2 Sheets—Sheet 1.

A. WHITTEMORE.

CAR-STARTER.

No. 185,006. Patented Dec. 5, 1876.

Fig. 1

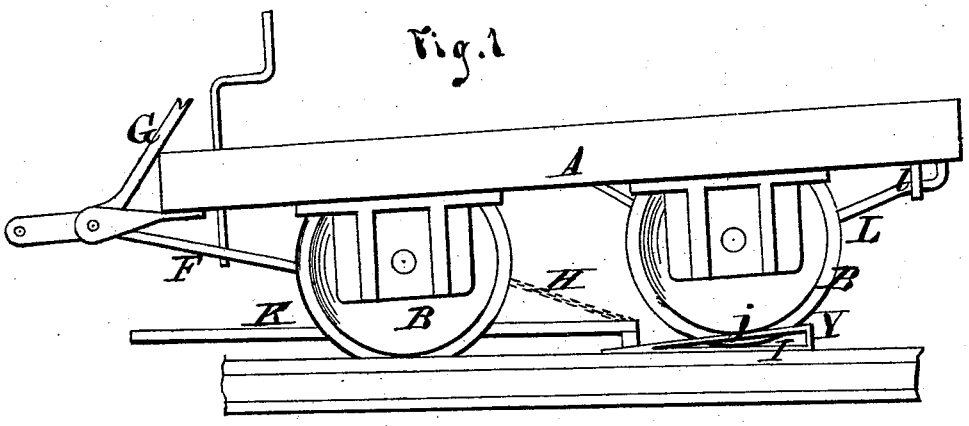


Fig. 2.

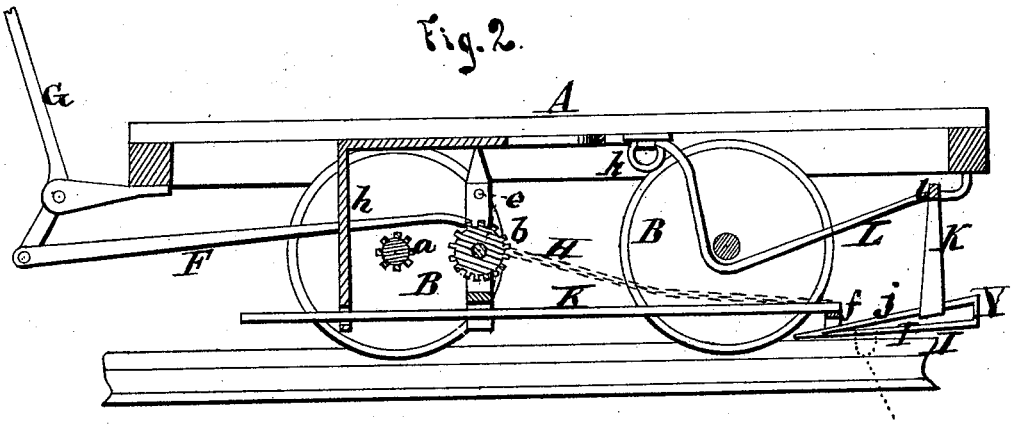
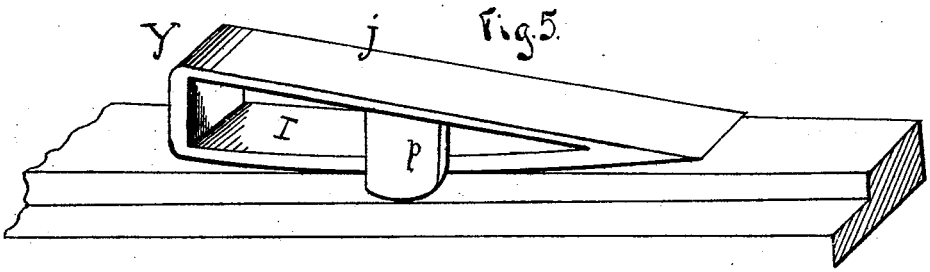


Fig. 5.



WITNESSES

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2 Sheets—Sheet 2.

A. WHITTEMORE.

CAR-STARTER.

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Fig. 3.

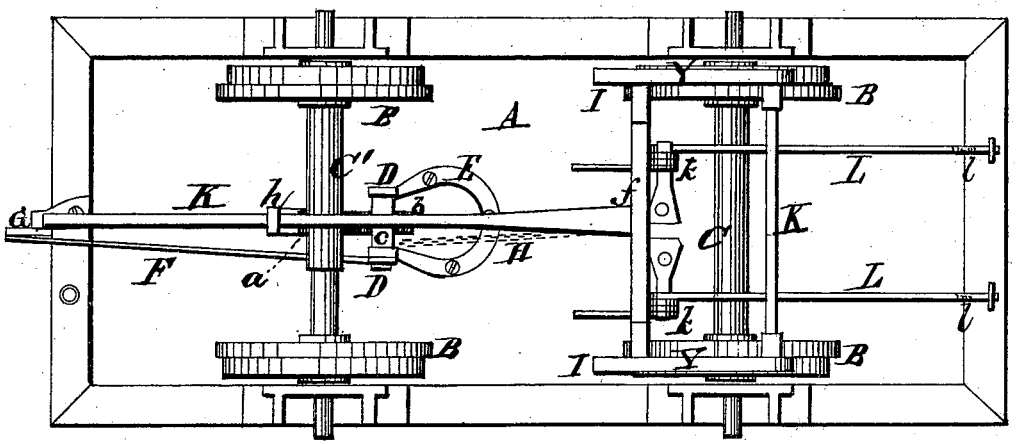
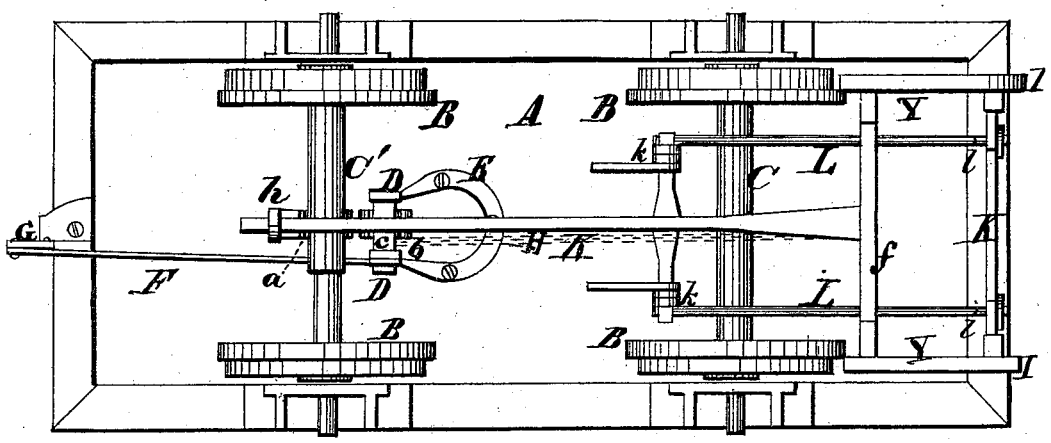


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

AMOS WHITTEMORE, OF CAMBRIDGEPORT, MASSACHUSETTS.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **185,006**, dated December 5, 1876; application filed October 17, 1876.

To all whom it may concern:

Be it known that I, AMOS WHITTEMORE, of Cambridgeport, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Car Starters and Stoppers, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

Figure 1 is a side elevation, showing the rear end of the car partially elevated on the brake-shoes; Fig. 2, a vertical longitudinal section of a car, with the forward and rear wheels running on the track, and the shoes elevated therefrom. Figs. 3 and 4 are bottom views, representing the two positions of adjustment of my starter and brake.

I propose to adapt a car starter and stopper, or vice versa, to the well-known or the most improved construction of street-cars, whereby the well-known brakes may be used, if desirable; and they need only be used on roads where the car is to descend a deep grade.

In the annexed drawings, the letter A designates a car-bed; B B, the car-wheels, which may be constructed and applied in the usual well-known manner. C C′ are the axles of said wheels. The axle C has a pinion spur-wheel, *a*, fixed to it at or near the middle of its length, which engages with a larger wheel, *b*, applied on the shaft of a drum, *c*, which shaft has its bearings on arms D, that vibrate about a fulcrum, *e*, on a bracket, E, which is rigidly secured to the car-bed A. The arms D are free to be vibrated in a direction with the length of the car for the purpose of engaging and disengaging spur-wheels *a b* at the pleasure of the person driving the car. At or near the lower end of one of the vibrating arms D is pivoted one end of a pitman-rod, F, which may curve over the axle C, and is attached by its opposite end to the shortest arm of an angular lever, G, which lever is under the control of the driver. It is by means of this lever G that the driver can engage or disengage the two spur-wheels *a b* at pleasure. H designates a chain, which is designed to be wound around drum *c*. This chain H is attached to a cross-bar, *f*, which is connected to the feet I of two shoes, Y, which shoes are of a wedge form, and may be of any suitable length, the incline portions *j* of which shoes, lettered Y, may be at any desired angle with respect to the portion I. The basis of the two angles is united. This forms triangular shoes, which will resist all the weight brought upon them, and which are laterally braced by the bars *f* and *k*, the superior connection of which latter receives through it two inclined spring and curved guide-rods, L L, which I will presently more fully describe.

The cross-bar *f* has attached to it at or near the middle of its length a bar, K′, which is guided by a bracket, *h*, depending from the bed of the car with an opening through it for allowing free play to said guide-rod. The upper portion of the arch K of the shoes, which I have above described, receives loosely through it the guides L, which I shall hereinafter describe. *k k* designate helical springs, which are formed on the shorter portions of the guide-rods L L, and *l l* designate curved shoulders, which I have formed on the longer spring portion at the termini of these guide-rods.

It will be observed from the description which I have made of the device which guides my brake-shoes, that these guides are yielding, in order that the brake-shoes which I have shall accommodate themselves to the surfaces over which they pass; and that when these brake-shoes are thrown back to their fullest extent they will be arrested by the shoulders *l l* on the spring guide-rods.

In practice I may form the bottom surface of each one of the brake-shoes convex longitudinally for the purpose of preventing displacement of a car in turning a curve, and this surface may have applied to it a removable wearing-plate. I propose, also, to form on or to removably attach to each one of the brake or starting shoes, a safety-lip, P, which lip may be armed with one or more anti-friction rollers, which are designed to prevent lateral displacement of a car while turning a curve of the track. It will be seen from my invention, and the improvement which I have made, that the driver, by simply retracting a lever, can bring down the brake-shoes so that the forward portions of them will at first impinge upon the track, and allow the car to roll up the incline plane of the shoes, so as to elevate one end of the car by the momentum

thereof, and that when the driver releases lever G, the car will roll down said inclines, thus overcoming its inertia and relieving the horses.

It will be seen, from the description of my invention and the improvements which I have made, that the driver at the front of his car can, by simply drawing back lever G, bring down the brake-shoes on the track, and by the rotation of the front wheels acting on said shoes through the medium of the winding-up mechanism, cause these shoes to be drawn beneath the rear wheels, and, while the shoes are sliding on the track, to raise the rear end of the car. When lever G is released, the rear wheels will roll down the inclined planes of the brake-shoes, and thus start the car.

In practice, in some instances I shall apply anti-friction rollers to the lips *p*, for the purpose of preventing undue wear thereof. Also, I may apply one or more anti-friction rollers to the inner sides of each shoe.

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

1. Inclined straight-edged brake-shoes Y, arranged beneath the treads of the rear wheels, in combination with the inclined-spring guide-rods L, shouldered at *l*, the connecting-rod *f*, and the rod K, guided as described.

2. In combination with the driver's lever G and its connection with the vibrating arms D, the spur-wheels *a b*, chain H, and brake-shoes Y, substantially as described.

AMOS WHITTEMORE.

Witnesses:
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W. T. HUTCHINSON.