

(No Model.)

G. W. BELL.
ELLIPTIC SPRING.

No. 257,205.

Patented May 2, 1882.

Fig. 1.

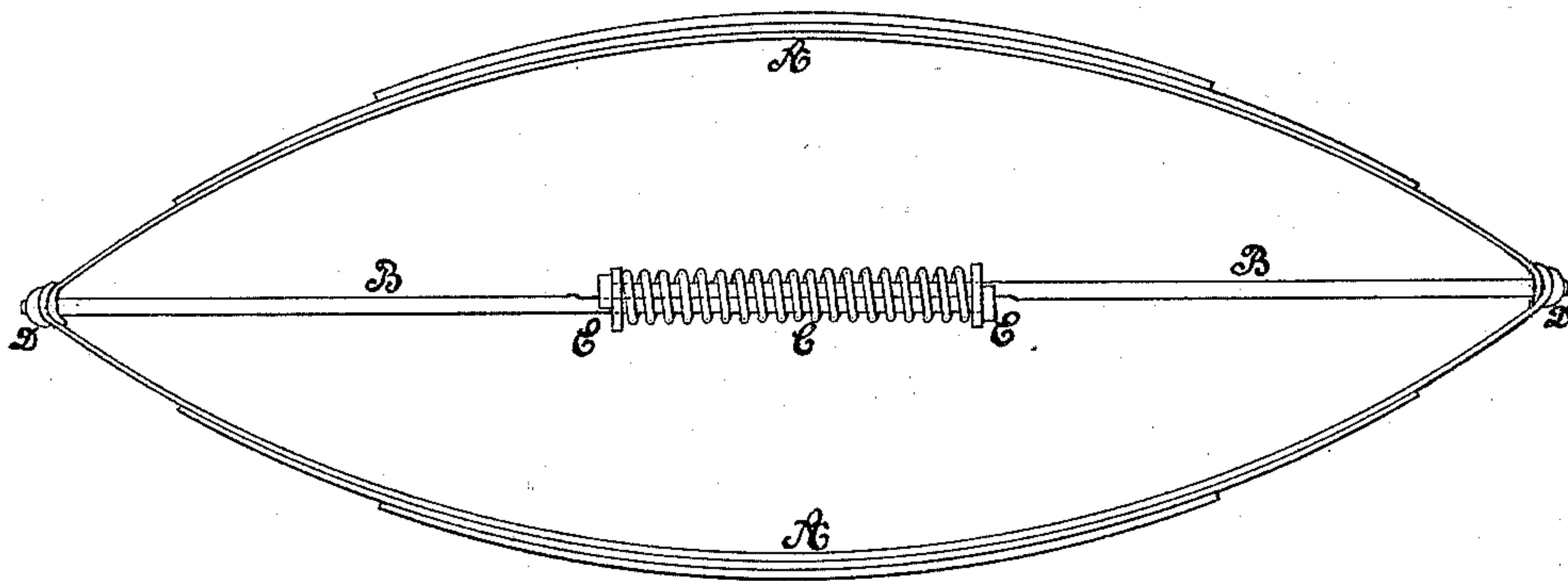


Fig. 2.

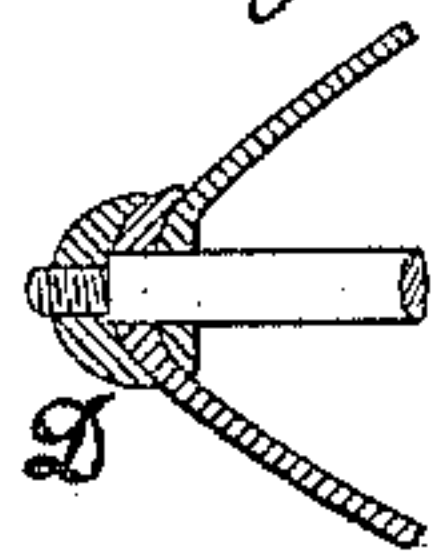


Fig. 3.

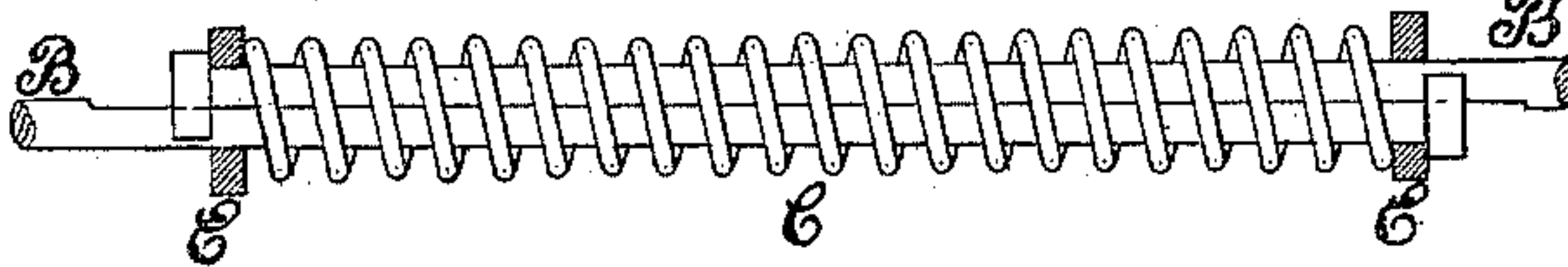


Fig. 4.



WITNESSES:

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GEORGE W. BELL, OF BROOKLYN, NEW YORK.

ELLIPTIC SPRING.

SPECIFICATION forming part of Letters Patent No. 257,205, dated May 2, 1882.

Application filed November 22, 1881. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BELL, a citizen of the United States, residing in the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Elliptic Springs, of which the following is a specification.

My invention consists in an improvement in elliptic springs, as shown in the accompanying drawings, wherein Figure 1 represents a side elevation of the spring; Fig. 2, a sectional view of the joint formed by the elliptical plates and the tension-rod; Fig. 3, a detailed view of the auxiliary spiral spring with the tension-rods passing through, and Fig. 4 a top view of the washer which holds the rods and the spiral spring together.

An elliptic spring, A A, is provided with tension-rods B B, which pass directly through the ends of the upper and lower elliptical plates. These ends are bent or turned in hook shape, so as to allow one to fit within the other. The tension-rods pass through the ends of the elliptical plates at the points where the hook-shaped ends fit into one another, as shown in the drawings. The tension-rods are secured on the outside of the elliptical plates by nuts. The tension-rods pass through the spiral spring in opposite directions, and are secured in such a manner as to allow the tension-rods to bear upon the spiral spring whenever the elliptic springs are elongated by pressure or other means.

I am aware that auxiliary spiral springs have been used heretofore between the upper and lower plates of elliptic springs, and have been operated by tension-rods connected therewith. My invention relates, however, first to the manner of joining the upper and lower plates of the elliptic spring in conjunction with the tension-rods. The hook-shaped ends of the elliptical plates, through which the tension-rods pass, as already described, form by aid of the couple the upper and lower elliptical plates to-

gether, and at the same time the tension-rods are held in place. By this means I obviate the necessity of placing jaws or eyes on any of the elliptical plates for the purpose of holding the upper and lower plates together, and I do away with all bolts for securing the upper and lower plates together, and also with all bolts for attaching the tension-rods to the elliptic spring.

My invention also relates to the arrangement of the spiral spring C and the tension-rods B B. The rods pass through the spiral spring in opposite directions, and are each secured at the opposite ends of the spiral spring by washers E E. These washers have oblong eyes, so as to admit free movement through them of the tension-rod secured at the opposite end. In this manner the washer holds the end of one rod and allows free play of the other rod. By this arrangement I do away with all frames, boxes, or cylinders for inclosing or supporting the spiral spring. Both tension-rods pass through the spiral spring, and thus support it. The rods are preferably flattened and offset on the sides nearest together within the spiral spring, as shown in the drawings, so as to make them draw in a straight line.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An elliptic spring composed of upper and lower plates having hook-shaped ends overlapping and fitting upon each other, in combination with tension-rods which pass directly through the hook-shaped ends and are secured thereon by nuts, substantially as described.

2. An elliptic spring having tension-rods secured to the ends thereof, which tension-rods pass and overlap each other and have upset ends and washers, and a spiral spring, C, interposed between said upset ends and washers, substantially as described.

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Witnesses:

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