

(No Model.)

E. COOK.
VEHICLE SPRING.

No. 445,974

Patented Feb. 10, 1891.

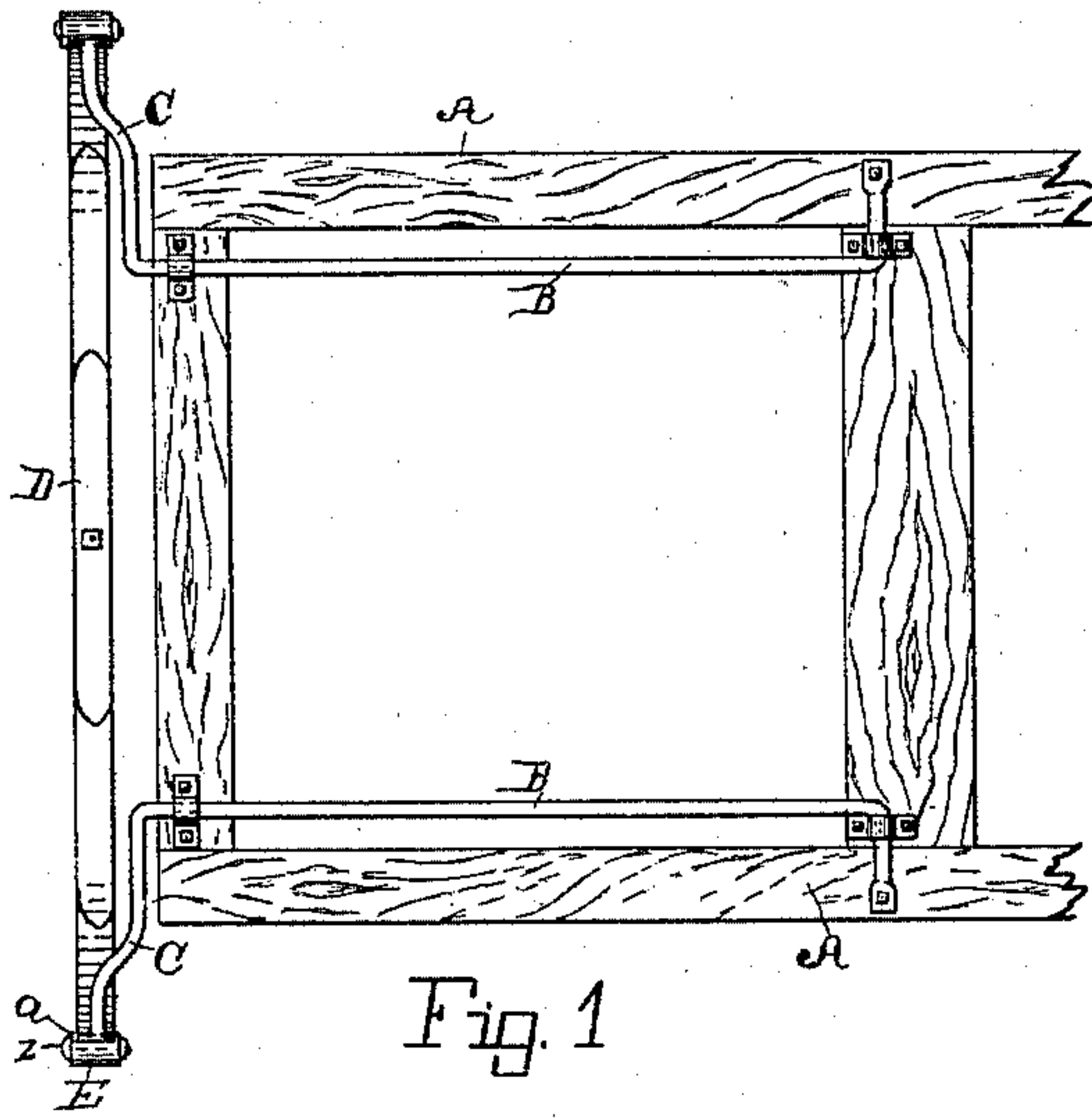


Fig. 1

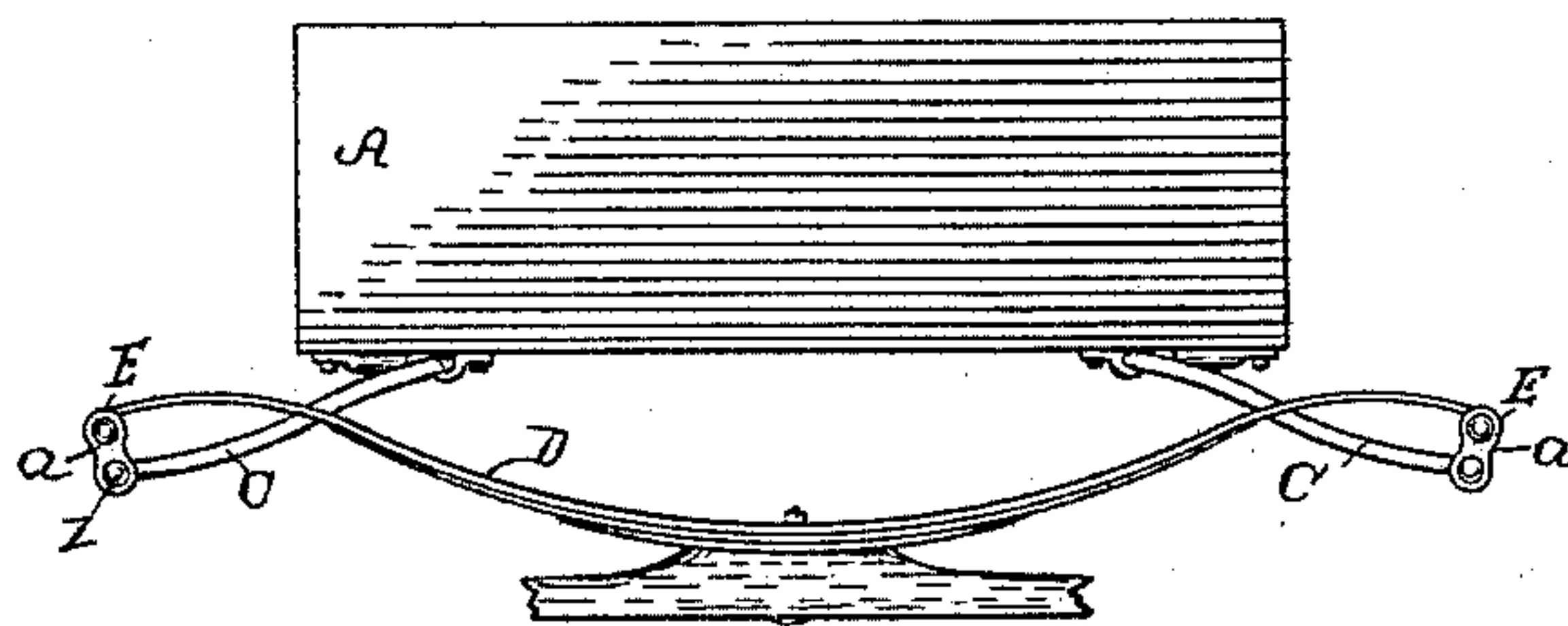


Fig. 2

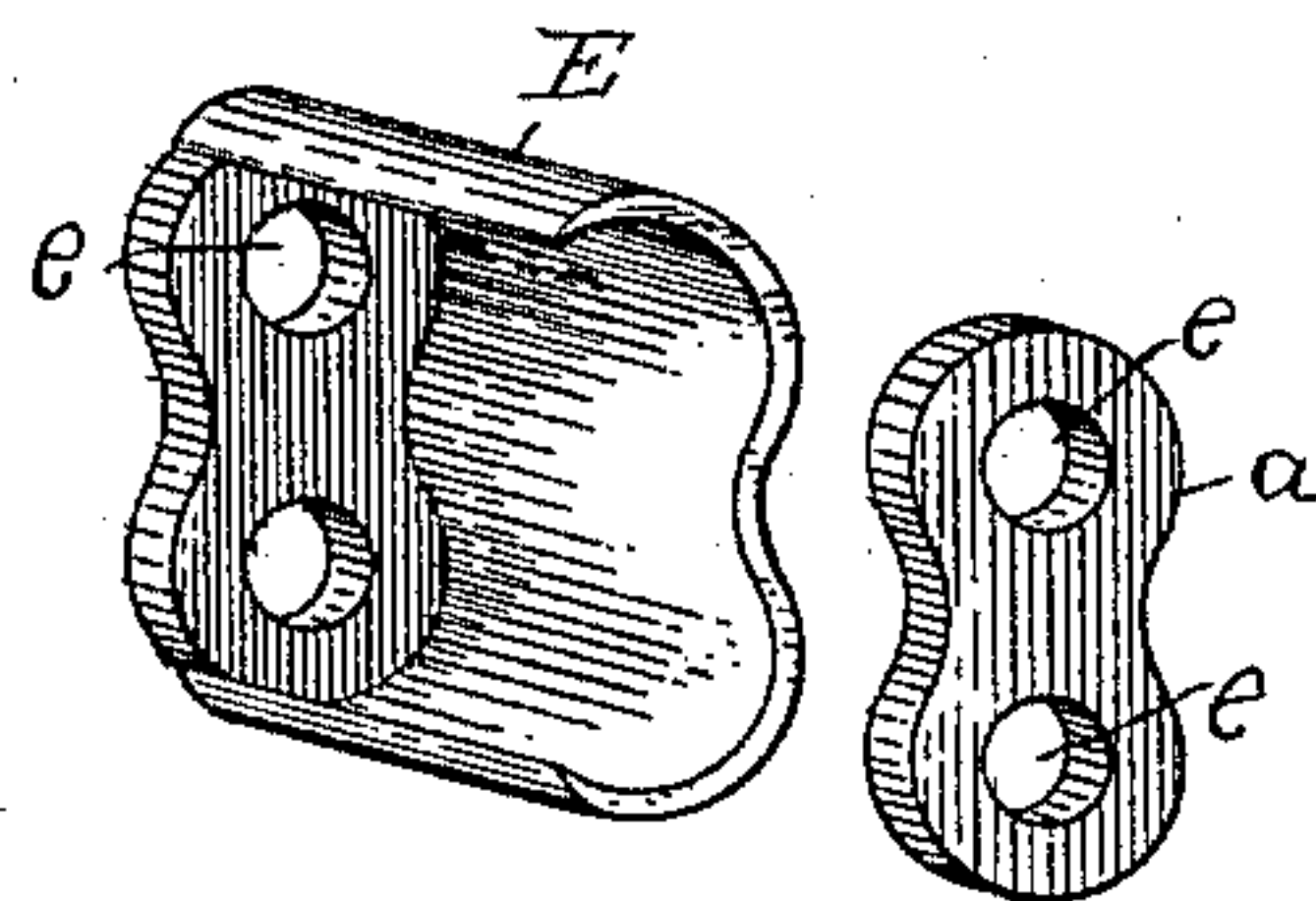


Fig. 3

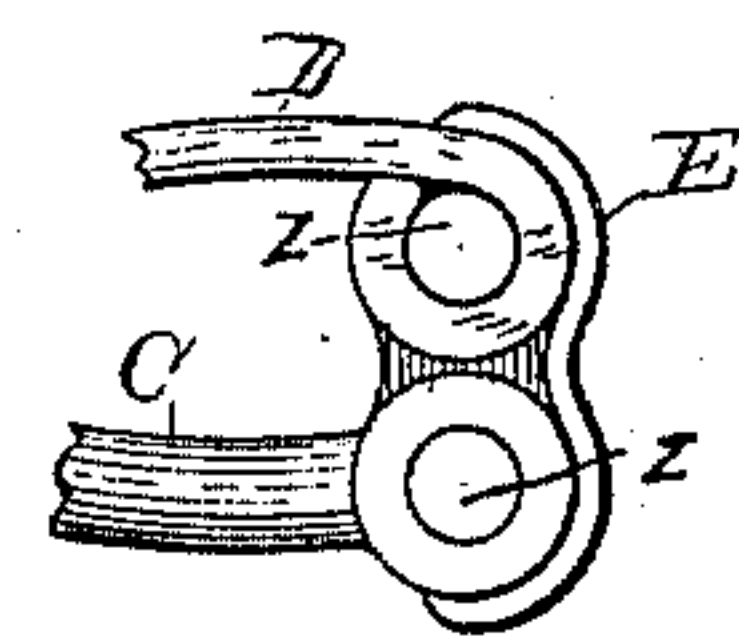


Fig. 4

Witnesses:

Walter S. Wood
Harley J. Freeman

Inventor.

Eugene Cook
By *Lucius C. West*
Att'y.

UNITED STATES PATENT OFFICE.

EUGENE COOK, OF KALAMAZOO, MICHIGAN.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 445,974, dated February 10, 1891.

Application filed May 28, 1890. Serial No. 353,415. (No model.)

To all whom it may concern:

Be it known that I, EUGENE COOK, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have
5 invented a new and useful Vehicle-Spring, of which the following is a specification.

This invention relates to that class of spring-supports for vehicles in which torsion-springs are employed in connection with semi-
10 elliptic springs.

The object of the invention consists in certain changes in the construction, set forth in the following description, and pointed out in the claim.

15 In the drawings forming a part of this specification, Figure 1 is a broken inverted plan view representing about one-half of a vehicle. Fig. 2 is an end elevation. Fig. 3 shows enlarged lettered details in perspective, and Fig. 4 is an enlarged elevation of lettered
20 details from Figs. 1 and 2.

Referring to the lettered parts of the drawings, A is the bottom frame-work of the vehicle-body.

25 At D is shown a semi-elliptic spring, which in use is mounted upon the axle of a vehicle or upon a spring-bar, as the case may be.

At B B are torsion-springs at each side of the body A, and beneath the same and longitudinally thereto, one end of said springs being
30 attached to the body in the ordinary manner at a point approximately in the center thereof, the other end extending beyond the end of the body, and from thence extending

35 outwardly, preferably in a form somewhat resembling a letter S, at C, to a point beneath the outer ends of the semi-elliptic springs D. The ends of the spring D and of the extensions C

40 of the torsion-springs B are pivotally coupled together by the shackles E. These shackles preferably consist of the shell-like castings E, Fig. 3, open at one side and one end, one end being provided with two pivot-holes *e e*,

45 and of a detachable plate *a*, provided with two like pivotal holes *e e*, and adapted to fit into the open end of the shell-like casting E. By this means the eyed ends of the spring D

50 and the eyed ends of the extensions C of the torsion-springs B are readily inserted into the shell E and onto the pivotal bolts Z, which of course would have been inserted through the holes *e e*, and after which the plate *a* is passed onto said pivotal bolts Z in a position to close the open end of the shell

E, as in Fig. 2. Thus by screwing up tightly 55 the nuts of the pivotal bolts I have a swinging shackle, which is conveniently attached and detached from the ends of the springs. Furthermore by thus constructing the shackle packing can be placed against the
60 sides of the eyes of the springs, and the wear of the same can be readily taken up by tightening the nuts of the pivotal bolts Z.

I have described the part E of the shackle as a casting; but of course it may be pressed 65 or otherwise formed out of any suitable material. In this construction I obviate the rocking motion of the body by locating the torsion-springs nearer to the sides of said body, instead of near the center, as in some 70 prior constructions. This of course necessitates making the extensions C of the torsion-springs shorter, which of course would interfere with the proper action of the elliptic and torsion springs if coupled together at 75 the ends by an ordinary hinge or coupling bolt without the use of shackles, and hence by the use of swinging shackles the free and proper action of the springs is not prevented in a construction in which the body of the 80 vehicle has no rocking motion, and I simplify the construction as contrasted with the modes of attaching the ends of torsion and semi-elliptic springs heretofore employed. It will of course be understood that Fig. 1 represents 85 the construction at one end of a four-wheeled vehicle and that the other end is a duplicate thereof.

Having thus described my invention, what I claim as new, and desire to secure by Let- 90 ters Patent of the United States, is—

In a vehicle, the combination of the torsion-springs having the outwardly-extending angled ends, the semi-elliptic springs, and the swinging shackles, consisting of the shell-like 95 part open at one side and one end and provided with the pivotal holes in the closed end, the detachable plate provided with the pivot-holes, and the pivotal bolts for clamping said parts together, substantially as set 100 forth.

In testimony of the foregoing I have hereunto subscribed my name in presence of two witnesses.

EUGENE COOK.

Witnesses:

L. N. BURKE,
BELLE C. FREEMAN.