W. A. Hastings.

Elastic Warp Index.

No. 94,957. Patented Sept. 21. 1869

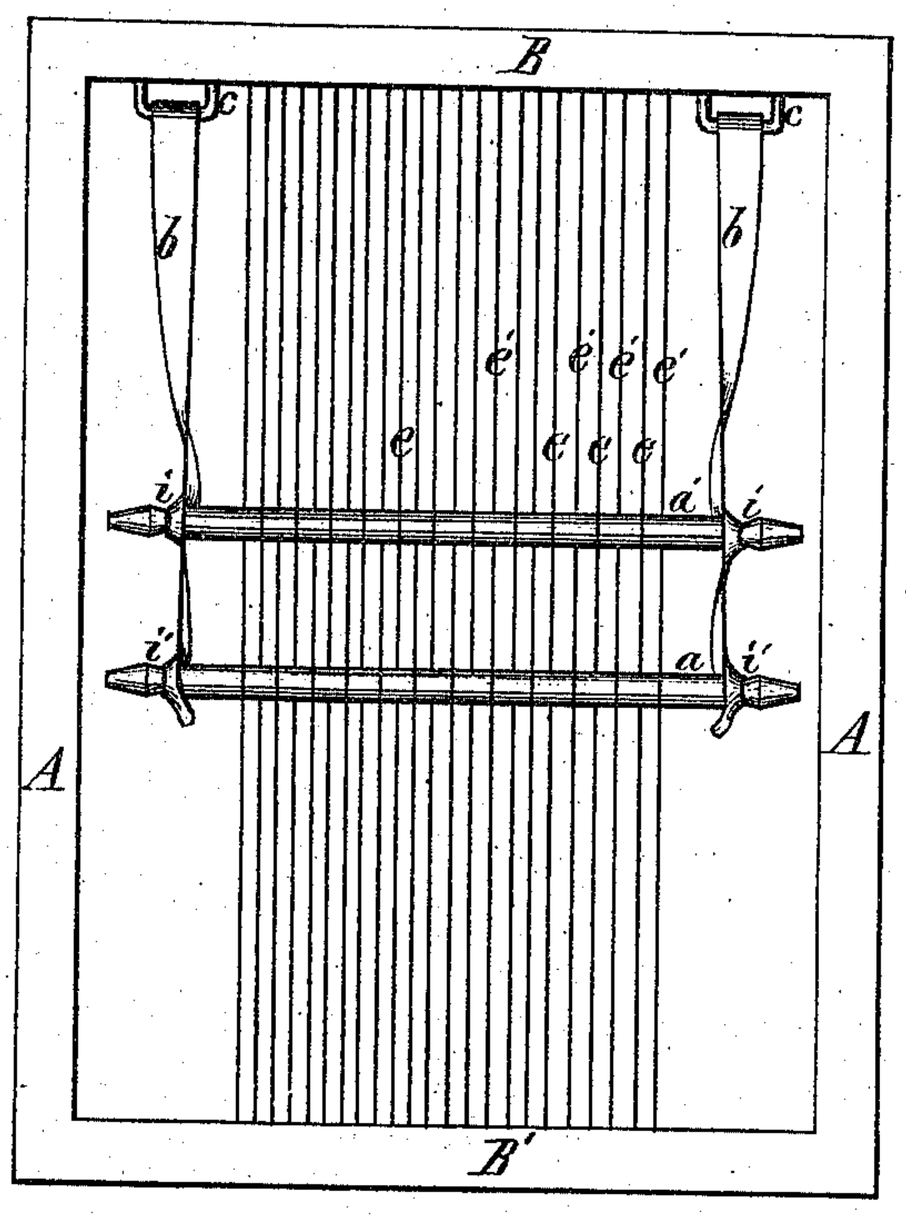

Fig. 1

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WILLIAM A. HASTINGS, OF THORNDIKE, MASSACHUSETTS.

Letters Patent No. 94,957, *dated September* 21, 1869.

IMPROVEMENT IN MOUNTING LEASE-RODS FOR LOOMS, &c.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM A. HASTINGS, of Thorndike, in the county of Hampden, and State of Massachusetts, have invented a new and useful Improved Warp-Index for Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a plan view of my invention, as applied to a loom.

My invention relates to a device for indicating to the operator the position and condition of the threads of the warp in weaving, so that he may the more readily and seasonably adjust any threads which may become broken in the operations of weaving; and

It consists of any desirable number of rods, of a similar form as those now in use, attached at or near each end to an elastic cord or strap, one end of said cord or strap being attached to some part of the loom or its belongings.

In the drawings—

A B is a frame, the end B may be considered as representing a roll, upon which the threads *e e'* are wound, while the end B' may be considered to represent a roll, upon which is wound the cloth, as fast as it is woven, the process of weaving being carried on between the two.

It will be seen, by reference to the drawings, that the threads marked *e* pass over the rod *a'*, and under the rod *a*, while the threads marked *e'* pass under the rod *a'*, and over the rod *a*.

This arrangement of the threads, which is now commonly used, separates them so that the operator can the more readily see when the threads become disarranged or broken, as is frequently the case; for, as the cloth is woven, and the threads are drawn from the usual warp-beam forward through the loom, these threads are always more or less uneven, having knots and bunches upon them, and very frequently become snarled or knotted to such an extent that as they are drawn forward the knots catch against the rods, and the threads, becoming checked in their passage, become broken, if not released.

The object of my invention is to relieve the temporary stoppage in the passage of the threads through the loom, by giving to the rods an elastic bearing or attachment.

This I accomplish by means of an elastic strap or cord, *b*, attached to each end of each rod *a a'*, the other end of said strap or cord being secured to any convenient part of the loom at *c*.

One strap on each side may answer for all the rods, or one may be used to each rod, as may be most convenient and desirable.

If only one strap on each side is used, the rods are attached to the strap at *i i'*, by perforating the strap and inserting the end of the rod into the perforation, or in any other suitable manner.

A long, very elastic spiral spring might be used to accomplish the same result, but I prefer some other elastic material, as India rubber, as it is very much cheaper, and accompliishes the desired result.

The most common method of securing the rods is to use a leather strap, with a weight attached, at one end, said strap being secured to the opposite side of the loom to that at which my elastic strap is attached.

This leather strap, with its weight, is very much in the way, and interferes materially with the tendency which the rods always have to accommodate themselves to the motion of the warp, and if this motion of the rods is interfered with, the cloth does not look as well.

It is also desirable, very often, in adjusting threads, to draw the rods back towards the side of the loom to which the elastic straps are secured, but by the use of a leather strap, the rods can only be moved one way; and another objection to weights attached to a strap is, that the weights are liable to get caught in loose warp, or other material, which is always more or less about a loom.

In my invention, the straps are up entirely out of reach of other matter, and are not at all liable to be interfered with.

Oftentimes the attention of the operator is occupied with various other duties, and while so occupied, if a knot should catch upon one of the rods, the elasticity of the strap would permit the rod to be drawn forward until the knot should free itself, while in the more rigid rods the thread would break as soon as it caught.

By the use of this elastic warp-index, the appearance of the cloth is very greatly improved, giving it a much smoother surface and a thicker appearance.

In weaving some kinds of goods but a single rod is required, while in other cases sometimes three are required, but it is immaterial as to the number used, as the operation of each is precisely similar.

If that part of the strap or cord to which the rods are attached were made of leather, or equivalent rigid material, it might be equally operative, as the part of the connection, *b*, which is made of elastic material, would admit of sufficient play of the rods to make them perform their desired function.

I am aware that movable rods have heretofore been used as a warp-index, but never, to my knowledge, has the device herein described been before known or used; and

Having, therefore, described my invention,

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

An elastic warp-index, consisting of one or more rods *a*, to each end of which is attached the spring *b*, secured to a convenient place upon the loom, all constructed and operating substantially as and for the purposes herein described and set forth.

WM. A. HASTINGS.

Witnesses:

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