(No Model.)

J. W. VAUGHN.

VEHICLE GEAR.

No. 431,129. Patented July 1, 1890.

Fig. 1.

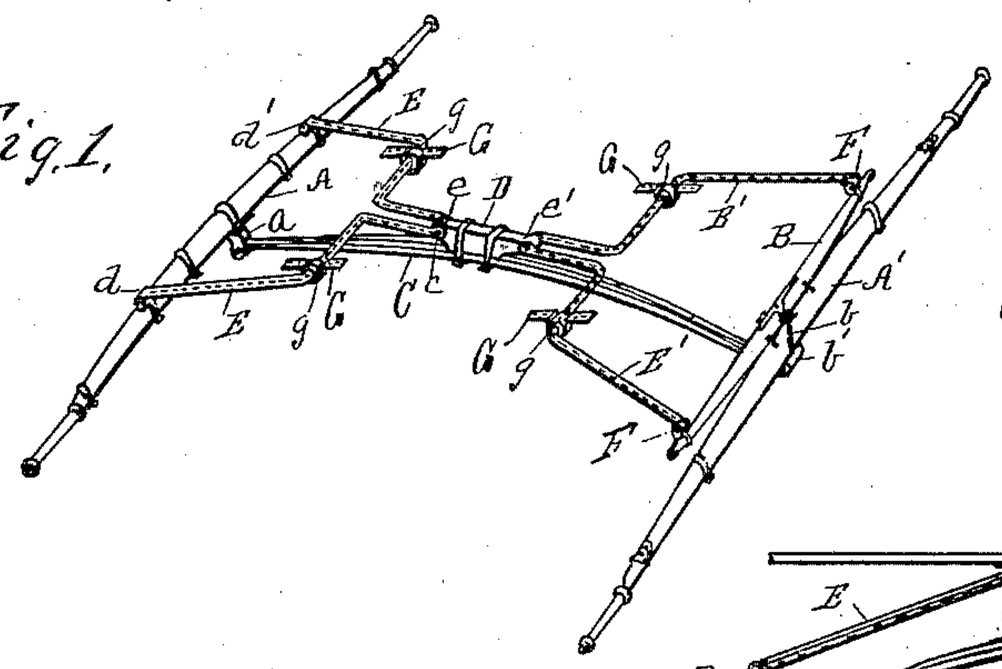


Fig. 7.

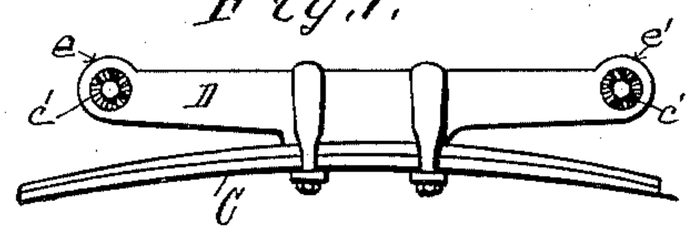


Fig. 2.

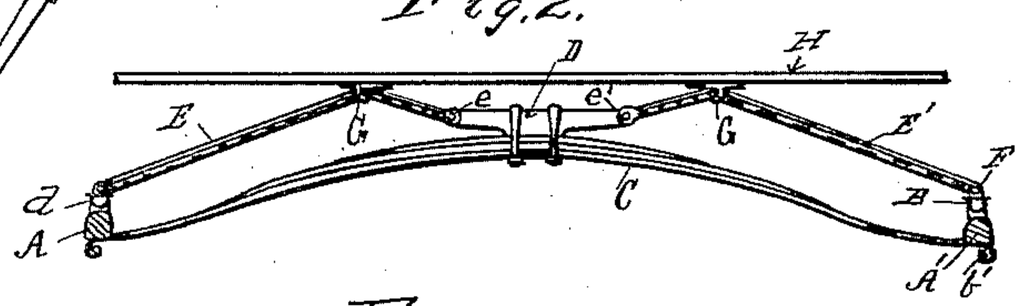


Fig. 3.

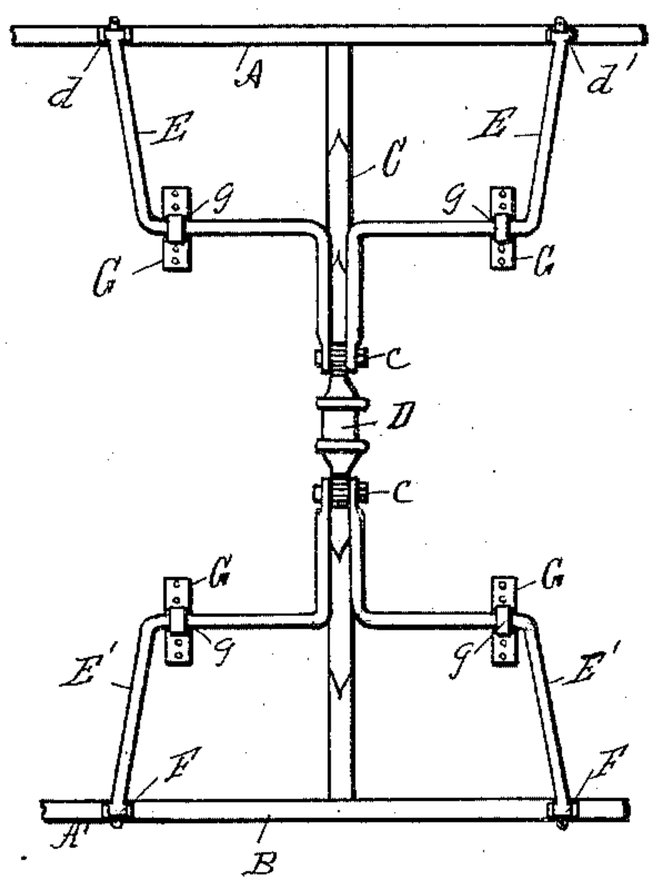


Fig. 4.

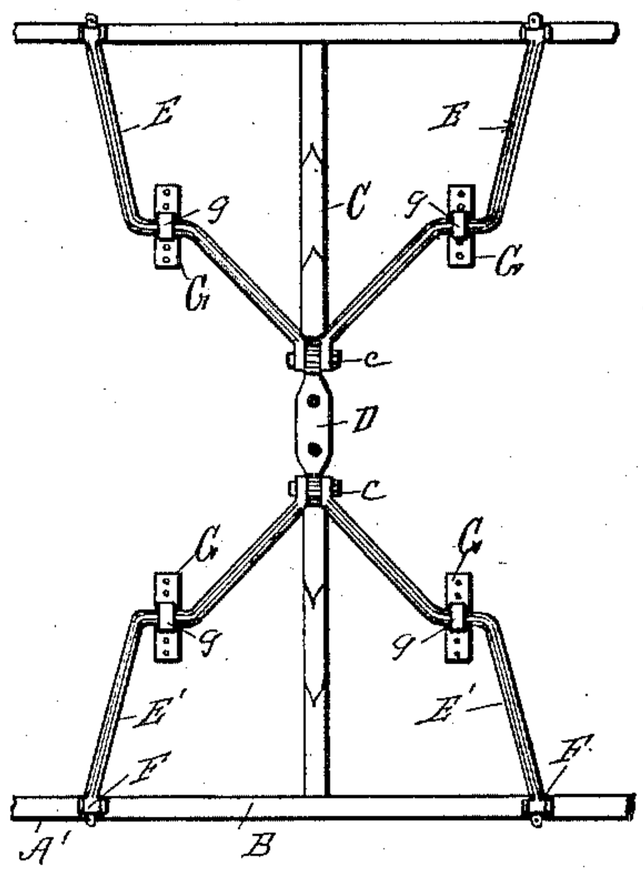


Fig. 5.

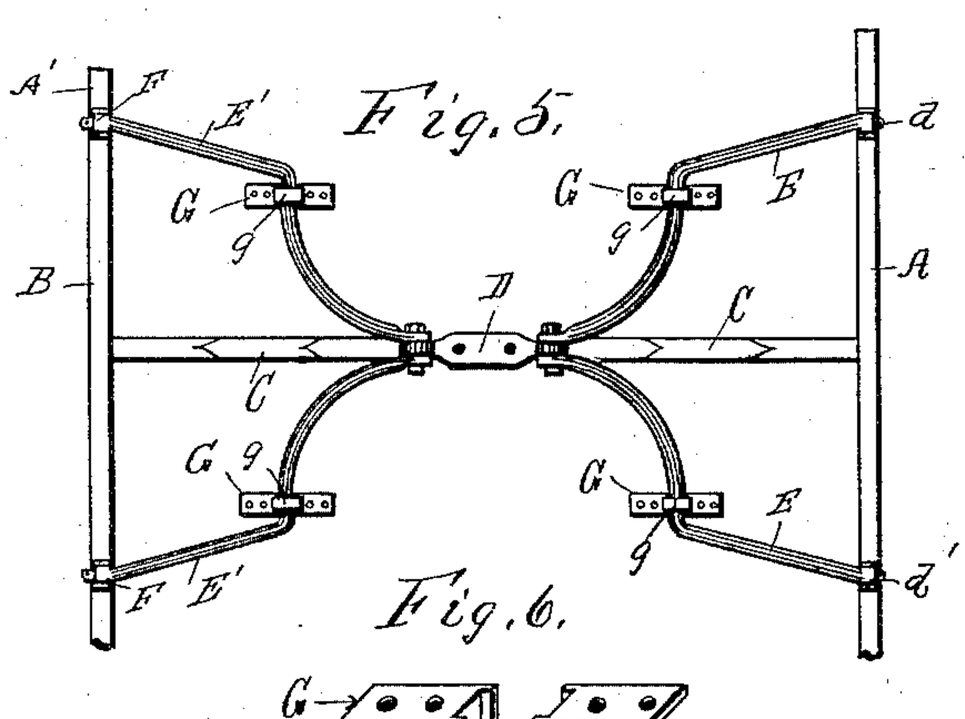
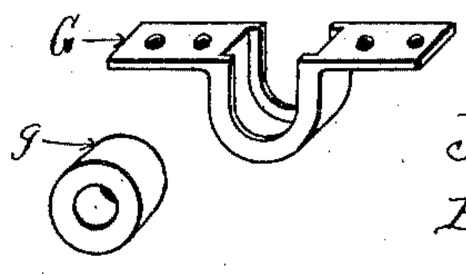


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES W. VAUGHN, OF GREENVILLE, PENNSYLVANIA.

VEHICLE-GEAR.

SPECIFICATION forming part of Letters Patent No. 431,129, dated July 1, 1890.

Application filed February 1, 1890. Serial No. 338,936. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. VAUGHN, a citizen of the United States, residing at Greenville, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Vehicle-Gears; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention consists in the improvements in vehicle-gears hereinafter set forth and explained, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved vehicle-gear. Fig. 2 is a side elevation of same. Fig. 3 is a top or plan view of same. Figs. 4 and 5 are plan views of modified forms of my device. Fig. 6 is a detail view of the clamps or blocks for securing the gearing to the vehicle-body. Fig. 7 is a detail view of the spring coupling-blocks of my device.

Like letters refer to like parts in all the figures.

In the construction of my improved vehicle-gear shown, A is the rear axle, A′ the front axle, and B the front bolster, which are all of usual and ordinary construction. Underneath the central part of the rear axle A, I secure the rear end of a semi-elliptical spring C by means of an ordinary clip and shackle *a*, the front end of said spring being also coupled to a bearing *b′*, secured to the head-block *b* at the under side of the front axle A′, so that the spring C performs the double function of a spring and reach for the vehicle-gear; but two or more springs C may be coupled to the axles A and A′ in lieu of a single spring, as shown, if desired. On the top of the central portion of the semi-elliptical spring C, I secure a coupling-block D by means of clips or bolts, as desired. To the rear axle A, adjacent to the hub-bearings thereon, I secure upwardly-projecting ears *d d′*, and in each of said ears I pivot the rear end of a torsion-spring E, these springs E extending forward to and being coupled to each side of the rear end *e* of the coupling-block D by means of a bolt *c*, passing through holes in ears formed on the front ends of the torsion-springs E, and, preferably, through an enlarged hole packed with an annular elastic packing *c′* in the rear end *e* of the coupling-block D, the packing in said enlarged holes permitting a slight longitudinal movement of the coupling-bolt *c* in the rear end of the coupling-block D. To the outer ends of the front bolster B, I also secure upwardly-projecting ears F F, in which are pivoted the front ends of torsion-springs E′ E′, these springs being, preferably, substantial duplicates of the torsion-springs E E, and extend back to the front end *e′* of the coupling-block D, the rear end of the torsion-springs E′ E′ being connected to the front end *e′* of the coupling-block D in the same manner as the front ends of the torsion-springs E E, hereinbefore described.

In Figs. 1 and 3 I show a construction of my vehicle-gear in which the torsion-springs E E and E′ E′ are made substantially rectangular in shape, and in Figs. 4 and 5 I show other shapes of torsion-springs, the remaining features of the construction being otherwise the same. In all cases, however, it will be observed that the combination of the longitudinal springs C and the torsion-springs E E and E′ E′, together with the axles and front bolster, form of themselves a complete vehicle-gear without the agency of a vehicle-body.

In securing a vehicle-body to my gear I use clips or blocks G, Fig. 6, which are adapted to be bolted to the under sides of the side sills of the vehicle-body H, (see Fig. 2,) these clips or blocks G being provided with an annular elastic packing *g*, which surrounds the torsion-springs E E and E′ E′ at the points where the clips or blocks G are secured thereto, so as to provide for the slight longitudinal movement caused by the operation of the spring mechanism of the gear.

It will be observed that the vehicle-body H is secured by means of the clips or blocks G to the torsion-springs only and to no other portion of the vehicle-gear, the weight thereof being thereby distributed equally on the entire spring mechanism of the vehicle-gear, the clips or blocks G being adapted to be secured

to the torsion-springs at any point thereon which is productive of the best results according to the character of the body to be mounted thereon and the service required.

Having thus fully described my invention, so as to enable others skilled in the art to which it appertains to construct and use the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a vehicle-gear, of a semi-elliptical longitudinal spring extending from the forward to the rear axle and a coupling-block centrally secured thereto, with torsion-springs secured to bearings on the rear axle and extending therefrom to the rear end of the coupling-block on the longitudinal spring, and being coupled thereto, and like torsion-springs secured to bearings on the front-axle bolster and extending therefrom to the front end of the coupling-block on said longitudinal spring, and being coupled thereto, and clips or blocks for coupling a vehicle-body to said torsion-springs, substantially as set forth.

2. The combination, in a vehicle-gear, of a longitudinal semi-elliptical spring coupled to the rear axle A and to the head-block *b* on the front axle A′ of the vehicle, and a coupling-block D, secured to the central part of the spring C, with the rectangular-shaped torsion-springs E E, having their rear ends coupled to the shackles *d d′* on the rear axle A of the vehicle, and their front ends coupled to the rear end *e* of the coupling-block D, and like rectangular torsion-springs E′ E′, having their front ends coupled to shackles F F on the front bolster B of the vehicle and their rear ends coupled to the front ends *e′* of the coupling-block D, and clips or blocks G, provided with elastic packing *g* for coupling a vehicle-body to the torsion-springs E E and E′ E′, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES W. VAUGHN.

Witnesses:

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