

O. S. CARVILL.  
Vehicle-Spring.

No. 213,386.

Patented Mar. 18, 1879.

Fig. 1.

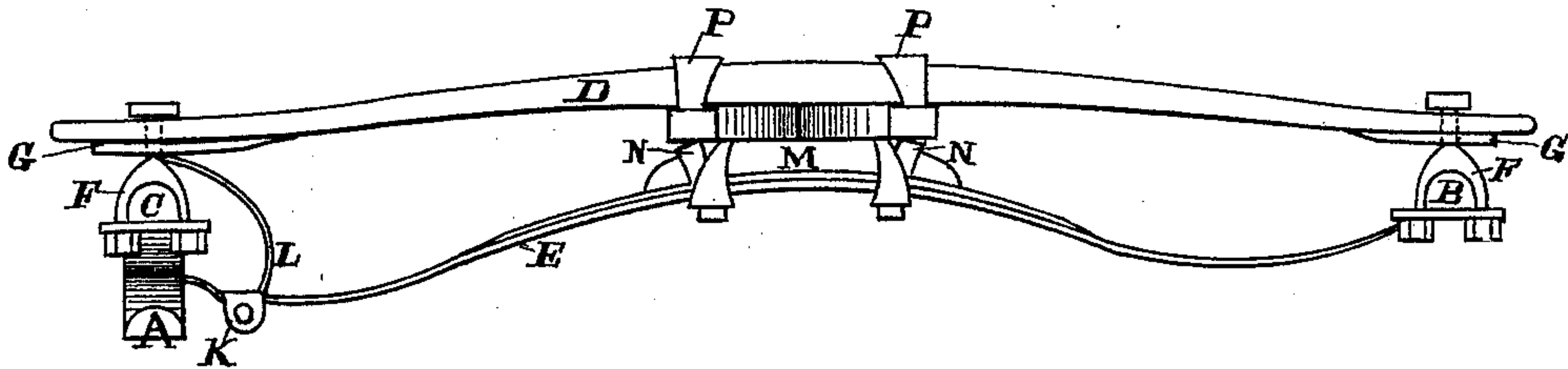


Fig. 2.

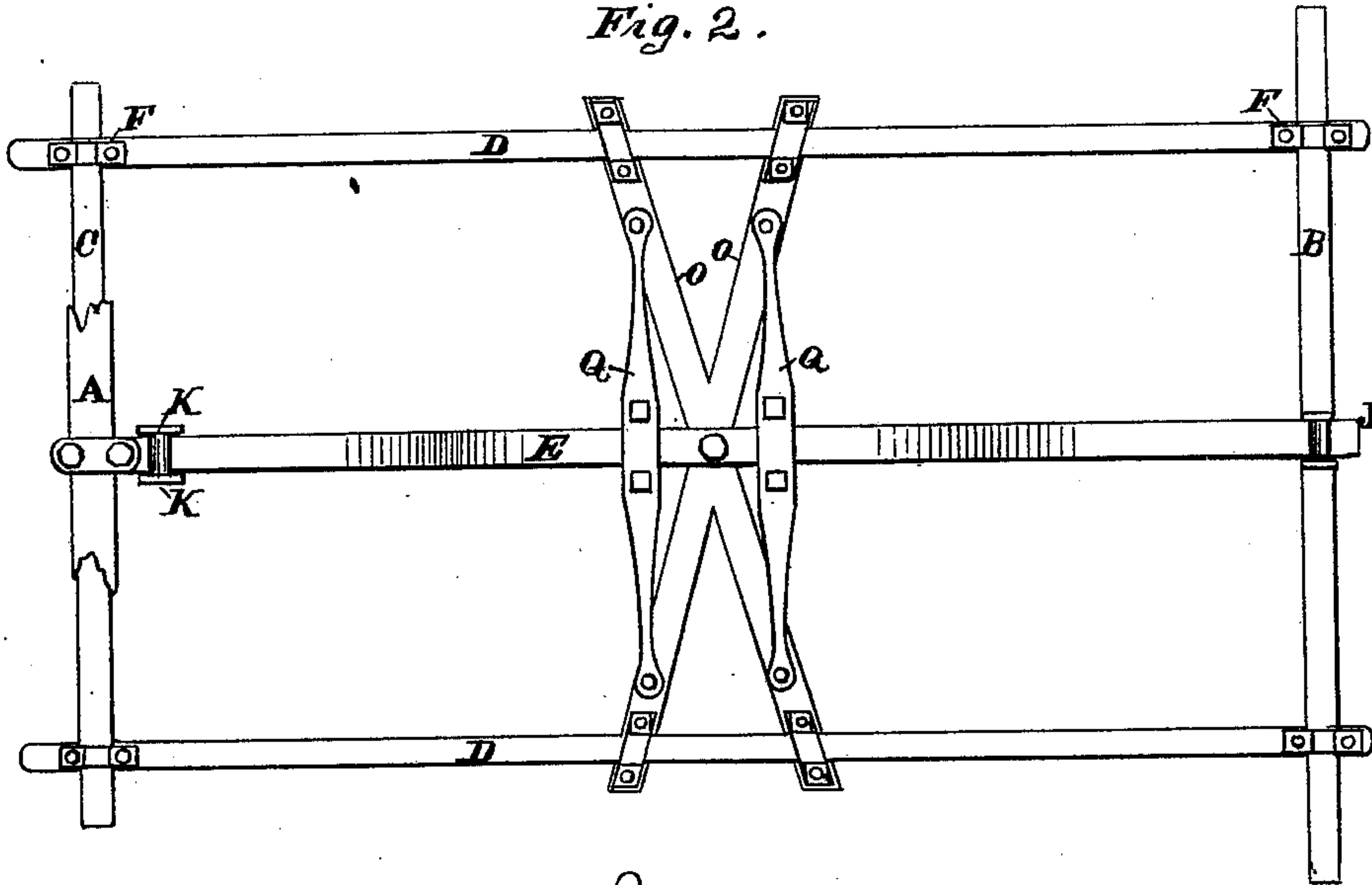
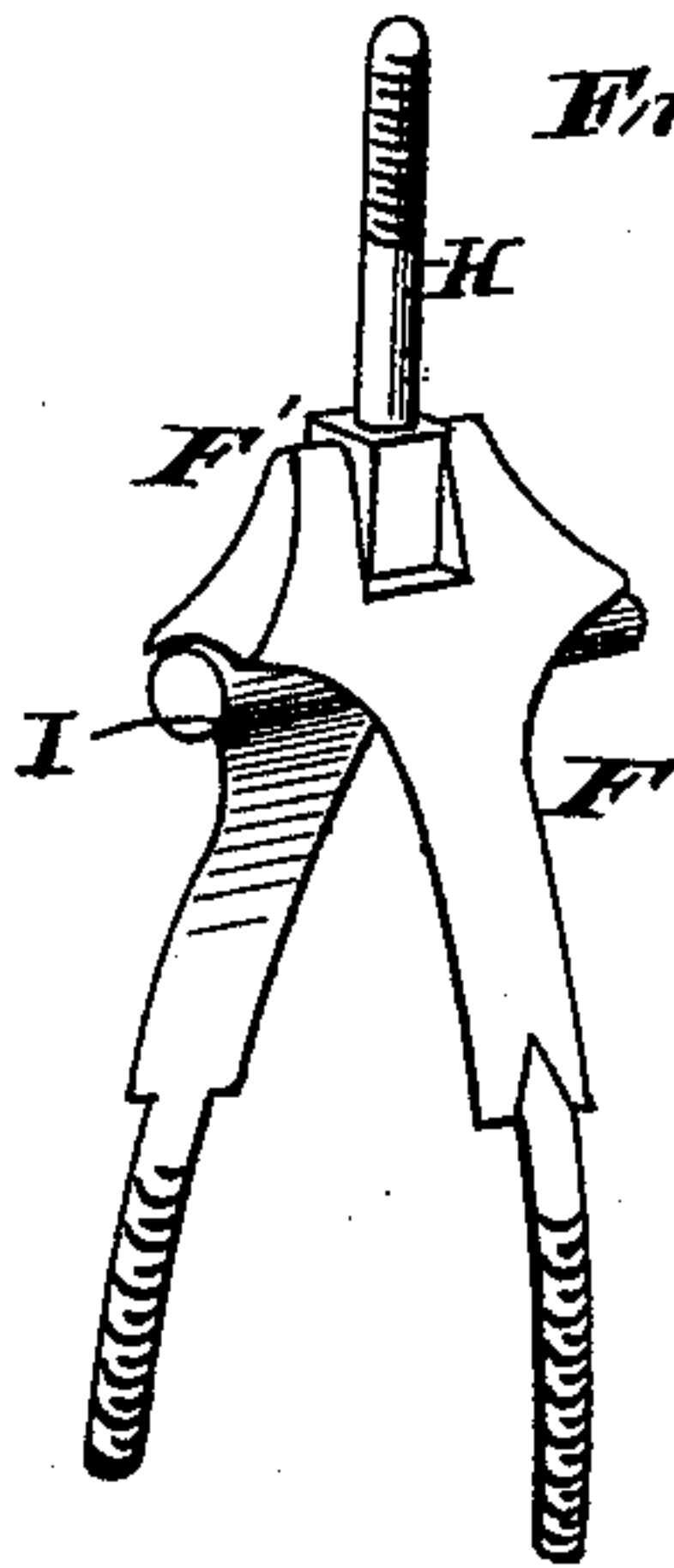


Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **213,386**, dated March 18, 1879; application filed August 13, 1878.

*To all whom it may concern:*

Be it known that I, ORRIN S. CARVILL, of the city and county of San Francisco and State of California, have invented Improvements in Carriage-Springs; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to a novel improvement in the construction of springs and gear for carriages and other vehicles; and it consists in the combination, with the parallel wooden side bars of a buggy and a parallel central longitudinal supplemental steel spring, of a specially-constructed connecting-frame.

It further consists in the employment of a peculiar clip by which the side bars are attached to the bolster and the rear axle-bed, and by which they have a free and independent motion upon their points of attachment, and the axle-bed or bolster will not be rocked back and forward by the vertical movement of the side bars and spring.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a side view of my invention. Fig. 2 is a bottom view. Fig. 3 is an enlarged view of the clip.

A B are the front and rear axles, and C is the bolster of a buggy or carriage. D D are parallel wooden side bars extending from the rear axle to the bolster. Centrally attached to the rear axle and extending between the side bars D D forward to the front axle is the supplemental parallel steel spring E. This spring E is so situated as to have its ends secured beneath the axles, while the side bars D have their ends secured above the axle-bed and bolster respectively.

These side bars are made of wood for cheapness, and arched, as shown. At the points where they rest upon the axle-bed and bolster I have employed peculiar clips F, which are secured to the axle-bed or bolster by a plate and nuts in the usual manner. The head where the sides of the clip meet forms an arch, the upper part of which extends up so as to form a bridge, upon which the ends of the side bars rest. A plate, G, is secured to the lower part of the side bars at each end, and this plate rests upon the bridge. A bolt, H, passes

through the end of the side bar, and has a sort of T-head, I, which fits beneath the arch at the upper end of the clip, as shown. By this construction the side bars or springs are firmly united to the axle and bolster, and the plate, resting upon the bridge, allows them to ride easily, while at the same time they have a motion independent of the axle-bed or bolster, which will thus be prevented from rocking, which is a great fault with vehicles constructed without rigid perches.

The steel spring E extends longitudinally through the center from the front to the rear axle, being secured to the latter by a clip, as shown at J. At the front end the spring is secured to a bolt between lugs K, and this is in turn supported by a bent frame, L. This frame is bent so that one end passes between the axle-bed and bolster, while the other end lies above the bolster, and the king-bolt passes through both, thus holding the frame securely in place.

The spring E may be made of the shape shown, arching up in the middle, where the block M is fitted to it and secured by clips N. Across the top of this block the X-frame O passes, being bolted securely to the block and spring E at the center, while the ends of the frame O are secured by clips P to the side bars D, as shown. The plates Q, through which the lower ends of the clips N pass, are extended, so as to form braces upon each side, which are bolted to the cross-frame O, and the whole spring system is thus united very firmly at this point.

By making my uniting frame O in the form of a cross, as shown, I am enabled to brace the two side bars from each other by a diagonal brace in each direction, and thus resist any side strain or sudden jolt.

My method of uniting the side bars with the axle and bolster enables me to employ wood for these side bars instead of steel side springs, and this combination of wooden side bars or perches with a steel center spring produces a vehicle having the combined advantages of cheapness and strength.

I am enabled to produce a vehicle with all the advantages of the longitudinal spring-perches without the danger of breakage which attends this style of non-rigid perch and gear.



In short, I produce a vehicle which has practically rigid outside perches with a single central spring.

I am aware that three steel springs have been connected with the front and rear axles without any rigid connecting perch or bar, thus making the union of the front and rear axles to depend entirely upon the strength of these steel springs. I do not therefore claim such a connection; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. The clips F, secured to the axle and bolster, and forming the bridges F', in combination with the bolts I, securing the side bars D and allowing them to have a motion upon the bridges, substantially as herein described.

2. The parallel wooden side bars or perches D, with the supplemental and parallel central

longitudinal spring E, in combination with the cross-frame O, clipped to the side bars, as shown, and the braces Q and block M, the whole constructed and united substantially as and for the purpose herein described.

3. A gear for vehicles consisting of the wooden side bars or perches D D, centrally united by the horizontal cross-frame O, and mounted upon the axle and bolster by means of the clip F, with the bridges F', and the bolt I, the whole combined with a central longitudinal spring, E, connected with the axles, as shown, secured to the cross-frame O, and braced at Q, substantially as herein described.

In witness whereof I hereunto set my hand.

O. S. CARVILL.

Witnesses:

FRANK A. BROOKS,  
GEO. H. STRONG.