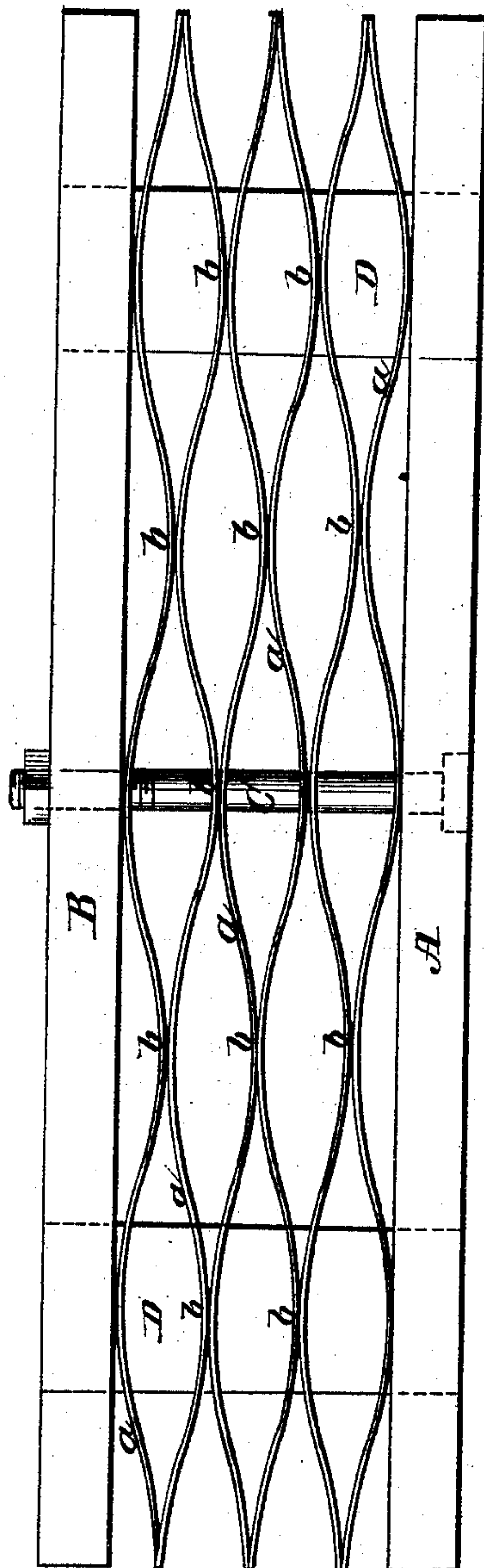


J. C. BLAIR.

Car Spring.

No. 18,950.

Patented Dec. 29, 1857.



UNITED STATES PATENT OFFICE.

JOHN C. BLAIR, OF PITTSBURGH, PENNSYLVANIA.

SPRING FOR RAILROAD-CARS.

Specification of Letters Patent No. 18,950, dated December 29, 1857.

To all whom it may concern:

Be it known that I, JOHN C. BLAIR, of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain
5 new and useful Improvements in Car or Carriage Springs; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation thereof, reference being had to the accompanying drawing, making a part of this
10 specification, and which represents an elevation of one of the springs in question.

The nature of my invention consists in forming a car or carriage spring, of a pile
15 of steel plates, or leaves, when each plate, is so bent as to form a series of reversed semi-ellipses, and the plates so piled one upon the other, as that the highest parts of one plate, shall be in contact with the lowest parts of
20 its fellow, or next adjacent plate, and vice versa—each leaf or plate forming several points of contact for the plate overlying it, and thus disseminating through the pile, both the lateral and vertical pressure upon
25 the spring and making it an exceedingly strong, elastic, and cheap spring, which can be repaired with great facility.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings, first premising that, the length, width, and thickness of the plates, or leaves of the spring, as also the number in the pile, may
30 vary to suit the particular use to which the spring is to be applied. So also may the curves vary in form or number in the plates, and instead of being elliptical (which form however I prefer, being more easily wrought, and as I believe most efficient in practice)
35 they may have the form of segments of a parabola, or any other curved figure, that will afford the hip-rests or supporting points herein represented.

A, B, may represent a bottom and top bolster, between which the leaves or plates *a, a*,
45 are retained, and said bolsters may be held from separating too far by a screw bolt C, which also serves to take up the slack or back-lash of the spring. The bearings may
50 come upon the spring at the center, or the ends thereof, or both. The leaves or plates *a*, are first, by means of rolls or die plates,

bent into the form substantially as represented in the drawing viz: a series of convex and concave curved lines. They are then
55 piled one upon the other, to the requisite number, so that the highest and lowest points of one plate shall be in contact with the lowest and highest points of the next adjacent plate or leaf and so on throughout
60 the series, as shown at *b, b, b* &c. The plates or leaves are not fastened to each other at any of the points *b*, but are free to slip or move upon each other, as the spring gives or reacts to its load.

D, D, represent guides which may be permanently united to the lower bolster or beam A—there being a pair of such guides at each side of the spring (one pair only being represented in the drawing); the upper bolster
70 B, may play up and down between said guides while the latter tends to keep the pile of plates in a vertical position to the thrust upon them. These guides may be arranged
75 in any other manner that will accomplish the purpose, but the ends of the leaves or plates must be left free, so that they may elongate as they flatten out by the weight or thrust upon them.

This kind of spring is very cheap and very
80 efficient;—is easily made, and repaired, and is particularly important as a car spring, where heavy burdens are carried, and a quick rolling motion laterally is encountered, owing to the speed and inequalities
85 in the track of railroads, for it disseminates throughout its whole length both the vertical and lateral pressure upon it.

Having thus fully described the nature and object of my invention, what I claim therein
90 as new and desire to secure by Letters Patent is—

A spring composed of a series of leaves or plates, so bent or curved, as that when piled one upon the other, the highest and
95 lowest points of one leaf shall be in contact with the lowest and highest points respectively, of the next adjacent leaf or plate, and so on throughout the series, substantially as herein described.

JOHN C. BLAIR.

Witnesses:

A. M. MECHLEM,
SAM BARR, Jr.