M. H. CRANE.
Vehicle-Spring.

No. 212,302. Patented Feb. 18, 1879.

Fig. 1.

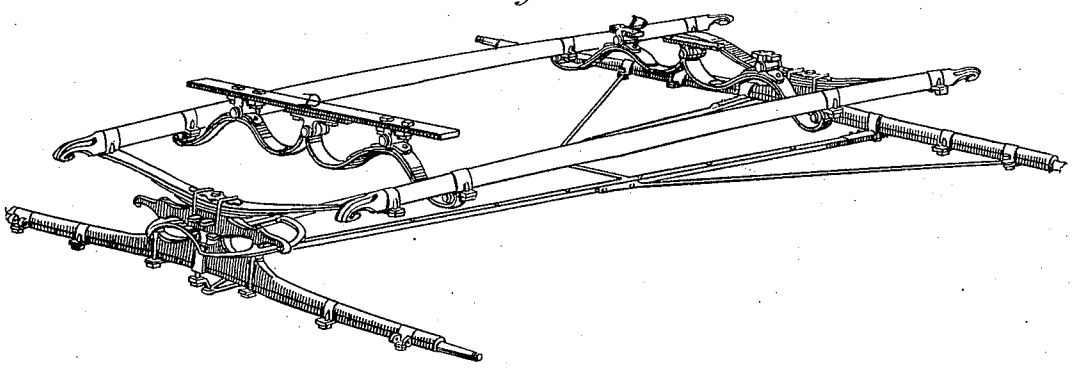
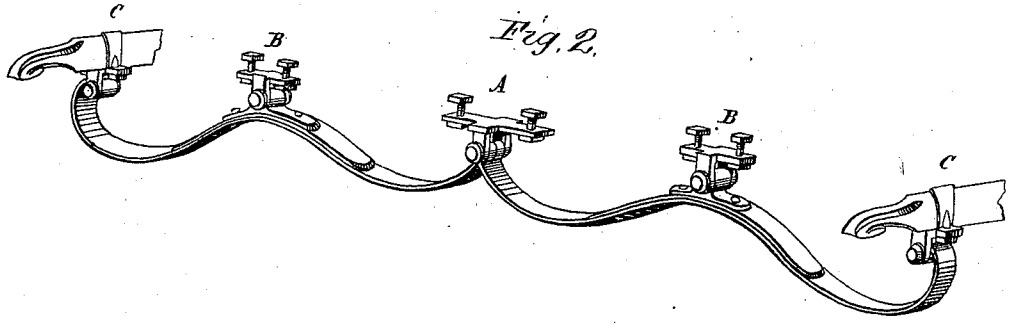


Fig. 2.



Witnesses,
Chas. E. McFarlan
A. D. Martin

Martin H. Crane
Inventor.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MARTIN H. CRANE, OF CINCINNATI, ASSIGNOR TO H. D. CRANE, OF HAMILTON COUNTY, OHIO.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **212,302**, dated February 18, 1879; application filed January 2, 1879.

To all whom it may concern:

Be it known that I, MARTIN H. CRANE, of Cincinnati, county of Hamilton, State of Ohio, have invented a new and useful Improvement in the Construction and Method of Attachment of Springs for Side-Bar Carriages, of which the following is a specification:

In the drawings, Figure 1 is a perspective view of my device, and Fig. 2 an enlarged view of the spring.

The invention relates to the form of transverse springs and their application.

Vehicles of this class have heretofore been made with single semi-elliptic springs extending the full distance between and to the side bars. The objection to this method of construction is the great lateral motion allowed by the center attachment of springs.

In lieu of the single springs, I make use of two duplex semi-elliptical springs, placed under each end of the vehicle, as represented at D D, having their common attachment at or near the point A, and their center attachment near the sides of the carriages, the outer end of each being secured separately to the bars C C. By this method the lateral motion of the carriage is greatly diminished, while the vertical and forward motion is materially increased, giving greater ease in passing over obstructions.

It will be readily seen that by this method the four corners of the body of the vehicle rest firmly upon the center of each of the four springs, constituting what is termed a "platform."

What I claim is—

The combination, with the side bars of a side-bar vehicle, of two or more transverse duplex semi-elliptic springs, having central attachments, B B, substantially as shown and described.

MARTIN H. CRANE.

Witnesses:

CHAS. E. MCFARLAN,

A. D. MARTIN.