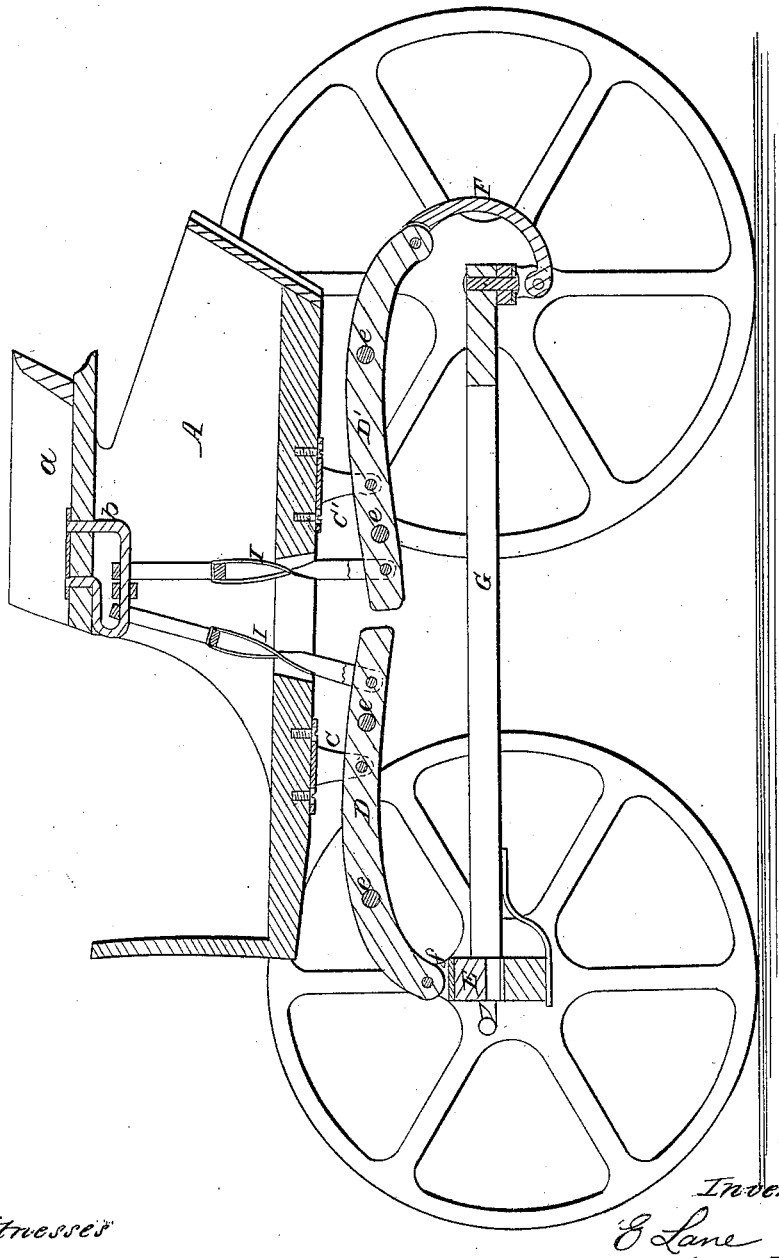
2 Sheets—Sheet 1.

E. LANE.

Carriage-Spring.

No. 51,196. Patented Nov. 28, 1865.



Witnesses
Wm Albert Steel
John Parker

Inventor
E Lane
By his Attys
H Howson

2 Sheets—Sheet 2.

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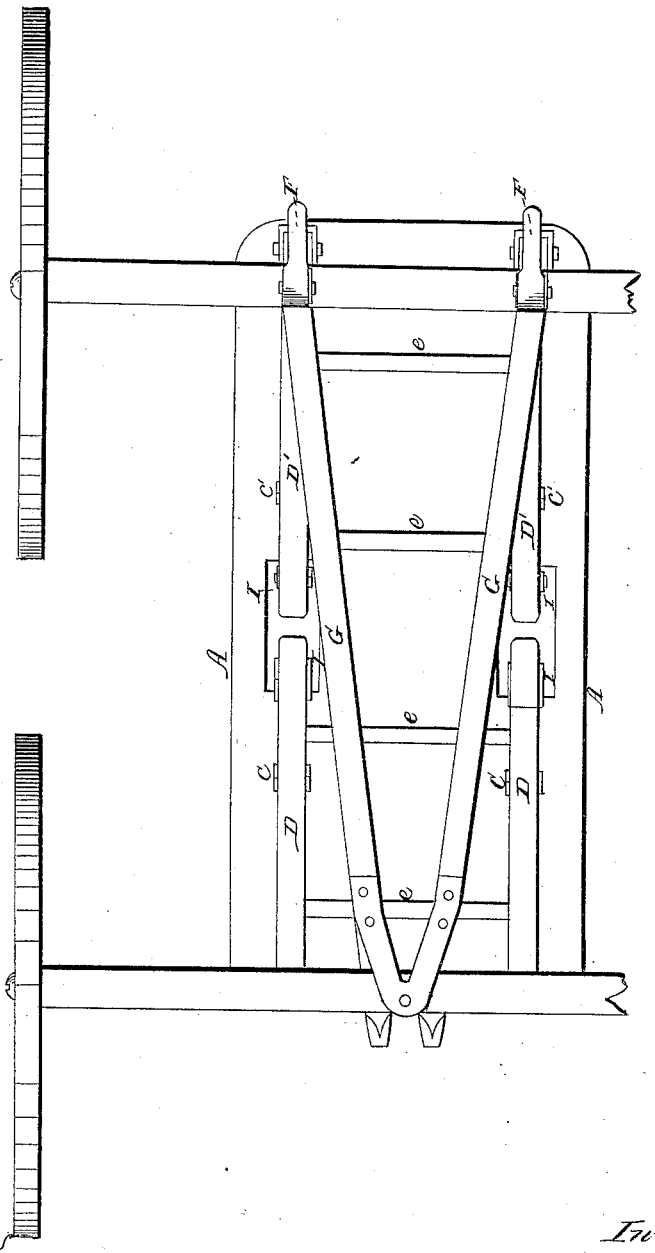

Fig. 2

Witnesses
Wm Albert Steel
John Parker

Inventor
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UNITED STATES PATENT OFFICE.

EDWARD LANE, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVED CARRIAGE, WAGON, &c.

Specification forming part of Letters Patent No. **51,196**, dated November 28, 1865.

To all whom it may concern:

Be it known that I, EDWARD LANE, of Philadelphia, Pennsylvania, have invented an Improvement in Carriages; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improvement in the mode of hanging carriage-bodies for which Letters Patent were granted to me on the 2d day of June, 1863; and my improvement consists in connecting the rear ends of the rear levers alluded to in the said patent to the rear axle through the medium of links, which permit me to connect the said rear axle to the cross-piece above the front axle, and to thereby strengthen the carriage without interfering with the desired free movement of the levers and springs.

On reference to the accompanying drawings, which forms a part of this specification, Figure 1 is a vertical section of a carriage, showing my improvement; Fig. 2, an inverted plan view.

A represents a carriage-body having a suitable seat, *a*, the bottom of which is thicker than usual in order to receive the staples *b*.

To the under side and toward the front of the body A are secured two hangers, C C, and toward the rear of the body, and to the under side of the same, are secured two similar hangers, C′ C′.

To the hangers C C are hung the levers D D, and to the hangers C′ C′ are hung similar levers, D′ D′, the two levers D D being connected together by rods *e e* and the levers D′ D′ by similar rods.

The front end of each of the levers D is hinged to a projecting plate, *f*, on the cross-piece E, to which the front axle of the wagon is pivoted, and the rear ends of the levers D′ are connected to the rear axle, each by a curved link, F.

To the staples *b b*, on the under side of the seat *a*, are suspended four gum-elastic springs, each spring being connected to one of the levers by a rod, I.

As the front and rear axles are connected together by the perch G, the links F are essential to the proper action of the levers D′, for if these levers were secured directly to the rear axle, their free movement would be impossible; hence the use of the links F, which permit the levers to have a slight longitudinal movement, and insure the proper action of the springs.

In the carriage for which Letters Patent were granted to me, June 2d, 1863, the axles were independent of each other, and the levers secured directly to them, and by this method the desired undulating motion of the body was obtained, but the carriage-body had too much elasticity with light weights, while if laden heavily the axles were forced too far apart, and the action of the springs materially impaired. But with the axles connected together, and the levers allowed full play, owing to the links F, the whole structure is rendered more firm and capable of bearing a much greater weight. As the levers D D are connected together by cross-rods and the levers D′ D′ by similar rods, any objectionable lateral movement of the carriage is avoided, and the only motion must be of the desired undulating character.

The action of the springs when the wheels are passing over obstructions, &c., is substantially the same as described at length in my said patent, and will not require any description here.

I claim as my invention and desire to secure by Letters Patent:

The body A, its four springs, the levers D D, connected directly to the cross-piece E, and levers D′ D′, connected to the rear axle through the medium of links F F, when the whole is arranged and operated as set forth, and is applied to a carriage in which the said cross-piece E is connected by a perch, G, to the rear axle, as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD LANE.

Witnesses:

CHARLES E. FOSTER,

H. HOWSON.