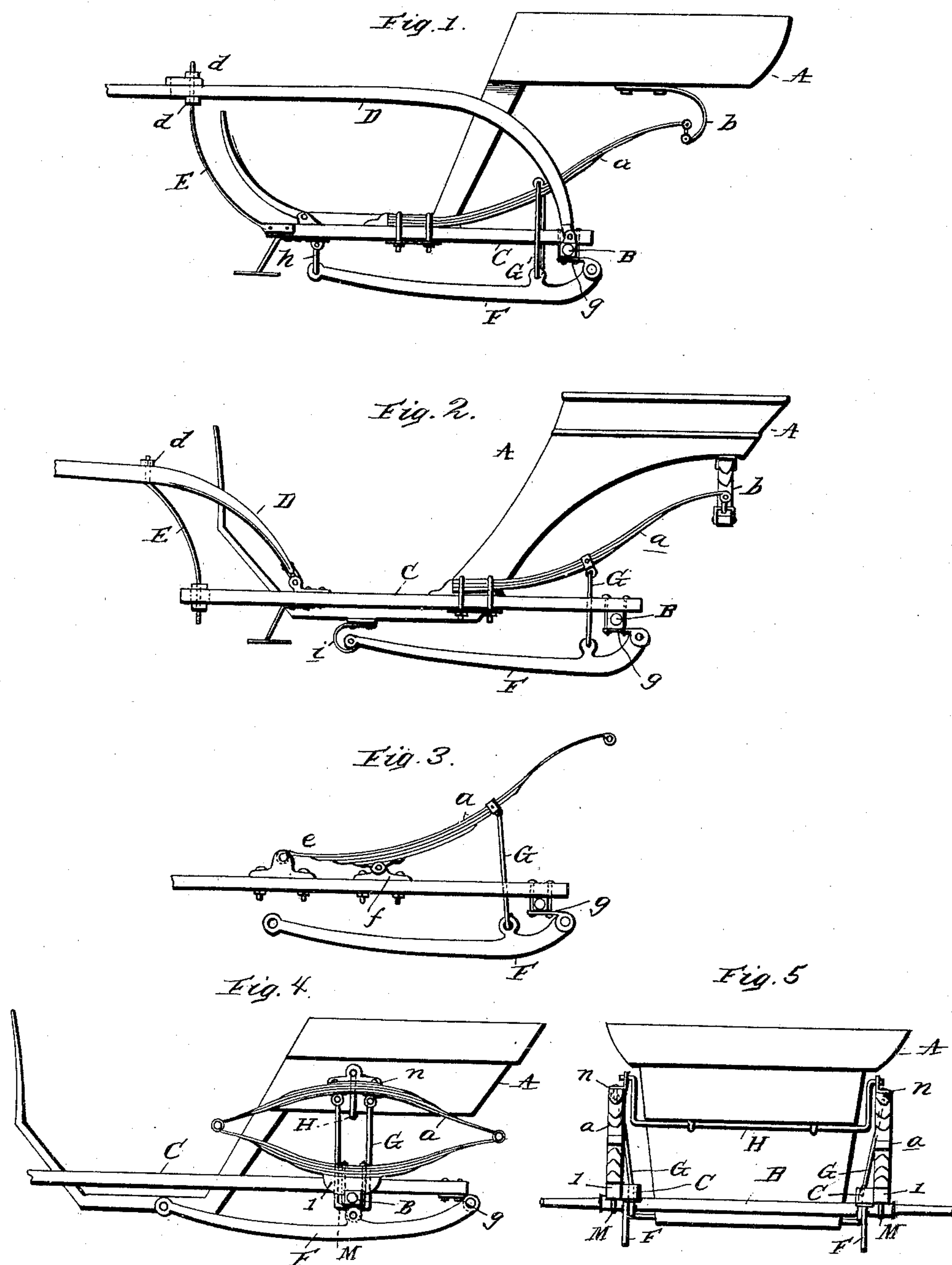


(No Model.)

W. J. RAWLINGS.  
VEHICLE SPRING.

No. 434,994.

Patented Aug. 26, 1890.



Witnesses  
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# UNITED STATES PATENT OFFICE.

WILLIAM J. RAWLINGS, OF OTTAWA, OHIO.

## VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 434,994, dated August 26, 1890.

Application filed March 21, 1890. Serial No. 344,804. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. RAWLINGS, a citizen of the United States, residing at Ottawa, in the county of Putnam and State of Ohio, have invented certain new and useful Improvements in Vehicle-Springs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to carts, carriages, sulkies, and the like, and is designed as an improvement upon the invention shown and described in the application for Letters Patent filed by me October 24, 1889, Serial No. 328,104.

The novelty will be fully understood from the following description and claims when taken in connection with the annexed drawings.

Figure 1 is a side elevation of a cart-body with the shafts partly broken away, and Fig. 2 is a similar view showing a slight modification. Fig. 3 is a detail view of another modification. Fig. 4 is another view of a modification, and Fig. 5 is a rear view of Fig. 4.

Referring by letter to said drawings, A indicates the body, which is here illustrated as that of a village cart or light speeding cart, although it may be that of any suitable vehicle having by preference an elevated seat, and B indicates the axle, such as usually employed in this class of vehicles.

C indicates lateral bars, there being one on each side of the body, and these bars are connected with the body by means of semi-elliptical or other suitable springs, as will be presently explained.

In Figs. 1 and 2 of the drawings I have shown curved leaf-springs *a*, having their forward ends secured to the lateral bars C by clips and their upper rear ends secured to the ends of springs *b*, which are in turn connected with the body beneath the seat portion thereof. In Fig. 1 these springs *b* are shown single and assume a position longitudinally with respect to the body, while in Fig. 2 I have shown a leaf-spring beneath the seat, and its opposite ends connected by shackles or otherwise with the rear ends of the leaf or flat springs *a*.

I do not wish to confine myself to any

specified form of spring or springs used at these points, as it is only necessary that a spring-connection be had between the side bars and the body, as will hereinafter more fully appear.

D indicates the thills or shafts. These shafts may be connected at their rear ends by shackles or clips with the rear ends of the side bars or axle, as shown in Fig. 1, or they may be clipped to said bars at a suitable point, as shown in Fig. 2.

The forward ends of the bars C are connected with the shafts by a rod E. These rods E, as shown in Fig. 1, may be fixed at one end to the forward ends of the bars C, and the upper or opposite end of said rods threaded and adjustably secured to the shafts by nuts *d*, or other suitable fastening devices, or the rods may be rigidly secured at one end to the shafts and adjustably secured to the forward portions of the said bars, or in some cases the rods may be adjustably secured to both the bars and shafts. The rods may be curved to suit the shape of the dash or the fancy of the mechanic. The lateral springs *a*, as before described, are secured at one end to the side bars C, and by reference to Fig. 3 of the drawings it will be seen that these springs may be fulcrumed on the bars at an intermediate point. The spring *a* (shown in Fig. 3) has its forward end secured to the side bar *a* at *e*, and at a sufficient point in rear of its forward end it has a bearing on said bar through the medium of a block *f* and shackle or the like. Said shackle is adjustable and slides on the bar to stiffen or weaken the spring, as the case may require.

F indicates a lateral lever, there being one employed on each side of the body, and may be made of spring-leaves or any suitable metal in a solid piece. These levers have their rear ends clipped or connected by shackle to the axles or the rear ends of the side bars, as shown at *g*, and their forward ends may be connected to the forward portion of the body by a link *h*, as shown in Fig. 1, or a spring *i*, as shown in Fig. 2, while in other cases the levers may remain disengaged from the body at their forward ends, as shown in Fig. 3, and if desirable these disconnected ends may be connected with each other by a rod or a transverse spring passing beneath the body and



attached to the same. It will be observed in Fig. 2 that owing to the make-up of the cart the spring-bars C have their forward ends arranged at a more advanced point than the bars in the construction of Fig. 1, and in Fig. 4 the lateral levers have their rear ends connected to the spring-bars instead of to the axle. Slightly in advance of the rear ends the levers F are provided with an eye, as shown, which is designed to receive the lower end of a stay-rod G. These rods may be single or double, and are designed to connect the lateral springs and levers. In using a single rod, as shown in Figs. 2 and 3, its upper end is clipped to the lateral springs about midway the length of the latter, and after passing through the spring-bar C is hooked in the eye of the lateral levers, thereby connecting the levers with the lateral springs, and consequently the body is connected through a system of springs and levers with the axle and side bars in such a manner that any weight placed in the body will be equalized or distributed and the seat and body always made to retain a similar horizontal position, the levers, bars, and springs being so arranged and connected as to obviate sulky motion and transmit the weight to the axle without respect to the particular point at which the weight is brought upon the body.

By special reference to Figs. 4 and 5 of the drawings it will be seen that I employ elliptic springs for supporting the body, and these springs have their lower bearing in a block l, which is clipped to the axle by a clip or yoke m, and the upper half of said springs, which are arranged laterally with respect to the body, are secured to plate n, (better shown in Fig. 5,) and in these plates are journaled the opposite ends of a rod or shaft H. This rod or shaft H, which extends transversely beneath the body and seat portion thereof, has its opposite ends cranked, as shown, and said shaft is designed to form a rest for the body. The plates N, and consequently the springs to which they are secured, are connected with the lateral levers F by stay-rods G. These rods may make their connection to the top half of the spring or may be connected midway between center and end of the lower half of the spring. These rods are preferably of loop

form and pass down and around the lower side of the axle, where they are connected with the intermediate eye of the lateral levers by a pin or any suitable fastening device. The lateral levers F are secured at their forward ends to the body without the employment of links or springs such as shown in the other figures, although the other fastenings may be used. By the employment of this cranked rod or shaft, which is pivoted in the springs, the body is allowed to swing freely, and thereby take up the horse or sulky motion, while by the construction shown in Fig. 3 greater vibration and elasticity may be had. I have also found it desirable in some cases to make the brace-rod E in two parts, one of the parts having a right and the other a left thread, and employ a turn-buckle for adjustably securing them.

Having described my invention, what I claim is—

1. The combination, with the axle and side bars, of a body supported on said bars by springs, and lateral levers fulcrumed at their rear ends and connected at an intermediate point directly with the springs supporting the body, substantially as specified.

2. The combination, with the axle and side bars, of a body supported on said bars by springs, lateral levers fulcrumed at their ends and connected to the body at their forward ends, and connections between the springs and levers, substantially as specified.

3. The combination, with the lateral springs, of the lateral levers fulcrumed at their rear ends and connected in advance of their fulcrum-point with said springs, substantially as specified.

4. The combination, with the body, of the crank rock-shaft supporting the same, the lateral springs supporting the rock-shaft, the stay-rods, and the lateral levers fulcrumed at their rear ends and connected at an intermediate point with the stay-rods, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM J. RAWLINGS.

Witnesses:

E. R. EASTMAN,

W. W. WARD.