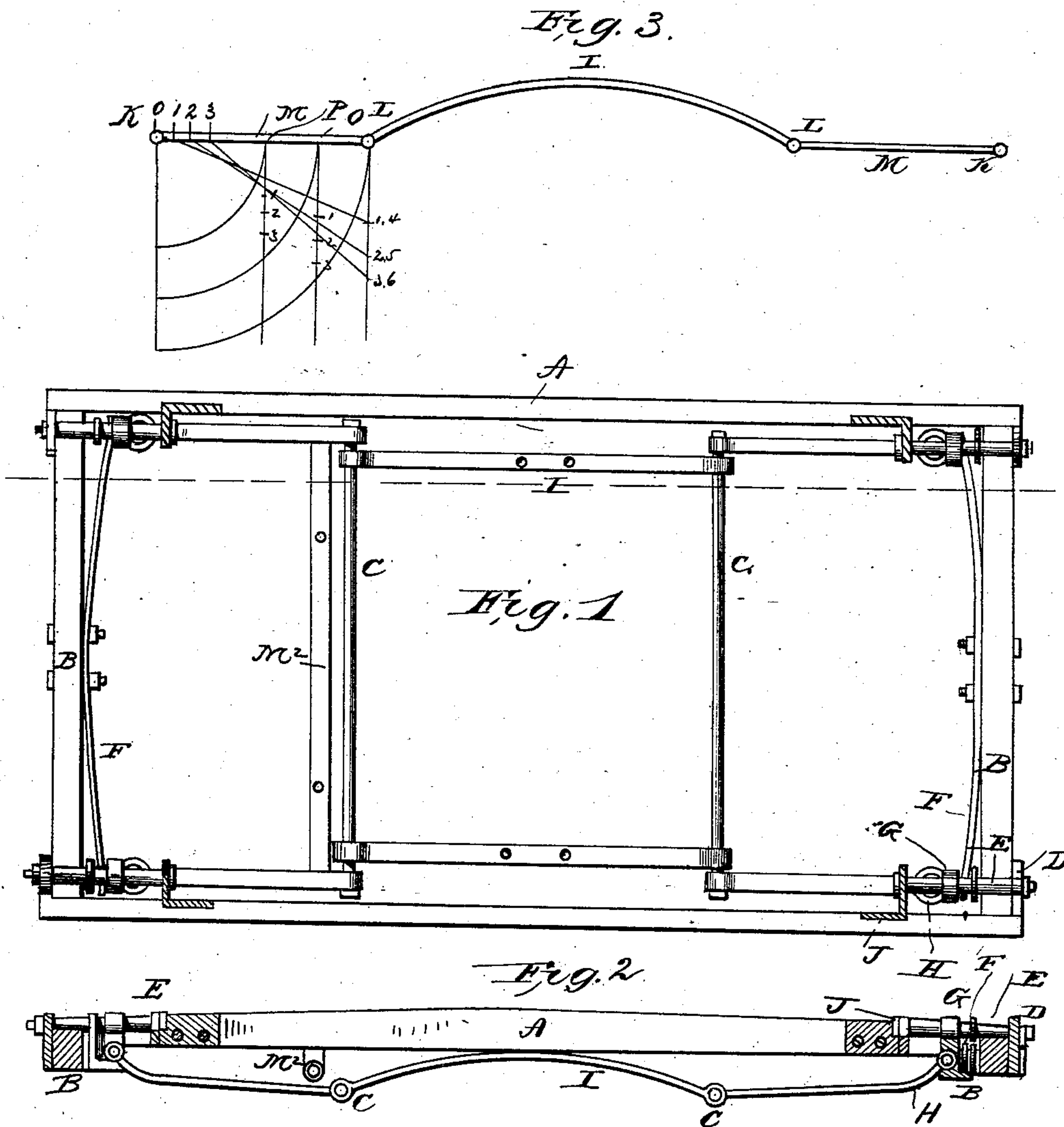


(No Model.)

A. S. CARLETON.  
CARRIAGE GEARING.

No. 281,667.

Patented July 24, 1883.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

ALBERT S. CARLETON, OF BROWNVILLE, NEW YORK.

## CARRIAGE-GEARING.

SPECIFICATION forming part of Letters Patent No. 281,667, dated July 24, 1883.

Application filed March 12, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT S. CARLETON, a citizen of the United States, residing at Brownville, in the county of Jefferson and State of New York, have invented new and useful Improvements in Carriage-Gearings, of which the following is a specification.

My invention consists in mechanism for applying a well-known geometrical principle to carriage-springs, the object being, first, to supplement their motion, and thereby increase the ease and comfort of those riding thereon; second, to obtain such control over the motion communicated by springs that any desired amount thereof may be communicated to the body of the carriage.

The geometrical principle to which I allude is illustrated in the diagram attached to and making a part of the accompanying drawings.

If a bar fastened at one end to an axle and the other end held horizontally from the axle be let drop, it will come to a standstill in a vertical position. Its first position, its fall, and last position will describe a quadrant. I therefore, for purposes of designation in this specification, term such a bar a "quadrantal arm."

In the diagram, the line from K to L represents a twelve-inch, from K to O a nine-inch, and from K to P a six-inch, quadrantal arm. Following the vertical lines down with their corresponding quadrantal lines from L O P, it will be observed that I have control of the supplemental motion obtained, as before described, by lengthening or shortening the quadrantal arms. For instance, from a nine-inch arm, as at O, for one inch of motion of the spring I obtain four and one-eighth inches of motion, or down to 1, in place of four and five-eighth inches of motion of the twelve-inch arm at L, as before described, and for a three-inch motion of the spring I obtain six and three-fourths inches of motion, or down to 3, in place of eight inches of motion of the twelve-inch arm at L. From a six-inch arm, as at P, for one inch of motion of the spring I obtain three and one-half inches of motion, or down to 1, in place of four and five-eighth inches of motion of the twelve-inch arm at L, and for three inches of motion of the spring I obtain five and one-fourth inches of motion, or down to 3, in place of eight inches of motion of the twelve-inch arm at L.

The foregoing describes, and the diagram illustrates, the principle by which I propose to obtain such control over motion communicated by carriage-springs that I can apply any desired amount thereof to the bodies of carriages.

In accompanying drawings, Figure 1 is a plan of a carriage-gearing, and Fig. 2 a section illustrating one of many ways of utilizing my invention. Fig. 3 is a plan view or diagram illustrating the principle of my invention.

Similar letters refer to similar parts in all the views.

A represents the side bars of the gearing; B, the front and rear cross-bars.

D represents an eye or holder fastened to the cross-bars.

J represents another eye or holder fastened to the side bars, turned up at right angles.

E represents a bolt, one inch in diameter, passing through with its head at J, and also passing through eye D and fastened there with a nut and screw-thread.

G represents a slotted carrier working on the bolt E.

F represents a steel spring fastened in its center to the cross-bars B, with its end passing through and working in the slot of the carrier G.

To the carrier G is also attached the fork of the quadrantal arm H, with its other end attached to the rod C, to which (rod C) is also attached the spring I. At the opposite end of the line is a similar mechanism. The body of the carriage now being bolted to the spring I through the holes represented for that purpose and loaded, the pressure is communicated to the spring I, and from that to the quadrantal arms, and thence to the carrier G, which, by the vertical pressure at L, is drawn in a horizontal direction along the bolt E; but the spring F, whose end is inserted in the slot of the carrier G, opposes a flexible resistance, and here the contest between the spring, supplemented by the increased quadrantal motion, as set forth, and the jolts and jars of the road commences, but at very much increased ease and comfort to those riding in the carriage.

It is found that a carriage-body hung in this manner has too much of a rocking motion "fore and aft," and if one person be riding alone there is too much inclination of the body toward the side the person sits upon.

It is also found by trial that by placing an



arresting bar or rod, fastened to the body of the carriage, with its ends reaching out far enough to bear upon the quadrantal arms, both these objections are so far removed as to render them of little or no account. These bars shorten the motion, but can be graduated by setting them backward or forward from the end of the gearing; or one arresting-bar only in the forward end of the gearing may be used, it being found that that will produce sufficient effect.

I claim as my invention—

1. The combination, with the central springs and quadrantal arms or bars having a sliding axis, of a spring or cushion arranged in the line of travel of the axis, so that it limits and governs the motion of the axis of the arm when the latter comes in contact with it, as set forth.

2. The combination of the central springs arranged to carry the body of the vehicle, the quadrantal arms or bars connected thereto, and devices arranged to lengthen or shorten the travel of the axis of the said arms, as set forth.

3. The combination, with the quadrantal arms and the central actuating-springs, of the arresting-bar attached to the body of the vehicle and bearing on the quadrantal arms, as set forth.

4. As an improvement in vehicle-springs, the combination of the end bolt, the carrier sliding thereon, with the spring F, acting against the carrier to limit the sliding movement of the same, as set forth.

5. As an improvement in vehicle-springs, the combination of the bolt E, the carrier G, sliding thereon, the transverse horizontally-acting spring engaging the carrier, the quadrantal arms or bars pivoted to the carrier, and the central springs, I, as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

ALBERT S. CARLETON.

Witnesses:

ANSON POTTER,  
M. H. PECK.