

No. 633,225.

Patented Sept. 19, 1899.

C. L. THOMAS.
VEHICLE SPRING.

(Application filed Feb. 11, 1899.)

(No Model.)

Fig. 1.

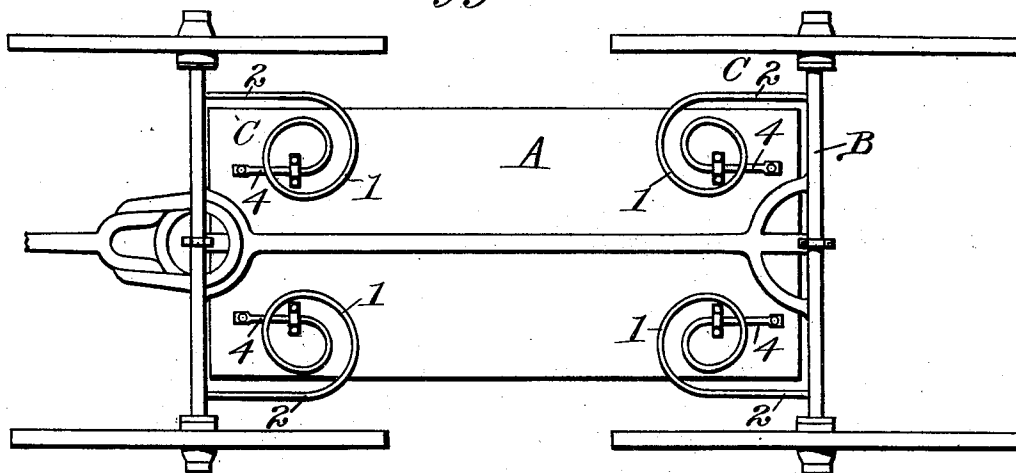
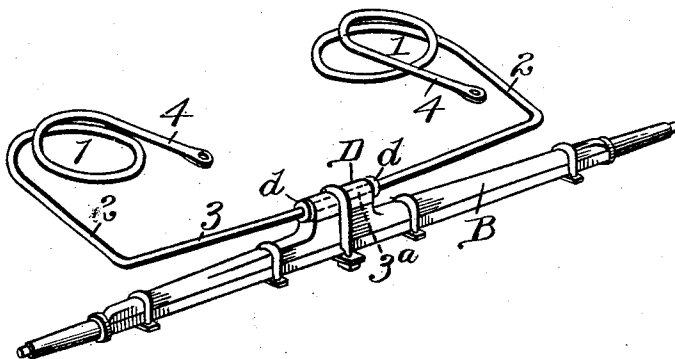


Fig. 2.



WITNESSES:

Edwin G. McKee
Geo. M. Anderson

INVENTOR

Charles L. Thomas

BY

Edw. Anderson
his ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES LEE THOMAS, OF BUFFALO, NEW YORK.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 633,225, dated September 19, 1899.

Application filed February 11, 1899. Serial No. 705,326. (No model.)

To all whom it may concern:

Be it known that I, CHARLES LEE 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 and figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a bottom plan view of a wagon, showing the invention as in application thereto. Fig. 2 is a perspective view of invention and axletree, detached.

This invention has relation to certain new and useful improvements in vehicle-springs, and is designed to provide a torsion-coil spring of improved character particularly designed for use on light vehicles, constituting the sole spring and attachment at each end of the vehicle between the body and the axle, which will be soft and easy in its action and which is free from breaking and weakening strains.

With this object in view the invention consists in the novel construction and combination of parts, all as hereinafter described.

Referring to the accompanying drawings, the letter A designates the body of the vehicle, B the axletree and bolster, and C one of my improved springs. This spring is in some respects similar to that of my Patent No. 533,757, of February 5, 1895, but possesses some material advantages over that spring, as will hereinafter appear.

The spring consists of a single piece of round or square steel whose end portions are each bent to form a volute coil 1 and whose intermediate portions are bent to form the symmetrical side arms 2 and the transverse connecting-arm 3, which has its bearing on the axletree. In the form shown the inner end of each coil is extended from a point within the coil toward the end of the vehicle-body in a direction substantially parallel with the longitudinal axis of said body to form arms 4, which are rigidly secured to the under side of the body. In the arrangement

shown these arms extend from points nearer the inner than the outer sides of the coil. I do not, however, wish to limit myself to this particular form and arrangement of coils.

Secured to the central portion of the axletree and bolster B is a box D, which forms a free bearing for a central journal portion 3^a of the spring. Collars are provided to prevent lateral movement in the box D. By reason of this free bearing at this point there is avoided twisting strain upon the axle and the consequent bending strain upon the reach. By the free motion of the spring at this point the metal of the spring is also largely freed from the twisting strain to which it is subject in a construction such as that of my former patent referred to. The spring is also much freed from "jerky" motions and rides much more lightly and easily. The present spring is also much easier to apply. In the spring of the patent the end portions thereof, which are secured to the bolster, required to be upset to secure them in place, which was objectionable on account of the difficulty of heating spring-steel sufficiently for this purpose without destroying its elasticity and the danger of their subsequent breaking at this point.

It will be understood that a similar spring is applied at each end of the vehicle-body and that these springs form the sole connection between the vehicle-body and running-gear, no intermediate bars or springs of any kind being used.

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

1. The herein-described vehicle-spring consisting of a single piece of spring metal whose end portions are bent to form torsion-coils and whose intermediate portions are bent to form lateral arms and a transverse connecting-arm having a central-journal portion, substantially as specified.

2. The combination with a vehicle-body and running-gear, of torsion-coil springs, one of which connects said body and running-gear at each end portion and which form the only connection between the two, each of said springs consisting of a single piece of metal whose end portions are bent to form torsion-coils which are secured to the under side of

the vehicle-body, and whose intermediate portion is bent to form side arms and a transverse connecting-arm, together with a box or bearing on the axle or bolster in which the
5 intermediate portions of the connecting-arms are freely journaled, substantially as specified.

3. The herein-described vehicle-spring consisting of a single piece of spring metal, whose
10 end portions are bent into symmetrical volute coils and whose intermediate portions are bent to form central arms leaving the outer portions of said coils and a transverse arm

which connects said lateral arms, the inner ends of the coiled portions of the metal being extended from a point within the coils to a point without the coils in the direction of the extension of said lateral arms, substantially as specified. 15

In testimony whereof I affix my signature 20 in presence of two witnesses.

CHARLES LEE THOMAS.

Witnesses:

ARTHUR B. DORER,
C. P. LOVERIDGE.