(No Model.)

S. KONZ.

MACHINE FOR MAKING WIRE SPRINGS AND COUPLINGS.

No. 482,427. Patented Sept. 13, 1892.

Fig. 1.

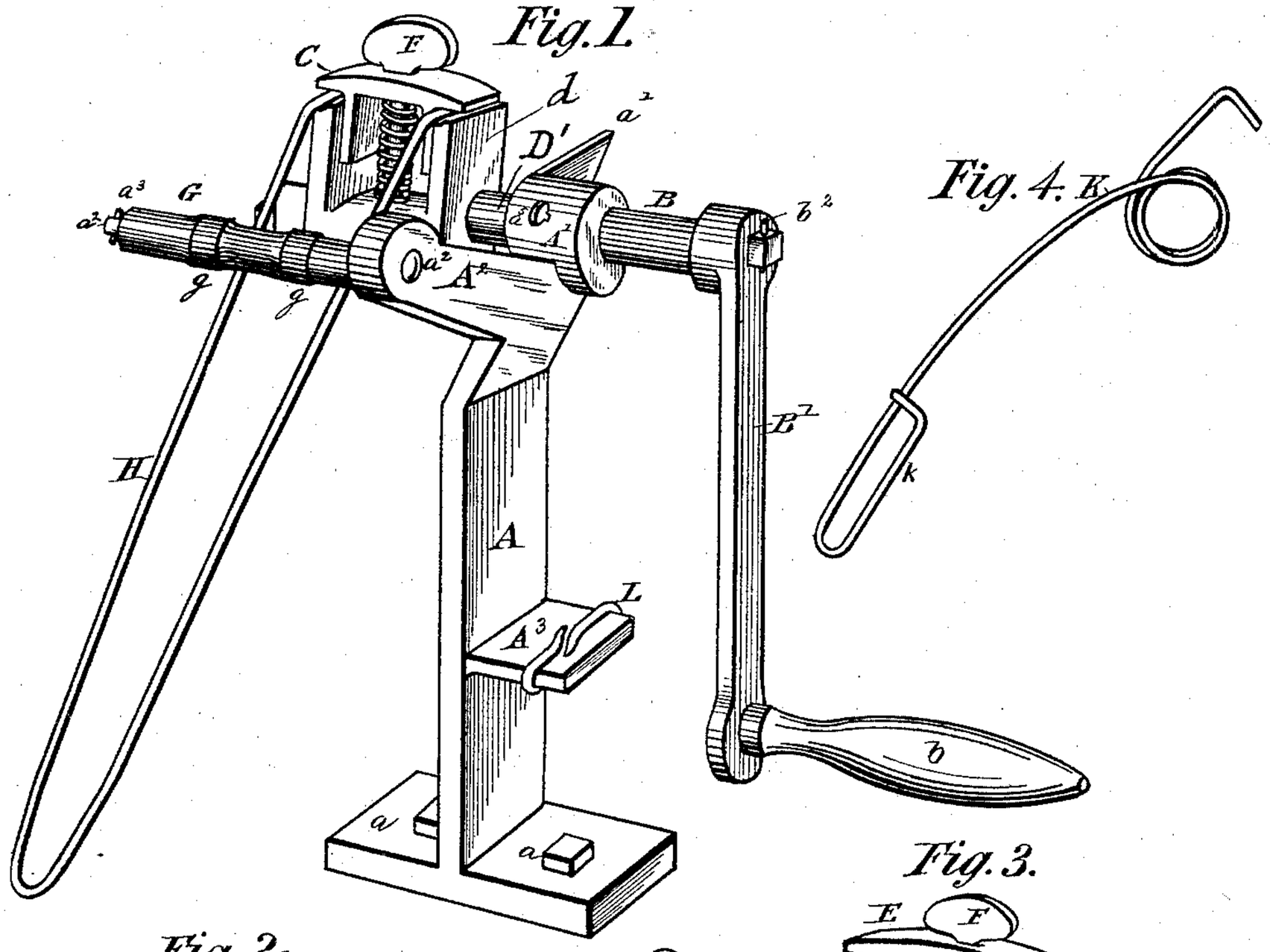


Fig. 4.

Fig. 2.

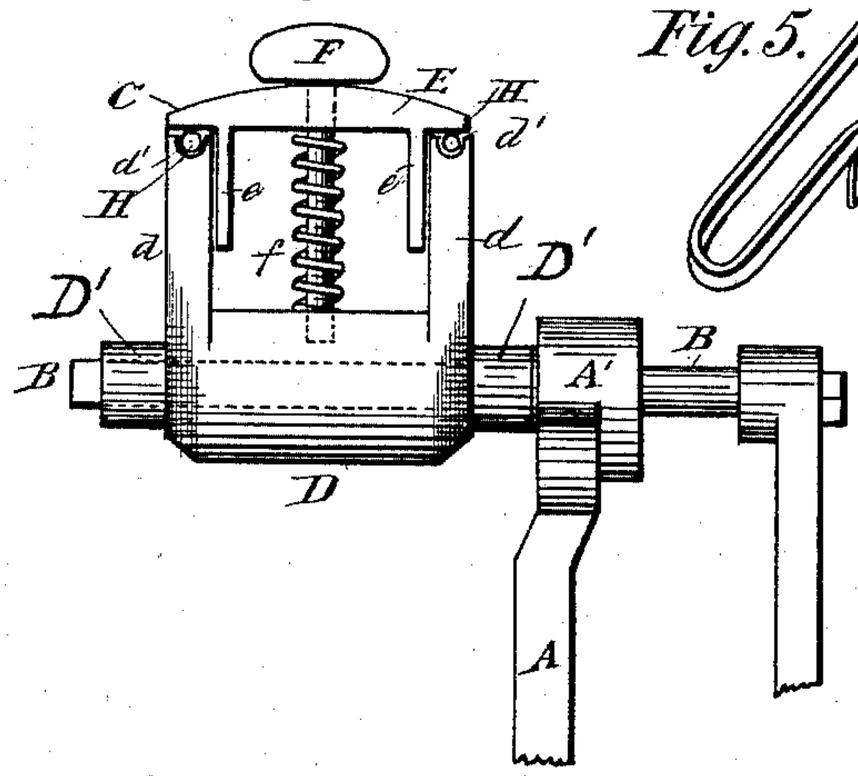


Fig. 5.

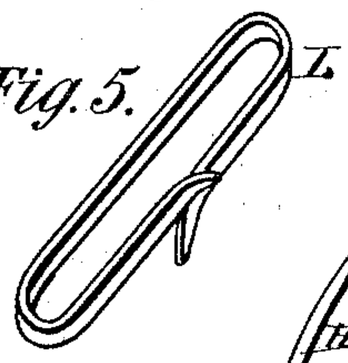
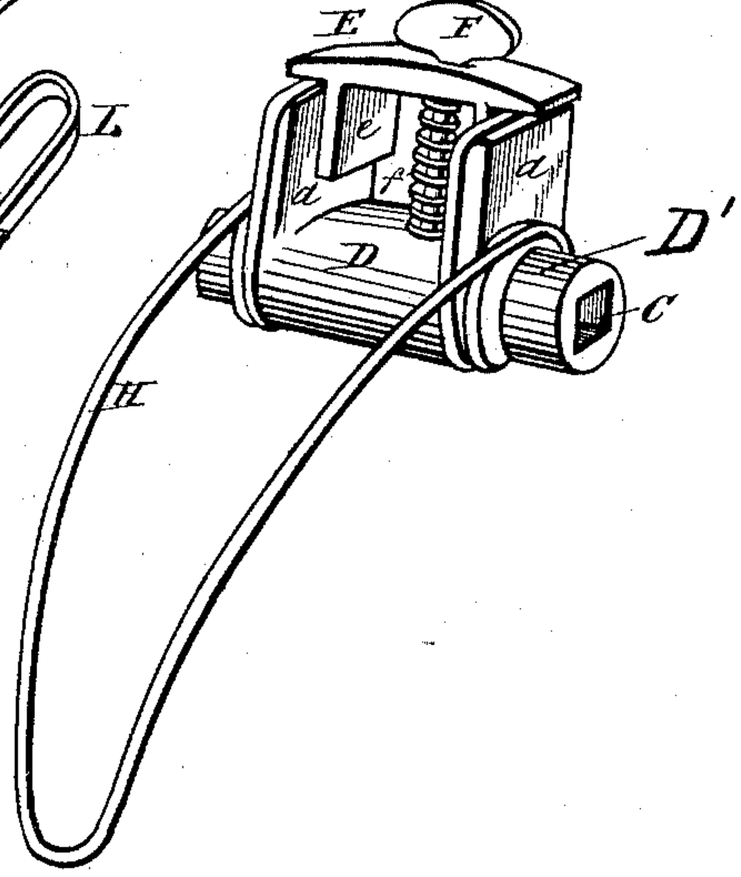


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

SEBASTIAN KONZ, OF LOUISVILLE, KENTUCKY, ASSIGNOR OF ONE-HALF TO SAMUEL F. HARLAN, OF SAME PLACE.

MACHINE FOR MAKING WIRE SPRINGS AND COUPLINGS.

SPECIFICATION forming part of Letters Patent No. 482,427, dated September 13, 1892.

Application filed May 14, 1892. Serial No. 433,010. (No model.)

To all whom it may concern:

Be it known that I, SEBASTIAN KONZ, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Machines for Making Wire Springs and Couplings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to that class of machines designed to coil wire; and it consists in certain peculiarities in the construction, arrangement, and combination of the several parts, substantially as hereinafter described, and particularly pointed out in the subjoined claims.

The object of the invention is to provide a machine which will be capable of making accurately and rapidly wire springs especially adapted for seat-bottoms and spring-couplings that may be used as spring-bottoms for seats. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a machine with a section of wire in position to be rolled into a spring and a spring-coupler in position on the die-plate; Fig. 2, a front elevation of a double screw-vise used for holding the spring-wire in position; Fig. 3, a perspective view of the double vise in detail, showing a spring completed; Fig. 4, a modification of a spring used in lounges or sofas, and Fig. 5 a spring-coupler used in conjunction with the form of spring shown in Fig. 4.

Similar letters refer to similar parts throughout the several views.

The standard A, with its base $a\,a$, the journal-box A′, the guide a', the arm A^2, and the die-plate A^3 constitute the frame of the machine. In the box A′ is journaled the shaft B, the outer end of which is squared to receive the crank-arm B′, provided with a handle b and held in place on the shaft by the pin b^2. A groove is sunk around the journal of the shaft, and a screw a^5, fitted in a threaded hole through the journal-box, projects into the groove and prevents the shaft from slipping. The portion of the shaft on the side of the journal-box A′ opposite the crank-arm B′ is square and designed to carry the double screw-vise C. This vise consists of a base D, having the longitudinal opening through it square in cross-section and adapted to fit over the square portion of the shaft B, two side plates or jaw-pieces d, rectangular in shape, rising perpendicularly from the base D at a suitable distance apart and parallel to each other, a cross-head or top jaw E of a width sufficient to cover the jaw-pieces d and having guide-pieces e projecting downward from it within and parallel to the jaw-pieces d, a clamp-screw F, which passes through the cross-head E and engages a threaded seat in the base D, and the sleeves D′, projecting horizontally from the side plates d. This clamp-screw is surrounded between the cross-head and the base by a coil-spring f, which assists in throwing the cross-head up when the screw is loosened.

Along the tops of the jaw-pieces d are grooves d', adapted to receive the end portions of the wire to be coiled. The openings through the sleeves D′ are similar in shape to and register with the opening through the base D. Said sleeves are of less diameter than said base, and the shoulders between said base and sleeves are inclined or sloped toward the latter.

In the outer end of the arm A^2 is a screw-threaded hole, into which is screwed on the side of the arm opposite the crank end of the shaft the threaded end of a stud-post a^2, which projects parallel to the shaft. Over this stud-pin is fitted a roller-sleeve G, provided with guiding-beads g.

H in Fig. 1 represents a section of spring-steel wire in position to be worked into a double coiled and curved spring and in Fig. 3 shows the same wire in the shape of a complete spring.

K represents a coiled spring with a single curved arm and a loop k at its outer end, being a modification of my spring adapted for use in lounges and sofas.

L represents a coupling to be used with the springs K or with the double springs in elongated seats.

When my machine is in use, it should be attached to some firm foundation by bolts or

screws passing through the base *a a*, as indicated in Fig. 1. The mode of operating it is as follows: A piece of spring-wire H of sufficient length to make a double coiled and curved spring of the size desired is bent in the middle and the two ends brought sufficiently near together that one may fit in the groove in the top of one of the jaw-pieces *d* of the vise and the other in the other. In placing the wire ends in the vise the shaft is turned so that the projecting loop of the wire will be beneath the roller-sleeve G. The crank is then turned so as to bring the wire against the roller-sleeve. As the vise turns with the shaft the wire is first bent at right angles over the upper corners of the jaw-pieces, then passes straight along the front edges of the jaw-pieces till it reaches their base, when the slope of the base-piece from the central portion to the sleeves directs it outward and coils it as the shaft turns around the sleeves. The operator in this process turns the crank with his right hand and with his left grasps the projecting wire arms in the loop and by means of the guide-beads *g* on the roller-sleeve sees that the coils wrap around the sleeves side by side and are not superimposed. By loosening the vise-screw and sliding the vise off the shaft the completed spring can be readily taken off the vise and another piece of wire inserted. The guide *a'* on the journal-box assists the operator to determine when the last coil has been carried far enough and when the projecting loop has the necessary curve. After the springs are removed from the vise the right angle made by bending the wire over the upper corners of the vise-jaws can be made sharper by the hammer, or, preferably, after the ends of wire intended for a spring have been brought into proper juxtaposition they can be thrust into holes in a plate prepared for the purpose, the wire bent over to a right angle, and the angle squared by the hammer. Then the wire when its ends are placed in the vise will extend directly along the straight edges of the jaw-faces, ready to begin coiling around the outer parts of the base-plate as soon as the shaft is turned. The single spring K shown in Fig. 4 is made in the same way, except that it is not doubled, and the loop K' on the outer end of it may be formed round the die-plate A^3 with hammer and tweezers. The coupling L is made, preferably, of a piece of spring-wire flattened and then formed on the die-plate A^3.

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

1. In a machine for making wire springs, a double screw-vise having a sleeve-base with an opening through it square in cross-section, adapted to slip over a squared shaft, two jaw-pieces rectangular as to their sides and top rising perpendicularly from the base in parallel planes, each provided with a groove along its top edge, and a top jaw or cross-head covering the tops of the base jaw-pieces and provided with two downwardly-projecting parallel guide-plates fitting inside and close to the base jaw-pieces, in combination with a vise-clamping screw passing perpendicularly through the cross-head or top jaw into a screw-threaded hole in the sleeve-base and having a coil-spring surrounding its shaft between the top jaw and base, substantially as described.

2. A machine for making wire springs and couplings, having a frame consisting of a standard A, base *a a*, journal-box A', arm A^2, guide *a'*, and die-plate A^3, and a stud-post a^2, projecting horizontally from the inner face of the arm A^2, carrying a sleeve-roller G, provided with guide-beadings *g*, in combination with a shaft B, journaled in the box A', provided with a crank and handle at its outer end, and having its inner end squared and carrying a double screw-vise C, constructed and arranged substantially as set forth, and for the purposes specified.

3. The combination, with the frame, the shaft journaled therein, and means for rotating said shaft, of a vise secured to said shaft and rotating therewith, said vise having a grooved top and sloping bottom, and sleeves projecting from said vise and adjacent to the sloping bottom thereof, substantially as shown and described.

4. The combination, with the frame, the shaft journaled therein, means for rotating said shaft, and the roller-sleeve G, having beads *g g*, of a vise located adjacent to said sleeve and rotatable with said shaft, said vise having a grooved top and sloping bottom, and sleeves projecting from said sloping bottom of the vise.

5. The combination, with the vise consisting of a base, two side jaws, a removable top jaw, and sleeves projecting laterally from said side jaws, said side jaws having their tops grooved and their bottoms sloped toward said sleeves, a clamping-screw engaging said top jaw and the base of the vise, and a coil-spring encircling said screw, of a supporting-frame and means for rotating said vise.

In testimony whereof I affix my signature in presence of two witnesses.

SEBASTIAN KONZ.

Witnesses:
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