(No Model.)

J. W. EVANS.

Car Spring.

No. 239,605. Patented April 5, 1881.

FIG. 1.

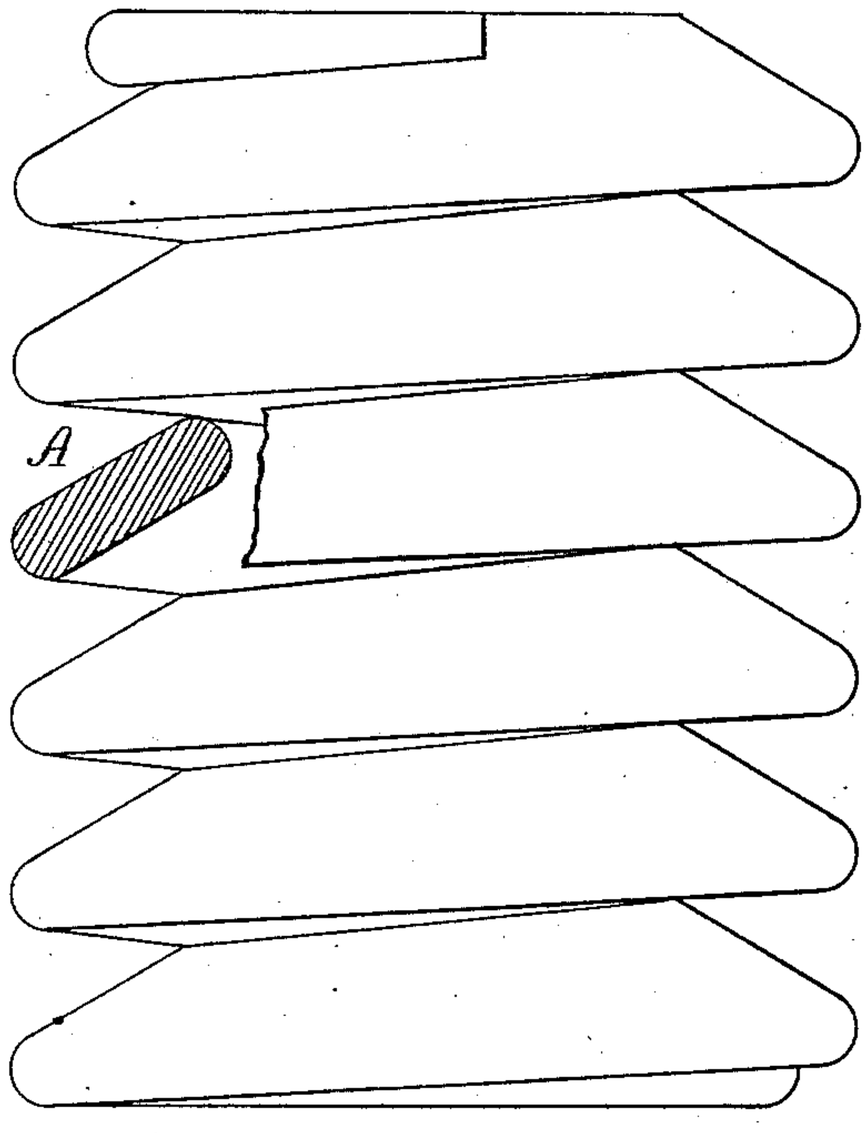
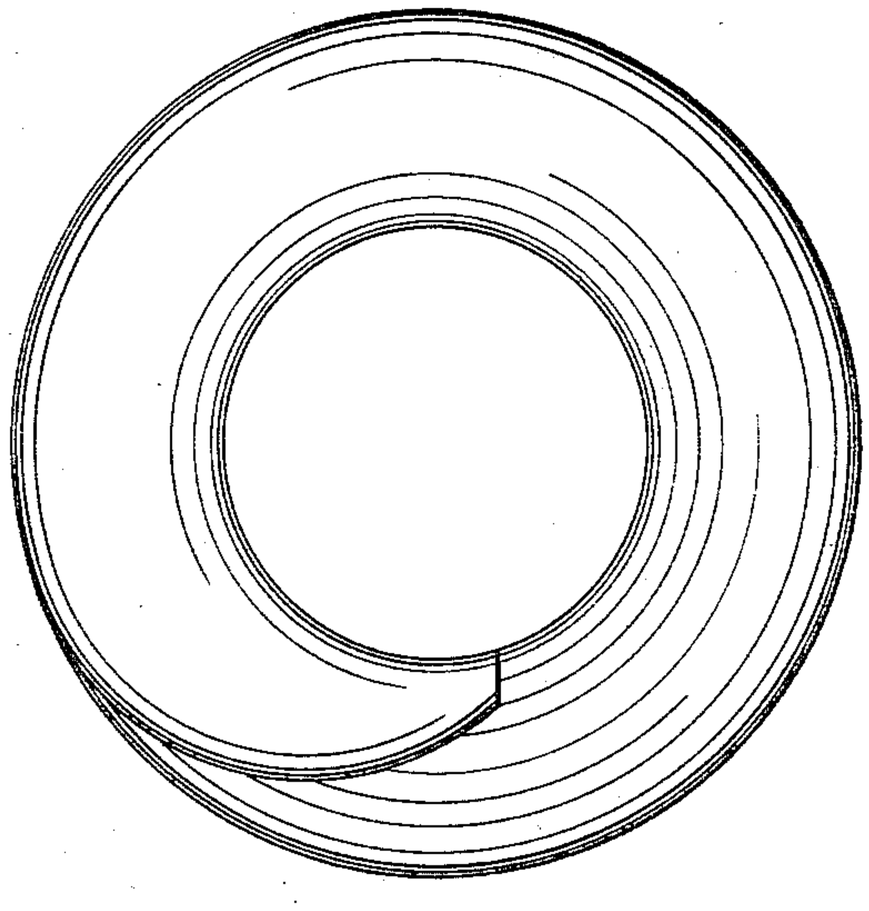


FIG. 2.



WITNESSES:

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JAMES W. EVANS, OF NEW YORK, N. Y.

CAR-SPRING.

SPECIFICATION forming part of Letters Patent No. 239,605, dated April 5, 1881.

Application filed August 27, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. EVANS, of the city of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Vertical Spiral Springs, of which the following is a specification.

My invention relates to improvements in edge-coiled springs for cars or elsewhere; and it consists of an edge-coiled spring made of a single bar with its helix of the same diameter throughout and inclined to its axis, and having its upper and lower faces parallel with each other, as hereinafter more fully set forth.

Figure 1 is a vertical view of a spring constructed according to my invention; and the letter A shows a cross-section of the bar of which the spring is constructed and its angle to the vertical axis of the spring. Fig. 2 is a view of said spring as seen from above.

In constructing a spring according to my invention, the bar, having its upper and lower faces parallel with each other, is placed edgewise on a cylindrical mandrel and inclined to its axis and coiled thereon, so that when the edge-coiled spring is formed its helix will be of the same diameter throughout and inclined to its axis, and its upper and lower faces parallel with each other, as clearly shown in the drawings. By this construction a longer bar, and hence a more effective spring, is formed than in the construction where the faces of the bar are not parallel with each other, as the helices of the spring can be brought nearer each other in my construction, and the spring is capable of greater compression, or until the faces of the adjacent helices are brought in contact with each other throughout. By winding the bar endwise around a mandrel, with the helix inclined to the axis of the spring, in contradistinction to the plane of the helix being at right angles to the axis, the bar is subjected to greater torsion, because it is not only coiled around the mandrel but its fibers are also bent out of their normal position at right angles to the axis, and are inclined thereto; and as there is a tendency of the spring to return to its normal position, and greater torsion is required when the helix is inclined to the axis than when it is perpendicular thereto, the spring will be more powerful in my construction than in the construction in which the helix is arranged at right angles to the axis of the spring. By this inclination of the spring to its axis it is also better fitted as a car-spring to resist the horizontal shock or strain upon it caused by a sudden stoppage of the car, tending to move the spring horizontally, than in the construction in which the spring is arranged at right angles to its axis.

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

The edge-coiled spring herein described, made of a single bar, with its helix of the same diameter throughout, and inclined to its axis, and having the opposite upper and lower faces of the helix parallel with each other, substantially as described, and for the purpose set forth.

JAMES W. EVANS.

Witnesses:
ALFRED WATSON,
JAMES M. PATRICK.