(No Model.)

C. L. THOMAS.

VEHICLE SPRING.

No. 420,395. Patented Jan. 28, 1890.

Fig. 1

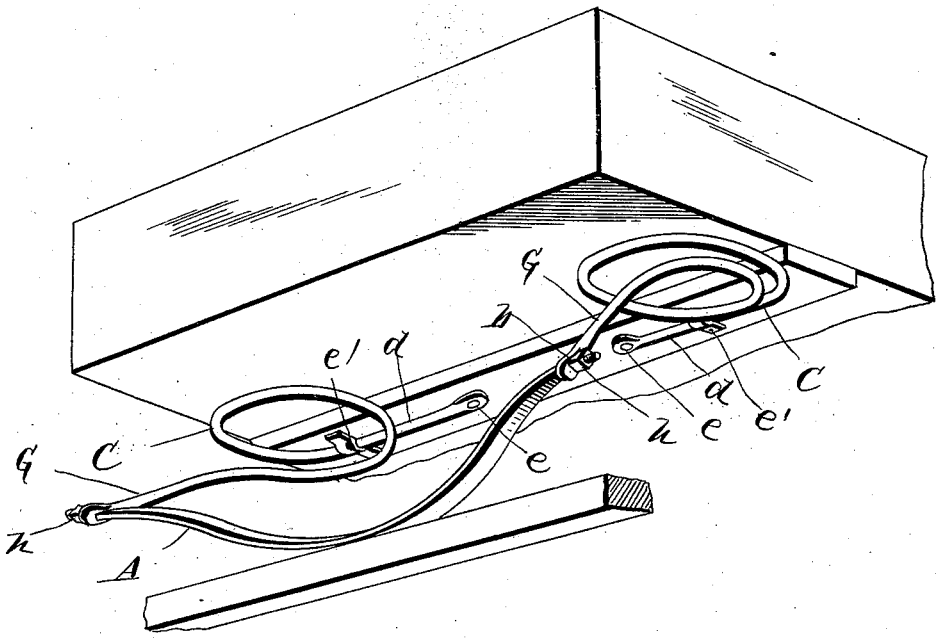
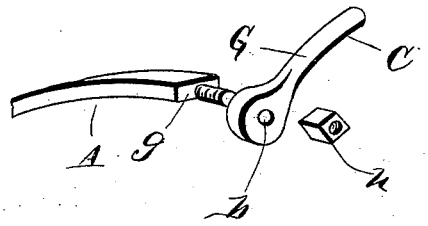


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES L. THOMAS, OF BUFFALO, NEW YORK.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 420,395, dated January 28, 1890.

Application filed October 12, 1889. Serial No. 326,789. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. THOMAS, a citizen of the United States, and a resident of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Vehicle-Springs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation in perspective, and Fig. 2 is a detail view.

This invention has relation to vehicle-springs; and it consists in the novel construction and combination of parts, as hereinafter described, and pointed out in the claim.

In the accompanying drawings, the letter A designates a half or semi-elliptic steel spring clipped upon the axle of a vehicle in the usual manner, and having its ends swaged in round or cylindrical form, as shown at *a*, and threaded to engage nuts, as hereinafter set forth.

C C designate laterally-opposite spirally-coiled springs, which consist each of one or more coils having an inward-extended arm and a lateral arm extended parallel to the side of the vehicle and provided with an eye *b*, through which the round end of the elliptic spring passes, being secured in position by a nut *h*, as shown. These springs are similar but of opposite curvature, and are attached to the wagon-body or a transverse bar thereof above the axle. They are constructed of round or cylindrical steel, and consist of one or more horizontally-disposed coils having the inner end *d* extended transversely and inward, and secured to the bottom cleat or bar of the body by a bolt *e*, passing through an eye at the end, and by a staple or clip *e'* between said end and the body of the coil, as shown. The other end or arm G of the coil extends in an opposite direction obliquely downward in a vertical plane at right angles to the arm *d*, parallel to the side of the wagon-body and just beyond the plane of said side, as shown. The ends of the arms G of the pair of springs are flattened to provide breadth of metal for the eyes or slots *b*, which receive the rounded ends or eyes of the elliptic spring hereinbefore described. By this connection of the oppositely-coiled springs with the ends of the elliptic spring the downward strain is distributed upon the three springs when the vehicle is loaded; but in the event of a sudden rebound in passing over rough roadways the coils will relieve the strain on the elliptic spring, because on account of the leverage of the outer arms they yield readily to the motions of said elliptic springs and of the wagon-body, and therefore extreme tension is not brought to bear on the lower spring. The swaged ends of the half-spring are shouldered at *g* to provide bearings against which the inner faces of the ends of the arms G bear, respectively, the nuts *h* being provided to prevent the parts from becoming disconnected.

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

In a vehicle-spring, the combination, with a semi-elliptic spring clipped to the axle and provided with cylindrical and threaded ends, and nuts thereon, of the horizontal oppositely-coiled springs provided with the inward-extended arms secured to the vehicle-body, and having the lateral arms extending parallel to the sides of the vehicle, and provided with eyes or slots engaging the round ends of the semi-elliptic spring, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES L. THOMAS.

Witnesses:
F. P. SMITH,
CHARLES PRICE.