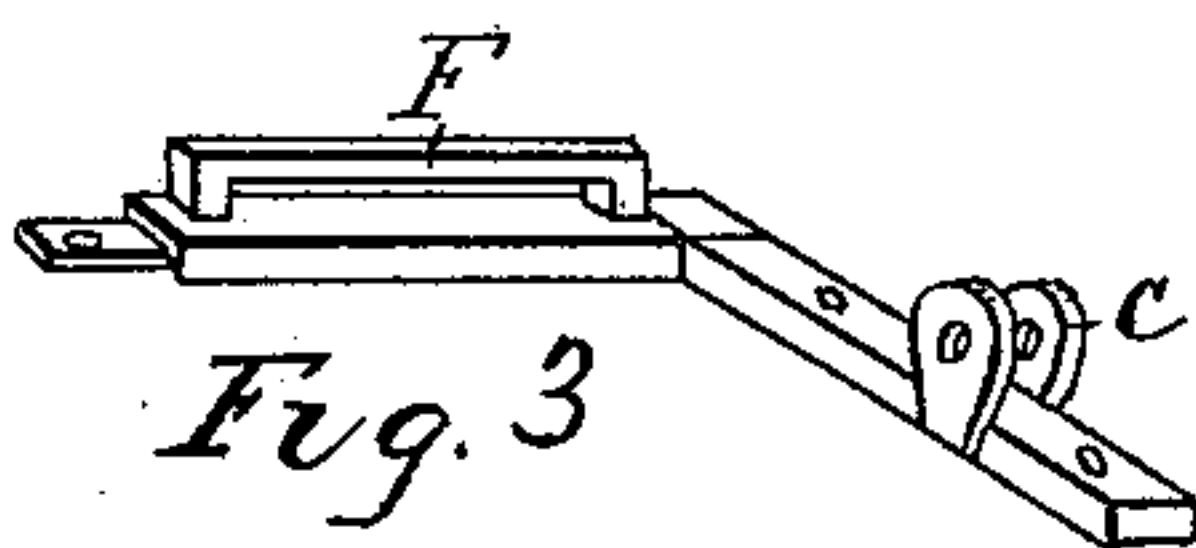
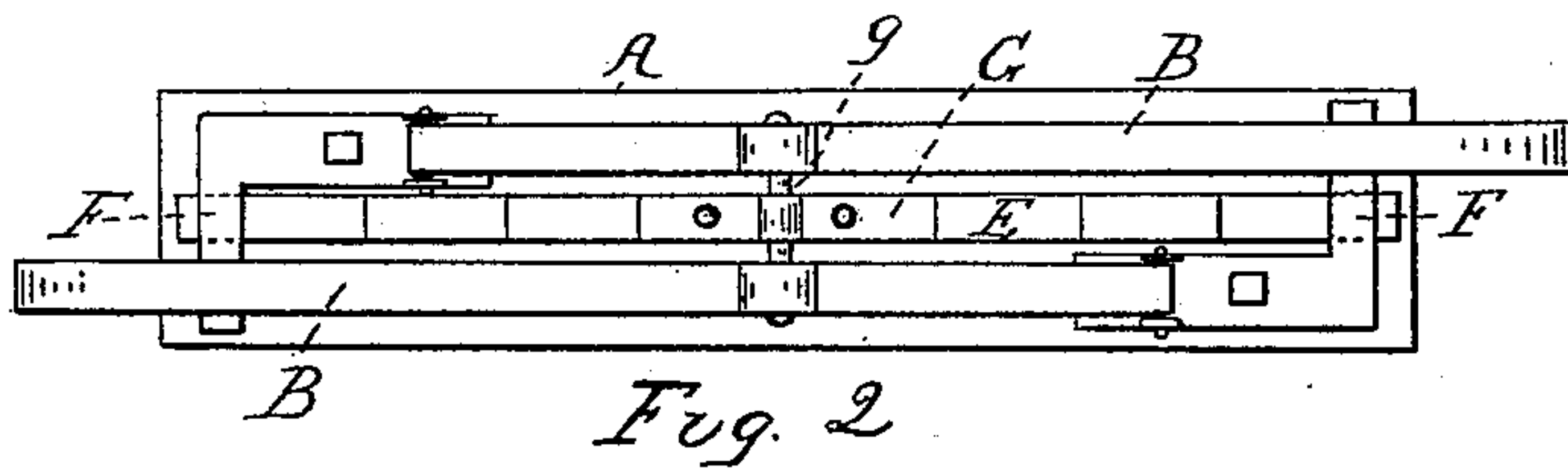
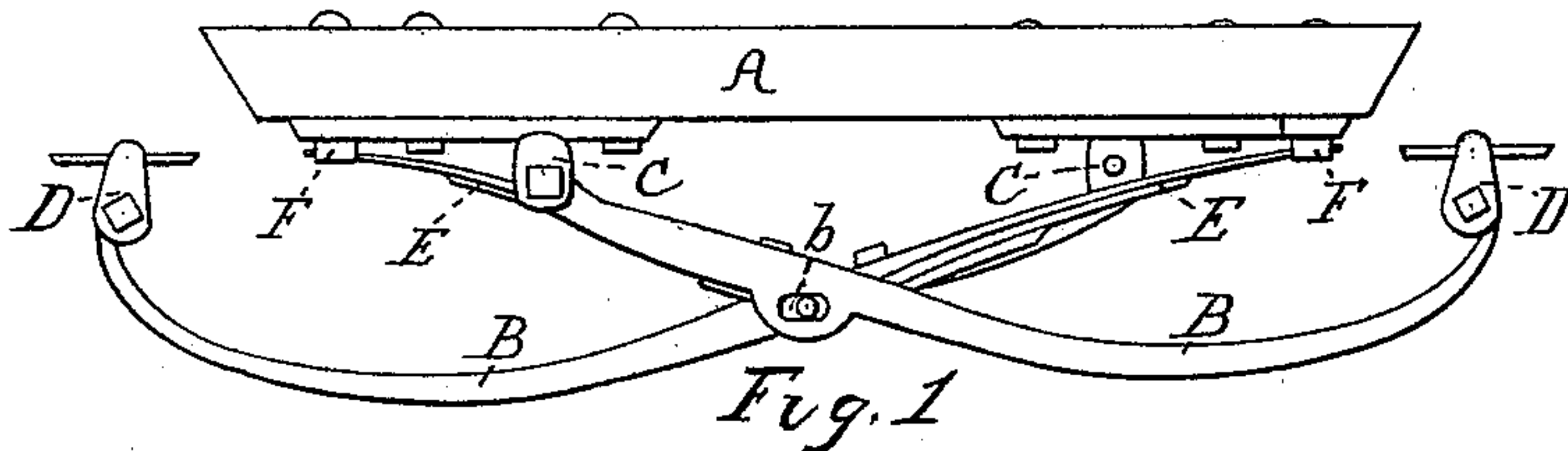


(No Model.)

J. HIRONIMUS.
CARRIAGE SPRING.

No. 403,885.

Patented May 21 1889.



Witnesses,
L. S. Bacon
G. M. Lepeukaver

Inventor,
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By *Joseph H. Hunter*
Attorney.

UNITED STATES PATENT OFFICE.

JOHN HIRONIMUS, OF MOUNT VERNON, ASSIGNOR OF ONE-HALF TO
FREDERICK C. ALTHOFF, OF EVANSVILLE, INDIANA.

CARRIAGE-SPRING.

SPECIFICATION forming part of Letters Patent No. 403,885, dated May 21, 1889.

Application filed December 28, 1888. Serial No. 294,884. (No model.)

To all whom it may concern:

Be it known that I, JOHN HIRONIMUS, a citizen of the United States, residing at Mount Vernon, in the county of Posey and State of Indiana, have invented certain new and useful Improvements in Carriage-Springs, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improvement in vehicle-springs; and it consists in the construction and arrangement of parts more fully hereinafter described and claimed.

The object of my invention is to provide a spring which will be so arranged as to afford ease and comfort to the occupant of the vehicle, strong and durable, readily applied, and effective in its working. I attain this object by the construction illustrated in the accompanying drawings, wherein like letters of reference indicate corresponding parts in the several views, and in which—

Figure 1 is a side elevation of my improved spring and its attachments. Fig. 2 is a bottom view of the same, and Fig. 3 is a detail view of the clasp and guide.

In the drawings, A represents a detached cross-bar of a buggy, to the under side of which are pivotally secured the inner ends of inflexible bars or levers B. These levers are arranged parallel, and are secured to the opposite ends and sides of the cross-bar a short distance from its respective ends, their connection being made by means of a coupling or clasp, C, having two ears, *c*, provided with central openings, through which passes a suitable pintle, the end of the levers being formed with eyes which fit between the ears and also through which the pintle passes, thereby securing the same. The levers B are extended down in opposite direction, their outer ends being curved upwardly. On these outer ends are secured buckles or clips D, uniting them with the side bars of the buggy. Near the inner ends of the levers B, at the lower edges thereof, are formed elongated slots, as *b*, their outer walls being strengthened by a re-enforcement of metal, forming a projection.

Interposed between the levers is a leaf-

spring, E, its diverging arms extending upward, the extreme ends entering guides F, secured to the ends of the cross-bar A.

The under side of the crown or center of the spring E has a yoke or brace, G, secured thereon by suitable bolts passing through the spring. This yoke has an enlargement at its center, from which extend laterally on both sides cylindrical arms or shafts *g*, which are placed, respectively, in the slots *b* and work therein. In forming the guides F and the clasps C, I preferably unite them or construct them of a single piece of metal, as shown in Fig. 3, it forming an L-shaped piece, so as to bring the clasp on the edge of the cross-bar.

By this construction it will be seen that the levers form a strong and substantial support for the body of the vehicle, while the spring acts as a cushion, and by its interposition between the levers equally distributes the strain thereon, thus making a compact, strong, and effective spring for the vehicle.

I am aware that many minor changes in the construction and arrangement of the parts of my device can be made and substituted for those shown and described without in the least departing from the nature and principle of my invention.

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

1. The combination, with the cross-bar, of two levers secured to the opposite ends thereof and extending out therefrom in opposite directions, and a spring arranged between the levers and supported by the said levers and connected with said cross-bar, substantially as described.

2. The combination, with a cross-bar of a buggy, of two levers pivotally secured to the opposite ends and sides thereof and extending downward in opposite directions, and a spring interposed between the levers and supported by the same, its upper ends movably connected with the cross-bar, substantially as described.

3. The combination, with the cross-bar of a buggy, of the clasps, as C, and guides, as F, formed of single pieces of metal in substantially L shape, the levers B, pivotally secured

in said clasps, and the spring E, arranged between the levers, its ends working in said guides, substantially as described.

4. The combination, with the cross-bar of a
5 buggy, of two levers, as B, pivoted to the opposite ends and sides thereof and having elongated slots formed therein, as at b, of a leaf-spring, as E, interposed between the levers, having a yoke, as G, on its under side, which
10 is formed with oppositely-extending cylin-

drical arms fitting in said slots, the ends of said springs working in guides on the cross-bar, substantially as described.

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

JOHN HIRONIMUS.

Witnesses:

VALENTINE H. SCHNEIDER,
ANDREW STALLMAN.