

(No Model.)

J. F. GOODRIDGE & A. POPE.

CAR STARTER.

No. 245,622.

Patented Aug. 16, 1881.

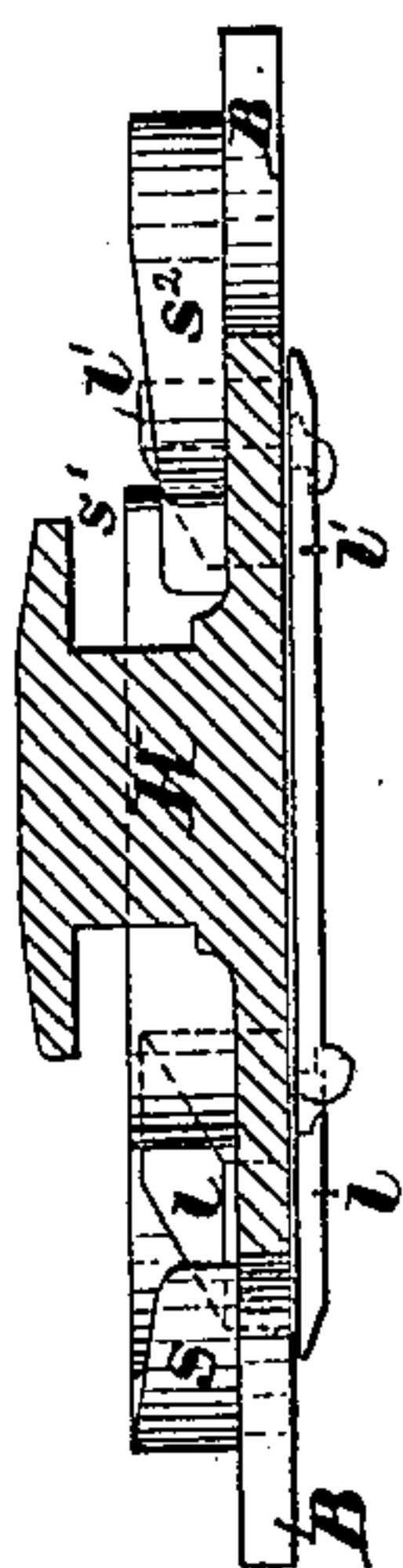


Fig. 3.

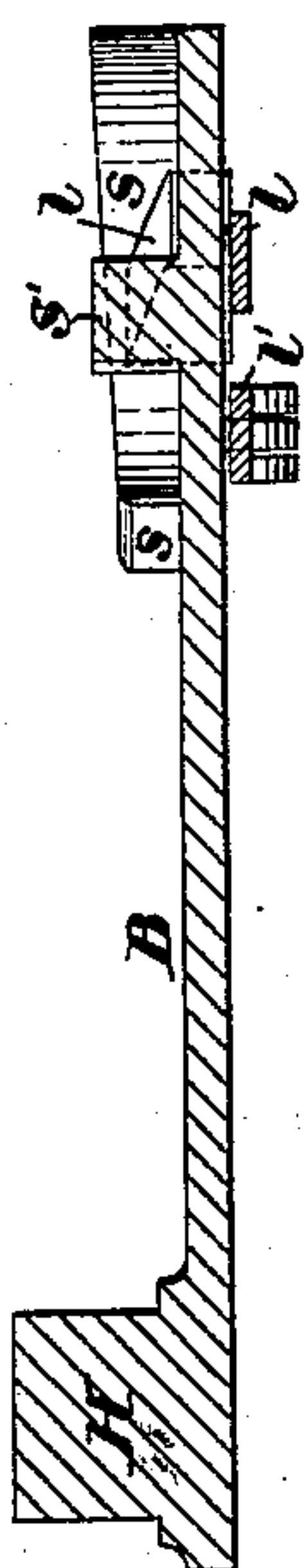


Fig. 2.

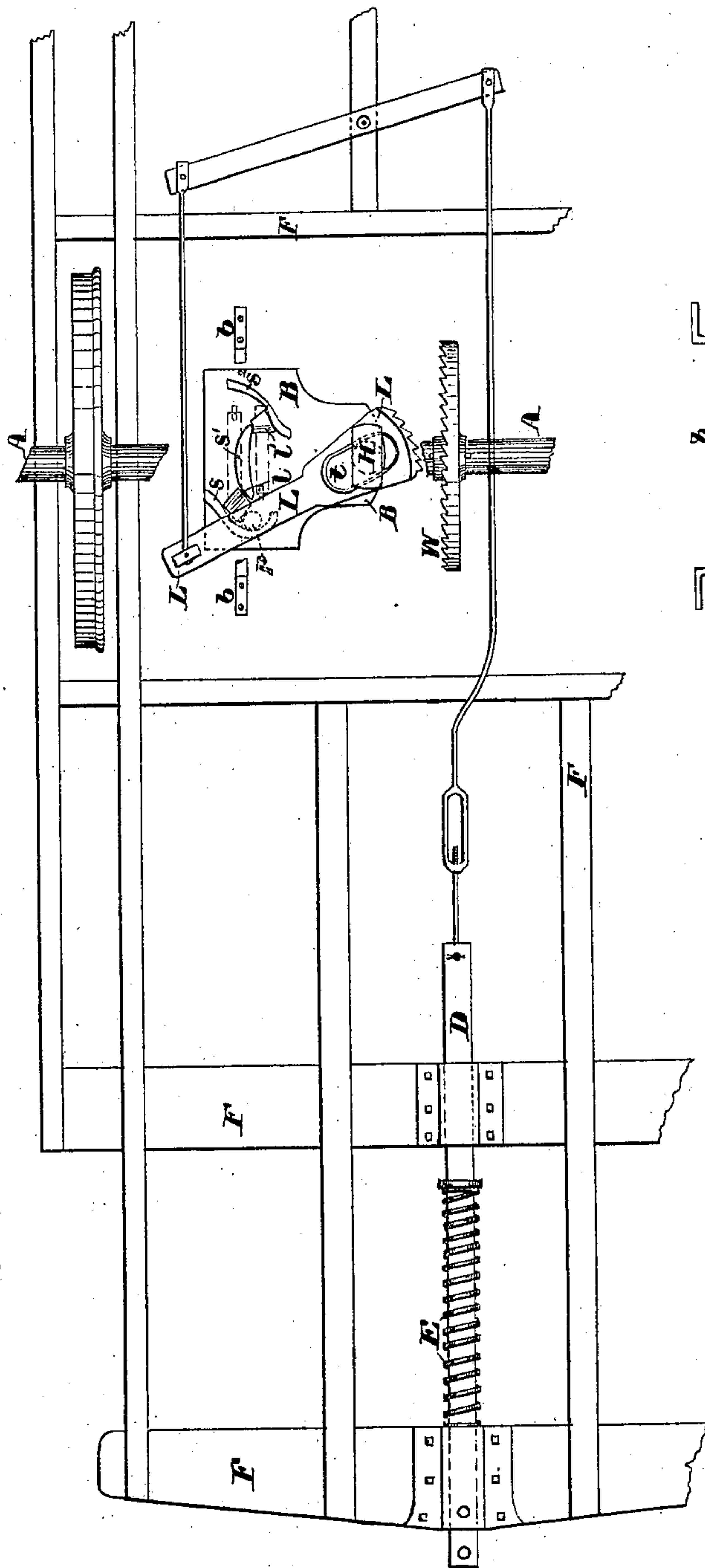


Fig. 1.



Fig. 4.

Witnesses:

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CAR-STARTER.

SPECIFICATION forming part of Letters Patent No. 245,622, dated August 16, 1881.

Application filed July 8, 1881. (No model.)

To all whom it may concern:

Be it known that we, JAMES F. GOODRIDGE and ALEXANDER POPE, both of Boston, in the State of Massachusetts, have invented an Improvement in Car-Starters, of which the following is a specification.

In an application for a patent now pending we have described certain improvements in car-starting mechanism which have reference, for the most part, to the invention patented to us in Letters Patent No. 234,026. The present invention is a still further improvement upon the mechanism of Patent No. 234,026, since we continue to employ the combination of a gear-wheel upon the car-axle with a starting-lever which is so pivoted to the car-floor as to have a horizontal swinging and an endwise movement, and which is provided with a gear-sector to engage with the gear-wheel.

The mechanism embodying the present invention resembles also the improved mechanism described in our said pending application in having long vertical teeth in the gear-sector and short radial teeth upon the face of the gear-wheel, as described and claimed in said application, and also in having a latch in the sweep to determine the direction of the initial movement of the starting-lever, as described and claimed in said application; and it has a still further resemblance to the improved mechanism of said former application, in having a rigid connection between the starting-lever and the draw-bar.

The object of the present invention has been to simplify the construction and mode of operation of details of the mechanism employed, so that the starting-lever may go through with all its movements to engage with and become disengaged from the tooth-faced wheel upon the car-axle and return to its normal position, all under the force of the team and a spring upon the draw-bar, without the aid of other springs, such as are employed in the mechanism of our said pending application; and accordingly the present invention consists in the combination of a tooth-faced wheel upon a car-axle, and a starting-lever pivoted to the bottom of a car by means of a slot and hub, so as to have horizontal swinging and endwise movements, and

provided with a gear-sector at the end of one arm, to engage with the teeth of the wheel, and a pin in the other arm, all substantially as described in our said Patent No. 234,026, with a draw-bar positively connected to said starting-lever, a spring upon said draw-bar, and an improved sweep for the pin in the starting-lever, the path in the sweep being such that the said pin may make the entire circuit of the sweep under the power exerted by the team and the said spring upon the draw-bar, without the application or aid of other force.

The invention consists, further, in certain details of construction hereinafter particularly described and pointed out.

In the drawings, Figure 1 is an inverted partial plan of a horse-car to which our present improved mechanism is attached. Figs. 2 and 3 are enlarged sectional elevations, taken at right angles to each other through the hub and bearing-plate, as they are shown in the inverted plan, but with the starting-lever removed. Fig. 4 is a view of a supporting-bar to be described.

F is the frame at the bottom of the car. A is the car-axle, and W the tooth-faced wheel keyed thereon. B is the bearing-plate, which is cast in one piece the flanged hub H and a sweep consisting of three projections, s , s' , and s^2 . L is the starting-lever, having a gear-sector at the end of one arm, while the other arm carries a pin, p , and is positively connected with D, the draw-bar of the car, as described in our said pending application. The starting-lever L is pivoted to the hub H by an oblong slot, t , which is of such length that the three projections s , s' , and s^2 form a sweep, as stated above, for the pin p .

It will appear hereinafter that a cam-groove might be substituted for the three projections s , s' , and s^2 without departing from our invention, it being requisite only to provide a path for the pin corresponding to the movements of the gear-sector in the operation of the starting-lever to start the car, including its return to its normal position.

The sweep has two latches, l and l' , the first of which, l , serves to direct the initial movement of the starting-lever, as described and claimed in our pending application, while the

other, l' , which is so located that the pin passes under it while the apparatus is under the pull of the team, insures that the return-movement of the starting-lever by force of the spring upon the draw-bar shall be in the right direction. This spring is marked E. The second latch is not absolutely necessary, since the stop s^2 should be of such shape as to throw the pin p around the adjacent corner of the stop s' while the starting-lever is still under the pull of the team, although the teeth of the gear-sector have performed their office in starting the car and have become disengaged from the teeth of the wheel W.

The flanged head of the hub H is of such shape that the slot t of the starting-lever may easily be slipped over it when the lever is held in one direction, and yet it furnishes a sufficient bearing for the lever when the latter is in its working positions. The long arm of the starting-lever is prevented from sagging by a bar, b . (Shown broken in Fig. 1, and in elevation, not inserted, in Fig. 4.)

We claim—

1. A tooth-faced wheel upon a car-axle, and a lever pivoted to the car-bottom by means of a slot and hub, so as to have horizontal swinging and endwise movements, and provided with a gear-sector at the end of one arm to en-

gage with the teeth of the said wheel, and a pin in the other arm, in combination with the draw-bar of the car, positively connected with said lever, a spring upon said draw-bar, and a sweep for the pin upon the lever, the path or cam-groove of the sweep being such that the pin may make the entire circuit of the sweep under the power exerted by the team and the spring which is upon the draw-bar, without the application or aid of other force, substantially as described.

2. In a car-starting mechanism, substantially as described, the two latches l and l' , in combination with the starting-lever, and a sweep controlling the starting-lever, for the purpose specified.

3. In a car-starting mechanism, substantially as described, the hub H, provided with a flanged head, in combination with the starting-lever L, provided with the slot t and pin p , and the sweep, consisting of the projections s , s' , and s^2 , the pin p , traveling in the sweep, and the slot t and flanged head, shaped relatively to each other as described.

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