

M. L. SENDERLING.
VEHICLE SPRING.

No. 565,238.

Patented Aug. 4, 1896.

Fig. 1.

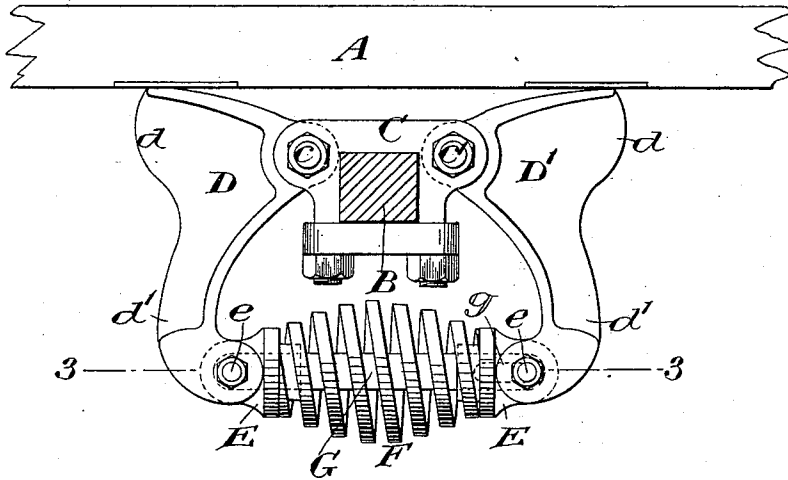


Fig. 2.

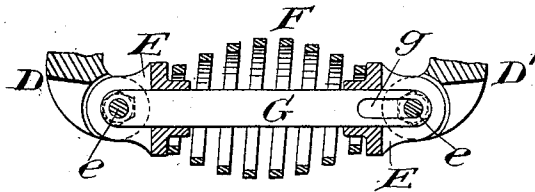
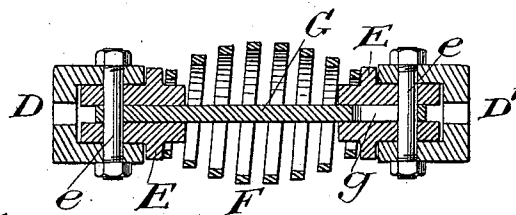


Fig. 3.



Witnesses:-

George Barry Jr.
W. B. Seward.

Inventor:-
Martin L. Senderling
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Fig. 4.

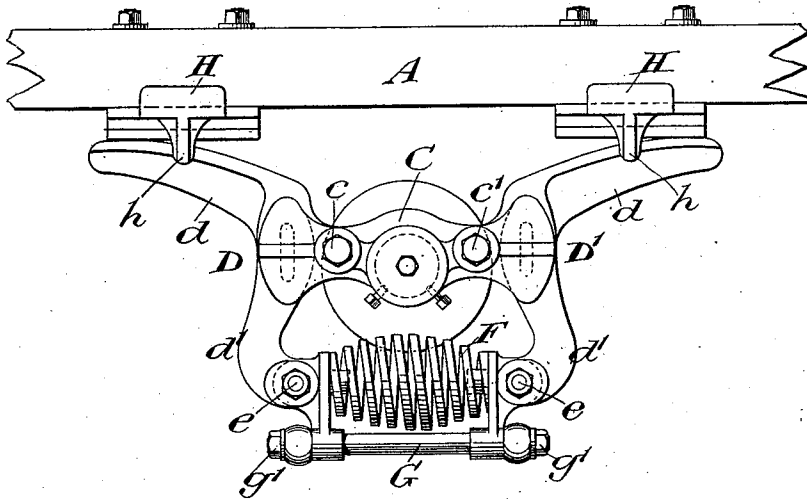
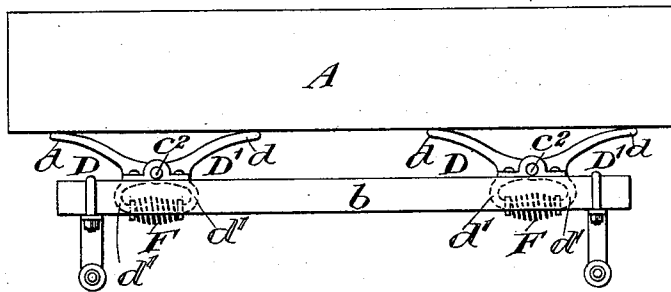


Fig. 5.



Witnesses:-

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Inventor:-

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UNITED STATES PATENT OFFICE.

MARTIN L. SENDERLING, OF JERSEY CITY, NEW JERSEY.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 565,238, dated August 4, 1896.

Application filed December 7, 1895. Serial No. 571,333. (No model.)

To all whom it may concern:

Be it known that I, MARTIN L. SENDERLING, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Vehicle-Springs, of which the following is a specification.

The object of my invention is to provide a vehicle-spring in which a spring-actuated lever is pivoted intermediate of the vehicle-body and the running-gear, and the vehicle-body is so arranged with the said spring-actuated lever that when the lever is depressed by the increase in weight of the vehicle-body the point of contact of the said body will shift toward the pivotal point of the lever.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view in side elevation of my improved spring, in which two spring-actuated levers are shown, a portion only of the vehicle-body and running-gear being shown. Fig. 2 is a vertical central section through the lower portion of the vehicle-spring shown in Fig. 1. Fig. 3 is a transverse section on the line 3 3 of Fig. 1. Fig. 4 is a view in side elevation of a modified form of spring; and Fig. 5 is a side view of the vehicle-body and a portion of its running-gear, showing two sets of spring-actuated levers located under each side of the vehicle-body, the said levers in this view being of a second modified form.

Proceeding to describe the form shown in Figs. 1, 2, and 3, the wagon-body is denoted by A, and the axle of the running-gear is denoted by B. Upon the axle B, I secure a suitable clip C, to which are pivoted the spring-actuated two-armed levers D D', as shown at c c'. The vehicle-body is supported upon the upper arms d of the two-armed levers, and the lower arms d' of the levers extend downwardly to a point somewhat below the axle B. These lower arms d' are held apart under spring-tension in the following manner: A pressure-plate E is preferably pivoted to the free end of each of the lower arms d' by suitable bolts e, and between these two pressure-plates is interposed a suitable spring F, in the present instance shown as of coiled form. A bar or link G passes through the pressure-plates E and engages the pivot-bolts e, which fasten the said plates to the

lower arms d' of the two-armed levers and serves to limit the outward movement of the said arms. This bar G is provided at one end with an elongated slot g, through which one of the bolts e extends, so that when pressure is applied to the upper arms d of the two-armed levers the lower arms are allowed to approach each other a certain distance.

The pressure-plates E, by reason of their pivotal engagement with the arms d', are kept in alinement as the lower arms d' approach and recede, thereby preventing the cramping of the bar G.

In the form shown in Fig. 4 the bar or link G, instead of passing through the interior of the coil-spring F, extends along exterior to and below the same and through sockets formed in the pressure-plates E. The bar G in this case does not have the elongated slot g, as in the form shown in Figs. 1, 2, and 3, but limits the outward movement of the lower arms d' of the two-armed levers by suitable fastenings, such as nuts g', engaging its ends exterior to the sockets in the plates E.

In the form shown in Fig. 5 the vehicle-springs are disposed one under each corner of the vehicle-body. In this form the two spring-actuated levers are pivoted to their support at the same point, as shown at c², the support in this instance being secured to the side-bar b of the running-gear.

Any suitable link (not shown) may secure the vehicle-body to the running-gear to prevent it from being disengaged from its supporting-levers. In the form shown in Fig. 4 I have shown lugs h, depending from suitable plates H, secured to the vehicle-body, for holding the same against lateral play upon the upper arms d of the levers.

From the above description it will be seen that as the vehicle-body depresses the spring-actuated levers the point of contact of said body will shift along the upper arms of the said levers toward their pivotal points, thereby serving to increase the force of the spring F without compressing the said spring to a point where it will be liable to become set. Again it will be seen that a spring F may be inserted into position which will be of the required power to obtain the best results for the vehicle to which it is applied, as, for instance, if it be applied to a very heavy vehi-

cle, a heavy spring might be inserted, and if for a light vehicle, such as a carriage, a light spring might be inserted.

While that which carries the load is herein called the "body," it is to be understood that the word "body" covers all that part of the vehicle which rests upon the spring-actuated levers, whether it be the box portion itself, the rail, or side-bar.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the structure herein set forth; but

What I claim is—

1. In combination, a lever, a spring-cushion forming a bearing for the lever and means for sustaining a load upon the lever, the connection between the load-sustaining means and the lever being such that the bearing-point of the load, as the weight of the load increases, may automatically shift from its starting-point to a point nearer the fulcrum of the lever than the bearing-point of the spring-cushion, thereby changing the advantage of leverage in favor of the spring and against the weight of the load, substantially as set forth.

2. The combination with a vehicle-body and its running-gear, of a pair of levers pivoted intermediate the running-gear and vehicle-body and a spring engaging the levers for yieldingly supporting the body, the engagement of the body with the levers being such that when the levers are depressed the bearing-point of the body may shift from its starting-point to a point nearer the fulcrum of the lever than the point where the spring engages the lever, thereby changing the advantage of leverage in favor of the spring and against the weight of the load, substantially as set forth.

3. The combination with a vehicle-body and its running-gear, of a pair of two-armed levers pivoted to the running-gear, the upper arms of said levers supporting the vehicle-body, the vehicle-body having a shifting engagement with said arms and a spring interposed between the lower arms of said levers for forcing them apart to yieldingly support said vehicle-body, substantially as set forth.

4. The combination with a vehicle-body

and its running-gear, of a pair of two-armed levers pivoted to the running-gear, the upper arms of said levers supporting the vehicle-body, the said body having a shifting engagement with said arms a spring interposed between the lower arms of said lever to force them apart and means for limiting their outward movement, substantially as set forth.

5. The combination with the vehicle-body and its running-gear, of a pair of levers pivoted intermediate the running-gear and vehicle-body and forming a support for the vehicle-body and a spring carried by and forming a yielding cushion between the levers, the engagement of the body with the levers being such that when the levers are depressed the bearing-points of the body may shift relatively to the fulcrums of the levers, substantially as set forth.

6. The combination with a vehicle-body and its running-gear, of a pair of two-armed levers pivoted to the running-gear, the body having a shifting engagement with the upper arms of said levers, a spring interposed between the lower arms of said levers for forcing them apart to yieldingly support said vehicle-body and a bar or link engaging the two lower arms for limiting their outward movement under spring-pressure, substantially as set forth.

7. The combination with a vehicle-body and its running-gear, of a pair of two-armed levers pivoted to the running-gear, the upper arms of said levers supporting the vehicle-body, pressure-plates pivoted to the lower arms of the said levers, and a spring interposed between said pressure-plates for forcing them apart to yieldingly support the said vehicle-body, substantially as set forth.

8. The combination with the vehicle-body and its running-gear, of a pair of two-armed levers pivoted to the running-gear, the upper arms of said levers supporting the said body, pressure-plates pivoted to the lower arms of said levers, a spring interposed between said pressure-plates for forcing them outwardly, and a bar engaging the lower arms for limiting their outward movement under spring-pressure, substantially as set forth.

MARTIN L. SENDERLING.

Witnesses:

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