FREDERICK W. GRAICHEN.

Let-off Mechanism for Looms.

117,768. Patented August 8, 1871.

Fig. 1.

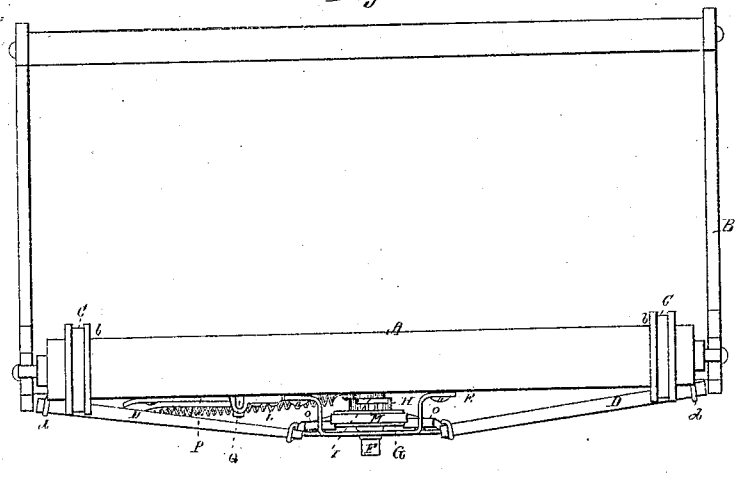


Fig. 2.

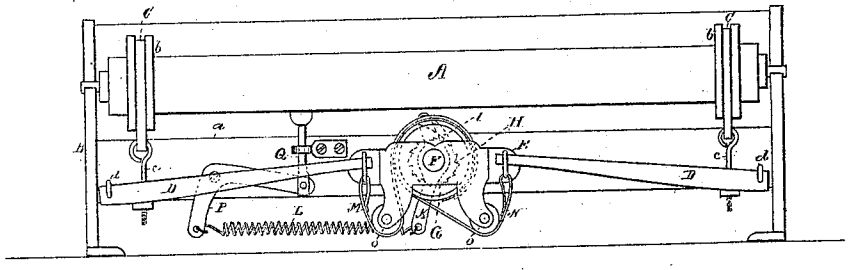


Fig. 3.

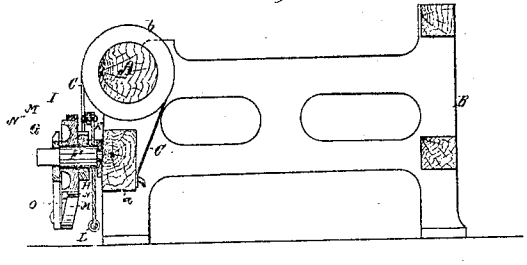
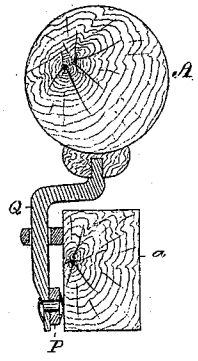


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

FREDERICK W. GRAICHEN, OF OLNEYVILLE, R. I., ASSIGNOR TO EDWARD BARROWS AND JOSEPH CLAYTON, OF DRACUT, MASS.

IMPROVEMENT IN LET-OFF MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. 117,768, dated August 8, 1871.

To all whom it may concern:

Be it known that I, FREDERICK W. GRAICHEN, of Olneyville, of the county of Providence, of the State of Rhode Island, have invented a new and useful Friction Apparatus for the Yarn-Beam of a Loom; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, in which—

Figure 1 is a top view, Fig. 2 a front elevation, and Fig. 3 a transverse section of it and a yarn-beam and its supporting end of a loom-frame.

My present invention includes that for which, on March 9, 1871, I filed an application for a patent, and on which, on May 12, 1871, a patent was ordered to be allowed. In carrying out my present invention I have combined with my previous invention, or the parts composing it, a presser and a bent lever, such being for the purpose of effecting a diminution of pressure of the friction-straps or brakes on the yarn-beam or roller as the yarn may be unwound from it, the leverage tending to unwind the yarn being increased as the roll of yarn may diminish in diameter. By diminishing the friction of the brake or brakes as the said leverage may increase an equality of tension on the yarn or a close approximation thereto may be effected, whereas without the additional devices the tension would be constantly increased as the yarn or warp may be unwound from the beam.

In such drawing, A denotes the yarn-beam, and B the loom-frame, *a* being the cross-girt or that immediately underneath the yarn-beam. Two friction-straps or bands, C C, attached at one end of each to the girt, extend over and upon the peripheries of the heads *b b* of the yarn-beam, and are connected to the eyes of two screws, *c c*. These screws are extended through two levers, D D, whose fulcrums *d d* are at or near their outer ends, the two levers being arranged with respect to the girt in manner as represented. Within a frame, E, arranged between the two levers and fixed to the girt is a shaft, F, provided with a wheel, G, the shaft at its outer end being prismatic to receive a key. A ratchet-wheel, H, is also fixed to the inner side of the wheel G, and receives or engages with a pawl, I, pivoted to the upper arm of a lever, K, whose fulcrum is the said shaft. A spring, L, is fastened at one end to the lower arm of the lever K. Furthermore, two belts, M N, fastened to the periphery of the wheel G, are extended partially around the wheel and underneath guide-rollers O O, and are looped upon the inner ends of the two levers D D, all being as represented. In my previous invention the said spring L was at its other end attached to the floor, but in my present invention I connect it to the shorter arm of the bent lever P pivoted to the girt, and arranged as shown. The longer arm of the said lever has a presser or vertical slider or crutch, Q, joined to it, such crutch being to rest against the periphery of the roll of yarn of the beam. A vertical section of the beam and the crutch is shown in Fig. 4.

The belts and their wheel, the pawl and its lever, combined and arranged in manner as described and as represented, with the spring and the levers of the friction-bands, constitute a means by which the tension or draft of the spring on the band-levers may be adjusted and regulated. By casting the belts off the friction-band levers the yarn-beam will be so relieved of the friction of the bands as to enable it to be readily revolved by an operative, when it may be necessary for him to do so to effect the piecing up of a warp or for any other purpose. To obtain a better and even tension I combine, with the tension apparatus of my previous invention, the bent lever and the crutch, the whole being to operate as specified.

I claim—

My new yarn-beam friction or tension apparatus, as composed of instrumentalities as described, arranged, and combined as set forth, such instrumentalities consisting of the crutch Q, the bent lever P, the spring L, the lever K, the pawl I, the ratchet-wheel H, the wheel G, frame E, the shaft F, the bands M N, guide-wheels O O, levers D D, and friction-bands C C, all being applied together and to the yarn-beam and loom-frame, substantially in manner and to operate as described.

F. W. GRAICHEN.

Witnesses:
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