W. H. KELLEY.

DRAW-BARS FOR RAILWAY-CARS.

No. 178,531. Patented June 13, 1876.

Fig. 1

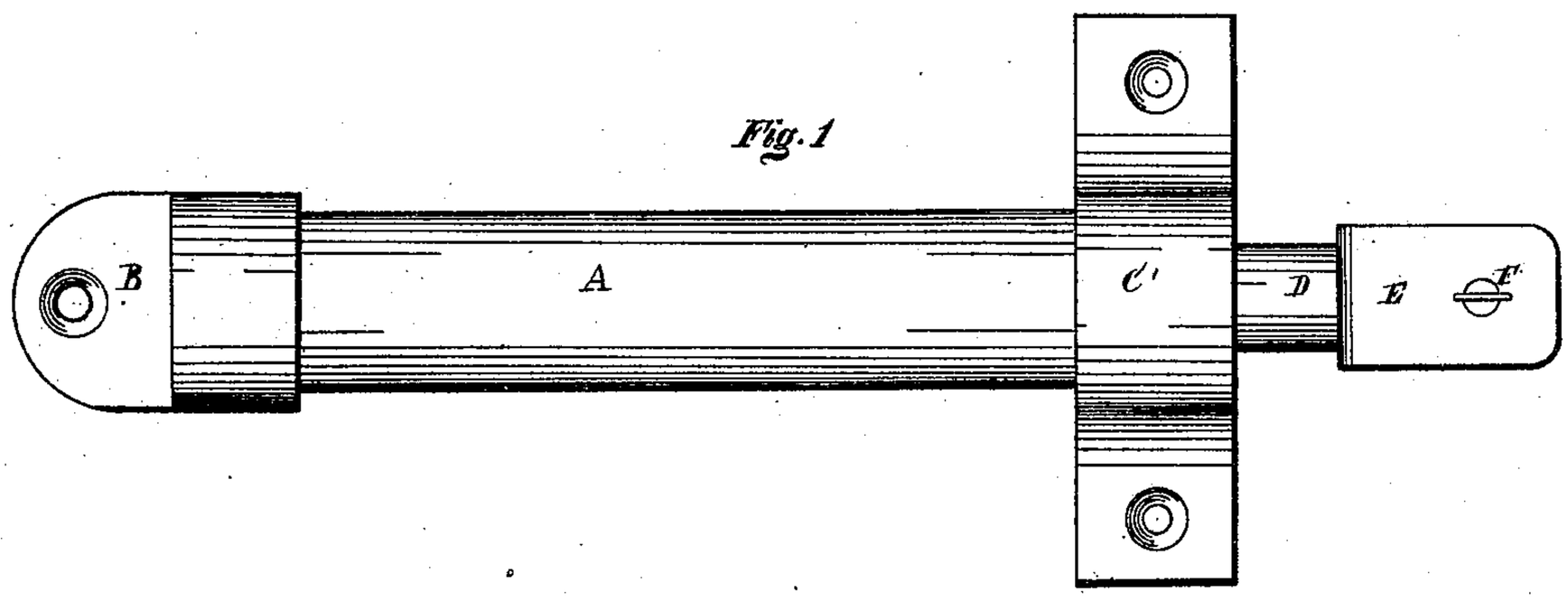


Fig. 2

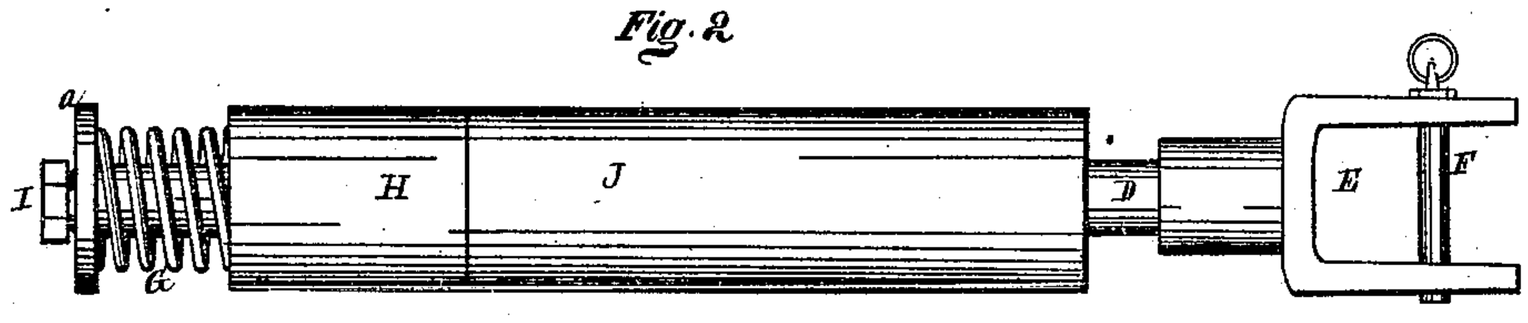
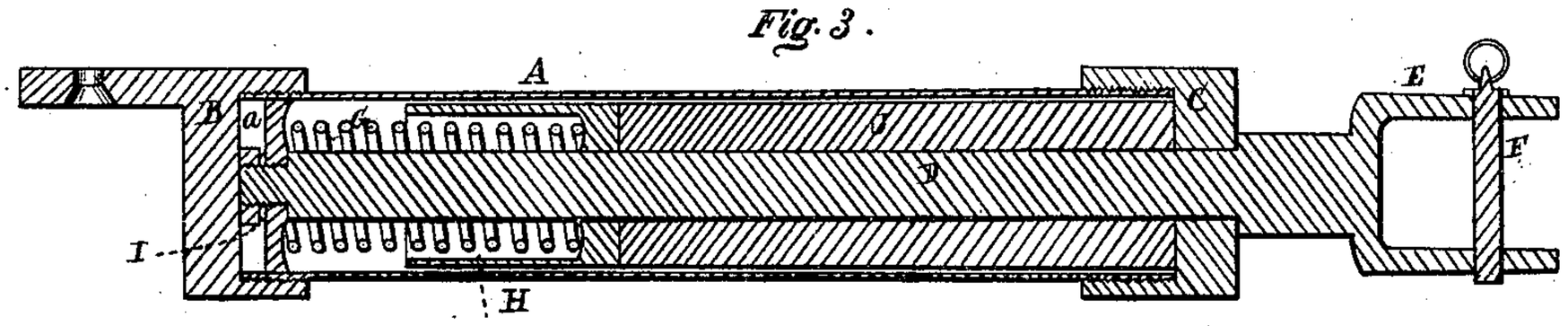


Fig. 3.



Witnesses

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WILLIAM H. KELLEY, OF CLEVELAND, OHIO.

IMPROVEMENT IN DRAW-BARS FOR RAILWAY-CARS.

Specification forming part of Letters Patent No. **178,531**, dated June 13, 1876; application filed March 14, 1876.

To all whom it may concern:

Be it known that I, WILLIAM H. KELLEY, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Draw-Bar for Railway-Cars; and I do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawings, making a part of the same.

Figure 1 is an outside view of the draw-bar. Fig. 2 is a detached section. Fig. 3 is a longitudinal section.

Like letters of reference refer to like parts in the several views.

The nature of this invention relates to a draw-bar for street-railway cars; and the object of the same is to relieve the strain exerted upon the horse's shoulders on starting the car, and which is also intended to prevent sudden impulsive movements of the same, and thereby secure the passengers from being jostled about or thrown down while standing therein, or on leaving or entering the same. Said draw-bar is constructed substantially as follows:

In Fig. 1, A represents a cylindrical shell, to each end of which is secured, respectively, a lug, B C, whereby the draw-bar is fastened to the platform of the car D. Fig. 3 is a bar passing longitudinally through the shell, the outer end of which is provided with a head, E, to which the double-tree is attached by a pin, F. Around the inner end of the bar D is coiled a spring, G, partially inclosed in a cup or thimble, H, loosely fitted in the shell, and against the bottom of which the end of the spring rests. The opposite end of the spring abuts against a head or cap, *a*, secured to the end of the bar by a nut, I, as will be seen in Fig. 2.

J is a rubber spring, or its equivalent, filling the shell between the thimble H and the lug C, closing the end of the shell, as shown in Fig. 3.

The above-described draw-bar operates substantially as follows: It is secured by the lugs B C to the under side of the platform of a car, so that the head E may project therefrom for the convenience of attaching the team thereto for drawing the car. The initial power required to move a car at rest is very great, as such power is usually exerted suddenly, with much violence—more especially is this the case when the car is full of persons. This dead-weight to be moved by the team when they are first started brings the full force of the initial moving power like a blow upon the shoulders of the team, which, as a consequence, is very severe and hurtful to the horses, producing sores, and often permanent lameness. To avoid this is the purpose of the spring J, the compressive resistance of which will yield only under such force as is required to move the car when loaded and first started, or under more than the ordinary power necessary to continue the movement of the car when under way.

It will be obvious that the draft of the team, when suddenly exerted for starting the car, will be thrown first upon the draw-bar D, which, by virtue of its freedom to move forward in the shell, will compress the spring G into the thimble H, it being too weak to resist the strain upon it, but which, however, will be resisted by the superior spring J, to which the strain will be directly transferred by the washer *a* impinging upon the end of the thimble, and drawing it forward upon the spring J, compressing it more or less, according to the force exerted upon it by the team in their effort to move the load. By this means the shoulders of the horses will be relieved from the sudden jerks and strains consequent upon their initial efforts to move the car, but which will be expended upon the springs of the draw-bar, also relieving the passengers from disagreeable jostlings consequent upon any sudden impulsive movement of the car.

In the event the car is empty, or but containing few persons, in starting or in passing over street-crossings, &c., when no extraordinary power is required to move the car, the spring G will be sufficient to relieve the team from the slight sudden strain consequent thereof, and from the pitching movement of the car in passing over said street-crossing, or the partial stopping of the car to take on or let off passengers. Under all circumstances, on starting a car, whether loaded or not, the team will not experience the sudden resistance of starting into motion a dead-weight, the inertia of which must be overcome by the first pull of the team, for the instant the team

begins to pull the springs will begin to yield to the initial force exerted; hence, the car begins to move gently, without violence and sudden impulsive starts, rendering the drawing of the cars easier for the horses and pleasanter to ride in.

The drawing represents the spring G as placed at the inner end of the case, and the spring J at the front end. This arrangement of the springs may be reversed without changing the nature of the invention; however, the arrangement of the springs shown is the one preferred. Although this draw-bar is especially intended for street-cars, it can, by a slight modification, be applied to steam-cars, wagons, and other vehicles.

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

The combination of the sliding thimble H, spring G, cap *a*, spring J, draw rod or bar D, and shell or case A, screwed into or otherwise secured to the lugs B C, as and for the purpose specified.

WILLIAM H. KELLEY.

Witnesses:
J. H. BURRIDGE,
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1000 words.