J. B. UNDERWOOD.

Machine for Harness-Makers' Use.

No. 221,373. Patented Nov. 4, 1879.

Fig. 1.

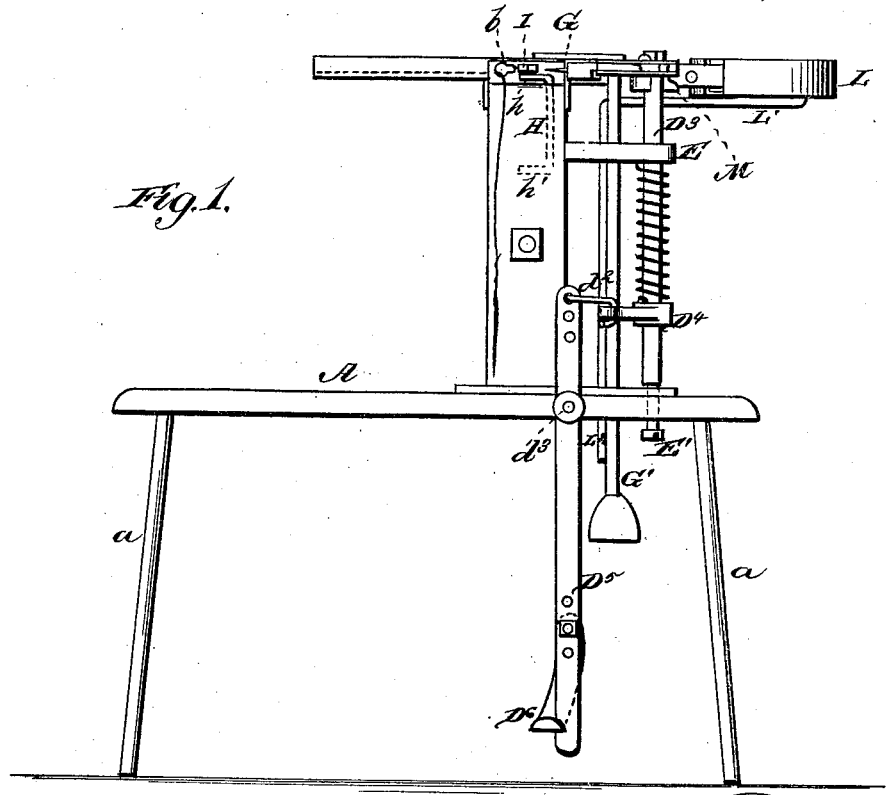


Fig. 2.

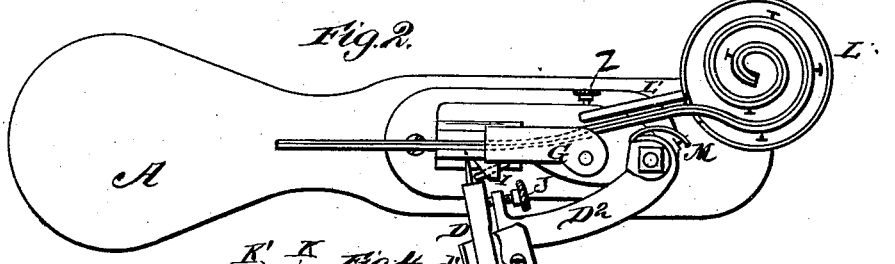


Fig. 3

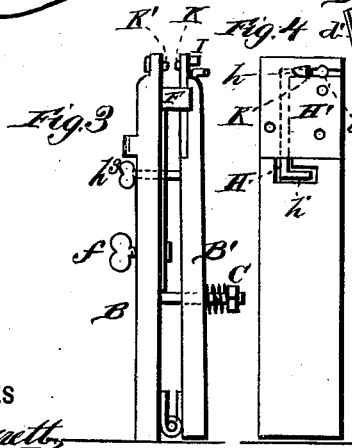


Fig. 4

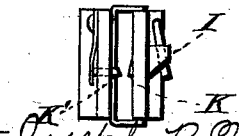
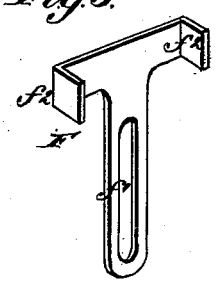


Fig. 5.



WITNESSES

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JOSEPH B. UNDERWOOD, OF FAYETTEVILLE, NORTH CAROLINA.

IMPROVEMENT IN MACHINES FOR HARNESS-MAKERS' USE.

Specification forming part of Letters Patent No. **221,373**, dated November 4, 1879; application filed September 6, 1879.

To all whom it may concern:

Be it known that I, JOSEPH B. UNDERWOOD, of Fayetteville, in the county of Cumberland and State of North Carolina, have invented certain new and useful Improvements in Machines for Harness-Makers' Use; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

The object of my invention is to provide an ordinary "horse" or work-holder with appliances to aid in punching the holes for the needle, feeding the work, inserting the needle, gaging the line of stitches, holding and supporting the work to the bed, and removing tacks from the work, which are used to hold two or more pieces of material together before they are griped by the clamping-jaws of the machine.

The working parts of the machine are operated by a vibrating lever with the foot of the workman.

In the accompanying drawings, Figure 1 is a side elevation of my improved machine; Fig. 2, a plan view of the same; Fig. 3, a front elevation of the clamping-jaws, detached; Fig. 4, an elevation of the inner face of the hinged jaws; Fig. 5, a perspective view, on an enlarged scale, of the gage and work-rest, detached.

The seat-board A, legs *a*, fixed clamping-jaw B, and hinged clamping-jaw B′ are of the usual form, preferably made of wood. The jaws B B′ are held together by a bolt and nut, C, provided with a spiral spring around the bolt, and arranged between the hinged jaw B′ and the nut or bolt-head, so that the work is always held between the jaws by the spring with a sufficiently firm yet elastic pressure.

An awl-arm, D, is pivoted at *d* to a head-block, D′, of a vibrating carrier-arm, D^2, and is held in its normal position by a spring-plate, *d*′, but may be vibrated a limited distance by suitable means to feed the work forward, after an awl-hole has been punched, a suitable distance for the next hole to be punched in the line of stitches, as will hereinafter appear.

The arm D^2 is secured to a vertical rod, D^3, that is held in position, but is allowed to turn freely in a bracket, E, upon the clamping-jaws, and a pivot-bolt, E′, passing through the seat-board A or frame of the machine.

A bell-crank lever, D^4, is permanently fixed upon the rod D^3, and is connected at its vibrating end by a link, d^2, with the upper end of a vibrating foot-lever, d^5, pivoted at d^3 to the seat-board A or frame of the machine.

A treadle, D^6, is secured to the lower end of the foot-lever, so that it may be pushed forward by the operator's foot when it is desired to vibrate the arm D^2 toward the work in the act of punching the awl-hole.

A coiled spring surrounds the rod D^3, and is secured at one end to the bracket E, and at the other to the bell-crank lever D^4, in such manner that it will draw the arm D^2 and foot-lever back to their normal position and withdraw the awl from its work.

The upper end of the foot-lever D^5 is provided with a number of perforations to receive the link *d*, so that either of them may be used to adjust the extent of throw or vibration to the lever D^2; and the lower end of the foot-lever is similarly perforated, so that the treadle may be attached at various points to suit the convenience of the operator.

A slide gage or rest, F, is held firmly against the fixed jaw B by a thumb-screw, *f*, and is provided with a slot, *f*′, to allow it to be raised and lowered on the jaw by releasing the thumb-screw, and clamped at any desired position.

The rest F is also provided with ears f^2 f^2, turned at right angles to its face, which extend across the hinge-jaw B, and serve to hold the work always in its proper relation to the awl.

A presser-plate, G, is secured to a vertical weighted rod, G′, which is held in place but allowed to move vertically by the bracket E and seat-board A, so that the presser-plate may rest upon the top of the work and hold it down upon the ears f^2 of the rest.

In order that the hinged clamping-jaw B′ may be opened to allow the work to be fed forward for succeeding stitches, a wire trigger, H, is arranged vertically in the upper end of the jaw B, behind a metal face-place, H′, and has its ends *h h*′ bent horizontally thereto, so that the upper arm, *h*, will project at an angle ouside of the jaw B′, and the lower arm, *h*′,

may come opposite a hole in the inner side of the jaw.

A thumb-screw, h^3, passes through the fixed jaw B and presses against the arm h', so that the arm h may be pressed out at a greater or lesser angle with the outer face of the jaw B′.

The awl-arm D presses against the outer arm, h^2, after the awl has perforated the work, and forcing the lower arm, h, against the thumb-screw, will open the jaw B′ a suitable distance corresponding with the projecting angle of the arm h', which is regulated by the thumb-screw h^3, so as to suit work of greater or less thickness.

A beveled lug, I, on the outer side of the jaw B′ is arranged directly above the arm h' in such a manner that the awl-arm D will bear against the inclined face of the lug I at a time when the awl has passed entirely through the work, and the jaw B′ has been opened to release the work and force the awl-arm, awl, and work forward a suitable distance to make a stitch. When the awl is withdrawn the awl-arm D is held in its forward position by the arm h' bearing against it until the awl is withdrawn entirely from the work, and the awl-arm D is thrown back to its normal position by the spring-plate d, thus preventing the awl from dragging the work backward with the return movement of the awl-arm.

The length of the stitch is regulated by the thumb-screw J, which bears against the awl-arm, and only allows it to move backward a sufficient distance to make the required stitch. The work is again clamped by the jaws B B′ when the awl-arm D has been forced forward, presses the arm h', and releases it. A backward movement of the work is also prevented by a fixed beveled tooth, K, on the face-plate H′ of the jaw B′, and a corresponding spring-tooth, K′, secured to the face of the jaw B. The beveled sides of the teeth are toward the entering work, and the spring-tooth K′ will yield to allow the work to be fed forward, but will prevent its backward movement. These teeth are in line with the slots in the jaws through which the awl passes, and the marks left by the teeth will be consequently covered by the stitches.

The slots b b in the jaws B B′ terminate at their forward ends in an eye having flaring walls, which enables the needles and thread to be readily inserted into the awl-hole.

The receptacle L for holding long straight work, such as harness-traces, is preferably of cylindrical form, so that the work may be coiled within it, and is supported upon a horizontal arm, L′, of a vertical rod, L^2, that passes through a hole in the bracket E, and is clamped thereto at any desired height or horizontal position by a thumb-screw, Z, also passing through the bracket E and impinging against it. The straps or layers of the work are held together by tacks placed at regular intervals in a well-known manner. The tacks are withdrawn from the work after it leaves the box L, and before it passes between the jaws B B′, by a clawed plate, M, secured to the rod end of the arm D^2, and oscillates with it.

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

1. In a harness-maker's horse, the combination of the clamping-jaws, having an eye through each of their upper edges, and a vibrating awl-bar provided with an awl that is adapted to pass through eyes of the jaws, substantially as described.

2. The combination of the clamping-jaws, having elongated eyes through each of their upper edges, and a vibrating awl-bar carrying an awl, which is adapted to pass through the eye at its rear end, and feeds the work onto the forward end of the eye, substantially as described.

3. The combination of the clamping-jaws, rest or gage plate, and a weighted presser-plate to hold the work down upon the rest or guide, substantially as set forth.

4. The combination of the clamping-jaws, provided with the beveled lug K, and a vibrating awl-arm and its awl, that are acted upon by the beveled lug to feed forward the work, substantially as described.

5. The combination of the clamping-jaws, provided with the beveled lug, the vibrating awl-arm actuated by the lug, the awl-arm carrier, and a thumb-screw on the awl-arm carrier for regulating the length of stitch, substantially as described.

6. The combination of the clamping-arm, the work-receptacle, a vibrating-needle carrier, and a claw-plate arranged between the receptacle and the jaws to withdraw the basting-tacks from the work, substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOSEPH B. UNDERWOOD.

Witnesses:

WM. H. ROWE,

JAMES J. SHEEHY.