

A. MIDDLETON, Jr.  
Car-Springs.

No. 138,675.

Patented May 6, 1873.

FIG.1.

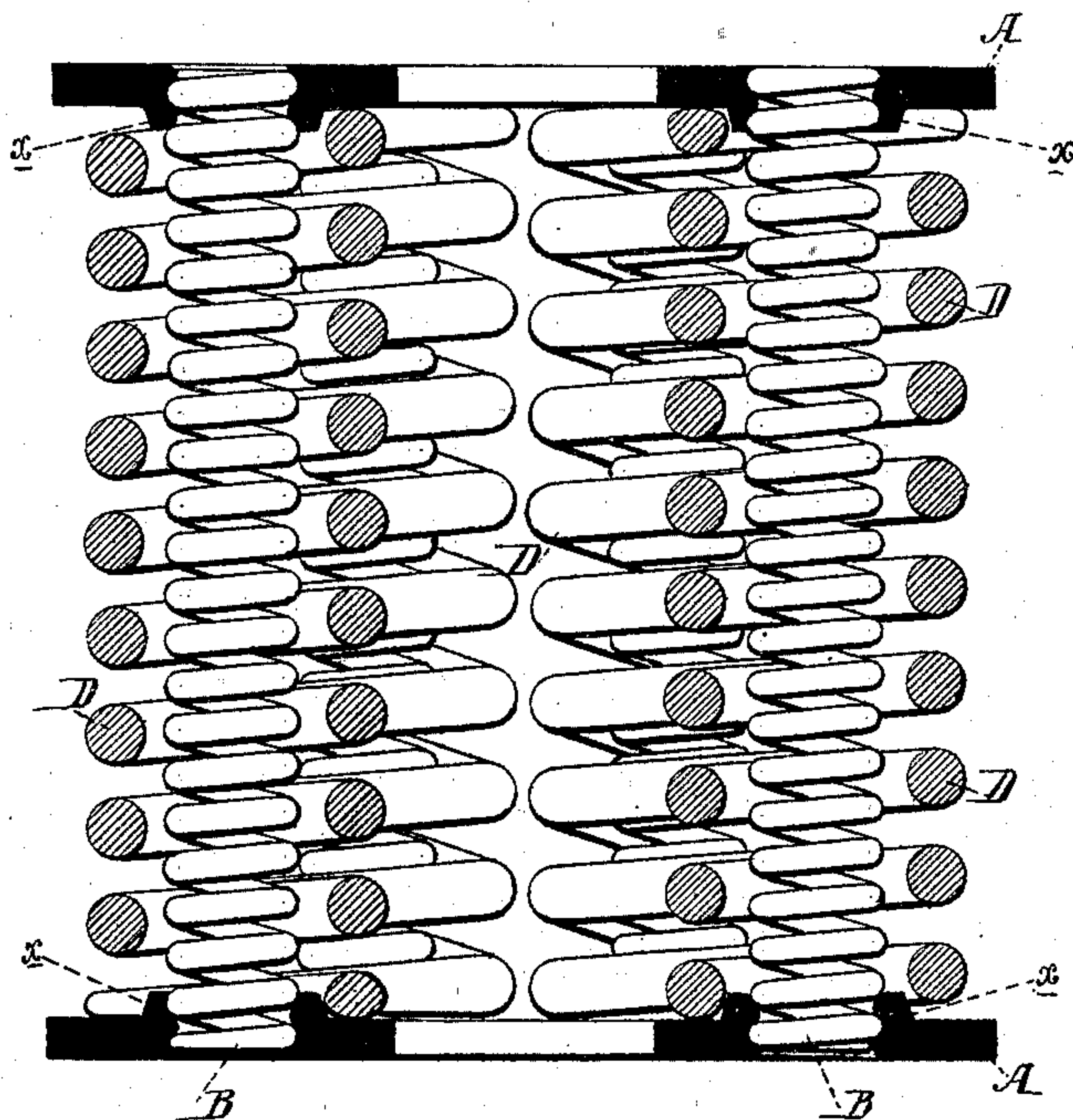
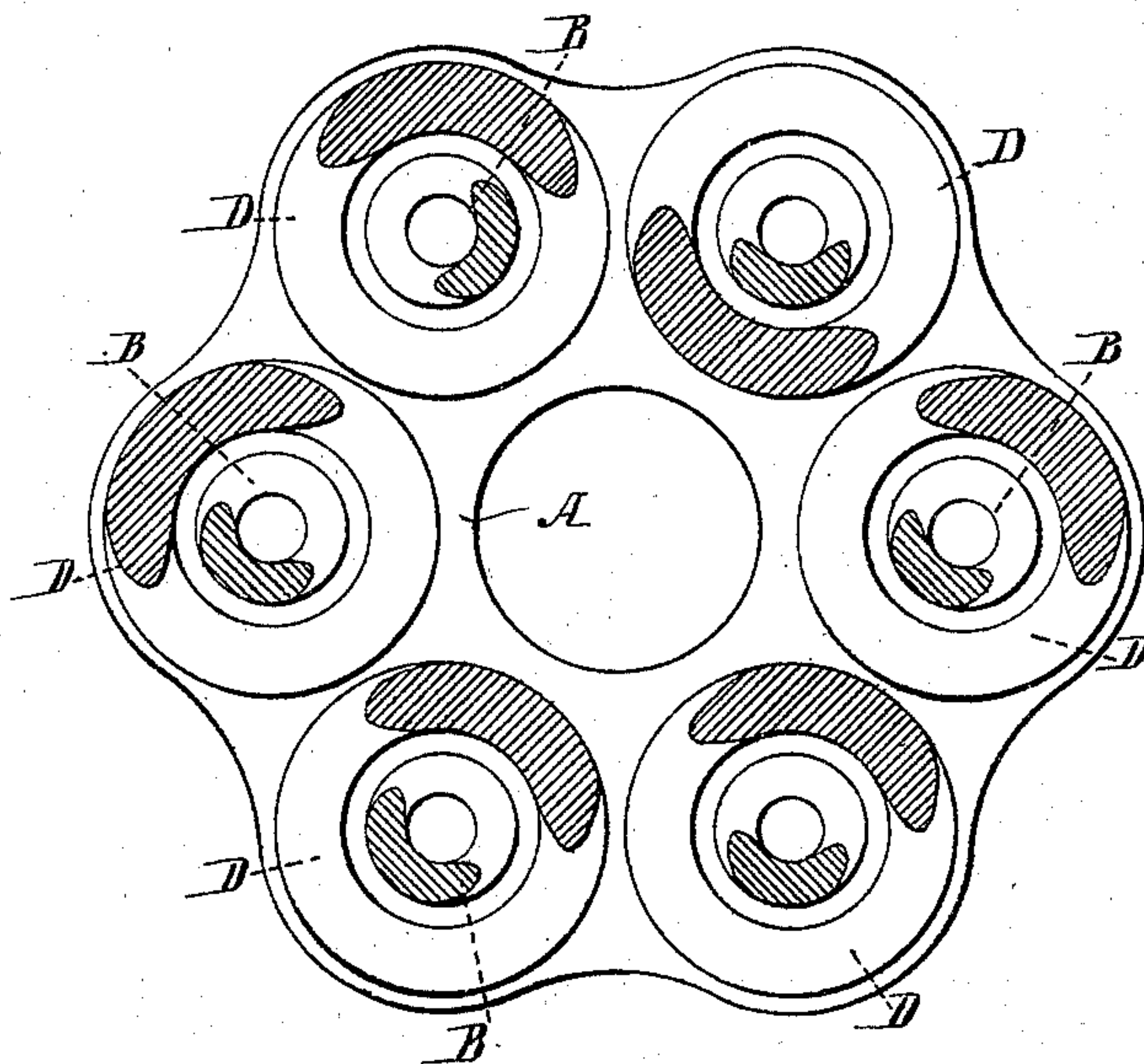


FIG.2.



WITNESSES. *Hubert Howson*  
*Harry Smith*

*Allen Middleton Jr.*  
*by his Atty.*  
*Howson and Son*

# UNITED STATES PATENT OFFICE.

ALLEN MIDDLETON, JR., OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN CAR-SPRINGS.

Specification forming part of Letters Patent No. **138,675**, dated May 6, 1873; application filed November 27, 1872.

*To all whom it may concern:*

Be it known that I, ALLEN MIDDLETON, Jr., of Philadelphia, Pennsylvania, have invented an Improvement in Car-Springs, of which the following is a specification:

My invention relates to an improvement in the car-spring for which Letters Patent No. 38,255 were granted to J. E. Wooten, April 21, 1863; and the object of my invention is to render the said spring more rigid and compact, and more available as a draw and bumper spring than that described in said patent.

I attain this object by confining spiral springs D between two plates A A, by means of lesser internal springs B, which are simply screwed into the said plates, as shown in the vertical section, Figure 1, and which form part of the elastic medium of the spring.

The aforesaid car-spring of J. E. Wooten consists simply of two plates connected together by a number of precisely similar springs, which form the whole elastic medium, and which are screwed into the plates. In this invention it was necessary to employ comparatively small spirals, and to arrange them at a sufficient distance apart to prevent the weakening of the plates by holes arranged too close to each other; hence the desired rigidity could not be obtained in a car-spring of the required moderate bulk, a defect which my invention has been designed to obviate.

The smaller spirals, which are contained within those of larger diameter, (see sectional

plan, Fig. 2,) are adapted to internal spiral grooves formed in orifices in the plates, and are so adjusted as to cause the plates to simply bear against the opposite ends of the larger spirals, which are retained in their proper lateral position by annular projections *x* surrounding the orifices for receiving the ends of the smaller spirals, and serving to strengthen the plates as well as to insure a better hold of the spirals on the said plates.

An important feature of the spring is its freedom from all external projections, such as bolt-heads, the exterior of the plates being perfectly flat; hence the springs are especially available as draw and bumper springs.

I claim as my invention—

1. A car-spring in which large spirals D are confined between plates A A, connected together by small spirals B, all combined to operate substantially as and for the purpose set forth.

2. The plate A, having the annular projections *x* threaded internally, and surrounding the small spirals and retaining the large spirals in their proper lateral position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALLEN MIDDLETON, JR.

Witnesses:

WM. A. STEEL,  
HUBERT HOWSON.