J. LEDWITH.

SIDE-SPRING WAGON.

No. 186,426. Patented Jan. 23, 1877.

Fig. 1.

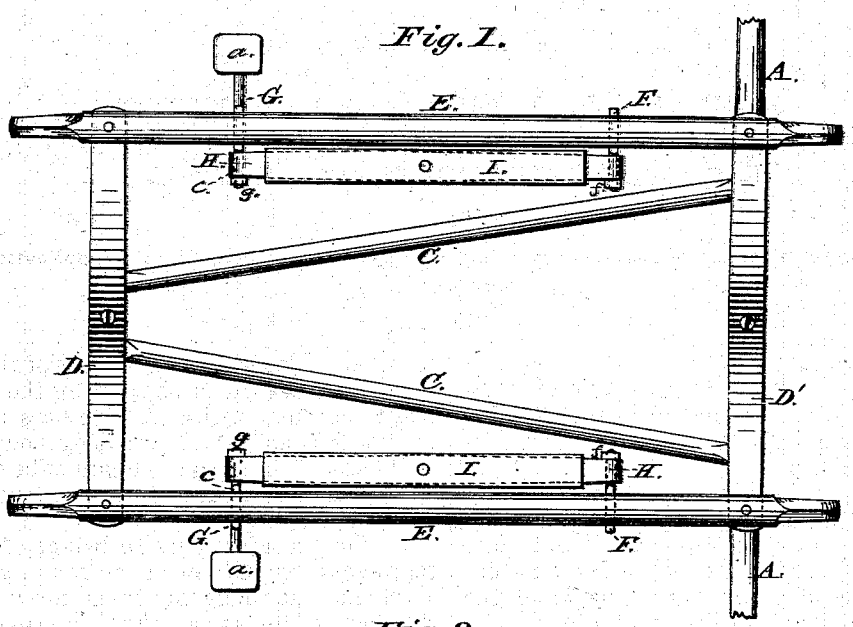


Fig. 2.

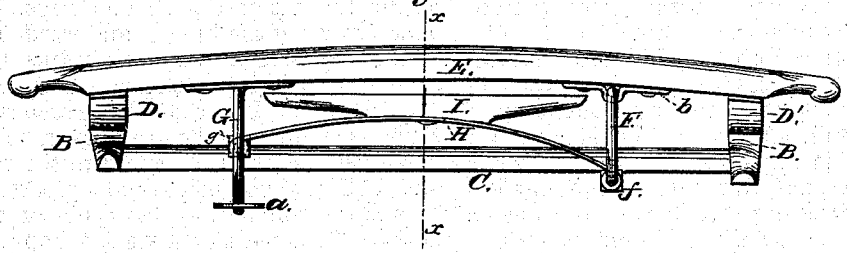


Fig. 3.

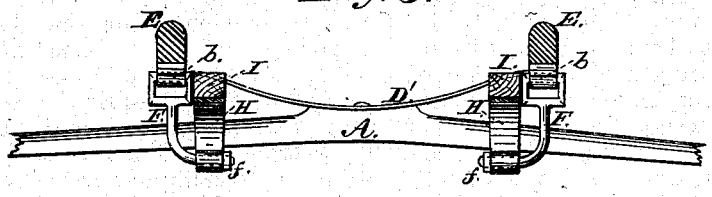


Fig. 4.

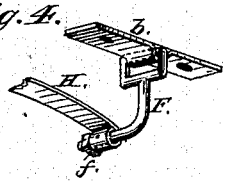
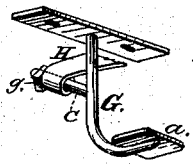


Fig. 5.



Witnesses:

J. H. Wall

H. C. H. Burton.

Inventor:

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by Wm. E. Spraue

atty.

UNITED STATES PATENT OFFICE

JAMES LEDWITH, OF MADISON, WISCONSIN.

IMPROVEMENT IN SIDE-SPRING WAGONS.

Specification forming part of Letters Patent No. **186,426**, dated January 23, 1877; application filed December 7, 1876.

To all whom it may concern:

Be it known that I, JAMES LEDWITH, of Madison, county of Dane and State of Wisconsin, have invented an Improved Running-Gear for Vehicles.

The following description, taken in connection with the accompanying plate of drawings, hereinafter referred to, forms a full and exact specification, wherein are set forth the nature and principles of the invention, by which the same may be distinguished from others of a similar class, together with such parts thereof as are claimed as new, and are desired to be secured by Letters Patent of the United States.

My invention relates to that class of vehicle-springs in which the body is mounted upon hangers to obtain a low set. For this purpose the side springs have been rigidly connected to the hangers, and therefore without the advantage of yielding to sudden concussions or strains upon the springs. Jointed or hinged hangers have also been used at both ends of side springs; but this construction allows freedom for the springs to yield both frontward and backward to the sudden thrusts of the body, which is objectionable.

My improvements are designed to give the side springs freedom to yield backward only; and for this purpose I have combined with the side springs a rigid front hanger and a hinged rear hanger, in order thereby to obtain the requisite yielding freedom of the springs at their rear ends while affording a rigid brace-connection for their front ends, and thereby prevent all liability of the spring from being thrown forward suddenly and endanger throwing of the occupants out, or producing uncomfortable forward jerks. This construction, moreover, renders the spring-connections more durable and cheaper to manufacture.

The springs are secured to the hangers in a manner to allow them to be readily detached for repairs or replacement by others. The fixed hangers serve as supports for the usual steps, and for this purpose are extended below the connection with the springs. The hinged hangers are bent arms, with screw-threaded ends, and the springs are secured thereon by screw-nuts, while these hangers are secured to brackets of the side bars by rectangular eyes, confined in sockets of said brackets. The bent ends or arms of the hangers extend inward, so as to bring the bolsters and the springs within the side bars, and give perfect freedom for a low-setting body within said bars. This advantage cannot be obtained by the hangers as heretofore constructed and connected.

In the accompanying drawings, Figure 1 represents a plan view of the running-gear of a vehicle embracing my invention; Fig. 2, a side view of the same; Fig. 3, a cross-section on the line *x x* of Fig. 2; and Figs. 4 and 5, detail views of the hinged and rigid hangers.

The rear axle A and head-blocks B B are connected by the usual perch C C, or in any suitable way. The front axle is secured in the ordinary manner to the head-block. Inverted bow-springs D D′ are secured to the rear axle and the front head-block, and support the side bars E E, which may be made of wood or metal. To these side bars the hangers F G for the side springs H are secured, and upon these springs the body is supported and secured to the bolsters I, which, for this purpose, are arranged within or between the side bars, as shown in Figs. 1 and 3, so as to give position of the body as low down between said bars as possible. The rear hangers F are hinged by brackets or plates *b* to the side bars, and are therefore free to vibrate or yield with the rear ends of the spring H, while the front hangers G are rigidly secured to said side bars. The rear hangers F are secured to the brackets *b b* by rectangular eyes *i*, which fit into sockets in said brackets, while their lower ends are curved or bent inward to form the connection with the ends of the side springs, which are secured by screw-nuts *f*, as shown in Fig. 4. The front rigid hangers G are provided with inwardly-projecting arms or studs *c*, upon which the front ends of the springs H are secured by screw-nuts *g*, while said fixed hangers are extended below the arms *c*, and curved or bent outward to form the side steps *a*. The supports for the side springs being very low allows them to be cambered boldly, so as to afford a very strong, and yet sensitive, bearing for the body. By increasing or decreasing the length of the hangers, the body can be hung to suit different heights, as desired, and without interfering with the

use of high wheels. The side bars E, being subjected to great torsional strain, and forming parts of the entire spring-frame, are, preferably, made of steel or tough wood.

The step-hanger and spring-support may be made in one piece or otherwise. The jointed hangers F require no bolts to secure them to the side bars, but they simply rest in sockets, and are confined by the side bars, to the under sides of which the bracket-plates *b* are bolted. The inward-curved hangers give important advantages in applying the spring and body-supporting bolsters in the space between the side bars, while the manner of securing the springs upon the curved arms will keep them in place in the event of the unscrewing of their confining-nuts, as the body-connections will retain the springs upon their bearings.

I claim—

1. The combination, with the side springs H H, of hinged rear hangers F F and rigidly-connected front hangers G G, substantially as and for the purpose herein set forth.

2. The fixed and hinged hangers F G, having inwardly-curved bearing-arms for the springs, in combination with the side bars E E, and the bolsters I I, whereby the latter are brought between the side bars to support the body low, as described.

In testimony that I claim the foregoing I have hereunto set my hand this 23d day of November, 1876.

JAMES LEDWITH.

Witnesses:

CHAS. ALB. EBERT,

E. A. SPENCER.