2 Sheets—Sheet 1.

A. A. JOHNSON.

Book-Stitching Machine.

No. 210,782. **Patented Dec. 10, 1878.**

Fig. 1.

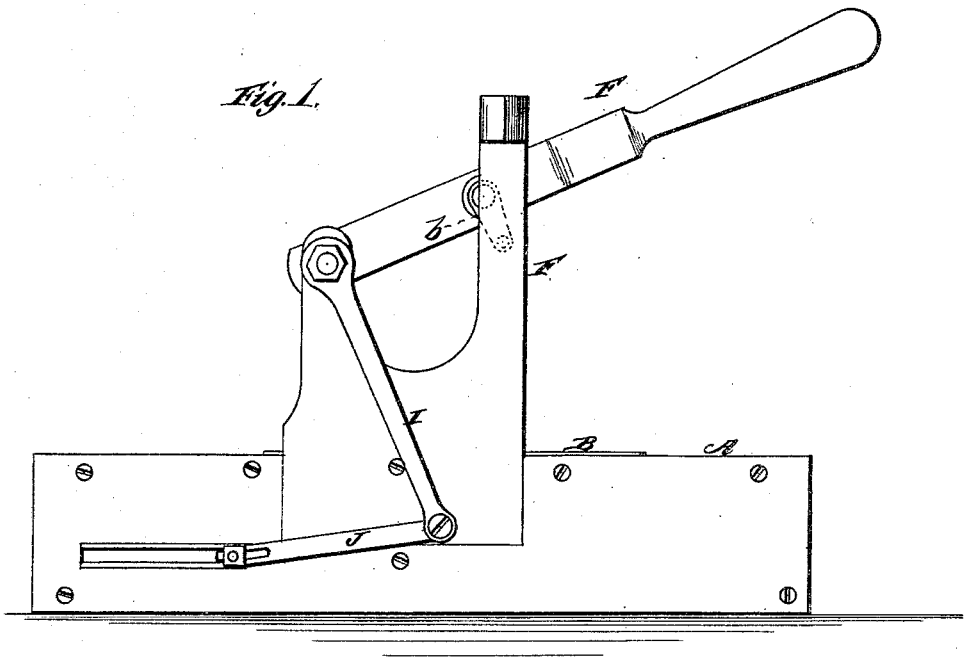
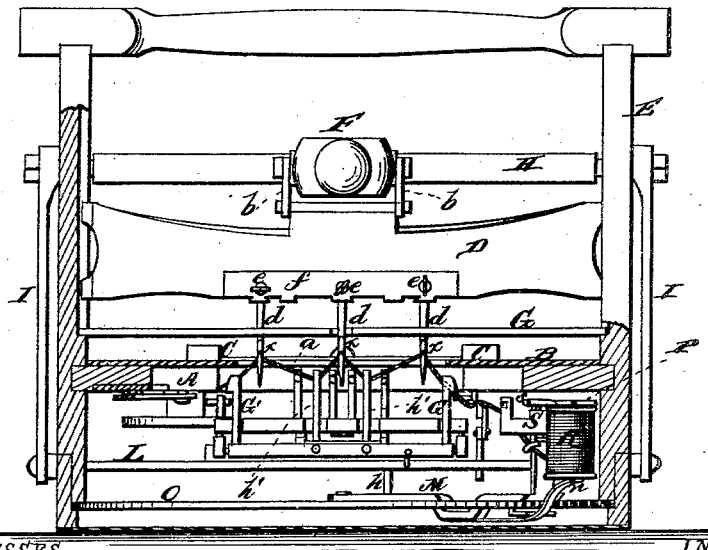


Fig. 2.



WITNESSES

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By Johnson & Smith & Co.

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2 Sheets—Sheet 2.

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Book-Stitching Machine.

No. 210,782. Patented Dec. 10, 1878.

Fig. 3.

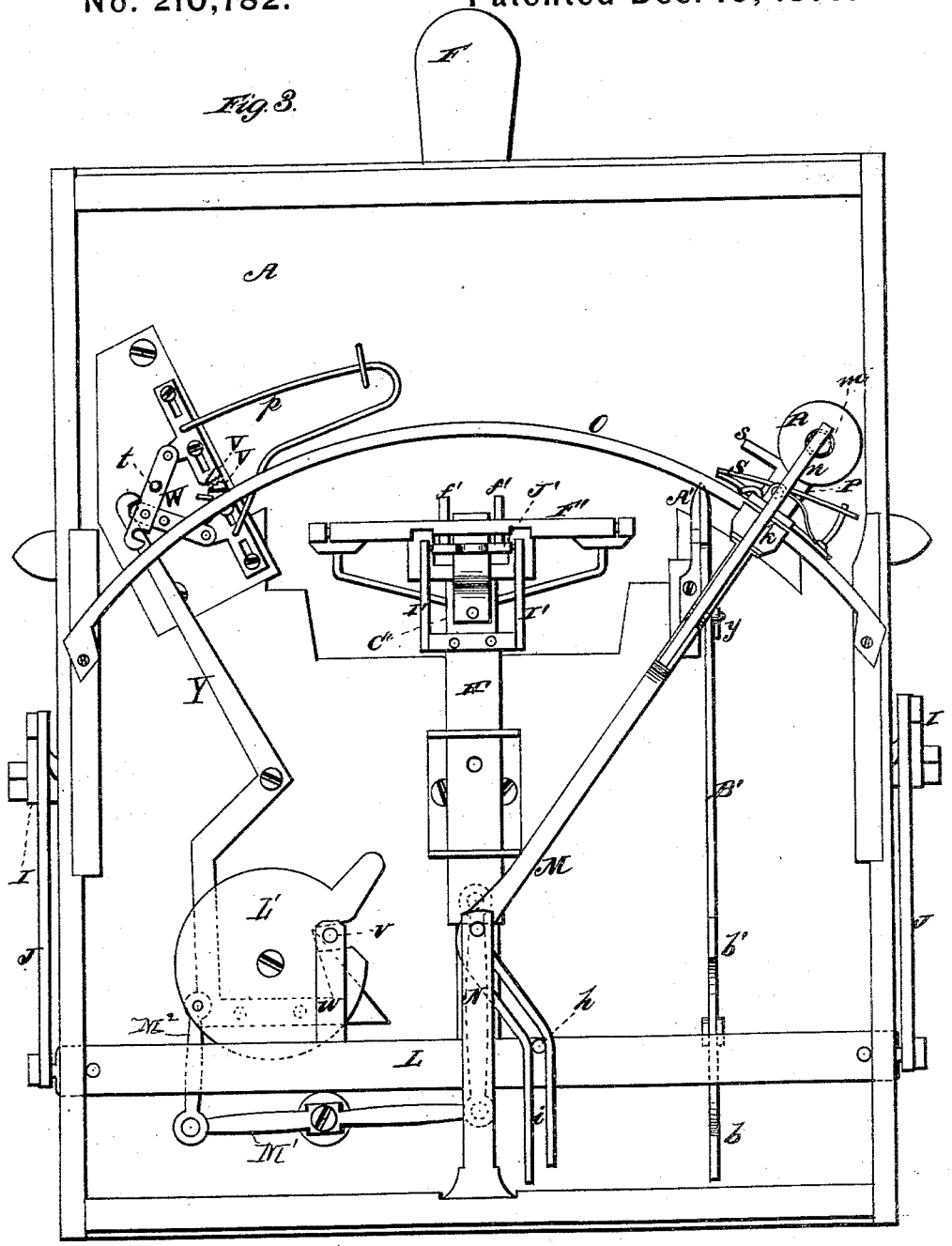
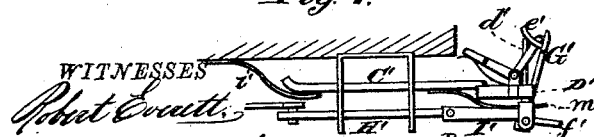


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

ASAHEL A. JOHNSON, OF WEST UNION, IOWA, ASSIGNOR OF ONE-HALF HIS RIGHT TO HENRY D. WASHBURN, OF SAME PLACE.

IMPROVEMENT IN BOOK-STITCHING MACHINES.

Specification forming part of Letters Patent No. **210,782**, dated December 10, 1878; application filed October 12, 1878.

To all whom it may concern:

Be it known that I, ASAHEL ALANSON JOHNSON, of West Union, in the county of Fayette and State of Iowa, have invented a new and valuable Improvement in Machines for Stitching Pamphlets, Magazines, &c.; 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.

Figure 1 of the drawings is a representation of a side elevation of my book-stitching machine. Fig. 2 is a vertical central sectional view of the same. Fig. 3 is an interior bottom-plan view, and Fig. 4 is a detail view, thereof.

The nature of my invention consists in the construction and arrangement of a machine for stitching pamphlets, magazines, &c., as will be hereinafter more fully set forth.

The annexed drawings, to which reference is made, fully illustrate my invention.

A represents the base of the machine, on which is secured the bed-plate B. This plate has a longitudinal slot, *a*, for the passage of the needles, and on top of the plate is a gage, C, which is preferably made adjustable.

Over the bed-plate B on the base A is erected a suitable frame-work, E, in which is a vertically-reciprocating cross-head, D, connected by links *b b* with the operating-lever F. In the under side of the cross-head is inserted and fastened a needle-holder, *f*, having suitable sockets for the insertion of the needles *d d*, which are held in place by set-screws *e e*. The needles *d* are straight, and each needle is formed on one side with a hook, *x*, something like an ordinary crochet-needle.

G is a stationary guide-bar, having perforations for the passage of the needles, and under which the back of the pamphlet to be stitched is placed. The rear end of the operating-lever F is secured to a rock-shaft, H, provided at each end with an arm, I, and the lower ends of these arms are, by rods J J, connected with the ends of a cross-bar, L, which slides in suitable guides under the base A. The end of each rod J, which connects with the cross-bar, is slotted, as shown, so that there will be a certain amount of play or movement of the operating-lever in either direction up or down before the bar L will commence its movement.

From the bar L projects a pin, *h*, which enters a slot, *i*, in the curved or bent rear end of an arm, M, said arm being pivoted to a bar, N, and its forward end provided with lips *k'*, that straddle a segment, Q, secured under the base.

By the backward and forward movement of the cross-bar L the arm M will be turned on its pivot, so that its forward end will be thrown first to one side and then to the other. The forward end of the arm M is provided with a foot, P, on which is a vertical spindle, *m*, to receive the spool R.

n is a spring attached to the arm M, and bearing against the lower end of the spool, to support the same and create the necessary tension.

To the foot P is attached a pair of pliers, S, to hold the end of the thread from the spool. At one side of the machine, under the base, is a stationary pair of pliers consisting of two jaws, V V, closed by means of a spring, *p*. These jaws are connected by means of a toggle-joint, W, for holding them open. As the arm M is thrown to that side of the machine a pin, *s*, on the foot P strikes a pin, *t*, on the toggle-joint, thereby breaking the joint and allowing the spring *p* to operate to close the pliers.

Y represents a pivoted bent lever, one end of which is to bear against the toggle-joint for opening the pliers when the other end of said lever is provided with a cam, L', operated upon by a pin, *v*, on an arm, *w*, projecting from the reciprocating cross-bar L.

On the opposite side of the machine from the pliers V is a pair of shears, A', one blade of which is stationary and the other blade pivoted thereto, this latter blade being, by a link, *y*, connected to a pivoted lever, B'. This lever is provided with inclines *b' b'*, over which rides the cross-bar L, so that the movement of said bar will alternately open and close the shears.

In the center, on the under side of the base,

are suitable guides carrying a slide-bar, C′, which is at its forward end provided with a head, D′, having a series of upwardly-projecting pins, *d′*. Under the head D′, in bearings attached to its ends, is hung a bar, F′, provided at each end with an arm, G′, having a prong or finger, *e′*, on its end. Under the slide-bar C′ is another sliding bar, H′, having at its front end two pivoted links, I′ I′, and the forward ends of these links are pivoted to an angle-plate, J′, which carries two pins, *f′ f′*, that pass through the journaled bar F′ at right angles to the arms G′. The angle-plate J′ also has two upwardly-projecting pins, *h′*.

When the slides C′ H′ are drawn forward the arms G′ will be in a horizontal position. The power is applied to the slide H′ alone, and as this slide is drawn back the slide C′ moves with it for a certain distance, this movement being limited by a stop, *i′*, when the slide H′ will continue its movement sufficiently far to cause the bar F′ to turn in its bearings and throw the arms G′ into a vertical position. In like manner the forward movement of the slide H′ first throws the arms G′ down horizontally, and then the slide C′ is moved with it, suitable springs *m′* being arranged to give the required friction.

The operation of the machine is, briefly, as follows: The needles are forced through the paper to be stitched lying on the bed-plate, the needles passing down through the slot in said plate until their hooks *x* will be below the plate, when a thread is drawn across and held up to the needles until they pass back through the paper, carrying the thread with them, leaving a loop in the center, but pulling the two ends through in a convenient shape for tucking through the loop and tying. At the upward stroke of the operating-lever F the pliers or nippers S carry the thread across and deposit it in the pliers or nippers V, which close and take hold of it, the pliers S opening and dropping the same. At the reverse or downward motion of the lever the spool is carried back, the thread unwinding and passing over the arms G′ and through the shears A′. The shears cut the thread, the pliers S take hold of the new end, and the arms G′ carry the cut thread up to the needles, which then, on the return stroke of the lever, ascend and carry the thread with them.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the base A, bed-plate B, having slot *a* and gage C, the cross-head D, with needle-holder *f* and needles *d*, the perforated guide-bar G, links *b*, and operating-lever F, substantially as and for the purposes herein set forth.

2. The pivoted arm M, carrying the spool R, and provided with the pliers or nippers S, for the purposes herein set forth.

3. The combination of the pivoted arm M, having slot *i*, and carrying the spool and pliers, as described, lips *k*, segment O, and cross-bar L, with pin *h*, all substantially as and for the purposes herein set forth.

4. The combination of the pliers V, spring *p*, toggle-joint W, lever Y, pin *v* on the arm *w* of the cross-bar L, and the pin *t*, substantially as and for the purpose herein set forth.

5. The combination of the shears A′, link *y*, lever B′, with inclines *b*.*b′*, and the cross-bar L, operated by the lever F and rods I J, substantially as and for the purpose herein set set forth.

6. The combination of the slide C′, with cross-head D′, having pins *d′*, the journaled bar F′, with arms G′, the slide H′, links I′, angle-plate J, and pins *f′*, all substantially as and for the purpose herein set forth.

7. The combination, with the slide H′ and devices connected thereto, of the pin *v*, notched cam L′, and levers M^1 M^2, as and for the purpose herein set forth.

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

ASAHEL ALANSON JOHNSON.

Witnesses:

C. H. TALMADGE,

J. H. LAKIN.