(No Model.) 2 Sheets—Sheet 1.

# J. H. PARMELEE.

## CAR STARTER.

No. 387,807. Patented Aug. 14, 1888.

*Fig. 1.*

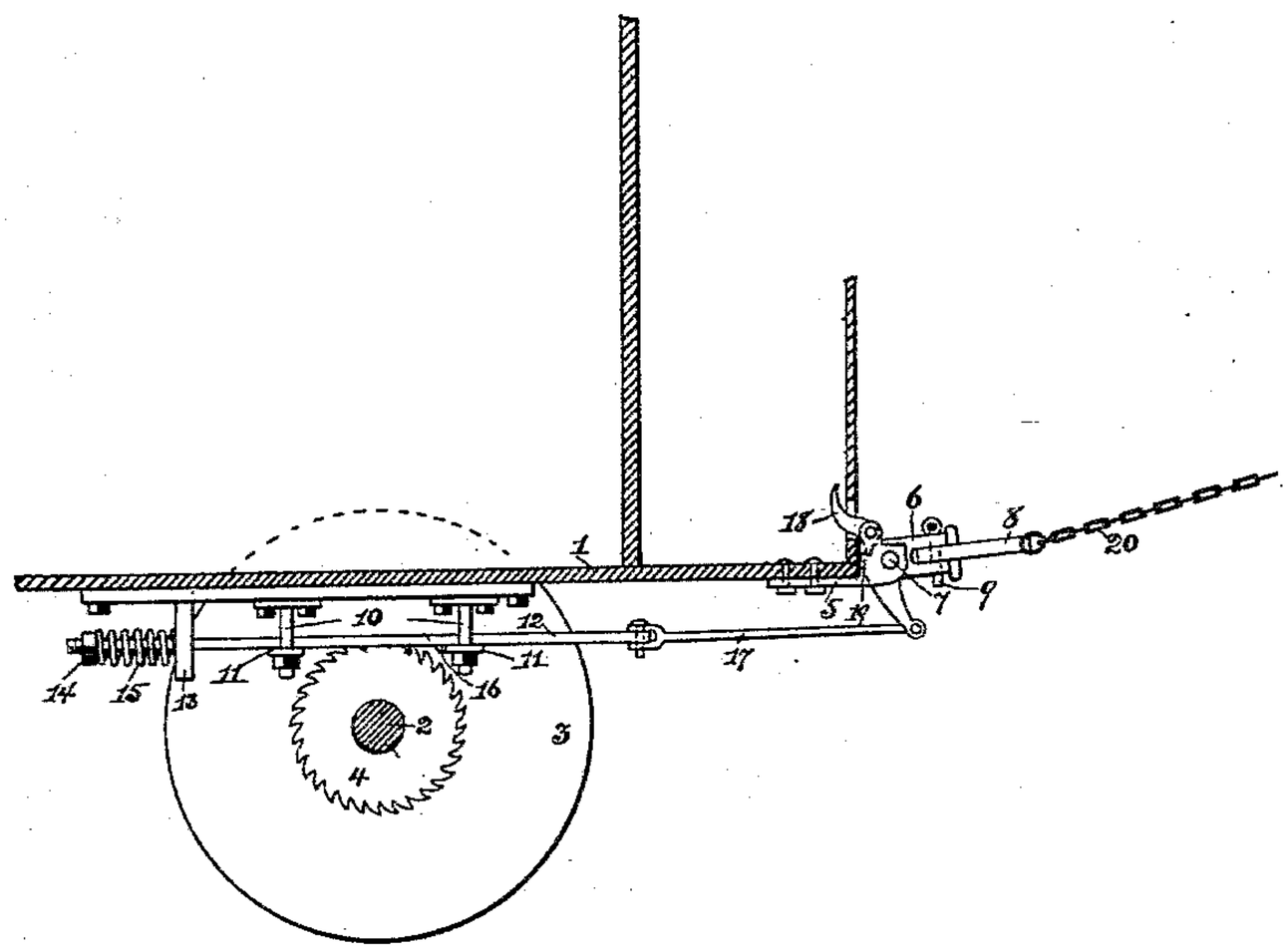
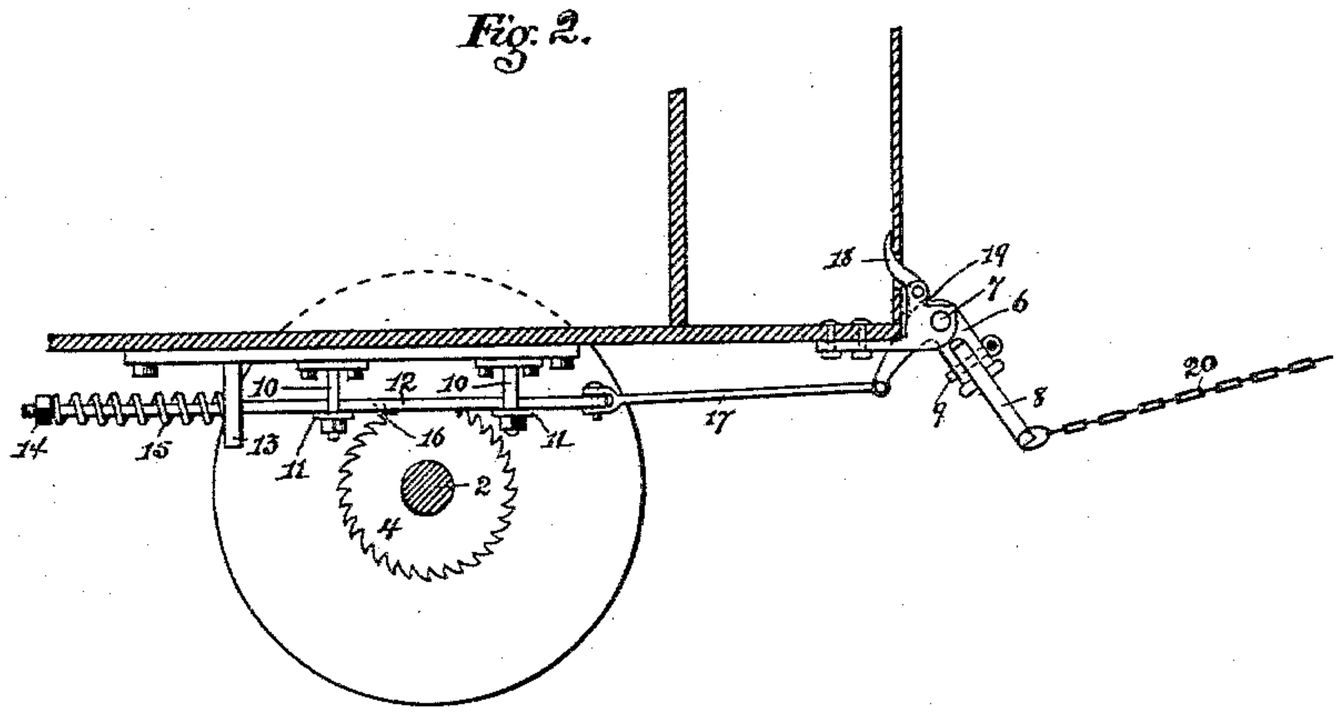



*Fig. 2.*




Witnesses,
S. S. Williamson.
H. Henderson Potter.

Inventor.
John H. Parmelee.
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atty's.

(No Model.) 2 Sheets—Sheet 2.

# J. H. PARMELEE.

## CAR STARTER.

No. 387,807. Patented Aug. 14, 1888.

*Fig. 3.*

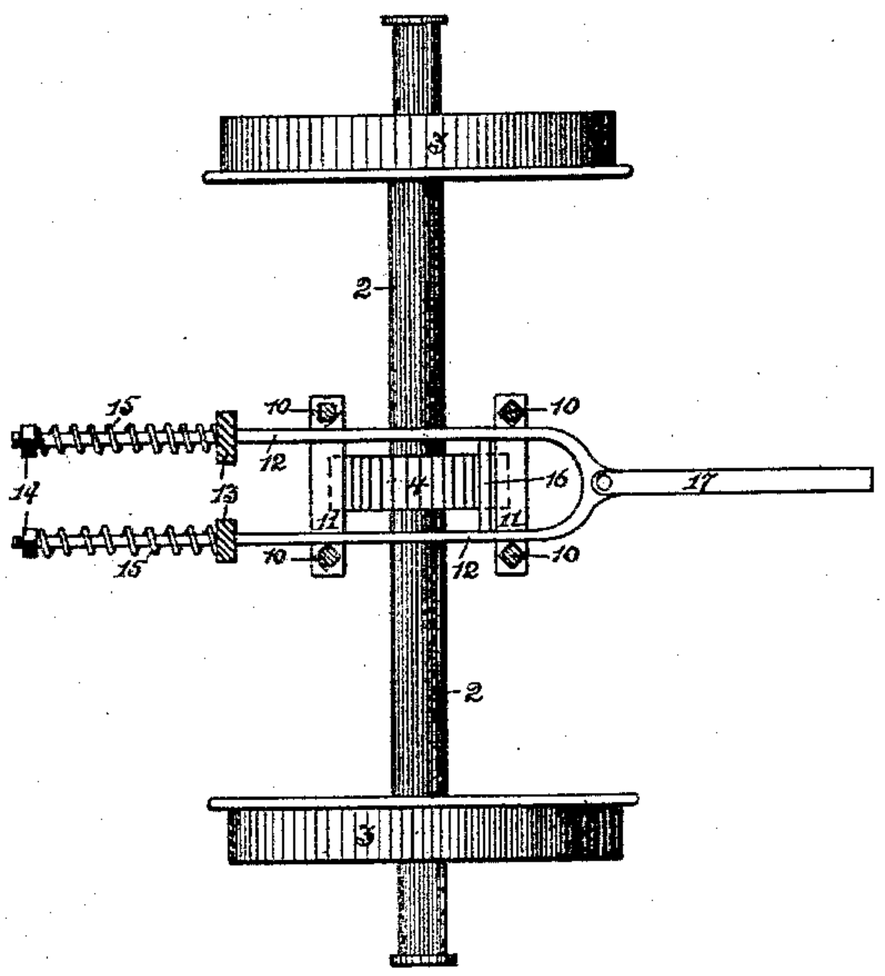



*Fig. 4.*

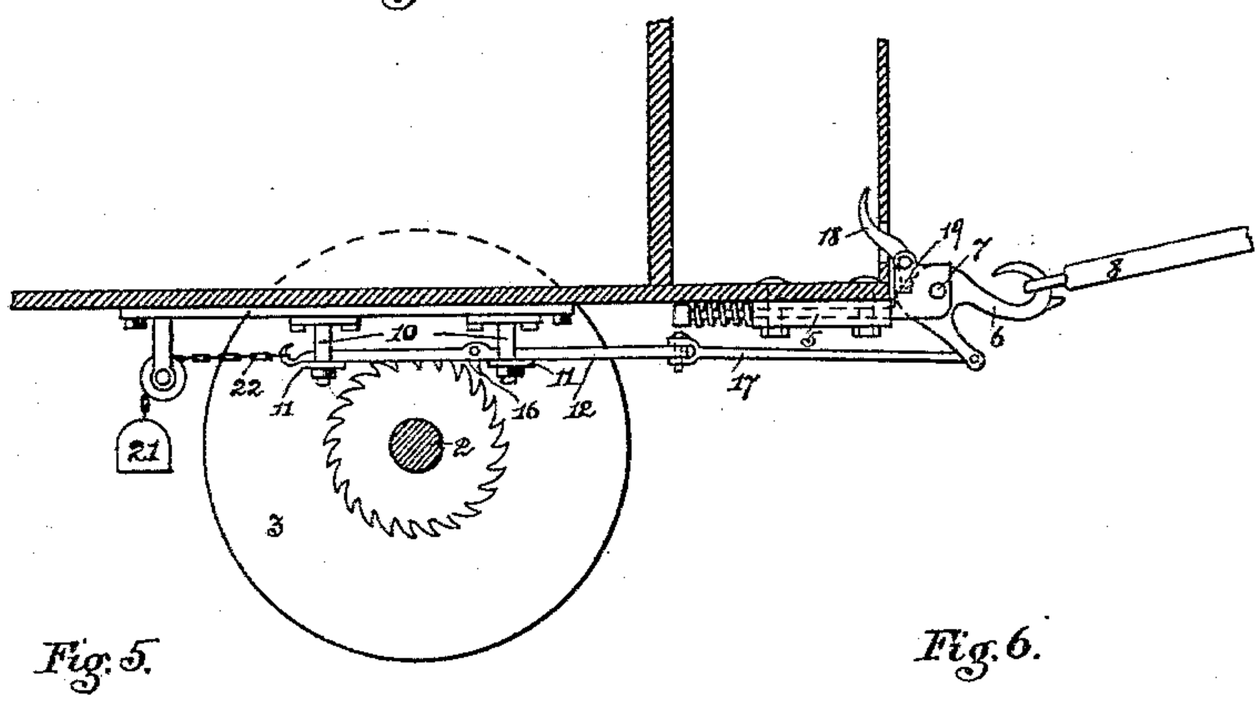
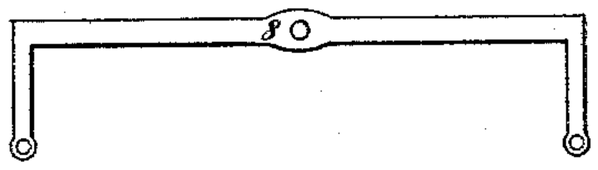



*Fig. 5.*


*Fig. 6.*

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# UNITED STATES PATENT OFFICE.

JOHN H. PARMELEE, OF BRIDGEPORT, CONNECTICUT.

## CAR-STARTER.

SPECIFICATION forming part of Letters Patent No. 387,807, dated August 14, 1888.

Application filed September 10, 1887. Serial No. 249,348. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. PARMELEE, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Car-Starters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to car-starters, and has for its object to provide a device of this description for attachment to street and tram cars of ordinary construction which shall be simple in the arrangement and combination of its parts, cheap to build, and which shall render the initial movement of the car by the horse much easier, owing to the advantageous application of the power, than by ordinary draft methods and appliances; and with these ends in view my invention consists in the details of construction and combination of elements hereinafter fully set forth, and then specifically designated by the claims.

In order that those skilled in the art to which my invention appertains may more fully understand how to make my device and the manner in which the same is designed to operate, I will proceed to describe it in detail, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a vertical longitudinal section through the floor and platform of a street-car, showing the starting apparatus in side elevation and out of action; Fig. 2, a similar view, the starter being about to be operated to impart initial movement to the axle and wheels; Fig. 3, a plan view of the starter separate from the car; Fig. 4, a view similar to Fig. 1, but modified in respect to the backwardly-actuating device for the starter and the shape of the draw-head; and Figs. 5 and 6, two shapes of singletrees which are well adapted for use in connection with my device.

Like reference-numbers denote like parts in all the figures of the drawings.

1 represents the floor of an ordinary street-car, beneath which and hung in any ordinary bearings are axles 2, carrying wheels 3.

4 is a ratchet-wheel secured upon the axle between the wheels.

5 is a bracket or similar support, which is secured to the platform or floor and serves to support the L-shaped draw-head 6, which is fulcrumed thereto at 7, and is adapted (see Figs. 1, 2, and 4) to have a segmental movement therein.

The forward end of the draw-head is slotted for the reception of a singletree, 8, which is secured thereto by a coupling-pin, 9, of ordinary construction, and is adapted to carry the trace-chains 20.

10 represents hangers, which are bolted or otherwise secured to the bottom of the car. Upon cross-bars 11, secured to these hangers, the draft-frame 12 rests astride the ratchet-wheel 4, and is adapted to reciprocate longitudinally within certain limits.

13 represents stop-brackets bolted to the car-floor. Between these brackets and nuts 14 at the ends of the respective side rods which form part of the draft-frame are springs 15.

16 is a short pawl-bar extended from side to side of the draft-frame and adapted, as will be hereinafter set forth, to engage and operate the ratchet-wheel.

17 is a connecting-rod, which is secured, respectively, to the forward end of the draft-frame and to the downwardly-extending arm of the fulcrumed draw-head 6.

18 is a stop-lever pivoted just above the draw-head and adapted to engage a tooth or notch, 19, on the latter for the purpose of retaining said draw-head in the position shown at Fig. 1. Said lever is designed to be operated by the foot of the driver, as will be hereinafter made clear.

The operation of my invention is as follows: When the car is in motion, it will be readily understood that the position of the singletree, trace-chains, and draw-head will be as shown at Figs. 1 and 4. The draft-frame will be at its forward limit of movement, the springs will be compressed between the nuts and stop-brackets, and the pawl-bar will be forward of and out of engagement with the ratchet-wheel, which revolves with the axle and inside of the draft-frame. The parts aforesaid may be secured in the position just described by means of the stop-lever engaging the notch or tooth on the draw-head. When the car has come to a stop, the driver, by throwing the stop-lever out of engagement, permits the springs to

draw the draft-frame backward far enough so that the pawl-bar passes to the rear side of the ratchet-wheel and the draw-head turns upon its pivotal point to substantially the position shown at Fig. 2. The weight of the singletree, when permitted to fall by the slacking of the trace-chains, will materially assist the springs. When the horse starts, the first power applied is to tighten the trace-chains and restore the singletree to the line of draft, as shown at Figs. 1 and 4. When this occurs, the pawl-bar is in position to engage with the teeth of the ratchet-wheel, and as the draw-head turns upward upon its pivotal point the draft-frame is drawn forward and the ratchet-wheel turned by the pawl-bar. Thus the initial movement is imparted to the axle and wheels through the leverage of the draw-head turning about its pivotal point and acting through the draft-frame and pawl-bar. When the line of draft has been restored, the frame and pawl-bar have been carried forward, so that the latter has passed out of engagement with the ratchet-wheel, when the car is drawn along by the direct pull of the horse after the ordinary manner. By throwing the stop-lever into engagement with the draw-head all the parts are secured in the position shown at Fig. 1 until the next stop is made. Thus it will be seen that the starting mechanism is entirely under the control of the driver and may be used or not at will. It can therefore be employed, if desired, only when the car is heavily loaded, as it in no way interferes with or decreases the efficient use of all parts of the car in the ordinary manner.

In Figs. 1 and 2 I have shown a draw-head to which the singletree, which I preferably make in either of the shapes shown at Figs. 5 and 6, is attached by a common coupling-pin. I do not, however, wish to be limited to that construction or mode of attachment, since I can equally as well use a hooked draw-head (see Fig. 4) or other equivalent device for performing the same function. Furthermore, in Fig. 4 I have shown a weight and chain, 21 22, for retracting the draft-frame. A pivoted pawl may be substituted for the pawl-bar. Lastly, I do not wish to be confined to the exact details of my general construction, since many minor changes entirely within the province of mechanical skill may be made therein without departing from the spirit of my invention, which principally consists in the fulcrumed draw-head through which the initial movement is imparted to the axles.

In cars designed to be run in either direction my device is attached to each end independently. As this is of course obvious, I have not thought necessary to illustrate it, but only to show the application to a single pair of wheels.

I claim—

1. The combination, with the axle and the ratchet-wheel secured thereon, of the backwardly spring-actuated draft-frame carrying a pawl and hung beneath the car, the L-shaped draw-head pivoted at its elbow and connected to the draft-frame, and the stop-lever adapted to engage and uphold the draw-head, substantially as set forth.

2. The combination of the draft-frame, the fulcrumed draw-head, and the stop-lever adapted to engage and uphold said draw-head, as described.

3. In a car-starter, the combination, with the car-axle, of a ratchet-wheel thereon, a draft frame and pawl adapted to engage the ratchet-wheel, and a fulcrumed draw-head whereby motion is imparted to the draft-frame, substantially as specified.

4. In a car-starter, the combination, with the whiffletree-bar, of an L-shaped draw-head adapted to receive said whiffletree-bar and pivotally connected to the car-platform, substantially as set forth.

5. The combination, with the ratchet-wheel on the car-axle and the draft frame and pawl adapted to engage and turn said wheel and axle, of the fulcrumed draw-head, its connection to the draft-frame, and the whiffletree secured in one arm of said draw-head, whereby the upward swing of the whiffletree to the line of draft will impart initial movement to the axle, as shown and described.

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

JOHN H. PARMELEE.

Witnesses:
S. H. HUBBARD,
S. S. WILLIAMSON.