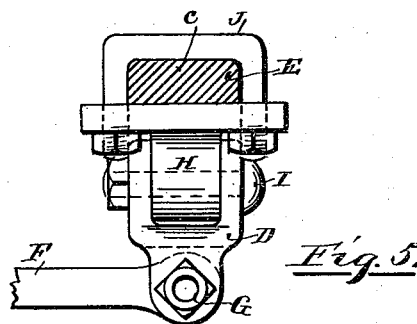
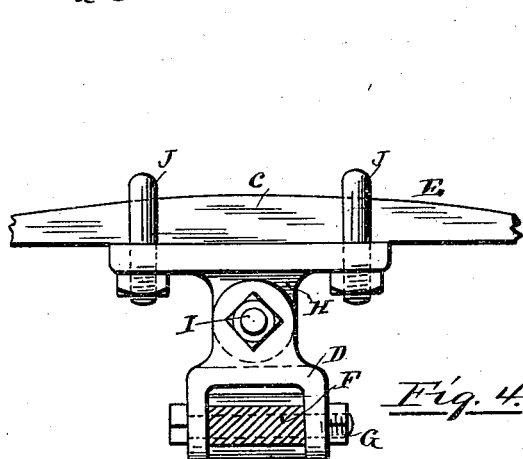
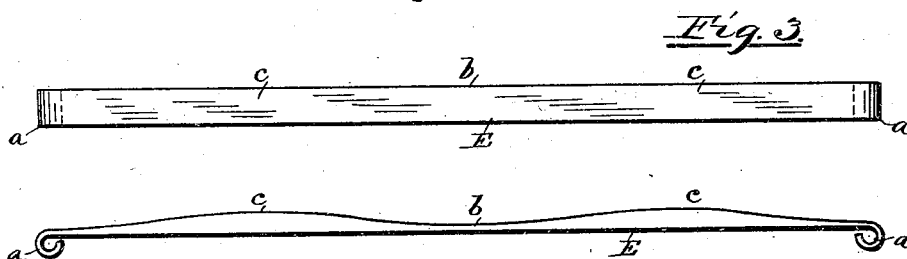
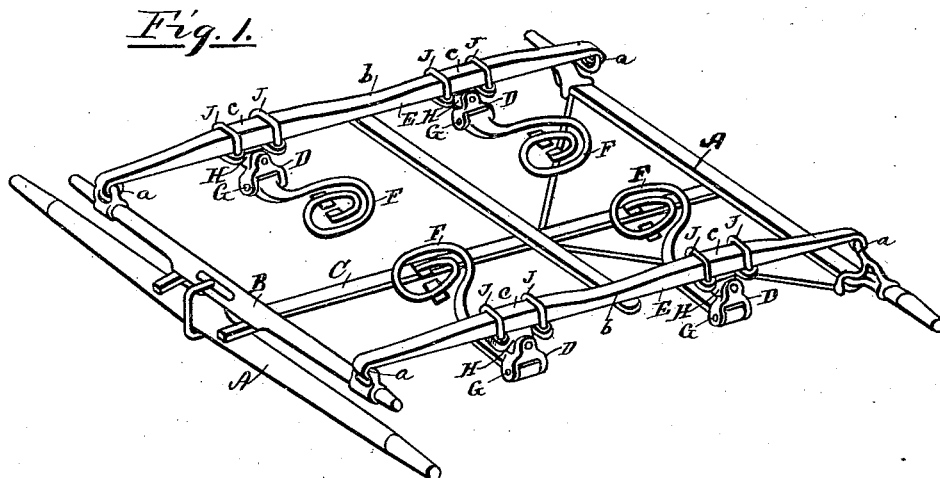


(No Model.)

P. WOODS.
CARRIAGE SPRING.

No. 490,594.

Patented Jan. 24, 1893.



Witnesses.

Charles Harrigan
John S. Lynch

Inventor.

Paul Woods
by S. Scholfield
Atty.

UNITED STATES PATENT OFFICE.

PAUL WOODS, OF WAKEFIELD, RHODE ISLAND.

CARRIAGE-SPRING.

SPECIFICATION forming part of Letters Patent No. 490,594, dated January 24, 1893.

Application filed May 9, 1892. Serial No. 432,359. (No model.)

To all whom it may concern:

Be it known that I, PAUL WOODS, a citizen of the United States, residing at Wakefield, in the county of Washington and State of Rhode Island, have invented a new and useful Improvement in Carriage-Springs, of which the following is a specification.

My invention consists in the improved construction and arrangement of the springs for supporting the carriage, as hereinafter fully set forth.

Figure 1, represents a perspective view of my improved carriage springs, as adapted for a buckboard. Fig. 2, represents an edge view of one of the longitudinal side springs. Fig. 3, represents a top view of the same. Fig. 4, represents a side elevation of the double jointed shackle for connecting the attaching springs to the side spring. Fig. 5, represents an edge view of the same.

In the accompanying drawings, A, A, represent the forward and rear axles, B the front bolster or transom bar, C the reach, connecting the rear axle with the bolster, and E, E, the side springs, also connecting the rear axle and the bolster, the said springs being made of steel, in one piece, drawn out and turned at its opposite ends to form the attaching eye or hook *a*, and thinned at its middle portion *b*, as shown in Fig. 2.

The springs F, F, which are to be attached to the buckboard are secured to the shackle D, by means of the pivot bolt G, the said shackle being also pivoted to the ear H by means of the bolt I arranged at right angles to the bolt G, the said ear H being attached to the thicker portion *c* of the spring E, by means of the clip bolts J, J, which serve to secure the attaching ear H to the spring E without requiring the perforation and consequent

weakening of the spring; and when the springs F, F, are attached to the under side of the buckboard the said springs will be allowed to yield to the movement of the buckboard in any required direction.

The double jointed shackle D which is pivoted to an ear H so as to allow the attaching springs F to be moved in every required direction, prevents excessive strain upon the buckboard or body of the carriage to which the springs are attached, which would tend to loosen the said springs, from their attachment, and the double jointed shackle connection, is applicable to carriages having springs of other construction.

I claim as my invention:

1. The combination with the axles A, A, the front bolster B, and the reach C connecting the rear axle with the bolster, of the side springs E, E, thinned at their middle portion and also at their ends, the springs F F adapted for attachment at one end to the body of the carriage, and at the other to the thickened portion of the side springs, the double jointed shackles for the springs F F, and the attaching clips substantially as described.

2. The combination with the axles A, A, the front bolster B, the reach C, connecting the rear axle with the bolster and the side springs E, E, also connecting the rear axle and the bolster, of the ears H, H, attached to the springs E by means of the clip bolts J, J, the shackles D, pivoted to the ears H by means of the bolts I, and the springs F, F, secured to the shackles D by means of the pivot bolts G, substantially as described.

PAUL WOODS.

Witnesses:

S. SCHOLFIELD,
JOHN S. LYNCH.