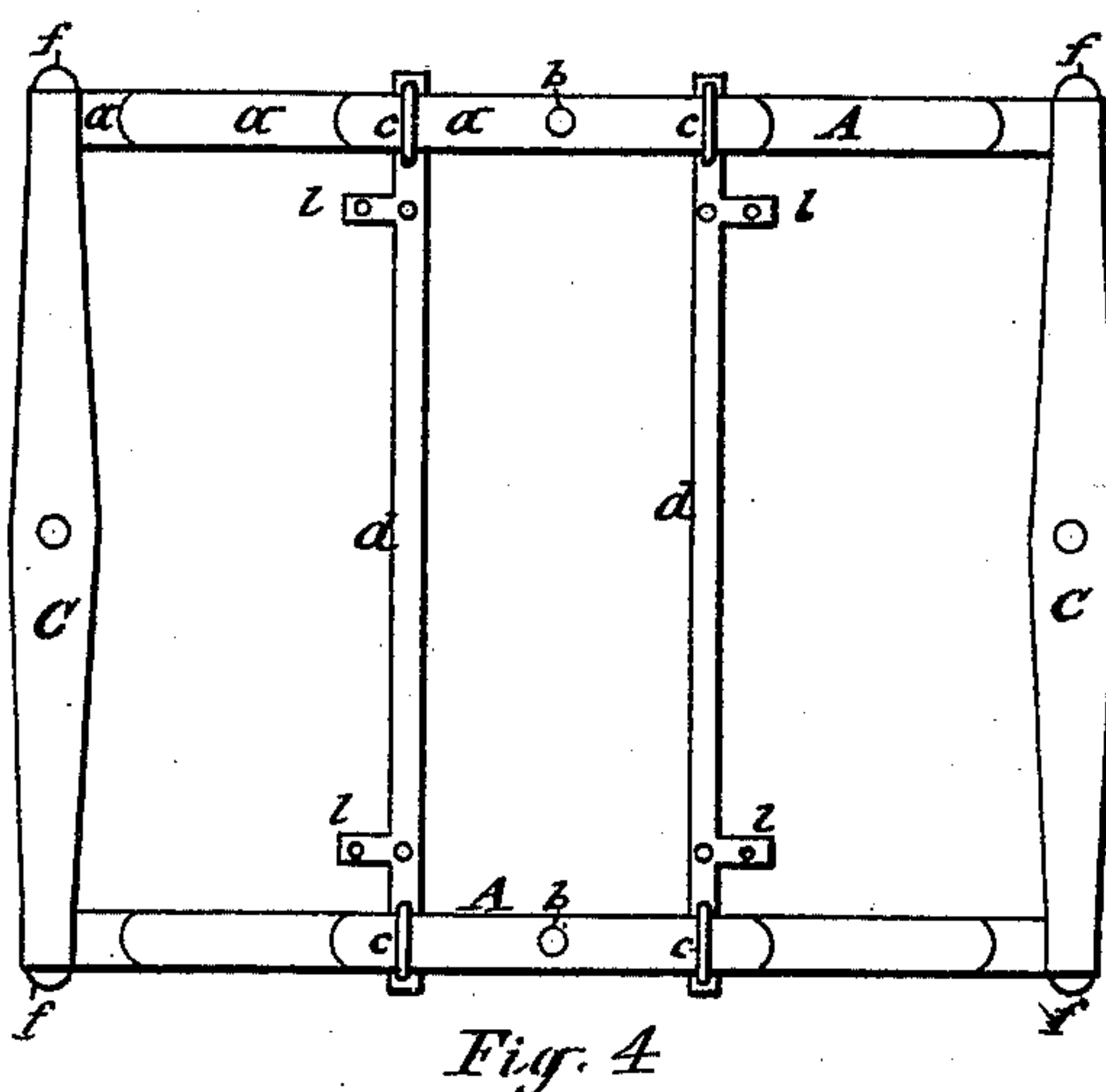
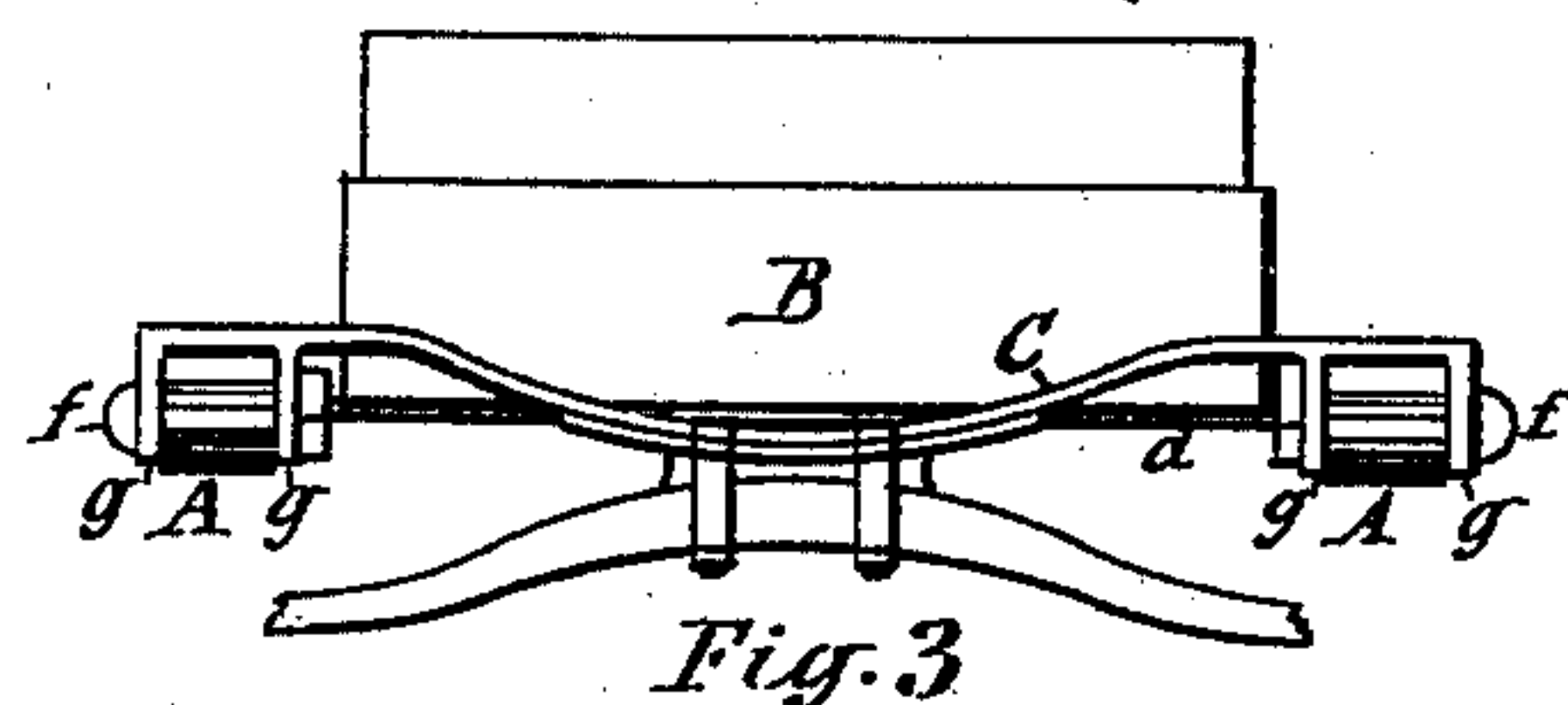
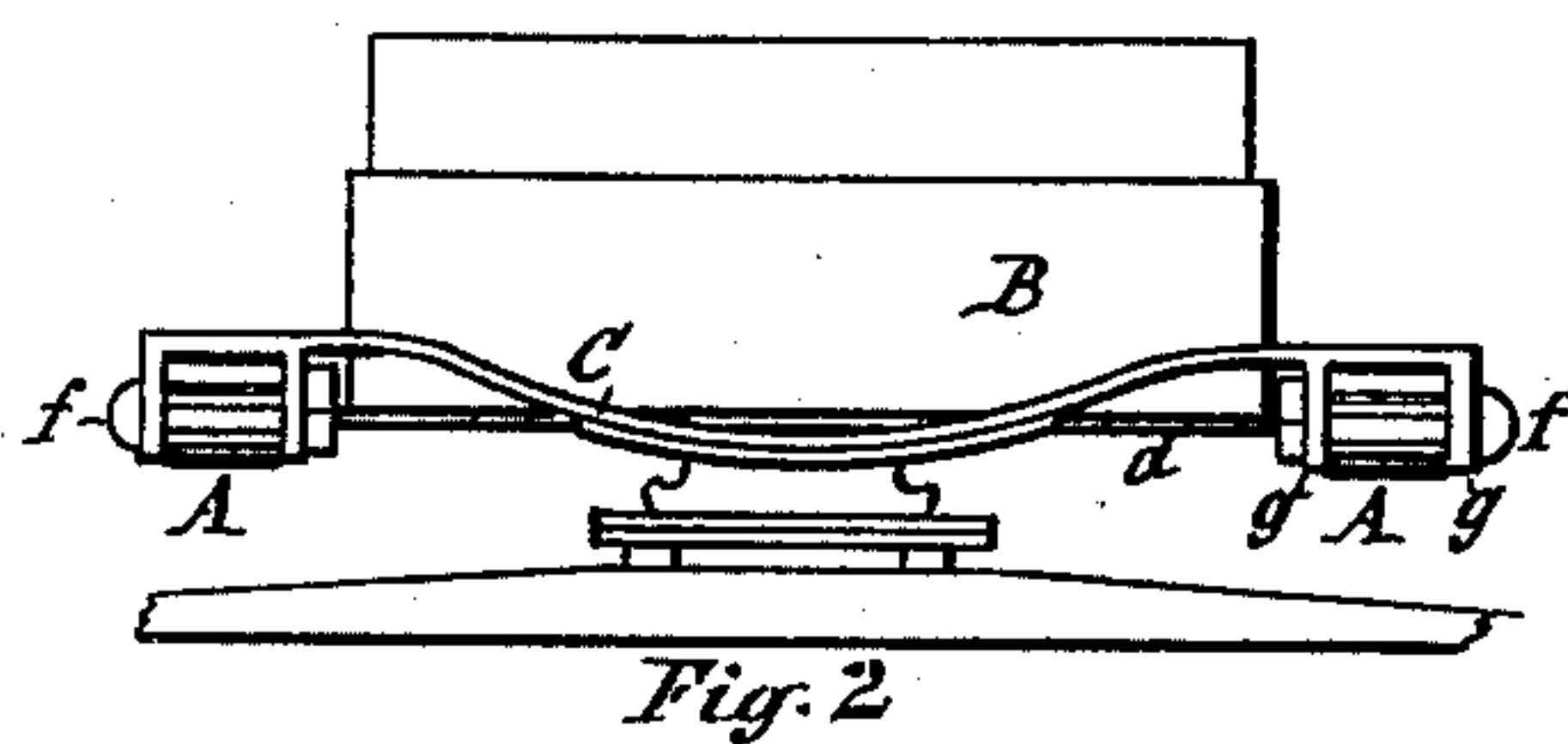
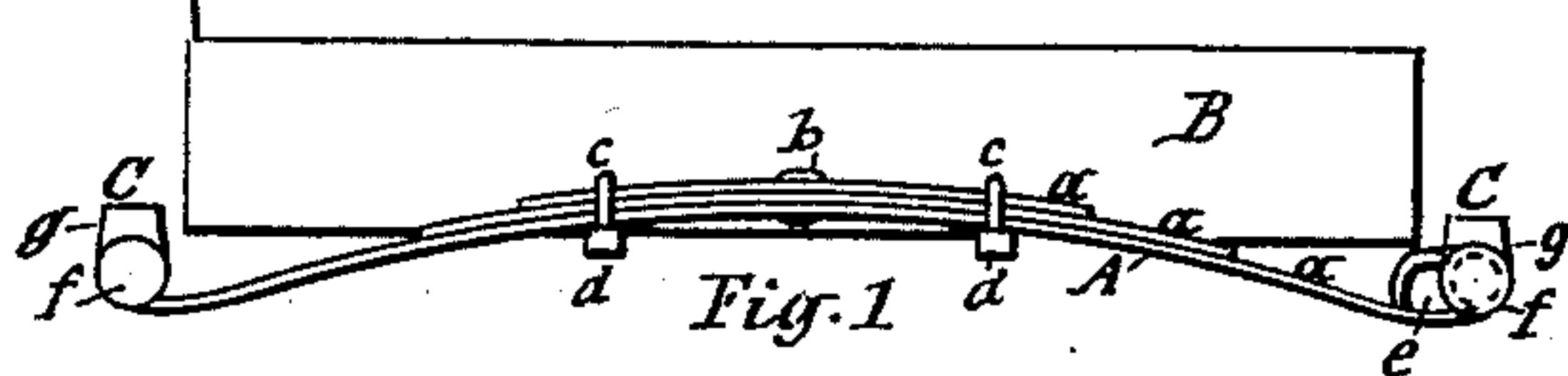


W. P. KELLEY.
Vehicle-Spring.

No. 223,145.

Patented Dec. 30, 1879.



ATTEST:

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INVENTOR:

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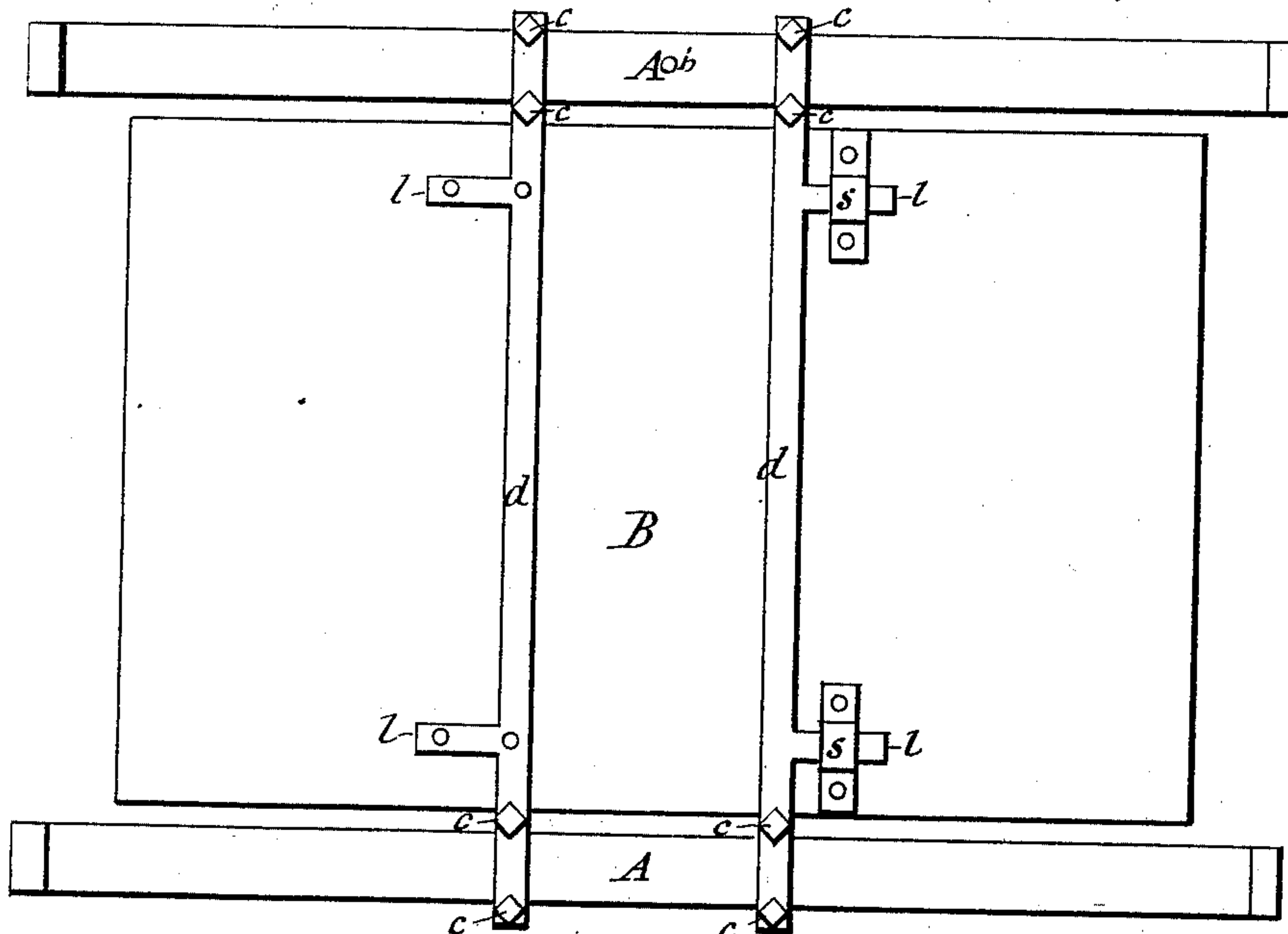


FIG. 5

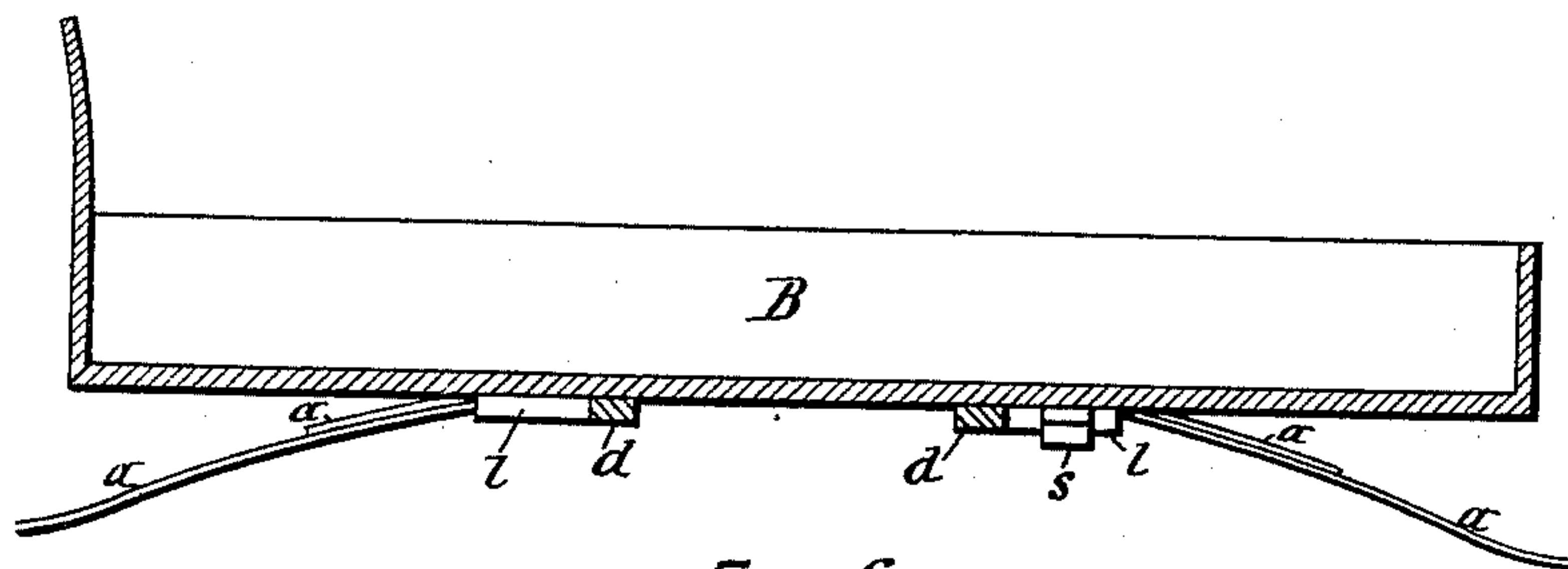


FIG. 6

WITNESSES:

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Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM P. KELLEY, OF ONEIDA, NEW YORK, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO JOHN F. WILSON, OF SAME PLACE.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **223,145**, dated December 30, 1879; application filed November 22, 1879.

To all whom it may concern:

Be it known that I, WILLIAM P. KELLEY, of Oneida, in the county of Madison, in the State of New York, have invented new and useful Improvements in Vehicle-Springs, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in that class of vehicles which have the body supported on side springs connected to the ends of front and rear cross-springs; and it consists in the combination of side springs composed of leaves of diminishing lengths, applied one upon the other at the center thereof, and unrestrained in their action throughout their length, and clamped together by clips at the ends of the short leaf, and two cross-bars connected to said clips, one of said bars being rigidly attached to the body of the vehicle, and the other having tongues or prongs sliding in sockets attached to the body of the vehicle, all as hereinafter more fully described; by which improvements the construction of the vehicle is materially simplified and cheapened, and greater elasticity is obtained with less strain and wear upon the springs and their couplings, and with less liability of the rocking or swaying of the vehicle both longitudinally and transversely.

The invention is clearly illustrated in the accompanying drawings, wherein Figure 1 is a side view of a vehicle provided with my improvements; Fig. 2, a front view of same; Fig. 3, a rear view; Fig. 4, a plan view of the springs detached from the vehicle; Fig. 5, an inverted plan view of the side springs and their connection with the vehicle-body, and Fig. 6 a longitudinal section back of the side spring.

Similar letters of reference indicate corresponding parts.

A represents the side springs, composed of leaves *a a a*, of diminishing lengths, applied one upon the other at the center thereof in the usual way, and secured together at the center by a rivet or bolt, *b*, passing vertically through said leaves. Near the ends of the upper or

short leaf *a*, and equidistant from the center bolt, *b*, the leaves *a a a* are further secured to each other by clips *c*, embracing the spring and connected to bars *d*, extended from one side spring to the other. Upon the said bars is supported the body B of the vehicle.

In order to utilize the elasticity of the side springs to its utmost capacity without incurring torsional strain as well upon the connection of the cross-bars *d d* with the body of the vehicle as on the couplings between the side springs and cross-springs, I connect only one of the said cross-bars rigidly to the body of the vehicle. The other bar I connect to the body by clasps or sockets *s*, secured to the under side of the body and loosely embracing the tongues or prongs *l*, extended from the side of the cross-bar. The aforesaid sockets, allowing the tongues *l* to slide therein, afford the necessary play to the cross-bar and free action of that part of the side spring which is contained between the two clips *c c*. The side springs are connected at their ends to rigid ears on cross-springs C, mounted on the head-blocks and hind axle, respectively.

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

The combination of the side springs, A, composed of the leaves *a a a*, of diminishing lengths, and applied one upon the other at the center thereof, the clips *c*, embracing said spring near the ends of the short leaf, and the cross-bars *d d*, one of which is rigidly attached to the body of the vehicle, and the other having the tongues or prongs *l*, sliding in the boxes or sockets *s*, attached to the body, substantially as described and shown, for the purpose set forth.

In testimony whereof I have hereunto signed my name in the presence of two attesting witnesses at Syracuse, in the county of Onondaga and State of New York, this 18th day of November, 1879.

WILLIAM P. KELLEY. [L. S.]

Witnesses:

E. LAASS,

C. GARLICK.