L. Hull.

Loom Tension.

No. 49,271. Patented Aug. 8, 1865.

Fig. 1.

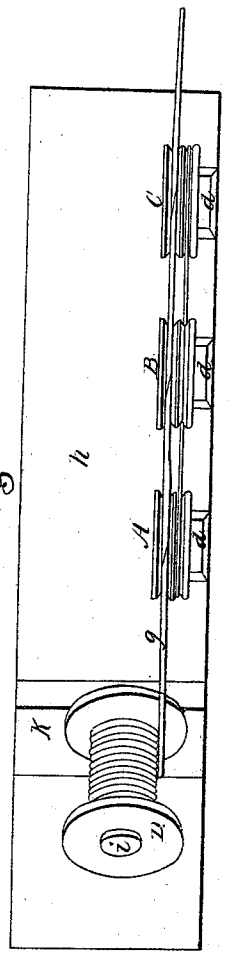
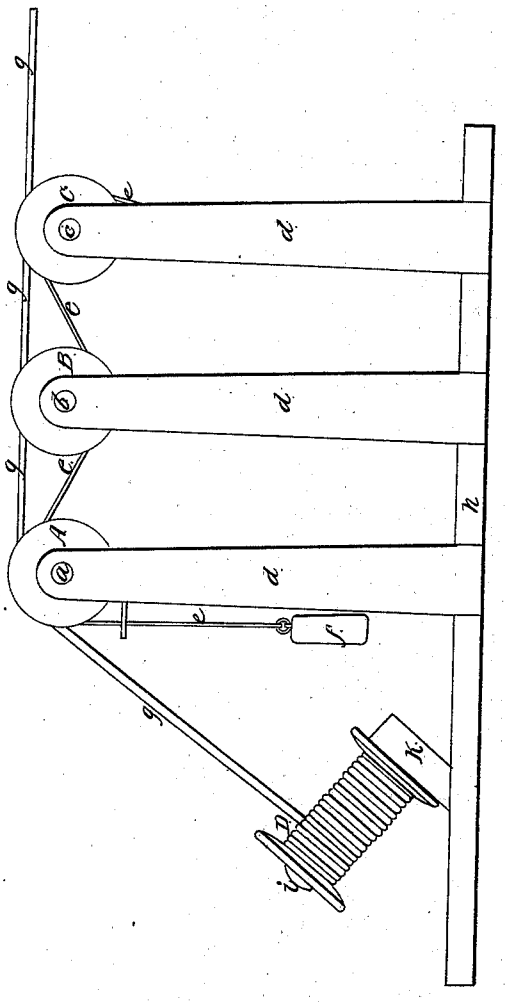


Fig. 2.



Witnesses:

F. P. Hale Jr

Frederick Curtis

Inventor

Inveras Hull

by his attorney

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UNITED STATES PATENT OFFICE.

LIVERAS HULL, OF CHARLESTOWN, MASSACHUSETTS.

IMPROVEMENT IN TENSION MECHANISM FOR LOOMS FOR WEAVING GOODS WITH ELASTIC STRANDS.

Specification forming part of Letters Patent No. **49,271**, dated August 8, 1865.

To all whom it may concern:

Be it known that I, LIVERAS HULL, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented a new and useful Tension Mechanism for Looms for Manufacturing Goods with Elastic Strands; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, and Fig. 2 a side elevation, of my said tension apparatus or mechanism.

In the drawings, A, B, and C represent three grooved wheels, supported on centers *a b c* projecting from three posts, *d d d*. Each of these wheels has two grooves in and around its periphery. A friction band or cord, *e*, fastened to one of the posts, is carried partially around the periphery of each wheel, in manner as shown in the drawings, and has a weight, *f*, suspended from it. This band, with its weight, serves as a brake to produce friction on each of the wheels, to resist the draft of the elastic strand *g*, which, proceeding from a spool, A, is wound once about each of the wheels. The spool is to be supported on a spindle, *i*, which extends from a projection, K, that rises from a base-board, *h*, to which the parts *d d d* are secured. The strand *g* is to be led from the said mechanism into the warps of the loom, by which such strands, with the warps and the filling, are to be converted into an elastic webbing suitable for the fabrication of suspenders or other elastic articles.

I have found by using two or more of the grooved wheels, A B C, instead of but one of them, for the elastic strand to encompass, and applying to each of such wheels a friction-band, *e*, arranged with respect to it as explained, that the tension of the strand is not only better maintained and nearer equalized, but the delivery of the strand from the spool or the most advanced wheel is approximately uniform. When but one wheel is employed the draft of the strand, when sufficient to rotate the wheel, will cause too much unstrained strand to be suddenly given off by the spool. This unstrained or unstretched portion of the strand, after passing the wheel, operates to diminish in too great a degree the tension of all that part of the strand in advance of the wheel—that is to say, the tension of such part of the strand will be suddenly lessened. In consequence of this irregularity in the tension the goods, when woven, will be more or less puckered; but with my improvement such will not be the case.

In the operation of my said improvement the tensile strain of the strand, tending to overcome the friction of the band *e* on the several wheels, will be divided among such wheels, and the wheel C will be revolved before the wheel B will commence to revolve; so the wheel B will revolve some time before the wheel A will revolve. Finally the wheel A will turn and draw from the spool a portion of the strand wound on it. This portion of unstretched strand, instead of being immediately delivered entire into the stretched strand in advance of the foremost wheel, C, will enter that part of the strand which extends from the wheel A to the wheel B and diminish its tension, after which it will gradually pass into the portion between the wheels B and C, and finally will gradually pass into the portion in advance of the wheel C. In this way the tension of that part of the strand which is in advance of the wheel C will be equalized, or sufficiently so for all practical purposes.

It has been found a very difficult matter to construct a tension apparatus by which uniformity of tension of the strand during the weaving process will be preserved. My invention accomplishes all that is necessary, and although simple, is of great importance in the matter of useful effects.

I claim as my invention—

The improved elastic-strand tension apparatus, substantially as described, the same consisting of two or more wheels, A B C, and a friction-band, *e*, and weight *f*, or the equivalent thereof, arranged and applied together and to the strand substantially as specified.

LIVERAS HULL.

Witnesses:
R. H. EDDY,
F. P. HALE, Jr.