A. E. PAYNE & J. S. GEORGE.

MACHINES FOR POLISHING THE EYES OF NEEDLES.

No. 193,031. Patented July 10, 1877.

Fig. 1.

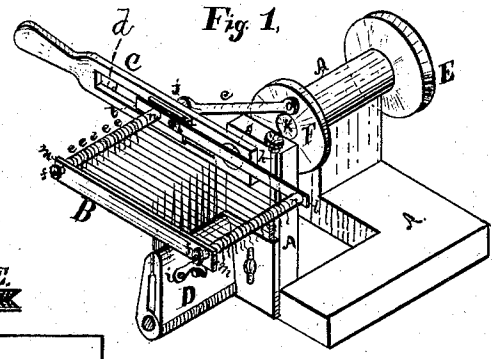


Fig. 2.

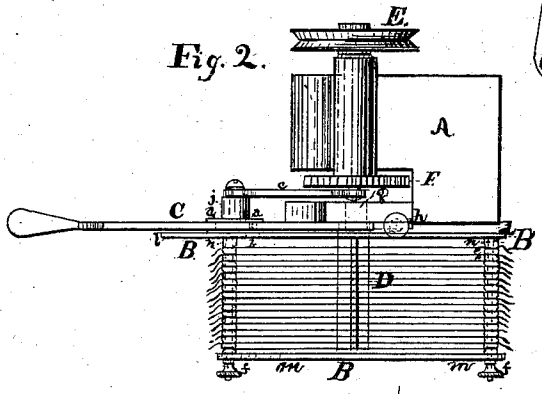


Fig. 3.

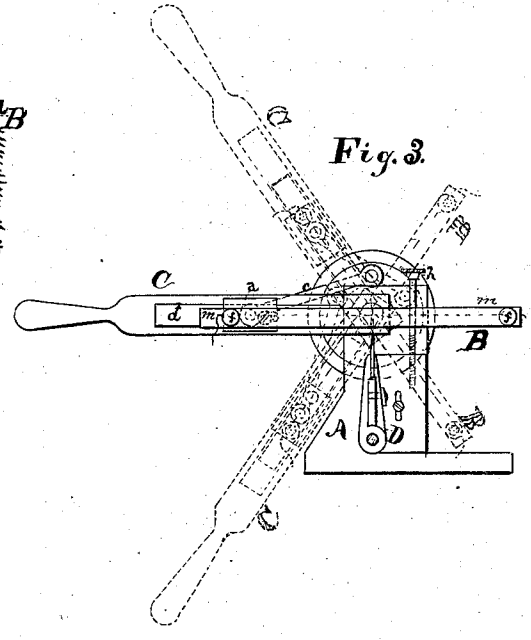


Fig. 4.

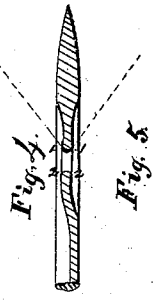


Fig. 5.



Fig. 6.



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UNITED STATES PATENT OFFICE.

ADDIS E. PAYNE AND JOHN S. GEORGE, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN MACHINES FOR POLISHING THE EYES OF NEEDLES.

Specification forming part of Letters Patent No. **193,031**, dated July 10, 1877; application filed October 3, 1876.

To all whom it may concern:

Be it known that we, ADDIS E. PAYNE and JOHN S. GEORGE, of Bridgeport, Fairfield county, Connecticut, have invented certain Improvements in Machines for Polishing the Eyes of Needles, of which the following is a specification:

This invention has for its object the polishing of the eyes of needles after they have been drilled or punched, as the case may be, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a perspective view of the machine. Fig. 2 is a plan view. Fig. 3 is a side view.

The bed or frame of the machine is shown at A. B is the frame or thread-clamp, in which are placed the threads for polishing the needles. C is a lever, provided with a handle at one end, the other end of said lever oscillating on the pin *g*, which is driven tightly into the frame A. The lever C is provided with a longitudinal slot, *d*, into which the box or cross-head *a* is fitted. Attached to one side of the sliding box *a*, on the stud *j*, is the connecting-rod *c*, the other end of which is attached to the balance-wheel F, secured to the shaft *k*, which passes through the frame A. On the other end of the shaft *k* is fastened the grooved pulley E, to which the power by which the machine is driven is applied.

The thread-clamp B is secured to the sliding box *a* by the screw *b*, which passes through the bar *l*, and is constructed of four pieces. On the bar *l* of said clamp, which, as before stated, is secured to the sliding box *a* by the screw *b*, are two studs, which hold the washers *e e e e e*. The number of washers corresponds to the number of needles that can be polished.

After the washers are put on the studs *n n*, the outer bar *m* is then put on said studs, and held there by the thumb screws or nuts *f f*.

D is the clamp for holding the needles. *i* is a hasp or catch to hold the clamp tightly together. *h* is a screw for raising and lowering the needle-clamp, to accommodate it to receive long or short needles.

The operation of the machine is as follows: The thread-clamp B is separated from the lever C by removing the screw *b*. Short pieces of thread are then provided, and on each piece of thread are strung a suitable number of needles, as many as the thread will string without breaking. The ends of the threads are then slipped between the washers *e e e e e*. The nuts *f f* are tightened, pressing the bar *m* against the washers *e e e e e*, pinching the threads, and holding them firm and taut. Several thread-clamps are used for the same machine, and while one clamp is at work on the machine the others are being strung and kept ready for use. The thread-clamp is then fastened to the box *a*, and the needles secured in the clamp D, ready for polishing.

By revolving balance-wheel F motion is communicated to box *a*, which slides rapidly backward and forward in the slot *d*, reciprocating the thread-clamp, and, with the aid of emery on the threads, effectually polishing the eyes of the needles.

The lever C, by means of the handle, and while the thread-clamp is in rapid motion, is raised and lowered, as shown in Fig. 3, so turning the threads held in the clamp as to cause them to polish and round the eyes, as shown in Figs. 5 and 6.

By means of adjusting-screw *h* the needle-clamp D is raised and lowered to polish the tops and bottoms of the eyes.

We are aware of the existence of many machines for the purpose of polishing the eyes of needles; but with these machines the results have not been satisfactory, for while the walls and tops and bottoms of the eyes are polished, the corners 1 1 2 2 are left sharp, the polishing-thread moving in the direction of the dotted line, Fig. 4, and the more the needle is polished the sharper the corners 1 1 2 2 become.

Figs. 5 and 6 represent needles which have been polished in one of our machines, the polishing-thread taking a direction as shown by the dotted line, Fig. 6, effectually polishing the corners, and therefore preventing them from cutting the threads while sewing. This result can best be obtained by placing the eyes of the needles on a line with the axis of the machine. The lever C, attached to the axis of the machine at *g*, describes in its motion an arc of a circle, the center of which is

the eye of the needle, thus causing the threads to so operate upon the eyes as to leave them with perfectly smooth and round corners.

What we claim as new, and desire to secure by Letters Patent, is—

1. In combination with lever C, sliding box *a*, and rod *c*, thread-clamp B, provided with washers on the studs *n n*, for holding the threads tight by means of the nuts *f f*, all substantially as described.

2. The combination of the vertically-adjustable needle-clamp with the oscillating and reciprocating clamp B, substantially as described, and for the purpose set forth.

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