(No Model.)

W. S. LAW.

VEHICLE SPRING.

No. 245,181. Patented Aug. 2, 1881.

Fig. 1

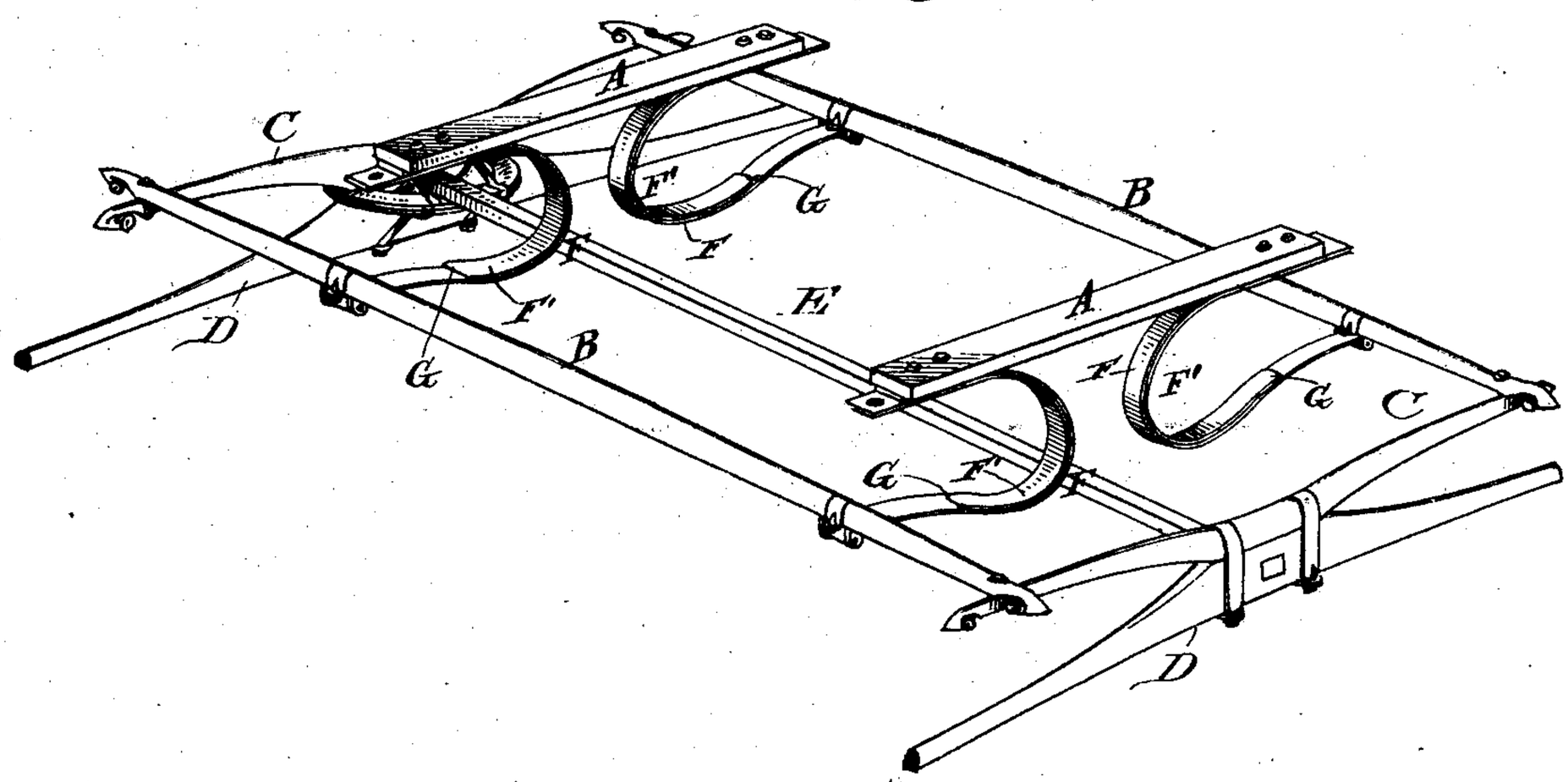
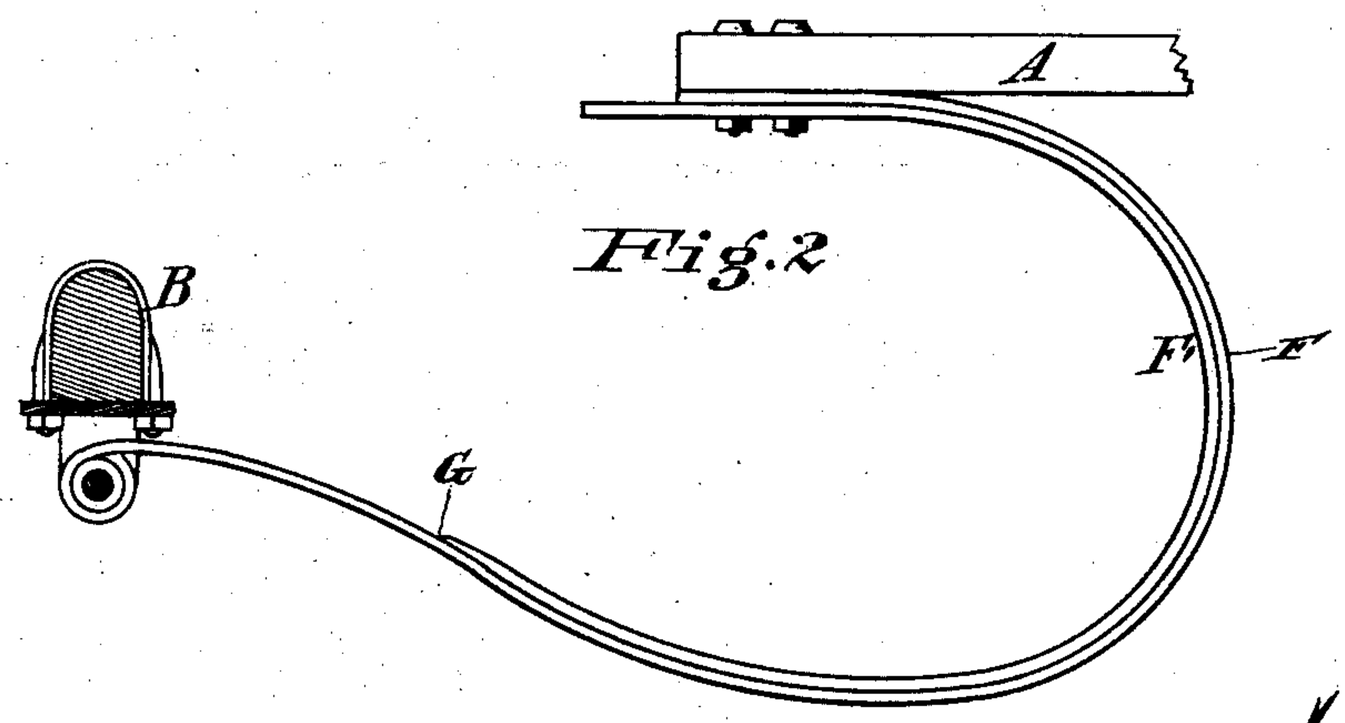


Fig. 2



Attest
C. P. Doolittle
Louis Ballenberg

Inventor
William S. Law,
by Lell & Hoover,
Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM S. LAW, OF MIDDLETOWN, OHIO, ASSIGNOR OF SEVEN-EIGHTHS TO THE LING LEROY BUGGY COMPANY, OF SAME PLACE.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 245,181, dated August 2, 1881.

Application filed February 12, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. LAW, a citizen of the United States, residing at Middletown, Butler county, Ohio, have invented new and useful Improvements in Spring-Gear for Vehicles, of which the following is a specification.

My invention relates to that class of vehicles employing side bars in connection with the spring-gear in mounting the body upon the axles; and it consists in a novel construction and arrangement of the spring-gear, whereby a lighter and stronger construction of the parts and an easier and more resilient motion of the body upon the springs are secured.

My invention is embodied in mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the vehicle-frame with the body and wheels removed, and Fig. 2 is an enlarged elevation of one of the springs and its connections.

Similar letters of reference indicate similar parts in the specification and drawings.

A A in the drawings indicate the cross-bars, upon which the body of the vehicle rests and to which the springs are secured; B B, the side bars; C C, the end bars connecting the side bars, and to which the axles D D are secured, and E the perch extending centrally between the front and rear axles.

I mount the body upon four or more curved springs, F, somewhat U-shaped, secured at their butts or heavy ends to and beneath the braces A A, and at their smaller extended ends to the side bars, B. These springs are arranged, as shown, with their concave sides outward, opening toward the sides of the vehicle, and having sufficient space between the two contiguous springs attached to the same bar to permit the perch E to extend straight between the front and rear axles without interference.

The springs F are each uniformly curved from their point of attachment to the outer end of the cross-bars A to their point of attachment to the side bars, B, and each spring has on its upper side a supplemental spring-plate, F′, which is secured at one end by the bolts which connect the springs F to the cross-bars; and the said supplemental springs are likewise uniformly curved, and extend along and are sustained by the springs F, and terminate at a short distance from the outer ends of the springs F, as at G. The object of this construction is to dispose the metal of the spring to the best advantage without lessening the resiliency of the spring, but on the contrary increasing the reciliency, and to uniformly transmit the strain throughout the spring.

In use the downward pressure of the weight in the body of the vehicle is uniformly distributed throughout the material of the springs, tending to compress them into a smaller arc of curvature.

Several advantages result from this construction, among which are the avoidance of any loose parts usually required to accommodate end-thrusts of the springs or weak parts in the spring where coiled over upon itself as a provision for end-thrust. In my arrangement there is practically no end-thrust, all strains being equally distributed throughout the curve of the spring, whereby not only a more durable spring-gear is produced, but a more easily riding vehicle. This construction is more economical in cost and labor, and also avoids the necessity of dropping down the perch, as is usually done in side-bar vehicles.

I am aware that plate-springs have been connected with the side bars and the cross-bars sustaining the body; but as heretofore constructed such springs have been formed of single plates with a series of reverse curves between their ends. This form of spring is objectionable because the strain is concentrated on one of the single short curves, and is therefore exceedingly liable to rupture, and such construction does not constitute my invention.

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

The combination, with the side bars, B, and cross-bars A, of the springs F, uniformly

curved from their point of attachment to the side and cross bars, and each spring being reenforced by a similar uniformly-curved supplemental spring, F′, which extends along the upper surface of the spring F, and terminates at a distance from the side bar, as at G, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM S. LAW.

Witnesses:
C. P. DOOLITTLE,
L. M. HOSEA.