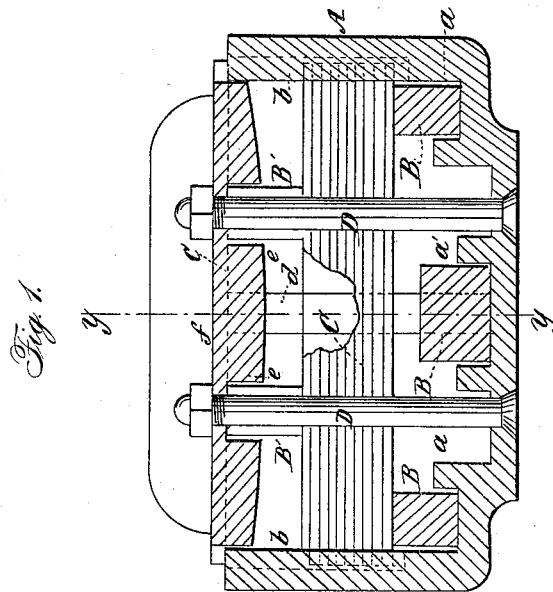
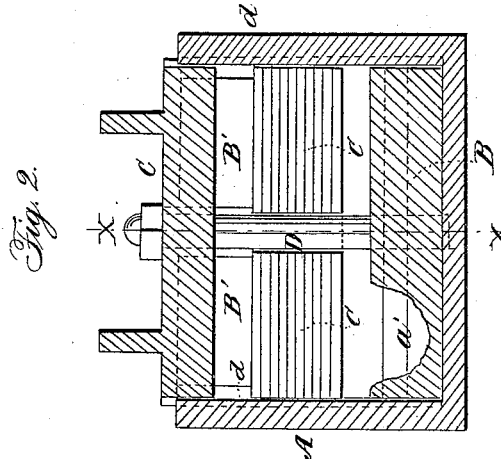


G. DOUGLASS.

Car Spring.

No. 50,807.

Patented Nov. 7, 1865.



Witnesses:

E. L. Topliff
Theo. Fusch

Inventor:

G. Douglas
By Munn & Co.
Attys

UNITED STATES PATENT OFFICE.

GEORGE DOUGLASS, OF SCRANTON, PENNSYLVANIA.

IMPROVED CAR-SPRING.

Specification forming part of Letters Patent No. 50,807, dated November 7, 1865.

To all whom it may concern:

Be it known that I, GEORGE DOUGLASS, of Scranton, in the county of Luzerne and State of Pennsylvania, have invented a new and Improved Car-Spring; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal vertical section of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a transverse vertical section of the same, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to a new and improved spring for railroad-cars; and it consists in the employment or use of a series of steel plates placed within a box, which is fitted in the pedestal of the car as usual, said plates being arranged with india-rubber or other suitable yielding substance, also placed within the box, and in such relation with the plates as to form a spring very compact in form and one which will have a gradually resisting power when subjected to weight or pressure, as hereinafter fully shown and described.

A represents a cast-iron box, which is fitted in the pedestal of a car, as usual, and is provided at its bottom with three recesses or chambers, *a a a'*, which extend transversely across the box, the chambers *a* being at the ends of the same and the chamber *a'* at the center and a trifle below the level of the other two, as shown clearly in Fig. 1. Within these chambers *a a a'* there are placed blocks B of india-rubber, leather, or other suitable material possessing a requisite degree of elasticity. These blocks are a trifle shorter than the chambers, and are also narrower, so as to admit of the blocks expanding under the weight or pressure to which they may be subjected.

C C represent two series of steel plates, which are placed one over the other and have their ends resting upon the yielding blocks B in the chambers *a a* at the ends of the box. These two series of springs are placed at opposite sides of vertical ledges *b* at the ends of the box A, and these ledges keep the two series of plates at requisite distances apart and free from contact with the bolts D D, which secure the top *c* on the box.

The plates are also prevented from moving laterally and getting out of proper position within the box by means of the ledges *b* at the ends and similar ledges *d* at the sides of the box.

The under surface of the top *c* of the box is of convex form in a longitudinal direction, as shown in Fig. 1, and said top has two grooves, *e e*, made transversely in it at equal distances from its center *f*, and in these grooves two blocks, B', of rubber or other yielding substance, is placed. It is necessary to have two blocks, B', in each groove to avoid the bolts D D. The blocks B' rest or bear upon the upper surface of the plates C, as shown in both figures.

The operation is as follows: When the spring is subjected to but a light weight the blocks B B' will be alone compressed. If the pressure increases the plates C will be acted upon, not at the center of their length, where they would yield or give readily, but at a certain distance each side of their center. If the plates C are depressed beyond a certain distance the blocks B in the chambers *a a* will aid in resisting the pressure until the lower plates C come in contact with the upper and under edges of the chamber *a*, when the plates C will bear upon the lower central block, B, and the latter will then aid in resisting the weight or pressure.

Thus it will be seen that I obtain within a small space or compass, a spring of great strength and power, and one having a capacity of gradually increasing its resistance in a degree commensurate with the weight imposed upon it.

I do not claim separately the employment or use of elastic metal plates placed one over the other and fitted within a box, for that is an old device, and may be seen in a patent granted to me September 15, 1863; but

I do claim as new and desire to secure by Letters Patent—

The elastic plates C, in combination with blocks B B', of india-rubber or other suitable elastic or yielding substance, arranged within a box, A, to operate in the manner substantially as and for the purpose herein set forth.

GEORGE DOUGLASS.

Witnesses:

ISAAC NEWHOUSE,
AUSTIN MOORE.