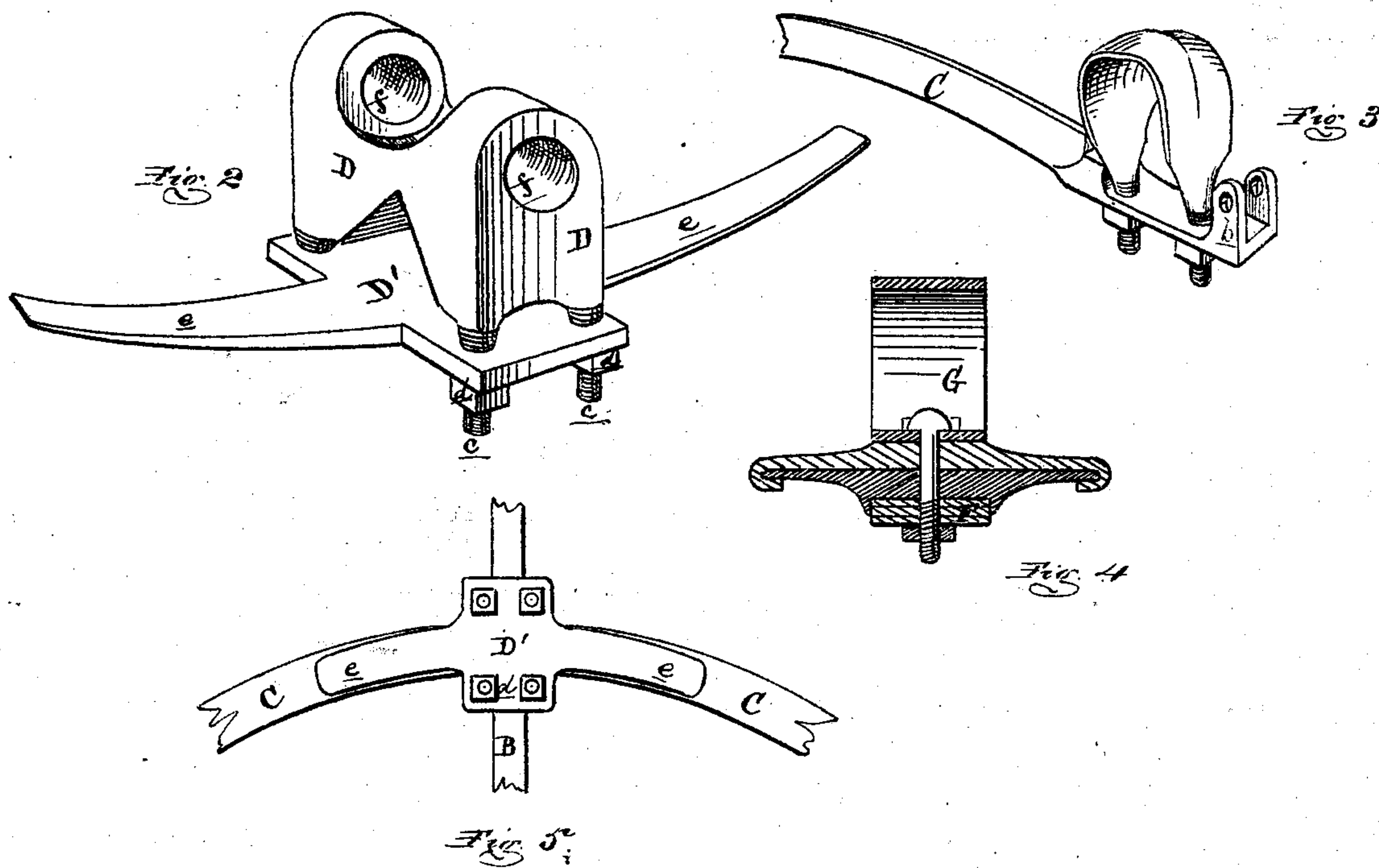
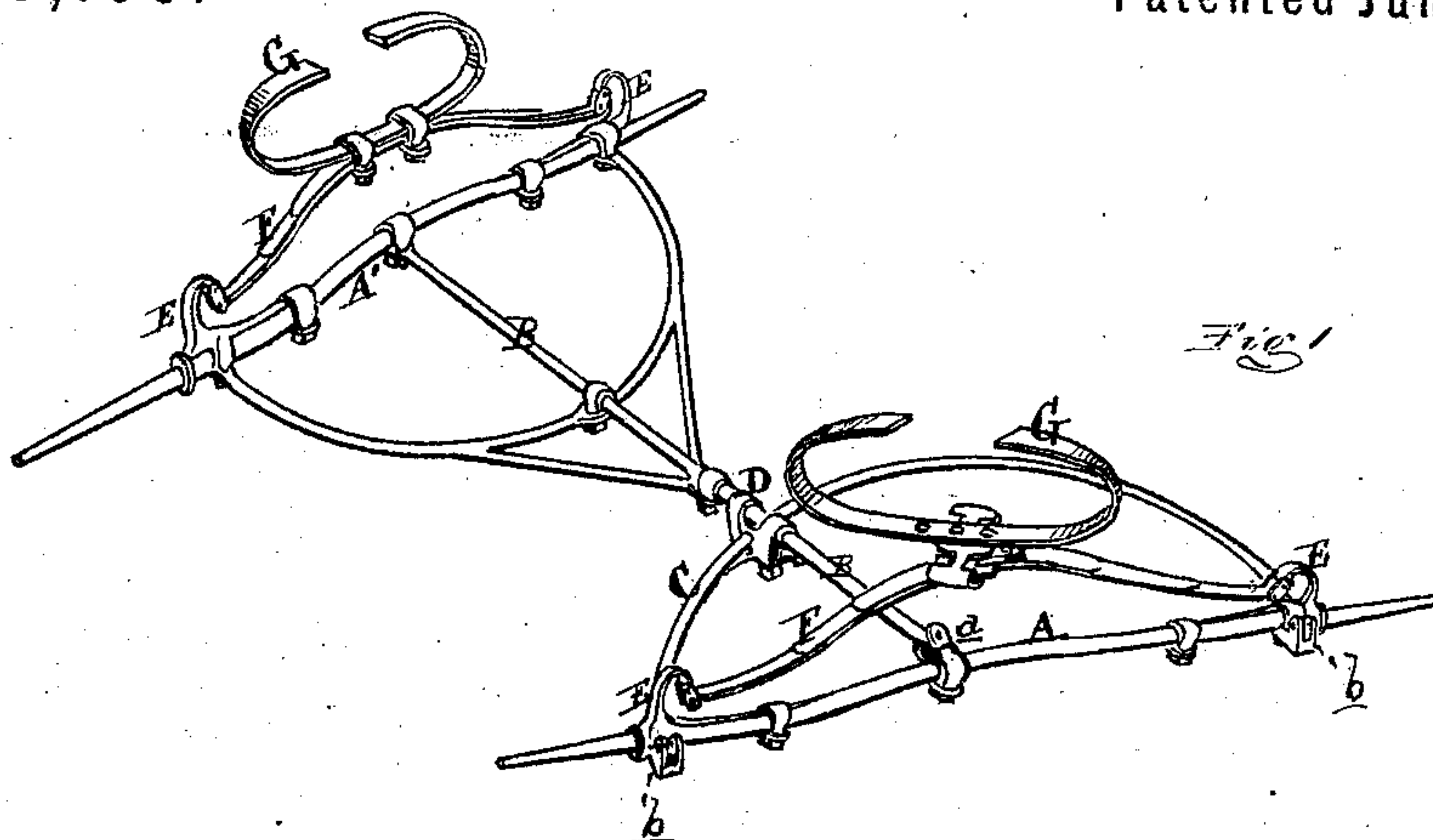


JAMES L. CORBUS.

## Improvement in Running Gears for Vehicles.

No. 116,160.

Patented June 20, 1871.



ATTEST

H. F. Everts.  
Maynard H. Church.

INVENTOR

A. L. Corbush  
per Atty  
Thos L Sprague



# UNITED STATES PATENT OFFICE.

JAMES L. CORBUS, OF QUINCY, MICHIGAN, ASSIGNOR TO HIMSELF AND  
WILLIAM H. COLE, OF SAME PLACE.

## IMPROVEMENT IN RUNNING-GEARS FOR VEHICLES.

Specification forming part of Letters Patent No. 116,160, dated June 20, 1871.

*To all whom it may concern:*

Be it known that I, JAMES L. CORBUS, of Quincy, in the county of Branch and State of Michigan, have invented a new and useful Improvement in Running-Gear for Four-Wheeled Vehicles; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a perspective view of my improvement. Fig. 2 is a detached view of my double clip and spring, by means of which the reach is secured to the circle. Fig. 3 is a representation of the end of the circle and draft-clip. Fig. 4 is a vertical section of the spring-circle. Fig. 5 is a bottom plan of the double clip and spring with a section of the reach and circle.

Like letters refer to like parts in each figure.

The nature of this invention relates to an improvement in the construction of running-gears for four-wheeled vehicles, by means of which a greater flexibility is obtained and a lesser liability of getting out of repair; and it consists in the peculiar construction of a box-clip on the front circle-iron, in which the reach is journaled, and in connection therewith the employment of a leaf-spring underneath the circle-iron for holding the clip in close contact with the latter for the prevention of rattling; in the peculiar construction and arrangement of the elastic perches which replace the usual spring-bars; and in the general arrangement of its various parts, as more fully hereinafter set forth.

In the drawing, A A' represent the front and rear axles, respectively, of a vehicle. B is a reach, wholly or in part metal, rigidly secured to the rear axle, rear circle-iron, and braces, by suitable clips, and to the center of the front axle by a ball-and-socket joint, *a*. C is the front circle-iron, the ends of which are turned up and formed or swaged into draft-clips *b*, and is secured to the under side of the axle by the usual stirrup-clips. D is a box-clip, which straddles the front circle-iron, to which it is loosely secured in the following manner: At the four corners of clip are pendent studs *c*, provided with nuts *d*, threaded thereon. The under side of the clip-body is transversely recessed to receive the circle-irons. D' is a plate

perforated at the corners to slip on the studs below the circle-iron, and is supported by the nuts *d*. From the side edges of the plate D' project the half-leaf springs *e*, which bear, at their ends, against the under side of the circle-iron, so that the clip-body is held down in contact with the circle-iron with sufficient pressure or force to prevent rattling, but not to prevent the parts from sliding in easy contact with each other. The upper part of the clip has a longitudinal opening, *f*, through it, in which the reach is journaled.

The effect of the above-described arrangement of the parts is to permit the rear axle to have an axial rotation as well as a radial movement at its point of connection to the front axle, which thus allows the front and rear wheels to adjust themselves to inequalities in the road independently of each other, thereby preventing all torsional strain upon the reach and its connections.

The plate D and springs *e* are preferably forged from a single piece of steel, but may be made separately therefrom, if preferred.

E are perches, clipped to the arms of the axles, and support the ends of the semi-elliptic springs F, hung thereto by proper hangers.

In lieu of the usual spring-bar for supporting the body of the carriage, I employ an elastic perch, G, secured to the spring, and a similar one attached to a fifth-wheel plate, pivoted to the forward spring, as shown in Fig. 4; these spring-perches G increase the elasticity of the movement and relieve the springs from the effects of sudden shocks.

I am well aware that elastic perches have been employed, but only where they rested or were secured to unyielding bases.

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

1. The box-clip D, spring-plate D', and nuts *d*, arranged and operating, with relation to the reach B and circle-iron C, as and for the purpose herein shown and specified.

2. The elastic perches G, when interposed between the body of a vehicle and its springs F, substantially as and for the purpose set forth.

JAMES L. CORBUS.

Witnesses:

FREDERICK EBERTS,  
MYRON H. CHURCH.