

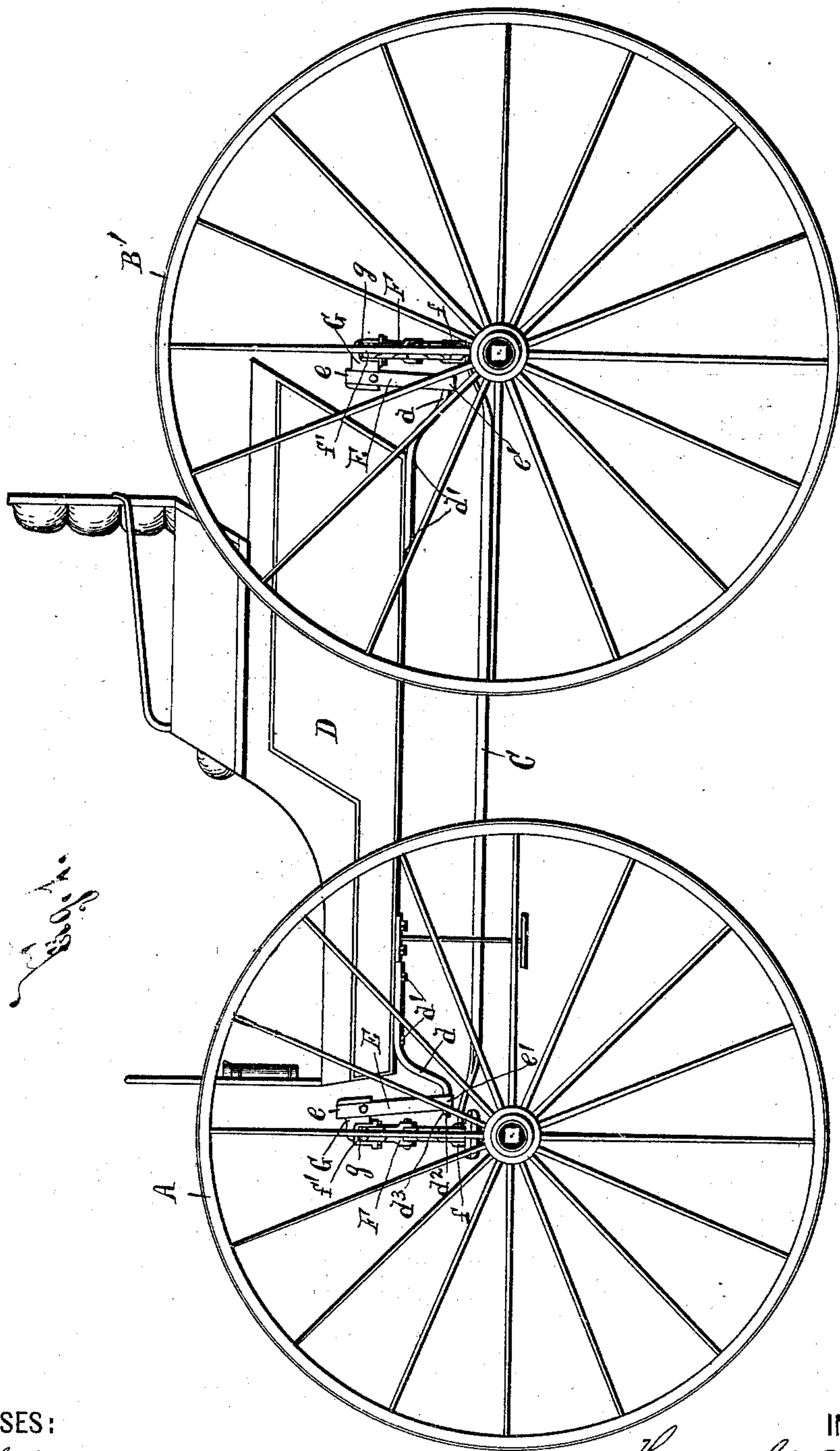
(No Model.)

H. S. VAN PATTEN.  
VEHICLE.

2 Sheets—Sheet 1.

No. 509,975.

Patented Dec. 5, 1893.



WITNESSES:

L. Schoeneck,  
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INVENTOR

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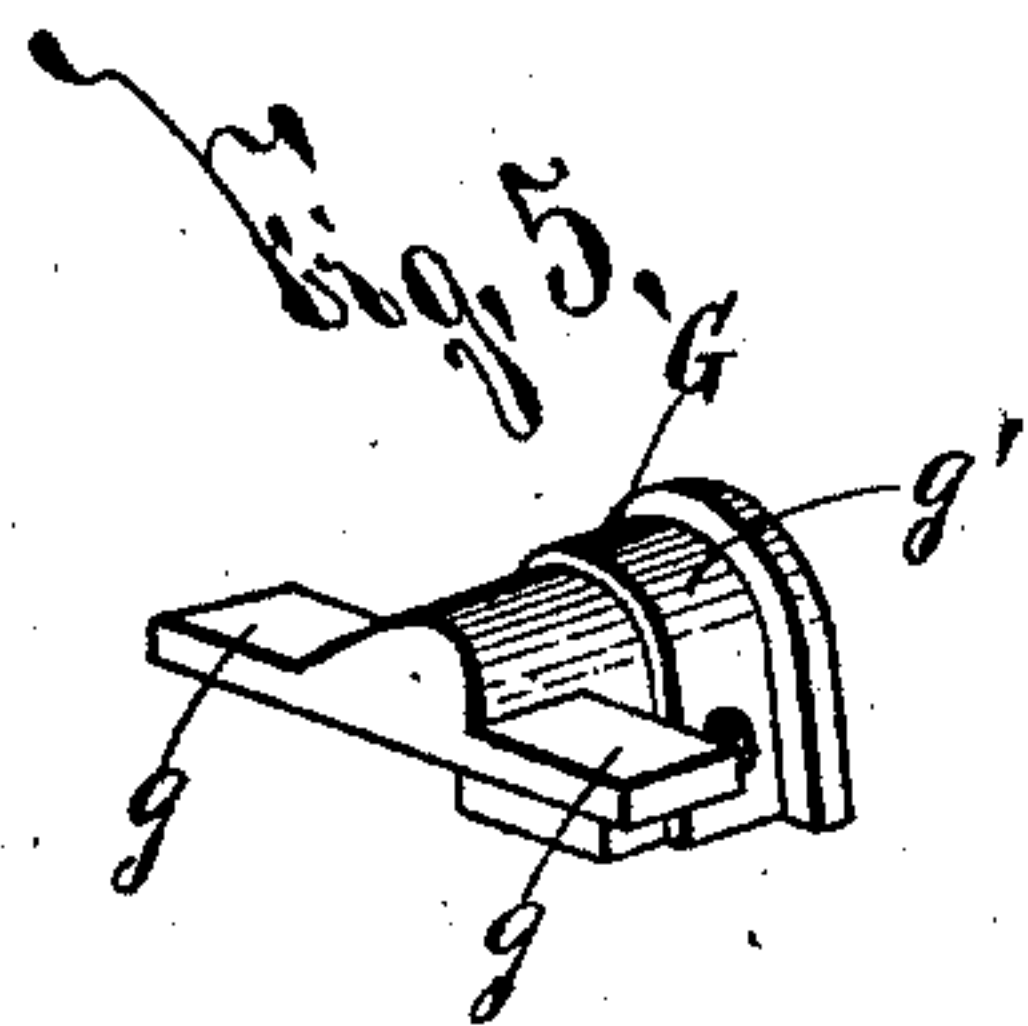
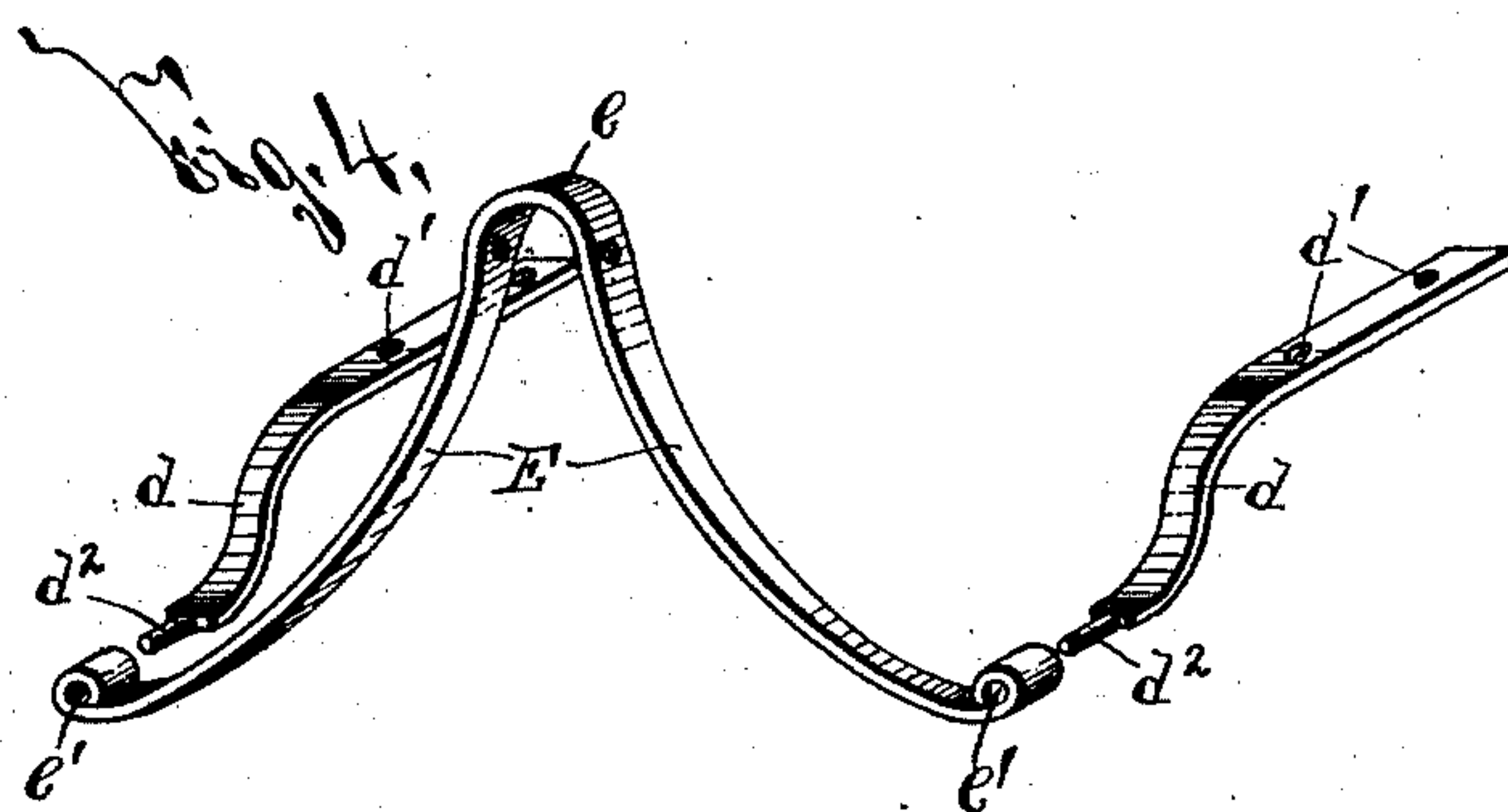
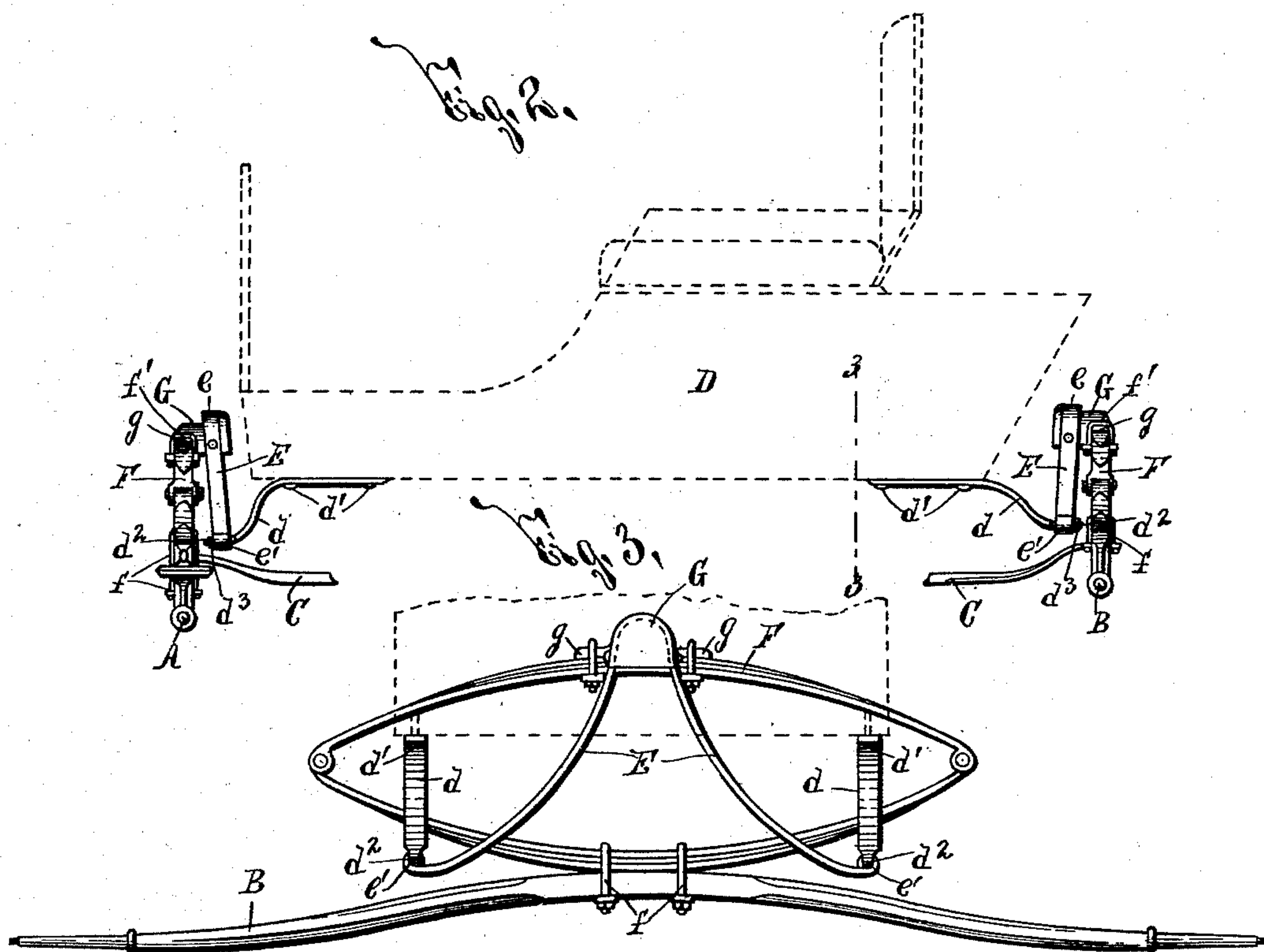
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2 Sheets—Sheet 2.

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VEHICLE.

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WITNESSES:

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# UNITED STATES PATENT OFFICE.

HORACE S. VAN PATTEN, OF MANLIUS, NEW YORK.

## VEHICLE.

SPECIFICATION forming part of Letters Patent No. 509,975, dated December 5, 1893.

Application filed September 5, 1893. Serial No. 484,843. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE S. VAN PATTEN, of Manlius, in the county of Onondaga, in the State of New York, have invented new and  
5 useful Improvements in Vehicles, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in  
10 vehicles of the class set forth in my pending application, Serial No. 451,724, and has for its object the production of a vehicle in which the body is supported by springs of great flexibility having an easy and natural move-  
15 ment, and capable of as easy and practical an action when the body is tilted as when it is moved in a perpendicular plane; and to this end it consists, essentially, in diverging substantially vertical or upright springs arranged  
20 at the side of the vehicle body and having their adjacent ends supported on the running gear and their opposite ends connected to the vehicle body, and in the general construction and arrangement of the parts, all as herein-  
25 after more particularly described and pointed out in the claims.

In describing this invention, reference is had to the accompanying drawings, forming a part of this specification, in which like letters  
30 indicate corresponding parts in all the views.

Figure 1 is an elevation of a vehicle embodying my invention. Fig. 2 is an elevation of the vehicle shown at Fig. 1, the body being indicated by dotted lines, and all of the running gear, with the exception of the front and rear axles being omitted for the purpose of more clearly illustrating the invention. Fig. 3 is a transverse vertical sectional view, taken on line 3—3, Fig. 2. Fig. 4 is an isometric  
40 perspective of a pair of the diverging substantially upright springs and the depending arms secured to the vehicle body and loosely connected to the lower or separated ends of said springs; and Fig. 5 is an isometric per-  
45 spective of the detached supporting arm for the spring shown at Fig. 4.

In my aforesaid application, Serial No. 451,724, I have shown a cart in which the seat is supported by a pair of oppositely arranged  
50 springs similar in construction and arrangement to the springs supporting the body of my present invention.

The running gear is of any desirable form, size, and construction, being provided with the usual front and rear axles A B, wheels  
55 A' B', and connecting reach C between the axles A B.

The vehicle body D is of desirable form, size, and construction, and is preferably provided at each end with depending arms  $d$  hav-  
60 ing their upper ends secured at  $d'$  to the under face of the vehicle body and their opposite ends provided with spindles  $d^2$  extending in planes substantially parallel with the lengthwise plane of the vehicle body. 65

E E are diverging substantially upright springs having their adjacent or upper ends suitably supported upon the running gear and their lower or separated ends loosely connected to the depending arms  $d$   $d$  secured to  
70 the body D. These springs are preferably arranged between the front and rear axles of the running gear at the outside of the adjacent portions of the corresponding ends of the vehicle body and each preferably consists  
75 of the opposite arms or ends of a single spring bar having a rounding central portion  $e$ , and provided at its opposite ends with eyes  $e'$   $e'$  for receiving the spindles  $d^2$   $d^2$  of the arms  
80  $d$   $d$ . Suitable fastening means as nuts  $d^3$  are provided upon the outer ends of the spindles  $d^2$  for preventing disengagement therefrom of the eyes  $e'$   $e'$ . Instead of being supported  
85 directly upon the front and rear axles A B the upper ends of the springs E E are preferably mounted upon elliptical or other suitably  
90 shaped springs F F arranged directly above the axles A B and secured thereto at  $f$ . The central portions of the upper parts or sections of the springs F are provided with lat-  
95 eral arms G G extending inwardly or toward each other and having their inner ends suitably secured to the springs E E. As preferably constructed the arms G G are each provided at one end with feet  $g$   $g$  secured by  
100 clips  $f'$  to the corresponding spring F, and are each formed at their opposite ends with rounding engaging faces  $g'$  upon which are mounted the centrally curved portions  $e$   $e$  of the spring bars forming the springs E E.

In operation, as the vehicle moves up and down, the lower ends of the springs E are approximated or separated, and the springs F expand or contract, and, as the vehicle body



tilts toward either side, cramping or unequal pressure upon the springs is prevented, since each side of both ends of the vehicle body is supported upon the separated ends of diverging springs, the upper ends of which are secured to the central portions of the upper sections of the spring F, and thus have a certain pivotal movement thereon, and tend to transfer the movement of the body directly to the central portion of the springs F F instead of upon one side thereof as would be the case were the vehicle body supported in an ordinary manner upon the springs F F without the intervention of the substantially upright springs E E.

The operation of my invention will be readily perceived from the foregoing description and upon reference to the drawings, and it will be particularly noted that the same is economically manufactured, consists of a few parts, is extremely efficient and durable in operation, rides even over rough ground with great ease and convenience to the occupant, and that, when the body is tilted toward either side, the springs supporting the same operate with as little freedom from cramping as when the body is moved up and down without tilting. It is evident, however, that the diverging substantially upright springs may be used at only one end or side of the vehicle body, and that the other end or side thereof may be otherwise connected to the running gear, and that the detail construction and arrangement of the substantially upright springs E E may be considerably varied without departing from the spirit of my invention.

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

1. In a vehicle, the combination with the running gear and the vehicle body; of diverging substantially upright springs having their adjacent ends supported on the running gear and their opposite ends connected, substantially as described, to separated points of one end of the vehicle body, and suitable connections between the running gear and the opposite end of the vehicle body, substantially as and for the purpose described.

2. In a vehicle, the combination with the running gear and the vehicle body; of a pair of depending arms secured to each end of the vehicle body, and diverging substantially upright springs at each end of the vehicle body having their adjacent ends supported on the running gear and their opposite ends connected, substantially as described, to the depending arms secured to the vehicle body, substantially as and for the purpose specified.

3. In a vehicle, the combination with the running gear and the vehicle body; of a spring mounted on the running gear, diverging substantially upright springs having their adjacent ends supported on the former spring and their opposite ends connected, substantially as described, to the adjacent end of the vehicle body, and suitable connections between

the running gear and the opposite end of the vehicle body, substantially as and for the purpose described.

4. In a vehicle, the combination with the running gear and the vehicle body; of an elliptical spring mounted on the running gear, diverging substantially upright springs having their adjacent ends supported on the central portion of the upper part or section of the former spring and their opposite ends connected, substantially as described, to the adjacent end of the vehicle body, and suitable connections between the running gear and the opposite end of the vehicle body, substantially as and for the purpose set forth.

5. In a vehicle, the combination with the running gear and the vehicle body; of oppositely arranged springs mounted on the running gear and provided with arms extending laterally toward each other, substantially upright springs at the ends of the body having corresponding ends secured to said arms and their opposite ends connected to the body, substantially as and for the purpose described.

6. In a vehicle, the combination with the running gear and the vehicle body; of oppositely arranged elliptical springs mounted on the running gear, arms detachably secured to said springs and extending laterally therefrom toward each other, and substantially upright springs at the ends of the body having corresponding ends detachably secured to said arms and their opposite ends connected to the body, substantially as set forth.

7. In a vehicle, the combination with the running gear and the vehicle body; of oppositely arranged elliptical springs mounted on the running gear, arms detachably secured to said springs and extending laterally therefrom toward each other, substantially upright springs at the ends of the body having corresponding ends detachably secured to said arms, and depending arms secured to the opposite ends of the body and loosely secured to the opposite ends of the substantially upright springs, substantially as and for the purpose described.

8. In a vehicle, the combination of the running gear and the vehicle body; of oppositely arranged springs mounted on the running gear, and substantially upright springs at the ends of the body inclining inwardly toward each other from their upper ends and having their upper ends supported on the former springs and their lower ends connected to the body, substantially as described.

9. In a vehicle, the combination with the running gear provided with front and rear axles and the vehicle body; of oppositely arranged elliptical springs mounted upon said axles, a pair of diverging substantially upright springs arranged at the inner or adjacent sides of the former springs at each end of the vehicle body and having their lower ends separated a greater distance than their upper ends, said upper ends being supported on the central portions of the elliptical springs



and said lower ends being loosely connected to said vehicle body, substantially as specified.

10. In a vehicle, the combination with the  
5 running gear and the vehicle body; of a spring mounted on the running gear, and diverging substantially upright springs consisting of the opposite arms or ends of a spring bar having its central portion supported on the former  
10 spring and its opposite ends connected to the vehicle body, substantially as described.

11. In a vehicle, the combination with the running gear and the vehicle body; of a spring mounted on the running gear, an arm having  
15 feet secured to the former spring, and having a projecting end formed with a bearing face,

and diverging substantially upright springs consisting of the opposite arms or ends of a spring bar having its central portion supported on said arm and secured to said bearing 20 face and its opposite ends connected to the vehicle body, substantially as set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county 25 of Onondaga, in the State of New York, this 25th day of May, 1893.

HORACE S. VAN PATTEN.

Witnesses:

CLARK H. NORTON,  
K. H. THEOBALD.