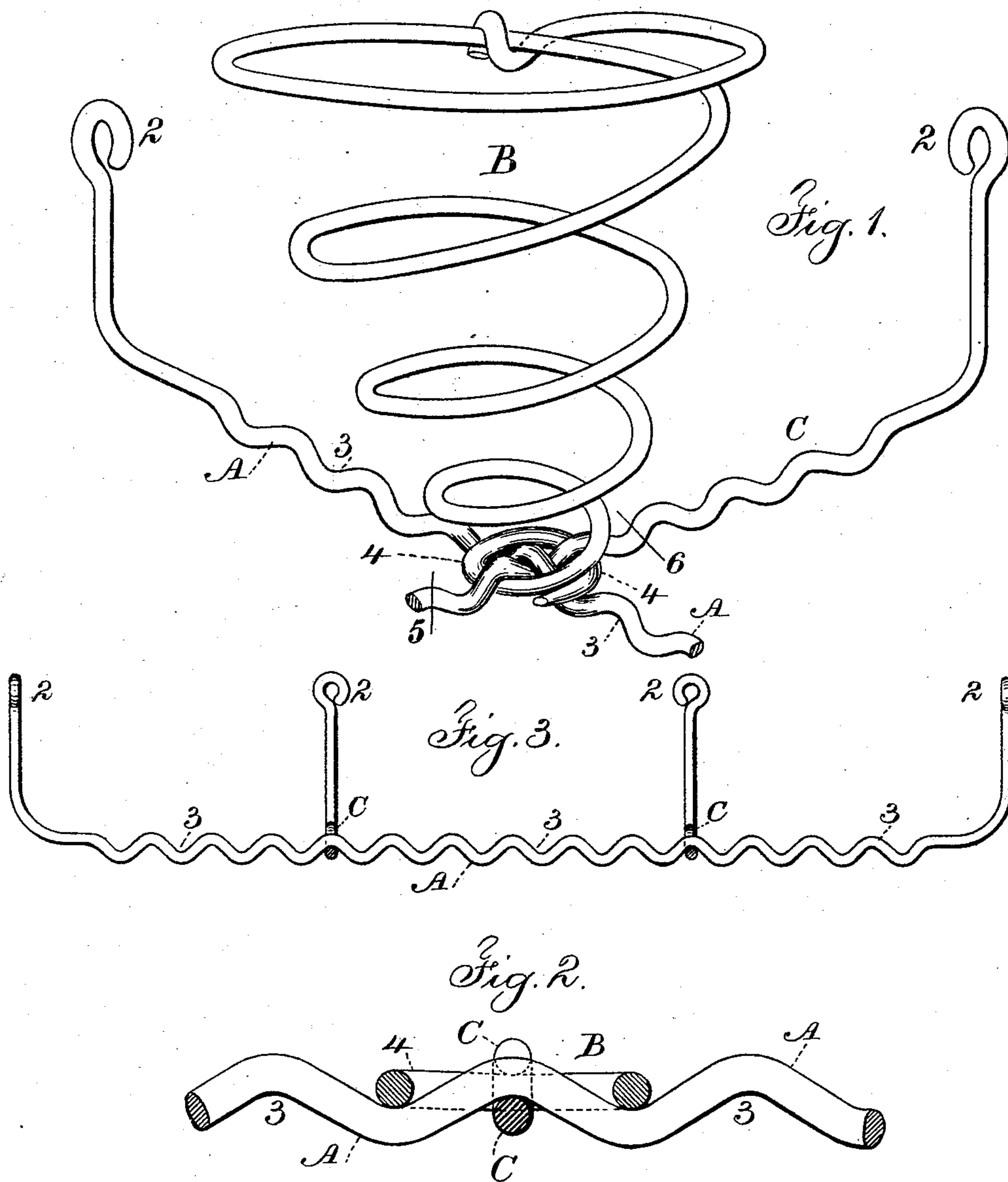


(No Model.)

J. A. STAPLES.
SPRING SUPPORT FOR UPHOLSTERY.

No. 482,908.

Patented Sept. 20, 1892.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN A. STAPLES, OF NEWBURG, NEW YORK.

SPRING-SUPPORT FOR UPHOLSTERY.

SPECIFICATION forming part of Letters Patent No. 482,908, dated September 20, 1892.

Application filed March 10, 1892. Serial No. 424,590. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. STAPLES, a citizen of the United States, residing at Newburg, in the county of Orange and State of New York, have invented an Improvement in Spring-Supports for Upholstery, of which the following is a specification.

Springs for chairs, bed-bottoms, &c., have heretofore been made as an inverted cone or spiral, the base or larger portion being bent upwardly and the smaller end being connected to wires. In some instances the spring has rested upon a wire bent up in the form of a loop, through which a key or wire has been inserted. In other instances two wires have been employed for the spring to rest upon, and the parts have been interlocked with a cross wire or key.

Where two wires or supports are made use of for the spring or range of springs, there is difficulty in introducing the cross wires or keys, and where but one wire has been employed the base of the spring was liable to displacement laterally, and such base might turn sidewise or partially rotate upon the supporting-wire.

The object of the present invention is to support a spring or ranges of springs upon a single wire, so that the parts are locked together in such a way that the base of the spring cannot be displaced laterally and it is impossible for the spring to be turned or partially rotated around the single wire. With this object in view the supporting-wire is corrugated in a vertical plane, and the intersecting wire or key is also corrugated in a vertical plane, and the corrugations bear such a relation to the circular coil of the wire at the smaller end of the spring that when the end of the wire is passed below one corrugation and over the next corrugation and the spring revolved until the end of the wire is interlaced all the way round the interlocking of the corrugations and the pressure of the wire of the spring against the corrugations of the supporting-wires is such that the parts are firmly bound together and the coil of wire at the smaller end of the spring, not being entirely circular but slightly enlarging or volute in form, wedges against the corrugations of the supporting-wire and key or crossing-wire in such a manner that the further rotation of

the spring in introducing the same into position is stopped and the parts are bound firmly by a wedging action, which renders the attachment to the single wire as firm and reliable as though the spring were a part of the supporting-wire.

In the drawings, Figure 1 is a perspective view representing the spring and the supporting-wires. Fig. 2 is a magnified diagram illustrating the respective depth of corrugation in relation to the size of the wires employed, and Fig. 3 shows one of the supporting-wires separately and two crossing-wires in section.

The supporting-wire A is of a suitable length to pass from one side to the other of the chair-seat, bed-bottom, or other article of upholstery, and with a chair-seat the ends of this wire may be bent upwardly and outwardly to rest upon the top edge of the seat-frame, as shown in my application, Serial No. 409,112, filed October 19, 1891; but I have represented the ends of such wire as passing upwardly and provided with eyes 2 for the reception of screws or nails, by which the same may be fastened to the seat-frame of a chair, sofa, or similar article, and the horizontal or nearly horizontal portion of the supporting-wire A is made with corrugations 3, which are preferably uniform and extend across the horizontal portion of the support, so that the springs B can be connected therewith at any desired point. This gives facility for the introduction of two or more springs upon the supporting-wire at any desired places, so as to adapt the springs to the chair-seat or other upholstery.

The cross wire or key C is to be corrugated with corresponding bends to the wires A, for the purposes named. Upon reference to the diagram, Fig. 2, it will be observed that the depth of the corrugations is such that when one corrugated wire is laid across the other corrugated wire the necessary space is provided for the small coil 4 at the end of the spring to be interlaced by rotating such spring, the end of the wire passing under one of the corrugated wires and over the next, and when the spring has been rotated completely, or nearly so, the wires bind tightly together. In other words, the corrugations of the wire are slightly sprung by the introduction of the wire of the spring between

them, and the smaller end 4 of the spring is a circle, or nearly so, corresponding to the lengths of three or more corrugations, so that such spring occupies the bottom or recesses of the corrugations, and such smaller end of the spring being slightly a volute form, as well as an inclination in the upward twist of the spiral, such spring wedges tightly and outwardly in the corrugations as well as upwardly under one wire and downwardly over the adjacent wire. In consequence of this construction the crossing corrugated wires interlock with each other and no end movement can be given of one wire in relation to the other, and no movement of the spring upon either wire can be given endwise of such wire, because the wire of the spring is retained within the corrugations of the crossing wires, and looseness is prevented by the wedging action aforesaid. Hence the spring cannot move upon either wire, neither can the spring be rotated around the wire because the interlocking of the corrugated wires gives a base of resistance equal to the depth of the corrugations, and there is no tendency for the parts to become loose when the spring is compressed and one part cannot move on the other. Hence there will not be any noise as the spring is compressed or relieved.

In chair and bed bottoms it is advantageous to corrugate the crossing wires throughout the entire length of the horizontal portions, and these corrugations should be reasonably close together, in order that the intersections of the wires may be easily varied to bring the springs nearer together or farther apart, and in the angles of chair-bottoms and in places where a length of cross-wire is not required a section of the corrugated wire forming a key may be employed for each spring-base, and it is always advantageous to make the corrugations in the crossing wires to correspond, or nearly so, in their depth and shape, so that the action in the reception of the spring will be uniform at all sides of the spring.

In my application before mentioned I have represented a spring-support that is corrugated in its horizontal portion; but in the said application no claim is made thereon. In consequence of the corrugations being substantially continuous and such corrugations being comparatively small, a great facility is given for interlocking the crossing wires at different distances apart and for introducing the springs upon the crossing wires, and the corrugations prevent the springs from slipping laterally, and a spring-support, corrugated as aforesaid, is to be distinguished from a spring-support of wire that is looped only at the places where the springs are attached thereto, and in consequence of the spring-support being corrugated throughout its length a small

amount of elasticity is given to the wire itself that lessens the tendency of the wire to break. 65

I claim as my invention—

1. The combination, with a wire spring in which the coil of wire is circular, or nearly so, at the smaller end, of corrugated interlocking crossing wires with which the nearly-circular end of the spring is interwoven, so as to wedge tightly above and below the respective corrugated wires and bind the interlocking wires together and the wire of the spring into the corrugations of the interlocking wires, substantially as set forth. 75

2. The combination, with a supporting-wire that is corrugated upon its horizontal or nearly horizontal portion, of a crossing key similarly corrugated and interlocking with the corrugations of the supporting-wire, and a wire spring having a nearly-circular coil at the smaller end thereof interwoven above and below the crossing wires and into the corrugations of the same, so that the respective parts are tightly wedged together, substantially as set forth. 85

3. The combination, with the upholstery-springs, of supporting-wires having corrugations throughout their nearly-horizontal portions and bent upwardly at the ends and terminating with eyes or connections by which the ends of the wires are secured to the wooden frame, the corrugations in the wires being adapted to receive the wires of the springs at the lower ends of such springs to prevent the springs slipping upon the wires, substantially as set forth. 95

4. The combination, with upholstery-springs, of supporting-wires crossing each other beneath the respective springs, such wires having corrugations sufficiently close together to allow the positions of the intersections to be varied to adapt them to the positions of the springs, and the corrugations forming receptacles for the coils of wire at the ends of the springs, whereby the springs are held in position by the corrugations of the wire, substantially as set forth. 100

5. The combination, with the upholstery-springs, of supporting-wires having ends that are adapted to be secured to the seat-frame, the substantially horizontal portion of one or more of the crossing wires being corrugated to form receptacles for the coils of wire at the ends of the springs and with which wires the spring is interwoven, so as to bind tightly above and below the crossing wires and hold the wires and springs firmly together, substantially as specified. 110

Signed by me this 7th day of March, 1892. 120

JOHN A. STAPLES.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.