F. J. SPRINGER.
Vehicle-Spring.

No. 206,050. Patented July 16, 1878.

FIG 1.

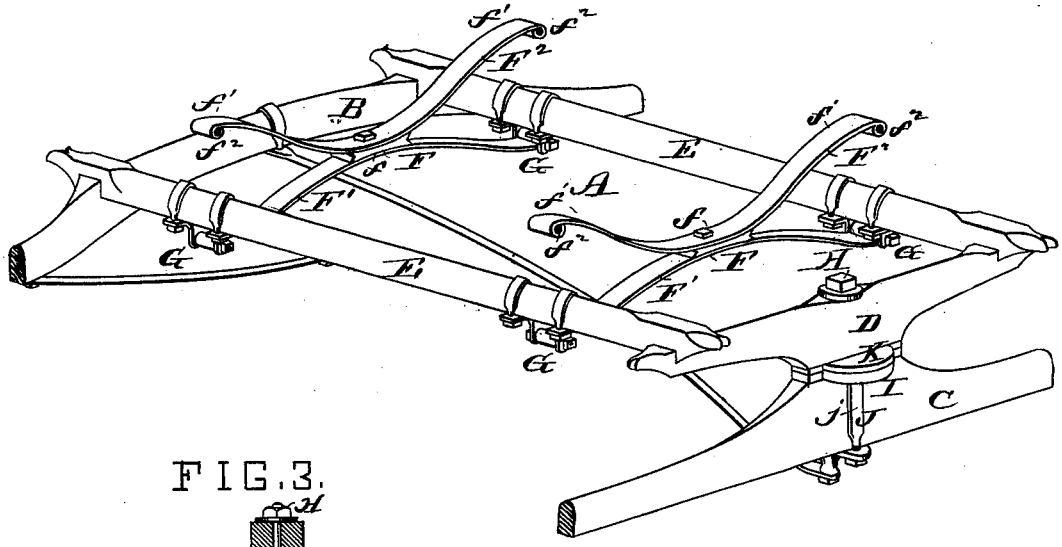


FIG. 3.

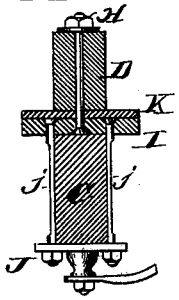
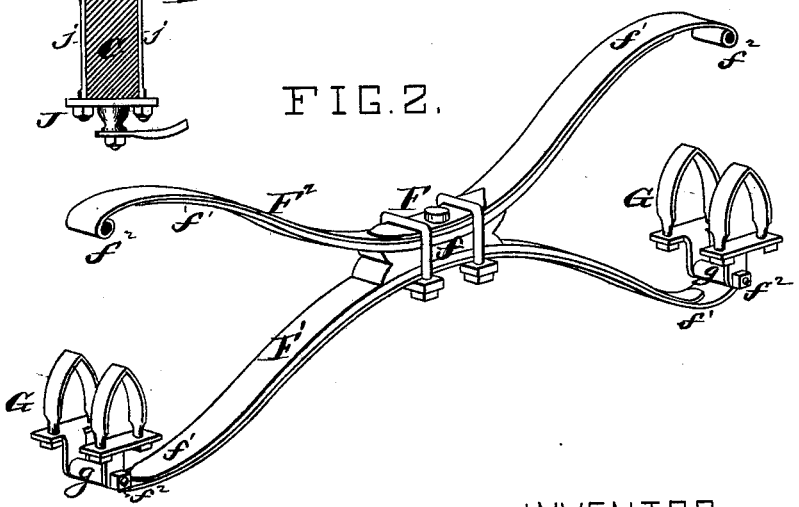


FIG. 2.



ATTEST.

W. L. Jones.

Fred. S. Boyd

INVENTOR.

Frederick J. Springer.

by Chas. D. Moody, Atty.

UNITED STATES PATENT OFFICE.

FREDERICK J. SPRINGER, OF EDWARDSVILLE, ILLINOIS.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **206,050**, dated July 16, 1878; application filed May 24, 1878.

To all whom it may concern:

Be it known that I, FREDERICK J. SPRINGER, of Edwardsville, Illinois, have made a new and useful Improvement in Carriage-Gears, of which the following is a full, clear, and exact description, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 shows the invention, in perspective; Fig. 2, a view, in perspective, upon an enlarged scale, of one of the springs; and Fig. 3, a vertical cross-section taken through the center of the forward axle and bolster, and showing the parts used in coupling the front and hind gears.

The same letters of reference denote the same parts.

My aim is to provide an improved carriage-gear, the valuable features of which are its elasticity, its strength and durability, and its adaptability to any style of carriage-body.

The improvement has relation more especially to the construction and mode of attaching the springs.

Referring to the drawing, A represents a carriage-gear embodying the improvement, B representing the hind axle; C, the front axle; D, the bolster; E E, the side bars, and F F the springs. The latter are made in two similar parts, F^1 F^2, of the shape shown, and connected at the center f only, from which point the parts toward the ends of the spring curve away from each other nearly to the ends f^1 f^1 of the parts, where they are preferably curved in a reverse direction, and their extreme ends terminate in eyes f^2 f^2, the center of the eyes in the upper part F^1 of the spring being below, and in the lower part F^2 being above, the ends of the curves f^1 f^1. The springs are attached preferably to the side bars, as shown, the eyes f^2 f^2 of the part F^1 connecting loosely with the clips G G, as shown, and the other part, F^2, of the spring being similarly connected with the carriage-body.

Now, by reason of the shape of the two parts of the spring and the mode of connecting them together, and owing also to the eyes of the spring being arranged as described and encircling loosely the clips both upon the side bars and carriage-body, not only an extremely elastic spring is obtained, but the spring is prevented from straining its connections with the carriage. As the spring is compressed, it does not tend to lengthen, and the eyes f^2 f^2 turn sufficiently upon the bars g g of the clips to prevent rigidity.

The springs, if desired, can be arranged directly over the bolster and the hind axle, or they can be used as side springs. I prefer, however, to use them in connection with side bars, and as shown, as thereby less difficulty is experienced from the oscillation of the carriage, and thus facilitating the use of the other feature of the improvement, which has relation to the manner of connecting the bolster and front axle.

H represents the king-bolt. Instead of extending it downward through the axle C, it is, at its lower end, held in a plate, I, that, in turn, rests upon the axle, and is attached thereto by a clip, J, the bars j j of which are headed in the plate. Another plate, K, is preferably interposed between the bolster D and the plate I, and made, by suitable fastenings, (not shown,) to turn with the bolster. The bolt H can be made to turn either in the plate I or in the bolster. This construction, especially when side bars and the above-described spring are used, enables the ordinary fifth-wheel to be dispensed with, and it also obviates the need of perforating the front axle.

I claim—

1. The carriage-spring F, consisting of the parts F^1 F^2, shaped and connected as described, and having the eyes f^2 f^2, arranged as described, in combination with the clips G G and side bars E E, operating substantially as described and shown.

2. The spring F, consisting of the parts F^1 F^2, curved and connected at their centers f f, as shown, and having their ends f^1 f^1 curved in the reverse direction, and provided with the eyes f^2 f^2, arranged as described, in combination with the clips G G and side bars E E, as and for the purpose described.

3. The combination of the bolt H, plate I, bolster D, axle C, clip J, side bars E E, the spring F, constructed and connected as specified, and clips G G, substantially as described, and for the purpose set forth.

FREDERICK J. SPRINGER.

Witnesses:

EDWARD C. SPRINGER,

CYRUS E. GILLESPIE.