

(No Model.)

E. P. FOWLER.
SPIRALLY COILED WIRE SPRING.

No. 283,880.

Patented Aug. 28, 1883.

Fig. 1.

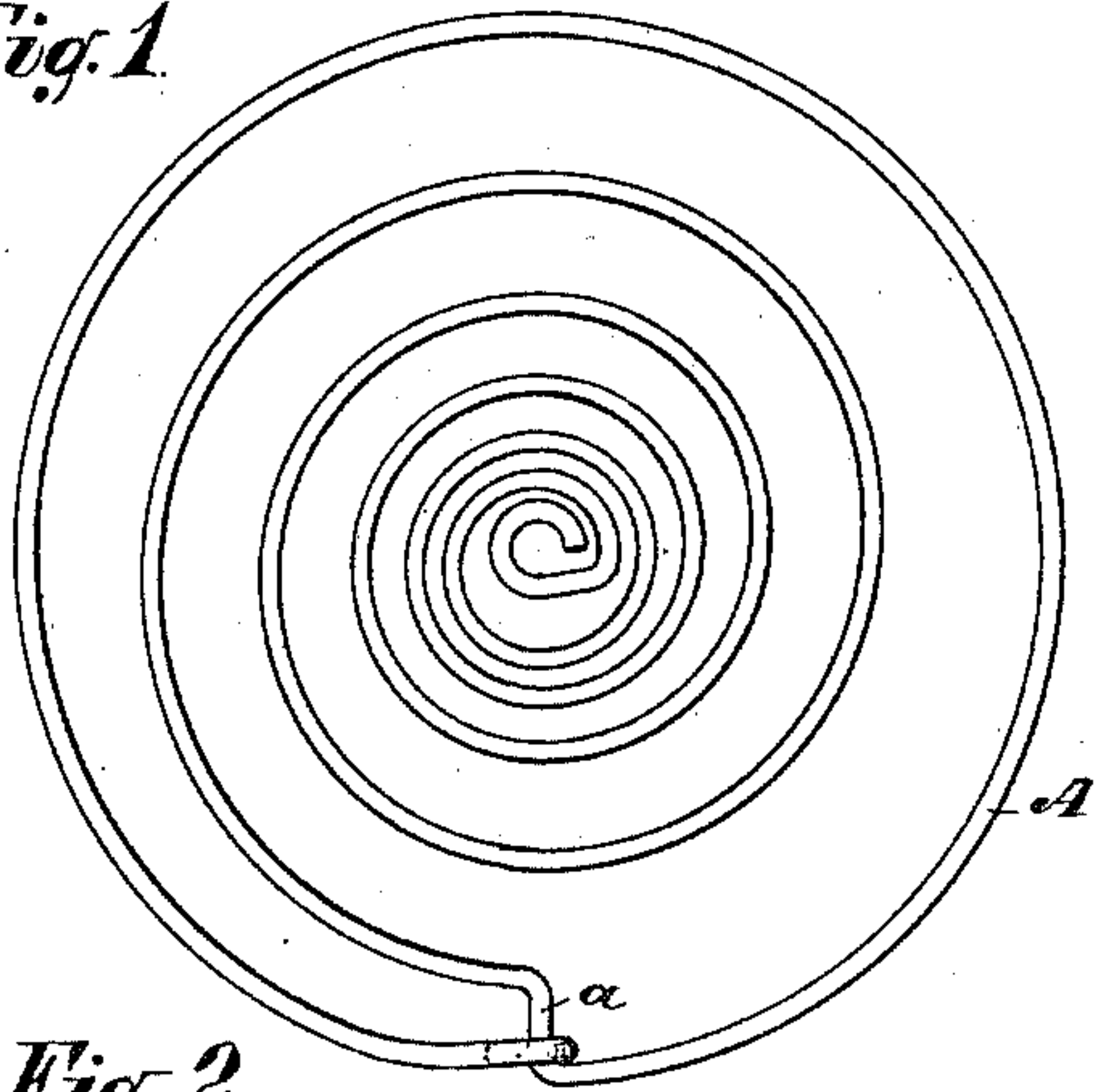


Fig. 4.

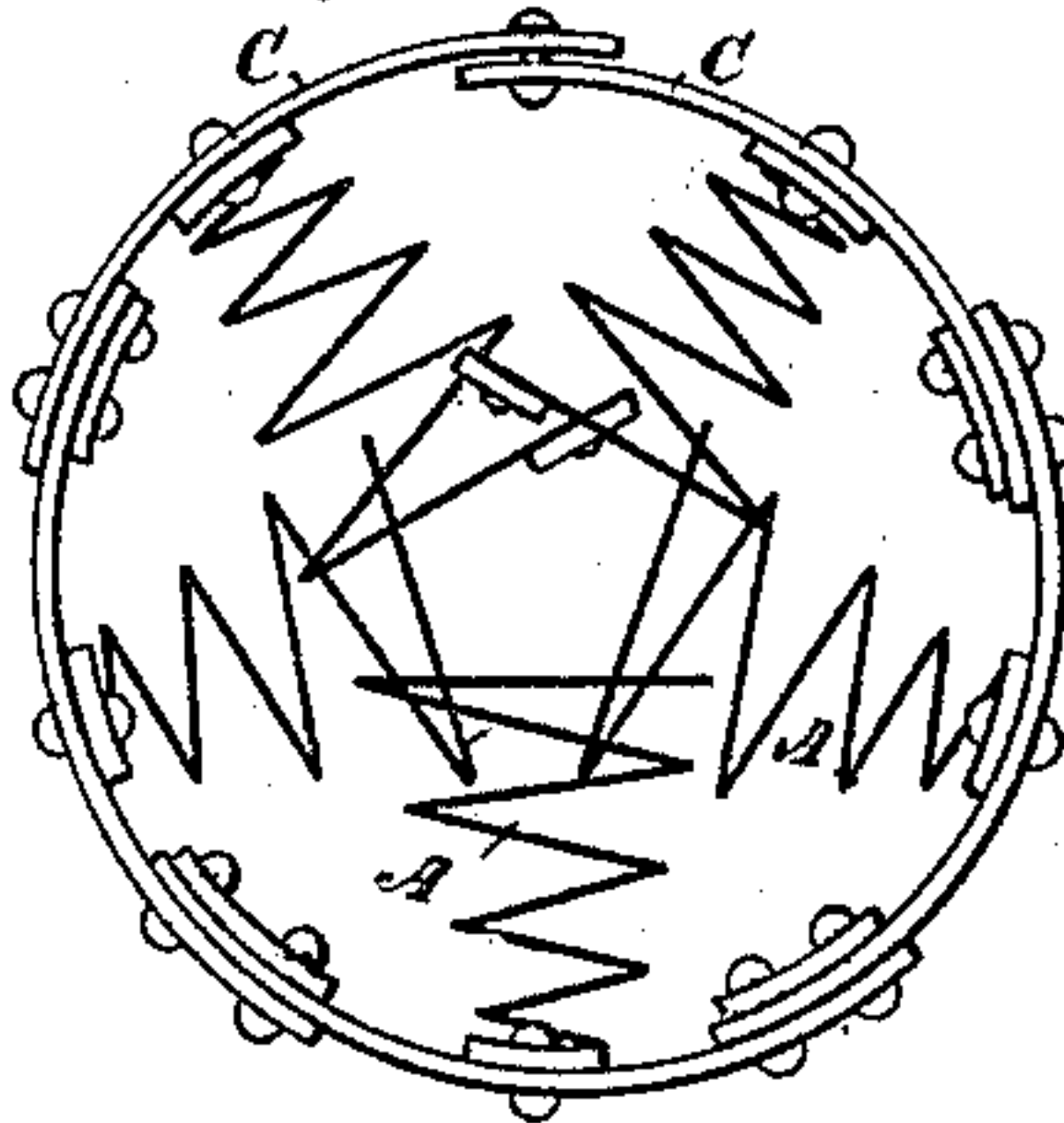


Fig. 2.

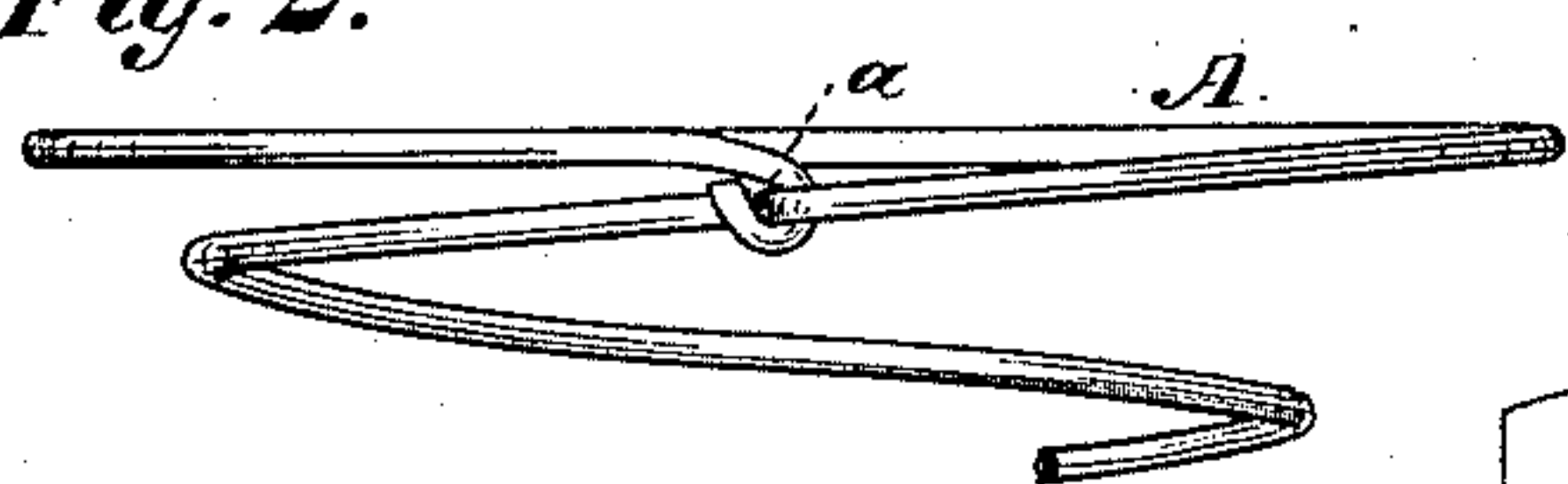
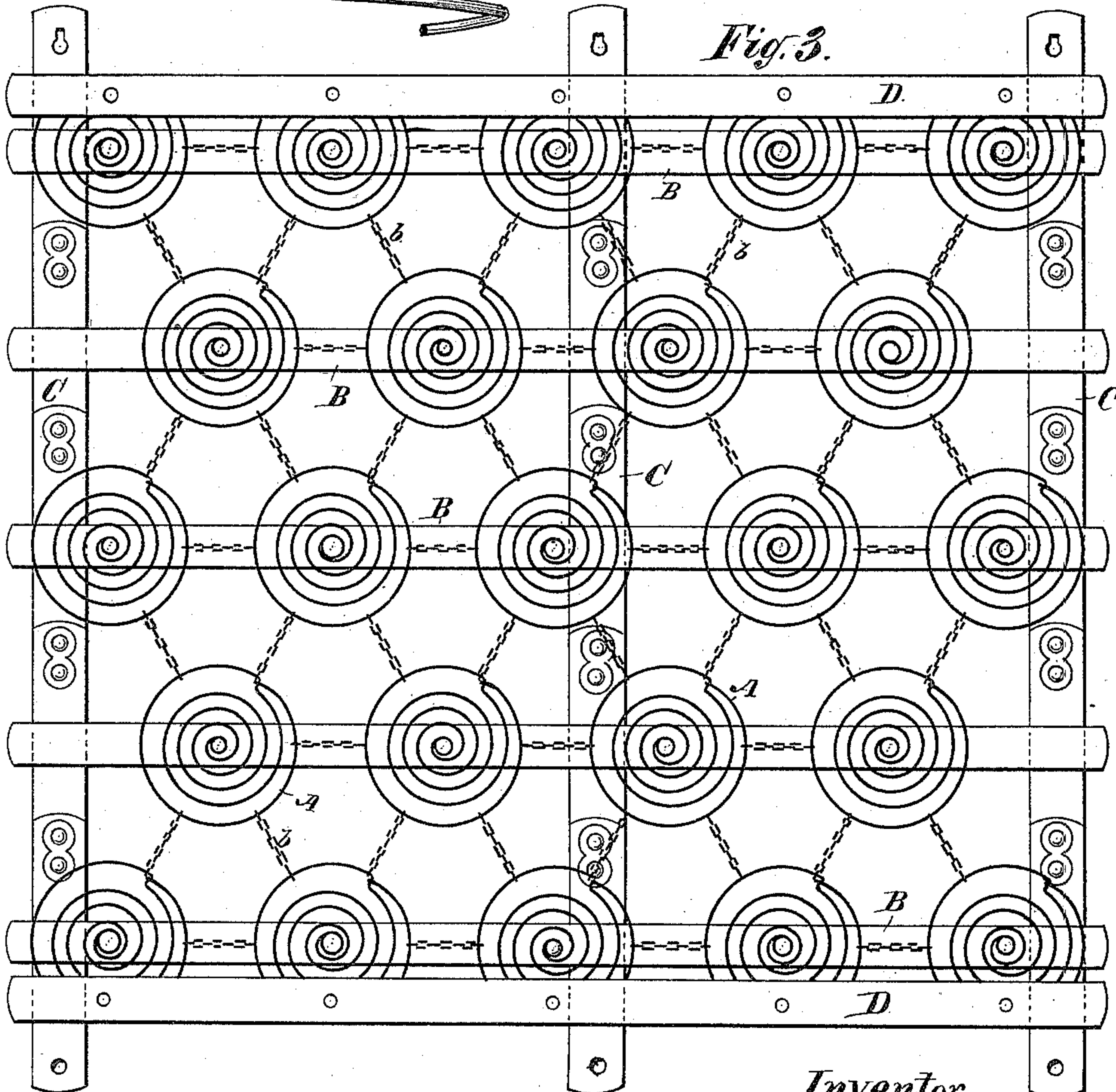


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWIN P. FOWLER, OF BROOKLYN, NEW YORK.

SPIRALLY-COILED WIRE SPRING.

SPECIFICATION forming part of Letters Patent No. 283,880, dated August 28, 1883.

Application filed February 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDWIN P. FOWLER, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Spirally-Coiled Wire Springs, of which the following is a specification.

The present invention relates to the class of spiral wire springs adapted for use in the manufacture of spring bed-bottoms. In such bed-bottoms it has heretofore been customary to use cone-shaped wire springs secured at their apexes or small ends to supporting-slats, while their bases or larger ends are left uppermost to furnish the foundation for the mattress or bed. To prevent the springs from being bent or crushed over sidewise under the superimposed weight, each spring is secured to its contiguous springs by chains, links, cords, or other flexible connections attached to their upper coils. It is essential, or at least desirable, in such springs that the end of the wire at the upper coil should be secured to the wire at the junction of the next coil, and this has heretofore been done by bending the end of the wire inward and tying or knotting it around the wire at the junction of the upper and the next lower coil. To facilitate this knotting, as well as to make the fastening more secure, the end of the wire has been bent at nearly right angles to itself, or at a sharp incline, whereby there is formed a prominent shoulder or offset extending transversely from the end of the final coil to the beginning of the next coil of the spring. This common construction of springs is shown in the drawings of Letters Patent No. 234,262, granted to me November 9, 1880.

In the bed-bottoms arranged to be adjusted by sliding or folding parts of the frame together, or by rolling the bed-bottom up, whereby the upper ends of the springs are brought nearer together and the connecting chains, links, or cords are loosened or slackened, the shoulders or offsets above described upon the upper coils of the springs are very objectionable, inasmuch as the slackened chains or other connections become looped over the projecting shoulders, and the bed-bottom is "tied up" or prevented from being fully extended to its horizontal position. This is especially the case in rolling bed-bottoms similar to those

shown in the patent above referred to, and has proved a source of great annoyance to users and venders, as the catching or looping of the chains or other connections over the shoulders of the springs can generally be released only by taking hold of the chains by the hand and lifting them off from the shoulders.

It is the object of the present invention to secure the end of the wire at the upper coil of the springs in such way that the upper coil will be nearly circular, and the prominent and objectionable shoulder or offset referred to will be removed, and as a result of this construction the catching of the chains or links by which the springs are connected is made impossible under ordinary circumstances; and the invention consists in a spiral wire spring in which the end of the wire is secured to an offset or bend in the wire extending transversely from the last coil to the next coil of the spring; also, in the combination, in a spring bed-bottom made adjustable either by sliding, folding, or rolling the parts together, of a series of spiral wire springs whose upper coils are nearly complete circles, and are free from prominent shoulders, with chains, links, or cords by which the upper coils of the springs are connected together.

The invention is illustrated in the accompanying drawings, in which Figure 1 is a top view of a spiral cone-shaped wire spring containing my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a top view of an extended bed-bottom provided with springs like that shown in Figs. 1 and 2, in combination with connecting-chains, and Fig. 4 is an end view of the bed-bottom when rolled up.

In the drawings, A represents cone-shaped wire springs whose largest or final coil is nearly circular and free from any prominent shoulder or offset, as fully represented in Fig. 1 of the drawings. In this construction the end of the wire is knotted or secured to an offset, *a*, formed by bending the wire out of the circle of the final coil and extending it transversely to the circle of the next coil. The end of the wire is secured to the offset *a* at its junction with the final coil, which enables the final coil to be brought into the form of nearly a complete circle. The offset or shoulder *a* may be made by giving the proper shape to the form-

ing-block on which the wire is spirally wound to bring it into the shape of the spring; or the springs may be coiled up in the usual way, and the offset *a* may be formed afterward by the use of properly-shaped dies.

Springs constructed as above set forth are especially useful in bed-bottoms like those shown in Fig. 3 of the drawings, in which the springs, secured to longitudinal slats B, or otherwise supported, have their upper coils connected by means of chains or other flexible attachments. When such bed-bottoms are adjusted by sliding or rolling them together, so that the upper coils of the springs are brought nearer each other and the chains or other connections slackened, it is impossible, by reason of the absence of any prominent and sufficient projections or shoulders upon the upper coils, for the chains to be caught or looped over the springs, whereby the bed-bottom would be prevented from being readily returned to its fully-extended position for use.

It is not intended to limit this invention to single-coned springs, like those shown in the drawings, as it is manifest that double-cone

or spiral cylindrical springs can be constructed as above set forth, and be practically applied in bed-bottoms and other articles of furniture in which it is desirable to connect their upper coils by flexible attachments.

What is claimed as new is—

1. A spiral wire spring in which the end of the wire is secured to an offset or bend in the wire extending transversely from the end coil to the next coil of the spring, whereby the end coil can take the shape of nearly a complete circle free from a prominent shoulder, substantially as set forth.

2. In a sliding, folding, or rolling spring bed-bottom, a series of spiral wire springs whose upper coils are nearly complete circles and free from prominent shoulders, in combination with chains, links, or other flexible means by which the upper coils of the springs are connected together, substantially as and for the purpose described.

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