

(No Model.)

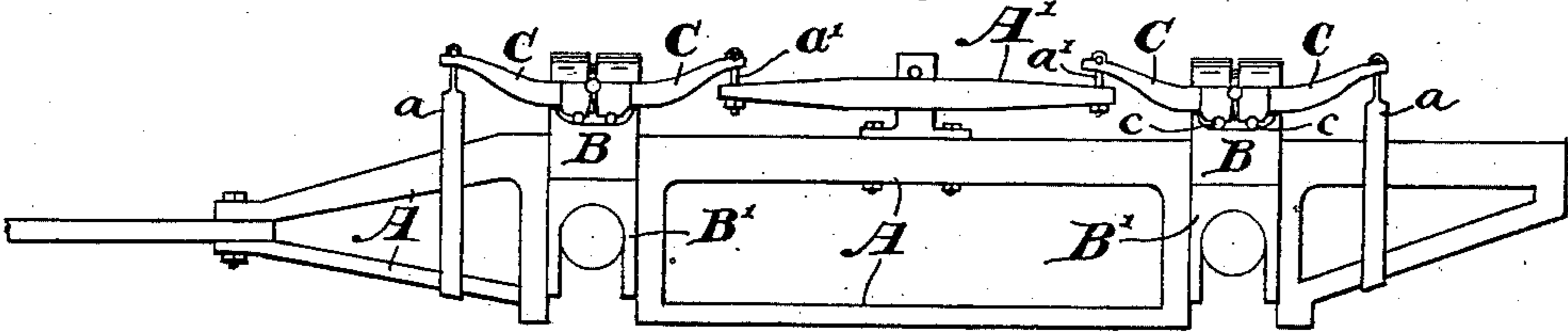
J. T. HERSCHELL.

CAR SPRING.

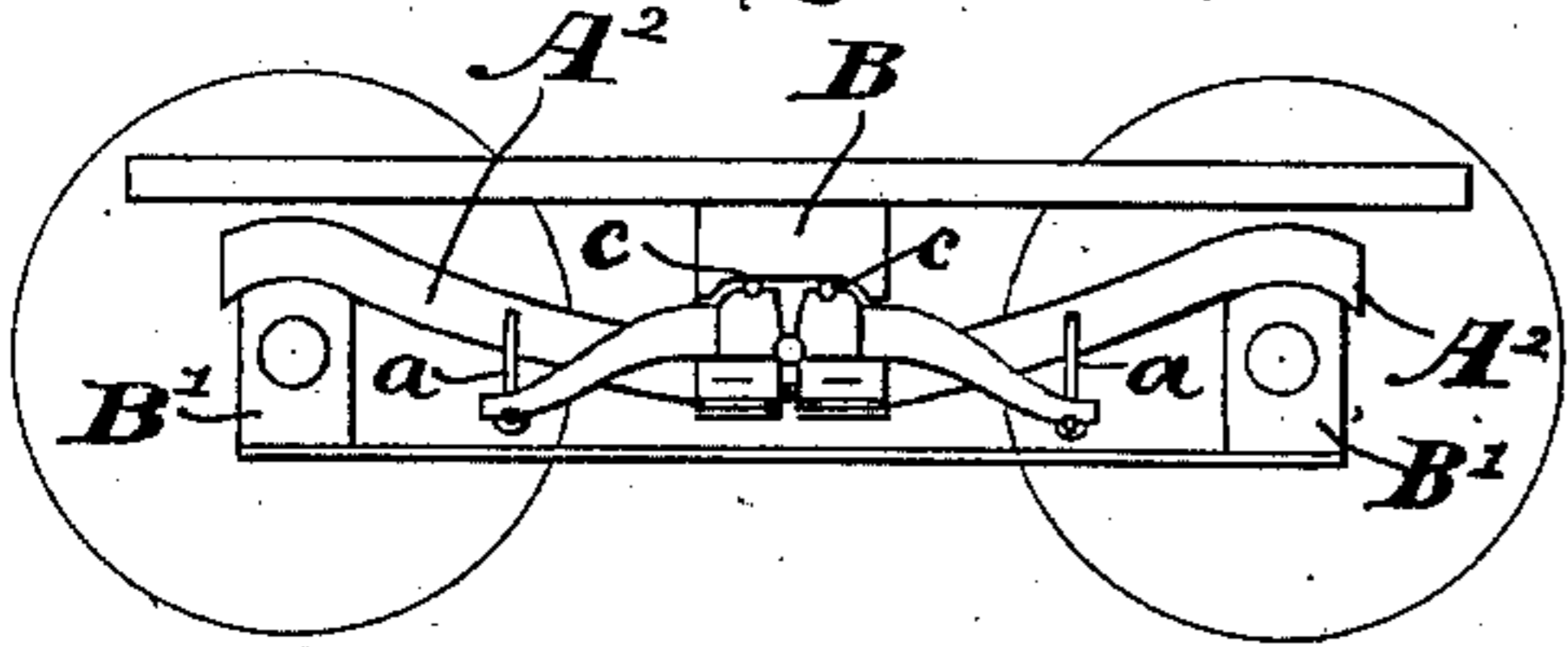
No. 314,245.

Patented Mar. 24, 1885.

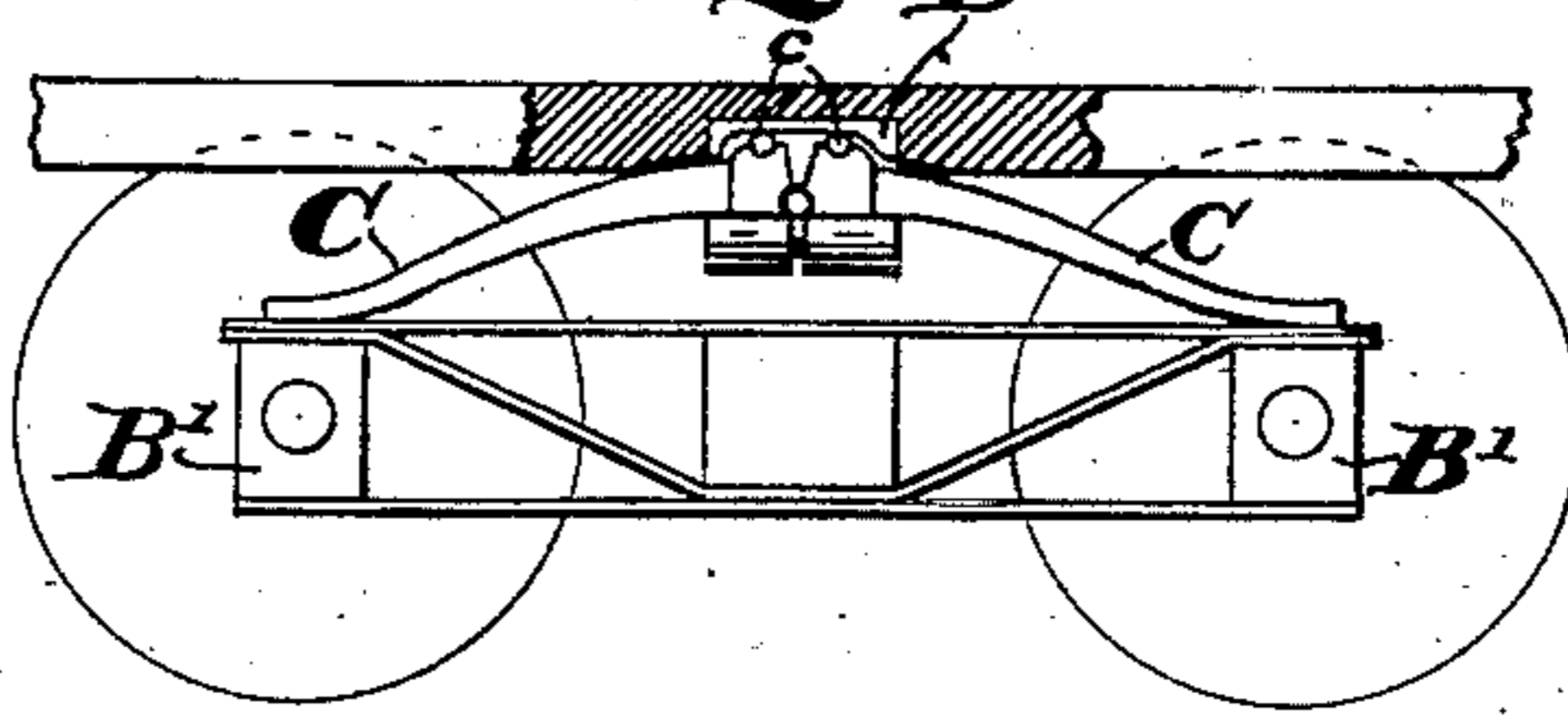
*Fig. 1.*



*Fig. 2.*



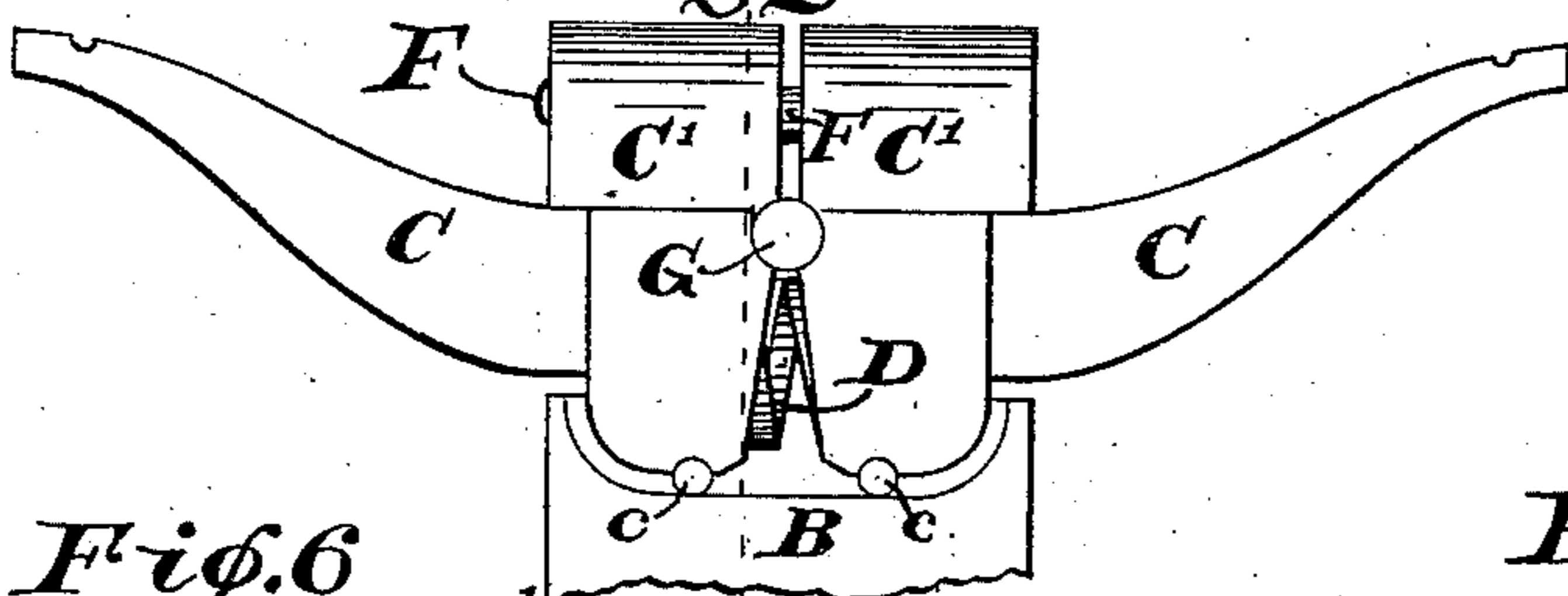
*Fig. 3.*



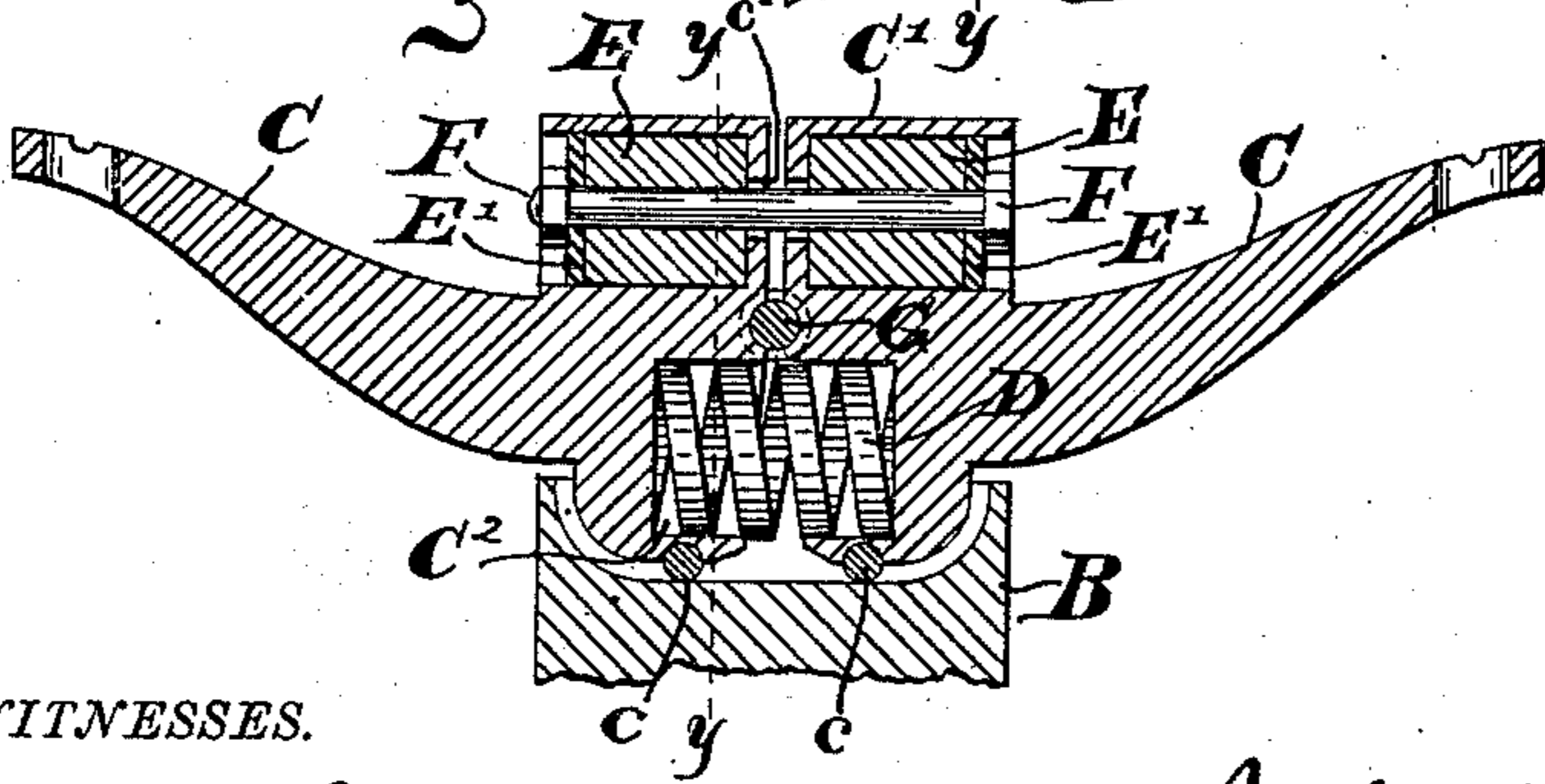
*Fig. 4.*



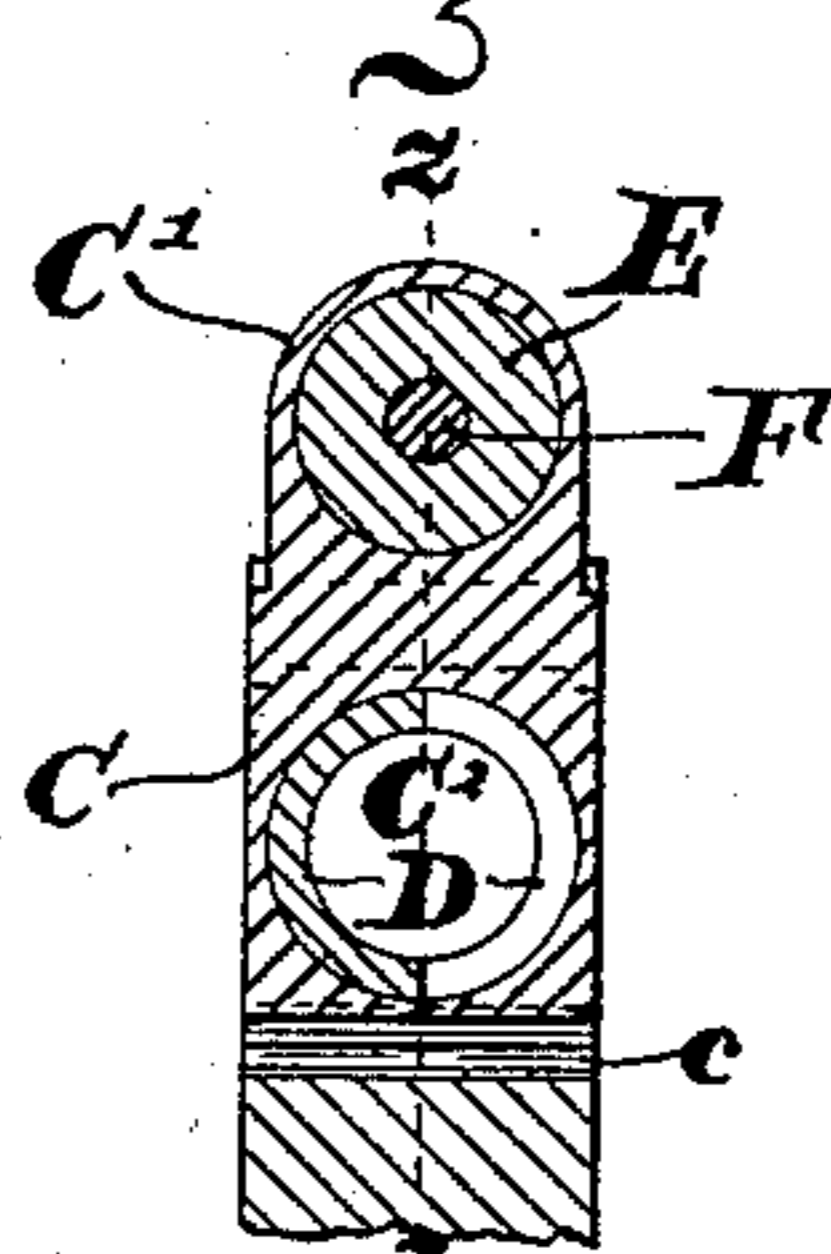
*Fig. 5.*



*Fig. 6.*



*Fig. 7.*



WITNESSES.

Cha. Leonard.

Edw. Bradford.

INVENTOR.

John T. Herschell,

PER

C. Bradford.

ATTORNEY.

# UNITED STATES PATENT OFFICE.

JOHN T. HERSCHELL, OF EVANSVILLE, INDIANA.

## CAR-SPRING.

SPECIFICATION forming part of Letters Patent No. 314,245, dated March 24, 1885.

Application filed January 20, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN T. HERSCHELL, of the city of Evansville, county of Vanderburg, and State of Indiana, have invented certain new and useful Improvements in Car-Springs, of which the following is a specification.

The object of my said invention is to produce a strong, durable, and efficient car-spring, especially adapted to use on locomotives, as will be hereinafter more particularly described.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a side elevation of one of the side frames of a locomotive, which carries the bearings for the drive-wheel axles, with my said invention applied thereto; Fig. 2, a side elevation of the front truck of a locomotive, showing the preferable manner of applying my improved spring thereto; Fig. 3, a similar view of a tender-truck, showing my said invention applied thereto in the preferable manner; Fig. 4, a top or plan view of the spring separately; Fig. 5, a side elevation of the same; Fig. 6, a central longitudinal section through the same on the dotted line  $z z$ ; and Fig. 7, a transverse sectional view, looking to the right from the dotted line  $y y$ .

In said drawings the portions marked A represent the several frames, shown to illustrate the various modes of applying the spring when used in different places; B, the spring-saddle; C, arms or main portions of said spring; D, a coiled metal spring; E, a rubber spring; F, a rod running through the parts containing the rubber spring and securing the two sides or arms together, and G a pivot-bolt interposed between the ends of said arms.

The frames A of the several trucks are shown only to illustrate the preferable manner of attaching the spring to the different forms of trucks, and form no part of this invention. Fig. 1 shows the springs resting on the saddles, which in turn rest on the axle-boxes B', the outer end of each spring being secured to the frame by a strap,  $a$ , and the inner ends being connected to an equalizing-bar, A', by straps  $a'$ . On the truck shown in Fig. 2 the spring is shown inverted, the outer end of each arm being connected to a bar, A<sup>2</sup>,

by the straps  $a$ , the ends of said bar being secured on the axles of the truck, as shown. The saddle B rests upon the central portion and supports the frame. On the truck shown in Fig. 3 the spring is applied in a similar manner to that shown in Fig. 2, except that the arms themselves are extended out and are secured to the axle-boxes B', instead of being secured to a cross bar, and the saddle B is inserted in a "pocket" in the frame-work. It will be understood, of course, that the spring may be also applied to other forms of trucks than those shown and in different ways without departing from my invention, which relates to the spring alone.

The saddle B, in which the central portion of the spring rests, is secured to the proper part of the frame in any suitable and convenient manner, and is suitably formed to receive the central portion of the spring, as shown, and form a bearing therefor.

The arms C are formed with hollow upwardly-extended portions C' in their adjacent ends, the outer ends of which are open and the adjacent ends of which are closed, with only a hole,  $c'$ , large enough to accommodate the bolt or rod F, which passes through them. The openings in these parts are preferably formed cylindrical, and are filled with the rubber springs E, as will be presently more fully described. The lower adjacent corners of said arms are extended down somewhat, and the inner ends thereof are thus enlarged, as shown. An opening or seat, C<sup>2</sup>, is formed in each of the adjacent ends, near the lower corner, in which the coiled spring D is inserted. An anti-friction roller,  $e$ , is mounted in a suitable bearing on the under side of each arm between it and the spring-saddle, thus securing mobility of operation. Midway between the openings for the rubber and the coiled springs in the arms a transverse semicircular notch is formed in each of the adjacent ends, in which, when the several parts are in working position, the pivot-bolt G is mounted.

The coiled spring D is preferably of steel, and is of appropriate strength for the use designed. It is inserted, as before indicated, between the ends of the arms, one end resting in each of the openings or seats C<sup>2</sup> in said ends.

The rubber springs E are inserted in the openings in the parts C', and are formed of solid rubber, with a longitudinal hole through the center for the bolt F. Their inner ends 5 bear against the inner ends of said parts C', and at their outer ends washers or followers E' are provided, which rest thereon and afford a solid bearing for the head and nut of the bolt or rod F.

10 The bolt F is any suitable bolt of the required length and size, and is inserted through the longitudinal holes of the rubber springs in the parts C', the head of said bolt bearing against the metal follower on the outer end of 15 one of said springs, and the nut thereof bearing against the follower on the outer end of the other spring, as shown and before described, and thus secures the two parts of the spring together.

20 The pivot-pin G is placed between the ends of the arms, one side resting in each of the notches therein, and thus forms a fulcrum over which each of the arms operates when the spring is in use.

25 The several parts are secured in position and together, as shown, the bolt F holding the two parts together at the top, the pin G being interposed between the ends of the arms for a fulcrum, and the spring D being inter- 30 posed between said ends below said fulcrum, to operate in conjunction with the rubber spring to support the arms. The device being then mounted on the truck, between the weight and said truck or the supporting frame- 35 work, it operates as follows: The spring being in the position shown in Fig. 1, the weight operates to bear down the ends of the arms, which operate over the fulcrum G, and, through the bolt F and followers E', compress the rub- 40 ber springs E on one side of said fulcrum and bears the adjacent lower portions of the arms toward each other, and thus acts upon the spring D. The weight being lessened or re- 45 moved, said springs expand and bear the ends of the arms upwardly again. When the spring

is inverted, as shown in Figs. 2 and 3, the weight bears the center of said spring down, instead of the arms, the effect of which upon the other part of the device is the same as above described, as will be readily understood. 50

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A car-spring consisting of two arms or parts, the adjacent ends of which are provided 55 with hollow upper portions containing springs, and connected to each other from the ends of said springs, and the lower adjacent portions of which have a spring interposed between them, and a pivot-bolt or fulcrum interposed 60 between said adjacent ends of the arms between the said upper and lower springs, substantially as set forth.

2. A car-spring consisting of two arms having hollow adjacent upper portions, springs 65 in said hollow portions, and a bolt running through and connecting said springs, a pivot-bolt or fulcrum interposed between the ends of the arms, and a spring interposed between the lower adjacent portions of said arms, sub- 70 stantially as set forth.

3. The combination, in a car spring, of the arms or parts C, having open-ended hollow adjacent upper portions, C', the rubber springs E, inserted in said hollow portions, the follow- 75 ers E' on the outer ends of said rubber springs, the bolt F, passing through said springs and hollow portions and connecting said followers, the pivot-bolt or fulcrum G, interposed between the ends of said arms, and the spring D, 80 interposed between the ends of the arms below said fulcrum, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Evansville, Indiana, this 13th day of January, A. D. 1885.

JOHN T. HERSCHELL. [L. S.]

In presence of—

DE WITT H. LAUPHEAR,  
I. H. ODELL.