

E. JARRELL.  
VEHICLE SPRING.

No. 397,366.

Patented Feb. 5, 1889.

Fig. 1.

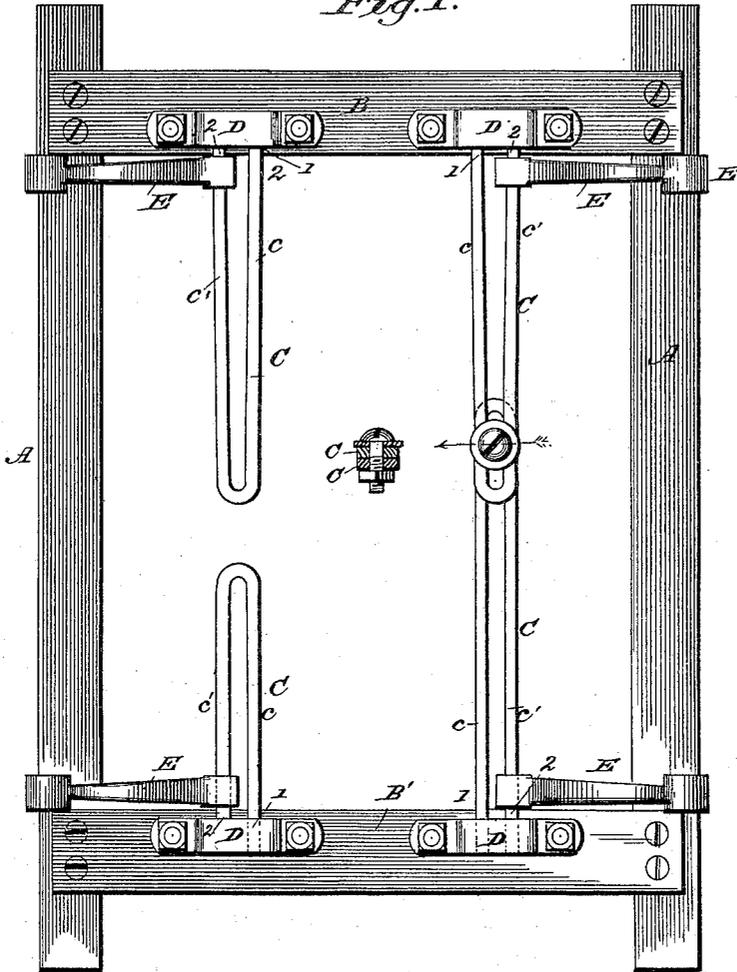
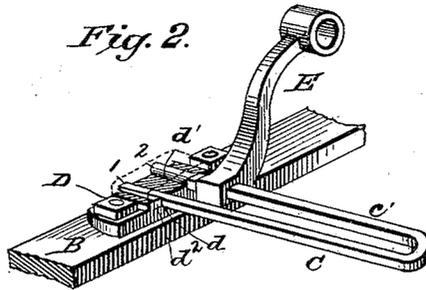


Fig. 2.



WITNESSES:  
*Fred G. Dieterich*  
*P. B. Purpice.*

INVENTOR:  
*E. Jarrell*  
 BY *Munn & Co*

ATTORNEYS.

(No Model.)

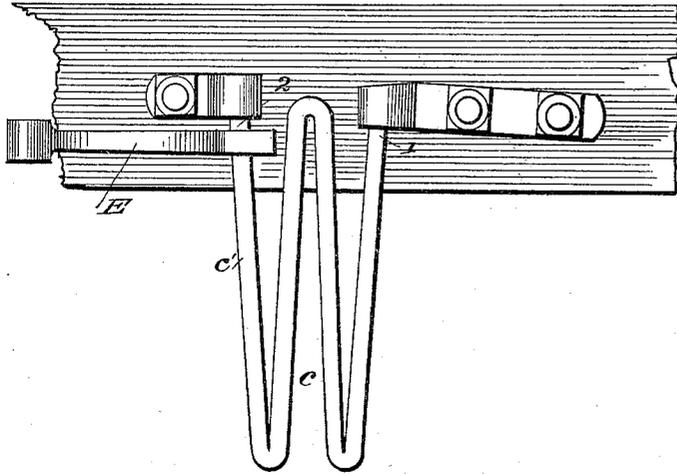
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VEHICLE SPRING.

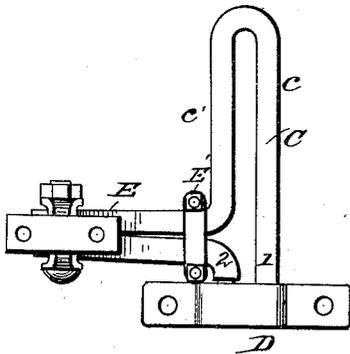
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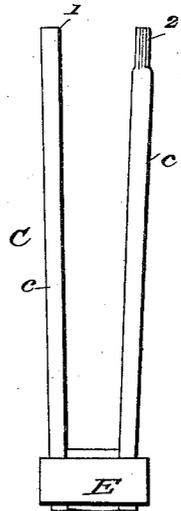
*Fig. 3.*



*Fig. 5.*



*Fig. 4.*



WITNESSES:

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INVENTOR:

*E. Jarrell*  
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ATTORNEYS.

# UNITED STATES PATENT OFFICE.

EDWIN JARRELL, OF HARPER, KANSAS, ASSIGNOR TO HARRY W. McMUNN,  
OF SAME PLACE.

## VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 397,366, dated February 5, 1889.

Application filed June 26, 1888. Serial No. 278,285. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN JARRELL, of Harper, in the county of Harper and State of Kansas, have invented a new and useful Improvement in Vehicle-Springs, of which the following is a specification.

My invention is an improvement in vehicle-springs, and seeks to provide a neat, light, and durable torsion-spring construction which will support the occupant or occupants of the vehicle easily, and by which pitching and rocking of the vehicle will be avoided.

The invention consists in certain features of construction and novel combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a plan view of the under side of my improvements, the springs on one side being lapped and secured together at their inner ends. Fig. 2 is a detail perspective view, parts broken away, of one of the springs and its fastenings. Fig. 3 shows a different form of spring from that shown in Fig. 1. Fig. 4 shows a different construction, wherein the arms of the spring, instead of being bent from the same rod of metal, are separate and secured together by suitable connections; and Fig. 5 shows the connecting-arm formed integral with the spring.

The body-sills A A and the front and rear spring-bars, B B', constitute in the present construction the framing, to which are secured the springs C C, which are arranged at the opposite sides of the ends of the framing and are independent of each other. Thus each part is self-supporting, which causes the vehicle to ride as easy with one or two passengers as with a full load, and to ride smooth and easy on rough roads, as a sudden shock or jar does not cause the vehicle to pitch or rock.

Where it is desired to stiffen the springs on heavy vehicles, the springs on the same side may have their inner ends lapped and connected together, the connection in the construction shown being a bolt-nut and washer. By so connecting the springs the springs may be caused to equalize either in front or in rear, according to which springs are lengthened the most in shifting them together. The front or rear springs may be made stiff or limber by

shifting them to lap them, as described, and the front and rear springs may be the same length by using heavy metal in one and light metal in the other.

The springs are formed of a plurality of arms, *c c'*, are secured rigidly at one end, 1, to the framing, and have their other ends, 2, journaled to the framing, so that they may be freely turned.

These arms *c c'* may be bent from a single bar of metal, as shown in Fig. 1, or may be formed separately and yoked rigidly together, as shown in Fig. 4. When desired, the spring, instead of being formed of two arms, may be made with three, four, or more arms, as will be understood from Fig. 4. Manifestly, the longer the spring the softer and easier it will be to the rider. The brackets or clips D are secured to the spring-bars and have sockets *d* for the ends 1 of the springs and bearings *d'*, in which the ends 2 of such springs journal. The ends 1 of the springs are secured in sockets *d*, it may be by wedge-blocks *d<sup>2</sup>*, as shown, or by clamping-screw or other suitable clamping device.

The arm E, which forms the connection between the springs and the running-gear, is united at its inner end directly with the spring at or near the turning end, 2, thereof, and is fixed rigidly at such end to said spring, so that it can only move by giving a partial turn to the spring-rod *c'*.

In Fig. 5 the connecting-arm E is shown as formed integral with and bent from the journaled spring rod or arm. When thus constructed, it will be found desirable to employ a clip, E', fastened around the arm E close to its juncture with the spring proper, as shown in said Fig. 5.

By my invention I overcome the disagreeable squeaking ordinarily incident to the use of torsional springs, by reason of the attachment of my spring-rods in the manner shown and before described.

The constructions are simple, can be easily and cheaply made, applied, and adjusted, and will be found easy and durable in use.

Having thus described my invention, what I claim as new is—

1. The combination of the framing, the clip or bracket secured to said framing, and the

torsion-spring, consisting of a plurality of arms united or joined together, the free end of one arm being rigidly clamped in the clip or bracket, and the free end of the other arm being journaled in the bracket, the latter arm being provided close to the bracket and between the same and its juncture with the other arm with the connecting-arm, substantially as set forth.

10 2. A vehicle-spring formed of a plurality of arms united together at one end, one of such arms being bent outward near its free end to form a connecting-rod, and provided beyond such connecting-rod with a trunnion-like extension, substantially as set forth.

3. The combination of the framing, the torsion-springs arranged at the opposite sides of the ends thereof, secured to the framing and projected inwardly toward each other, the front and rear springs on the same side being lapped together at their inner ends, and connections for uniting the inner lapped ends of said springs, substantially as set forth.

EDWIN JARRELL.

Witnesses:

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H. W. MCMUNN.