J. W. ADAMS.

Car Spring.

No. 12,849. Patented May 15, 1855.

Fig. 1.

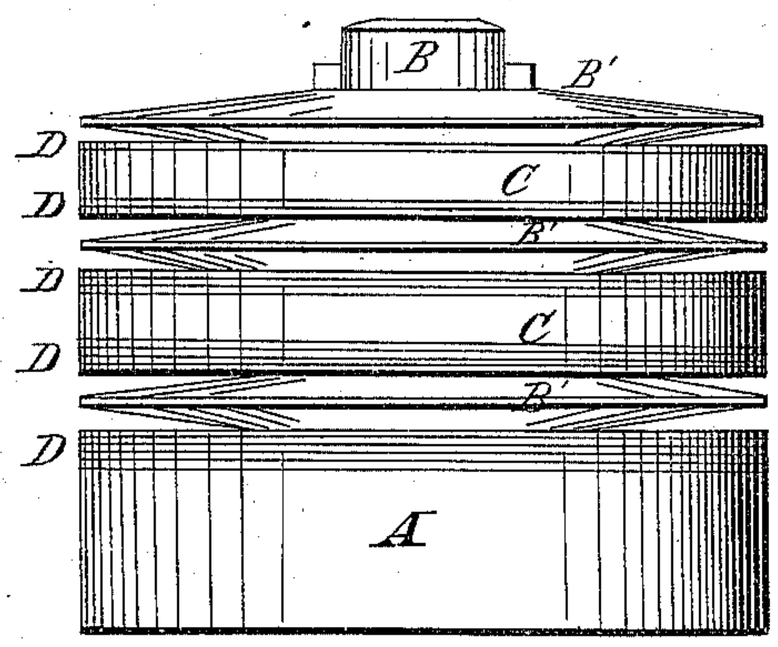
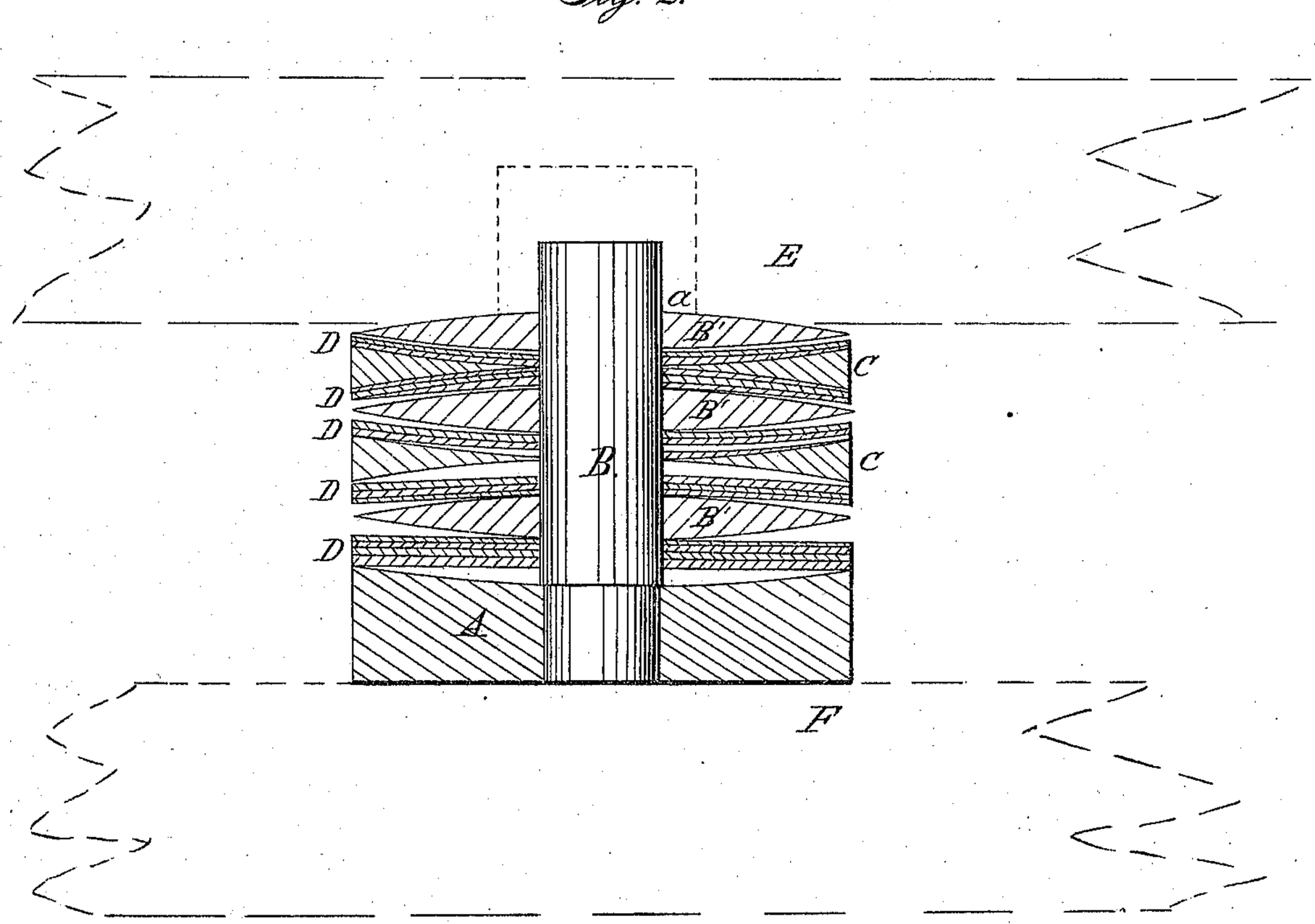


Fig. 2.



UNITED STATES PATENT OFFICE.

JOHN W. ADAMS, OF NEW YORK, N. Y.

CIRCULAR METALLIC PLATE-SPRING.

Specification of Letters Patent No. 12,849, dated May 15, 1855.

To all whom it may concern:

Be it known that I, J. W. ADAMS, of the city, county, and State of New York, have invented a new and Improved Spring for Railroad-Cars; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1, is an external view of my improved spring. Fig. 2, is a vertical section of ditto.

Similar letters of reference indicate corresponding parts in the two figures.

The nature of my invention consists in the employment of a series of flat circular spring plates of steel placed between the convex and concave surfaces of suitable metallic disks, so as to yield under pressure and spring into the convex or concave form, as will be hereafter fully shown and described.

To enable others skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, represents a circular metallic plate of suitable thickness, and having a vertical pin or rod B, attached to its center. The upper surface of the plate A, is concave, as shown in Fig. 2.

B′, B′, B′, are circular plates convex on both sides and C, C, C, are circular plates concave on both sides.

D, are circular flat springs constructed of steel plates of a proper thickness.

The plates B′, C, are solid and of sufficient thickness to be perfectly rigid, possessing no elasticity. The steel plates D, are elastic and are placed between the concave and circular plates B′, C, in the following manner. On the upper surface of the plate A, there are placed five steel plates D, and on top of these plates a convex plate B′, is placed, on the top of this plate B′, there are placed four plates D, and on the top of these plates a concave plate C, is placed, having three plates D, on its upper surface and on the top of the three plates D, a convex plate B′, is placed having two plates D, on its upper surface and on the two plates D, a concave plate C, is placed having one plate D, on its upper surface, on which plate D, a convex plate B′, is placed. The plates B′, C, as well as the spring plates D, have circular apertures (*a*) at their centers, through which apertures the pin or rod B, passes, see Fig. 2. The sill piece E, of the car rests upon the upper convex plate B′, and the lower plate A, rests upon a cross piece or bolster F, of the truck.

By the above arrangement it will be seen that the weight of the car rests upon the steel spring plates D, and these plates will yield or give so as to produce the required elasticity and the concave plates *c*, prevent the spring plates from yielding beyond a certain distance so that they can not be strained and their elasticity impaired in consequence of being subjected to over pressure.

Any number of spring plates may be used. I do not confine myself to the peculiar arrangement as herein shown, but a greater number is placed below and thus gradually decrease in number from the bottom upward, so that the spring may increase in strength as it is depressed.

The above invention is extremely simple and economical to manufacture. It occupies small space and may be readily applied to the car. Its application is similar to the india rubber springs in general use, but it is far preferable as it possesses requisite strength with sufficient elasticity.

I am aware that conical steel plate springs with radiating sections cut out, have been previously used for buffer springs, and I therefore do not claim these, but

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

The combination and arrangement of one or more flat circular steel plates D, held in place by a central pin B, and allowed to spring a limited space, between solid convex and concave metallic plates B′ and C, in the manner, and for the purpose herein described.

JOHN W. ADAMS.

Witnesses:

JAS. GEO. MASON,

WILLIAM TUSCH.