(No Model.)

F. LA F. EZELL.

VEHICLE SPRING.

No. 371,495. Patented Oct. 11, 1887.

Fig 1

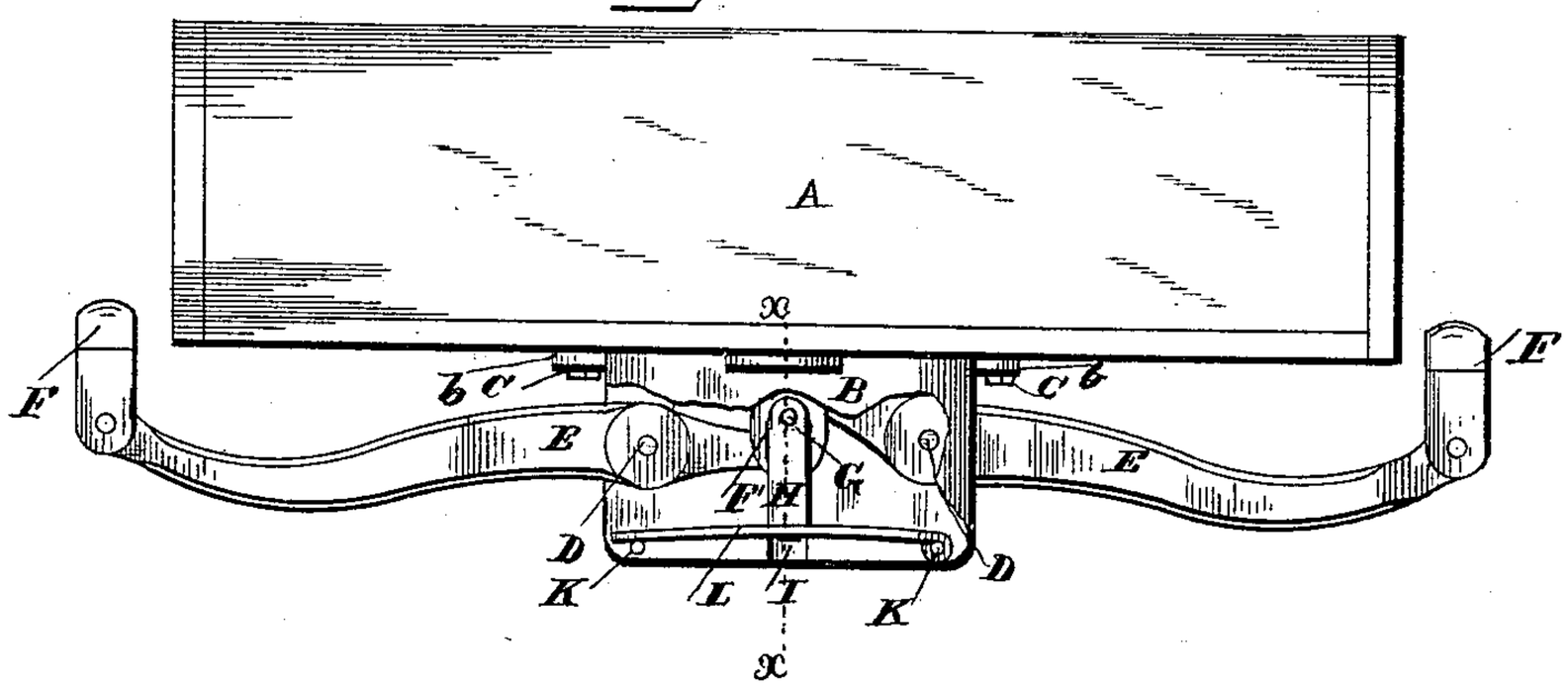


Fig 2

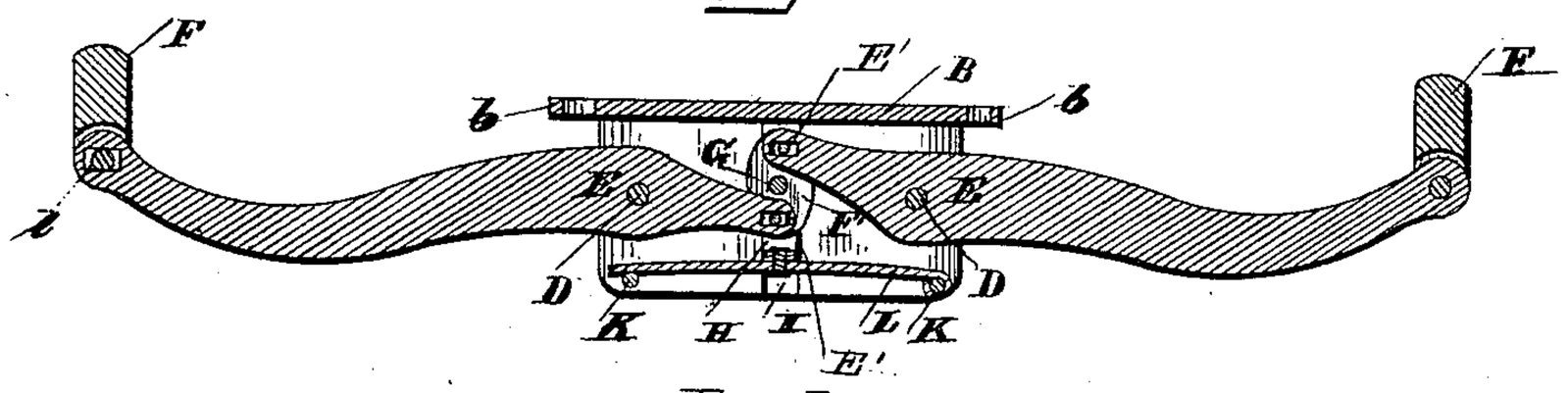
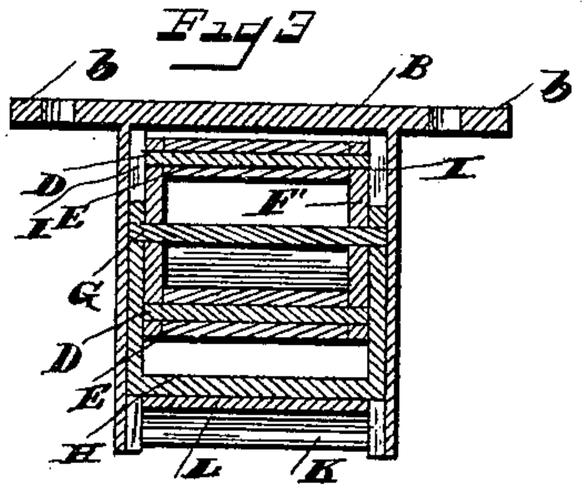


Fig 3



Witnesses
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FRANCIS LA FAYETTE EZELL, OF NASHVILLE, TENNESSEE.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 371,495, dated October 11, 1887.

Application filed March 28, 1887. Serial No. 232,716. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS LA FAYETTE EZELL, a resident of Nashville, in the county of Davidson and State of Tennessee, have invented certain new and useful Improvements in Springs for Vehicles; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation of my improved vehicle-spring, part of the side of the box or casing being broken away. Fig. 2 is a longitudinal vertical sectional view of the same; and Fig. 3 is a transverse vertical sectional view taken on the plane indicated by line *x x*, Fig. 1.

The same letters of reference indicate corresponding parts in all the figures.

My invention consists in an improved spring for vehicles which will insure the body of the vehicle to which it is applied remaining level or horizontal relative to the running-gear of the vehicle, no matter at what point in the body the weight may be thrown, and my invention will be hereinafter fully described and claimed.

Referring to the several parts by letter, A indicates the body of a vehicle to which my invention is shown as applied in its operative position.

B indicates a metallic box or casing, which is secured to the bottom of the body A by means of bolts C C or their equivalents, passing through the top flanges or projections, *b*, of the casing B.

D D indicate transverse pivot-bolts, which extend through the parallel sides of the box or casing B, near each end of the same, and on these pivot-bolts are pivoted the inner portions of levers E E, the outer ends of which are pivoted to the side bars, F F, which support the vehicle-body. These outer ends of the levers E E may be formed with the horizontal slots *l*, through which the pivots in the outer ends of the side bars pass, for the purpose of allowing for the expansion and contraction of the levers E under changes of temperature.

The inner ends of the levers E E overlap one another, as shown in the sectional view, Fig. 2, of the drawings, and are pivotally connected by the coupling-link F′, on the lower and upper sides of which their inner ends are respectively pivoted, the said inner ends being preferably formed with the short slots E′, through which the pivots pass, and this link is in turn connected by a central transverse bolt, G, with the side pieces of a square yoke, H, which slides in side vertical grooves, I I, in the inner faces of the parallel sides of the box or casing B.

The lower corners of the parallel sides of the metallic box or casing B are connected by the bolts K K, and on these bolts is supported a spring-plate, L, which thus extends across the lower part or bottom of the casing B, one end of this spring-plate being preferably secured around one of the said bolts, as shown in the sectional view.

The spring-plate L curves upwardly toward its center, as shown, and presses the inner ends of the levers E up against the top of the casing B, and the lower end or side of the yoke H is riveted to the central part of the said spring-plate L.

It will be seen that normally the spring-plate, which may of course be of any suitable form which will effect the same purpose, will press the inner ends of the levers E E up against the top of the casing or metallic box B, this casing being made of any desired form. Now, when a weight is placed in the wagon-body A, the pressure will fall on the pivot-bolts D D, and as the outer ends of the levers E E are secured to the side bars, F F, which are of course fixed, it will be seen that the inner ends of the levers E E will be forced down, carrying with them the yoke H, which in turn forces down the spring-plate L until the latter is nearly or quite straight, according to the amount of weight placed in the wagon-body, and it will be seen that as the ends of the levers E are pivotally connected together, so that they must move together and cannot move separately, the body A of the vehicle will be carried down level—that is, in a plane parallel with the running-gear of the vehicle—no matter to which side or at what point in the body A the weight may be placed, for, as will be seen, whatever moves one lever must necessarily produce a corresponding movement

in the other lever. The vertical side grooves, I I, in which the sides of the yoke K move, assist in causing the device to operate smoothly and evenly.

My improved vehicle-spring is designed and adapted not only for side-bar vehicles, but also as an end spring or for a center spring having four levers, and, in fact, is adapted to every species of vehicle, and can also be applied to other purposes besides being used for vehicles.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my invention will be readily understood. It will be seen that my improved vehicle-spring is simple and strong in its construction, exceedingly efficient in its operation, and very economical and durable.

Various modifications of the several parts of my improved spring may be made without departing from the spirit of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, with the box or casing having the vertical interior grooves, of the levers pivoted at their inner portions and having their inner overlapping ends pivotally connected by the link, the yoke to which the said link is connected, and the spring-plate arranged as described, substantially as and for the purpose set forth.

2. The combination, with the box or casing having the vertical interior grooves, of the levers pivoted at their inner portion in the said casing and having their inner overlapping ends pivotally connected by the link, the yoke to which the said link is connected, and the spring-plate arranged as described and connected at its center to the said yoke, substantially as set forth.

3. The combination, with a vehicle-body, of the metallic box or casing adapted to be bolted or otherwise secured to the bottom of the same and formed with the interior vertical grooves, the levers pivoted at their inner portions in the said casing and having their inner overlapping ends pivotally connected by the link, the spring-plate arranged as described, and the yoke connected to the said link and to the spring-plate, substantially as and for the purpose herein set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

FRANCIS LA FAYETTE EZELL.

Witnesses:

L. R. CAMPBELL,

JAS. S. PILCHER.