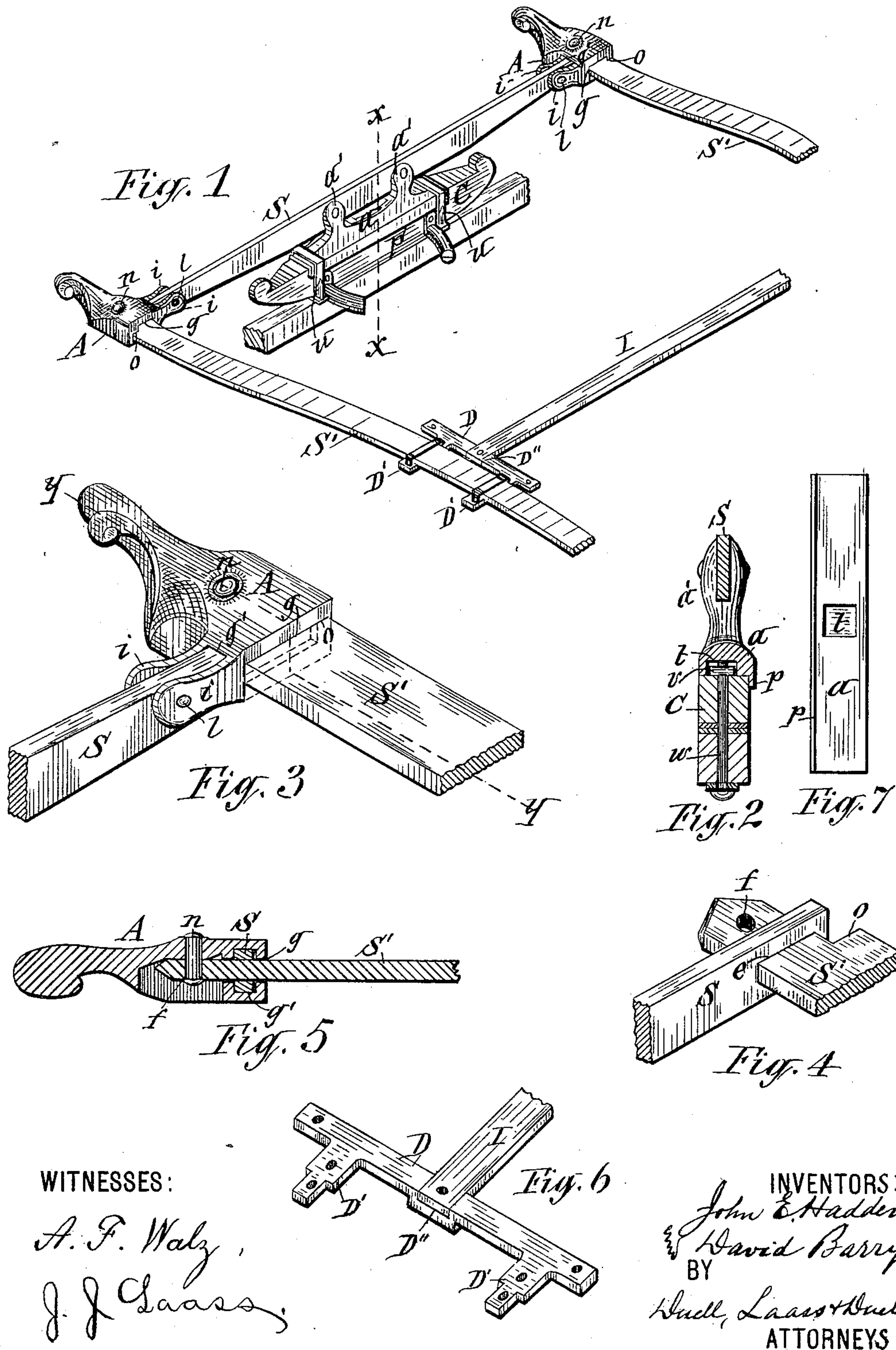


(No Model.)

J. E. HADDEN & D. BARRY.
SPRING VEHICLE.

No. 405,836.

Patented June 25, 1889.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN E. HADDEN AND DAVID BARRY, OF TABERG, NEW YORK.

SPRING-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 405,836, dated June 25, 1889.

Application filed April 4, 1889. Serial No. 305,915. (No model.)

To all whom it may concern:

Be it known that we, JOHN E. HADDEN and DAVID BARRY, of Taberg, in the county of Oneida, in the State of New York, have invented new and useful Improvements in Spring-Vehicles, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of spring-vehicles in which side springs are connected at their ends to the ends of cross-springs disposed vertically edgewise; and the invention consists in improved connection of the side springs with the aforesaid cross-spring; and the invention also consists in improved means of supporting the said cross-spring on the bolster or head-block of the vehicle, all as hereinafter more fully described, and specifically set forth in the claims.

In the accompanying drawings, Figure 1 is a perspective view of the front portions of the side springs and their connection with the cross-spring, and showing also the support of the latter spring on the head-block. Fig. 2 is an enlarged vertical transverse section on line $x x$, Fig. 1. Fig. 3 is an enlarged perspective view of the coupling of the side springs with the end spring. Fig. 4 is a perspective view of the coupling ends of said springs detached from the shoe which embraces said ends and completes the coupling thereof. Fig. 5 is a longitudinal vertical section on line $y y$, Fig. 3. Fig. 6 is a detached perspective view of the body-loop and its connection with the cross-bar by which the two body-loops are tied to each other; and Fig. 7 is an inverted plan view of the saddle.

Similar letters of reference indicate corresponding parts.

S represents the cross-spring, which is disposed vertically edgewise, and $S' S'$ denote the side springs, which are connected to the ends of the cross-spring in the following manner and by the following improved means. The end of the cross-spring we form with a horizontally-elongated eye e , of proper dimensions to receive through it the end of the side spring, as represented in Fig. 4 of the drawings. The protruding end of the side spring we provide with a vertical perforation f , for the purpose hereinafter explained.

A represents a shoe, preferably shaped similar to the tip ends of a side bar. Said shoe is formed with a longitudinal passage g , for the reception of the end of the side spring, and this longitudinal passage is intersected by the transverse passage g' , for the reception of the end of the cross-spring, said shoe being applied to the junction of the two springs by first introducing the end of the cross-spring and then entering the side spring, passing the latter through the eye e of the cross-spring, and when thus inserted the perforation f of the side spring comes in front of the cross-spring, and by means of a rivet or bolt n , passing vertically through the shoe and through the aforesaid perforation, the two springs are firmly secured to the shoe.

In order to re-enforce the connection of the aforesaid parts, we form the shoe with laterally-projecting ears $i i$, between which the end of the cross-spring passes, and a bolt or rivet l passes transversely through the said ears and intervening portion of the end spring.

In order to relieve the bolt or rivet n from torsional strain incident to the end-thrust of the side spring, we provide the said spring with the shoulder o , by which it abuts against the receiving end of the shoe.

a represents a metallic saddle, which is mounted on the head-block C, and is formed with a downward-projecting lip p , by which it abuts against the rear face of the head-block, said abutment serving to sustain the saddle, so as to effectually resist the forward thrust incident to the extension of the side springs when subjected to a load. The said saddle may be secured to the head-block either by clips $u u$, as represented in Fig. 1 of the drawings, or by any other suitable and well-known means. The under side of the saddle we form with a square or polygonal socket t , as shown in Fig. 7 of the drawings. The king-bolt w , being inserted from the bottom of the axle, and having its head on the lower end and its nut v applied to the upper end and said nut inclosed in the socket t , which fits closely to the sides of the nut, effectually prevents the nut from turning; hence the king-bolt is securely retained. From the top of the saddle rise two horns $a' a'$, which are slotted in a direction lengthwise of the saddle and are per-

forated transversely. In the slots of these horns is placed edgewise the cross-spring S, and by means of rivets or bolts passing through the perforations of the horns and through the intervening portions of the cross-spring said parts are firmly united.

D represents a body-loop, which is firmly bolted to the under side of the body, and is formed with outward-projecting prongs D' D', to which the central portion of the side spring is attached in any suitable and well-known manner. The central portion of the said body-loop we form with a depression or recess D'', in which lies the end of the cross-bar I, which is extended across the under side of the body and firmly secured thereto and to the body-loop by means of bolts or rivets. The two body-loops are thus securely tied together, and the fastening bolts or rivets thereof are greatly relieved from torsional strain.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the cross-spring, placed edgewise vertically and provided with eyes transversely through its ends, and the side springs having their ends passing through said eyes and secured therein, as set forth.

2. The combination of the cross-spring, placed edgewise vertically and provided with eyes transversely through its ends, the side springs having their ends passing through said eyes, shoes embracing the ends of said springs, and bolts or rivets passing vertically through the shoes and through the ends of the side springs protruding through the cross-spring, substantially as described and shown.

3. The combination of the cross-spring, placed edgewise vertically and formed with an eye transversely through its end, the side spring having its end passing through said eye and provided with a vertical perforation in the protruding end of the side spring, a shoe embracing the ends of the two springs, a bolt or rivet passing vertically through the shoe and aforesaid perforation of the side spring, and a shoulder on the side spring abutting against the receiving end of the shoe, substantially as described and shown.

4. In combination with the cross-spring, formed with an eye transversely through its end, and the side spring having its end passing through the said eye and provided with a vertical perforation in its protruding end, a shoe embracing said ends of the two springs and formed with laterally-projecting ears embracing the cross-spring, a bolt or rivet passing vertically through the shoe and aforesaid perforation of the side spring, and a bolt or rivet passing transversely through the aforesaid ears of the shoe and intervening portion of the cross-spring, substantially as described and shown.

5. The combination of the saddle *a*, formed with the horns *a' a'*, slotted in a direction lengthwise of the saddle and perforated transversely, and the cross-spring S, placed edgewise in the slots of the said horns and secured thereto by bolts or rivets passing through the perforations of the horns and through the spring, substantially as described and shown.

6. In combination with the head-block and the cross-spring, disposed edgewise vertically over the head-block, the saddle *a*, riding on the head-block and provided with the downward-projecting abutting lip *p*, and formed with the horns *a' a'*, slotted to receive the central portion of said cross-spring, and bolts or rivets passing through said horns and spring, substantially as described and shown.

7. In combination with the axle, head-block, and king-bolt having its fastening-nut on top of the head-block, the saddle *a*, rigidly secured to the head-block and provided with the square or polygonal socket *t* for holding the nut of the king-bolt, substantially as described and shown.

In testimony whereof we have hereunto signed our names this 29th day of March, 1889.

JOHN E. HADDEN. [L. S.]
DAVID BARRY. [L. S.]

Witnesses:

JOSEPH PORTER,
W. H. STEVENS.