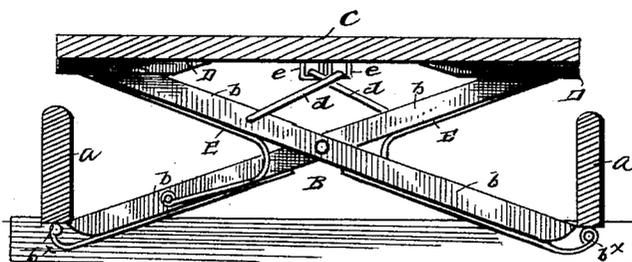
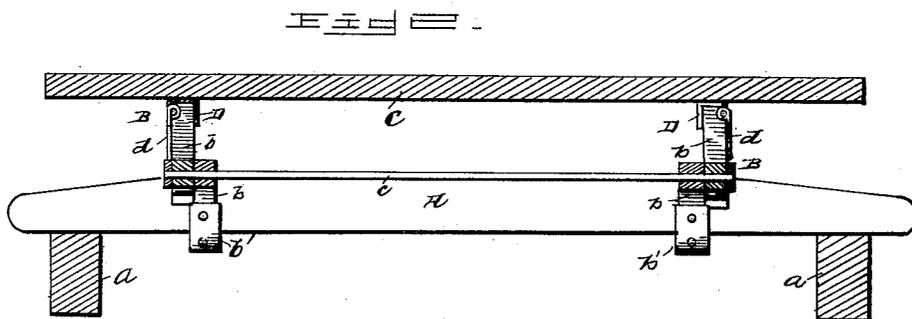
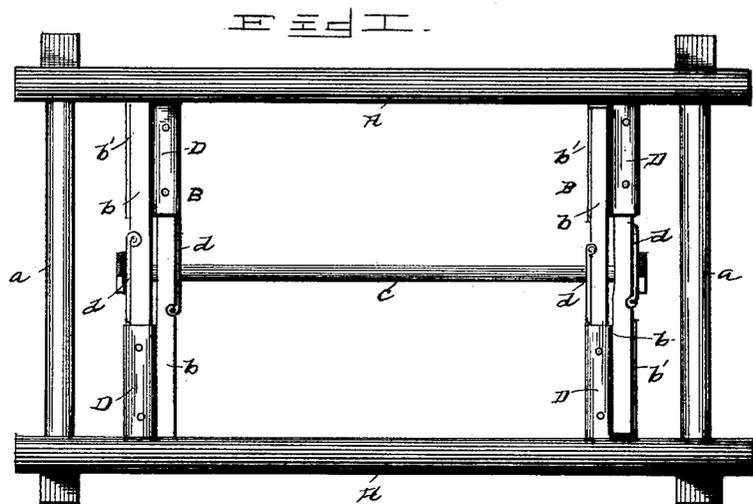


(No Model.)

J. D. WHIPPLE.  
BUGGY SPRING.

No. 410,471.

Patented Sept. 3, 1889.



Witnesses  
Roger G. Stevens  
J. Will Aundt

Inventor  
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By his Attorneys  
Meyer & Co.

# UNITED STATES PATENT OFFICE.

JOHN D. WHIPPLE, OF EXCELSIOR SPRINGS, MISSOURI.

## BUGGY-SPRING.

SPECIFICATION forming part of Letters Patent No. 410,471, dated September 3, 1889.

Application filed June 29, 1889. Serial No. 315,997. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN D. WHIPPLE, a citizen of the United States of America, residing at Excelsior Springs, in the county of Clay and State of Missouri, have invented certain new and useful Improvements in Buggy-Springs, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention is directed to certain improvements in vehicle-springs, especially side-bar springs; and it consists of the detailed construction and combination of parts, as will fully appear from the following description and accompanying illustrations, in which—

Figure 1 is a plan view, with parts broken away, of my improved vehicle-spring. Fig. 2 is a longitudinal section, and Fig. 3 is a transverse section thereof.

In the embodiment of my invention I employ the usual side bars A, which are secured upon end bars or bolsters *a a* of the running-gear.

B B are the springs, which consist of two sets of saw-horse-like disposed bars or members *b b*. The bars or members *b b* of the two sets of spring are connected together and pivot upon a common longitudinal rod *c*, passed through said bars or members and secured in position by nuts on their ends. The bars or members *b b* of the springs have secured to their under sides plates *b'*, the outer ends of which are curved upward and shackled, as at *b<sup>x</sup>*, to the lower side of the side bars A. These bars or members are also connected to the board or bottom C of the vehicle by means of short rods *d*, each having one end pivoted in and passed, it may be transversely, through each bar, and its other end looped in or connected to a staple or eye *e*, secured to the under side of the board or bottom. The upper ends of the bars or members *b* of the springs B are retained and guided in keepers or sock-

ets D, secured to the under side of the bottom C. The members or bars *b b* of each set of springs are connected together by spring-metal plates E, of proximate V shape, one applied at each side of their point of pivotal connection with the rod *c*, the end of one arm of each spring-plate being connected to one member or bar near its outer lower end, and the other arm at its end being connected to the fellow member or bar near the upper end of the latter.

The spring for vehicles thus constructed, it will be seen, prevents the side careening or tilting of the vehicle-body should more weight or pressure from the load or occupants be exerted on one side than the other, thus providing for the maintenance of the body in a balanced or horizontal position.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The vehicle-spring comprising the saw-horse-like disposed bars or members, the curved plates connecting said bars at one end to the side bars upon their under sides, the rod serving as a common pivoting-rod for the members or bars, and the short rods connecting said members or bars with the vehicle-bottom, substantially as specified.

2. The combination of the vehicle-bottom, the side bars, the springs comprising the crossing-bars, the pivoting-rod, the short rod connecting said bars to said bottom, the keepers guiding the upper ends of said bars, and the proximately V-shaped spring-plates connected to said bars, substantially as set forth.

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

JOHN D. WHIPPLE.

Witnesses:

DAVID W. MARTIN,  
JOHN MCGLOTHLIN.