

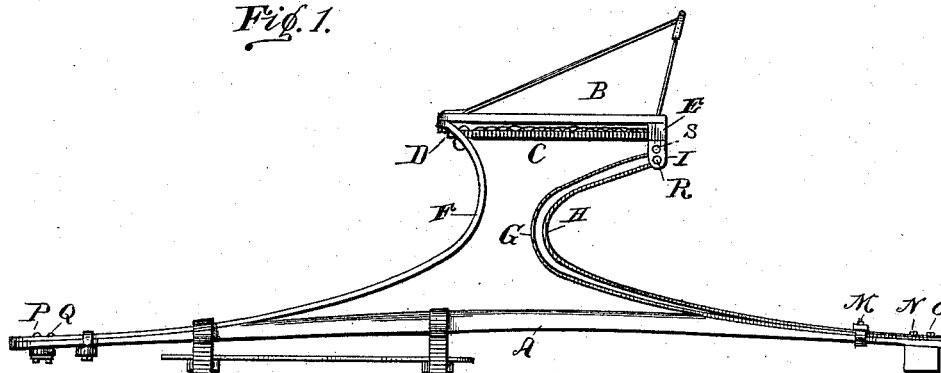
(No Model.)

L. WARREN.  
SPRING SEAT FOR VEHICLES.

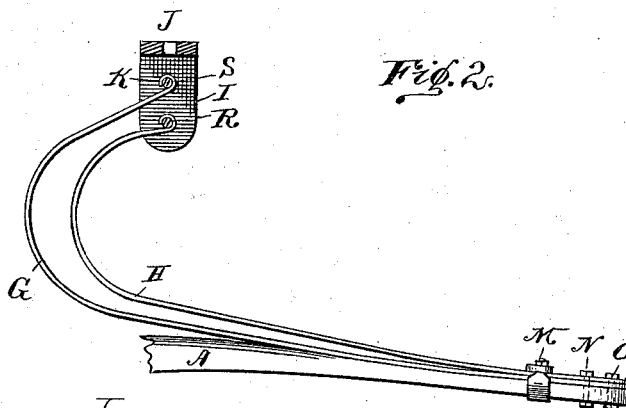
No. 385,033.

Patented June 26, 1888.

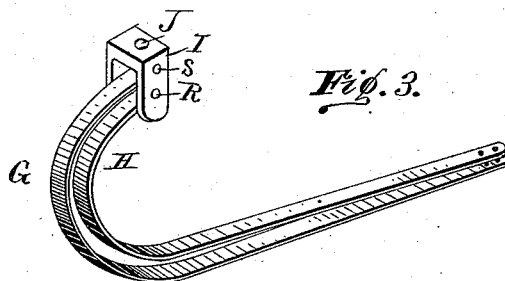
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

LEWIS WARREN, OF MCGRAWVILLE, NEW YORK.

## SPRING-SEAT FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 385,033, dated June 26, 1888.

Application filed July 9, 1887. Serial No. 243,883. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS WARREN, a citizen of the United States, residing at McGrawville, in the county of Cortland and State of New York, have invented certain new and useful Improvements in Spring-Seats for Vehicles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in spring seats for vehicles, more particularly to that class called "running wagons;" and the novelty consists in the construction and arrangement of the various parts, which are shown in the drawings which accompany this specification, and which are described and pointed out in this specification and the claims.

The object of the invention is to provide such a formation and arrangement of seat-springs and concomitant parts thereof as shall be efficient in service, simple, and cheap in construction; and to this end the invention consists, essentially, of the mechanism fully illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of my improved spring-seat, showing the front and back springs of one end of the seat. Fig. 2 is a vertical view of the rear springs of one end or side of the seat, showing the shackle or coupling, with the front side removed, thus exhibiting the manner in which each of the back springs of the seat is connected to the seat or its frame, also representing how the back springs are connected to the side bar of the vehicle. Fig. 3 is a perspective view of the shackle for attaching the rear springs to the seat-frame, and also showing the manner of arranging the said springs.

Referring to the drawings, in which similar letters of reference indicate like parts in all the figures, A indicates one of the side bars, to which the axles of the vehicle are attached.

B indicates the end of the seat-frame.

C indicates the bottom of the seat, upon which the cushion is placed, said bottom being supported on the cross-piece D, attached to the forward spring and fastened to the hind bar, E, of the seat-frame.

F indicates the front seat spring and support. This seat spring or support I usually make of wood bent in the manner shown, which I find makes a substantial seat support and spring.

G and H indicate two metallic springs and seat-supports for the rear side of the seat. These springs G and H are secured in the shackle I, which shackle is securely attached or fastened to the seat-frame E. I prefer to fasten the said shackle I by a bolt passing through the hole J, Fig. 3, in the top of the shackle, the springs G and H having eyes (indicated by the letters K and I) through which bolts R and S pass in the shackle, as shown in Fig. 2. The springs G and H are made in separate parts, and after being placed in position are secured to the side bar, A, by a clip (indicated by the letter M,) which brings them close together and in contact. They are also bolted to the side bar by the bolts (indicated by the letters N and O) passing through the side bar and also through the holes, made to correspond, shown in the ends of the springs G and H in Fig. 3. There are many ways of fastening these springs G and H to the seat-frame and side bar of the vehicle, and I do not intend to limit myself to any particular way; but the manner shown and described I have found to practically answer the purpose.

In the foregoing description and in the drawings I have only described and shown the springs and connecting mechanism or structure of one side of my spring-seat; but the other side is made exactly similar, so that it is unnecessary to describe it. I have also found that I can use a metal spring in place of the wooden spring F on the front side, which will sufficiently support the seat in front and at the same time give sufficient spring motion. I can also use two springs on the front side similar to G and H, as will be plainly seen, thereby dispensing with the wooden or spring bar F, thus making the springs on the front and back sides of the seat alike.

Having thus described and shown my improved spring-seat, I will now proceed to describe its operation.

The motion of the spring F, when made of wood, as shown, must be plain without an extended explanation. The bar being fastened

rigidly at P and Q and it being made of suitable size and material, a sufficient springing motion is obtained, while at the same time its strength is sufficient to support the seat properly. By the use of the two springs G and H, placed and used in the form shown; they so act with reference to each other when the vehicle is used—especially when passing over a rough road—as to give a spring motion not obtainable by the use of one solid spring, and they also act sufficiently in unison so as not to be objectionable on that account, and are stronger; also, by using two springs thinner steel may be used in each, which, when they act, gives a more delicate and sensitive motion or action, thus rendering the vehicle easy and pleasant to ride in. If necessary or desirable, one of the springs G or H can be removed readily and easily, thus accommodating or adjusting the spring in proportion to the weight carried by the seat; also, springs of different bending resistance can be readily substituted in the place of G and H by means of the shackle I and other attaching mechanism shown, thus allowing of variable adjustments to suit the desire of the rider. It is also obvious that more than two springs may be used by making another attaching-point in the shackle I like those of R and S.

30 Having heretofore obtained Letters Patent of the United States of America on improve-

ments in spring-seats, granted April 1, 1884, No. 295,963, I do not intend by this application to abridge or in any manner limit the improvements described and claimed by me therein. 35

What I claim as new is—

1. In a spring-seat of a side-bar vehicle, the combination of the seat or seat-frame, the front springs—serving as springs and supports—made of spring-bars of wood or metal, the hind springs made of two or more separate metal springs, suitably shackled or pivoted to the seat or seat-frame and fastened or attached at their rear ends to the side bars, so as to be in contact at said rear ends, but separating at a suitable point at or above the side bars, and the side bars of the vehicle, substantially as shown and described, for the purposes hereinbefore set forth. 45

2. In a side-bar vehicle, the combination, with the seat and side bars, of the front and rear springs, each composed of two leaves secured at different points to shackles attached to the seat and to the side bars by means of suitable clips, substantially as specified. 55

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

LEWIS WARREN.

Witnesses:

JOHN W. SUGGETT,  
T. E. COURTNEY.