J. B. QUIRK.

Car-Springs.

No. 133,952. Patented Dec. 17, 1872.

Fig. 1.

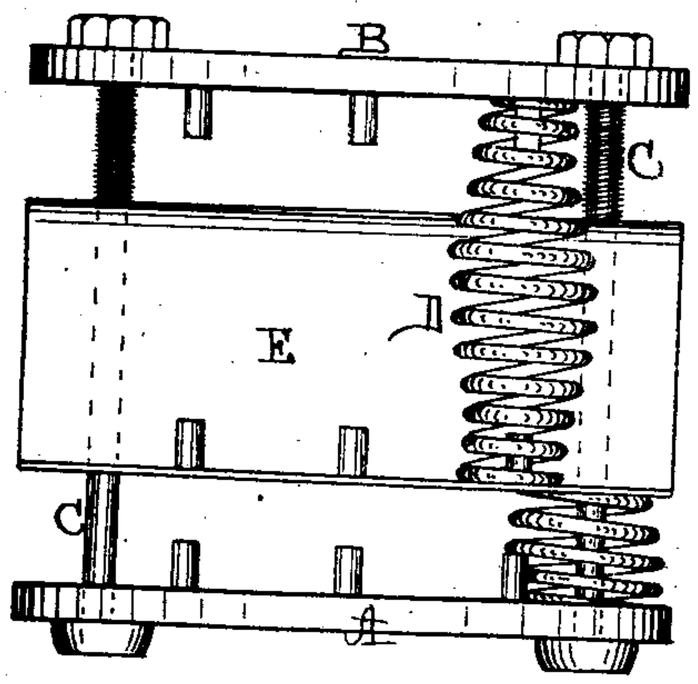


Fig. 2.

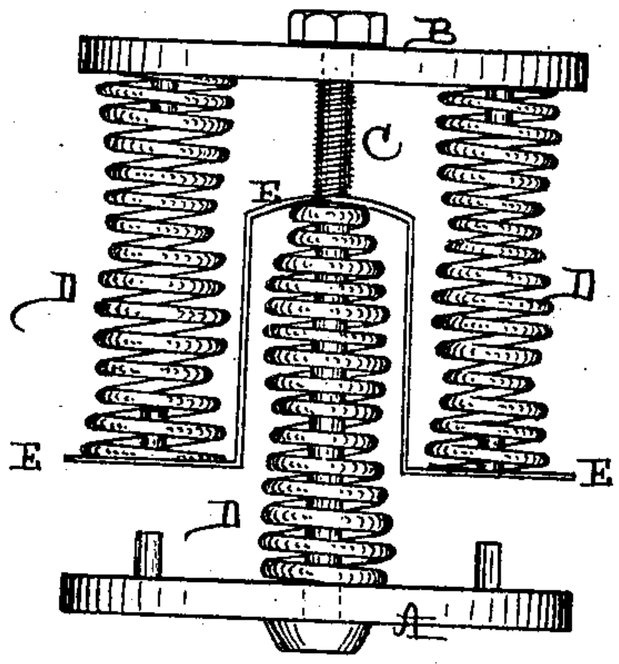


Fig. 3.

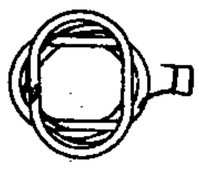


Fig. 4.

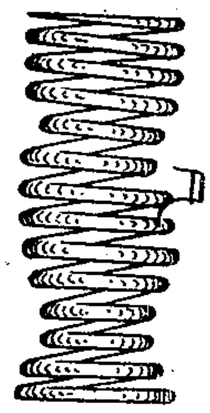
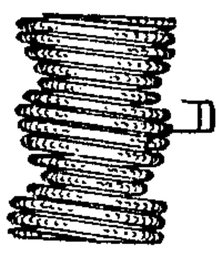


Fig. 5.



Witnesses:
Jacob E. Schiedt.
Harry M. Wiedersheim.

Inventor:
John B. Quirk,
by
John A. Wiedersheim,
Atty.

UNITED STATES PATENT OFFICE.

JOHN B. QUIRK, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN CAR-SPRINGS.

Specification forming part of Letters Patent No. **133,952,** dated December 17, 1872.

To all whom it may concern:

Be it known that I, JOHN B. QUIRK, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Car-Springs; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a side view of the device embodying my invention; Fig. 2 is an end view thereof; Fig. 3 is a top view of one of the springs; and Figs. 4 and 5 are side elevations, showing the spring respectively in its normal state and compressed.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists of a spiral spring which is formed on an oval or elliptical shaped mandrel. It also consists of a compound spiral spring, which is constructed by the formation of a spiral spring upon an elliptical or oval shaped mandrel. It also consists in a division-plate for obtaining greater range of motion of the springs.

Referring to the drawing, A represents a plate which may be termed the base, and B the top plate or follower, which are connected by screw-bolts or rods, C, or otherwise, on which the follower freely slides, and which together form a receiver or holder for the series of springs D, which are of spiral form longitudinally, and of elliptical or oval form in the direction across the coils. These springs are produced by twisting either round, square, or oval wire on an elliptical or oval shaped mandrel in the form of a spiral, and compressing the same thereon, the result being a spiral with a compound twist in the coil, the same being caused by the recoil of the wire after having been removed from the mandrel, so that the convolutions cross each other. In other words the spring may be said to be a spirally-twisted spiral.

A spiral thus produced has more range of motion with equal or more capacity than a spiral of equal length produced on a round mandrel, independently of the advantage of the compound twist in obtaining a sure perpendicular bearing of one coil on the other.

E represents a division-plate, which extends from the bottom of one row of spirals to the top of the next, and then to the bottom of the next. In the present case there are three rows of springs, and the plate passes over the central row and under the side rows, the central row resting on the bottom plate or base, and the side rows bearing against the top plate or follower. The plate is preferably formed of the angular shape shown, and it may be a continuous piece, or of skeleton form, or in sections of upper and lower pieces united by strips and corrugated, or formed with spaces serving as pockets to "let in" the springs.

By means of this division-plate double the range of motion of the springs is obtained, since the springs compressed by the follower bear against the division-plate, which bears against the springs which rest on the base, (or vice versa,) the springs operating simultaneously with and relatively to each other.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A spiral spring formed on an oval or elliptical shaped mandrel, substantially as and for the purpose set forth.

2. A compound spiral spring formed by the convolutions of a spiral spring of oval or elliptical form, substantially as set forth.

3. The division-plate E, in connection with the series of springs arranged between the base and follower, substantially as and for the purpose described.

The above signed by me this 5th day of October, 1872.

JNO. B. QUIRK.

Witnesses:

JOHN A. WIEDERSHEIM,

HARRY M. WIEDERSHEIM.