(No Model.)

A. D. HICKOK.

Vehicle Spring.

No. 229,609. Patented July 6, 1880.

Fig. 1.

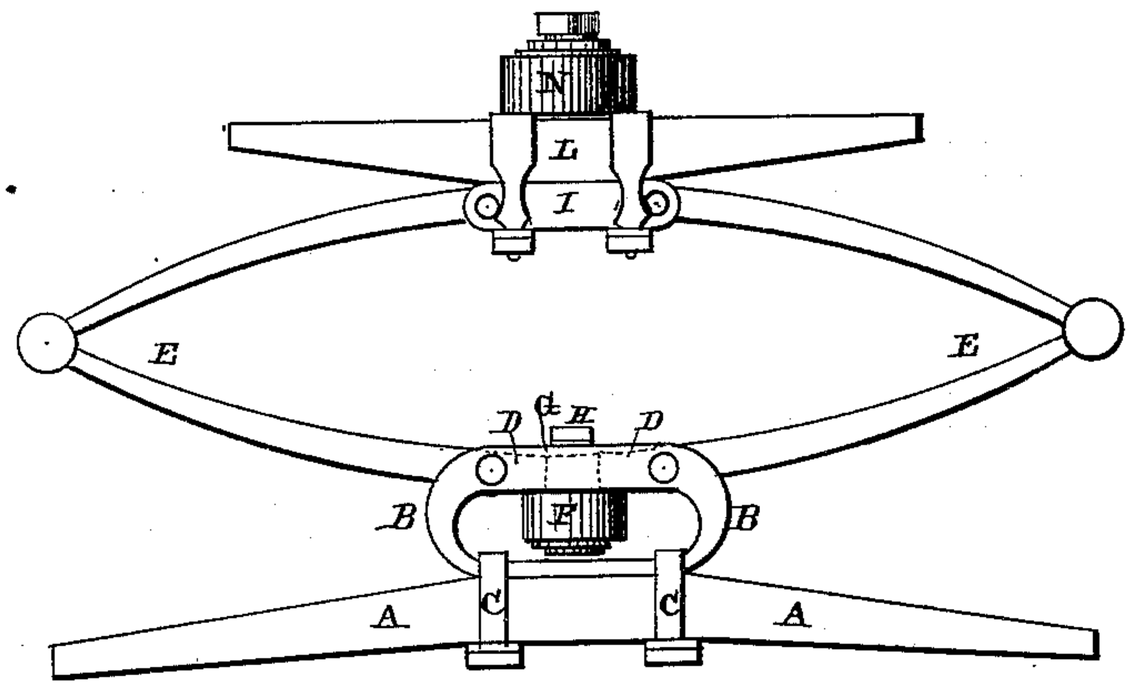
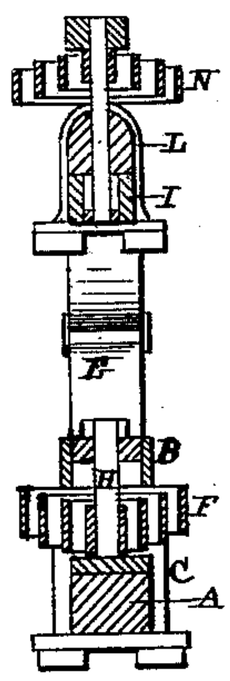


Fig. 2.



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UNITED STATES PATENT OFFICE.

ALONZO D. HICKOK, OF COLUMBUS CITY, IOWA.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 229,609, dated July 6, 1880.

Application filed May 27, 1880. (No model.)

To all whom it may concern:

Be it known that I, ALONZO D. HICKOK, of Columbus City, in the county of Louisa and State of Iowa, have invented certain new and useful Improvements in Springs for Vehicles; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in springs for vehicles; and it consists in combining with an elliptic spring that is formed of four pivoted pieces one or more coiled springs, the coiled springs being connected to the shorter and inner ends of the four pivoted pieces, whereby the strain upon the elliptic spring is transferred to the coiled one, as will be more fully described hereinafter.

The object of my invention is to use both the elliptic and coiled springs on the sides and ends of vehicles, where the elliptic springs have heretofore been used, and thereby make the elliptic spring much less liable to break, and to gain a greater amount of elasticity than is found in the elliptic spring by itself.

Figure 1 is a side elevation of my invention complete. Fig. 2 is a vertical cross-section of the same.

A represents either the front or the hind axle, and upon the top of which is secured the oval support B by means of the clips C. That part of the support which rests upon the top of the axle is make solid and flat; but the upper portion of the support is made in two parts, and these two parts stand vertically, so as to receive the ends D of the elliptic spring E between them. These two ends of the spring are pivoted in the support, so as to attach them permanently thereto, and are held between the coiled spring F below and the plate G on top. Passing through this coiled spring, up between the two ends D and through the plate G on top, is a clamping-bolt, H, by means of which the coiled spring is connected to the elliptic one.

When any downward pressure is made upon the elliptic spring the outward ends of the spring E are forced downward, and the ends D, turning on their pivots, force the plate G upward, and this plate being connected to the coiled spring by means of the clamping-bolt, the strain or weight is transferred to the coiled spring. This elastic spring E, instead of being formed of a number of plates, in the usual manner, is formed of four bars of iron or steel, which are pivoted together at their outer ends, and the two upper bars of which have their inner ends pivoted in a suitable bearing or support, I, which is secured by suitable clips to the under side of the cross-bar L. Upon the top of this cross-bar is placed a second elliptic spring, N, and passing through this spring, the cross-bar, and in between the ends of the upper portion of the spring E is a second clamping-bolt, which has a head on its lower end sufficiently large to catch over the ends of both parts of the spring.

When the elliptic spring is compressed the rods or bars which form both the lower and the upper parts of this spring have their inner ends forced inward, so as to transfer the strain from the elliptic spring to the two coiled ones.

A spring constructed as above described is not only much easier and more pleasant riding, but the elliptic spring is never in danger of being broken, and in case one of the pivots or clamping-bolts becomes broken or gives way it can be readily repaired by simply inserting another bolt or pivot, and requires no skilled labor to mend.

I am aware that a coiled spring has been used in connection with levers in side-bar buggies and wagons; but never have an elliptic and a coiled spring been combined for use on the ends of buggies and vehicles of all kinds, as here shown and described.

Having thus described my invention, I claim—

1. In an end spring for vehicles, the combination of an elliptic spring formed of four pivoted pieces and two coiled springs, the parts being combined in such a manner that the whole strain upon the elliptic spring is transferred to the coiled ones, substantially as shown.

2. In an end spring for vehicles, the elliptic spring E, formed of four rods or levers pivoted together at their outer ends, and pivoted at their inner ends in any suitable bearings, in combination with the two elliptic springs and the clamping-bolts for uniting the three springs together, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of May, 1880.

ALONZO D. HICKOK.

Witnesses:

N. C. GLIDDEN,

J. C. GITTS.