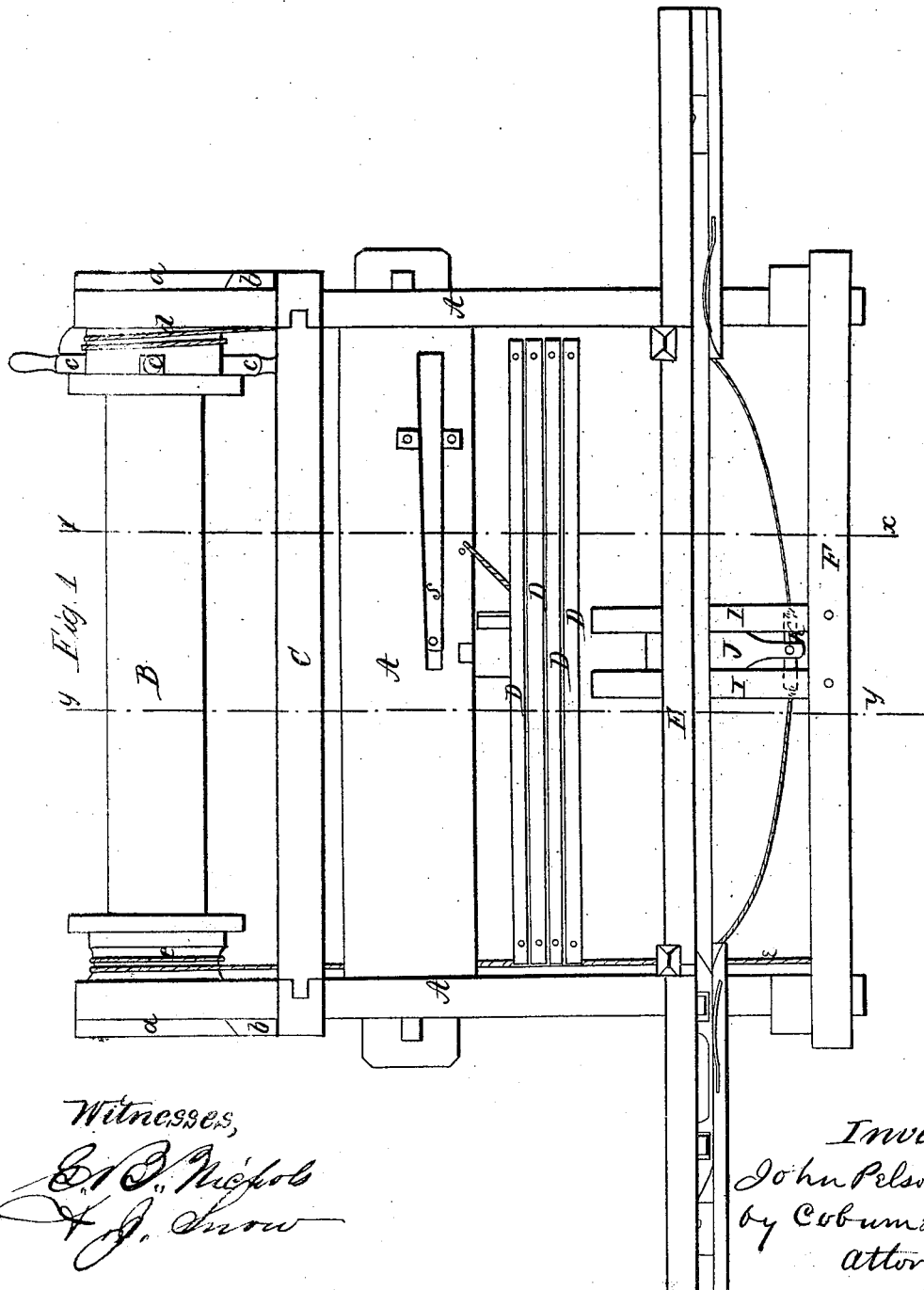


J. Pelsor
Hand Loom.

Sheet 1, 2 Sheets

Nº 53,330.

Patented Mar. 20, 1866.



Witnesses,
E. D. Nichols
H. J. Snow

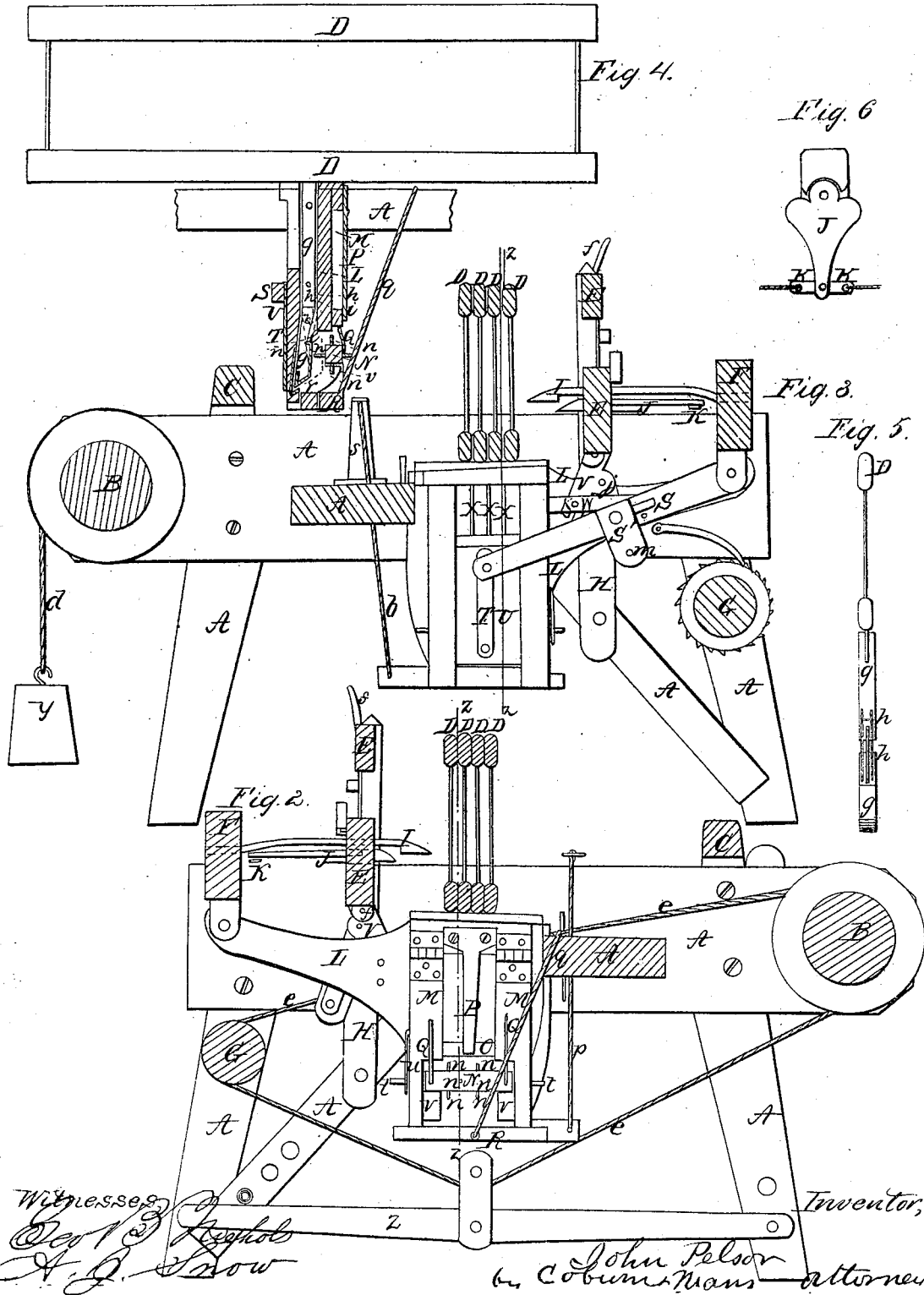
Inventor,
John Pelsor
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J. Pelsor Hand Loom.

Sheet 2, of 2 Sheets.

No. 53,330.

Patented Mar. 29, 1860



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UNITED STATES PATENT OFFICE.

JOHN PELSOR, OF BROOKLYN, ILLINOIS.

IMPROVEMENT IN HAND-LOOMS.

Specification forming part of Letters Patent No. 53,330, dated March 20, 1866.

To all whom it may concern:

Be it known that I, JOHN PELSOR, of Brooklyn, in the county of Schuyler and State of Illinois, have invented a new and useful Improvement in Looms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the accompanying drawings, and the letters and figures marked thereon, which form part of this specification.

The nature of my said invention consists in several improvements in various parts of a loom, which are hereinafter particularly specified and described, making a loom at once accurate in operation and easily operated.

To enable those skilled in the art to understand how to construct and use my invention, I will proceed to describe the same with particularity, making reference in so doing to the aforesaid drawings, in which—

Figure 1 represents a plan or top view of my invention; Fig. 2, a vertical section of the same at the line *x* in Fig. 1; Fig. 3, a vertical section taken at the line *y* in Fig. 1; Fig. 4, a vertical section of the treadle-frame, showing the arrangement of the gear-shafts therewith. Fig. 5 is a side view of the gear stems or supports, and Fig. 6 shows a detached view of the picker-staff.

The same letters in the different figures of the drawings indicate corresponding parts of my invention.

My loom is of that class which is designed to be operated by hand-power, and A represents the main frame of the machine, supporting, by various connections, the operating parts.

B represents the roller upon which the warp is wound, and from which it unwinds as the weaving progresses. The ends of the roller are supported in adjustable bearings or blocks, (marked *a a*), which are adjusted longitudinally by means of the wedge-shaped keys *b b* or by any other suitable device. These bearings being separately adjustable the tension of the warp can always be regulated so as to have both sides of the web uniform.

I am aware that the warp-roller has been heretofore supported in bearings having a vertical adjustability, which arrangement I do not claim.

At one end of said roller are the radially-

arranged pins *c*, whereby the roller is turned, when desired, and there is also arranged upon the roller the cord *d*, to which is attached the weight *y*, for the purpose of retarding and regulating the feed or forward motion of the warp during the process of weaving.

There also passes around the roller B and the roller G, upon which the cloth is wound, a cord, *e*, so that the revolution of the roller B unwinding the warp shall revolve the roller G and wind up the cloth. This cord *e* is tightened, when required, by means of the lever *z* and its attachments, as shown in Fig. 2.

The warp passes forward from the roller B over the supporting-bar C, through the harnesses or gears in the frames D, and through a reed arranged in the batten or beater E, thence down over the beam F to the roller G, upon which the cloth is wound, as aforesaid.

Upon the said batten E there are the usual provisions for operating the shuttle, to wit: a suitable groove, the pickers, picker-staff, and shuttle-hooks, the latter being marked I I and the picker-staff J in the drawings.

Upon the end of the picker-staff there is a pivoted arm, (marked K,) to the ends of which the cords attached to the pickers are fastened. By this arrangement of the pivoted arm K as the picker-staff is thrown from right to left or the reverse (which motion is produced by the forward and backward movement of the batten in forcing the filling into the warp) the said arm remains at all times in a right line with the face of the batten, and thus prevents the wearing off of the cords.

The batten E is provided at each side of the machine with the arms H, which extend downward and are pivoted to the frame A, as shown in Figs. 2 and 3.

The gear or harness frames D are attached rigidly to the upright stems. (Marked *g* and shown in Figs. 4 and 5.) These stems are provided with joints at *h*, so as to bend back from a straight line, as seen in Fig. 4, for the purpose hereinafter specified. These stems have a reciprocating motion produced in the manner hereinafter described, and are inclosed in separate boxes or compartments in the treadle-frame, the partitions *x x x* (shown in Fig. 3) forming the subdivisions.

This subdivision of the treadle-frame prevents the friction of one stem with another

from carrying up a stem and its corresponding gear at a wrong time, and thus producing imperfections in the cloth.

The gears or harnesses are operated by means of an arrangement of levers and connections which receive motion from the batten during its forward and backward movements.

The treadle-frame is connected to the front cross-bar, F, by means of the arm or lever L, attached rigidly to it and pivoted to the bar F, as shown, so as to have a movement about said pivot. To the lower edge of the batten E is pivoted the arm V, the opposite end thereof being connected with the arm L by the pivot K, said pivot passing through a slot in the arm V, as shown. To the said arm V, at the point *j*, there is pivoted an arm which extends down and is pivoted at *m* to an adjustable block, S', on the lever S, which block is attached and adjusted by means of a set-screw passing through a slot in S, as shown in Fig. 3. One end of said lever S is attached by a pivot at the front of the loom, while the other end is pivoted to the bar T, whose lower end is pivoted to the reciprocating slide U, which moves up and down in suitable grooves formed in the treadle-frame for that purpose. The said slide U has a groove or recess cut in its interior surface, as shown in Fig. 4, for the purposes hereinafter described. The lower end of the treadle-frame is connected by the cord *p* to the spring *s*. To that side of the treadle opposite the slide U, and shown in Fig. 2, there are attached, by hinges, near the top of the treadle, as shown, two bars, (marked M,) connected at their lower ends by the cross-bar R, and provided also with an intermediate cross-bar, O.

Supported upon the rod *t*, having its rests in the said hinged bars M, as shown, is the rectangular pattern block or roller N, which revolves freely upon said rod *t*, from which rotating block projects a series of pins marked *n*, which are of wood or other suitable material. From the lower end of the said hinged bars M or the cross-bar R there extends a cord, *q*, which is securely attached to the frame A, as shown.

To the side of the treadle-frame, near the top, is attached one end of a steel spring, P, the lower end of which rests against the cross-bar O and holds the hinged bars closely down upon the side of the treadle-frame.

By the arrangement of the lever V, which connects the arm L of the treadle to the batten E, a movement of the batten forward toward the operator gives an upward movement to the treadle-frame, and the cord *q*, attached to the cross-bar R, is adjusted so as to be loose when the treadle is in this position.

By the arrangement of the lever S and its connections with the slide U the same movement of the batten gives a downward motion to said slide, and a backward motion of the batten gives reverse movements, respectively, to the treadle and slide.

Having described the construction of my improvement in looms, I will proceed to describe its operation.

Assuming that the piece is properly arranged in the loom and the weaving about to commence, and assuming the position of the batten to be at the end of the forward stroke, when the treadle is up and the slide U is down, we will commence, remarking, however, that the pins upon the slides of the roller N are arranged alternately, so that the pins upon one side press against alternate gear-stems, while the pins upon the next side of the roller, when revolved to the proper position, will press against the alternate stems. In the position assumed the pins are pressed against the first and third stems, commencing at the rear, while a quarter revolution of said roller would release the pressure from these and bring the pins against the second and fourth. It will be observed then, that the pins press the lower or jointed end of the gear-stems back, as shown in Fig. 4, upon the shoulder or groove upon the inner face of the plate U, so that by the backward stroke of the batten, which throws the slide U up, the first and third gear-frames are moved up, forming the upward shed crossing and inclosing the thread just left by the shuttle, and forming a passage for the return of the shuttle. When the slide U has carried the stems *g* above the pins *n*, which held them in the groove in the slide at *r*, the spring *i* throws the stems back into the position indicated by dotted lines in Fig. 4, where the succeeding upward movement of the slide U cannot affect them. During the downward motion of the treadle frame the lower end of the hinged bar M is moved away from it by the action of the cord *q*, the pressure of the spring P to the contrary notwithstanding. As the pattern-roller N is thus drawn out from the treadle, the ends of the springs Q Q, which rest, as shown, upon the upper half of the outer face of the roller, cause the roller to revolve sufficiently, so that the projection *v* will catch upon the lower and inner corner of the roller. As the treadle-frame moves upward, the action of the spring P forces the roller back to its place, thus turning the pattern-roller one-fourth around, bringing the alternate pins against the second and fourth gear-stems, so that the succeeding upward movement of the slide U shall carry up the second and fourth gears or harnesses, making an upward shed inclosing the filling, and so on, the upward movements of the harnesses alternating, as specified.

To prevent the stems from moving up when not desired, they are provided with shoulders *l*, which catch upon the lower edge of the arm L, as shown in Fig. 4, which effectually prevents an upward movement until the pins *n* force the stems back upon the slide U.

The weight of the warp in the gears keeps them in place, and it may also be observed that the first gear-stem is the longest, and

that they grow gradually shorter to the fourth. There should be about one-half inch difference in the length of the first and fourth.

Those parts of the treadle-frame and the gear-stems having much wear upon them may be faced or plated with metal to prevent their wearing and getting out of repair.

By suitable arrangements of the pins upon the pattern-roller N and spaces in the treadle-frame any number of gears or harnesses may be used, and any desired alternation in their movements may be made for weaving different kinds of cloth.

By means of the sliding block S', in which the arm connecting the lever V with the lever S has its pivoted support *m*, the upward movement or stroke of the gear-stems is regulated and controlled, as the nearer the bearing *m* is to that end of S which is attached to the slide U or strap T the shorter will be the upward movement of the slide U, and vice versa.

The operation of the spring *s*, which is connected with the treadle-frame by means of the cord *p*, is to assist the operator in making the forward stroke of the batten, which beats up the cloth in weaving. As soon as the said batten E is moved forward so as to carry it past the line of the pivots connecting the lever V with it and the arm L, the upward tension of said spring *s* upon the treadle-frame raises

it, and causes the lever V to throw the batten forward upon the edge of the cloth and beat it up properly, while all the force which the operator needs to exert is what is necessary to start the batten forward, the spring operating to lift the treadle and throw forward the batten or beater.

Having described my invention, I will now specify what I claim and desire to secure by Letters Patent—

1. The arrangement of the spring *s* or its equivalent with the treadle-frame and batten and arm V, for assisting the beating-stroke of the batten, substantially as specified and shown.
2. The arrangement of the lever S with the slide U, arm V, and batten E, operating a set forth and described.
3. Providing the picker-staff with the pivoted bar K, as and for the purposes set forth and shown.
4. Supporting the warp-roller B in bearings having a separate horizontal adjustability, substantially in the manner and for the purposes set forth and shown.

JOHN PELSOR.

Witnesses:

W. E. MARRS,
GEO. B. NICHOLS.