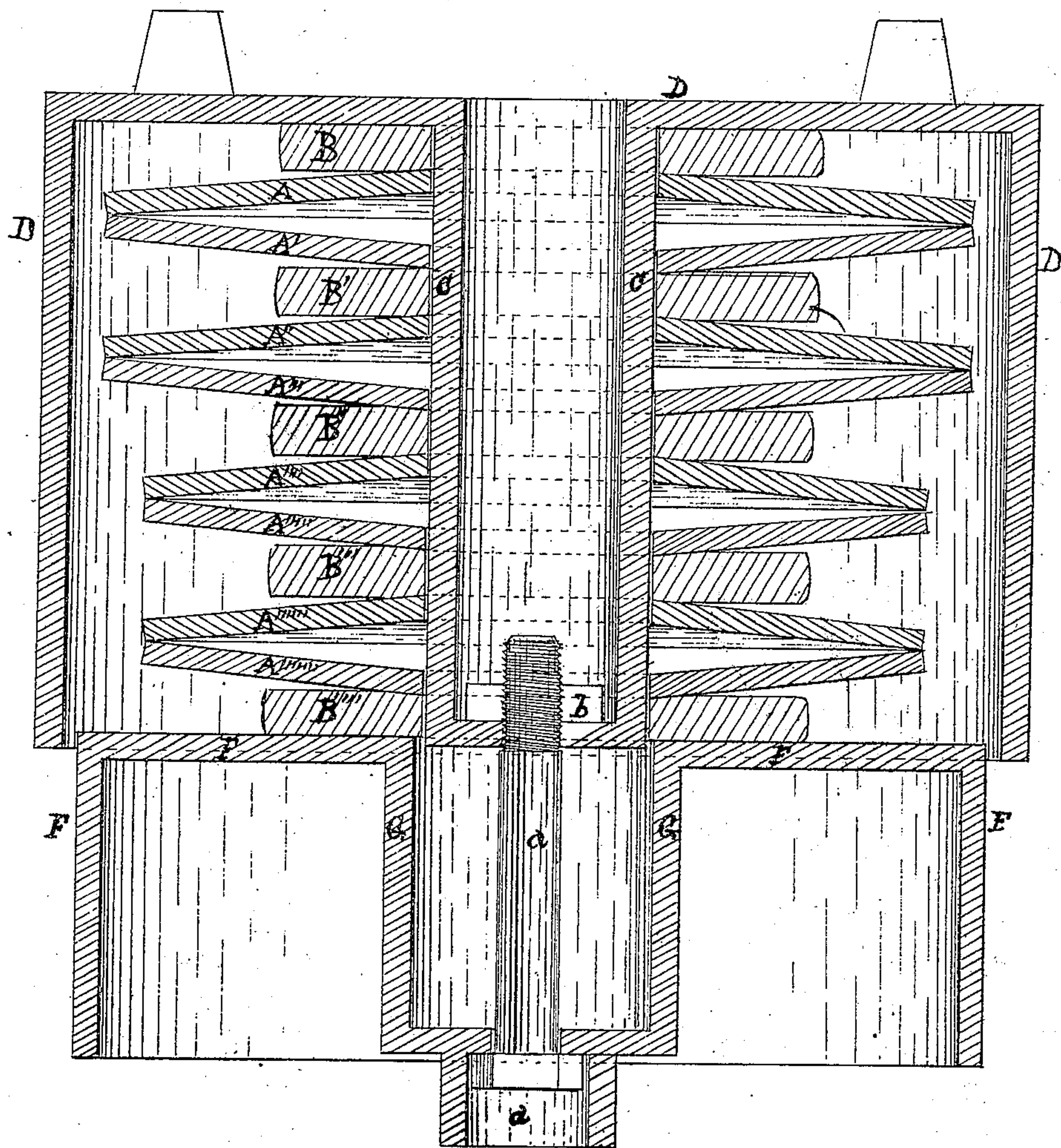


R. VOSE.
Car Spring.

No. 104,907.

Patented June 28, 1870.



Witnesses
C. Dinsmore
R. R. Hood

Inventor
R. Vose

United States Patent Office.

RICHARD VOSE, OF NEW YORK, N. Y.

Letters Patent No. 104,907, dated June 28, 1870.

IMPROVEMENT IN RAILWAY CAR-SPRINGS.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, RICHARD VOSE, of the city and State of New York, have invented a new and useful Improvement in Railroad Car-Springs, of which the following is a specification.

My invention relates to the combination of disks of India rubber with concavo-convex disks of steel, a rubber disk being interposed between each pair of steel disks, and the whole being inclosed in a metallic case or box, where the disks are securely held in proper relations with each other, and the combined action as springs of the steel and rubber secured.

The drawing represents a central sectional view of my combined spring arranged in its case or box.

A A' A" A''' A'''' A''''' A'''''' are steel disks cut from plates of that metal, and struck up into a concavo-convex form, the drawings representing the full size as to diameter and thickness.

B B' B" B''' B'''' are disks of rubber interposed between the steel disks and between the upper and lower pairs, and the top and bottom of the case, the steel disks being arranged in pairs, the disks of each pair being placed with their concave surfaces together, and the rubber disks being placed between the several pairs.

Through the center of each disk is a large aperture. D is the shell of a metal case or box, having in the center a hollow standard or post, C. The disks are arranged on this post, which passes through the center of each. By this arrangement they are all held centrally in position.

F is the base on which the disks rest, constructed to fit into the box D, having in the center a hollow pillar, G', made to receive the central pillar C of the

box D, to which it is secured by means of the bolt *a*, which passes through the base of the pillar C, and is held by a nut, *b*. This bolt is allowed to play in the recessed projection *d* under the pillar C, thus permitting the box D to rise and fall with the movement of the springs.

The concavo-convex steel springs here described are not new. They have, however, been heretofore used only in contact with each other throughout the series. But by this arrangement it is found they are liable to break, are too rigid, and have too little movement. Nor is the combination of steel and rubber in the construction of car-springs new. I, therefore, confine myself, in this specification, to the particular combination herein described, by which the liability of the steel disks to break is obviated, and a more elastic spring, having a wider range of movement, is produced.

What I claim, and desire to secure by Letters Patent, is—

1. A series of concavo-convex steel disks, put together in pairs, with their concave surfaces together, and with a disk of rubber interposed between the several pairs, the whole combined and arranged substantially as and for the purposes specified.

2. A series of concavo-convex steel disks and rubber disks, arranged as specified, when placed and held within a metal case, substantially as and for the purposes specified.

RICHD. VOSE.

Witnesses:

C. DINSMORE,
R. R. WOOD.