(No Model.)

C. F. DODGE.

CAR STARTER.

No. 334,111. Patented Jan. 12, 1886.

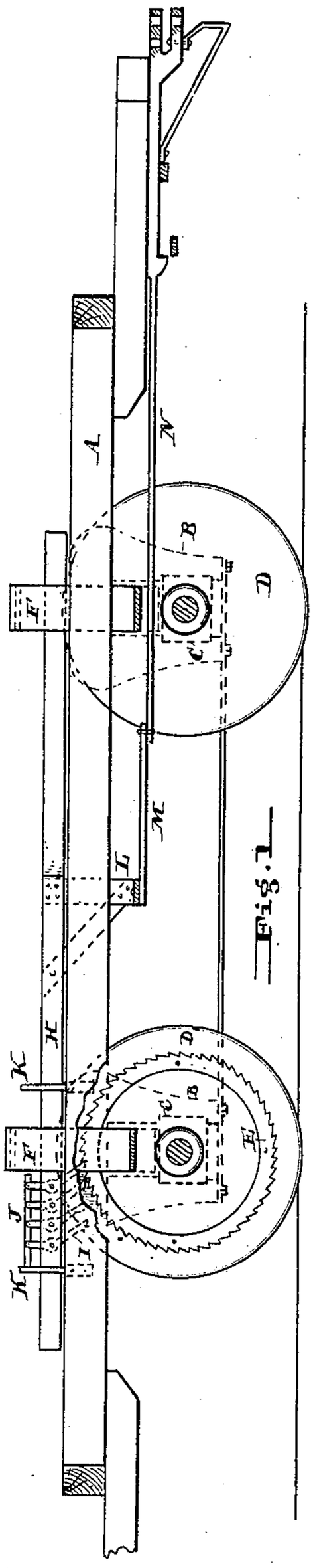

Fig. 1.

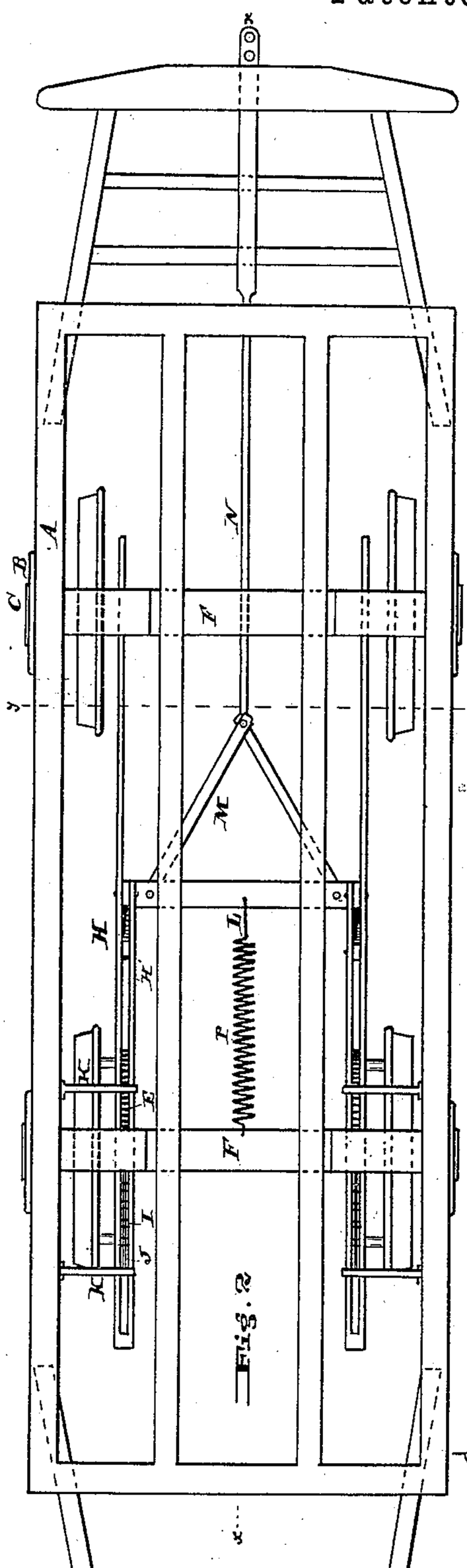

Fig. 2.

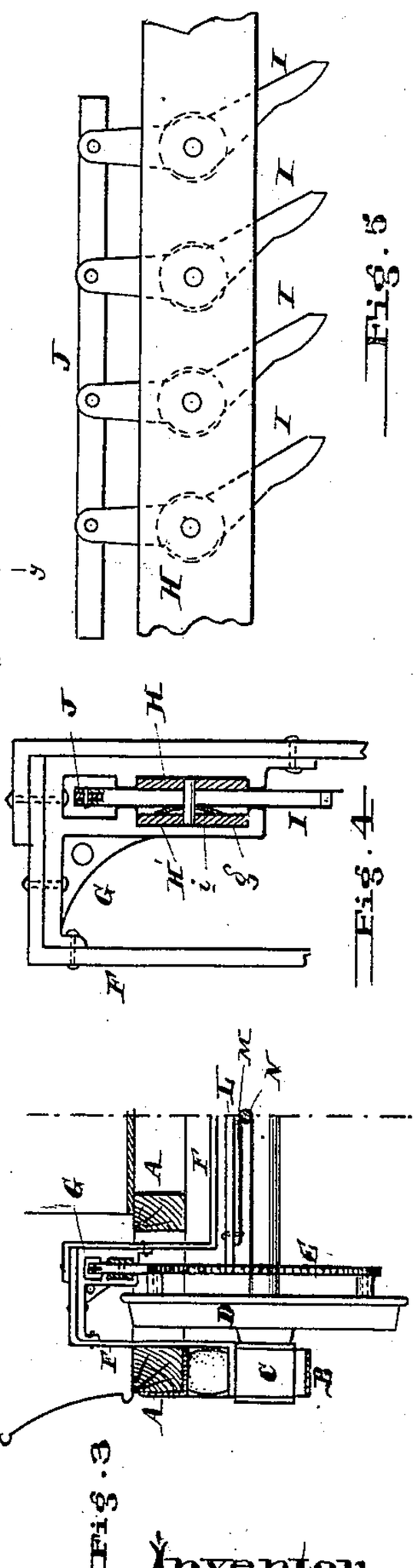

Fig. 3.

Fig. 4.

Fig. 5.

Attest

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CHARLES FOSTER DODGE, OF PHILADELPHIA, PENNSYLVANIA.

CAR-STARTER.

SPECIFICATION forming part of Letters Patent No. 334,111, dated January 12, 1886.

Application filed September 1, 1885. Serial No. 175,887. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FOSTER DODGE, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Car-Starters.

My invention has reference to car-starters; and it consists in an improvement upon Letters Patent granted to me dated April 7, 1885, and numbered 315,258, the details of construction of this improvement being fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof.

In the patent referred to both the forward and rear wheels were provided with ratchet-teeth and a double frame carrying suitable pawls, and secured to the draw-bar, which, when pulled, caused the pawls to engage with the ratchet-wheels and enable the car to be easily started by the increased leverage. As shown in that patent, however, there were two main defects, one of which consisted in that the pawls, after starting the rotation of the wheels, lay upon the teeth thereof and caused an unpleasant rattling during the progress of the car, and the other consisted in that the support for the pawls and their actuating-bar moved with the upward and downward movements of the car-body and changed their relative positions with the wheels.

In this improvement I simply act upon the rear car-wheel, and provide a suitable device by which, after starting the rotation of the ratchet and car-wheel, the pawls are raised clear of the ratchet-teeth and remain so raised until the car stops, when they are returned to their original position and thrust down, so as to catch again in the ratchet-teeth upon starting the car. These pawls and their actuating-bars are supported and guided in suitable frames secured to and carried upon the axle-boxes, thereby insuring the relative positions of the pawls and ratchet-wheels being constant.

In the drawings, Figure 1 is a sectional elevation of a car-frame and starting apparatus, taken on line *x x*, embodying my invention. Fig. 2 is a plan view of same. Fig. 3 is a cross-section of one-half of Fig. 2 on line *y y*, and showing one axle and the box-guides in section. Fig. 4 is an enlarged view of part of Fig. 3, and Fig. 5 is a side elevation of a portion of the pawl-carrying bar and pawls.

A is the car body or frame.

B are the axle-guide frames, and C are the axle-boxes.

D are the car-wheels, and are journaled in the said boxes in the usual manner. Secured to the rear car-wheels are the ratchet-wheels E, preferably upon the inner face of the said car-wheels.

F are bent supports, and secured at each end to the axle-boxes C of one car-axle, as shown, so that the said frame remains specific, and is independent of the vertical movement of the car-body A. Secured to these frames F are the guide-brackets G, formed with the guide-apertures *g*, through which the horizontal pawl-carrying bars H pass. This bracket is made as shown in Fig. 4, being bolted to the said frame and projecting downward on the inner side or face of the car-wheel.

H is the pawl-carrying bar, and for part of its length is made double by an extra bar, H′, between which pawls I are pivoted, and are made to remain in any position assumed by the spring cup-shaped disks *i* between bar H′ and the pawls, which create sufficient friction to insure their remaining up or down, according as they are so placed. The upper arms of these pawls, of which there may be a series, are hinged to a bar, J, and when the said bar H is moved forward or backward the bar J strikes stops K K, one of which causes the pawls to be thrown down in contact with the ratchet-wheel and the other of which causes them to be raised clear of it, so that they may pass back to their original position without contact with said ratchet-teeth, and the ratchet-wheel may rotate without contact with the pawls. These bars H are connected together by a cross-piece, L, to which the draw-bar N is connected through the mediation of the links M.

P is a spring, and is adapted to draw the said bars H H to their original position (shown in Fig. 1) upon stopping the car. Instead of spring P, weights might be used, as they are mechanical equivalents.

I do not limit myself to the exact construc-

tion shown, as the frame and connection may be greatly modified without departing from the spirit of the invention. It is also evident that instead of the cup-shaped disks *i*, springs or suitable catches may be employed to perform the same function.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car-starter, the combination of the car-wheel and its axle, provided with a ratchet-wheel, with a frame carried by the axle-boxes or the axle, being unaffected by the vertical movement of the car-body, and provided with suitable guides, a reciprocating bar guided thereby and connected with the draw-bar, and one or more pawls carried by said bar and adapted to mesh with the ratchet-wheel, substantially as and for the purpose specified.

2. In a car-starter, the combination of the car-wheel and its axle, provided with a ratchet-wheel, with a frame carried by the axle-boxes or the axle, being unaffected by the vertical movement of the car-body, and provided with suitable guides, a reciprocating bar guided thereby and connected with the draw-bar, one or more pawls carried by said bar and adapted to mesh with the ratchet-wheel, and suitable devices, substantially as described, to cause said pawls to be thrown down in contact with said ratchet-wheel at the terminal of the back movement of said pawl-carrying bar and clear of the ratchet-wheel at the terminal of the forward movement of said bar, substantially as and for the purpose specified.

3. In a car-starter, the combination of the car-wheel and its axle, provided with a ratchet-wheel, with a frame carried by the axle-boxes or the axle, being unaffected by the vertical movement of the car-body, and provided with suitable guides, a reciprocating bar guided thereby and connected with the draw-bar, and one or more pawls carried by said bar and adapted to mesh with the ratchet-wheel, and suitable devices, substantially as described, to cause said pawls to be thrown down in contact with said ratchet-wheel at the terminal of the back movement of said pawl-carrying bar and clear of the ratchet-wheel at the terminal of the forward movement of said bar, and friction-creating device to cause said pawls to remain up or down, according as to the position assumed, and until said position is positively changed, as above specified, substantially as and for the purpose specified.

4. In a car-starter, the combination, with the car-wheels D and their axle-boxes C with the bent frame-work F, supported upon said axle-boxes and extending over the said car-wheels and independent of the car-body, of the ratchet-wheels E, secured to said wheels or their axle, guide-brackets G, secured to the frames F, reciprocating bars H, a draw-bar connected to said reciprocating bars and adapted to reciprocate them, and pawl mechanism, substantially as described, carried by said bar and adapted to mesh with the ratchet-wheels, substantially as and for the purpose specified.

5. In a car-starter, the combination, with the car-wheels D and the axle-boxes C with the bent frame-work F, supported upon said axle-boxes, and extending over the said car-wheels, of the ratchet-wheels E, secured to said wheels or their axle, guide-brackets G, secured to the frame F, reciprocating bars H, and draw-bar connected to said reciprocating bars and adapted to reciprocate them, series of pawls I, pivoted to said bars and connected together on each bar by the bars J, and adapted to mesh with the ratchet-wheels E, and stops K, to raise or depress said pawls at the terminals of the reciprocation of the bars H, substantially as and for the purpose specified.

6. In a car-starter, the combination, with the car-wheels D and their axle-boxes C with the bent frame-work F, supported upon said axle-boxes, and extending over the said car-wheels, and independent of the car-body, of the ratchet-wheels E, secured to said wheels or their axle, guide-brackets G, secured to the frame F, reciprocating bars H, and draw-bar connected to said reciprocating bars and adapted to reciprocate them, a series of pawls, I, pivoted to each of said bars and connected together by the bars J and adapted to mesh with the ratchet-wheels E, stops K, to raise or depress said pawls at the terminals of the reciprocation of the bars H, and friction-creating device to retain the pawls in the raised or depressed conditions, substantially as and for the purpose specified.

7. The combination of the car-wheels D, their axle and axle-boxes, with frames F secured to said axle-boxes and provided with guides, the bars H, formed with double part H′, cross-bar L, connecting said bars H, draw-bar N, connected with said bars, and connecting mechanism, substantially as described, by which the reciprocation of the bars H imparts a rotary movement to the car-wheel, substantially as and for the purpose specified.

8. The combination of the car-wheel D and its ratchet-wheel E with the reciprocating bar H, carrying the pawls I, disks *i*, and means, substantially as described, to raise or depress said pawls at the terminals of the reciprocation of the bars H, substantially as and for the purpose specified.

CHARLES FOSTER DODGE.

Witnesses:

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JOSHUA MATLACK.