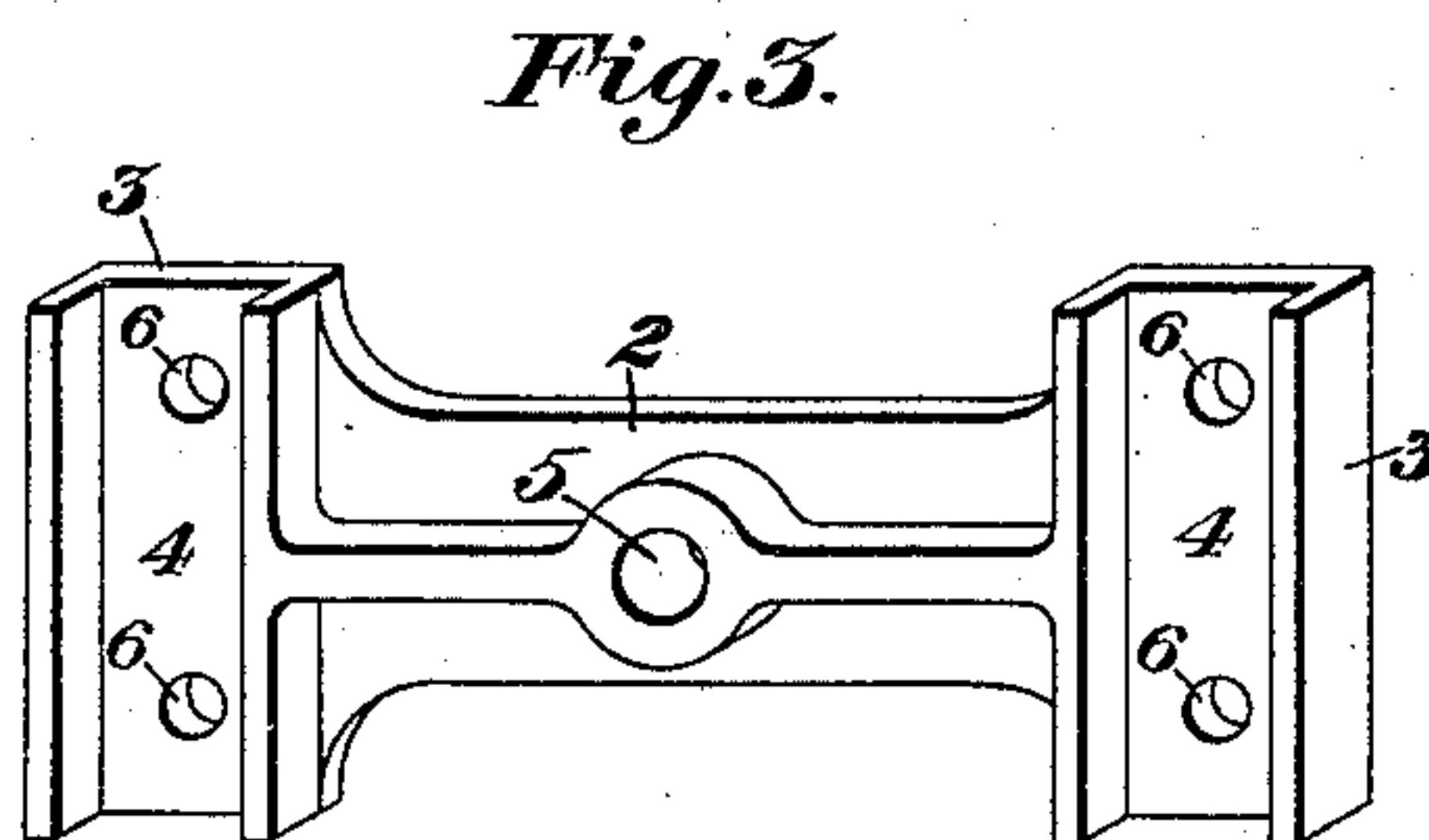
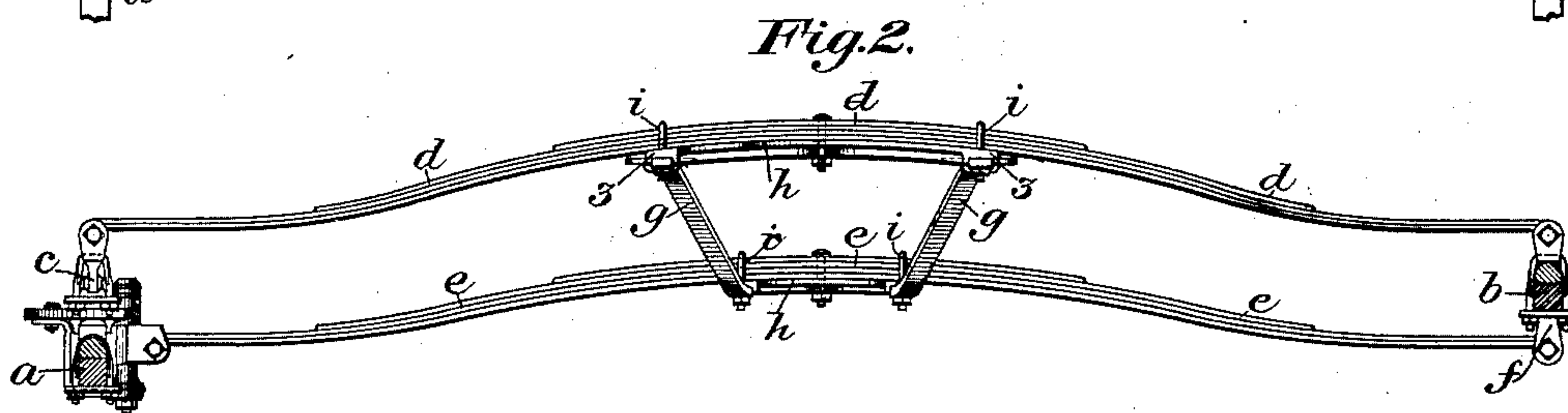
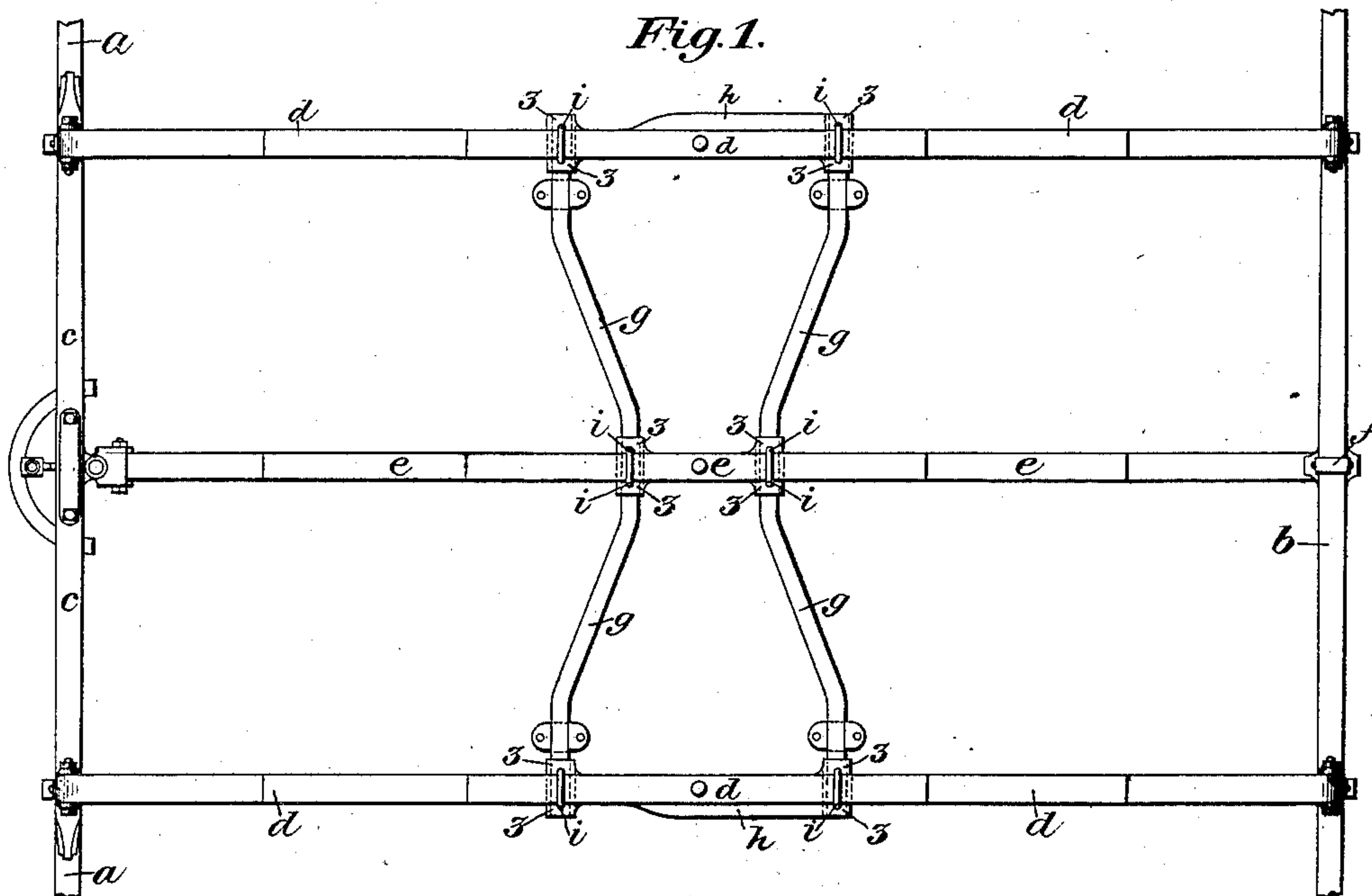


(No Model.)

W. W. GRIER.
CLIP FOR VEHICLE GEARS.

No. 358,973.

Patented Mar. 8, 1887.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM W. GRIER, OF HULTON, PENNSYLVANIA.

CLIP FOR VEHICLE-GEARS.

SPECIFICATION forming part of Letters Patent No. 358,973, dated March 8, 1887.

Application filed November 17, 1886. Serial No. 219,116. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. GRIER, of Hulton, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Clips for Vehicle-Gears; and I do hereby declare the following to be a full, clear, and exact description thereof.

That form of vehicle-gear known as the "triple-spring gear" is composed of two springs extending one at each side between the head-block and the rear axle, a center spring extending between the front and rear axles, and a cross-stay or body-brace connecting the three springs rigidly together at or near the middle. The side springs are fastened to the head-block and to the upper side of the rear axle, and the center spring is fastened below the front and rear axles. Thus arranged, the springs being parallel, and, by reason of their attachment at or near the center, being caused to vibrate in unison, there is no rolling of the axles, and so long as the gear remains in shape the wheels will track perfectly; but if the gear should become racked end motion and want of tracking will result. A fruitful cause of racking in these gears is the fact that the center stay is clipped or bolted to the middle spring by a simple clip or bolt, so that any looseness permits it to turn or pivot slightly on the middle spring, and this motion only increases the trouble and makes the whole gear loose and unreliable, producing end motion, racking, and imperfect tracking.

My invention is designed to overcome this difficulty by insuring a perfect and reliable connection between the middle spring and the center stay.

To enable others skilled in the art to make and use my invention, I will now describe it by reference to the accompanying drawings, in which—

Figure 1 is a plan view of a gear containing my improvements. Fig. 2 is a side elevation, and Fig. 3 is a perspective view, of my improved double clip and brace.

Like letters of reference indicate like parts in each.

The gear is composed of front and rear axles, *a b*, head-block *c*, side springs, *d d*, connected to the head-block and to the upper side of the rear axle, *b*, middle spring, *e*, connected to the

king-bolt or other part at the front axle, *a*, and by a clip, *f*, to the lower side of the rear axle, *b*, and a center stay, *g*, connecting the side springs, *d*, with the middle spring, *e*. This center stay, *g*, is composed of two metal bars or strips, which are connected to the middle spring by an improved double clip or brace, *h*, the construction of which is clearly shown in Fig. 3. It has a flat upper side, which fits against the spring, a central body or connecting-piece, 2, at each end of which is a clip, 3, having a channel or recess, 4, on the under side, in which one of the cross-strips composing the center stay, *g*, extends, and a central hole or opening, 5, by which it may be connected centrally to the spring.

The ends 3 are tapped for the reception of the strap *i* of the clip, the ends of which pass through the cross-bar *g* and holes 6, and the yoke of which encircles the central spring, as shown in Figs. 1 and 2. Similar clips are used to connect the ends of the center stay, *g*, to the side springs, which clip, in the form of center stay shown in the drawings, is longer than that used with the middle spring, for the reason that the ends of the stay are spread at the side springs, so as to give a diagonal bracing to the gear, as shown in Fig. 1. This diagonal bracing, however, is not an essential to the use of the double clip, as it is apparent that those used with the side springs may be of the same length as the one used with the center spring, in which case, however, the bars of the center stay would be straight.

The effect of the double clip and brace *h* is to tie the separate bars forming the center stay together in a truss form, and by reason of the flanges which form the grooves or recesses in the ends 3 and the connection of the same by the rigid central portion or body, 2, the bars composing the center stay cannot work loose from each other, but any impact, pressure, or horizontal strain brought to bear upon one of them will be transmitted to the other, while the securing of the stay to the springs by means of the straps *i* will produce the same effect and entirely cure the pivotal motion above referred to as against any vertical strain or jar or weight suddenly thrown upon either end of the stay. Thus by use of the double clip and brace *h*, I form a much stronger and more com-

pact connection between the springs and center stay and reduce the danger of the vehicle becoming racked, and thereby largely obviate end motion, want of tracking, and rolling of the axles.

It is apparent that my improvement is in like manner applicable to gears having two middle springs, and I desire to include such use in my claims.

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

1. A double clip for vehicle-gears having a central body and end pieces provided with transverse recesses or grooves, said end pieces
15 having holes 6, extending through the grooves, and straps passing through the holes, substantially as and for the purposes described.

2. A vehicle-gear having longitudinal springs, in combination with a center stay, a

double clip extending lengthwise in contact 20 with the spring, and having transversely channeled or recessed end plates in which the bars of the center stay are fitted and secured, substantially as and for the purposes described.

3. A vehicle-gear having side springs, a 25 middle spring or springs, and a center stay with divergent ends connecting the said springs and united to the middle spring by means of a double clip, the ends of which are grooved to receive the bars of the center stay, substan- 30 tially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 10th day of November, A. D. 1886.

WILLIAM W. GRIER.

Witnesses:

W. B. CORWIN,
THOMAS B. KERR.