

(No Model.)

2 Sheets—Sheet 1.

A. I. JACOBS.

MACHINE FOR POINTING AND BENDING SPRING KEYS.

No. 303,289.

Patented Aug. 12, 1884.

Fig. 1.

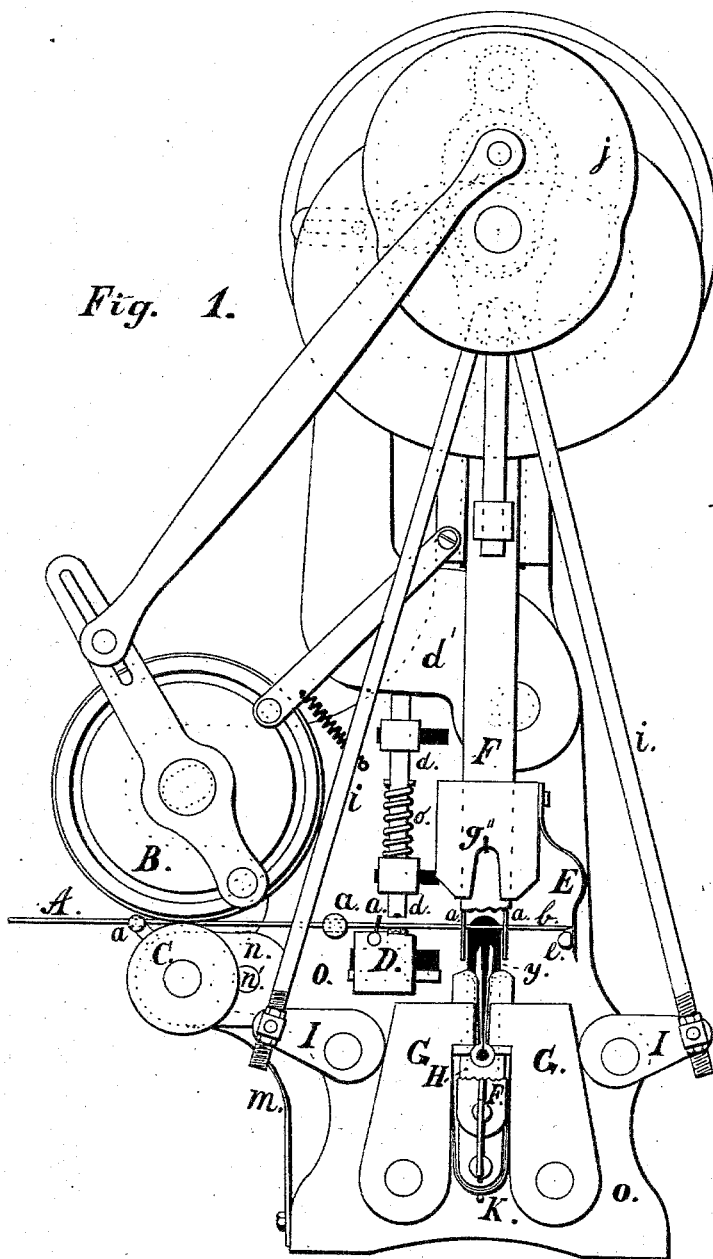


Fig. 2.

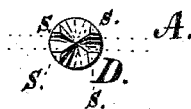


Fig. 3.



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Fig. 4.

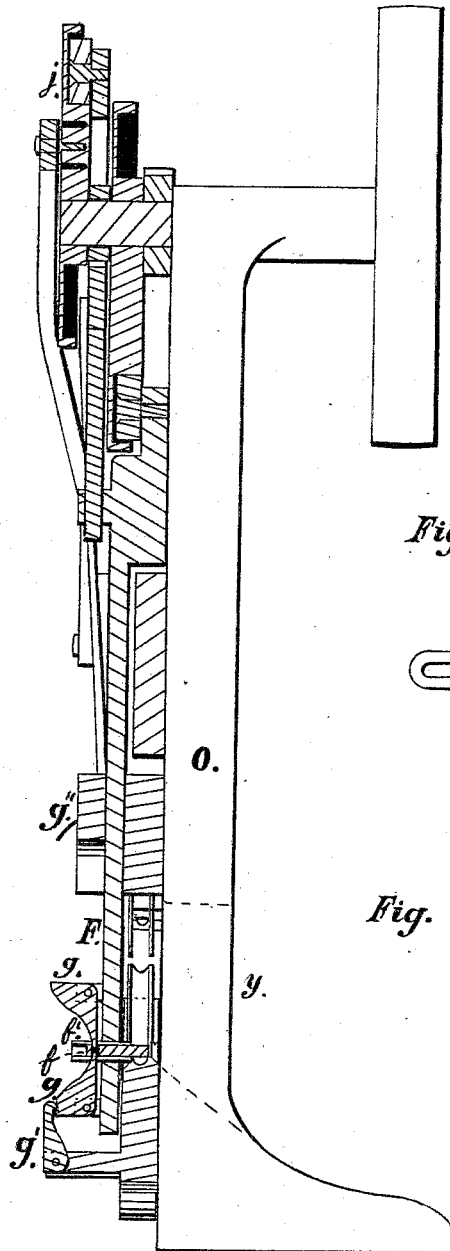


Fig. 5.

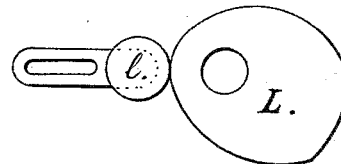
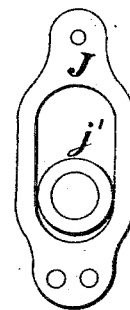


Fig. 6.



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ARTHUR L. JACOBS, OF WORCESTER, MASSACHUSETTS.

MACHINE FOR POINTING AND BENDING SPRING-KEYS.

SPECIFICATION forming part of Letters Patent No. 303,289, dated August 12, 1884.

Application filed October 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR L. JACOBS, of the city and county of Worcester, State of Massachusetts, have invented a Machine for Pointing and Bending Spring-Keys, of which the following is a specification.

My invention relates to pointing the key when cutting and bending it to the desired form, automatically making it from the continuous wire or stock. Its nature is fully explained by the following description and the accompanying drawings of a machine embodying my invention.

In said drawings, Figure 1 is a front elevation, with a portion of the slide F removed, showing a finished key in position. Fig. 2 is a plan of the face of the cutting and pointing die D, enlarged. Fig. 3 is a side view of the lower part of slide F and its adjacent parts. Fig. 4 is a side view from the right of Fig. 1, with the parts in front of the frame O shown in section; and Figs. 5 and 6 show some parts hereinafter more particularly described.

A is the wire or material of which the keys are to be made, preferably of a half-round form in section, as at *b*, Fig. 3, and may be taken from the reel or coil.

B is the feed-wheel.

C is the pressure-feed wheel.

a a a are guides for the wire.

D is the stationary cutting and pointing die, its cutting-edges being shown by the central cross-lines in Fig. 2, and the V-shaped spaces S S S S at their ends representing solid flat or bearing surfaces for the other die, *d*, to rest or stop against. The surface of die *d* is flat and solid over the cutting-edges and V-spaces of die D, but may be cut away on each side to facilitate the discharge of the obtuse-angle pieces cut from the wire. The die *d*, being supported in guides held in slots in the main frame O O, is operated by the lever *d'*, which is pivoted near its lower end, and has its upper end provided with an adjustable slotted arm carrying a roll, as shown in Fig. 5, and receives its cutting and holding force from the cam L. The latter, (holding,) being governed by the form of said cam, is arranged to hold the cut end of the piece until taken by the pin *f* in slide F, the spring *o* acting to both raise the die *d* and keep the lever *d'* pressed against its cam L.

E is a spring, against which the pointed end of the wire is fed, and which holds the cut piece between the dies and on the rest *e* until taken by the pin in the slide F, which moves in suitable guideways. The pin *f*, on which the eye or loop of the key is formed, is automatically operated by the angle-levers *g g*, which are pivoted in studs on the slide F, the lower one having a notch, which is caught by the spring-catch *g'* when the slide F is clear down, and the upper one arranged to meet the stop *g''* when the slide F is nearly up. The other ends of the levers *g g* pass through slots in the socket *f'*, in which the pin *f* slides, and operate that pin by means of a groove near its end, as shown in Fig. 4.

G G are two finishing-jaws having suitably-grooved dies, between which the half-bent key is moved down by the pin *f* to the bed-die H, which is stationary, and has a notch and groove to form the lower half of the eye of the key, the lower corners of the grooved dies in the jaws G G being fitted to form the rest and the neck, while their upper parts fall or slope back, giving the points room to open, as in Fig. 1, the jaws G G being operated or closed by the cam-levers I I, connected to the yoke J by the adjustable connecting-rods *i i*, the yoke J sliding on the collar *j'*, and receiving the desired motion from its cam *j*.

K is a U-shaped spring, opening the two jaws G G (when not closed by their levers) sufficiently to allow half-bent key to be carried down in their grooves by the pin *f*.

The feed-wheel B represents a common form of feed, in which the lever carrying a slotted stud or pin adapted to slide on a projecting rim of the wheel when moved one way, and loose enough on its support to tilt and cause said stud to bind on said rim when moved the other way, giving motion to the wheel, is intermittently operated by a crank-pin in cam *j*, connected to its slotted lever.

At *h* is a spring attached to the slide F, having a hole to allow it to be pressed back over the pin-socket *f''*, its lower end being bent to facilitate its passing the bed-die H, whose corner is beveled to press said spring back when the slide F moves down.

At *m* is a strong spring pressing the roll C up against the feed-wheel B, the wheel C turning on a stud in the slip *n*, which is pivoted

to the frame O at n' , all parts being suitably supported by the frame O O, in which the cutting and pointing dies D d are adjustable in slots, enabling them to be set for keys of different lengths.

5 In operation the wire is fed in the required length by the feed, its pointed end meeting the spring E. The die d , descending, forces it on the die D, cutting and pointing at one operation. In the meantime the slide F, moving to its upper position, brings the lever g against the stop g'' , forcing the pin f in over the cut piece b . The slide F descending, the pin f carries the piece b by its middle part down to the bed-die H, its end sliding into the grooved jaws G G, which are now closed, forming the eye or loop around the pin f , and, compressing the neck, force open the points of the key, as shown in Fig. 1, the notch in lower lever, g passing low enough to be caught by the catch g' . As the slide F rises, the lever g is held by the catch, causing its other end to draw the pin f from the finished key, as in Fig. 3, and the spring h throws the key out through the aperture y , between the broken lines in Fig. 4, the jaws G G being opened before the slide

F commences to rise. The slide F rising, a new piece is fed in, and the operation repeated. In adjusting for different lengths of keys, the dies D d may be varied in their slots to cut the desired length from the middle of the piece, while the feed-wheel B is adjusted by its slotted arm to feed just the length desired, with its middle in line with the center of the pin f in the slide F.

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

1. The cutting and pointing dies described, consisting of a die having cross-shaped cutting-edges with solid spaces at their ends, and solid-faced die operating in conjunction therewith, substantially as and for the purposes described.

2. In a key-bending machine, the combination of the spring E, rest e , and cutting and holding dies D d , holding the cut and pointed blank, substantially as set forth.

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Witnesses:

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