

(No Model.)

W. SHARP.
VEHICLE SPRING.

No. 476,931.

Patented June 14, 1892.

Fig. 1.

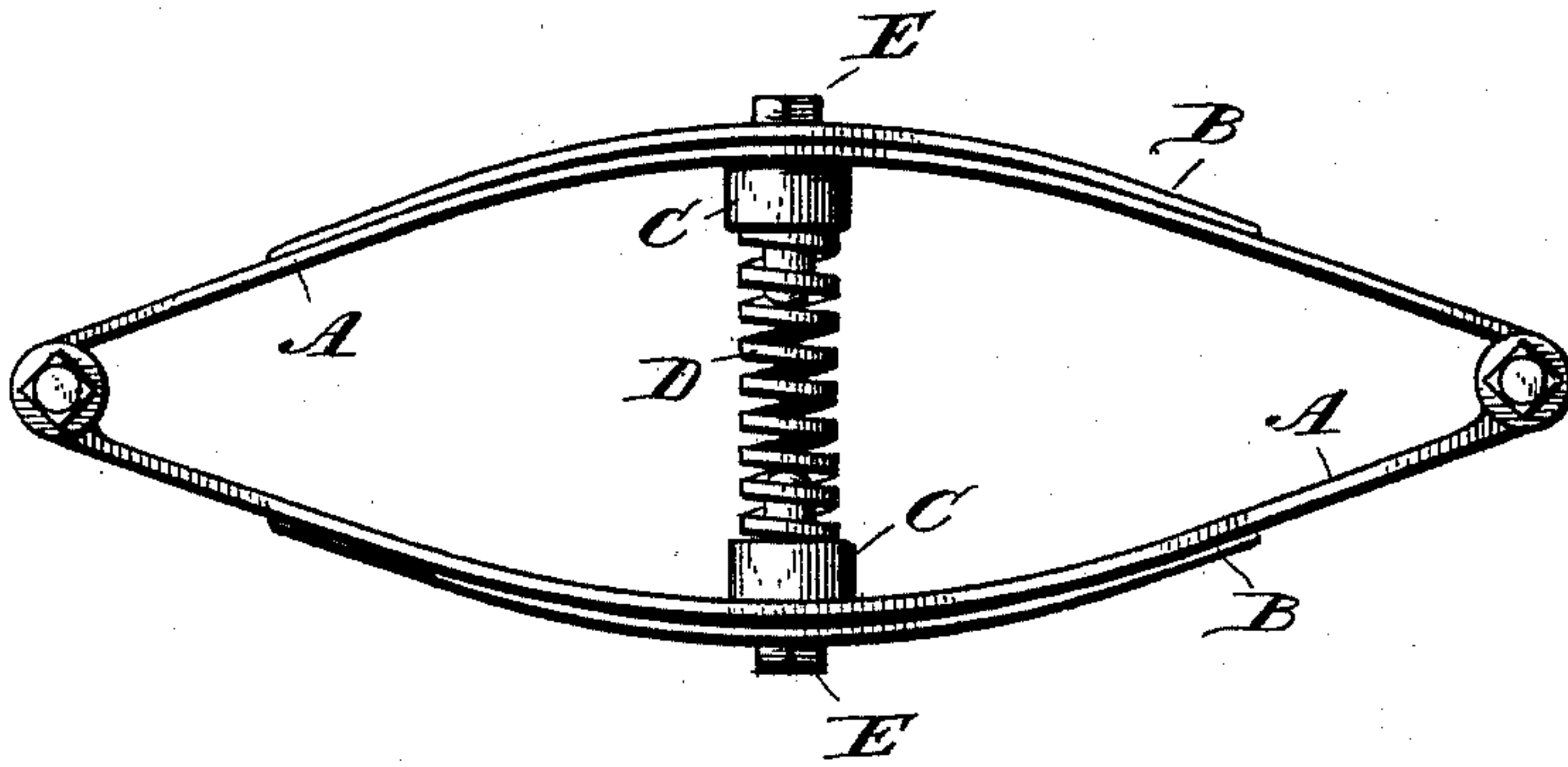


Fig. 2.

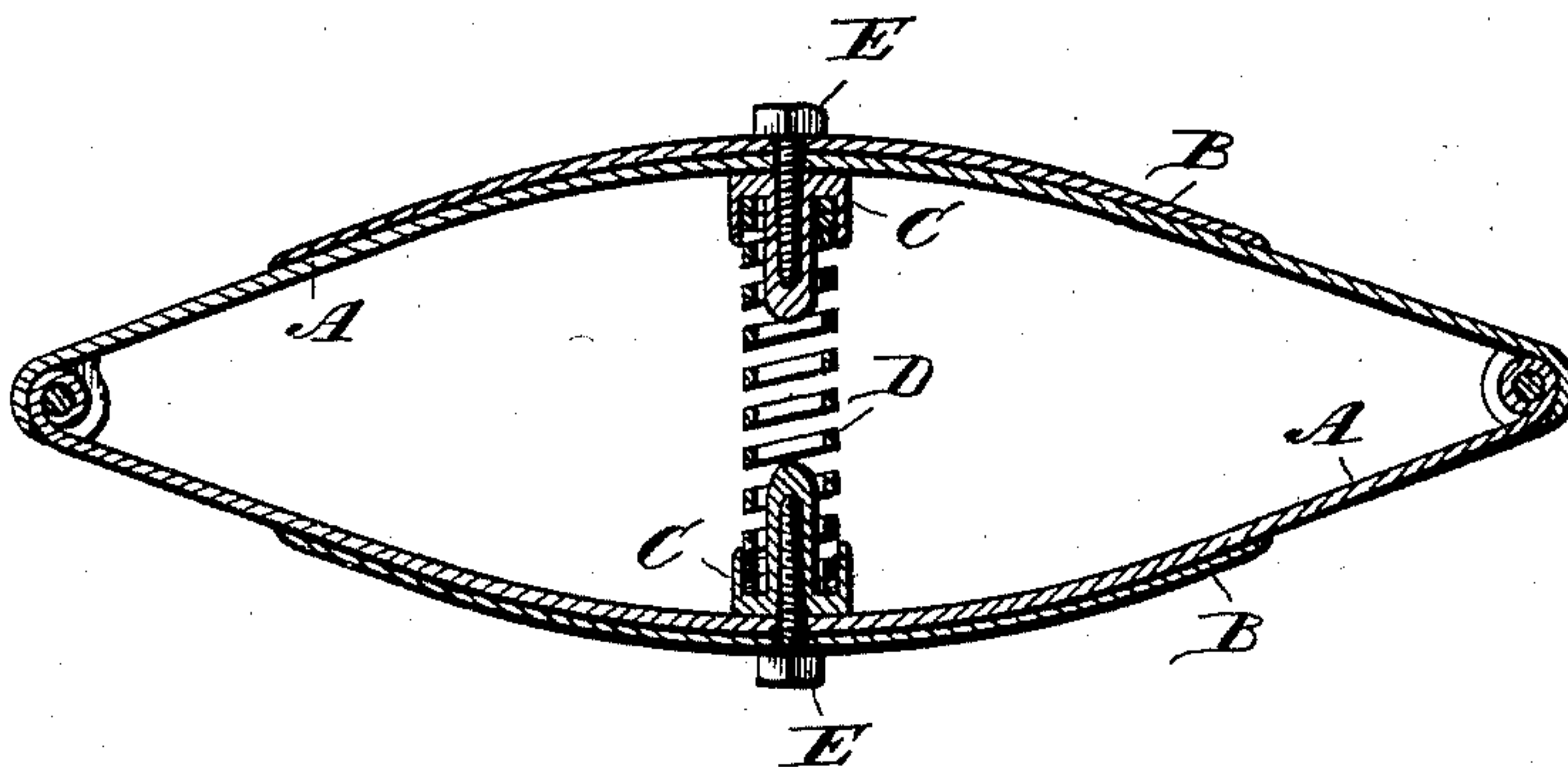
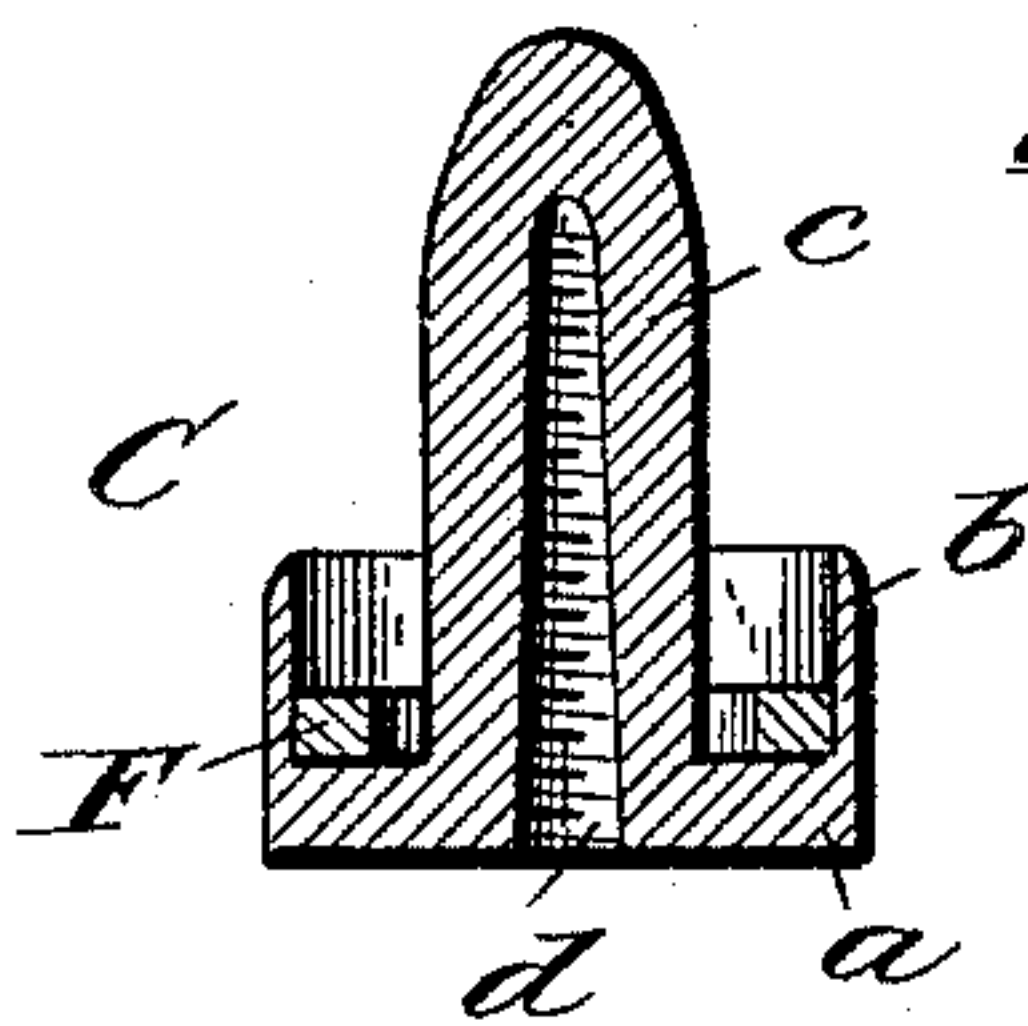


Fig. 3.



Witnesses
J. Thomson Cross.
E. W. Hendingham

Inventor.
William Sharp
by *Peter Rector*
his Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM SHARP, OF ALLEGHENY, PENNSYLVANIA.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 476,931, dated June 14, 1892.

Application filed January 16, 1892. Serial No. 418,305. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SHARP, of Allegheny, Allegheny county, Pennsylvania, have invented certain new and useful Improvements in Vehicle-Springs, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a combined elliptical and spiral spring, the spiral being interposed between the opposing halves of the elliptical spring to act as a yielding cushion to resist compression of the same.

I am aware that spiral springs have heretofore been combined with elliptical springs for this purpose in a great variety of ways; but my invention consists in a novel construction and arrangement of the parts, which will be hereinafter set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved spring; Fig. 2, a vertical longitudinal section of the same, and Fig. 3 an enlarged central section of one of the socket-pieces which receive and retain the ends of the spiral spring.

The same letters of reference are used to indicate identical parts in all the figures.

The body of the spring is composed of the two halves A A, united at their ends in the usual or any suitable manner.

B B are the outside leaves of the spring.

C C are the socket-pieces for receiving and holding the opposite ends of the spiral spring D. Each of these pieces is composed of a flat base *a*, having a circular flange *b*, projecting upward from its upper surface to form a socket or cup for the reception of the spring D. Extending upward from the center of the base *a* is a cylindrical projection *c*, having a threaded bore or socket *d* for the reception of the screw E, which secures the socket-piece to the body of the spring A. In combining the spiral spring D with the elliptical spring A the opposite ends of the spiral are first fitted into the annular spaces or cups formed between the flanges *b* and central projections *c* of the socket-pieces C. Then the spring and the two socket-pieces are slipped between the two halves A A of the elliptical spring and the screws E E are inserted through perforations in the leaves B B and halves A A and screwed firmly into the threaded bores *d d*. In this manner each of the single screws E not only secures its cor-

responding socket-piece C to the spring A, but also secures one of the leaves B to the spring A. By simply unscrewing the two screws E E the leaves B B may be removed and the socket-pieces C C and spring D be disconnected from the spring A A. I place in the bottoms of the annular spaces in the socket-pieces C C rings F F, of rubber or leather or other suitable material, which act as cushions for the ends of the spring D and prevent any jarring or rattling of the parts.

Having thus fully described my invention, I claim—

1. In a combined elliptical and spiral spring, the combination, with the opposing halves A A of the elliptical spring and the loose outer leaves B B applied thereto, of the spiral spring D, interposed between the halves A A, the two socket-pieces C, each composed of the base *a*, the circular flange *b*, and the central projection *c*, having the threaded bore *d*, the ends of the spring D being fitted into the annular spaces between the flanges *b* and central projections *c*, and the screws E E, each passed through one of the leaves B and halves A of the elliptical spring and screwed into the bore *d* in the socket-piece C, whereby each single screw E secures one of the leaves B to the spring A and holds one of the socket-pieces C in position, substantially as described.

2. In a combined elliptical and spiral spring, the combination, with the opposing halves A A of the elliptical spring and the loose outer leaves B B applied thereto, of the spiral spring D, interposed between the halves A A, the two socket-pieces C, each composed of the base *a*, the circular flange *b*, and the central projection *c*, having the threaded bore *d*, the cushion-rings F F, located in the annular space between the flange *b* and central projection *c* of each socket-piece C, the ends of the spring D fitting in said annular spaces and bearing against the rings F F and the screws E E, each passed through one of the leaves B and halves A of the elliptical spring and screwed into the bore *d* in the socket-piece C, whereby each single screw E secures the one of the leaves B to the spring A and holds one of the socket-pieces C in position, substantially as described.

WILLIAM SHARP.

Witnesses:

J. W. HEER,
R. SHARP.