

R. DUDLEY.

Torsion Springs for Vehicles.

No. 137,899.

Patented April 15, 1873.

Fig. 1.

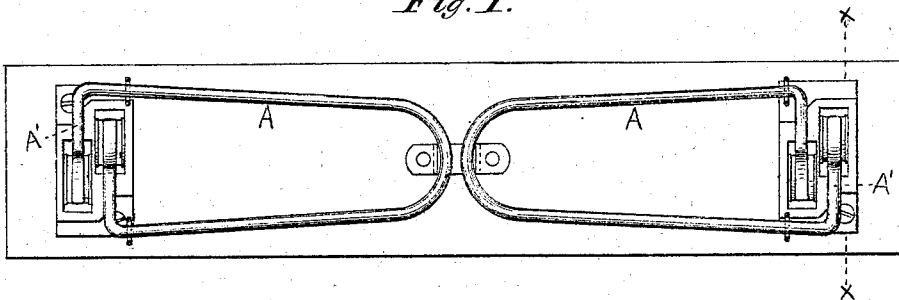


Fig. 2.

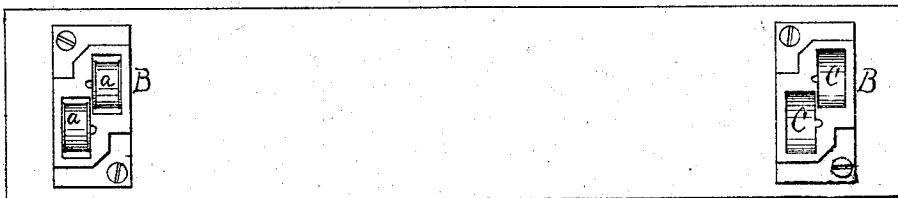


Fig. 4.



Fig. 3.

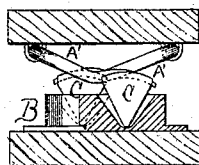


Fig. 5.



Witnesses:

Edwin James.

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UNITED STATES PATENT OFFICE.

RICHARD DUDLEY, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN TORSION-SPRINGS FOR VEHICLES.

Specification forming part of Letters Patent No. **137,899**, dated April 15, 1873; application filed October 5, 1872.

To all whom it may concern:

Be it known that I, RICHARD DUDLEY, of the city and county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Torsion-Springs for Vehicles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing and the letters of reference marked thereon making part of this specification, in which—

Figure 1 is a plan view, the upper bolster-plate being removed. Fig. 2 is a top-plan view of the lower bolster-plate. Fig. 3 is a vertical sectional view on the line *x x*, Fig. 1. Figs. 4 and 5 are side views of the rocker-plate.

My present device for rendering torsion-springs frictionless in operation is an improvement on the patent issued to Benjamin Hershey and myself February 28, 1871, No. 112,229, and the patent issued to Benjamin Hershey, June 20, 1871, No. 116,186. The rocker-plate I use is embraced in the former patent and the concave-faced lateral lever-arm in the latter. In the patent No. 112,229 the rocker-plate is seated and works in a cup terminating in a sharp angle at its base. This allows no lateral movement for the rocker-plate, its upper section alone being allowed to play. In the patent No. 116,186 the concave face of the lateral lever-arm rests and moves on the smooth head of the rocker, and is liable to slip therefrom, and which instantly destroys the frictionless operation of the spring. The nature of my present invention consists in giving the cup in which the rocker-plate rests and works a curved form instead of the angular form shown in patent No. 112,229. My invention also consists in cutting a groove in the convex head of the rocker-plate in which the lateral lever-arm of the spring rests and works.

The great advantage of these improvements is, when the car receives a surge the rocker-plate is allowed a lateral movement in the cup, which gives an ease of motion which the rocker-plate in patent No. 112,229 does not and cannot afford; and, besides, owing to the fact that the lever-arm of the spring fits in a groove, it is always compelled, throughout all its movements, to act in a proper and desired direction.

The construction and operation of my invention are as follows: A A are the springs, B B the cups, and C C the rocker-plates. A' A' are the lateral lever-arms of the springs, which rest on the rocker-plates, and through whose movement the torsional action of the spring is developed.

In patent No. 112,229 the rocker-plates are seated in such cups as are shown in Fig. 3, the taper point of the rocker resting in the sharp angle of the cup, allowing no lateral movement at this point.

My present improvement consists in giving to the cup the curved form, as shown in Figs. 4 and 5; and, the rocker-plate C being seated therein, as clearly shown in the figures last referred to, when the car receives a surge the rocker-plate C is allowed a lateral movement at its base, which secures an easy motion, which it is impossible to attain with the former rocker.

There may be a slight ridge, *b*, at the center of the curved recess of the cup C, on which the recessed base of the rocker-plate rests, as shown in Fig. 4. This works equally as well as does the arrangement of rocker and cup shown in Fig. 5.

The head of the rocker-plate has a groove, *a*, on its convex head, as clearly shown in Fig. 3. In these grooves *a a* the lateral lever-arms A' A' rest and travel, thus compelling them, throughout all their movements, to act and work in a true and proper direction.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The curved cups B B and rocker-plates C C, so combined and arranged as to allow a lateral motion to the rocker in the cups and at its base, substantially as described.

2. The rocker-plates C C, having grooves *a a* on their convex heads, in combination with the lateral lever-arms A' A' of the spring, the whole being so arranged as to operate substantially as described.

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

RICHARD DUDLEY.

Witnesses:

CH. STREUBER,
E. STREUBER.