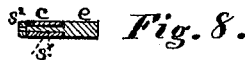
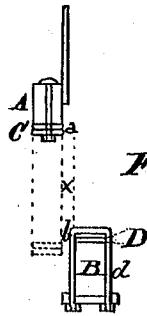
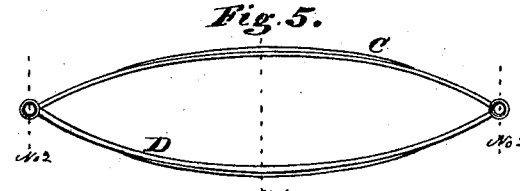
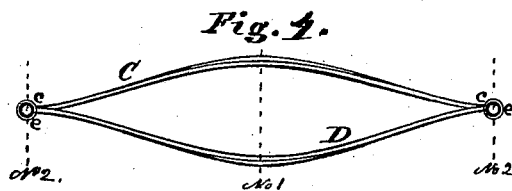
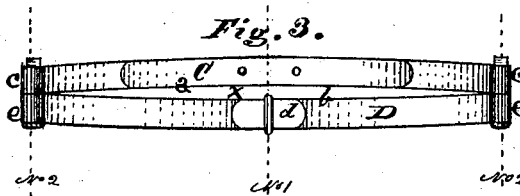
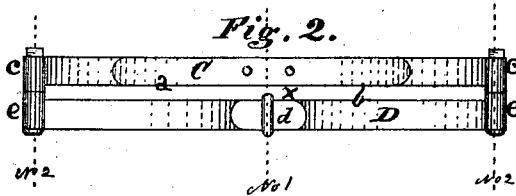
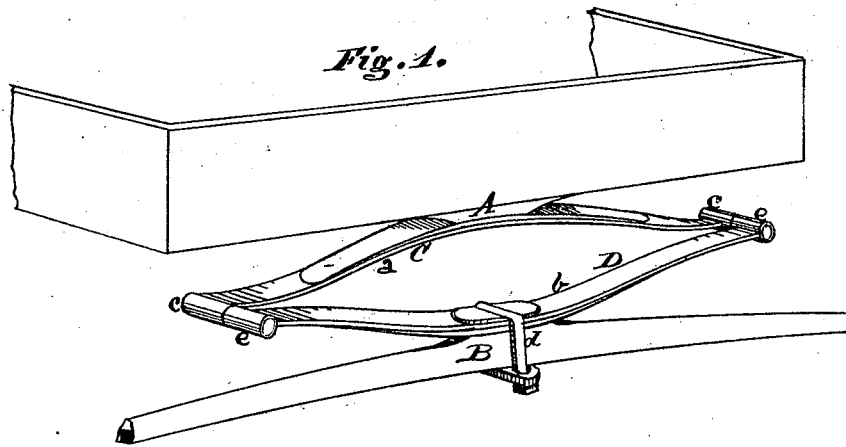


J. C. GOOLD.
 VEHICLE SPRING.

No. 184,367.

Patented Nov. 14, 1876.



Witnesses. { Lewis T. Newell,
 Arthur H. Hyde

John C. Goold
 by his attorney
 Alex. Felkins
 Inventor.

UNITED STATES PATENT OFFICE.

JOHN C. GOOLD, OF ALBANY, NEW YORK.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **184,367**, dated November 14, 1876; application filed October 16, 1876.

To all whom it may concern:

Be it known that I, JOHN C. GOOLD, of the city and county of Albany, State of New York, have invented certain Improvements in Springs for Carriages; and I do hereby declare that the following is a description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a perspective view of a spring embodying the improvements in this invention and applied to a carriage. Fig. 2 is a plan view of the same. Fig. 3 is a plan view of the same modified in its form of parts. Fig. 4 is a side elevation of the spring. Fig. 5 is a side elevation of the same, illustrating a modification of the form shown in Fig. 4. Fig. 6 is a cross-sectional view taken at line No. 1 in Figs. 2, 3, 4, and 5. Fig. 7 is a cross-sectional view taken at line No. 2 in the same figures. Fig. 8 is a cross-sectional view taken at the same line, illustrating a modification of the parts shown in Fig. 7.

My invention relates to elliptic springs for carriages, constructed in such a manner that each half or section may pass the other when in motion and sufficiently loaded; and consists of the several parts constructed and arranged as hereinafter described.

The object of this invention is to render the spring more elastic, reduce its height, so that the body may be supported at a lower point from the ground than heretofore, and dispense with the employment of side bars and body-loops, and render the spring less liable to rock forward, or settle to one side.

To enable others skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings and letters of reference marked thereon, the same letters indicating like or similar parts.

In the drawings, A represents the rear-end sill of the body of a carriage. B is the axle or head-block. The spring is composed of the halves or sections C and D, made in the form shown in either Fig. 4 or 5, according as the style or fashion may prevail. The said sections or halves, instead of being arranged and placed with the one directly over the other, as in the case of the common elliptic springs, are so placed that the section or half C may be

out of line of vertical range with the section or half D, so that the edge *a* of the section C may freely pass the edge *b* of the section D, when the same is bolted or clipped to its place on the axle, and the space *x* be formed between said edges, as shown in Figs. 2, 3, and 6.

To insure the free movement of the said sections past each other, I make the said sections in the form of that shown in Fig. 2, with the end of head *c* of section C extended out from edge *a*, and the end of head *e* of section D extended out from edge *b*, as shown in the said figure. The same necessary space *x* may be produced to permit the movement of the two sections past each other by bending the said sections edgewise, as shown in Fig. 3, when the heads *c* and *e* may be made with an extension equal to the width of the steel plates composing the spring, when the same space *x* between the said section may be produced at the center of the length of the spring sufficient to permit the upper half C to pass the lower half D, and clear the clip *d*. The sections C and D are pivoted with each other by the bolt *s* passing through the heads *c* and *e*, as shown in Fig. 7, or by a pintle, *s*¹, secured in one of the heads, as in *c*, Fig. 8, by welding or otherwise, and working through the head *e*, as shown in the same figure, and secured by nut *s*².

It is readily seen that by the improvements above described, the spring may be made with a less set and depth than heretofore, as the sections C and D may readily pass each other in their elastic play or movement when under a load and the carriage rolling over an uneven surface or road-bed. It may also be readily seen that, with this improved spring, the liability of its racking forward is greatly lessened, as the height of the spring is greatly reduced, and its connection of parts at the heads operates to secure a greater degree of firmness when pivoted by the bolt *s*, or its described equivalent *s*¹, than can be had where the head of the lower section is held within the ears of the upper section, as heretofore.

By this improved spring I am enabled to dispense with the usual spring-bars and body-loops, and also with side bars and cross-springs, and secure a low hanging of the body.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An elliptic spring composed of the upper and lower halves or sections C and D, so connected at their ends that the edge *a* of the section C may be out of a vertical range with the edge *b* of section D, to adapt the said sections to pass each other when in motion, as set forth.

2. The combination, with sections C and D, each set out from a vertical line with the other, of the heads *c* and *e*, conjoined by the bolt *s*, or its described equivalent, substantially as and for the purpose set forth.

JOHN C. GOOLD.

Witnesses:

LEWIS T. NEWELL,
ARTHUR H. NYE.