(No Model.) 2 Sheets—Sheet 1.

S. ROCKAFELLOW.

CAR STARTER.

No. 342,846. Patented June 1, 1886.

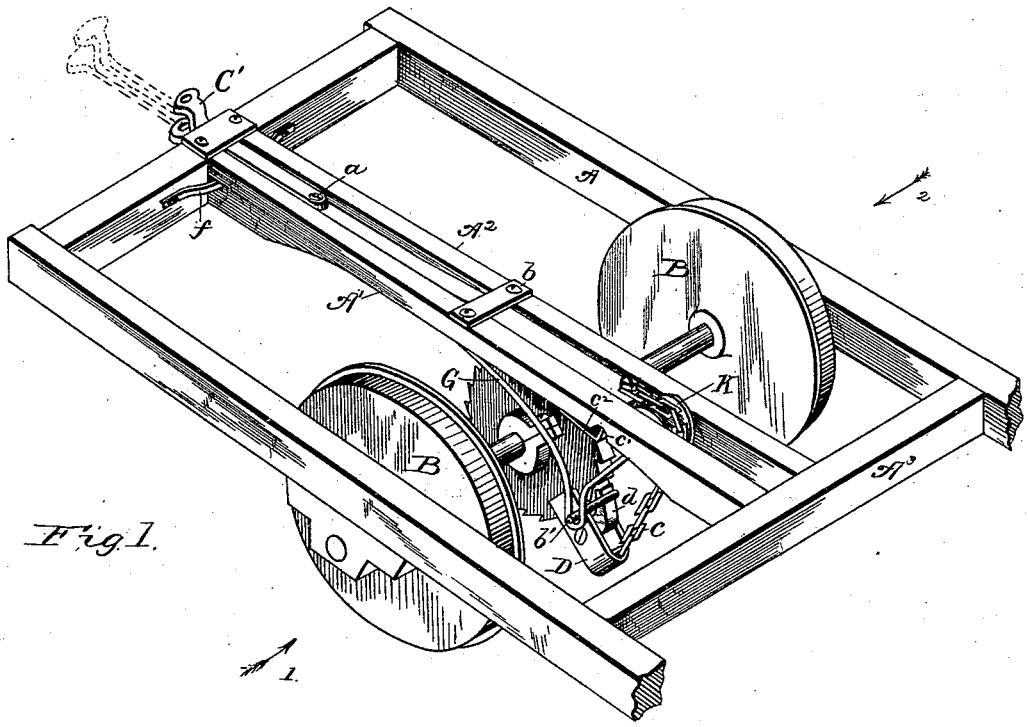

Fig. 1.

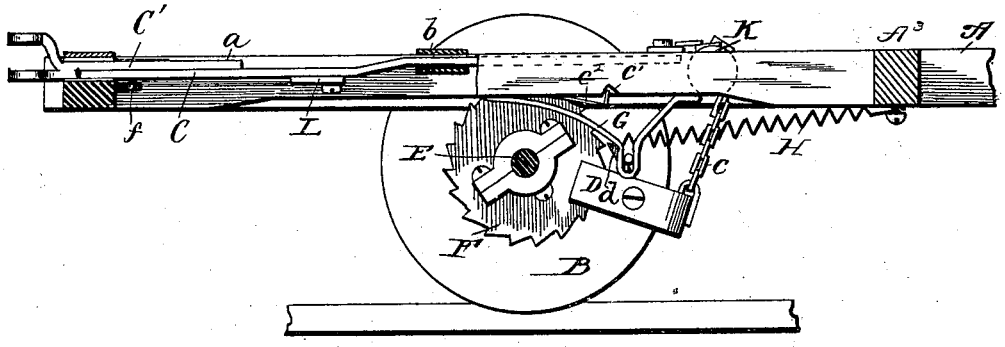

Fig. 2.

Witnesses
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G. B. Fowles.

Inventor
Samuel Rockafellow.
By his Attorney W^m. Burris

(No Model.) 2 Sheets—Sheet 2.

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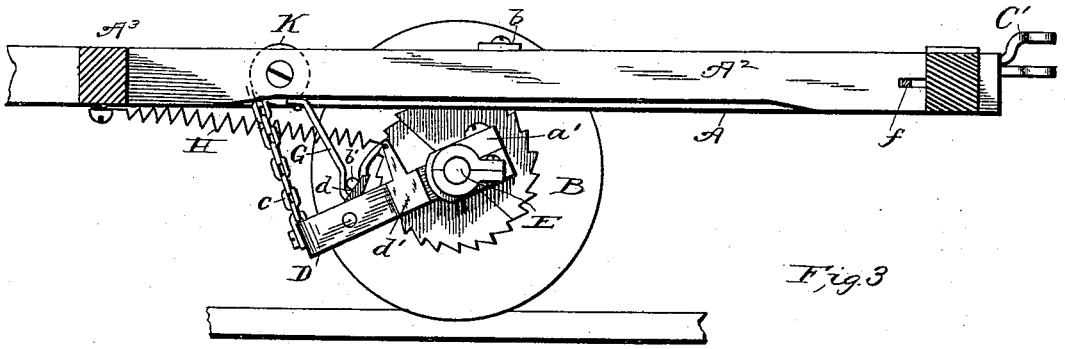

Fig. 3

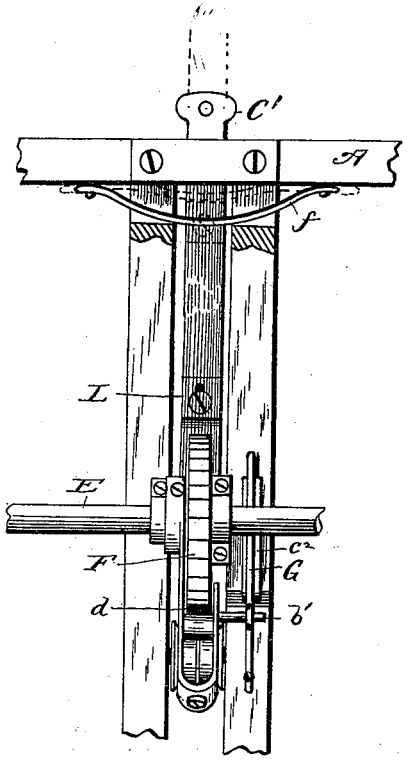

Fig. 4

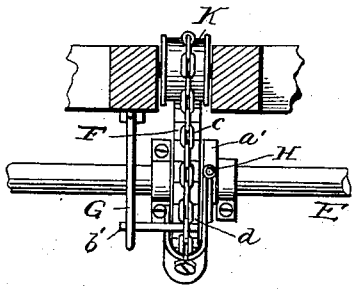

Fig. 5

Witnesses
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By his Attorney
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UNITED STATES PATENT OFFICE.

SAMUEL ROCKAFELLOW, OF MUSCATINE, IOWA, ASSIGNOR OF ONE-HALF TO WILLIAM G. REEVE, OF PERU, ILLINOIS.

CAR-STARTER.

SPECIFICATION forming part of Letters Patent No. 342,846, dated June 1, 1886.

Application filed March 13, 1886. Serial No. 195,100. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL ROCKAFELLOW, a citizen of the United States of America, residing at Muscatine, in the county of Muscatine and State of Iowa, have invented certain new and useful Improvements in Car-Starters, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain improvements in car-starters, in which the traction upon the draw-bar is applied to a lever and transmitted by ratchet devices to a wheel on an axle of the car-trucks; and my invention consists of the construction and combination of a jointed draw-bar and its auxiliary devices, as hereinafter fully set forth and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a portion of the trucks of a car having my improved starter applied. Fig. 2 is a vertical longitudinal section, looking in the direction of arrow 1 in Fig. 1. Fig. 3 is a vertical longitudinal section showing a side elevation of the ratchet-wheel and connecting devices, looking in the direction of arrow 2 in Fig. 1. Fig. 4 is a bottom view of the devices. Fig. 5 is a cross-section showing in elevation a back view of the lever and ratchet devices.

A and B designate, respectively, the frame and wheels of the truck of a car.

C C′ designate a draw-bar in two parts, which may be jointed together in any suitable manner that will permit the requisite lateral movements of the forward end of the portion C′. In the present case the two parts are connected by a bolt, *a*, inserted through them and properly secured in the required position. The draw-bar is supported in place between the beams A′ A² by the plates *b*, attached to these beams. To the inner end of the draw-bar is attached one end of a chain, *c*, the other end of which chain is attached to the bifurcated lever D, which is provided with a sleeve, *a′*, placed loosely over the truck-axle E.

F is a ratchet-wheel rigidly fastened on the middle portion of the truck-axle E.

G is a guard-rod, bent, as shown, to form a bearing and guide for the arm *b′* on the pawl *d*, which pawl is pivoted in the lever. The arm and guard-rod are for the purpose of holding the pawl out of gear with the ratchet-wheel when the draw-bar is in its returned position. The under side of the beams A′ A² are provided with recesses *c′*, which recesses are faced with a metallic plate, c^2, to receive and form a stop for the end of the pawl *d* and its arm *b′* when the draw-bar is moved forward, as shown.

H is a spiral spring attached at one end to the cross-beam A³, and at the other end to an arm, *d′*, in the lever, for returning the bar and connecting devices to their ordinary positions after the car is started.

K is a sheave or friction-roller journaled in bearings in the beams A′ A² in position to carry the chain *c*.

L is a stop-block securely bolted to the under side of the draw-bar the required distance from the front end of the bar to allow the requisite forward movement of the bar in starting the car. This stop-block may be adjustable by means of a slot in it, as shown, or by a series of holes in the draw-bar to receive the bolt with which the block is attached to the bar. A yielding bearing, *f*, consisting of a metallic spring, a thick rubber, or any other suitably-yielding substance, is attached to the inner side of the front cross-beam of the truck-frame, in position to form a yielding bearing for the stop-block, to prevent sudden pressure and strain upon the horses. The joint in the draw-bar is found to be of great utility, not only in running on curves where its utility is most manifest, but also in running on straight tracks, especially where a car is heavily loaded, and is drawn by one horse. It is well known that the horse often shifts from one side to the other of the track, and much of the time the draft is not in direct line with the track. In such case the side draft on the end of a rigid draw-bar, extended forward as far as required to operate the starting devices, causes the front portion of the bar to act as a powerful lever, causing great strain and friction upon the truck-wheels; but where the front portion of the draw-bar is jointed to the other portion as far back as possible, so that the front portion will always adjust itself in line with the draft upon it, the severe side pressure will be avoid-

ed, and hence the power required to run the car on curves and on straight tracks will be lessened.

In starting a car having my improvements the draft upon the bar, by means of the connecting-chain, moves the lever into position to disengage the pawl-arm from the guard-rod and allow the pawl to engage the ratchet-wheel, and the whole force of the draft upon the bar, augmented by the power of the lever, is applied to the ratchet-wheel, thus starting the car with far less power than is required when the draft is applied, as in the ordinary way, directly to the truck-frame. As the bar is moved forward, the stop-block L strikes the spring or yielding bearing *f*, thus avoiding any sudden strain upon the horse.

What I claim as new is—

1. In a car-starter, a reciprocating draw-bar in two parts, C C′, connected together at a point, when drawn forward near the front of the car, by a joint adapted to allow the part C′ to move laterally in the direction of the draft upon the bar, substantially as and for the purposes described.

2. The combination, with the draw-bar, of the connecting-chain *c*, the bifurcated lever D, loosely attached to the axle E, the pawl *d*, pivoted to the lever, and provided with an arm, *b′*, the guard-rod G, the ratchet-wheel F, fastened upon the car-axle, and the friction-roller K, adapted to carry the chain, substantially as and for the purposes described.

3. The combination, with the draw-bar, of the connecting-chain *c*, the friction-roller K, the bifurcated lever D, loosely attached to the axle E, the pawl *d*, pivoted to the lever and provided with an arm, *b′*, the guard G, the ratchet-wheel F, fastened upon the car-axle, and the spring H, adapted to return the car-starting devices to their ordinary position, substantially as and for the purposes described.

4. The combination, with the reciprocating draw-bar, of the stop-block L, adjustably attached to the bar, and the yielding bearing *f*, attached to the inner side of the front cross-beam of the truck-frame, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL ROCKAFELLOW.

Witnesses:

CHARLES STRUEVER,

H. E. PENNING.