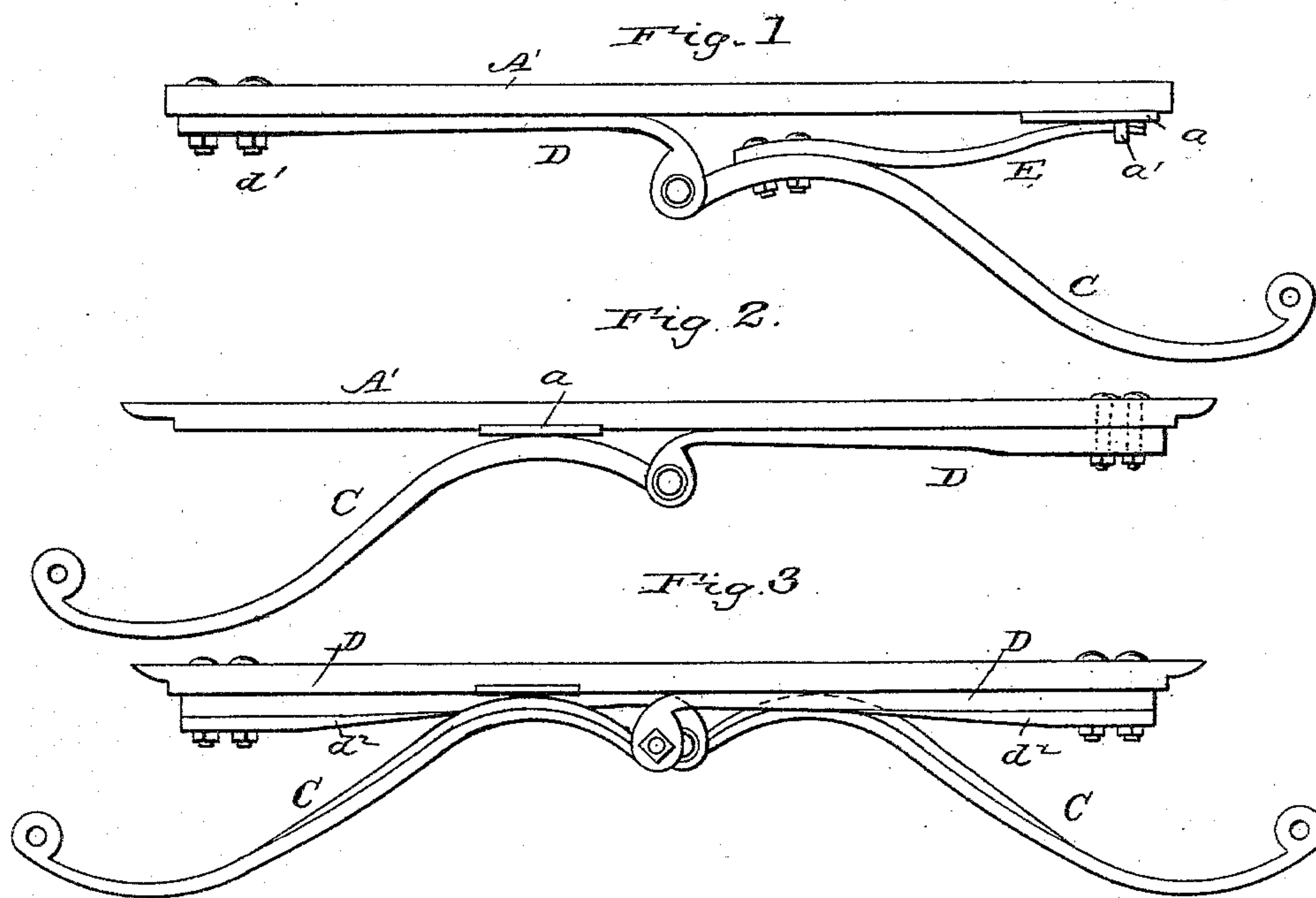


(No Model.)

J. HOWELL.
VEHICLE SPRING.

No. 296,834.

Patented Apr. 15, 1884.



Witnesses

H. N. Low
J. S. Barker

Inventor

Jacob Howell
by Ambleday & Bliss atty.

UNITED STATES PATENT OFFICE.

JACOB HOWELL, OF JACKSON, MICHIGAN, ASSIGNOR OF ONE-HALF TO
HENRY N. ARCHER AND ANSEL N. HOVEY, BOTH OF SAME PLACE.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 296,834, dated April 15, 1884.

Application filed April 18, 1883. (No model.)

To all whom it may concern:

Be it known that I, JACOB HOWELL, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Vehicle-Springs, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a side elevation, showing the method of applying two of my improved springs to a vehicle. Figs. 2 and 3 are side elevations of a modified form of spring.

In the drawings, A represents a cross-bar or a portion of the body of a vehicle adapted to have the springs secured thereto. These latter are compound—that is to say, made in two parts, hinged together at or near the central longitudinal line of the body, both of the parts being elastic, and so related that while the lower is sufficient for ordinary loads the upper part can be brought into play when the load becomes extraordinarily heavy.

In the construction shown in Fig. 1 both parts of the spring are represented as being made of several leaves of elastic spring metal. The upper part, D, is at one end bolted to the body of the cross-bar A at one side of the body, it being provided with downwardly-turned ears at or near the central longitudinal line of the body, the part between the ears and the bolted portion being elastic. The member C of the spring is formed with an eye at the inner end, by means of which it is pivotally joined to the part D. At a short distance from the eye it is turned upwardly on a curve of short radius, whereby it is adapted to bear directly against the under side of the body or cross-bar. Outside of this upwardly-curved part it is bent downward to a point somewhat below the side bars and then upward to them, this shape giving it sufficient elasticity. It is secured to the side bars by means of eyes and clips in any preferred way. Under ordinary loads the spring C will perform the necessary work of flexibly holding the body in position; but when an extraordinary weight is upon the body the supplemental spring D will be brought into play and its elasticity will assist that of the spring

C. When the supplemental part D bends, the

part C will slide or move somewhat longitudinally, and to prevent any wear of the bottom of the body or of the cross-bar a metal plate, a, may be used. When the springs are constructed in this way, two of them are employed together, they being arranged oppositely to each other—that is to say, the spring having the member C on the right-hand side of the body has the upper member, D, rigidly fastened at the outer end of the left-hand side, and vice versa as to the companion spring. As shown in Fig. 1, springs D D somewhat overlap each other, their pivots being situated away from the central longitudinal line of the body. Instead of this, they may be arranged directly on the same line, or the hinge of the right-hand spring D can be to the right of the center and that of the left-hand spring to the left. Fig. 5 shows a construction substantially similar to that described, except that the springs C and D are made each of one plate or leaf, which construction will be found to be sufficient for lighter vehicles.

In Fig. 3 the lower spring, C, is shown as having a supplemental spring-piece, E, arranged directly over it. By means of this a steadier support can be given to the body uniformly from side to side, though the relations of the members D and C are substantially the same here as in the construction shown in Fig. 1.

What I claim is—

The herein-described vehicle-spring, it consisting of the curved spring plate or bar C, extending from a line at or near the center of the body outward to the side bar and bearing upward directly against the body, in combination with another elastic spring-plate, D, which is flat, and is situated in line with the spring C, and is placed throughout its length close to and in contact with the under side of the vehicle, and the hinge or pivot which joins the two elastic parts, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB HOWELL.

Witnesses:

C. O. JENKS,
E. A. CLEMENT.