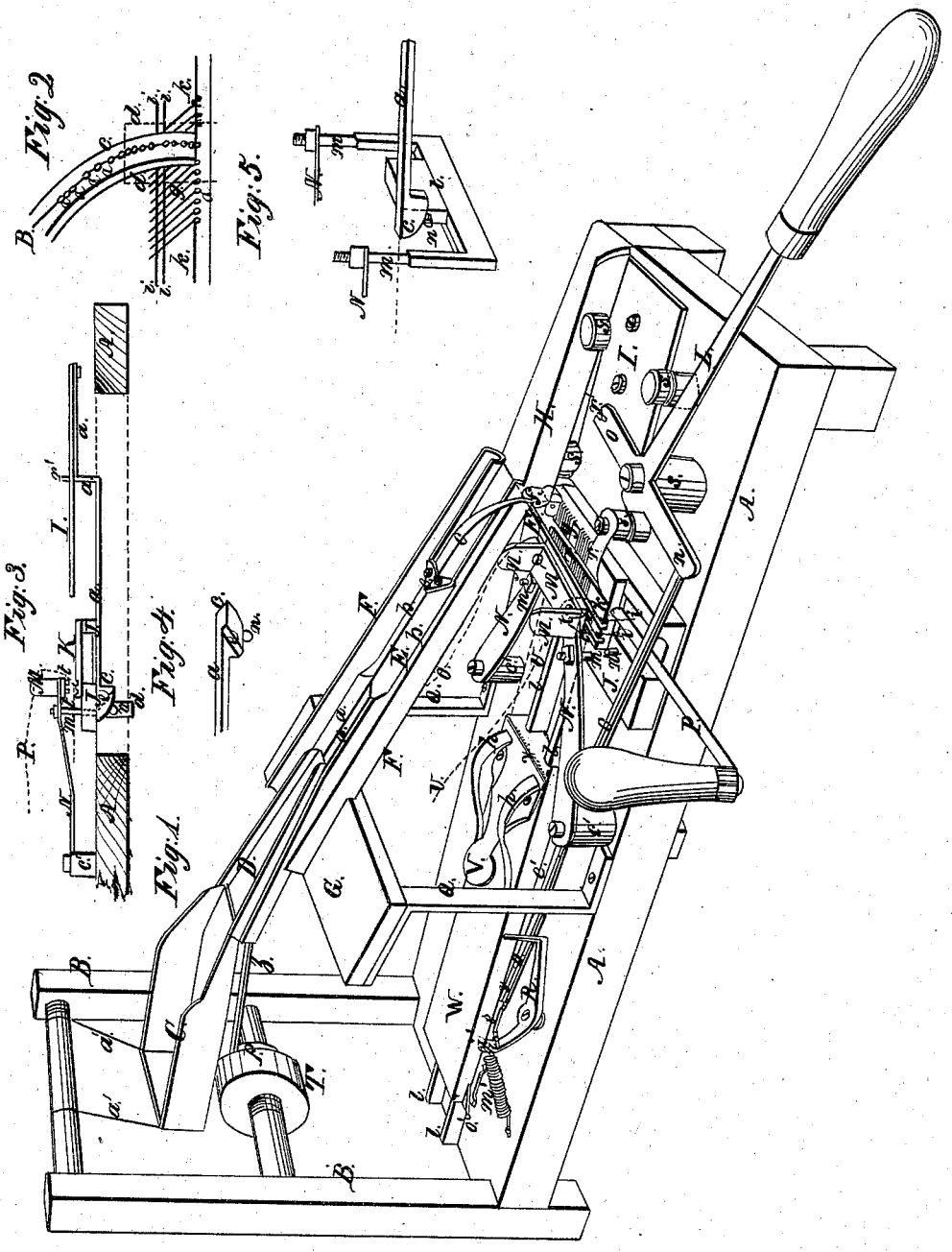
D. Fowler.

Papering Pins.

No. 3,751. Patented Sept. 20, 1844.



UNITED STATES PATENT OFFICE.

DE GRASSE FOWLER, OF NORTH BRANFORD, CONNECTICUT.

MACHINE FOR ARRANGING AND STICKING PINS IN PAPERS.

Specification of Letters Patent No. 3,751, dated September 20, 1844.

To all whom it may concern:

Be it known that I, DE GRASSE FOWLER, of the town of North Branford, county of New Haven, and State of Connecticut, have invented a new and Improved Machine for Sticking Pins into Papers; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a perspective view of the complete machine; Fig. 2, a section showing the curved part of the conductor with a portion of the series of grooves; Fig. 3, a section showing the apparatus for working the crimper; Fig. 4, a section, showing the manner in which the piece *c*, Fig. 3, passes over the pin *n* and is drawn back again under it, and Fig. 5 is a section showing the manner of drawing down the crimping bars into the grooves.

The parts of the different figures are as follows:

Fig. 1, A, A, wooden platform; B, B, a wooden frame to which the hopper is suspended; C, the hopper; D, a broad tapering trough; E, E, conductor; F, F, two troughs, or gutters; G, a small platform supported by pieces Q, Q; H, inclined plane with a perpendicular side; I, a metal plate; J, a metal plate on which the plate K, slides; K, a metal plate with a series of grooves marked *g;* L, a lever with two arms *n o* at right angles; M M′ M crimper, the bars of which are marked *t*, *t;* N, N, two springs to throw the crimper up; O, O, a rod to move the slide W; P, a rod with a handle to move the slide K; R, a lever with two arms, working upon a joint rivet in the center; S, an upright piece to support the fulcrum of the lever L; T, a drum for a band from the motive power; U W U, dotted lines, showing the position of the paper; V, a piece of metal, kept down at the broad end by springs *h*, *h*, to hold the paper; W, a slide for moving the paper during the process of sticking; Z, a spring to give a jolting motion to the hopper. The minor parts will be hereafter described.

Fig. 2, C, the conductor; B, the narrow slit through the center in which the pins pass; *d d*, a plate to cause the pins to fall properly into the grooves *g;* K K, a plate with series of grooves; *i i i i*, longitudinal grooves used in crimping the paper; *a a a a*, &c., pins. Its operation will be hereafter described.

Fig. 3, A, A, section of the platform. I, a metal plate. *r′* a pin by which the plate I is moved by the arm *o* of the lever L. *a*, *a*, *a*, a metalic bar attached to the plate I. C a thick end of the bar formed like the latch of a common knob-lock. *n* a pin over which C passes to bring down the crimper. N, a spring to throw the crimper up. M, *t t* the crimper; J, the plate on which the slide K moves; P, dotted lines showing position of the paper; *m* a rod attached to the piece L, and fastened to the spring N. Its operation will be hereafter described.

Fig. 4, *a* metal bar with a large end *c*. *n* a pin over which it passes. *e* an inclined plane for the pin *n* to back over the piece C

The construction and operation of the machine is as follows, reference being had to Fig. 1 in the drawings: Upon a strong wooden platform A, A, I place the whole machine. From the cross piece at the top of the uprights B, B, I suspend a tin hopper C between which and the conductor E, E, is a broad tapering trough D, to the under side of this a stiff spring Z is attached, having one end lying upon the octangular piece *p* which is made to revolve by a band passing over the drum T and connected with a motive power. When the pin *p* revolves, a jolting motion is communicated to the hopper trough, and the pins, (which are thrown into the hopper in any quantity,) and made to slide gradually down and fall into the ravine *a a* at the upper end of the conductor E, E. Through the whole length of this conductor is a slit, represented in the drawing by a heavy black line. When the pins fall into the ravine *a a* they roll to the center, the body passes through and they are suspended by the heads as seen in the section of the conductor, Fig. 2. The conductor is sufficiently inclined to cause the pins thus suspended to slide down the slit and fall into the grooves *g*, in the slide K. The conductor being stationary, the grooves are filled by passing the slide K along under the lower end of the conductor, by means of the rod with a handle, P. As more pins might fall into the ravine of the conductor, than sufficient to fill the slit, a portion of the conductor is beveled downward from the center, as seen at *b b* and the surplus pins slide over

into the gutters F, F, from thence fall upon the inclined plane H, and then into a reservoir from whence they are taken and thrown back again into the hopper. Thus the pins are prevented from being scattered about the machine and upon the floor. The triangular piece *e* is intended to ward off the pins and direct them into the gutters. A groove is cut in its lower side, large enough to allow the heads of the pins that are in the slit, to pass through. When the pins pass the curve of the conductor at C, they would be liable to fall out, or fall with the heads at irregular distances from the ends of the grooves. To prevent this, a flat upright plate shown by dotted lines and marked *f*, (or more clearly shown by the dotted lines *d*, *d*, Fig. 2,) is placed sufficiently near the conductor to have the heads of the pins strike it, and cause them to fall correctly into the grooves as they pass under the lower end of the conductor. The slide K with the grooves, having been passed along under the lower end of the conductor and the grooves filled, it is drawn back and arrested in a proper position by the pin *n'*.

A thin piece of metal *r r* keeps the pins in the grooves from being thrown out by the jarring of the machine in working. This piece is rounded on its lower edge, so that the plate I is allowed to easily pass under it.

This process completed, the pins are now ready to be stuck into the paper, which is performed thus. Upon the slide W is a metal plate V, the end at *x* being as broad as the slide. The other end is bent upward, so that, (as the plate works easily upon the screws) when pressed down by the thumb, the end at *x* rises. The sheet of paper to be filled with pins is placed under this broad end, the thumb taken off of the point V and the springs *h h* pressing upon the broad end, hold the paper securely to the slide W. The paper is then passed under the crimper M' and the end thrown over back as indicated by the dotted line *u u u;* or the dotted line P, Fig. 3. The paper being thus made ready and the grooves filled with pins, the lever L is moved by the handle in the direction of the arrow. By this movement, the plate I is carried toward the pins in the grooves, and the crimper is made to perform its office as follows: When the plate I is moved forward by the lever L, the bar *a a a*, Fig. 3, which is attached to it, also moves, and its thick end *c* sliding under the plate J, J, passes over the pin *n*, which, being attached to the piece *l* causes it to be drawn down a distance equal to the curve of the piece C. To each end of *l* (as best seen in Fig. 5) is attached two perpendicular rods *m m* (which are also seen at *m* Fig. 1). The upper ends of these rods are fastened by a nut to the springs N, N, and near to the crimper M. As the piece C passes over the pin *n* Fig. 3, *l* by means of its rods *m m* draws down the crimping bars *t*, *t*, into the longitudinal grooves in the slide K, and thus the operation of crimping the paper is performed. Grooves or holes or notches are made through the crimping bars *t t*, in positions to correspond with the grooves in the slide K, and large enough to allow the pins to pass easily through them when closed into the longitudinal grooves. The paper, by the action of the bars and grooves, is raised into two folds, at proper distances upon the sheets, and when the pins pass through the notches of the crimping bars, they penetrate these folds. At the moment the crimper completes the operation of crimping, the plate I, moved by the lever L, strikes the heads of the pins in the grooves, and forces them through the fold in the paper. At the same time the piece C Fig. 3, passes over the pin *n* which falls behind the perpendicular part, and allows the springs N, N, to throw the crimper up. When the bar *a a a* with the plate I is drawn back by reversing the motion of the lever L, the pin *n* passes up the inclined plane *e*, Fig. 4 and the piece C assumes its previous position as seen in Fig. 3. Thus the operation of crimping and sticking is performed, by a single motion of the lever L.

The movement of the slide W, to which the sheet of paper is attached, is performed as follows: Attached to the slide W, is a straight rack *e'* with the teeth some distance apart. Upon this rack, the rod O, O, operates thus. When the lever L is moved in the direction of the arrow, the rod O, O, is drawn forward, and the moment the plate I has performed the office of driving the pins into the paper, the flattened end *y* of the rod O, O, falls in front of one of the teeth of the ratchet *e'*. When the pins are "stuck" and the lever L is drawn back, the rod O, O, operating upon the ratchet, moves the slide W, back a given distance. This operation is repeated until the rod O, O, traverses the whole length of the ratchet, when, by a beveled piece of metal, the rod is thrown up, above the ratchet, and against the side of the slide W. The slide is then moved forward upon the rails *z z z z* and another sheet of paper inserted. When the slide W reaches the desired point forward the point of the rod O, O, strikes a bevel *o'* at the end of the ratchet, and is thrown again into its place in the ratchet. It is kept against the ratchet *t'* by one end of the lever R, which is made to press against it by the action of the spiral spring *m'* attached to the other end of the lever. This lever moves upon a hinge rivet in the center. The end of the lever to which the spring is fastened, is so formed as to fall behind the teeth of the ratchet, and prevent the slide W, from being thrown back beyond a given distance each

time. The plate I is supported by four upright pieces *s s s s* in which grooves are cut. In these grooves the plate I moves.

The form of the crimper and its mode of operation in the longitudinal grooves of the slide K, I do not claim as my invention. It is the same as one invented by John J. Howe, of Derby, Connecticut, for which Letters Patent were granted bearing date of Feb. 24, 1843. Also the series of grooves into which the pins fall, and the manner in which they are laid into the grooves at the lower end of the conductor, I do not claim as my invention, it being the same in form and operation, as a machine invented by Samuel Slocum of Poughkeepsie, New York—for which Letters Patent were granted bearing date of September 30, 1841.

What I claim as my invention and desire to secure by Letters Patent is—

1. The combination of a sliding bed in which the grooves are cut for the reception of pins, with the stationary curved conductor, combined and arranged substantially in the manner and for the purpose herein set forth.

2. I claim the stationary conductors E, E, having two inclined bars with a downward curvature at the ends as described, and in combination therewith the gutters F, F, on each side into which the surplus pins pass, and are carried off—the triangular piece (*e*) aiding in the operation. In the above claim I wish it to be understood that I do not claim the inclined conductors when made straight but only with the curved terminations.

DE GRASSE FOWLER.

Witnesses:
JOEL HINMAN,
PHILO BROWN.