(No Model.)

H. KELLS.

CAR STARTER.

No. 343,818. Patented June 15, 1886.

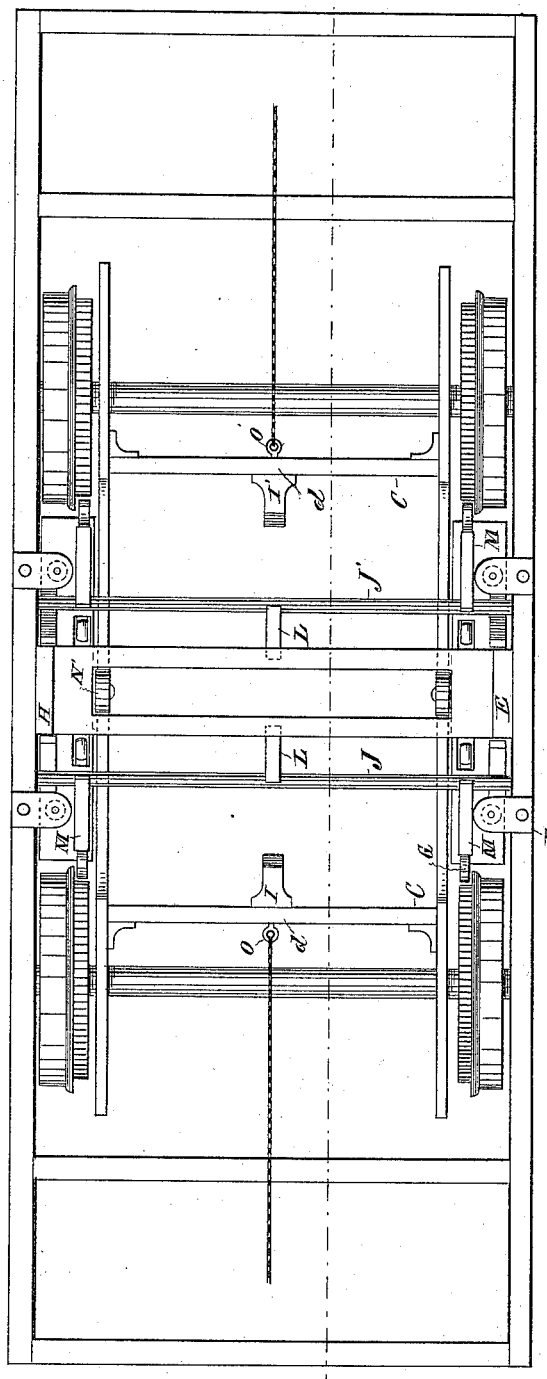

FIG. 1.

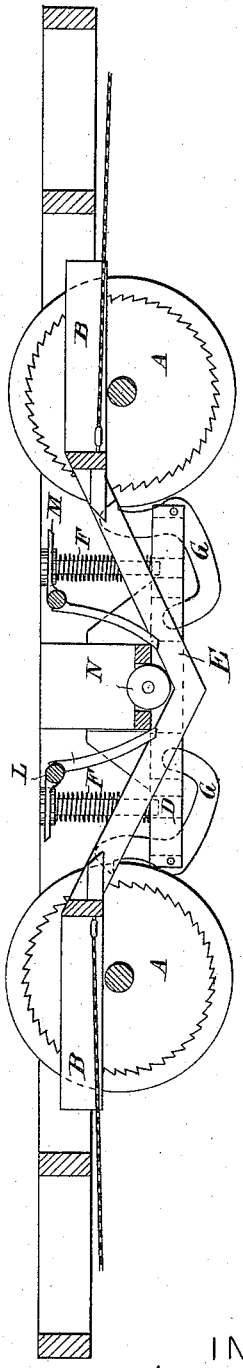

FIG. 2.

WITNESSES

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HERBERT KELLS, OF ASTORIA, NEW YORK.

CAR-STARTER.

SPECIFICATION forming part of Letters Patent No. 343,818, dated June 15, 1886.

Application filed November 23, 1885. Serial No. 183,602. (No model.)

To all whom it may concern:

Be it known that I, HERBERT KELLS, a citizen of the United States, residing in Astoria, county of Queens, and State of New York, have invented a new and useful Improvement in Car-Starters, of which the following, taken in connection with the accompanying drawings, is a full, clear, and accurate description.

The object of my invention is to utilize the weight of the car by means of a movable frame or platform placed under the car, in connection with pawls working in ratchet-teeth placed on the wheels of the car, so that by removing temporarily the weight of the car from the axle and then allowing it to press upon the movable platform the pawls are forced into the ratchet-teeth, imparting a starting motion to the whole car.

In street-cars ordinarily the axles of the car-wheels are placed in what are called "pedestals" attached to the bottom of the car. These pedestals are provided with springs of suitable strength and tension, and the weight of the whole car is supported by these springs.

My invention consists in making a movable frame or platform provided with springs, and so arranged by means of guides as to be capable of moving perpendicularly, and is supported when at rest upon the axles of the wheels of the car. The platform or frame is so formed by means of inclined sides as to raise the springs attached thereto in a perpendicular direction. These springs have their lower bearing upon the platform or frame and their upper bearing upon the bottom of the car, and when the frame is moved in either direction the weight of the car is necessarily taken from the pedestal-springs and supported by the springs of the platform. Attached to the inner side of the car-wheels I place ratchet-wheels of almost the same circumference as the wheels. Attached to each side of the frame or platform are weighted pawls adapted to act on the ratchet-wheels. Attached to the frame of the car I also provide a rock-shaft provided with stop arrangements, which is acted upon by a projection upon the sliding platform, so as to force the pawls into the ratchet of the car-wheels when the sliding platform is brought into operation. The sliding platform is brought in either direction by means of rods or chains attached to the ordinary brake-shaft of the car. When the brake-shaft is loosened again, the weight of the car pressing upon the springs of the platform forces the platform down and presses the pawls against the ratchet on the car-wheels, causing them to mesh into and work said ratchet and thus start the wheels in motion.

In the drawings, Figure 1 represents a plan view of my improved car-starter. Fig. 2 is a sectional view of the same through the dotted lines *x x*.

Similar letters indicate like parts.

My invention is constructed as follows: Upon the inner side of each car-wheel I securely fasten a ratchet-wheel, A, of nearly the same circumference as the car-wheels. Resting upon the axles of the car-wheels is placed a sliding platform consisting of two slides, B, having their inner portion made at a double incline, as shown in Fig. 2. These slides are connected together by cross-pieces C. Upon the middle of the frame so formed is placed a cradle, D, made of an open rectangular frame having its side ends prolonged on each side, and in the side ends of which are cut recesses E. Upon the cradle D are placed spiral or other springs, F. Attached to the outer corners of the cradle D are four weighted pawls, G, adapted to fit into the ratchet-wheels A. Upon the sides of the car at the center are securely fastened the guides H, which fit into the recesses E of the cradle D, causing the cradle to move perpendicularly up and down when in motion. On the cross-pieces C at the points *d d'* is a stop or lever, I I'. Attached to the side timbers of the car are rock-shafts J J', provided with the levers L and M, and so placed in reference to the cradle that when said cradle is elevated to its highest point the lever or stop I will engage with the lever L, and the lever M will press upon the pawl G. Placed upon the cradle D are the friction-pulleys N N'. Attached to the middle of the cross-pieces C are hooks or staples O, to which may be secured rods or chains, and the other end of said rod or chain, being suitably connected with a windlass or brake of the car, serves to communicate motion to the entire apparatus. The springs F at their upper ends are suitably secured to the bottom of the car.

P represents the pedestal-frame upon which the weight of the car ordinarily rests.

The operation of my invention is as follows: The car being in motion, its weight, as before stated, rests upon the pedestal-springs, bringing the sliding frame forward by means of the chain attached to the staple or pulley O, causing the frame to slide forward. This motion of the sliding frame causes the cradle, with its attachments, to rise perpendicularly, the friction-pulleys N N′ moving along the inclined sides of the frame nearest the back of the car, and the weight of the car is received upon the springs E, relieving the pedestal-spring of a portion of the weight of the car. The lever I of the frame engaging with the lever L of the rock-shaft on the forward side of the car, presses the lever M upon the pawls G nearest to the back of the car, holding said pawls closely against the teeth of the ratchet-wheels A on the hind wheels. The driver, when wishing to start the car again, then releases the brake and the weight of the car forces the cradle downward, carrying with it the sliding frame to its normal position, at the same time pressing the pawls G against the teeth of the ratchet-wheel A, and thus imparting a starting momentum. When the brake is released and the platform slides backward, the pressure of the stop I and the lever L is removed, and the pressure of the lever M on the pawl G is also removed, allowing the weighted end of the pawl to act and leaving the ratchet-wheels free from all action of said wheel.

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

1. In a car-starter, the combination, with ratchet-teeth on the car-wheels, of driving-pawls for turning the car-wheels, means of engaging the pawls in the said teeth, and a rising and pulling cradle for actuating the pawls when so engaged, such cradle being operated in the downward or driving motion by the body of the car.

2. The actuating-cradle and sliding frame having oblique bars, in combination with friction rollers or pulleys for elevating the cradle to engage the driving-pawls in the ratchet-teeth of the car-wheel.

3. In a car-starter, the combination, with the car-axles, of a sliding frame with inclined sides, a cradle carrying springs provided with weighted pawls, friction-pulleys, ratchet-wheels secured to the car-wheels, guide-recesses, rock-shaft with levers, guides, chains, or rods, and the brake-windlass of the car, substantially as described, and for the purpose set forth.

In witness whereof I have hereunto set my hand this 13th day of August, 1885.

HERBERT KELLS.

In presence of—
R. F. VAN BOSKERCK,
LOUIS W. FROST.