D. JOHNSON.

Car Spring.

No. 15,698 Patented Sept. 9, 1856.

Fig. 2.

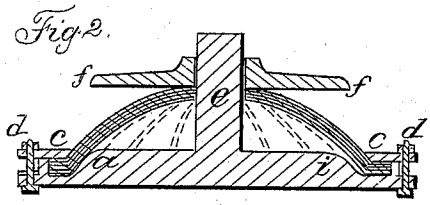


Fig. 3

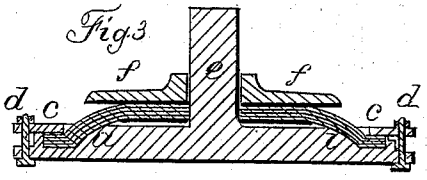


Fig. 4

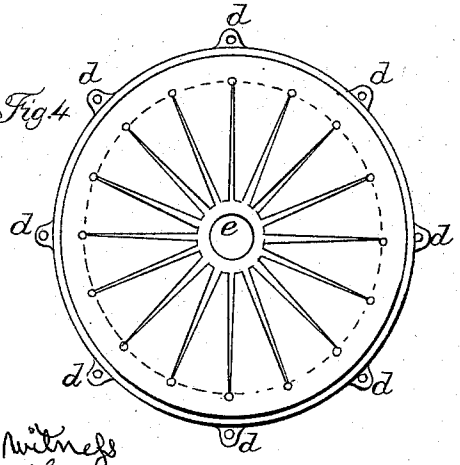
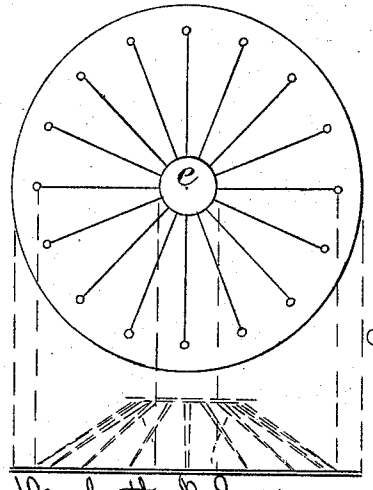


Fig. 1



Witnesses:
John E Vedder
John M Green

Danforth Johnson

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DANFORTH JOHNSON, OF CHICAGO, ILLINOIS.

METALLIC CAR-SPRING.

Specification of Letters Patent No. 15,698, dated September 9, 1856.

To all whom it may concern:

Be it known that I, DANFORTH JOHNSON, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Mode of Constructing Springs for Railway-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 in arranging any number of steel springs in a metallic box of a circular, square, or polygonal form, the base of the springs secured by a metallic flange firmly secured to the box. The springs are cut in radiating leaves, the central parts elevated in a conical form around a fixed stud or pillar in the center of the box. A metallic plate rests on the elevated central parts of the spring, and upon this plate the carriage or car rests or has its bearing.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, reference being had to the accompanying drawings, where—

Figure 1, represents a top view, and sectional elevation of a circular plate of spring steel; Fig. 2, a section of the spring fitted in its box, the springs slightly compressed; Fig. 3, a similar section showing the springs compressed to their maximum tension; Fig. 4, represents a top view of the spring fitted in the box.

a, *b*, on Figs. 2 and 3, is a section of the bottom plate of the box, the upper surface convex and elevated above the base of the springs as shown by the curve lines at *a*, and *b*; *c*, *c*, represents the cap or flange securing the base of the springs in the box, by means of the screw bolts *d*, *d*; *e*, represents the central stud or pillar, and *f*, *f*, the follower or plate on which the load rests.

The operation of this spring is such that as the load increases on the plate *f*, *f*, the springs are compressed, bending over the curves of the bottom plate at *a*, *b*, bringing the bearing nearer the circumference or base of the spring.

The advantages of this spring are that the elasticity is equalized in heavy or light loads by the peculiar tapering form of each leaf of the spring, as the load is increased the bearing passes outward to the broader and stiffer parts of the spring; secondly the small space that powerful springs may occupy; thirdly, their simplicity and durability, and being easily repaired or renewed.

What I claim as my invention and desire to secure by Letters Patent is—

1. The combination and arrangement of a number of springs radiating from a central stud, and secured at the circumference, or rim, to a box or bed plate.

2. I also claim the arrangement of the convex bed plate *a*, *b*, over which the springs bend, in combination with the stud or pillar *e*, to resist the lateral motion of the car, or carriage, the whole combined and arranged substantially as set forth in the above specification.

DANFORTH JOHNSON.

Witnesses:
JOHN M. WILSON,
N. B. YOUNGS.