J. R. HILLER.

Spring for Vehicles.

No. 112,340. Patented March 7, 1871.

Fig. 1.

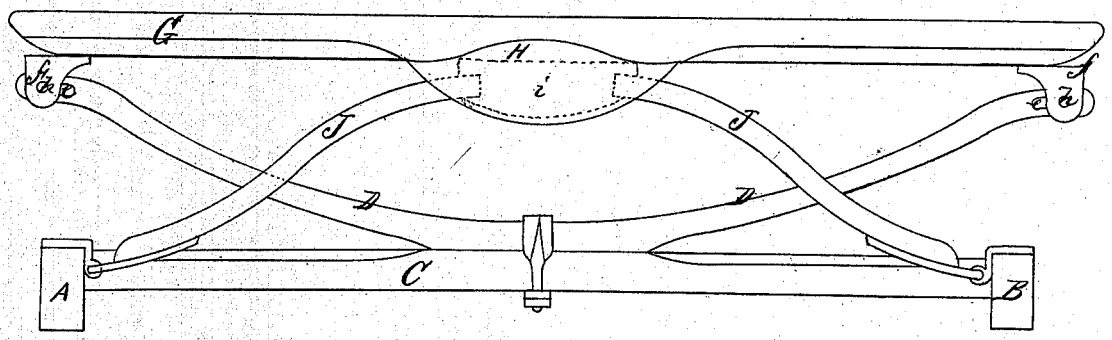
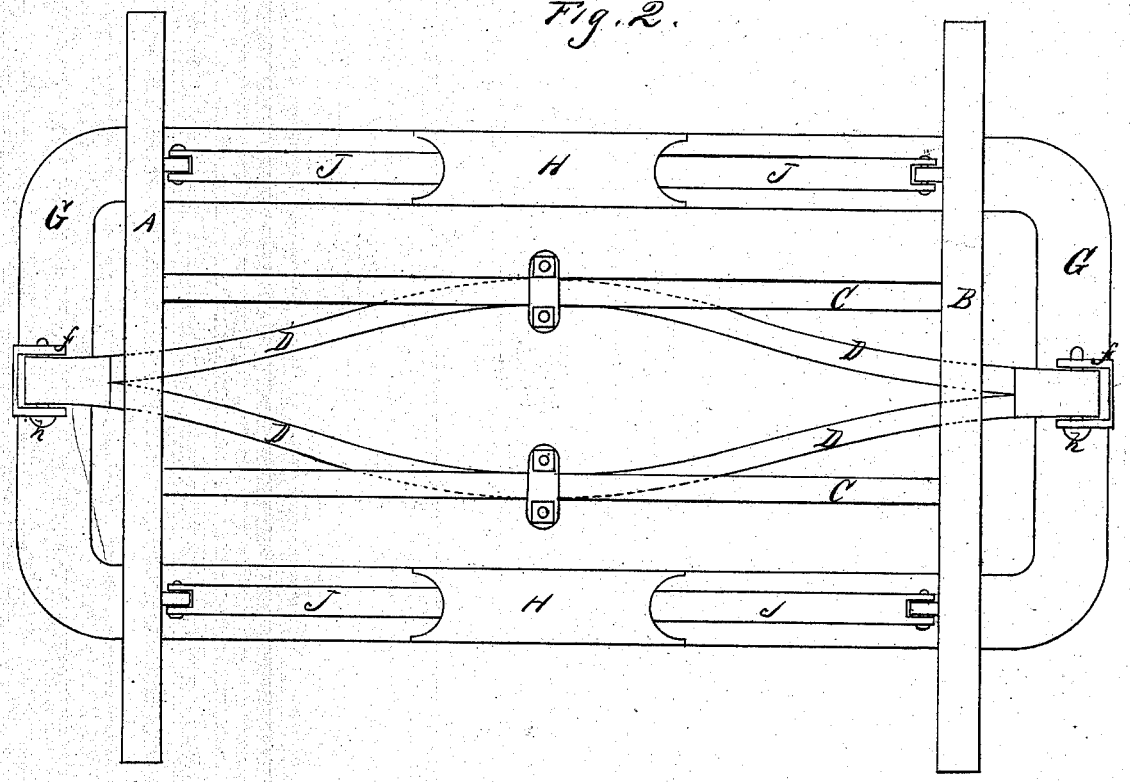


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN R. HILLER, OF WOODLAND, CALIFORNIA.

IMPROVEMENT IN SPRINGS FOR VEHICLES.

Specification forming part of Letters Patent No. **112,340**, dated March 7, 1871.

To all whom it may concern:

Be it known that I, JOHN R. HILLER, of Woodland, county of Yolo, State of California, have invented an Improved Carriage-Spring; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

My invention relates to an improved system of wooden springs for carriages and light wagons, by which an easy vertical or rocking motion is communicated to the carriage bed or body, and is an improvement upon a carriage-spring for which Letters Patent No. 106,817 were granted to me on the 30th day of August, 1870.

In order to fully illustrate my invention, reference is had to the accompanying drawing, forming a part of this specification, in which—

A is the bolster, and B the rear axle-bed, of any carriage or light wagon. Secured to the middle of each of the reaches C, by means of clips or other suitable device, is a semi-elliptic wooden spring, D. The ends of these two springs approach each other toward both ends of the carriage, and are firmly united together by a metallic cap, which encircles their ends, and to which they are bolted. A horizontal slot, *e*, is made through the ends of these springs. A metallic plate, *f*, is secured to the under side of the carriage-body G at the middle of each end. The opposite ends of this plate are turned down, as shown, between which the ends of the springs D are placed, and held by a bolt, *h*, which passes through holes in the downward-projecting ears, and also through the slots *e* in the ends of the springs, so that the bolts can move back and forth in the slots as the springs are depressed or raised to their proper positions.

At the middle of each side of the carriage-body, and on the under side, is secured a metallic box, H, which, in the present drawing, is shown as semicircular in form; but other forms might be used. Inside these boxes I place india-rubber springs or buffers *i*, which extend from the center each way to near the ends of the box. The ends of the boxes H are open, and short curved wooden springs or braces J have one end secured, by means of shackles or equivalent joint, to the rear axle-bed and bolster, directly under the corners of the carriage-body, while their opposite ends enter the open ends of the boxes H and bear against the rubber buffers *i*.

By this arrangement of the springs the body is connected at all points directly with the frame-work of the carriage, and the strain is received equally by all the springs. The same motion obtained by the use of my former device is here secured by a simpler arrangement of the springs, while the body is more firmly braced, but still capable of yielding in either direction with equal facility.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The semi-elliptic wooden springs D, resting upon and secured to the reaches C, as described, and having their united ends provided with a slot, *e*, and secured to the plate *f*, or equivalent device, by the bolt *h*, substantially as and for the purpose above described.

2. The wooden springs or braces J, in combination with the boxes H and india-rubber buffers *i*, substantially as and for the purpose above described.

In witness whereof I have hereunto set my hand.

JOHN R. HILLER.

Witnesses:

JNO. L. BOONE,

WM. H. RUNNELS.