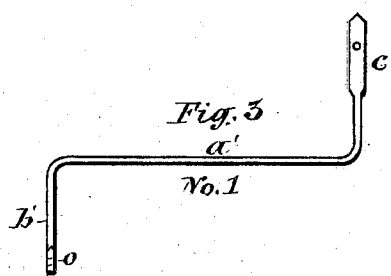
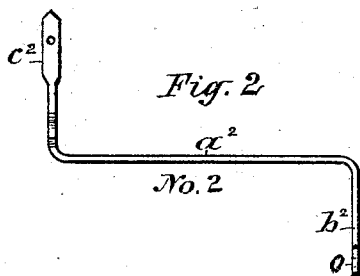
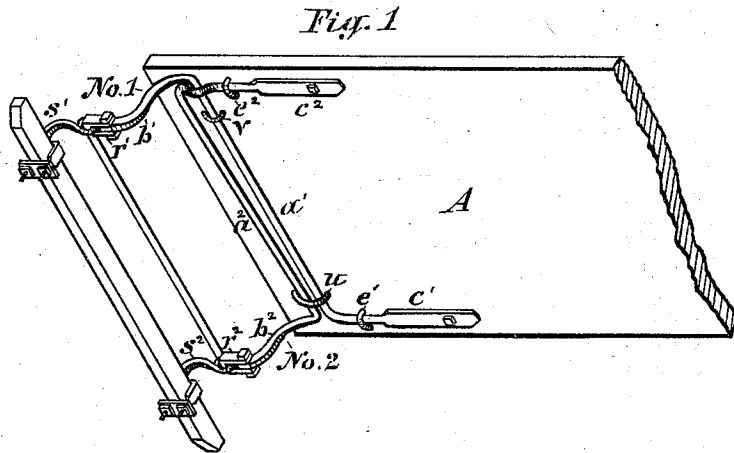


P. MILLER.
WAGON-SPRINGS.

No. 178,073.

Patented May 30, 1876.



Witnesses:

Christian Holmstrup Jr.

J. C. Laass

Inventor:

Peter Miller

per E. Laass Atty

UNITED STATES PATENT OFFICE.

PETER MILLER, OF GLOVERSVILLE, NEW YORK, ASSIGNOR OF PART OF HIS RIGHT TO CALVIN G. ALVORD AND WILLIAM H. SEYMOUR, OF SAME PLACE.

IMPROVEMENT IN WAGON-SPRINGS.

Specification forming part of Letters Patent No. 178,073, dated May 30, 1876; application filed January 12, 1876.

To all whom it may concern:

Be it known that I, PETER MILLER, of Gloversville, in the county of Fulton, in the State of New York, have invented a new and useful Improvement in Wagon-Springs, of which the following, taken in connection with the accompanying drawing, is a full, clear, and exact description:

My invention relates to improvements in that class of vehicle-springs in which a torsional strain upon the main portion of the spring-bar is produced by turning the attaching and supporting ends at a right angle therefrom, by which improvements a torsion-spring is obtained, which is simple and cheap in construction, strong and effective in operation, and overcomes to a great extent the rocking and swinging movement of the vehicle. It consists in the construction, arrangement, and combination of parts hereinafter fully described.

The accompanying drawing fully illustrates my invention.

Figure 1 is an isometric view of the rear end of a vehicle, showing my improved springs attached thereat. Figs. 2 and 3 are detail views of my invention.

Similar letters of reference indicate corresponding parts.

A represents the bottom of a vehicle-body, to each end of which is attached a set of my improved springs, which consist of the two spring-bars designated in the drawings as Nos. 1 and 2. The main or central portion a^1 and a^2 , respectively, of these spring-bars is straight, and extends across the bottom of the body A. Near the edge of the body A the spring-bar No. 1 is turned outward at a right angle to the portion a^1 , and formed into a downward-curved arm, b^1 , which, being provided with an eye, o , at the end, is attached to the stirrup s^1 by the coupling r^1 . Near the opposite edge of the vehicle-body A the spring-bar No. 1 is provided with a shank or enlargement, c^1 , standing at a right angle to the main portion a^1 , and in an opposite direction from the arm b^1 at the other end thereof, which shank is rigidly bolted to the vehicle-body. The spring-

bar No. 2 is formed and attached in a similar manner to that of the spring-bar No. 1, but has its arm b^2 and shank c^2 at opposite sides, respectively, to adapt it to the opposite side of the vehicle, and its shank c^2 is bent over the main portion a^1 of the spring-bar No. 1, so as to avoid cutting away material from the vehicle-body. The goose-neck or supporting-arm of the stirrups s^1 and s^2 stand transversely across the axle to support the arms b^1 and b^2 , which are parallel with the track of the vehicle, and the usual coupling r^1 is interposed between the stirrup and arm of the spring to add elasticity to the latter, and relieve the former from excessive strain. e^1 and e^2 are staples supporting the spring-bars at the shank, and v and u are staples or clasps supporting them at the arms without hindering them from asserting their elasticity.

Any one of ordinary mechanical skill and ingenuity will observe that, by turning the attaching-shanks c^1 c^2 in an opposite direction from the coupling or supporting ends b^1 b^2 , as described and shown, the torsion on the main portion a^1 a^2 is such that the thrust or strain on one side of the vehicle has a tendency to also draw down with it the opposite side, and thus prevents the vehicle from rocking side-wise; whereas, if the attaching shank or free end of the spring-bar is turned in the same direction, and parallel with the coupling or supporting ends, as heretofore constructed, the downward strain on one side of the vehicle has a tendency to throw up the opposite side, and consequently increases the side rocking. Besides this, I am enabled to attach the main portion a^1 a^2 near the ends of the vehicle-body, and thereby, in a great measure, prevent longitudinal swinging or rocking. To still further overcome the side rocking, I place the stirrups s^1 s^2 transversely on the axle or bolster, and parallel with the track of the vehicle.

Neither do I claim torsion-springs with their main portion placed longitudinally under the vehicle-body, as they either allow one side of the vehicle to be depressed without affecting the opposite side, or cause a diagonally-swing-

ing movement, and are generally more complicated and expensive, hence do not accomplish the object sought in my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The improved vehicle-spring herein described, composed of the spring-bars Nos. 1 and 2, consisting, respectively, of the main central portion $a^1 a^2$ extended across the end of the body A, and having at one end the coupling or supporting arms $b^1 b^2$, standing outward at a right angle thereto, and at the opposite end the shank $c^1 c^2$ standing inward at a right angle, and rigidly attached thereat to the body A, all constructed and combined with a vehicle substantially in the manner described and shown, for the purpose set forth.

2. The combination of the spring-bars Nos. 1 and 2, having the attaching-shanks c^1 and c^2 standing inward and in opposite direction

from the outward-turned coupling or supporting arms $b^1 b^2$, at the opposite end of the main central portion $a^1 a^2$, and at right angles thereto, placed with their straight main central portion $a^1 a^2$ transversely under the body A, at or near the end thereof, and rigidly attached thereto at the shanks $c^1 c^2$, and the stirrups $s^1 s^2$ standing transversely on the axle or bolster, and parallel with the track of the vehicle, all constructed, arranged, and combined substantially as and for the purpose specified.

In testimony whereof I have signed my name and affixed my seal in the presence of two attesting witnesses at Gloversville, in the county of Fulton and State of New York, this 6th day of January, 1876.

PETER MILLER. [L. S.]

Witnesses:

C. G. ALVORD,

W. H. SEYMOUR.