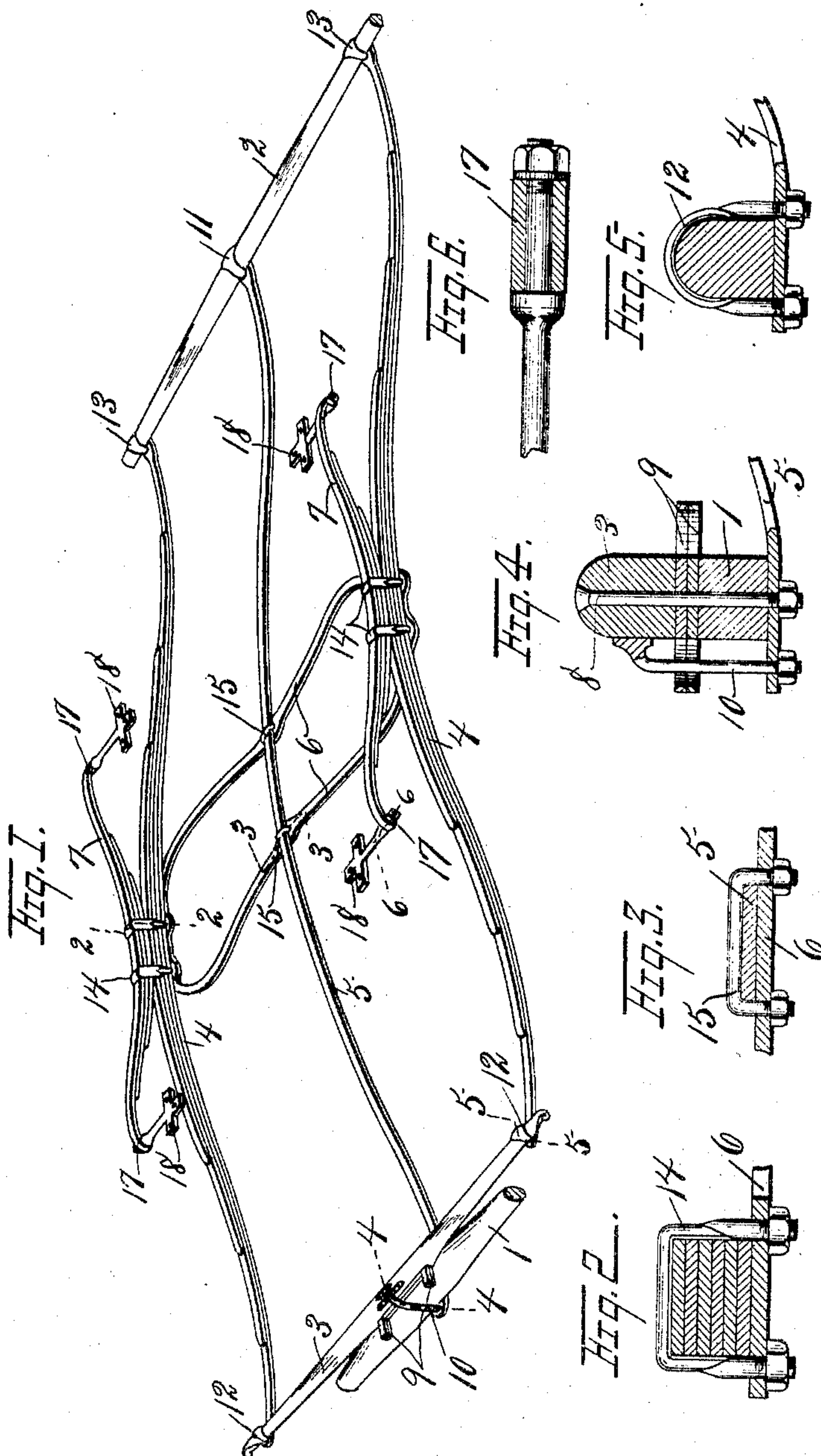


No. 780,326.

PATENTED JAN. 17, 1905.

F. G. DAVIS.
VEHICLE.

APPLICATION FILED FEB. 2, 1904.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANCIS G. DAVIS, OF WATERTOWN, NEW YORK, ASSIGNOR TO H. H. BABCOCK COMPANY, OF WATERTOWN, NEW YORK, A CORPORATION OF NEW YORK.

VEHICLE.

SPECIFICATION forming part of Letters Patent No. 780,326, dated January 17, 1905.

Application filed February 2, 1904. Serial No. 191,755.

To all whom it may concern:

Be it known that I, FRANCIS G. DAVIS, of Watertown, in the county of Jefferson, in the State of New York, have invented new and useful Improvements in Vehicles, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in vehicles, and refers more particularly to certain improvements in the spring-gear set forth in my Patent No. 415,096, issued November 12, 1889, in which the ends of the side springs and central spring-perch are rigidly secured, respectively, to the front bolster and to the rear axle and their intermediate portions tied together by transverse bars or braces.

The object of my present invention is to mount the body of the vehicle directly upon supplemental side springs which are seated on the main side springs, whereby a greater elasticity in the action of the gear is secured and the strain upon the rigid connections of the side and perch springs with the bolster and rear axle is reduced to a minimum.

Other objects and uses will appear in the following description.

In the drawings, Figure 1 is a perspective view of a spring-gear embodying the features of my invention. Figs. 2, 3, 4, 5, and 6 are detail sectional views taken, respectively, on lines 2 2, 3 3, 4 4, 5 5, and 6 6, Fig. 1.

Similar reference characters indicate corresponding parts in all the views.

This gear comprises front and rear axles 1 and 2, a bolster 3, side springs 4, a perch-spring 5, tie-braces 6, and auxiliary body-supporting springs 7. The front axle 1 and bolster 3 are connected by a king-bolt 8 and are equipped with suitable fifth-wheel sections 9, the king-bolt in this instance passing through central apertures in the front axle and bolster, as seen in Fig. 4. The perch-spring 5 connects the central portions of the axles and is continuous from end to end, the front end being rigidly secured to the under side of the front axle by the king-bolt 8 and also by an additional brace-bolt 10, which is secured to

the front face of the bolster and extends downwardly in front of the front axle and is clamped to the front end of the perch-spring while the rear end of said perch-spring is secured to the under side of the rear axle by a suitable clip 11. The main side springs 4 connect the opposite ends of the bolster 3 to the rear axle 2 and are disposed substantially parallel with each other equidistant from the central perch-spring 5, with their front ends rigidly secured to the under sides of the bolster 3 by clips 12 and their rear ends also rigidly secured to the under side of the rear axle 2 by suitable clips 13. The central portions of these side springs 4 are arched upwardly and are reinforced by a suitable number of leaves, depending upon the use to which the vehicle is adapted, and the perch-spring 5 is also arched upwardly to bring its center in substantially the same horizontal plane as the lower faces of the side springs.

The tie-brace 6 consists of an open metal frame forming transverse bars tied together at the end and having their opposite ends rigidly secured to the under sides of the springs 4 by clips 14 and their intermediate portions rigidly secured to the under faces of the perch-bar 5 by clips 15, thereby rigidly holding the parts 4 and 5 in fixed relation to each other as against any independent lateral movement.

The supplemental side springs 7 are semi-elliptical and are disposed parallel with the main side springs with the centers arched downwardly and their convex faces seated centrally on the upper faces of the main side springs and secured thereto by the clips 14, which also serve to clamp the ends of the brace 6 in place. These auxiliary side springs 7 are somewhat shorter than the main springs 4, and their front and rear ends are formed with eyes 17, in which are secured suitable plates 18 for supporting the body of the vehicle, the plates of opposite springs projecting inwardly from their points of securement in the eyes 17 and are preferably T-shaped and formed with apertures to receive the bolts or screws, whereby the body is secured to said plates.

It is now evident that the body is carried directly by the auxiliary springs, which afford a light resilient action for light loads, and that the heavier springs are brought into
 5 action as the load increases, thus producing a self-adjusting spring resistance proportionate to the load carried by the body.

By rigidly securing the ends of the main and perch springs to the rear axle the latter
 10 is free to rock to conform to different chords of the varying arcs as the centers of the springs are elevated and depressed, and this also avoids the use of pivotal shackles or stirrups, which soon become worn and cause more or
 15 less rattling of the parts. For this reason the braces and springs are rigidly tied together, and this rigidity also establishes a uniform action of the springs as the load is shifted from one side to the other or in front or at
 20 the rear of the center of support.

The above description, taken in connection with the drawings, is believed to be sufficient to enable any one skilled in this art to make and operate the invention.

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

1. The combination with the front and rear
 30 axles and bolster of a vehicle, of main side springs rigidly secured to the rear axle and bolster, a central perch-spring rigidly secured to the bolster and rear axle separate from the body of the vehicle and to the main side
 35 springs, and auxiliary side springs resting on the main side springs and parallel with the perch-spring and having their ends free and disconnected from the perch, and means on the free ends of the auxiliary springs to support the body.

40 2. In combination with the front and rear axles and front bolster of a vehicle, a spring-platform comprising main side springs having their front and rear ends secured respectively to the rear axle and to the bolster, a
 45 central lengthwise perch-spring secured to the axles, auxiliary springs mounted centrally upon the main springs and having their ends free and disconnected from the perch-spring, a tie-brace consisting of a single piece of ma-

terial in the form of a substantially rectangular frame secured to the central portions of the
 50 main and auxiliary springs and perch-spring, and means in the free ends of the auxiliary springs for supporting the body of the vehicle.

3. In combination with the front and rear
 55 axles and front bolster of a vehicle, a spring-platform comprising side springs and a perch-spring rigidly connected to the rear axle and bolster, shorter auxiliary side springs mounted centrally on the main springs and having
 60 their ends free from connection with the perch-spring, supports for the vehicle-body mounted on the free ends of the auxiliary springs, a transverse tie-brace arranged centrally under the main side springs and secured to the perch-
 65 spring at two points, and clamps securing the auxiliary springs and adjacent ends of the tie-brace to the main springs.

4. The central spring-perch, in combination
 70 with the front and rear axles and bolster, the perch being rigidly connected to the under side of the rear axle and passing centrally under the front axle and rigidly secured to the bolster, side springs rigidly connected to the rear axle and bolster, auxiliary side springs
 75 secured to the former side, springs and each having inwardly-projecting T-shaped arms at opposite sides of its center to support the body of the vehicle.

5. The combination with the front and rear
 80 axles and bolster of a vehicle, side springs having their rear ends rigidly secured to the under side of the rear axle and their front ends rigidly connected to the bolster, auxiliary side springs rigidly secured to the main side
 85 springs, and having means to support the body of the vehicle and a substantially rectangular one-piece brace having its opposite ends rigidly connected to the under side of the main side springs and its central portion
 90 secured to the perch-spring.

In witness whereof I have hereunto set my hand this 28th day of January, 1904.

FRANCIS G. DAVIS.

Witnesses:

J. C. AYERS,
 W. H. HATHWAY.