W. B. FOSTER.

COILED SPRING STRUCTURE.

APPLICATION FILED OCT. 15, 1919.

1,372,129. **Patented Mar. 22, 1921.**

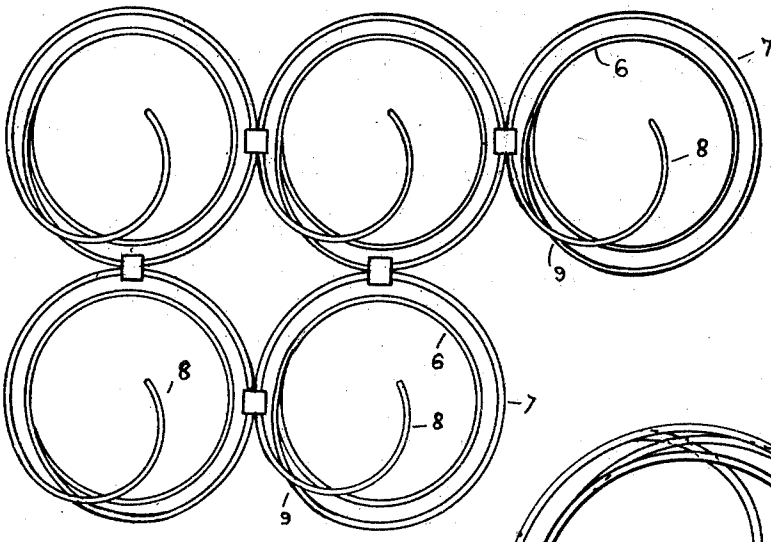


Fig. 4.

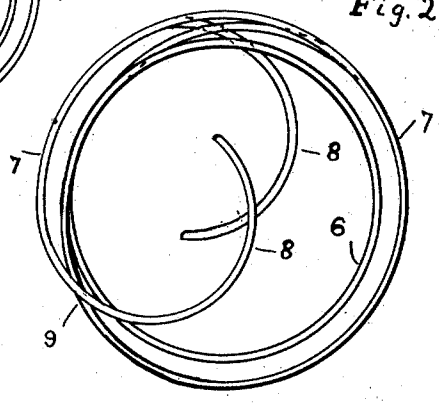


Fig. 2.

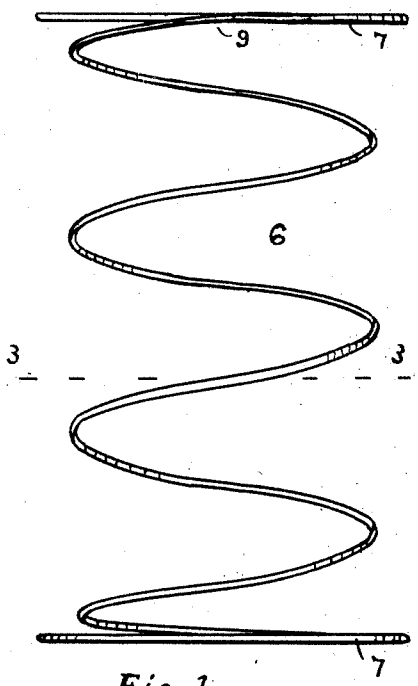


Fig. 1.

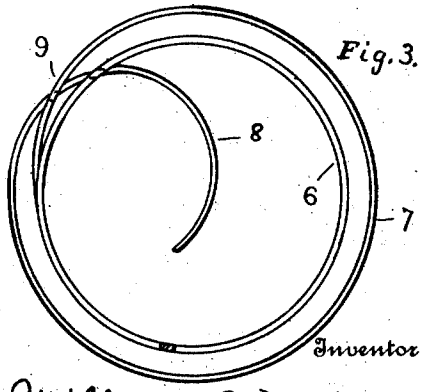


Fig. 3.

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UNITED STATES PATENT OFFICE.

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COILED-SPRING STRUCTURE.

1,372,129. Specification of Letters Patent. Patented Mar. 22, 1921.

Application filed November 15, 1919. Serial No. 338,277.

To all whom it may concern:

Be it known that I, WILLIAM B. FOSTER, a citizen of the United States, and a resident of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Coiled-Spring Structures; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the reference-numerals marked thereon, which form part of this specification.

My present invention relates to coiled spring structures.

The purpose of my invention is to provide a coiled spring structure of simple and improved construction and operation.

A further purpose is to provide an article of the class described wherein the coiled springs are formed with the ends of the wire which forms the spring curved inwardly from the end coils, but in the same plane therewith in order to afford a greater supporting surface for the fabric or other upholstering about the spring as well as greater supporting surface for the person using the structure.

Another purpose is to provide this further or additional supporting member of such form and character that it may be readily made upon the ordinary coiling machine without separate or supplemental operations upon the spring and without requiring any tying or knotting of the end.

Further purposes and advantages of my invention will appear from the claims hereinafter set forth.

Figure 1 is a side elevation of a coiled spring embodying my invention.

Fig. 2 is a top view of the same.

Fig. 3 is a horizontal sectional view on line 3—3 of Fig. 1.

Fig. 4 is a top view on a reduced scale of part of a coiled spring structure embodying my invention.

Referring to the drawings in a more particular description it will be seen that the spring comprises a main spiral portion 6 of desired height, diameter and number of coils to afford the strength and resiliency desired by the particular structure in hand.

At the top or yielding end where the spring acts only from one end or at both ends when the spring is to be used in a structure where both ends are to be yielding or supporting ends there is provided an end coil 7 in a plane at right angles to the axis of the spring as a whole. Preferably also this end coil 7 will be of larger diameter than the main or spiral portion 6.

After making the more or less complete circle of the end coil 7 the wire of which the spring is formed is bent inwardly or curved inwardly on a curve of less size than the coils therebelow so as to provide an end-piece 8 reaching to about the center or a little past the center as plainly suggested in the drawings. This end-piece 8 is in substantially the same plane as its end coil 7 and so obviously affords a further or supplemental supporting surface for that end of the spring in addition to the end coil 7. It will be seen that in this way the fabric, cushion or other upholstering material over the springs will be supported very considerably within the circle of the coiled spring and within the circle of the end coil 7 thereof and thus prevented from working down into the spring and interfering with the operation of the spring. As the cushion or other upholstering material is kept more on a level it is not strained or worn as much where used over a spring embodying my invention as is the case where the covering can work down into the spring. It will be understood also that the more extended supporting surface provided by my spring will render the cushion more comfortable for the person using the same.

The end-piece 8 is free from the rest of the spring or from the subjacent end coil in the sense that the end-piece 8 comes in past the subjacent portion 9 of the spring and rests thereupon but is not tied thereto in any form. In this way the spring is kept more resilient and free from knobs on its ends and especially may be made complete by the ordinary coiling machine without the spring having to be subjected to further separate or special operations as would be the case where the inturned end was given a sharp or decided angle or in any way tied to the subjacent coil of the spring.

The inwardly extending end-piece 8 is obviously of such length, shape and position that it cannot under any ordinary usage of the spring be forced off from its rest on the subjacent part 9 of the spring nor will the

extreme end of the piece 8 be projected beyond the circle of its end coil 7.

The end-piece 8 and the adjacent portion of the end coil 7 being balanced over the subjacent portion 9 of the spring are each kept by the other from being unduly depressed or elevated when the spring is in use.

What I claim as new and desire to secure by Letters Patent is:

1. A coiled spring for spring cushion structures comprising a main spiral portion, a flat coil at the yielding end of the spring and in a plane substantially at right angles to the axis of the spring and a free end piece curving inwardly from said end coil to about the center thereof and in the same plane therewith, the outer portion of said free end-piece beginning outside the subjacent part of the spring and passing in over and resting upon the said subjacent part of the spring at an angle.

2. A coiled spring for spring cushioned structures comprising a main spiral portion, a flat coil at the yielding end of the spring and in a plane substantially at right angles to the axis of the spring and a free end-piece curving inwardly from said end coil to about the center thereof and in the same plane therewith, the outer portion of said free end-piece beginning outside the subjacent part of the spring and passing in over and resting upon the said subjacent part of the spring at an angle sufficient to prevent the two engaged portions of the spring from sliding or rolling on each other.

3. A coiled spring for spring cushion structures comprising a main central spiral portion, flat end coils in planes substantially at right angles to the axis of the spring and free end-pieces curving inwardly from said end coils to about the center thereof and in the same planes respectively therewith, the outer portion of each of said end-pieces beginning outside the adjacent part of the spring and passing inward by the adjacent part of the spring and resting thereagainst.

4. A coiled spring for spring cushion structures comprising a main spiral portion, a flat coil at the yielding end of the spring, larger than the spiral portion and in a plane substantially at right angles to the axis of the spring and a free end-piece curving inwardly from said end coil to about the center thereof and in the same plane therewith, the outer portion of said free end-piece beginning outside the adjacent part of the spring and passing in over and resting upon the said subjacent part of the spring.

5. A coiled spring for spring cushion structures comprising a main central spiral portion, flat end coils in planes substantially at right angles to the axis of the spring and larger than said central spiral portion, free end-pieces curving inwardly from said end coils to about the center thereof and in the same planes respectively therewith, the outer portion of each of said end-pieces beginning outside the adjacent part of the spring and passing inward by the adjacent part of the spring and resting thereagainst.

In witness whereof I have affixed my signature, this first day of November, 1919.

WILLIAM B. FOSTER.