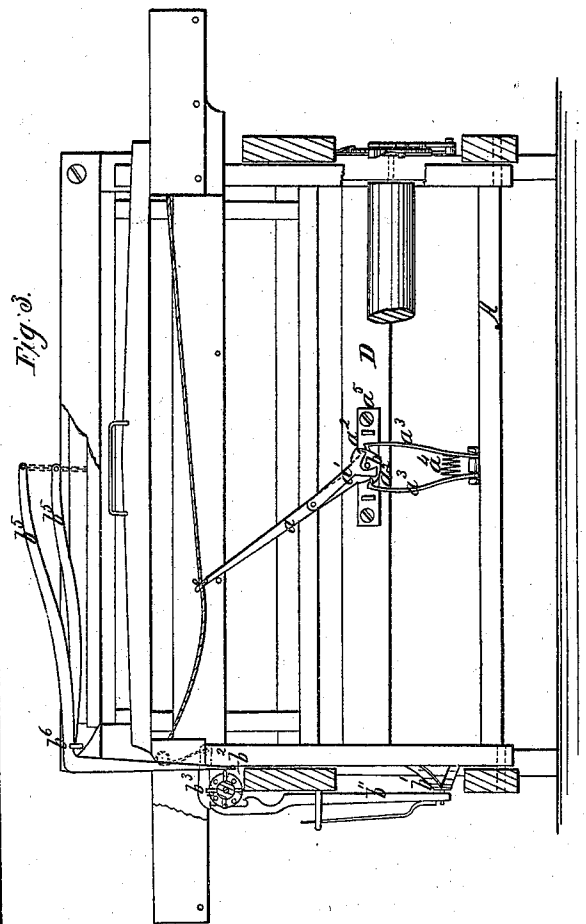
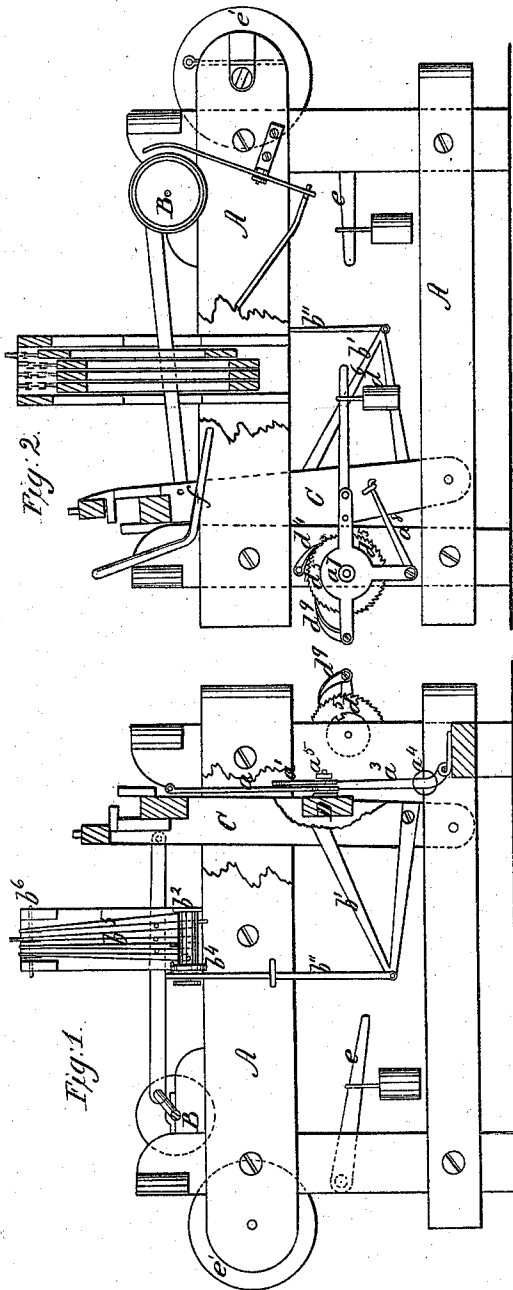


A. W. Silvis. Loom.

N^o 83,557.

Patented Oct. 27, 1868.



Witnesses;
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Inventor;
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United States Patent Office.

A. W. SILVIS, OF BIRMINGHAM, IOWA, ASSIGNOR TO HIMSELF AND SAMUEL B. SHOTT, OF SAME PLACE.

Letters Patent No. 83,557, dated October 27, 1868.

IMPROVEMENT IN LOOM.

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, A. W. SILVIS, of Birmingham, in the county of Van Buren, and State of Iowa, have invented a new and useful Improvement in Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The nature of my invention relates to improvements in hand or power-loom for weaving cloth.

And it consists, first, in an improved automatic picker-motion; second, in an improved arrangement of harness-operating mechanism; and, third, in the combination of the right-angled harness-levers with the harness-frames and pattern-cylinder.

On reference to the accompanying drawings—

Figure 1 represents a side elevation of my improved loom, with a part broken away, showing a sectional view of the picker.

Figure 2 represents an elevation of the opposite side of the same, with a part broken away, showing a section through the harness-frames.

Figure 3 is a front elevation, with a part broken away, showing the picker-staff and its operative-mechanism, and a sectional view of the harness-mechanism.

Similar letters refer to corresponding parts in all the figures.

A represents the framing;

B, the driving-shaft;

C, the lay; and

D, a cross-bar, supported on the swords of the lay, to which the picker-staff *a* is pivoted at *b*.

The lower end of the said picker-staff is considerably enlarged, and is provided with the notches *a*² *a*², into which the spring-hooks *a*³ *a*³ are alternately caused to catch, to vibrate the staff to and fro.

*a*¹ is a swinging pawl, pivoted to the staff, and having also an enlarged lower end, provided on each edge with double inclined planes, the salient angles of the said double inclines being on a line with the axis of vibration of the picker-staff.

Within the enlarged end of the pawl *a*¹ is a cavity or space, to allow it to vibrate without being obstructed by the axial pin of the picker-staff.

*a*⁴ represents a cap or bridge, connected to the cross-beam D, by right-angled projections, by which the pawl *a*¹ and spring-catches are kept in contact with the said beam, as it swings back and forth.

The spring-catches are hinged to a stationary cross-piece of the frame, at their lower ends, and are also connected together by a spiral spring, *a*⁵, which has a constant tendency to draw them together.

As the lay is pivoted at a position not in line with the pivot of the spring-hooks, when it swings backward, the upper ends of the hooks will have a movement,

relatively to the beam D and the axis of the picker-staff, in a downward direction, and when it swings forward, in a direction opposite thereto.

Hence, as the lay moves forward, the spring-fingers will ride up the lower inclines on the pawl *a*¹, and the picker-staff.

If, when this occurs, the picker-staff stands in an inclined position, as in fig. 3, the salient angle of the pawl *a*¹, on the side to which the picker-staff is inclined, will be lower than the angle on the opposite side, and as the lay goes forward, it will be passed by the hook on that side, before the same angle on the other side is passed by that hook.

The result of this will be that the pawl will be swung in the direction of its lowest side, by the pressure of the hook, which has not yet passed the salient angle.

The point of the other hook having passed the salient angle on the lower side of the pawl, is now riding down the upper incline on that side, or is borne entirely away from the pawl on that side, by the incline on the picker-staff, and consequently has less pressure on the pawl, so that when the hook on the high side of the pawl rises as far as the notch in that side of the picker-staff, it will fall into it, and as soon as the lay begins its backward motion, the strain of the hook on the catch in the picker-staff, due to the resistance of the same in being started into motion, and throwing the shuttle, will be so great as to entirely overcome any tendency of the other hook to fall into its notch; the salient angle of the pawl being high enough for that hook to rise over its catch in the picker-staff, the pawl being held in that position by the aforementioned resistance of the hook, which has caught into the notch on the high side.

Therefore, when the lay swings back, the picker-staff will be vibrated in one direction, and on the next backward movement of the lay, the same action takes place on the opposite side of the picker-staff and pawl, and is so continued indefinitely.

*b*¹ represents a pawl, jointed to a bracket, *b*², secured to one end of the lay, which communicates motion to the pattern-wheel *b*³.

*b*³ is a catch-pawl, which is lifted up, to be disengaged from the notched wheel on the pattern-cylinders, by the pawl *b*², and let fall by the same, at the proper time to arrest the motion of the cylinder, by falling into the notched wheel.

*b*⁴ are right-angled harness-levers, suspended on an axis, at *b*⁵, for operating the harness-frames, by the action of the tappets of the pattern-wheel on the ends of the vertical arms of the said levers, the harness-frames being suspended from the longer horizontal arms.

*a*⁶ is a T-shaped lever, working loosely on the axis of the take-up roller, on the longer arm of which is suspended a weight, *a*⁷.

*a*⁸ is a rod, connecting the same with the lay, which

moves the said lever in one direction, whereby a vibratory motion of the same is effected.

d^2 is a pawl, jointed to one of the short arms of the said lever.

d^4 is a holding-pawl, secured to a post of the frame.

When the lay swings backward, the weighted lever is raised, and the pawl d^2 takes into the notches of the ratchet-wheel, and if the tension on the cloth is not sufficient to overcome the effect of the weight on the T-lever, the latter will be borne down, and the cloth wound up, but if it be so great as to resist the action of the weight, then the roller will not be turned, but will remain at rest until the tension becomes less.

The tension on the yarn-beam is effected by the weighted arm e , and cord on the grooved pulley e' .

Having thus fully described my invention,

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

1. The arrangement of the picker-staff a , with its enlarged lower end notched at a^2 , the swinging reversing-pawl a^1 , provided at its enlarged lower end with double inclines, the hinged spring-hooks a^3 , and the bridge a^5 , all operating as described for the purpose specified.

2. The arrangement of the pawl b^2 , bracket b^1 , secured to the lay, the pattern-cylinder b^3 , catch-pawl b^4 , and pivoted right-angular harness-levers b^5 , all constructed as herein described, for the purpose specified.

3. The combination of the right-angled harness-levers b^5 with the harness-frames and pattern-cylinder, substantially as and for the purpose set forth.

A. W. SILVIS.

Witnesses:

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