

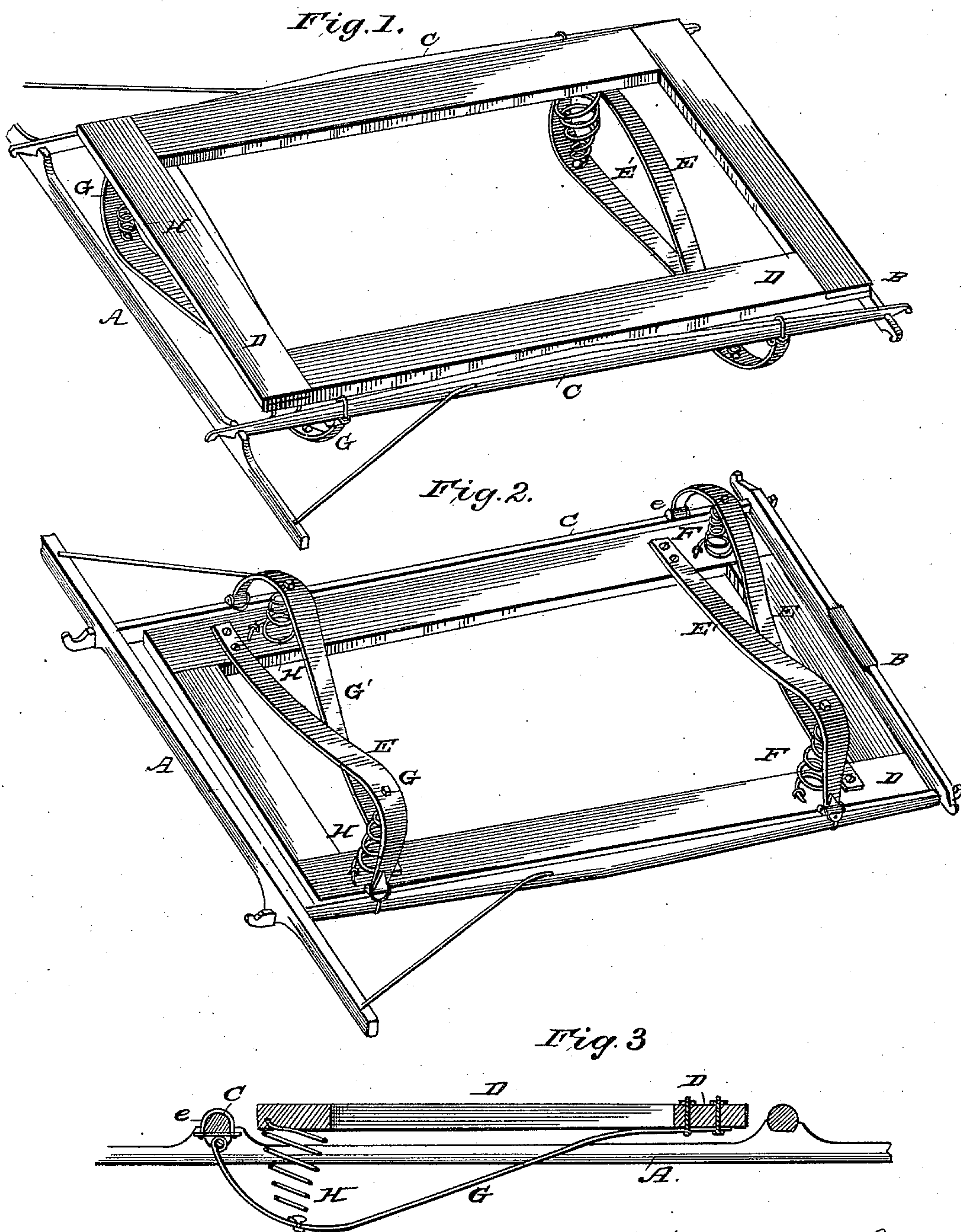
(No Model.)

A. L. HOPFINGER.

VEHICLE SPRING.

No. 304,198.

Patented Aug. 26, 1884.



WITNESSES:

Med. L. Dieterich
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~~INVENTOR.~~

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UNITED STATES PATENT OFFICE.

ALBERT LEONARD HOPFINGER, OF PORT CLINTON, OHIO.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 304,198, dated August 26, 1884.

Application filed April 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALBERT L. HOPFINGER, a citizen of the United States, and a resident of Port Clinton, in the county of Ottawa and State of Ohio, have invented certain new and useful Improvements in Vehicle-Springs; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved vehicle-springs, showing the same attached in operative position to the frame of a side-bar buggy of ordinary construction. Fig. 2 is a perspective bottom view of the same, and Fig. 3 is a cross-sectional view of Fig. 1.

Similar letters of reference indicate corresponding parts in all the figures.

My invention consists in the improved construction and combination of parts of vehicle-springs which are more particularly adapted for use on side-bar buggies, as will be hereinafter more fully described, and particularly pointed out in the claim.

In the accompanying drawings, A represents the rear axle, B the front bolster, and C the side bars, of the buggy-frame, the above-mentioned parts being old in construction and forming no portion of my present invention.

D indicates the rectangular frame or body-sills of the buggy.

E E' represent the two cross-springs at the front end of the frame D, the spring E, which is nearest the front axle, being secured by one of its extremities, by means of a hinge or coupling, *e*, to the right-hand side bar, C, near its forward end, the other end of the said spring being rigidly bolted to the opposite or left-hand side of the frame D. The second front cross-spring, E', is secured at one extremity in a similar manner to the left-hand side bar, C, and at its other end to the opposite or right-hand side of the frame D. Upon either side of the frame D, near its front end, are secured the spiral springs F F', the lower ends of which

are rigidly secured to the upper sides of the springs E E' near their ends, which are connected to the side bars of the frame, as will readily be understood by reference to the drawings.

The rear cross-springs, G G', and spiral springs H H are exactly similar in construction, and are applied in precisely the same manner as the front springs, E E' and F F'.

From the foregoing description, taken in connection with the accompanying drawings, the construction of my improved vehicle-springs will readily be understood without requiring further explanation. It will be seen that when the mainsprings E E' and G G' are flattened or forced down by the weight of the load in the body of the vehicle the four coiled springs will serve to give the requisite "spring" or easy motion to the vehicle. It will also be seen that by the peculiar arrangement and combination of these several springs the body and seat of the vehicle will be kept nearly or quite level, even when the vehicle is loaded to one side—that is to say, even when the main portion of the load in the vehicle is placed to one side.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

The combination, with the side bars, C C, and frame D of a vehicle of ordinary construction, of the cross-springs E E' and G G', hinged at one end to the side bars, C C, and having their opposite ends rigidly bolted to the opposite sides of the frame D, and coiled or spiral springs F F' and H H, secured between the under side of the frame D and the cross-springs E E' and G G', near the point where the latter are connected to the side bars, C C, all constructed and arranged to operate substantially in the manner and for the purpose shown and described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

ALBERT LEONARD HOPFINGER.

Witnesses:

JOHN DETLEFS,
H. B. MAGRUDER.