

J. Keith.

Making Pen-Holder Springs.

N^o 54,362.

Patented May 1, 1866.

Fig. 2.

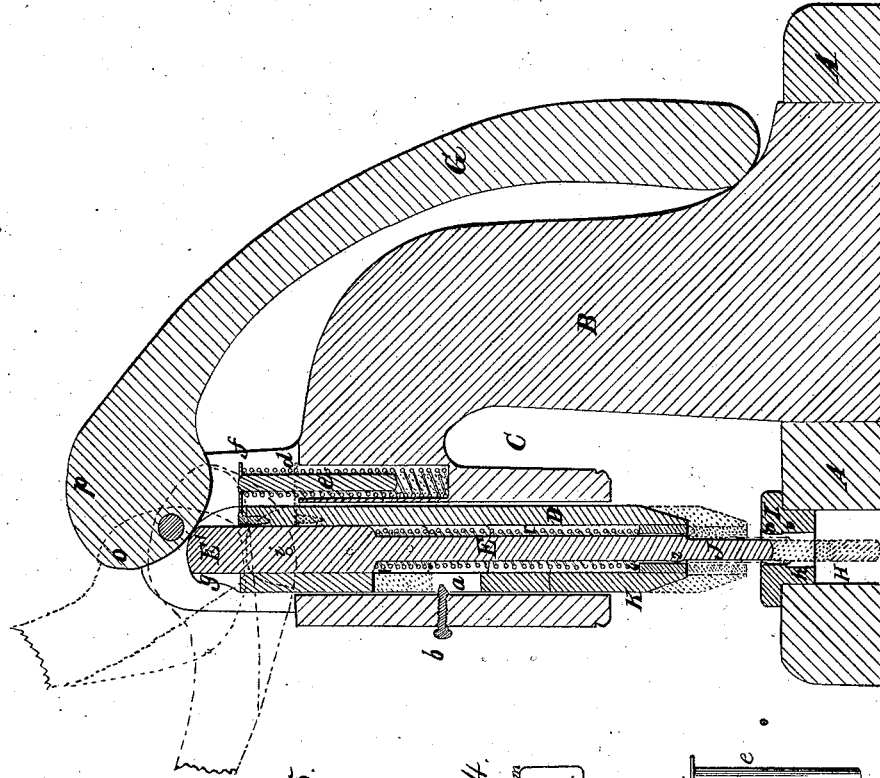


Fig. 5.



Fig. 4.

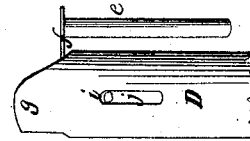
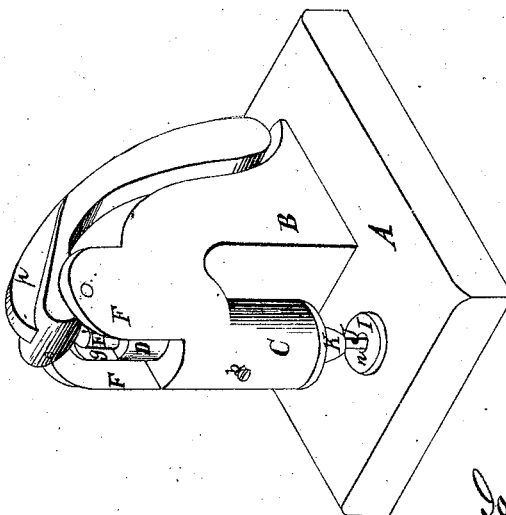


Fig. 3.

Fig. 1.



Witnesses.

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JOHN KEITH, OF WORCESTER, MASSACHUSETTS.

IMPROVED MACHINE FOR FORMING PEN-HOLDER SPRINGS.

Specification forming part of Letters Patent No. 54,362, dated May 1, 1866.

To all whom it may concern:

Be it known that I, JOHN KEITH, of the city and county of Worcester, and State of Massachusetts, have invented certain new and useful Improvements in Machines for Forming Pen-Holder Springs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a perspective view of my improved machine. Fig. 2 represents a longitudinal central section of Fig. 1, the movable parts being shown in different positions in red and blue colors. Fig. 3 represents a side view of a detached part. Fig. 4 represents a side view of a piece of plate-steel cut to form a spring, and Fig. 5 represents a perspective view of the same piece after it has been formed into a spring.

In the drawings, A represents the base of the machine, to which is fastened standard B, having a hollow upright neck or quill, C, securely attached thereto. Within the neck or quill C is arranged a tubular spindle, D, having a slot, *a*, to receive the screw *b*, which passes through quill C, as shown in the drawings, the object of which is to keep the tubular spindle D from turning when working up and down. Within tubular spindle D is arranged the forming and delivering rod E, the top E' of which just fills the bore in spindle D, while the part from 1 to 2 is turned down smaller, and the part from 2 to 3 is turned down smaller still. A spiral spring, *c*, rests upon the shoulder 4 of spindle D, encircling rod E, shoulder 1 of which rests upon the top of spring *c*.

A spiral spring, *d*, is placed within a hole in the top of neck C, while a rod is fastened to the top of D by means of plate *f*, one end of which is securely attached to the top of rod *e*, while the other end is fastened to D between the ears *g g*, which project up from the sides of D, as indicated in the drawings. Between ears F F is hinged the operating cam-lever G.

A hole, H, is made in the front part of the base-piece A, in which is fitted a forming-die, having a hole through it, the lower part being largest, as seen at *h*.

The forming-rod E has a pin, *i*, which works in slots *j* in the spindle D to keep the former from turning.

The operation is as follows: The operator takes a blank piece of steel (seen at *k*, Fig. 4)

and bends it partially into circular form, then inserts the ends *m m* into eye *n* in plate I between the forming-point J and the die, after which lever G is turned up until the cam *o*, acting upon the ears *g g* of spindle D, causes the latter to descend, carrying with it rod E, pin *i* of the latter being, when in this position, at the top of slot *j*, as seen in Fig. 3.

In Fig. 2, spindle D is shown in red lines forced nearly down to die I, and in ordinary work the point K of spindle D should be forced quite down to die I before cam *p*, which works between ears *g g*, strikes the top E' of rod E.

By the descent of spindle D the blank piece of steel *k* is forced down into the eye *n* of die-plate I and accurately formed into a tubular spring, as seen at *y*, Fig. 5. Lever G is now turned still farther forward, when cam *p*, acting upon the top of rod E, forces that still farther down, whereby its shoulder *a*, acting upon the edge *s* of the formed spring, forces the latter down below the shoulder *b*, when the spring falls by its own weight. Upon throwing back lever G spring *c* throws up rod E and spring *d* spindle D, ready for another operation.

The blanks *k* may, if preferred, be partially bent in a separate machine before being inserted in the eye *n* of die-plate I, which gives to the spring the finishing operation.

The blue lines are given to illustrate more fully the mode of delivering the finished spring from the machine.

Having described my improved machine for forming pen-holder springs, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination of lever G, having cams *o p*, with spindle D and the forming-rod E, substantially as set forth.
2. The combination, with spindle D and forming-rod E, of the springs *c* and *d* and rod *e*, substantially as set forth.
3. The combination, with spindle D and forming-rod E, of pin *i*, springs *c* and *d*, and screw *b*, as and for the purposes set forth.
4. The combination of the forming-rod E with spindle D, springs *c* and *d*, and die I, the parts being constructed and arranged for joint operation in the manner set forth.

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Witnesses:

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