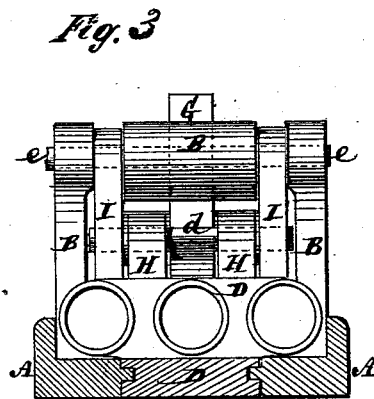
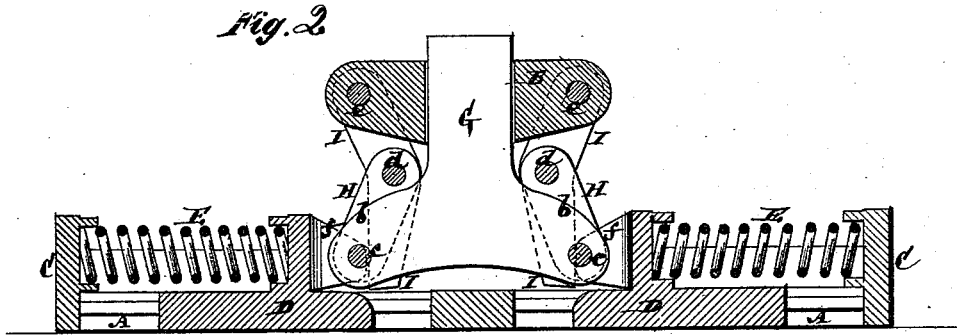
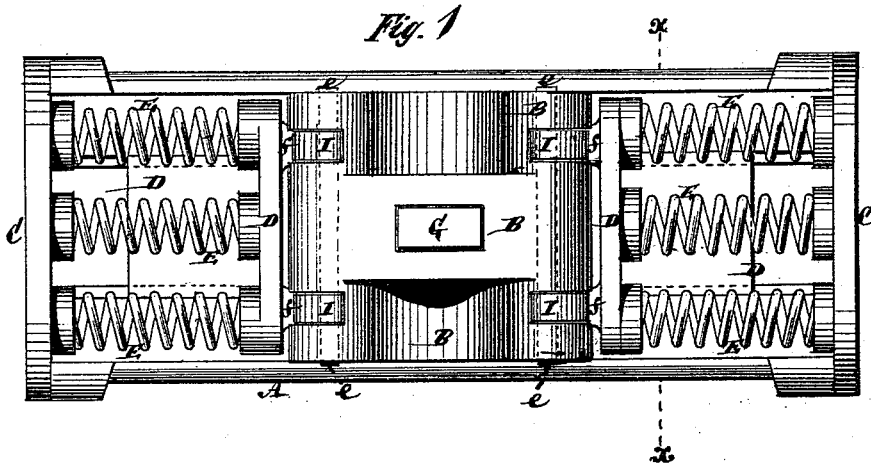


J. A. LOWE.  
Car-Spring.

No. 212,021.

Patented Feb. 4, 1879.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JAMES A. LOWE, OF NEW YORK, N. Y.

## IMPROVEMENT IN CAR-SPRINGS.

Specification forming part of Letters Patent No. 212,021, dated February 4, 1879; application filed November 13, 1878.

*To all whom it may concern:*

Be it known that I, JAMES A. LOWE, of the city and State of New York, have invented a new and useful Improvement in Car-Springs, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

This invention more particularly relates to railroad-car springs, in which a system of toggle-levers or jointed bars is combined with springs for support of the bolster upon which the body of the car rests to connect it with the truck-frame; and the invention consists in a novel construction and combination of details, whereby the efficiency and simplicity of the toggle-lever and spring-supporting device are obtained.

Figure 1 represents a plan or top view of my invention; Fig. 2, a central longitudinal section of the same, and Fig. 3 a transverse vertical section thereof on the line *x x*.

In said drawings, which simply represents one toggle-lever and spring device for support of the car-bolster, A is a metallic case or box, which rests upon the truck-frame. This box, which may be in duplicate at opposite ends or sides of the frame, has a central upright portion, B, mounted on or cast with it; and said box is closed at opposite ends of its base by cross-bars or plates C C, between which and the inner ends of sliding followers D D, in the base of the box A, one or more springs on opposite sides of the upright portion B, but preferably two or more spiral springs, E E, are arranged.

G is a central bar or support for the car-bolster. This bar is fitted to project loosely up through the upright portion B of the box A, to provide for the free or independent movement of the bolster or car relatively to the truck-frame. The lower portion of said bar G is constructed with reverse side arms *b b*, to opposite sides of each of which are pivoted, by joint-pins *c c*, the lower ends of bars or levers H H, which have their upper ends connected by joint-pins *d d* with bars or levers I I, that have their fulcrums *e e* above in the upright portion B of the box A.

The bars H H and I I, when united with

each other and with the upright portion B of the box, form toggle-levers, which are actuated by the rise and fall or sliding motion of the central bar G within the portion B of the box. Thus the weight of the car upon the bolster has a tendency to depress the central bar G and to straighten the toggle-levers H I, and consequently to cause the lower ends of the levers I I, which are extended below the joint-pins *d d*, to bear against projections *f f* on the sliding followers D D, and force the latter outward against the tension of the springs E E, which are correspondingly compressed. On the other hand, upon pressure being relieved from the central bar G, the springs E E, acting through the sliding followers D D upon the lower legs or extensions of the levers I I, flex the toggle-levers H I, and correspondingly raise the central bar G and bolster resting thereon. This action, although a sensitive one, and providing alike for the straightening of the toggle-levers either by a uniform pressure or by the sudden jolting of the car, relieves the springs of much or all liability to breakage, by reason of the support which the toggle-levers in straightening give to the car, to the relief of the springs, which consequently may be much lighter than when the pressure is brought to bear directly upon them; but no deadness of action is produced by reason of the increased force of the springs as the toggle-levers assume a straightened position.

The combination of parts, as shown and described, provides for this action in a most simple, advantageous, durable, and efficient manner.

I claim—

The combination, with the portion B of the box A, of the loosely-fitting and freely-sliding central bar G, having reverse side arms *b b*, the toggle-levers H I, the sliding followers D D, and the springs E E, substantially as specified.

JAMES A. LOWE.

Witnesses:

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