D. B. ROGERS.

Car Spring.

No. 19,448.

Patented Feb. 23, 1858.

Witnesses

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UNITED STATES PATENT OFFICE.

DAVID B. ROGERS, OF PITTSBURGH, PENNSYLVANIA.

RAILROAD-CAR SPRING.

Specification forming part of Letters Patent No. 19,448, dated February 23, 1858; Reissued July 26, 1859, No. 782.

To all whom it may concern:

Be it known that I, DAVID B. ROGERS, of the city of Pittsburgh and county of Allegheny, in the State of Pennsylvania, have invented a new and Improved Mode of Constructing Springs for Cars and other Purposes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists of forming springs from thin plate or sheet steel in such a manner as to obtain a central equilibrium and reverse crossways and corner bearing.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

No. 1 is a representation of several views of the corner bearings. No. 2 is a representation of the reverse crossways bearings.

Figure 1 No. 1 is two leaves of square form bearing cornerwise-side view. In forming this spring I take a square plate of steel, and make a hole in the center, so as to allow the plate to vibrate on the stake G, as the spring rests on the lower bolster H, the upper bolster H′ having holes also corresponding with those in the spring, so as to play loosely in the stake G which is made fast to the lower bolster by screw and nut or otherwise. Then I bend two of the opposite corners in one direction as seen at A, at the left hand upper corner of Fig. 1 also at the right hand at the letter A. Then I bend the other corners in the opposite direction as seen at, B, B (this form of bend being antagonistic creates an equilibrium in the center and adds strength to the spring). These are riveted together or otherwise made fast so as not to slide off from each other as is represented at the letters B, B, Fig. 2, the lower corners at C, C, Fig. 1 forming the bearings below as set on the left hand end upon the top of Fig. 4.

Fig. 2 No. 1 is a corner view of the two leaves together with the end view of the bolster H, H. Fig. 3 No. 1 is also a corner view of two leaves together with a side view of the bolster H, H, upon which it rests.

Fig. 4 is a side view of a spring composed of four leaves containing three squares each placed one above the other and bearing upon each other, being placed between the bolster H, H, with an edgewise view of each leaf as they are put upon the stake G. In making this spring—I take a plate of steel two or more times the length of its width, then I make a hole in each of the end squares so as to slide on the stake G, see D, D, as shown in the single square, I then bend the corners of one end in opposite direction see E, E, then at the distance of one square from the end, I bend the edges of the plate in opposite directions from the corners and also from each other see F, F, G, G, then at the distance of another square, I bend the same edge of the leaf in an opposite direction from the last and so on any number of squares I choose, thus forming a continuous succession of springs bearing precisely as if they were cut apart and each square has its equilibrium exactly the same as if single.

No. 2, Fig. 1, is one leaf with a top view of a spring so formed as to obtain a reverse crosswise bearing. In making this spring I take a plate of steel three or more times the length of its width I then make holes as in No. 1 to receive the stake G also small holes at the corners for riveting it to its mate,

I then bend one square convex and next square concave, the next convex and the next concave, and so on as many squares as there is in the plate, as shown at the letters I, J, K, thus forming a spring of crosswise bearing by which I obtain an equilibrium as in No. 1, except that in No. 1 the effect is in the center of the square, but in this case it is between the squares.

Fig. 2 is a succession of leaves riveted together with convex to convex and concave to concave alternately through the squares (see letters O O for convex and P P for concave) presenting a side view of the spring as arranged between the bolsters H, H, with the edge view of the leaves showing at the letters R R the change from convex to concave &c.

I do not claim the so bending of a plate or a number of plates, so as to form leaves of such shape that when placed one above the other, that the highest and lowest points of one leaf, shall be in contact with the lowest and highest points respectively of the next adjacent leaf—as recently patented.

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

1. The forming a spring of a square plate of thin steel, by bending the four corners in one direction, or two corners in one direction and the other two in an opposite direction as described.

2. I claim the forming of a spring of one piece of thin plate steel with antagonistic bearings by which is obtained a central equilibrium in or between a succession of squares as substantially described.

DAVID B. ROGERS.

Witnesses:
JNO. MAJOR,
J. M. MAJOR.

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