

Jenks & Goodyear
Heddle Motion for Looms.

3 Sheets.
Sheet 1.

No 55,010.

Patented May 22 1866.

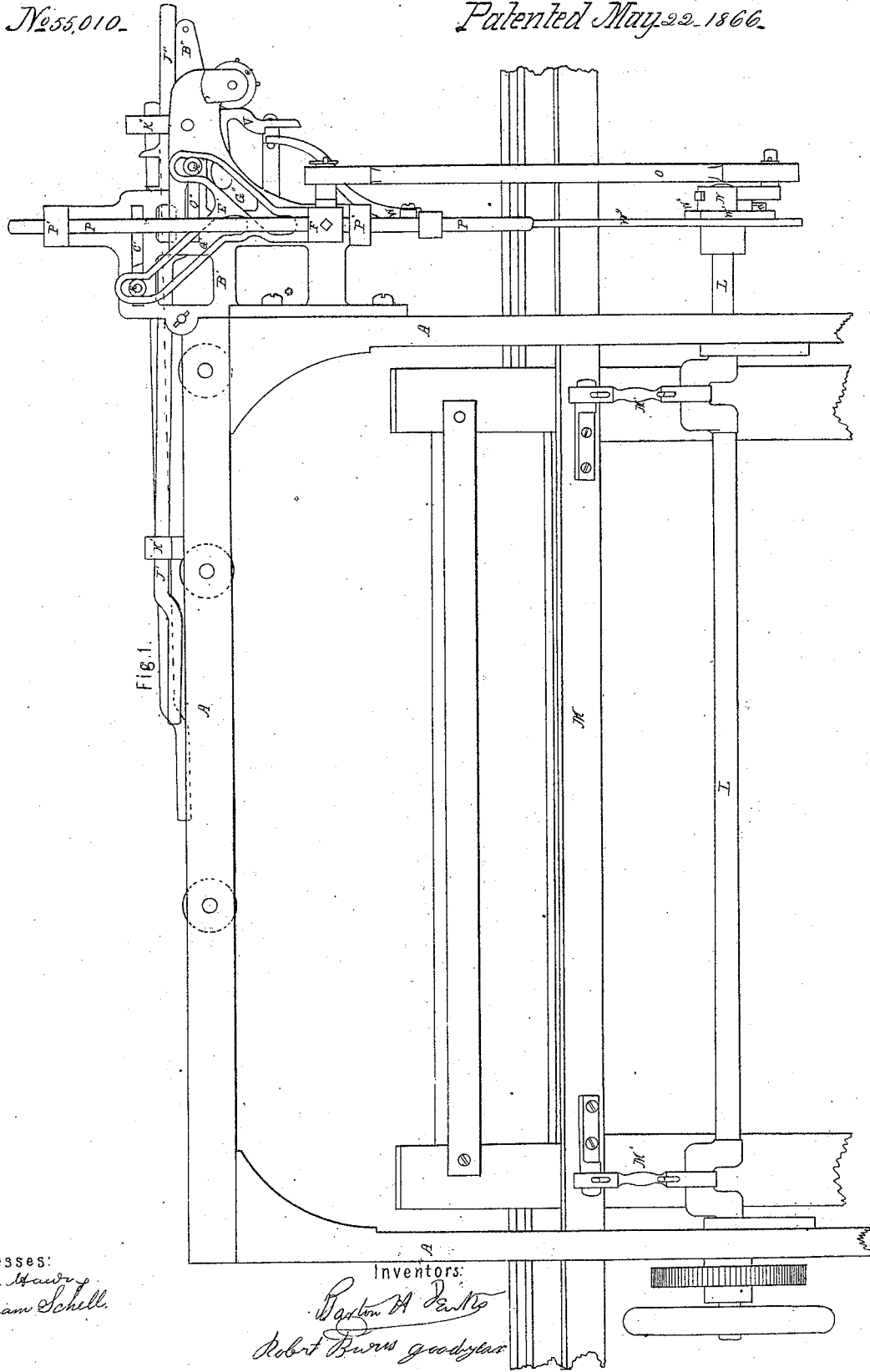


Fig. 1.

Witnesses:

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William Schell.

Inventors:

Robert H. Jenks
Robert Burns Goodyear

2. Sheets
Sheet 2.

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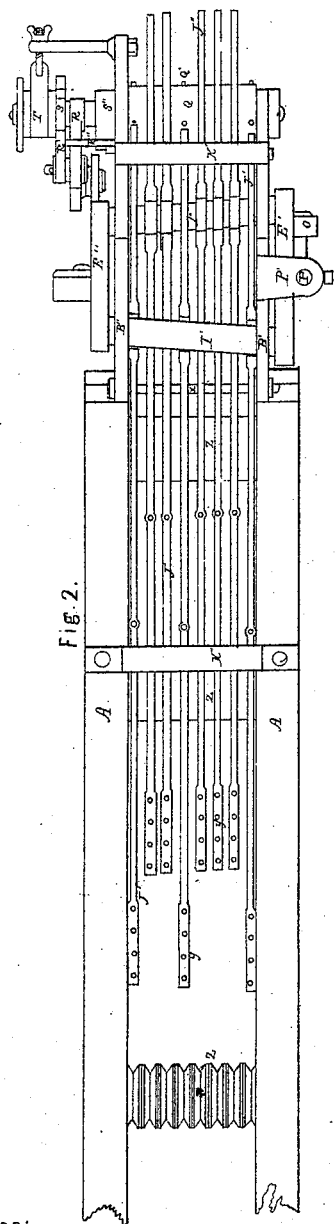


Fig. 2.

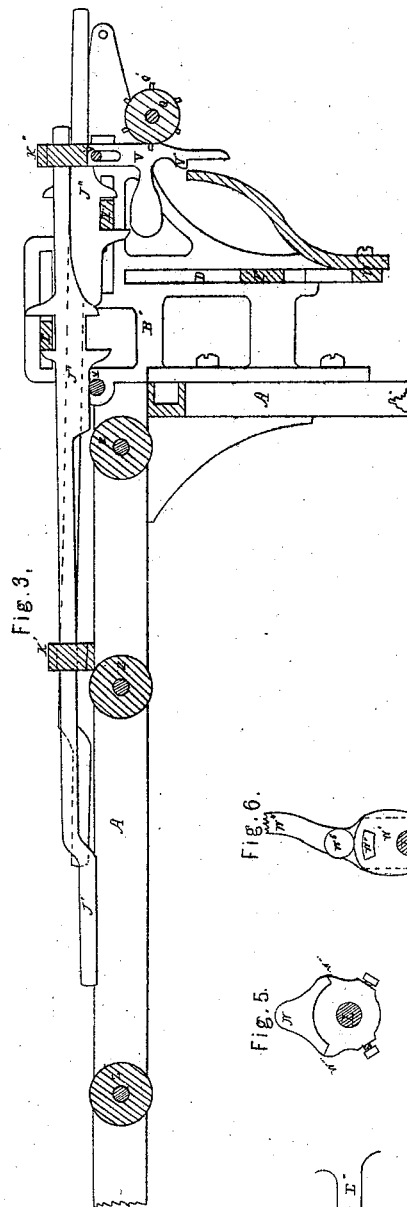


Fig. 3.

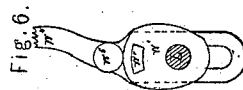


Fig. 6.

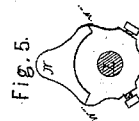


Fig. 5.

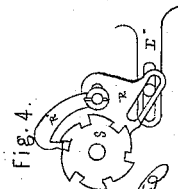


Fig. 4.

Witnesses:
Augustus
Wells in Schell.

Inventors:
Barton A Jenks
Robert Andrew Goodyear

UNITED STATES PATENT OFFICE.

BARTON H. JENKS AND ROBERT B. GOODYEAR, OF PHILADELPHIA, PENN.
SYLVANIA, ASSIGNORS TO BARTON H. JENKS, OF SAME PLACE.

IMPROVEMENT IN HEDDLE-MOTIONS FOR LOOMS.

Specification forming part of Letters Patent No. 55,010, dated May 22, 1866.

To all whom it may concern:

Be it known that we, BARTON H. JENKS and ROBERT B. GOODYEAR, of the city of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in the Heddle-Motion of Looms; and we do hereby declare the following to be a full and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a plan; Fig. 3, a longitudinal section. Figs. 4, 5, and 6 are views of detached parts.

Similar letters refer to similar parts in the several drawings.

The object of this invention is to give an improved treading motion to the heddles.

A is the frame of the loom. B' B'' are brackets fastened to the frame to support the machinery which serves to move the heddles. Each bracket has two horizontal slots, C' C'', in which slide the cross-bars I' I''. There is also a perpendicular slot, D, in each bracket. Outside these brackets are movable frames E' E'', attached together firmly at the bottom by the bar F. In these frames are two diverging slots, G' G''. The two slots in each frame diverge at the same angle from a perpendicular line, but the two slots in E' diverge at a greater angle than those designated in E''. There is a roller, H, working in each of these slots, which gives motion to the cross-bar I' above and I'' below the sliding draw-bars J'. These cross-bars incline toward each other, as shown.

K' K'' are two guides, in which the draw-bars J' work backward and forward.

L is the driving-shaft, which gives motion to the machinery and also to the lay M by means of the connecting-rod M'. On the end of this shaft is the crank N, which moves the connecting-rod O. This said connecting-rod O is fixed at its other end to the cross-bar F, which joins the frames E' E'', and moves it with the frames up and down. These movable frames E' E'' and the cross-bar F are attached rigidly to the steady-bar P, which slides in the guides P', thereby giving a steady motion to all these parts, which move up and down simultaneously.

A cylinder, Q, having small projecting pins Q' upon it at proper intervals, is attached to the end of the brackets B' B''. By varying

the position of these pins the movement of the draw-bars J' is regulated. On one of the journals of this cylinder which projects through its bearing is a slotted lever, R, which carries a pawl, R'. This lever has a reciprocating motion given it by the up-and-down motion of the frame E''. The pawl R' has a pin, R'', fixed on one side. This pin bears upon the incline S'', attached to the bracket B''.

A double-acting ratchet, S, is keyed onto the shaft of the cylinder Q, and is operated by the pawl R'. The notches in this ratchet are cut as shown in Fig. 4. A friction-brake, T, serves to give steadiness to the motion of the cylinder Q.

The incline S'' is so shaped as to allow the pawl to fall into notches in the ratchet, except at the extreme end of the downward stroke or motion of the lever R, thus permitting a movement of the lay to turn the pattern-cylinder forward or backward correspondingly; but at that point the pawl is lifted above the lower side of the notch in the ratchet and is ready to make another stroke. (See Fig. 4.) The effect of this movement is such that the operator can vibrate the loom without making a mistake or losing the twill. Instead of the cylinder Q a common pattern-chain may be used.

Underneath the guide K'' are hung the lifting-bars V upon the pin V'. These bars are slotted at the point of suspension to permit them to rise and fall.

W is a lifting cross-head attached to the bar W⁴, and which is moved by the loose lifting-cam W'. This cam has a pin, W'', on it, (see Fig. 6,) which is moved by either one or the other of the projections W''' W''' on the crank N. (See Fig. 5.) This allows the cam W' to slip a small distance around the shaft L, so that whether the shaft L is turned backward or forward the cam W' is always in proper time or position.

On the rod W⁴ is a stud, W⁵, which rests upon the cam * and causes the rod to rise and fall with the cam. The end of the rod W⁴ is slotted and fitted over the end of the driving-shaft.

The pins Q' on the cylinder Q, coming in contact with the lifting-bars V, press them forward and bring the projections V' in contact with the lifting cross-head W, which raises the lifting-bars V, and with them the ends of the draw-bars J'. As long as the draw-bars remain

in their lowest position, as shown in red, Fig. 3, they are operated by the cross-bar I''; but when they are elevated they are caught and operated by the cross-bar I'. As soon as the cross-bar I' starts forward—that is, toward the left-hand on the drawings—and before the lifting cross-head W drops from the lifting-bar V, the draw-bars J' are supported on the rod X. The draw-bars J' are shaped on the under side as shown in the drawings, Fig. 3, so that as they advance they rest upon the bar X. At their widest part, and when they recede to a certain point, they invariably drop down and rest upon the cross-bar I''. The reciprocating motion given to these inclined cross-bar I' I'' is such as to place the draw-bars J' in the position shown in Fig. 2, one being advanced more than another in regular series.

To the holes Y, in the end of the draw-bars, are fixed the cords which pass over the pulleys Z to the harness above and below.

We claim—

1. Giving the draw-bars J' a reciprocating motion of graduated degrees diminishing throughout the series by means of the cross-

bars I' I'' and the slotted and removable frames E' E'', substantially as described.

2. The combination of the supporting-bar X with the draw-bars J', shaped substantially as described.

3. Giving to the ratchet S, which operates the cylinder Q, a double-acting motion, by which the operator can vibrate the lathe without making a mistake or losing a twill, substantially as described.

4. The combination of the ratchet S, pawl E', pin R'', and incline S'', substantially as described.

5. The lifting cross-head W, in combination with the loose cam W', operated substantially as described.

6. The combination of the loose cam W' with the crank N and clutch-pieces W³ attached to it, or their equivalents, substantially as described.

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Witnesses:

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