

No. 839,613.

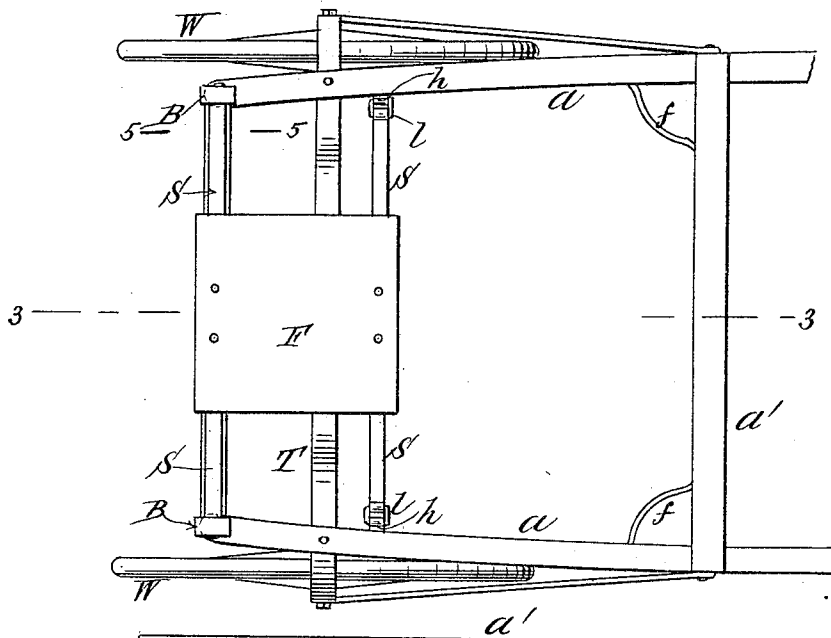
PATENTED DEC. 25, 1906.

H. J. MILLER.  
ROAD VEHICLE.

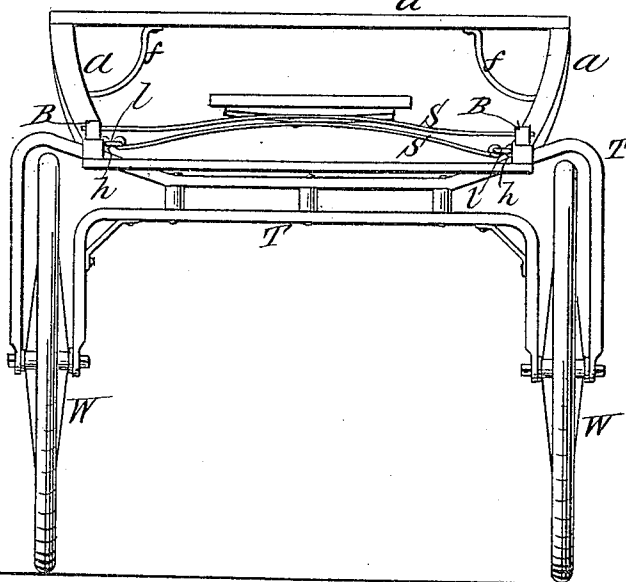
APPLICATION FILED DEC. 11, 1905.

2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



Witnesses:

*W. Gardner.*

*George P. Brand*

Inventor:

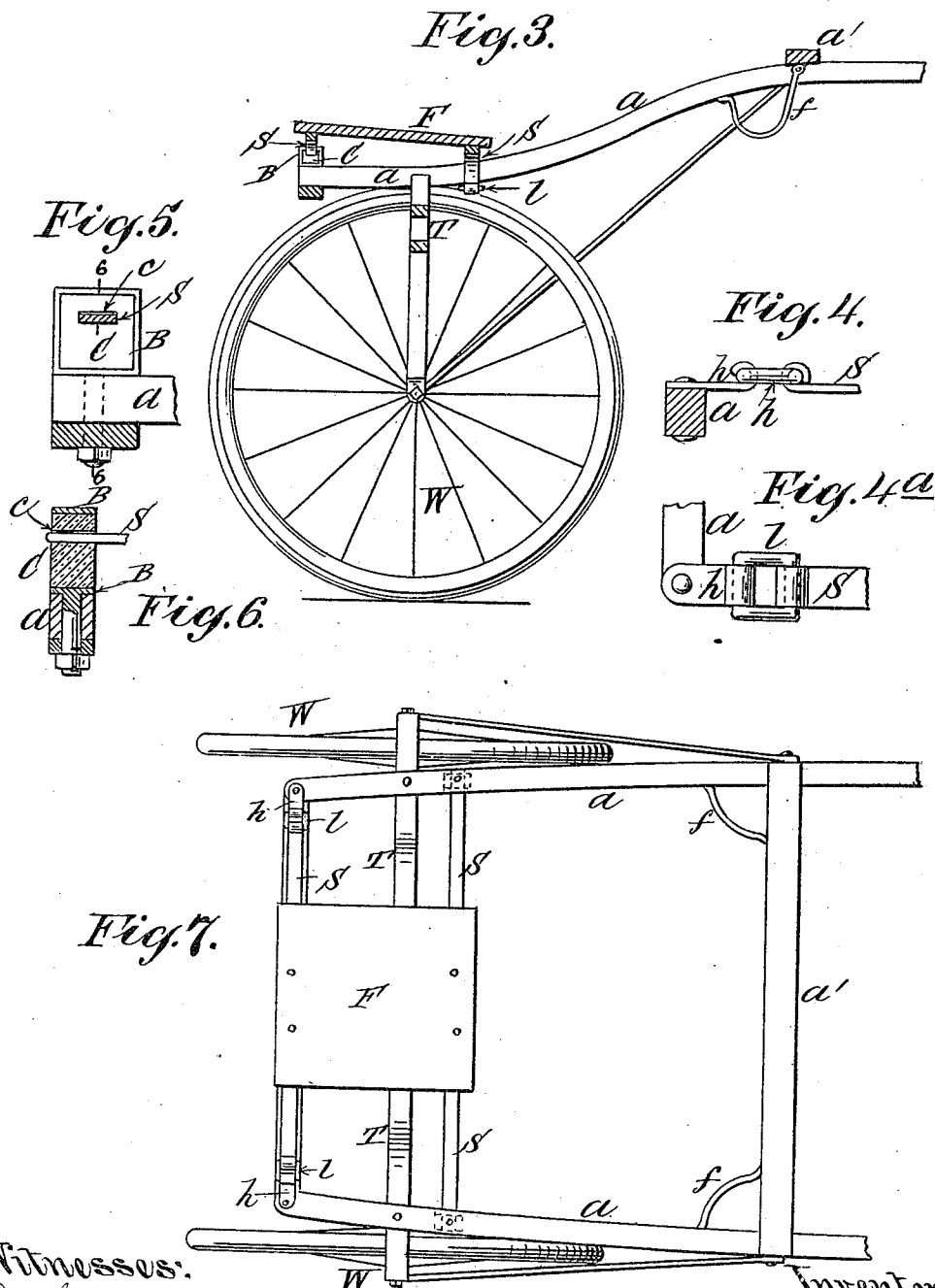
*Henry J. Miller*  
By his Attorney  
*Geo. W. M. M. M.*

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2 SHEETS—SHEET 2.



# UNITED STATES PATENT OFFICE.

HENRY J. MILLER, OF GOSHEN, NEW YORK.

## ROAD-VEHICLE.

No. 839,613.

Specification of Letters Patent.

Patented Dec. 25, 1906.

Application filed December 11, 1905. Serial No. 291,171.

*To all whom it may concern:*

Be it known that I, HENRY J. MILLER, a citizen of the United States, residing at Goshen, Orange county, and State of New York, have invented certain new and useful Improvements in Road-Vehicles, of which the following is a specification.

My invention relates more particularly to light-weight road-vehicles—such as road-carts, sulkies, and the like—which are designed usually to accommodate a single horse and driver, although the principles involved are applicable to the support of the seats of vehicles generally.

The object of my present invention is to attain a very simple, cheap, and at the same time strong and durable structure in which seat-rods are dispensed with entirely, while affording a stable but resilient mount or support for the seat. By dispensing with the seat-rods heretofore indispensable in the class of light road-vehicles to which I refer I not only simplify and lighten the structure, but I also render the vehicle more accessible and convenient in use.

Heretofore in a vehicle of this description the seat has been supported upon a leaf-spring extending transversely between the thills or other stationary supports, and seat-rods pivotally attached to the seat and to the cross-bar have been relied upon to preserve the alinement of the seat and prevent its tilting or rocking forward or backward. The only exceptions to this rule of construction of which I am aware are shown incidentally in my concurrent applications for patent, Serial No. 256,234, filed April 18, 1905, and Serial No. 268,042, filed July 3, 1905, in which I describe and claim specifically certain forms of convoluted springs for the support of the seat, a modification being shown in each case, by way of illustration, in which the seat stay-rods are dispensed with, but no claim being made to this feature.

My present invention consists, essentially, in suspending the seat transversely with relation to the vehicle upon a plurality of springs arranged fore and aft of the seat and supported upon the thills or other rigid part of the vehicle, at least one of the springs, preferably the forward one, being in the form of a leaf-spring, linked to rigid parts of the vehicle in such manner as to counteract any tendency to longitudinal or fore-and-aft movement of the seat, substantially as hereinafter set forth. By this means a resilient

support for the seat is afforded in which connection with the cross-bar by means of seat stay-rods is unnecessary, leaving the space between the seat, cross-bar, and the adjacent portions of the thills or shafts free and unobstructed.

My invention also includes certain other features in the construction and arrangement of parts hereinafter described and claimed specifically.

In the accompanying drawings, Figure 1 is a plan of the rear portion of a vehicle, showing my preferred arrangement of seat-supporting springs. Fig. 2 is a rear view of the vehicle; Fig. 3, a vertical section upon the plane of line 3 3, Fig. 1. Fig. 4 is a detail view, upon an enlarged scale, showing a link connection at one end of the forward leaf-spring. Fig. 4<sup>a</sup> is a top view of the same. Fig. 5 is a section taken upon the plane of line 5 5, Fig. 1, showing, upon an enlarged scale, one of the rubber cushions and containing-boxes for the support of the ends of the rear spring; Fig. 6, a section on the plane of line 6 6, Fig. 5. Fig. 7 is a plan similar to Fig. 1, showing a modification in the arrangement of springs and connections.

The seat F is preferably supported upon two flat or leaf springs S S, mounted either directly upon the thills *a a* or upon any other desired or suitable rigid parts of the vehicle.

T is the wheel-truss, W W the wheels, and *a'* the cross-bar, all of any well-known or desired construction.

The springs S S are attached to the seat F respectively at or near its front and rear edges. At least one of these springs, preferably the forward one, is attached to the thills or other rigid parts of the vehicle by rectangular links *l l*, engaging with hooks *h*, as shown in Figs. 4 and 4<sup>a</sup>, the ends of the leaf-spring being bent around one bar of the link and the hook *h* engaging the opposed parallel bar of the link, the inner parallel sides of which fit the end of the spring and the hook snugly, so that there is no lateral play or lost motion, and hence the spring, being held thus at both extremities, tends constantly to counteract any tendency of the seat to tilt, rock, or move longitudinally with relation to the vehicle in either direction. I am aware that the means of connection just described is essentially old, and I do not seek to claim it broadly herein, but only as an element in combination with a secondary or auxiliary spring or springs attached to an-

other portion of the seat and arranged to act in conjunction with the first-named spring in such manner as to render the use of seat stay-rods unnecessary.

5 As before said, the forward seat-supporting spring is preferably a flat or leaf spring coupled to the thills or other rigid parts of the vehicle by a rectangular link, as above set forth, and this arrangement is illustrated  
10 in Figs. 1, 2, and 3.

The rear springs are also flat or leaf springs; but their ends are supported upon the thills or other rigid parts of the vehicle in a different manner—that is to say, the ends  
15 of the rear springs in these cases are seated in or on rubber cushions C C, which are held in boxes B B, secured to rigid parts of the vehicle-frame, the rubber cushions C C being preferably formed with recesses *c c* for the reception of the ends of the spring, as will be  
20 readily understood by reference to Figs. 5 and 6. This seating of the ends of the rear springs in or on rubber cushions renders the support for the rear of the seat more resilient  
25 and responsive to the weight imposed upon it, and as the weight of the driver rests mainly upon this rear portion of the seat the advantage is obvious.

The modification shown in Fig. 7 is an arrangement alternative with that shown in  
30 Figs. 1, 2, and 3, a leaf-spring attached to the rear of the seat being coupled to the thills by rectangular links *l*, while the ends of a leaf-spring attached to the forward part of the  
35 seat are seated in rubber cushions C C, the containing-boxes of which are attached to the under sides of the thills *a a*.

It will be seen that in each arrangement at least one leaf-spring is snugly linked to the  
40 thills and by its lateral rigidity, relatively speaking, relieves the rubber cushions from lateral strain, thus affording a vertically-resilient seat, which is held in alinement and against longitudinal movement with relation  
45 to the vehicle without the use of seat stay-rods, as heretofore. It is true that in my concurrent application, Serial No. 268,042, hereinbefore referred to, I show incidentally and as a modification a seat supported on fore and aft  
50 springs; but in that case all the springs are formed with vertical convolutions which are not reinforced laterally, whereas in the present case the essential and distinguishing feature is the use of at least one flat leaf-spring,  
55 the ends of which are secured to the thills or other stationary parts of the vehicle by means which prevent lateral play or movement, thereby reinforcing the seat and supporting-springs against horizontal movement or  
60 movement longitudinally with relation to the vehicle as a whole.

The hook or bearing *h* may obviously be changed or modified in form from that shown

in the drawings, the essential feature being the bearing or support over which the link *l* 65 fits snugly.

Stirrups *f f* of any usual or desired construction are provided for the feet of the driver.

What I claim as my invention, and desire 70 to secure by Letters Patent, is—

1. In a vehicle of the character designated, the combination with the seat, of front and rear supporting-springs attached to the seat and to stationary parts of the vehicle-frame, 75 one of said seat-supporting springs consisting of a flat leaf-spring coupled to stationary parts of the vehicle by rectangular links pivotally attached to the ends of the spring and fitting snugly over bearings on said stationary 80 parts, and the other of said supporting-springs consisting of a flat leaf-spring the ends of which are seated on rubber cushions attached to said stationary parts, for the purpose described. 85

2. In a vehicle of the character designated the combination with the seat, of front and rear supporting-springs attached to the seat and to the thills of the vehicle, one of said seat-supporting springs consisting of a flat 90 leaf-spring coupled to the thills by rectangular links pivotally attached to the ends of the spring and fitting snugly over bearings on the thills, and the other of said supporting-springs consisting of a flat leaf-spring the ends of 95 which are seated on rubber cushions attached to the thills, for the purpose described.

3. In a vehicle of the character designated, the combination with the seat, of front and rear supporting-springs attached to the seat 100 and to stationary parts of the vehicle-frame, the front spring consisting of a flat leaf-spring coupled to a stationary part of the vehicle by rectangular links pivotally attached to the ends of the spring and fitting snugly over 105 bearings on said stationary parts, and a rear spring consisting of a flat leaf-spring, the ends of which are seated on rubber cushions attached to said stationary parts, for the purpose described. 110

4. In a vehicle of the character designated, the combination with the seat, of front and rear supporting-springs attached to the seat and to the thills of the vehicle, the front supporting-springs consisting of a flat leaf-spring 115 coupled to the thills by rectangular links pivotally attached to the ends of the spring and fitting snugly over bearings on the thills and the rear supporting-spring consisting of a flat leaf-spring the ends of which are seated 120 on rubber cushions attached to the thills for the purpose described.

HENRY J. MILLER.

Witnesses:

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GEO. WM. MIATT.