

A. W. HALL.
Vehicle-Springs.

No. 152,841.

Patented July 7, 1874.

Fig. 1.

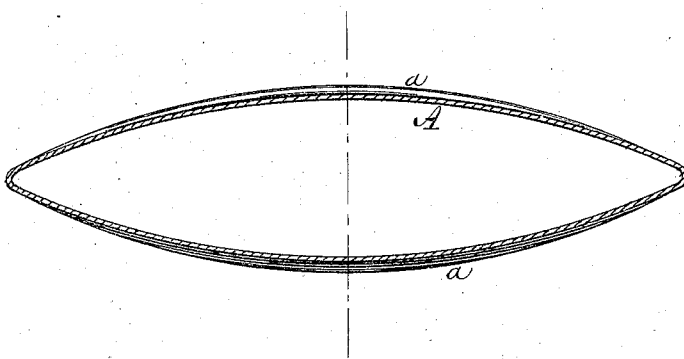


Fig. 2.

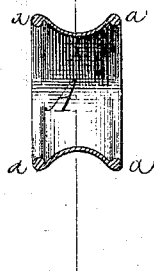
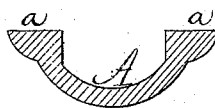


Fig. 3.



Witnesses.

John Becker
Fred Haynes

Alexander W. Hall
by his Attorney
Brown & Allen

UNITED STATES PATENT OFFICE.

ALEXANDER W. HALL, OF NEW YORK, N. Y.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **152,841**, dated July 7, 1874; application filed February 26, 1874.

To all whom it may concern:

Be it known that I, ALEXANDER W. HALL, of the city, county, and State of New York, have invented certain Improvements in Springs, of which the following is a specification:

My invention relates to an improvement in the construction of springs for vehicles, whereby they may be made thinner and lighter without liability of buckling, crushing, or breaking, when compressed by the weight of the vehicle. The invention consists in an elliptic spring, formed of a strip of steel or other metal, made concave externally in its cross-section, and with a greater thickness at the edges than in the intervening portions of its width.

In the accompanying drawing, Figure 1 is a central longitudinal vertical section of my improved spring. Fig. 2 is a transverse section. Fig. 3 is also a transverse section, showing a modification.

The spring is preferably made of a single strip of metal, and may be of elliptical or semi-elliptical form.

The drawing represents a spring, A, of elliptical form, composed of a continuous strip of metal, bent or doubled, and having its ends welded or otherwise joined together. In a spring constructed according to my invention the portion between the ends of the ellipse is concavo-convex in its cross-section, the concave surface being outward. The concavity should be greatest at the center of the spring, and diminish toward the ends, which may be straight in their cross-section. The thickness of the metal is least at the longitudinal cen-

tral line of the spring, and may increase outward or toward the edges; but the thickness of metal is always to be greatest at the edges, in consequence of which construction the edges of the spring, longitudinally, are capable of sustaining a greater amount of pressure than the intervening portion, for the weight of the vehicle pressing upon the spring has a tendency to straighten out the edges longitudinally, and to press them toward each other transversely, so that the spring becomes stiffer as the pressure increases, and the liability of buckling or crushing of the metal is less than if the spring were of uniform thickness throughout.

The enlargement or thickening of the edges may be carried to any desired extent, and may be in any suitable form. When made in the form shown in Fig. 3 it presents a broad bearing-surface for attachment to the vehicle without increasing the width of the spring. The desired form may be obtained by passing the strip or bar of metal between rollers of suitable shape.

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

An elliptic vehicle-spring, formed of a strip of metal concave externally in its cross-section, and having its edges thicker than the intervening portion, substantially as shown and described.

ALEX. W. HALL.

Witnesses:

JNO. G. JONES,
HENRY LEWIS.