

A. PIERSON.
Vehicle Springs.

No. 153,908.

Patented Aug. 11, 1874.

Fig. 1.

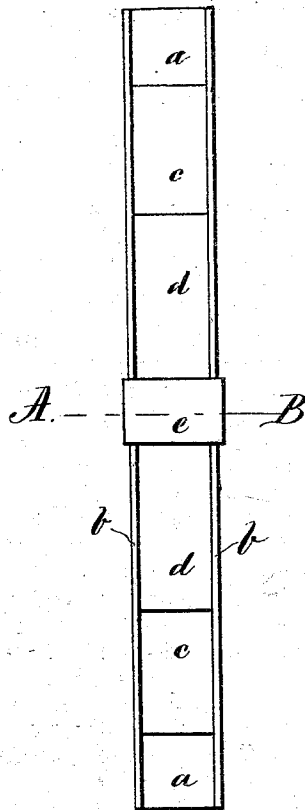


Fig. 2.

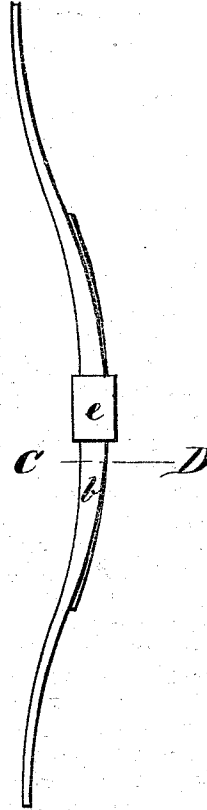


Fig. 5.



Fig. 3.

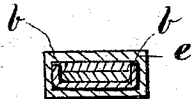


Fig. 4.



Witnesses:
John R. Heard.
C. P. Daniels

Inventor:
Asa Pierson.
by F. P. Hale, atty.

UNITED STATES PATENT OFFICE.

ASA PIERSON, OF BOSTON, MASS., ASSIGNOR, BY MESNE ASSIGNMENTS, TO
ASA PIERSON AND GEORGE E. BOYDEN, OF SAME PLACE.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **153,908**, dated August 11, 1874; application filed
January 21, 1874.

To all whom it may concern:

Be it known that I, ASA PIERSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Springs for Cars, Carriages, Locomotives, &c.; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing.

My invention relates to improvements in springs for cars, carriages, locomotives, and other vehicles; and consists in the employment of projecting ribs made in one piece with the longest leaf, whereby the strength of the spring is increased, and by such construction I am enabled to make a spring with less leaves than ordinarily employed, without decreasing its strength or elasticity, and at the same time render it much lighter than other springs of the same size and strength. The additional leaves of the springs are constructed in the usual manner, and are placed one above the other in the interval between the projecting ribs of the main leaf, as hereinafter described, and shown in the accompanying drawing.

In the said drawing, Figure 1 represents a top view; Fig. 2, a side elevation; Fig. 3, a transverse section on line A B of Fig. 1, and Fig. 4 a transverse section on line C D of Fig. 2. Fig. 5 is a transverse section of the main leaf, taken on an enlarged scale.

Similar letters refer to similar parts wherever they occur in the drawings.

a represents the longest or main leaf of a metallic spring. On each side of the said leaf is formed a projecting lip, *b*, extending at right angles from the main portion, and formed in one piece therewith. The ribs *b b* are made of a sufficient height in the middle to give the required strength, while they taper toward their ends to give the necessary elasticity thereto. The additional leaves *c d*, one or more, are formed without flanges and placed over each other in the space between the flanges *b b*, by which arrangement they are held in their relative positions without the aid of guide-pins, slot-holes, &c., usually employed. A clasp, *e*, is shrunk over the middle of the whole spring in the usual manner.

The combined thickness of all the leaves is somewhat greater than the height of the flanges at their highest part, the object of such being to prevent the clamp from impinging upon the upper edges of the ribs, the same being as shown in Figs. 3 and 4, by which arrangement the flanges *b b* are allowed to expand and contract freely when the spring is in use.

By the employment of the said flanges on the main leaf I am enabled to reduce the number of leaves of a spring, and consequently make it much lighter than the ordinary spring without decreasing its strength, durability, or elasticity.

My improved spring weighs much less than springs as ordinarily constructed of the same strength and elasticity, as it contains less leaves, and can therefore be made at a less expense. It will also retain its strength and elasticity longer than the old kind of springs, owing to the increased resistance and durability of the flanges *b b*.

I do not claim a spring composed of one or more leaves or pair of leaves having each of their edges flanged, or formed with upturned margins, as I am aware that such is not new; and, besides, a spring so made, while affording the greatest stiffness and strength with the minimum amount of material, does so at the sacrifice of its elasticity while a spring composed of a like number of unflanged leaves, although presenting the requisite elasticity is found deficient in strength. My invention seeks, by combining the flanged and unflanged leaves, to produce a spring which shall possess both the requisite degree of stiffness and elasticity.

Having described my invention, what I claim is—

The vehicle-spring having a base leaf or pair of leaves, with projecting flanges *b b* and one or more supplemental unflanged leaves, *c d*, combined as shown and described.

ASA PIERSON.

Witnesses:

ALBAN ANDRÉN,
GEORGE E. PHELPS.