

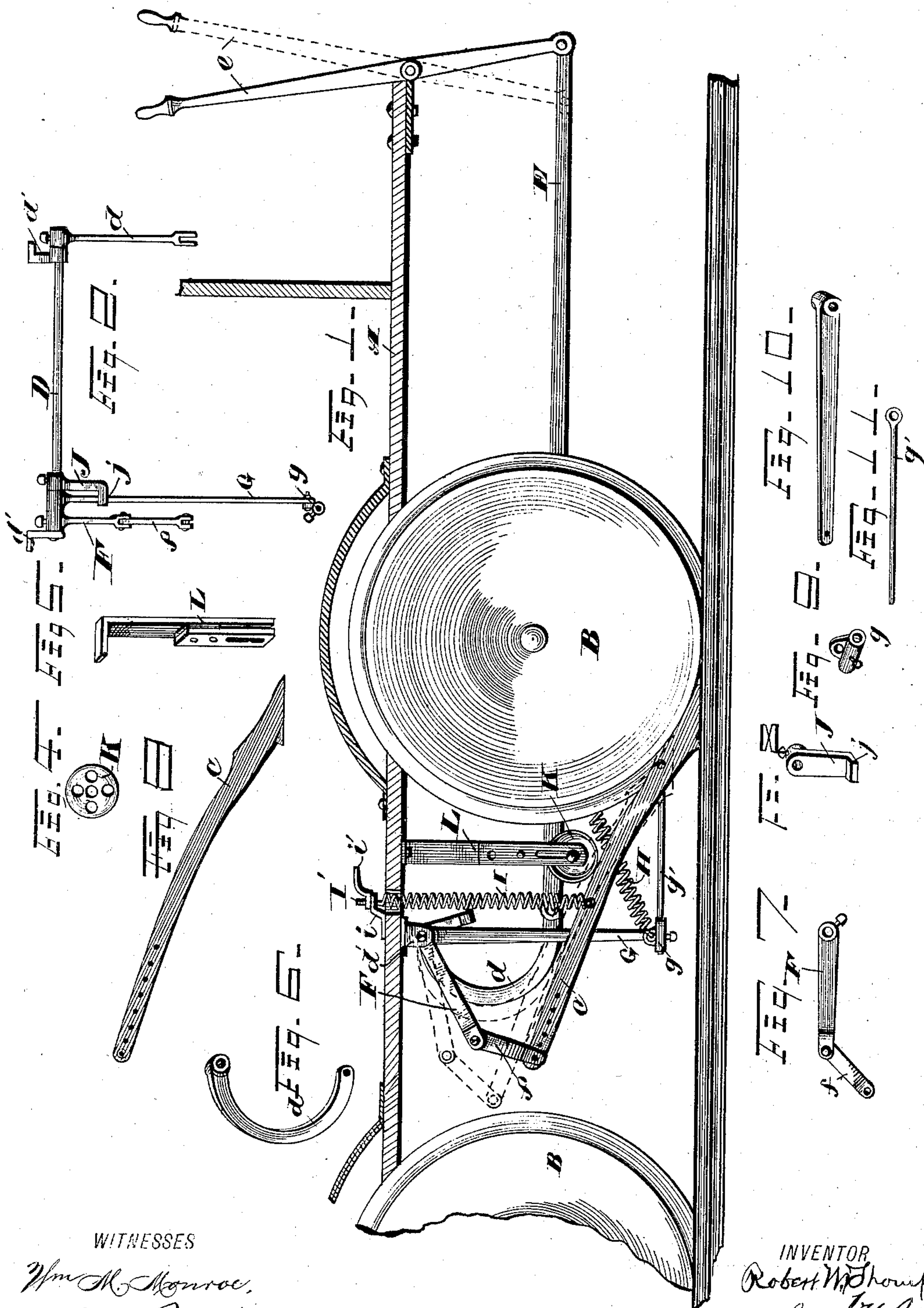
(No Model.)

R. W. THOMPSON.

CAR STARTER.

No. 316,417.

Patented Apr. 21, 1885.



WITNESSES

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# UNITED STATES PATENT OFFICE.

ROBERT W. THOMPSON, OF EAST ROCKPORT, OHIO.

## CAR-STARTER.

SPECIFICATION forming part of Letters Patent No. 316,417, dated April 21, 1885.

Application filed March 3, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT W. THOMPSON, of East Rockport, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Car-Starting Apparatus; 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 pertains to make and use the same.

My invention relates to improvements in mechanism for starting cars, the object being to arrange a pinch-bar to engage the rail and car-wheel in the same manner that a pinch-bar would be operated by hand in starting a car, and suitable mechanism arranged so that the pinch-bar may be operated from any desired place on the car, usually the platform thereof.

With these objects in view my invention consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view, partly in section, of a portion of a street-car with my improvements attached. Fig. 2 is an elevation of a portion of the connecting mechanism as seen from the end of the car. Fig. 3 is a side elevation of the pinch-bar. Fig. 4 is a side view in elevation of the guiding-wheel for the pinch-bar, and Fig. 5 a view in perspective of the adjustable support for the guide-wheel. Figs. 6, 7, 8, 9, 10, and 11 are views in perspective of detached portions of the mechanism hereinafter described.

A represents a section of the car-floor, B the car-wheels, and C the pinch-bar.

D is a rock-shaft journaled in suitable brackets depending from the car-floor. A lever, *d*, is rigidly secured to the shaft D, and curved as shown in Figs. 1 and 6, to avoid the brake-rods, (not shown,) and is pivoted to the connecting-rod E, that in turn is pivoted to the hand-lever *e*, usually arranged to be operated from the platform of the car.

F is an arm secured to the shaft D, and connected by the link *f* with the pinch-bar, as shown in Fig. 1.

G is a depending arm pivoted on the shaft D, and is pivoted at the lower end to the sleeve *g*, through which passes the rod *g'*, and secured thereon usually by a set-screw, by means of which the rod may be adjusted endwise in

the sleeve. The other end of the rod *g'* is pivoted to the pinch-bar, as shown.

A spring, H, is attached near the lower end of the arm G or to the sleeve *g*, as may be preferred, and the other end is attached to any suitable support, usually the car-truck frame. The tension of this spring tends to draw the pinch-bar toward the wheel.

I is a spring attached to the pinch-bar, usually about midway of the bar, or as near the point thereof as it can conveniently be located without interfering with the other mechanism. The upper end of this spring terminates in a screw-bolt, *I'*, and usually passes up through the car-floor and through the support *i*, and is provided with a thumb-nut, *i'*, for adjusting the tension of the spring. A short arm, J, is rigidly attached to the shaft D, and is located by the side of the arm G, and has a laterally-projecting toe, *j*, that extends in front of the arm G.

K is a guide-wheel pivoted in the hanger L, that is suspended from the bottom of the car, and is made adjustable by a slot, K, through which passes the bolt for pivoting the wheel. This wheel limits the upward movement of the pinch-bar when it is drawn back, and guides the bar as it is thrust forward to engage the rail and wheel. Any other stop would answer; but the wheel causes little friction.

The operation of the device is as follows: When the hand-lever *e* is in the position shown in dotted lines, the parts *d*, F, and J are swung to the left, and near the extreme of their throw in this direction the toe *j* engages the arm G and swings it in the same direction, and this movement, by means of the rod *g'*, draws the point of the pinch-bar back from the wheel, and the spring I elevates the point of the bar as far as the guide-wheel K will admit, so that with this position of parts the point of the pinch-bar is suspended, and is in position a short distance, respectively, from the rail and wheel.

When it is desired to start the car, the operator draws the hand-lever to or toward the position shown in solid lines. This movement of the parts first relieves the arm G, that, actuated by the spring H, forces the point of the pinch-bar between the rail and wheel. This occurs with the first part of the movement of



the hand-lever to the left hand, and as this movement continues the arm *F* and link *f* depress the other end of the pinch-bar and start the car, this movement of the bar being substantially the same as when the bar is operated by hand. By a quick succession of movements of the lever *e* the motion of the car may be continued and even accelerated to a considerable speed.

It is well known that it requires much greater motive power to overcome the inertia and start a car than it does to continue the movement after the car is once started. This mechanism may be employed to assist in starting the car; or the car may be set in motion by this means and the motive power applied after the car is started.

I have chosen to illustrate this device in connection with an ordinary street-car; but it may be applied to any kind of cars that are operated by horses or other motive power.

Another set of mechanism, arranged in reverse position, to operate a wheel on the axle on the other side of the car from the other platform, may be used to start in the other direction.

If required, as would be the case with the ordinary freight-car, the hand-lever might be located on top of the car and the connecting mechanism attached thereto.

In many cases the motive power is not sufficient to start the cars, but would be ample to draw the cars after they are once started. In

the case of street-cars that are drawn by horses the driven car relieves the horses of much of the hardest part of their labor by operating the pinch-bar to start the car as aforesaid. 35

What I claim is—

1. In a car-starter, the combination, with a pinch-bar and devices connected to the rear end of said bar for imparting the necessary movements thereto, of a spring-actuated rod connected to the pinch-bar near its lower end for drawing the pinch-bar forward between the wheel and rail, substantially as set forth. 40

2. In car-starting apparatus, a pinch-bar to engage the rail and wheel in the usual manner of pinch-bars, a hand-lever or equivalent device, and connecting mechanism for operating the pinch-bar from a desired location on the car, a spring for elevating and a guide-wheel for limiting the elevation of the pinch-bar, a spring for drawing the pinch-bar forward to engage the rail and wheel, and suitable mechanism operated automatically from the said lever to draw the pinch-bar from its engagement with the rail and wheel, substantially as set forth. 45 50 55

In testimony whereof I sign this specification, in the presence of two witnesses, this 17th day of February, 1885.

ROBERT W. THOMPSON.

Witnesses:

CHAS. H. DORER,  
ALBERT E. LYNCH.