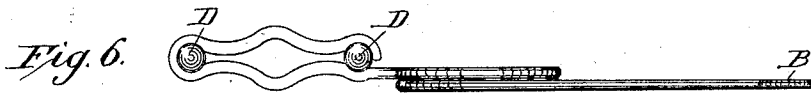
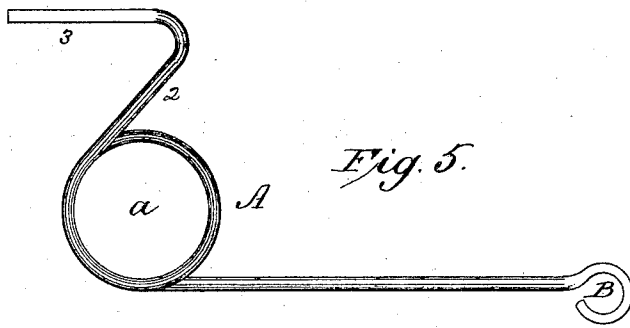
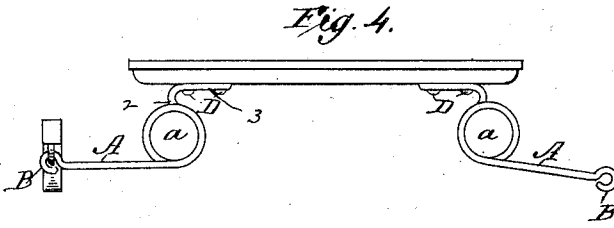
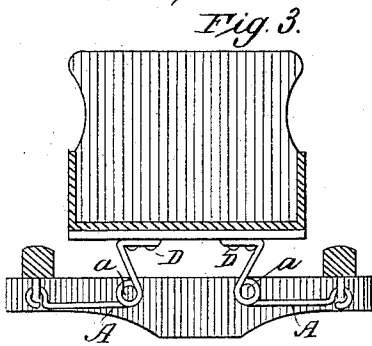
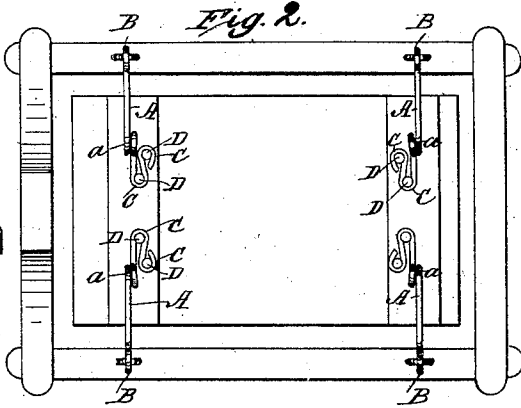
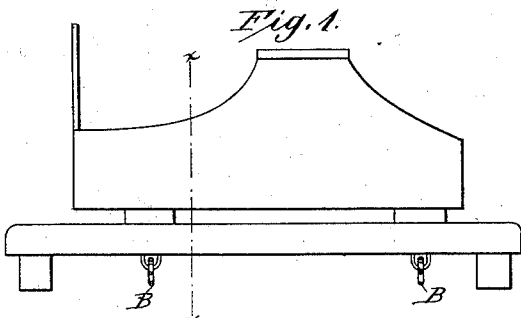


(No Model.)

T. S. KING.
VEHICLE SPRING.

No. 342,109.

Patented May 18, 1886.



WITNESSES:
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UNITED STATES PATENT OFFICE.

THOMAS S. KING, OF ATLANTA, GEORGIA.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 342,109, dated May 13, 1886.

Application filed July 7, 1885. Serial No. 170,873. (No model.)

To all whom it may concern:

Be it known that I, THOMAS S. KING, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Vehicle-Springs, of which the following is a description.

This invention is an improvement in vehicle-springs intended especially for use on buggies and similar light carriages, and has for an object to provide a spring which can be cheaply made, may be easily applied to a vehicle, and will be secure in its application and easy-riding.

The invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a side view of a portion of a side-bar buggy provided with my improvement. Fig. 2 is a bottom plan view thereof. Fig. 3 is a transverse section on line *xx* of Fig. 1. Fig. 4 is a side view, illustrating the application of the springs to the end of a buggy. Fig. 5 is a detail side view, enlarged, of the spring; and Fig. 6 shows modifications, all of which will be described.

The spring A is bent from a rod, preferably round, of spring metal of suitable size to furnish the desired elasticity and strength to serve the purpose for which it is intended. This rod I bend between its ends, to form the coil *a*, which may be of a single coil, as shown, or of two or more coils. The outer end of this spring is drawn out flat and bent to form the eye B, which connects with the shackles on the running-gear. The inner ends of the springs are bent to form loop-bearings, which open in opposite directions. This may be accomplished by the formation shown in Figs. 6 and 7; but I prefer the formation shown in Figs. 1, 2, 3, 4, and 5. The inner end is bent into an S shape, which provides the loop-bearings C, which open in opposite directions, as shown, and are arranged preferably in lines parallel to that of the spring. The fastening-bolts D engage these bearing-loops and pass into the body, as most clearly shown in Fig. 2. By the arrangement of the bolts and their bearing-loops one bolt operates to receive the strain of the inward and the other the strain of the outward draw or thrust on the spring, and they

also receive, one the forward and the other the backward movement of such spring, rendering its secure fastening to the body a simple matter and one that may be easily accomplished, as will be seen.

It will be noticed that the spring may be applied by the purchaser to any ordinary vehicle, not requiring the assistance of a skilled mechanic. It will also be seen that by reason of the simplicity of their fastenings the connection of the spring with the body may be adjusted from time to time as the spring becomes more elastic from use.

In the construction shown in Figs. 1, 2, and 3 the outer ends of the springs are shackled onto the side bars of the running-gear, while in the arrangement illustrated in Fig. 4 the front springs may be shackled to the sand-bar or pillow-block, or to a bar of metal supported thereon. The rear springs may be fastened to the axle in the ordinary way of fastening a side spring; or they may be secured by what is commonly known as a "top shackle-clip."

The spring, it will be seen, is bent to form arms 1, 2, and 3. The arm 1 has its outer end adapted for connection to the running-gear frame, and its inner end is connected by coil *a* with the arm 2, which is bent up at approximately a right angle to arm 1. From the upper end of arm 2 I bend the arm 3, which is projected in a line parallel with and in a direction reverse to that of the arm 1. This arm 3 is bent between its ends back upon itself, forming a broad bearing, on which the body rests. By projecting the arm 3 in a reverse direction to arm 1 a better spring action of coil *a* and arm 2 is obtained, and where the arm 3 is bent into the S shape shown in Fig. 2 the bearing for the body is further broadened, and provision is made for the fastening-bolts, as will be seen.

Having thus described my invention, what I claim as new is—

1. A vehicle-spring consisting of a rod of metal bent to form the arm 1, the coil *a* at the inner end of arm 1, the arm 2, extended from the coil *a*, and the arm 3, bent from the end of arm 2 and projected in a reverse direction to the arm 1, all arranged and adapted to operate substantially as set forth.

2. As a new and improved article of manufacture, the spring herein described, consisting of a rod of metal bent to provide the arm 1, the coil *a*, formed at the inner end of arm 1, the arm 2, extended from coil *a*, and the arm 3, bent from the end of arm 2, projected in a reverse direction to arm 1 and bent back upon itself, providing a broad bearing, all arranged and adapted to operate substantially as and for the purposes specified.

3. The combination of the vehicle-body, the running-gear, the springs formed from rods of metal having arms 1 attached at their outer

ends to the running-gear, the coil *a* at the inner ends of said arms, the arm 2, extended upward from coil *a*, the arm 3, bent from the upper end of arm 2 in a direction reverse to arm 1 and bent back upon itself and into an approximately S shape, and the fastening-bolts passed through the loops of the arm 3, substantially as and for the purposes set forth.

THOMAS S. KING.

Witnesses:

L. S. YOUNG,
J. H. MESSICK.