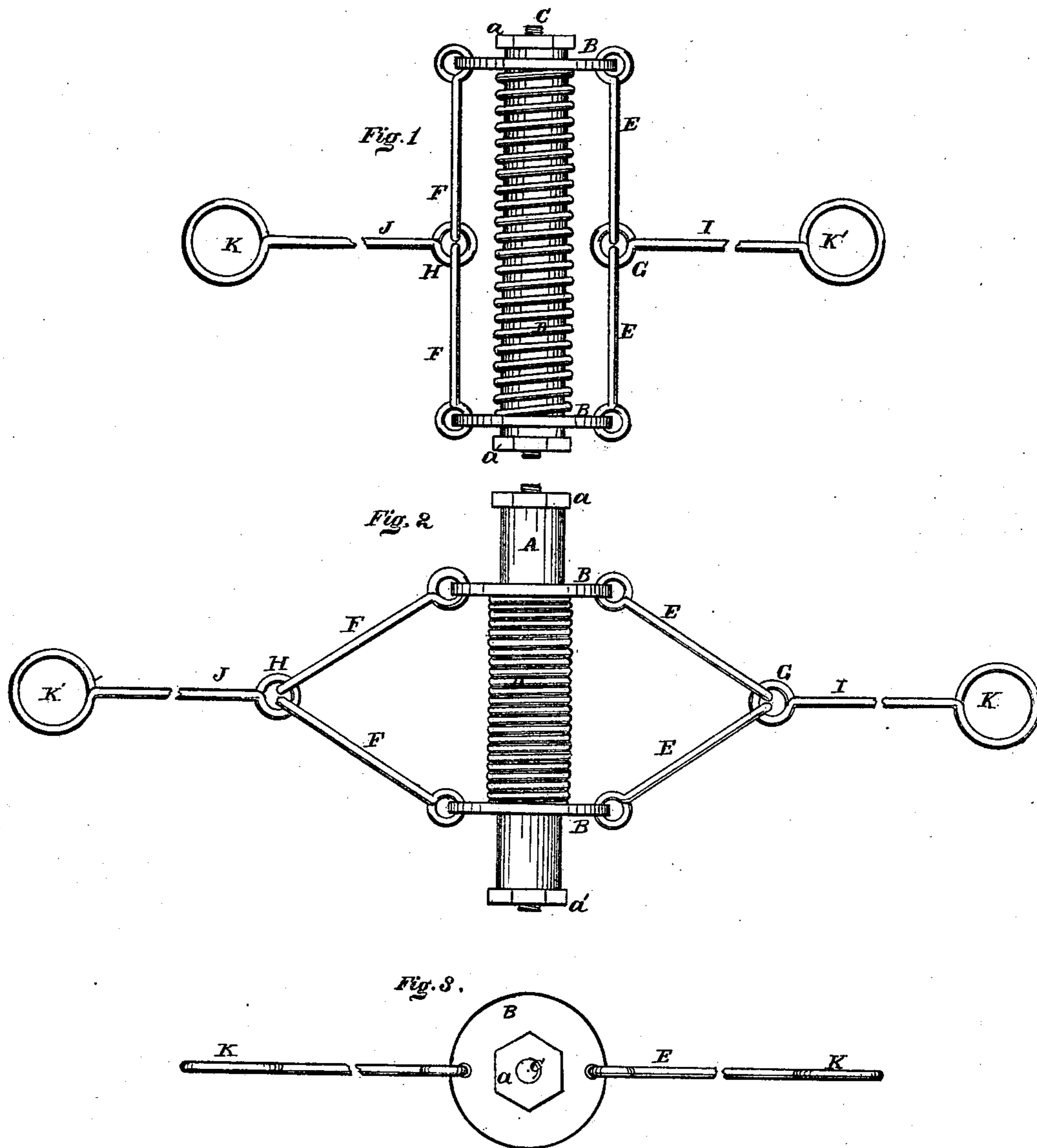


C. KELLEY.
RAILWAY DRAW-HEADS.

No. 178,644.

Patented June 13, 1876.



Witnesses
E. W. Cross
N. P. Hale

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UNITED STATES PATENT OFFICE.

CHARLES KELLEY, OF WARREN, OHIO.

IMPROVEMENT IN RAILWAY DRAW-HEADS.

Specification forming part of Letters Patent No. 178,644, dated June 13, 1876; application filed April 15, 1876.

To all whom it may concern:

Be it known that I, CHARLES KELLEY, of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Draw-Heads for Railway-Cars, &c.; and I do hereby declare that the following is a full and complete description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figures 1 and 2 are plan views of the draw-bar. Fig. 3 is an end view.

Like letters refer to like parts in the several views.

The nature of this invention relates to a draw-head for street-railway cars. The construction, operation, and purpose of said draw-head are substantially as hereinafter described and set forth.

The draw-bar referred to consists of a head, A, Fig. 2, on each end of which is loosely fitted, so as to slide thereon, a collar, B. Said collars are prevented from slipping from the ends of the head by nuts *a a'*, screwed on the ends of a bolt, C, passing through the length of the head, as will be seen in the drawings. Around the head, between the two collars, is coiled a spring, D. The collars referred to are connected to each other by links E on one side, and by links F on the other. Said links consist of rods, having an eye turned in each end, one end of which is secured to the collars, and the opposite ends respectively to the eyes G H of the draw-rods I and J, each of which terminates in an eye, K.

This draw-bar is especially intended for street-cars, and which, by any suitable means, is secured by the ends of the head to the under side of the car, about midway the two ends, in the position shown in Fig. 1. The draw-rods I and J are to be of sufficient length to extend to and beyond the ends of the platform far enough to allow of the team to be hitched to the eye K or K', whereby the car is to be drawn.

To start a car from a state of rest into motion requires an extraordinary effort of the team—usually given by a sudden violent pull. This initial pull comes upon the shoulders of the team as would a hard blow, and more es-

pecially is this the case when the car is loaded, the effect of which often produces lameness, sores, and galls, all of which are avoided by the use of the draw-bar, the compressive resistance of the spring D of which will yield only to such force as is required to start the car, or when more than the ordinary power to continue the car in motion is exerted.

It will be obvious that the power of the team, when suddenly and violently exerted, will first be expended upon the spring, thereby drawing upon the links E, and compressing the spring more or less, as the resistance may be opposed to the horses. The spring, when under very unusual pressure, is such as shown in Fig. 2. Ordinarily the spring will be but slightly compressed. In thus receiving the force of the team upon the draw-bar their shoulders will be relieved from the sudden and violent jerk made by them in starting the car, and at other times when extreme effort is required by the team, as on the partial stopping of the car to let off or take on passengers, and in passing over street-crossings, &c. The spring, under such circumstances, will yield to all such sudden impulsive movements, and relieve the shoulders of the team from the violent jerks and strains resulting therefrom.

When but little more than the usual power required to move the car is exerted the deflection of the links E or the links F, together with a slight compression of the spring, will be sufficient to relieve the horses from the strain and the car from sudden starts and impulsive jerks. Hence the car will be steady and uniform in its movements.

On starting a car, whether loaded or not, the team will not experience the jerk and violent strain consequent upon a dead weight being suddenly started into motion. The moment the team begins to pull the spring begins to yield, and the car will move gently, without starts or impulsive motions.

On changing the team from one end of the car to the other for a return-trip, the same results will follow from the draw-bar, to which the team is again hitched, as from the draw-rod I to the draw-rod J. One draw-bar only is required, whether the car be drawn from one end only or from both ends, thereby avoid-

ing the expense of having two draw-bars to a double-ended car, as is necessarily required when an ordinary draw-bar is used.

Although this draw-bar is especially intended for street-cars, it can, by a slight modification, be applied to steam-cars, wagons, carriages, and other purposes.

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

The links E and F and draw-rods I and J, in combination with the collars B, springs D, and head or bolt A, in the manner substantially as described, and for the purpose set forth.

CHARLES KELLEY.

Witnesses:

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