertical movement in the batten.

To the floor back of the shaft *h* is secured a bracket *o*. By means of a pin *p* there is fulcrumed in this bracket a lever *q*, a slot *r* in either of the parts *o* and *q* being penetrated by the pin *p*, allowing vertical and pivotal movement of the lever but not movement horizontally.

To the back of one of the lay-swords is secured a bracket *s* having the rearwardly projecting parallel arms *t*. In the arms of this bracket is journaled a shaft *u* carrying a cam *v* and a ratchet wheel *w* both fixed to the

shaft. The lever projects between the cam and ratchet and is penetrated by the shaft. A spring-pawl *x* is pivoted to lever *q*, engaging the ratchet. When the batten recedes, although lever *q* has some vertical movement (permitted by the slot *r*) it will also have slight pivotal movement with respect to bracket *s* around shaft *u* as an axis, the angle between the two becoming more acute. Therefore the pawl *x* will serve to rotate the ratchet relatively to bracket *s*. A U-shaped yoke *y* has its extremities pivoted on the shaft *u*, the said yoke being penetrated by and forming a guide for the rod *m*, whose lower end bears on the cam. A holding pawl *z* is pivoted in the yoke, engaging the ratchet and acting to maintain the advance thereof produced by the pawl *x*.

In view of the foregoing it will be observed that rotary impulses are only imparted to the cam on the backward movement of the batten structure, it being stationary on the forward movement of the batten; that, furthermore, since the cam turns only a partial revolution on each impulse, the reed is brought to different elevations on succeeding beatings-up of the cloth. Therefore, we not only avoid the undesirable sawing effect which the reed would produce on the fell of the cloth did it move at the moment of beating up, but eliminate the constant wear of the warp threads on the dents (considerable at the moment of beating-up because the threads are made to converge by

the relatively contracted cloth) at identical points on their surfaces, distributing such wear over more or less considerable portions of such surfaces, instead.

In order to insure the downward movement of the reed it is preferable to interpose a spring between the top thereof and the hand-rail; such spring, designated 17 in the drawings, is shown disposed in the groove of the hand-rail.

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

The combination, with the batten structure, of a reed movable in the same, a stationary bracket, a lever fulcrumed in the bracket, another bracket carried by the batten structure, a ratchet and cam fixed together and journaled in the second bracket, said lever having pivotal connection with the second bracket concentrically with the cam and ratchet, a pawl carried by the lever and engaging the ratchet, and mechanism, engaging the cam, for transmitting motion from the latter to the reed, substantially as described.

In testimony, that we claim the foregoing, we have hereunto set our hands, this 9th day of April, 1910.

JOHN WARBURTON.  
ARTHUR GARDINER.

Witnesses:

JOHN W. STEWARD,  
WM. D. BELL.