(No Model.) 2 Sheets—Sheet 1.

C. W. SALADEE.

VEHICLE SPRING.

No. 305,338. Patented Sept. 16, 1884.

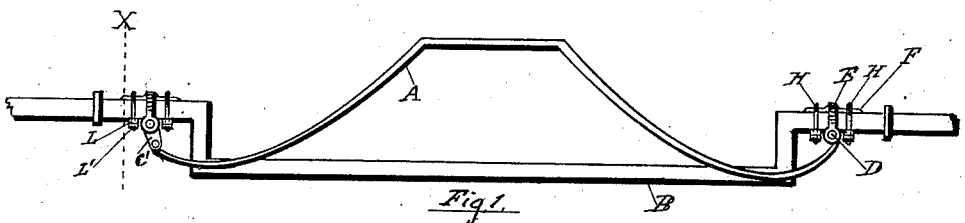


Fig. 1.

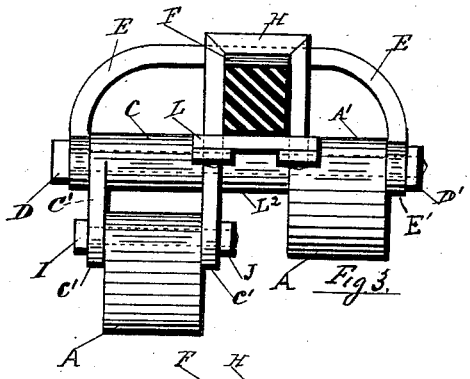


Fig. 3.

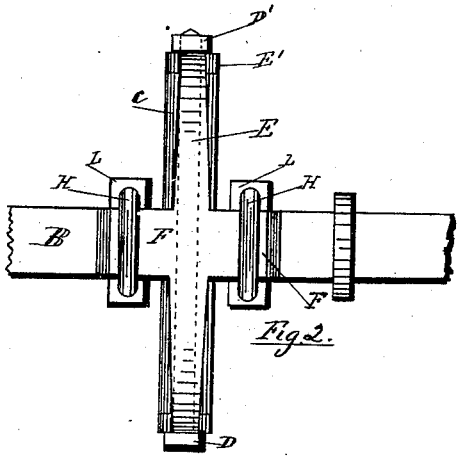


Fig. 2.

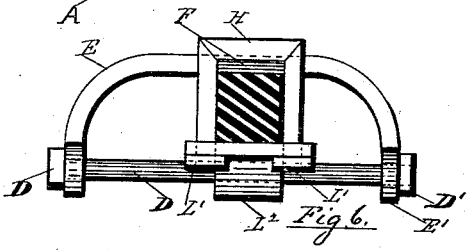
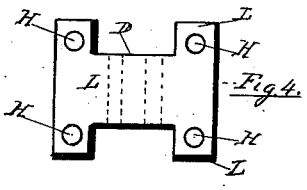


Fig. 6.



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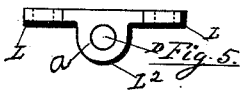

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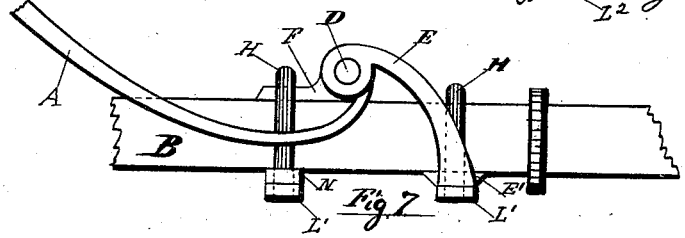

Fig. 7.

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(No Model.) 2 Sheets—Sheet 2.

C. W. SALADEE.

VEHICLE SPRING.

No. 305,338. Patented Sept. 16, 1884.

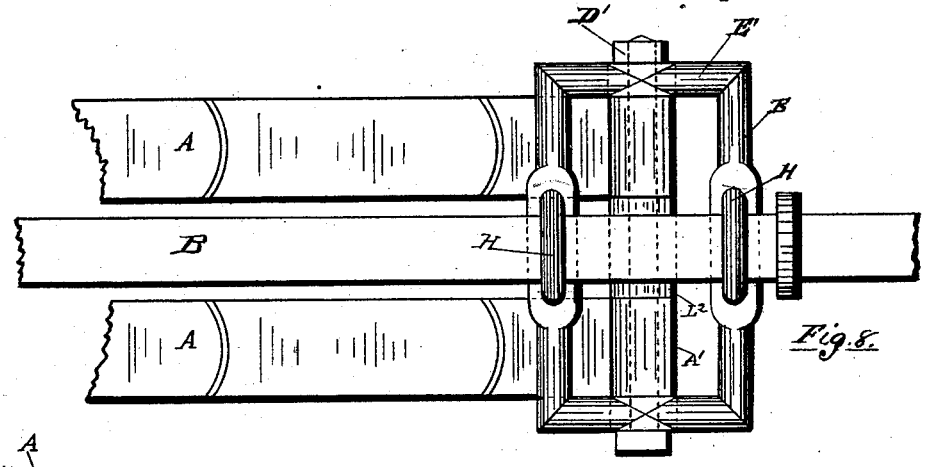

Fig. 8.

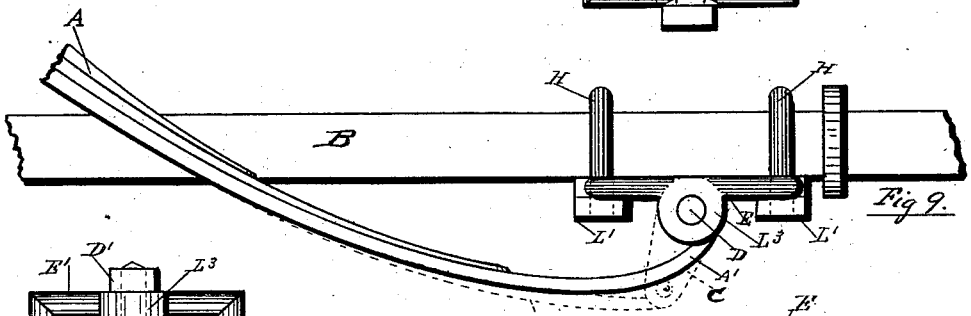

Fig 9.

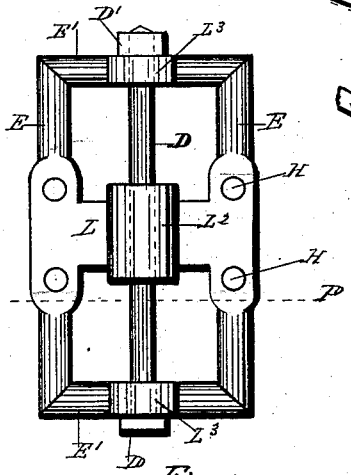

Fig 10

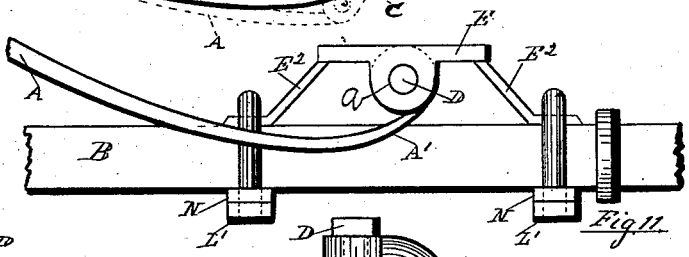

Fig 11

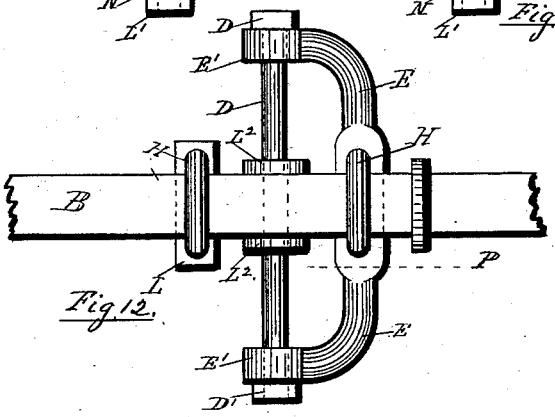

Fig 12.

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UNITED STATES PATENT OFFICE.

CYRUS W. SALADEE, OF TORRINGTON, CONNECTICUT.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 305,338, dated September 16, 1884.

Application filed May 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, CYRUS W. SALADEE, a citizen of the United States, residing at Torrington, in the county of Litchfield and State of Connecticut, have invented certain new and useful Improvements in Vehicle-Springs; and I do 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention has relation to road-wagons wherein semi-elliptic cross-springs are suspended from one or both sides of the axle; and it consists in the construction and novel arrangement of improved devices for coupling such springs to the axle at their points of suspension next to the opposite shoulders of said axle, whereby it is designed to securely brace the outer ends of the trunnion-pin which carries the spring-heads, or links of the spring-heads, against vertical and lateral strain, while at the same time simplifying these connections and imparting thereto a light, yet strong and finished, appearance, all as hereinafter more fully described, and pointed out in the appended claims.

In the accompanying drawings, illustrating this invention, Figure 1 represents a front view of an axle, showing a cross-spring suspended therefrom according to the plan of my improvement, one end of the spring, however, being shown as connected directly to the trunnion-pin, while the other end is represented as connected to the trunnion-pin by a link. Fig. 2 is a top view of one end of the axle, showing the brace E, which is extended from the axle to support the opposite ends of the trunnion-pin D. Fig. 3 is a cross-section of the axle near one end, showing the several parts of the coupling, the spring-head on one side of the axle being shown as secured directly to the trunnion pin or bolt D, while on the other side a link-connection is represented. Fig. 4 is a detached plan view of the trunnion-bearing L, which is designed to be secured to the under side of the axle, and through which the trunnion-bolt is passed. Fig. 5 is a side view of said trunnion-bearing. Fig. 6 is a sectional view showing the trunnion-bolt and its attachments, the spring-heads being removed. Fig. 7 is a front view of a portion of an axle, showing the trunnion-bearing secured on the top of the axle and the supporting-brace secured to the under side thereof. Fig. 8 is a top view showing the trunnion-bearing integral with the brace, the two parts being combined in one piece of malleable iron. Fig. 9 is a front view of the same. Fig. 10 is a detached view of the combined trunnion-bearing and brace. Figs. 11 and 12 represent modifications.

The letter A represents a semi-elliptic or cross spring, which is connected to the axle B at or near its opposite shoulders by means of pivotal or link connections, the means of attachment being as follows:

L represents a trunnion-bearing, consisting of an elongated plate having a transverse bearing recess or aperture, *a*, in its central portion, adapted to receive and seat the middle of the trunnion-bolt D.

E represents a brace, which extends across the axle, and is formed with a central enlargement, F, which bears upon the axle. In this instance the trunnion-bearing is designed to be applied to the under side of the axle, the brace E extending across its top, and these two parts are firmly secured in position by means of clips H H, extending round the axle and through the openings of the plate L, or other common fastening which will rigidly hold them in place. At each outer end of the brace a head, E′, is formed, which is perforated to provide a bearing to receive the end of the trunnion-pin. At one end the trunnion-pin is threaded to receive a nut, D′. It is apparent that the sleeve end or head A′ of a spring, A, may be connected directly to the trunnion-pin, or that a link-connection, C′, may be interposed. In either case, however, the brace E serves to support the outer ends of the trunnion-bolt against lateral and vertical strain, and at the same time affords a neat and finished appearance.

In cases where two cross-springs are designed to be used—one in front and the other in rear of the axle—the coupling is constructed as above described; but if it is desirable, as in the lighter classes of vehicles it may be, to use

but a single cross-spring, either in front or in rear of the axle, then the brace E may be made to extend likewise only in front or in rear, terminating, as indicated, by the dotted lines P in Figs. 10 and 12.

When preferred, the trunnion-bearing may be placed on the top of the axle, and the brace on the under side thereof, as shown in Fig. 7. This arrangement answers equally well in all cases when it is desired to carry the springs higher than in the arrangement indicated in Fig. 1; and when preferred the brace E may be made integral with the trunnion-bearing L, and both secured to the axle on the under side or on the top thereof. In Fig. 8 the brace E is shown in the form of an oblong frame, its transverse central portion forming the trunnion-bearing, as indicated at L L^2.

Fig. 10 is a detached bottom view of the coupling shown in Fig. 8. The brace E may also be made in the form shown in Fig. 12, and in this form integral with the trunnion-bearing or not, as circumstances may require; and in some cases—as, for instance, in a phaeton, where a drop-front body is used, the rear portion being elevated—it may be desirable to suspend the springs at a considerable elevation above the rear axle, while a low position of the points of suspension is required on the front axle. In such cases the brace E and the trunnion-bearing carrying the bolt D are secured upon bracket-arms E^2, which are made integral parts of the brace, as shown in Fig. 11.

I do not desire to limit this invention to the exact forms of trunnion-bearings and braces shown in the drawings, as they may be easily varied by those skilled in the art without departing from the principle of the invention.

What I claim, and desire to secure by Letters Patent, is—

1. The combination of a carriage-axle, plates provided with trunnions arranged to extend laterally from one side of the axle, and braces extending from fixed supports upon the other side of the axle to the ends of the trunnions, substantially as described.

2. The combination, with a trunnion-bearing and a trunnion-bolt carried thereby, arranged on one side of the axle, of a brace secured to the other side of the axle, and connected to the end or ends of the trunnion-bolt, to sustain the latter against lateral and vertical strain, substantially as specified.

3. The combination, with an axle, of laterally-extending trunnions clipped to the axle, and a brace-frame supported by the axle and extending to and supporting the ends of the trunnions, substantially as described.

4. The combination of the axle of a trunnion-bearing plate, a brace crossing the axle and supporting the ends of the trunnions, and clips securing the two to the axle, substantially as described.

5. A spring-coupling device consisting of a trunnion-plate, a trunnion-bolt bearing in said plate, a brace bearing upon the axle and connected to the end of the bolt, and clips for securing the plate and brace to the axle, substantially as described.

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

CYRUS W. SALADEE.

Witnesses:
S. J. CHAMBERS,
A. C. SALADEE.