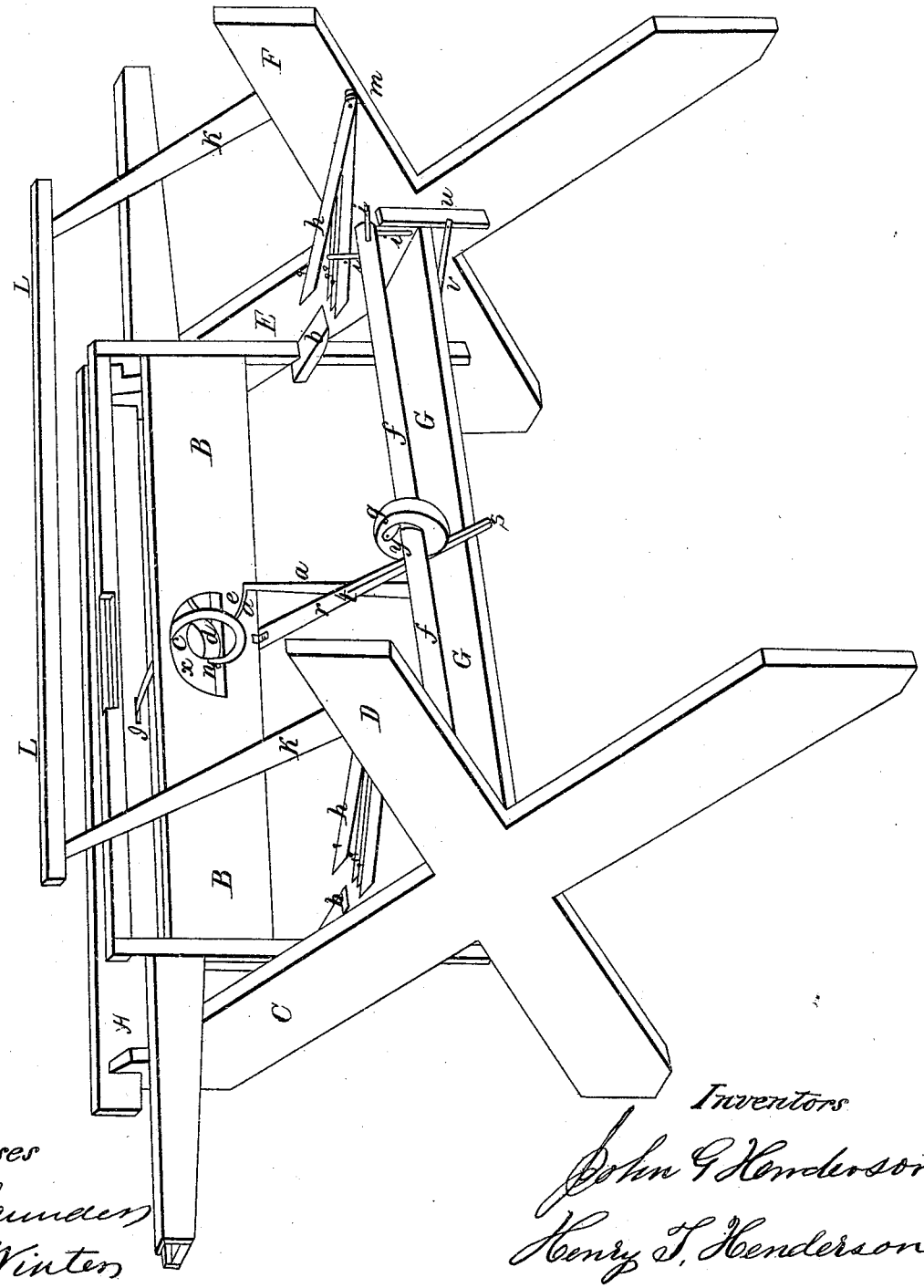
J. C. & H. T. Henderson.

Hand Loom.

No. 46,798. Patented Mar. 14, 1865.



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JOHN G. HENDERSON AND HENRY T. HENDERSON, OF SALEM, IOWA.

IMPROVEMENT IN HAND-LOOMS.

Specification forming part of Letters Patent No. 46,798, dated March 14, 1865.

To all whom it may concern:

Be it known that we, JOHN G. HENDERSON and HENRY T. HENDERSON, of Salem, Henry county, Iowa, have invented a new and useful Improvement in Hand-Looms; and we do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the annexed drawing, making a part of this specification.

Said drawing is a perspective view of the principal parts of the loom from the back part, which gives a clear view of all the machinery excepting such parts as are not necessary to illustrate our invention.

Our invention consists—

First. In constructing a picker-staff in the form of a pulley, having an arm projecting therefrom, and in pivoting the pulley upon a bolt secured in a mortise in the center of the lay, so that the staff shall protrude toward the breast-beam, and attaching a strap by a screw or bolt to that side of the pulley which is opposite to the staff, and fastening the other end of the strap to the breast-beam. A string is then tied to this strap a few inches from the end that is attached to the picker-staff, the other end of this string being fastened to an upright located behind the lay, so that as the lay is brought forward the strap is drawn by the string over the top of the pulley to the side toward the shuttle, and as the lay is thrown back the strap throws the picker-staff around and throws the shuttle into the other box; and, again, as the lay comes forward the strap is drawn to the side of the pulley toward the shuttle, and again the shuttle is thrown into the other box, the strap being always drawn by the string to the side of the picker-staff toward the shuttle.

Second. In placing a shaft across the loom, behind the lay, and placing a ratchet on it, and placing a pawl on the ratchet which catches in notches cut in the shaft, so that the ratchet and pawl may roll loosely one way, but in rolling the other way the pawl shall engage with the notches, and so turn the shaft. This ratchet is attached to the lay in such manner that it rolls one way as the lay comes forward and the other way as the lay goes backward, rolling the shaft partly around at each forward motion of the lay. Treadles are placed over each end of this shaft, which work on a journal behind, and are hinged or loosely attached to the heddle-shafts in front by stiff rods. Pins are placed in the shaft at each end under the treadles, so that as the lay comes forward the heddle shaft or shafts that are required up for the next shed are elevated and remain up until the lay starts forward again. A piece of wood with its operative end beveled upward, if desirable, is attached to each sword of the lay, and extends backward, so that all the shafts that are not elevated are taken down by these two pieces, making the shed complete when the shuttle passes. A stop is used to prevent the shaft from rolling too far around. It is pivoted at the lower end to the frame, and is operated by the lay through a connecting-arm, so that the lay, as it comes forward, brings the stop under the pins in the shaft, arresting the rotation, and goes out from under them as the lay goes back again.

The better to illustrate our improvement we have made a drawing, in which C D E F is the frame. B B is the lay, constructed with swords, shuttles-boxes, bicker-blocks, and straps. G G is the tie that holds the loom together. K K are uprights, and L L the top rail, all of which are common to most looms.

The shuttle is thrown by machinery in the center of the lay. The picker-staff *d* is made to work on an upright bolt in the bottom of a mortise, as seen at *x*, and the strap *c* is fastened to the picker-staff at *n*, and goes forward and is fastened to the breast-beam H at I. The string *e* is fastened to the strap *c* at the point *o*, and to the upright *a*, which is placed directly behind the center of the lay. As the lay is brought forward, the string *e* draws the strap *c* over the pulley of the picker-staff *d* to the side toward the shuttle, and as the lay is thrown back the strap *c* throws the picker-staff around and throws the shuttle into the other box, and the string *e*, drawing to the center, turns the straps *c* in a similar manner over to the other side, and so on, repeating the operation of throwing the shuttle from one box to the other at each backward motion of the lay.

The upper shed is produced by the shaft *f f*, which is rolled around by the pawl *y* of ratchet *g*, which is attached to the lay by means of the stiff rod *r*, passing under the ratchet *g*.

The mode of attachment is as follows: A strap is fastened at one end to this rod *r* at *t*, and,

passing around the ratchet *g*, is fastened to it at the side opposite the rod *r*, and goes on around, and is fastened to the rod *r* again at *s*. As the lay comes forward, the pawl or catch *y*, thus operated by this strap, rolls the shaft *f f* around, and throws up one or more of the pins, *i i i*, which are placed near each end of said shaft, which pins raise the treadles, a set of which is placed on each side of the loom, as seen at *h h*. They are fastened at *m*, and come forward over each end of the shaft *f f*, and throw up whatever heddles are required for the next shed, and hold them up until the shuttle is thrown.

The lower shed is made by the depressers *b b*, each of which is placed on the swords of the lay at such point that it will pass under the treadles that are elevated, but will slide in upon those that remain down, and carry them down just far enough to make the lower shed, and, again, as the lay comes forward, the shaft *f f* turns up another set of pins, elevating another set of treadles, and the depressers *b b* take down the remaining treadles, thus making a complete shed whenever the shuttle passes.

The stop *u* is used to prevent the shaft *f f* from rolling too far. It is pivoted on the frame, and is operated by the lay through the connecting-arm *v*, so that the stop *u* comes under the pins *i i i* as the lay comes forward, and passes out from under them as the lay goes back.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. So arranging a flexible strap that as the lay comes forward it will be drawn alternately from one side of the picker-staff to the other, and as the lay goes back will throw the picker-staff around, and throw the shuttle back and forth, as required, substantially as described.

2. The combination of the shaft *f f*, ratchet *g* and its pawl, rod *r*, pins *i i i*, treadles *h h*, and stop *u*, for the purpose of elevating the upper shed as the lay comes forward and retaining it until the shuttle is thrown and the depressers *b b*, placed on the swords, for the purpose of taking the remaining treadles down as the lay goes backward, substantially as described.

JOHN G. HENDERSON.
HENRY T. HENDERSON.

Attest:
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J. M. WINTER.