(No Model.) 2 Sheets—Sheet 1.

J. A. MACK & C. HANSEN.

SPRING VEHICLE.

No. 342,213. Patented May 18, 1886.

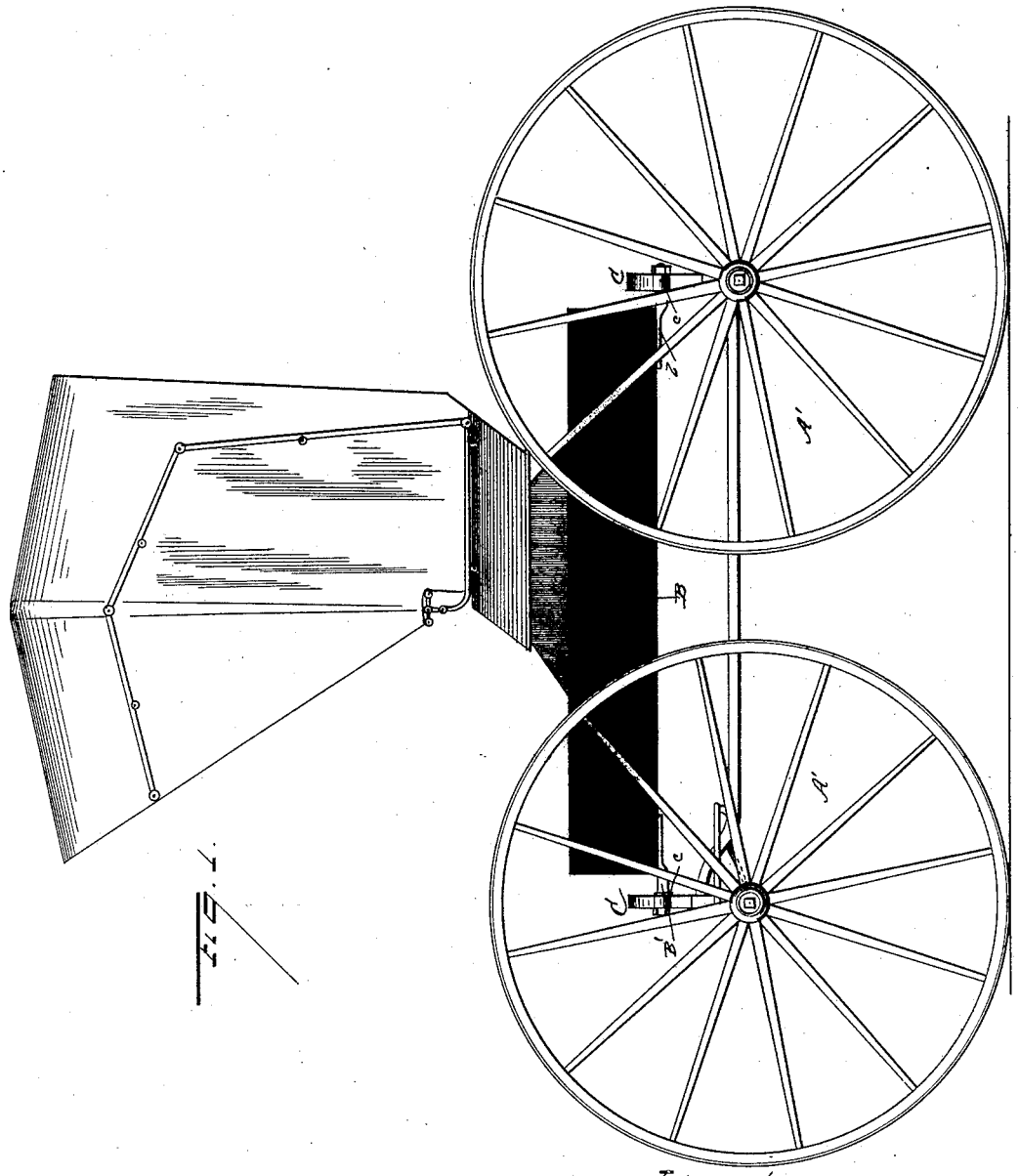

Fig. 1.

Witnesses:
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(No Model.) 2 Sheets—Sheet 2.

J. A. MACK & C. HANSEN.

SPRING VEHICLE.

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Fig. 2.

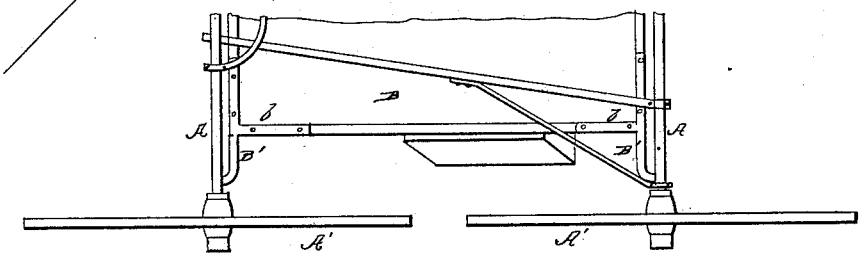


Fig. 3.

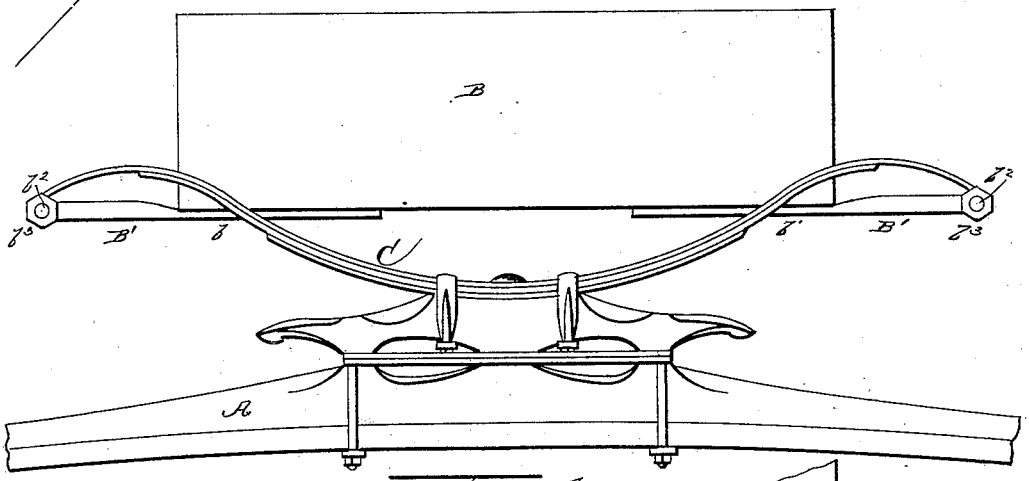


Fig. 4.

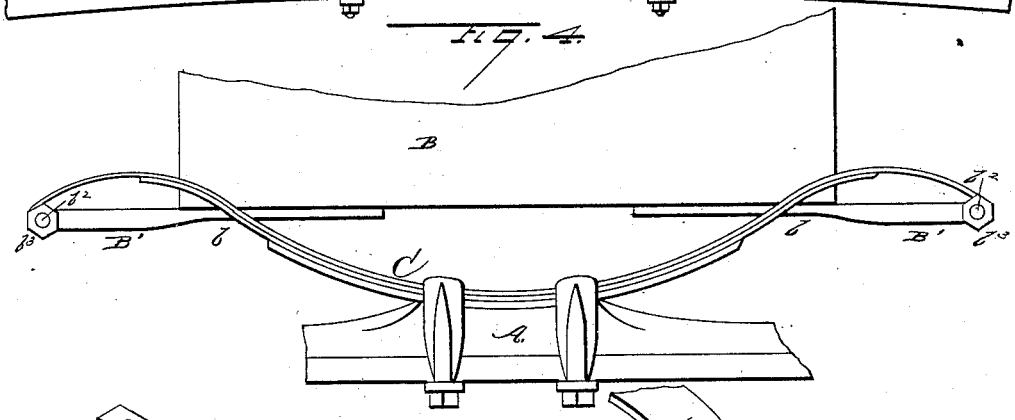
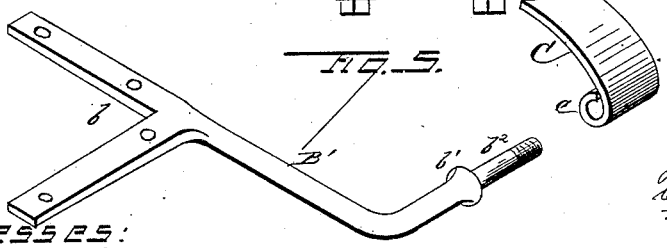


Fig. 5.



Witnesses:
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Inventors.
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UNITED STATES PATENT OFFICE.

JACOB A. MACK AND CHRISTIAN HANSEN, OF MADISON, WISCONSIN, ASSIGNORS OF ONE-THIRD TO SIMEON MILLS, OF SAME PLACE.

SPRING-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 342,213, dated May 18, 1886.

Application filed July 25, 1885. Serial No. 172,610. (No model.)

To all whom it may concern:

Be it known that we, JACOB A. MACK and CHRISTIAN HANSEN, citizens of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Spring-Vehicles, of which the following is a specification, to wit:

This invention relates to an improvement in vehicles; and it consists in certain peculiarities of the construction of the same, substantially as will be hereinafter more fully set forth and claimed.

In order to enable others skilled in the art to which our invention pertains to make and use the same, we will now proceed to describe its construction and operation, referring to the accompanying drawings, in which—

Figure 1 is a side elevation of our vehicle; Fig. 2, a bottom plan view of the same. Figs. 3 and 4 are front and rear end views, and Fig. 5 is a detail view of the connection of the spring and body.

A represents the front and rear axles, and A′ the wheels, of a spring-vehicle, of the usual or any desired kind.

B is the body, of any shape or size, provided at each corner with an angle-iron brace, *b*, from which an arm or support, B′, projects outward a suitable distance on each side of the body, the end of this arm being bent at right angles to its main portion, and formed with a shoulder, *b′*, and a spindle, b^2, on the end of which is a nut, b^3, as seen fully in Figs. 3, 4, and 5.

Upon each axle is supported a spring, C, formed of two or more leaves, which are bent upward and outward from their center, and have their ends bent downward slightly and formed with an eye, *c*, as fully shown in the drawings.

The spindles b^2 of the supporting-arms are inserted in the eyes in the ends of the springs and firmly secured by the nuts, which may be tightened at any time to take up wear. This forms a direct and rigid connection with the body, not having any links or shackles to rattle; and it will be seen that the ends of the springs under the influence of weight always rise and fall in a vertical line, and do not lengthen out as they are compressed.

The absence of shackles and direct connection with the body not only gives a vertical play free from any side swaying, but also prevents any end movement of the body, and holds it rigidly against any other motion, besides materially lightening the construction.

It will be observed that the arms B′ are made of any desired length, and a spring of much greater length than the width of the body is readily used without the use of side bars, and the points of support are spread enough to better support and distribute the weight and cause the body to ride more nearly level under all conditions. The body is, as usual, supported between the end springs, but may be higher or lower than herein shown, according to the fancy of the builder, it being only necessary to bend the supporting-arms up or down to support the body at any desired point. The branching of these irons at their point of attachment to the body effectually braces the corners, and prevents any straining of the body when loaded.

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

1. In a spring-vehicle, a half-elliptic leaf-spring having its main or upper leaf elongated, with downwardly-curved ends formed with an eye, in combination with and securely fastened at its center to the head-block and the vehicle-body, provided with outwardly-projecting arms B′, bent at right angles to receive the eyes of the spring, substantially as and for the purpose set forth.

2. In a spring-vehicle, the half-elliptic leaf-spring having its main or upper leaf elongated, with downwardly-curved ends formed with an eye, in combination with and securely fastened at its center to the rear axle-tree and the vehicle-body, provided with outwardly-projecting arms B′, bent at right angles to receive the eyes of the spring, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JACOB A. MACK.
CHRISTIAN HANSEN.

Witnesses:
CHAS. G. MAYERS,
EMILY A. MAYERS.