J. ENDERS.
Vehicle-Spring.

No. 214,244. Patented April 15, 1879.

Fig. 1.

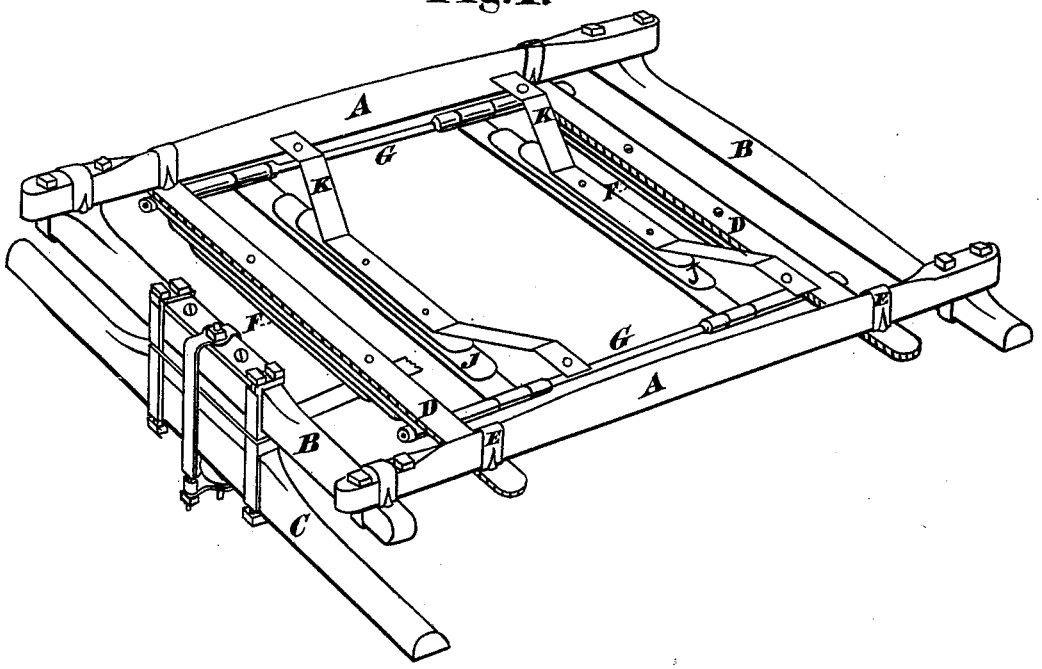
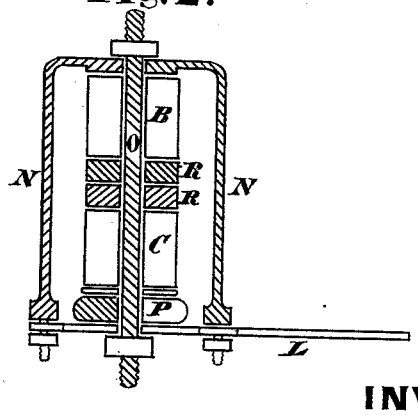


Fig. 2.



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JOSEPH ENDERS, OF LOUISVILLE, KENTUCKY.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **214,244**, dated April 15, 1879; application filed August 20, 1878.

To all whom it may concern:

Be it known that I, JOSEPH ENDERS, of the city of Louisville, in the county of Jefferson and State of Kentucky, have invented a certain new and useful Improvement in Carriage-Springs; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, forming part of this specification, and to the letters of reference marked thereon.

Figure 1 is a perspective view, showing the springs and general arrangement of the several parts. Fig. 2 is a sectional view of the front axle and bolster, showing the drop-perch and king-bolt.

This my invention relates to a certain new and useful improvement in the arrangement of carriage-springs within the frame, consisting, first, in providing such frame with rigid cross-bars clipped to the under side of the side bars of the frame, both in front and rear, to the under side of which straight flat plate-springs are seated, with the ends connected at the side by means of equalizing-rods through the eyes in such a manner that the body of the carriage shall be sustained by these connecting-rods when secured in the eyes of the cross-bar springs, and that the ends of these, in connection with the inner springs upon which the body of the carriage rests, shall readily yield to downward pressure.

The inner springs above referred to are also made of straight flat plates similar to the others, with eyes on the ends, by means of which they are hinged to the equalizing-rods on the inside of the cross-bars, and there held in position by means of collars on the rods; and in order to raise the body sufficiently above the springs a small block of wood or metal bracket may be used; but in the practical application of these springs to carriages, as above described, it becomes necessary to have a drop-perch, which is made by means of a large clip or clevis over the bolster and axle, with the ends extending down through and secured in the perch-bar below the axle, with a king-bolt passing up through the center, which answers as the coupling-pin and fulcrum for the axle to turn on.

This my invention will be more fully illustrated in detail in perspective view, Fig. 1, and sectional view, Fig. 2, of the drawings, in which—

A A represent the side bars, B B the bolsters, and C the axle, all of which are made of wood, and in form as shown in the drawings. D D are rigid cross-bars, made of iron, and secured to the under side of the side bars by means of the clips E E. F F are straight flat plate-springs, seated under the cross-bars D; and G G are the equalizing-rods by which they are connected, and upon which the body and springs J J rest. These rods are firmly secured in the eyes of the springs, thereby forming a nearly square frame to support the body, and by means of the connecting-rod under the cross-bars it is materially prevented from turning to the side by the weight on entering it.

J J are the inside springs on which the body rests, which are also made of straight flat plates of metal similar to the springs F, except that they are reversed on the connecting-rods G G. These springs have eyes on the ends, by which they are hinged to the rods G G on the inside of the cross-bars D, and held in that position by collars on the rods, so that these springs, in connection with the springs F, when mounted upon the same rods, as above described, shall yield readily to downward pressure, with but slight lateral variation.

K K are metal brackets on which the body rests, consisting of plain flat bars of iron so bent as to raise the body sufficiently above the frame. L is the bar of the drop-perch, which is simply a flat bar of iron, with bosses where the stirrup passes through it. N is the stirrup or clevis, which is also made of flat iron, enlarged at the top and lower ends, which is also provided with screw-nuts to secure it in the bar L. O is the king-bolt on which the axle turns, with a gum or rubber washer between the clevis and axle to answer as a spring to relieve the strain on the axle in passing over uneven roads. P is a piece of gum or rubber, to answer as a spring to relieve the strain on the axle and frame in passing over rough roads.

Having thus fully described the nature and

object of this my invention, what I claim as new, and desire to secure by Letters Patent, in carriage-springs is—

1. The rigid cross-bars D D, as above described, in combination with the straight flat plate-springs F F, seated under the cross-bars D D, the ends of which yield downwardly, and the springs J J, seated under the body and within the cross-bars D D, also yielding downwardly, the ends of each of said springs being mounted upon the same connecting-rods G G, substantially as herein described, and for the purpose set forth.

2. The combination, of the clevis N, king-bolt O, gum-spring P, and bar L, constituting the drop-perch, substantially as described, and for the purpose set forth.

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