

(No Model.)

A. K. PRATT.
LOOM.

No. 577,692.

Patented Feb. 23, 1897.

Fig. 1.

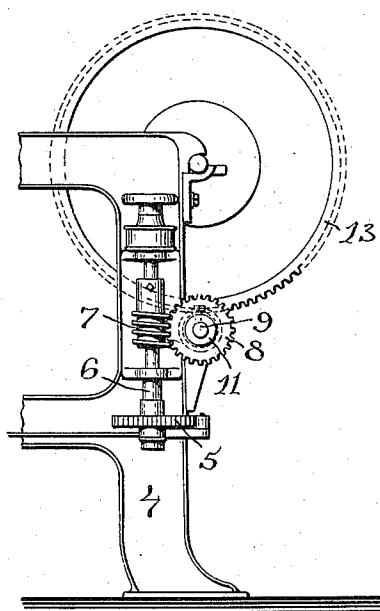


Fig. 2.

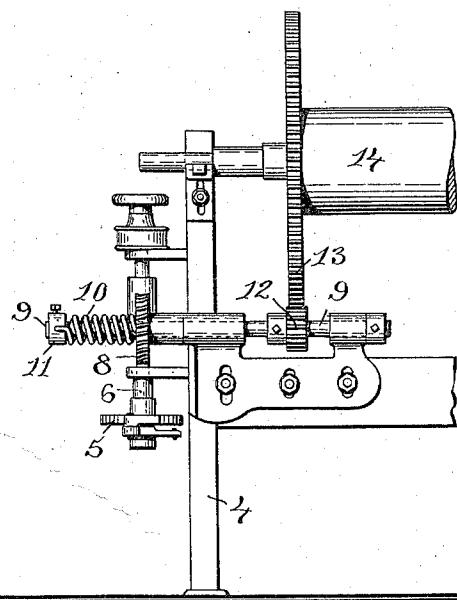
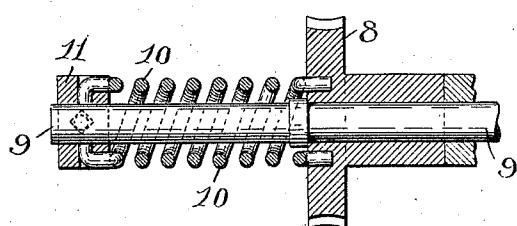


Fig. 3.



WITNESSES:

W. F. Bligh.
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INVENTOR:

Albert K. Pratt,
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Attest.

UNITED STATES PATENT OFFICE.

ALBERT K. PRATT, OF NORTHBIDGE, MASSACHUSETTS, ASSIGNOR OF
ONE-HALF TO FRANK S. BERRY, OF SAME PLACE.

LOOM.

SPECIFICATION forming part of Letters Patent No. 577,692, dated February 23, 1897.

Application filed February 26, 1896. Serial No. 580,836. (No model.)

To all whom it may concern:

Be it known that I, ALBERT KENNEDY PRATT, of Northbridge, in the county of Worcester and State of Massachusetts, have 5 invented a new and useful Improvement in Looms; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

When in a loom the warp-threads are sprung by the heddles upward and downward to form the shed, a sudden strain is brought on the warp-threads, and when the warp-threads are brought to the horizontal line in crossing they slack. The whip-rod has been arranged to yield to excessive strain on the warp-threads, but in practice it is found that warp-threads frequently break from the sudden strain of the heddles which would not have broken if the warp-beam had yielded to extra strain and taken up the slack.

The object of this invention is to give to the warp-beam the capacity to yield to this 25 extra strain on the warp-threads and automatically take up the slack.

The invention consists in the peculiar and novel construction and combination of the parts, as will be more fully set forth herein- 30 after, and more particularly pointed out in the claims.

Figure 1 is a side view of the rear end of the loom, showing the let-off motion and its connection with the pinion-shaft, by which 35 the warp-beam is operated. Fig. 2 is an end view of part of a loom, showing the warp-beam and the pinion-shaft. Fig. 3 is a sectional view showing the worm-gear mounted loose on the pinion-shaft and connected by a 40 coiled spring with a collar secured to the pinion-shaft.

In the drawings I have shown the preferred form in which I carry out my invention; but I do not wish to confine myself to the exact 45 construction shown.

Similar numerals of reference indicate corresponding parts in all the figures.

In the drawings, 4 indicates the frame of the loom, and 5 the ratchet-gear which operates 50 the let-off of the warp. This ratchet-gear is secured to the vertical shaft 6, on which the

worm 7 is secured, and this worm engages with the worm-gear 8, which has heretofore been secured to the pinion-shaft 9, but which I now mount loose on the shaft. The worm-gear 8 is secured to the spiral spring 10, surrounding the pinion-shaft 9. The opposite end of the spiral spring 10 is secured to the collar 11, which is secured to the pinion-shaft 9, adjustably by means of a clamp-screw, so 60 that in place of the former rigid connection with the shaft the worm-gear 8 is now connected yieldingly by the coiled spring 10 with the shaft 9. The pinion 12 on the pinion-shaft 9 engages with the gear 13, secured to 65 and turning with the warp-beam 14. All the parts are supported in their usual bearings, and the operation of the parts remain practically the same as heretofore with the exception that any excessive strain on the warp is 70 transmitted to the pinion-shaft and the coiled spring 10, and any slack in the warp is taken up again by the reaction of the coiled spring acting on the pinion-shaft and through the pinion 12 and gear 13 on the warp-beam.

The worm-gear 8 is held in the required position by suitable collars against longitudinal movement on the shaft by the torsion on the coiled spring 10.

By applying the coiled spring so as to exert 80 the torsional spring action on the pinion-shaft a powerful strain is applied to the warp by a comparatively small spring, because the spring strain is multiplied by the small pinion 12, which engages with the large gear on the 85 warp-beam, and thus the let-off of the warp is more perfectly controlled.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a loom, the combination with the warp-beam connected to the pinion-shaft by means of gears, of the pinion-shaft, a worm-gear loose on the same, a coiled spring, surrounding the shaft, secured at one end to the 95 shaft by an adjustable collar and at the other end to the loose worm-gear, and means for turning the loose worm-gear; whereby a yielding adjustable spring strain is exerted on the warp and slack warp or excessive sudden 100 strain on the yarn is avoided, as described.

2. In a loom, the combination with the

warp-beam, the gear connected therewith, and the shaft carrying the pinion-gear engaging with the gear on the warp-beam, of a gear loose on the shaft, and a coiled spring inclosing the shaft, one end of said spring being secured to the shaft and the other end to the loose gear, means for turning the loose gear whereby the torsional strain of the coiled spring is exerted on the gear of the warp-

beam and on the warp and the slack is taken up, as described.

In witness whereof I have hereunto set my hand.

ALBERT K. PRATT.

Witnesses:

JOSEPH A. MILLER, Jr.,
M. F. BLIGH.