E. T. BARLOW.
Vehicle-Spring.

No. 217,973. Patented July 29, 1879.

Fig. 1

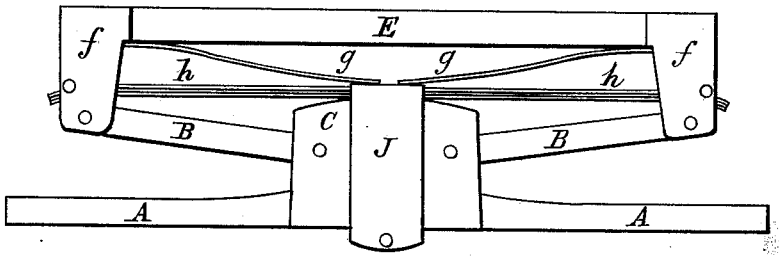
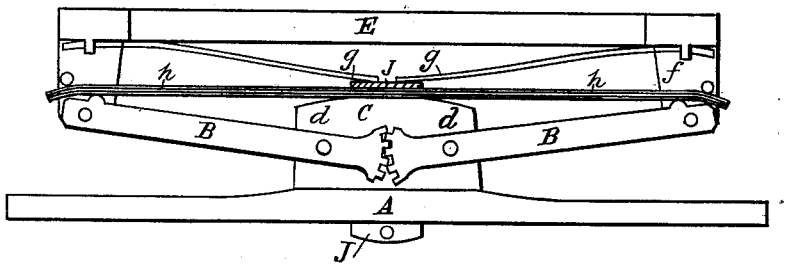


Fig. 2



Witnesses
W. Floyd Duckett
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UNITED STATES PATENT OFFICE.

ELISHA T. BARLOW, OF SAN FRANCISCO, ASSIGNOR TO SUSAN BARLOW AND HELEN M. HITCHCOCK, OF SAME PLACE, AND FREDERICK W. TOMPKINS, OF OAKLAND, CALIFORNIA.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **217,973**, dated July 29, 1879; application filed January 20, 1879.

To all whom it may concern:

Be it known that I, ELISHA T. BARLOW, of the city and county of San Francisco, and State of California, have invented an Improved Equalizing-Spring for Buggies and Carriages; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the drawings accompanying this specification and forming a part of the same.

My invention has reference to an arrangement for distributing the effect of a weight or pressure applied upon a buggy or carriage body equally to both ends of the buggy or carriage spring, no matter at what point the weight or pressure is applied to the body, so that the spring and body are depressed equally at both ends; my object being to prevent the tilting or unequal depression of the carriage-body caused by persons getting in and out of the carriage or buggy, or by the weight being greater on one side than on the other; and it consists in the construction and arrangement of the various parts composing my improved spring, as fully hereinafter explained.

Referring to the accompanying drawings, Figure 1 is a general view of equalizing-spring for buggies and carriages. Fig. 2 is a sectional view of the same, showing internal gearing and mode of working.

Let A represent the axle of a buggy, carriage, or other vehicle. B B represent two lever-bars, the inner or meeting ends of which are toothed, so that they engage with each other. These bars may be as thick as the axle A, and their meeting ends are secured between two plates, C C, one of which is secured on each side of the axle so as to project above it. The bars are placed with their interlocking ends directly over the middle of the axle, and they are secured by bolts or rivets *d* near the outer ends of the plates, so that one bar extends outward toward one end of the axle, and the other toward the opposite end.

E is a horizontal bar or rail, at each extremity of which is a downward-projecting lug or end piece, *f*. This bar or rail may form the end supports of the buggy or carriage body. The outer ends of the lever-bars B B are secured by bolts or rivets in these downward-projecting lugs, as shown.

It will now be seen that the bar E must rise and lower parallel with the axle A, because any motion of one of the bars B will be communicated by the gearing or interlocking ends to the other bar, so that it moves simultaneously and correspondingly. The bolts or rivets *d* represent the fulcra of the levers, while the weight and power points are shifted according to which end of the bar E the weight or pressure is applied.

A spring, *h*, is used in connection with this arrangement. It consists of several straight thin strips or plates of steel or other resilient metal placed loosely one upon another, so as to give the desired tension. This spring I place with its middle resting upon the upper edges of the plates C C, (which extend above the bars B B, and the upper edges of which are rounded,) so that its ends pass into and through the lugs or depending pieces *f* above the outer ends of the lever-bars B B. I then place a metal strap, J, around the plates C and middle of the spring to keep it in place. This arrangement raises the outer ends of the lever-bars, so that the bars stand at an angle upward. The extremities of the spring *h* will then be supported between the upper edges of the bars B and a pin that passes over them.

To prevent the ends of the springs from becoming loose and rattling, I make a projection on the upper side of each bar B, near its outer end, upon which the ends of the springs rest. I then press the extremities outside of the projection downward, as shown at Fig. 2, before inserting the pin over them, thus cramping them so that they will not wear loose.

Now, if the bar E be pressed downward, the pressure coming upon the ends of the spring *h*, while its middle is supported on the standard or plates C, will bend the springs downward on each side of the middle, and the pressure is distributed by the bars B B, as above described.

To re-enforce this spring, I can either insert more strips of metal or employ pendent springs *g g*, the upper ends of which are secured underneath the outside ends of the bar B, so that

they stand at an angle, while their lower ends press upon the strap which clasps the middle of the spring. This arrangement will equalize the pressure upon the buggy or carriage body, so that it is depressed uniformly at both sides. No matter at what point the pressure is applied, each end of the spring will bear its proper proportion of the weight.

This is an important improvement in buggies and carriages, as it will prevent accidents occasioned by the rocking or tipping of the carriage-body, and render the motion much more pleasant and easy. This arrangement will make an excellent seat-spring.

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

1. The combination of the lever-bars B, toothed at their meeting ends, for the purpose set forth, with the spring *h*, composed of a number of thin plates laid loosely upon one another, and the plates C C, all substantially as described and shown.

2. The vehicle-spring described, consisting of the toothed bars B, pivoted at one end to the plates C C, and secured at the other end to lugs depending from the cross-bar that supports the vehicle-body, and the spring *h*, composed of flat strips of equal length, the plates C C, and the strap J, all constructed and arranged substantially as described, and for the purpose set forth.

In witness whereof I have hereunto set my hand and seal.

ELISHA T. BARLOW. [L. S.]

Witnesses:

F. W. TOMPKINS,

GEO. B. HITCHCOCK.