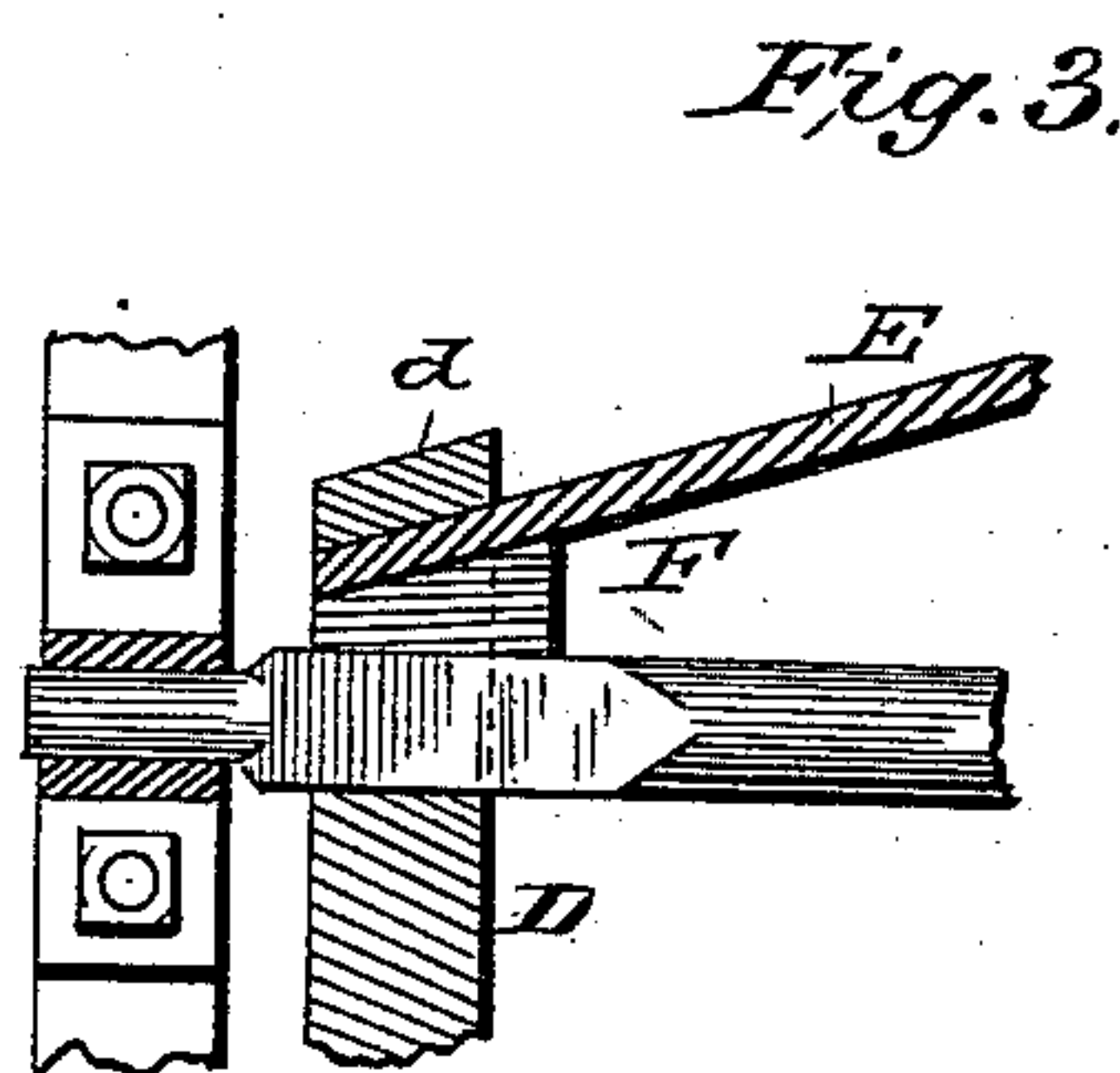
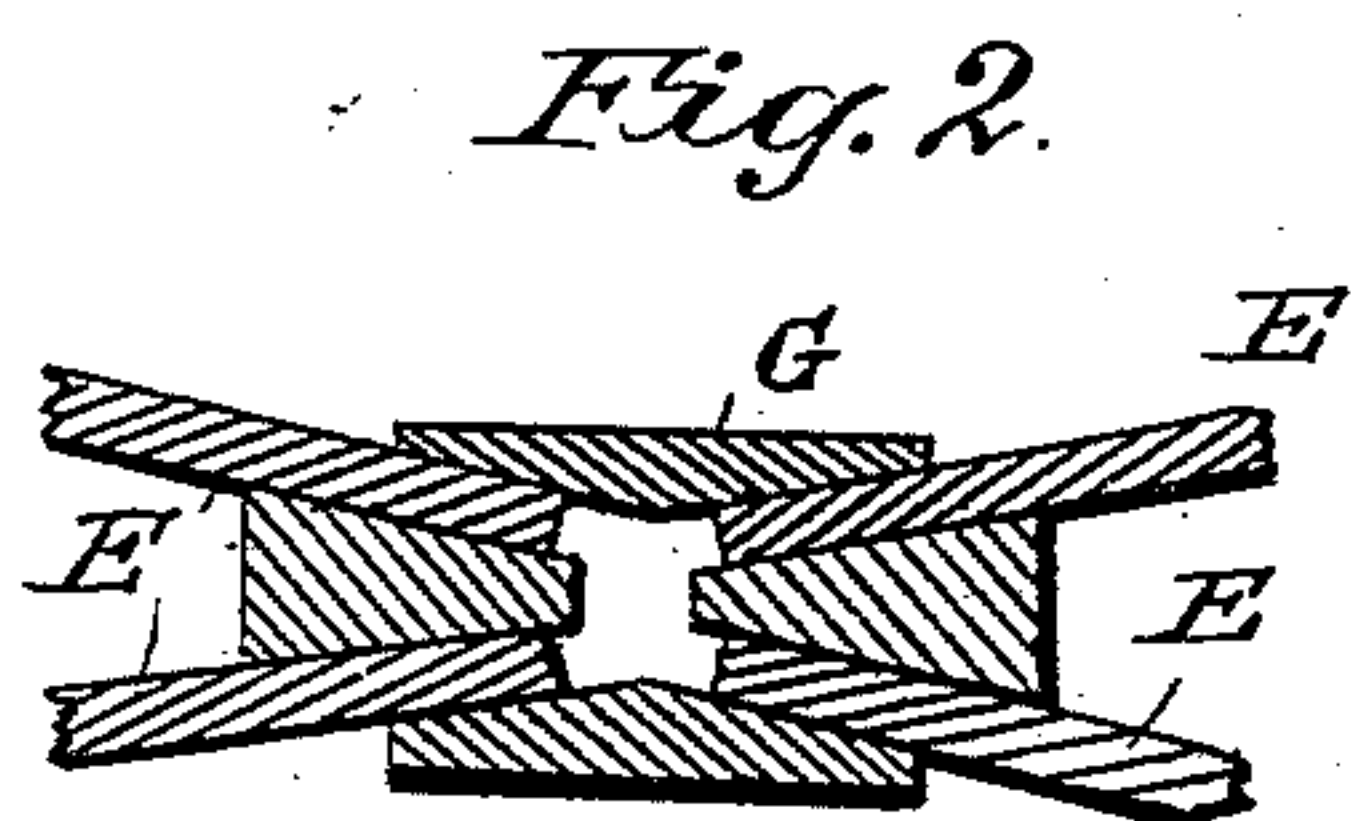
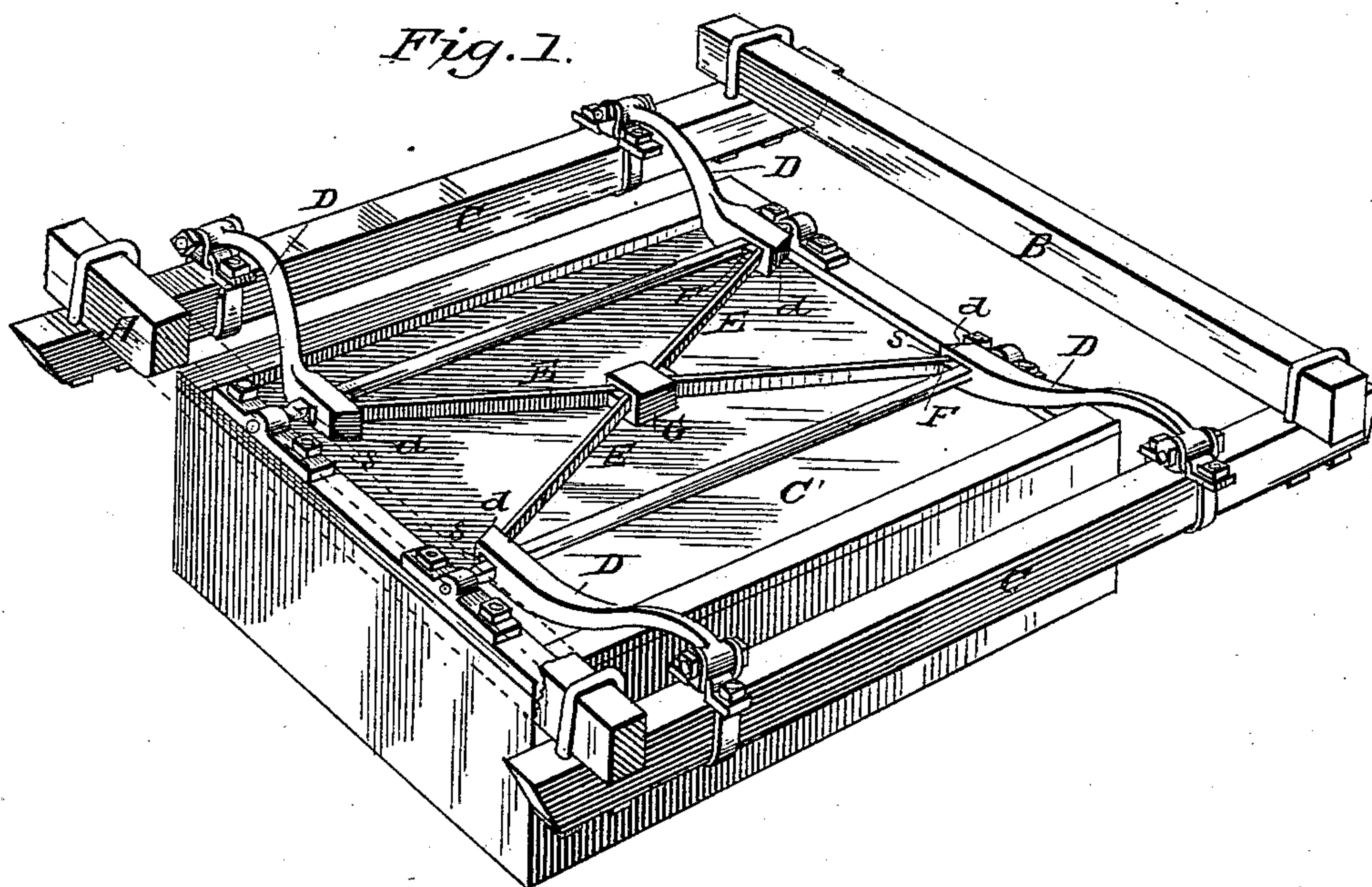


(No Model.)

E. JARRELL.
VEHICLE SPRING.

No. 379,470.

Patented Mar. 13, 1888.



WITNESSES:

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EDWIN JARRELL, OF HARPER, KANSAS.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 379,470, dated March 13, 1888.

Application filed October 19, 1887. Serial No. 252,850. (No model.)

To all whom it may concern:

Be it known that I, EDWIN JARRELL, a citizen of the United States, residing at Harper, in the county of Harper and State of Kansas, have invented a new and useful Improvement in Vehicle-Springs, of which the following is a specification.

This invention is an improvement in vehicle-springs; and it consists in certain features of construction and novel combination of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of the under side of a vehicle provided with my improvement, and Figs. 2 and 3 are detail views.

The front and rear bars, A B, and the side bars, C, form the framing, and, together with the body C', may be of any suitable construction. To the body, and extending, usually, longitudinally thereof, I journal the shafts or equalizing-bars, to which, near their ends, are secured the arms D, the outer ends of which are shackled or otherwise suitably connected with the frame, while their other ends preferably extend inwardly past the equalizing-bars, forming extensions or projections *d* to receive the outer ends of the spring-bars. The arms, it will be seen, are thus connected with the framing and with the body, the latter connection being preferably effected through the aid of the shafts or equalizing-bars.

An important feature of my invention consists in the torsional spring-bars united or connected together at their inner ends and diverging from such point of connection, being suitably connected at their outer ends to enable their tension to properly operate.

In carrying out this feature of my invention the outer ends of the spring-bars are preferably secured to rotarily-movable connections, which in the construction shown are the extensions *d* of the arms; but manifestly the said rotary connections might be lugs on the equalizing-bars or other portions of said bars off the axial centers thereof.

It is preferred to carry out my invention by the construction and arrangement shown, which will now be described in detail.

The bars E fit at their outer ends in sockets *s* in the extensions *d*, and are secured therein

by wedge or key blocks F. By preference these spring-bars are flattened in cross-section, the effect being to secure a better torsional tension as well as to facilitate the proper securing of the bars in the connections to which they are rigidly secured. At their inner ends the spring-bars are united. In the construction shown this is effected through the aid of the box-tie G, in which the inner ends of the spring-bars are inserted and secured by a key or wedge, as shown. The bars, when arranged as shown, form approximately an X shape.

Obviously it would involve no departure from the broad principles of my invention to form the several spring-bars in a single piece or weld them together at their inner ends; but I prefer to employ the box-tie, as such part forms a secure connection between the inner ends of the spring-bars and permits the substitution of a new spring-bar for an old or broken one.

The equalizing rods or shafts equalize the action of the spring endwise of the body, while the connection of the spring-bars serves to equalize the tension sidewise.

The spring-bars shown may be regarded as sections of spring-bars, which extend diagonally between the rotating connections at the opposite sides of the body.

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

1. In a vehicle-spring, the combination of the body, the framing, the arms connected with the body and the framing, and the spring-bars arranged in approximately X shape, united centrally and connected at their outer ends with the arms, substantially as set forth.

2. A spring for vehicles, consisting of a box-tie or connection and the four spring-bars secured at their inner ends in said tie or connection and diverging therefrom, forming an approximately X shape, substantially as and for the purposes specified.

3. The combination, in a vehicle, of a support for one end of the spring-bar, a rotarily-movable connection to which the other end of said bar is secured, and the spring-bar flattened in cross-section, substantially as and for the purpose specified.

4. The combination of the framing, the body, the equalizing bars or shafts journaled to the body, the arms, the spring-bars, and the box-tie in which the inner ends of the spring-bars are secured, substantially as set forth.

5. In a vehicle-spring, the box-tie having sockets opening out of its opposite ends, the spring-bars arranged in pairs and having the inner ends of the bars of such pairs inserted in the box-tie, and the wedge-blocks driven between the inner ends of the bars of each pair and securing the said inner ends within the box-tie, substantially as and for the purposes specified.

6. The combination, with the shafts or equalizing-bars, and the arms connected with and extending past the equalizing-bars, and having such extensions slotted or socketed to receive the ends of the spring-bars, of the spring-bars inserted at their outer ends in the sockets of the arms, and having their inner ends united, and wedges or blocks for securing the outer ends of the bars in the sockets therefor, substantially as set forth.

7. In a vehicle-spring, the combination of spring-bars converging centrally, and a box-tie having sockets or recesses in which the inner ends of said bars are secured, substantially as set forth.

8. The combination of the framing, the body, the equalizing-bars journaled to the body, the arms connected at their outer ends with the framing, and connected with and extended past the equalizing-bars, the spring-bars connected at their outer ends with the arms, and the box-tie for uniting the inner ends of said bars, substantially as set forth.

9. The combination, in a vehicle, of the body, rotarily-movable connections connected with said body, and a spring bar or bars extended diagonally between said connections, substantially as set forth.

10. The combination, with a vehicle-body, of shafts journaled to and near the side edges thereof, and provided with outwardly and inwardly extended arms, a connection arranged centrally between said inwardly-projected arms and suspended, substantially as described, and the spring-bars E, secured at their inner ends to the suspended connection diverging therefrom, and secured at their outer ends to the inwardly-projecting arms on the side shafts, substantially as and for the purposes specified.

EDWIN JARRELL.

Witnesses:

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