C. W. SALADEE.
Vehicle-Spring.

No. 209,426. Patented Oct. 29, 1878.

Fig. 1.

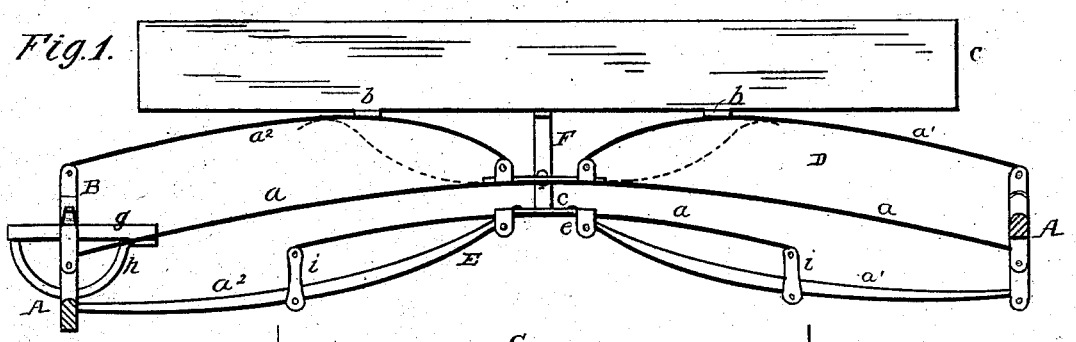


Fig. 2.

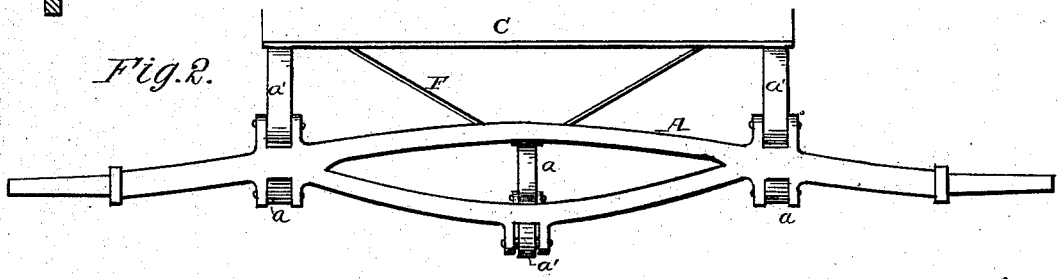


Fig. 3.

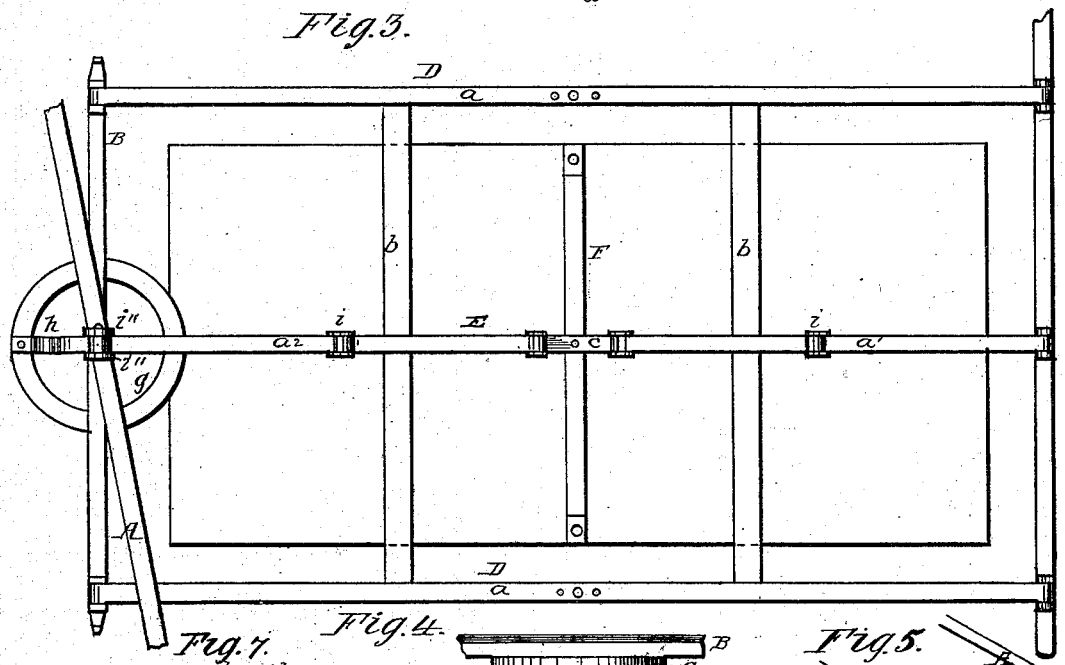


Fig. 4.

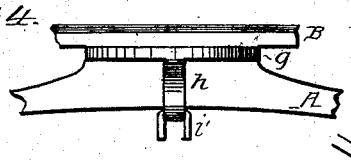


Fig. 5.

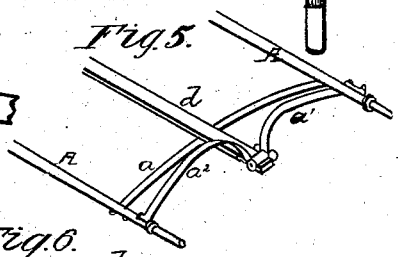


Fig. 7.

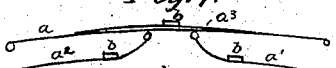
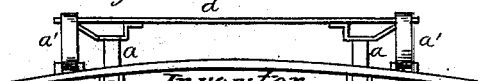


Fig. 8.

Fig. 9.

Fig. 10.

Fig. 6.



Attest:
J. Benjamin.
Ed. Welsh

Inventor
C. W. Saladee By his attorney
Charles E. Foster

UNITED STATES PATENT OFFICE.

CYRUS W. SALADEE, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **209,426**, dated October 29, 1878; application filed May 25, 1878.

To all whom it may concern:

Be it known that I, CYRUS W. SALADEE, of Washington, District of Columbia, have invented certain Improvements in Vehicles, of which the following is a specification, embodying my said invention.

To enable others skilled in the art to make and use my invention, I herewith submit the following general description.

The objects of my invention are to obtain an elastic support for the body of a vehicle, to prevent the same from tilting when loaded at the ends or sides, and to afford a spring-connection between the axles; and these I effect by the use of springs, constructed and applied as fully described hereinafter.

The invention further relates to details in the construction of the vehicle.

In the accompanying drawing, which forms part of this specification, Figure 1 is a side elevation of a road-wagon with my improvements; Fig. 2, a rear view; Fig. 3, an inverted plan; Fig. 4, a detached view; Figs. 5 and 6, views showing different modes of applying the springs; and Figs. 7 to 10, modifications of the springs.

A A are the axles, B the bolster, C the body, all of any suitable construction. At each side of the body is a compound spring, D, having three or more members, the springs shown in Figs 1, 2, and 3 consisting each of a semi-elliptic spring, *a*, and two curved bars or springs, a^1 a^2. The spring *a* is clipped below the bolster and rear axle, and the outer end of the member a^2 is clipped above the bolster, and the outer end of the member a^1 above the rear axle, the inner ends of both being suitably connected to the spring *a* near the center. The body rests on the members a^1 a^2 through the medium of cross-bars *b*, or other equivalent means, secured at the ends to and bearing on the members, as shown. Thus supported the body has a stable, yet elastic, bearing, the springs D connecting the axles, if necessary, without the aid of a perch, and, owing to their connections above and below the axles, preventing the rotation of either axle under the movements of the body.

Increased elasticity is afforded by the action of the members a^1 a^2, which flatten under the pressure of the body in unison with the motion of the spring *a;* but the members a^1 a^2 may be of rigid unyielding material, as forged iron or wood, in which case the elasticity will be in the spring *a*, while the members a^1 a^2 will center the weight of the body on the under spring, and will at the same time prevent any rotation of the axles.

Another important result in this instance will be the retention of the body very nearly in its horizontal position, as a weight at either end will act to depress the spring *a* at the center, with an almost uniform depression of all parts of the vehicle.

The springs may be constructed with three members, in various forms, as shown in Figs. 5 to 10, and additional strength may be imparted by adding one or more supplementary springs, a^3, as shown in Figs. 7 and 8, and in dotted lines, Fig. 1.

The springs may be inverted, so as to bring the member a^1 a^2 below, as in Fig. 7 to 10. The member *a* may be shortened, and connected to the other members at the ends, as shown in Figs. 8, 9, 10, and the members a^1 a^2 may be elastic, and the member *a* rigid.

While these changes modify in some cases the action and effect of the spring, the essential features in all are the same—that is, a single member on one side and two members on the other, with their inner ends united to the other member at or near the center, and their outer ends connected to the bolster and axle, so as to unite the same. When applied to the center of the vehicle the spring constitutes the perch E. In the said perch a spring similar to that shown in Fig. 9 is used, the rear end being connected below the rear axle, which is depressed or provided with a suitable hanger, so as to make the connection at a distance below the journals, and the front end being connected to the yoke below the front axle, and the center secured to a cross-brace, F, extending at each side diagonally upward, either to the body or to the members *a a* of the side springs. This union of the center spring, perch, and side springs, constructed as set forth, serves to prevent any side tilting of the body, and further aids in supporting the ends under pressure, when the members a^1 a^2 of the side springs are elastic, as no tilting of either end could take place without

moving forward or backward either the bars *b* or the lower end of the cross-brace F, which is impossible.

When the spring is used for the perch, the members a^1 a^2 may be advantageously made of rigid material, connected to the ends of the member *a* by links *i*, as shown, the connection with the body (if any is used) being at the center of the spring *a*, or at any other suitable point.

It will be seen that in this construction there is practically no draft on the spring *a*, any longitudinal strain on the members a^1 a^2 being resisted by the clip-piece *c*, to the ears *e* of which the side members are connected.

Any of the other forms of the spring may, however, be used at the center; or, if necessary, two spring-perches may be employed, either parallel or converging from the rear axle to the king-bolt.

It is not necessary in all cases for the different members of the spring to be on the same vertical plane. Thus, the members *a*, Figs. 5 and 6, may be inside the members a^1 a^2, and one or more cross-bars, *d*, may be connected to both members, all as shown, or otherwise.

In place of the usual yoke, I combine with the fifth-wheel *g* a bracket, *h*, bolted at the ends to said wheel, passing below the front axle, and receiving the end of the king-bolt, and provided with central ears *i''*, to which the perch may be connected.

I claim—

1. The combination, in a vehicle, of a spring having three members, *a* a^1 a^2, the ends of the members a^1 a^2 being connected at or near the center of the member *a*, and the outer ends of all the members attached to the axle and bolster, substantially as set forth.

2. The combination of the springs D D, each consisting of three members, and arranged one on each side of the body, and connecting the rear axle and bolster, and the cross-bars *b b*, connecting the members a^1 a^2 of the opposite springs, substantially as set forth.

3. The combination of the members *a* a^1 a^2 and auxiliary spring a^3, substantially as and for the purpose set forth.

4. The clip *c*, combined with the members *a* a^1 a^2 of the spring, substantially as and for the purpose set forth.

In testimony that I claim the above as my invention I hereunto subscribe my name.

CYRUS W. SALADEE.

Witnesses:
W. H. ROGERS,
J. F. CATHRAN.