W. JASPER.

CAR-STARTER.

No. 189,227. Patented April 3, 1877.

Fig. 1.

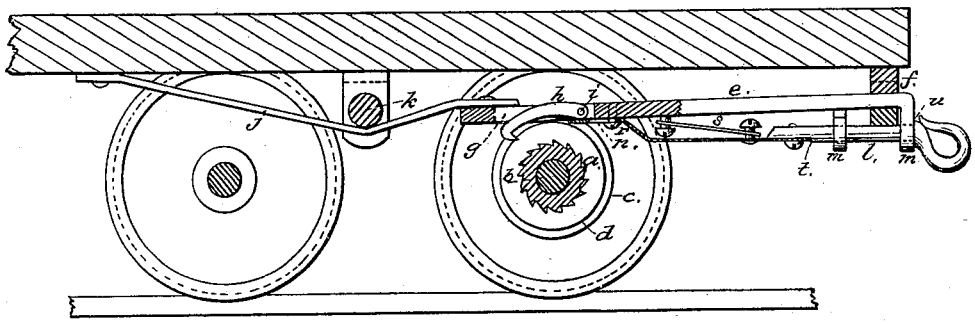


Fig. 2.

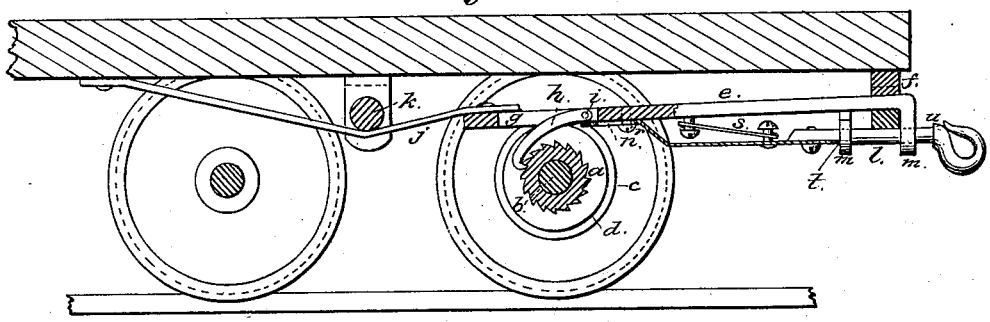


Fig. 3.

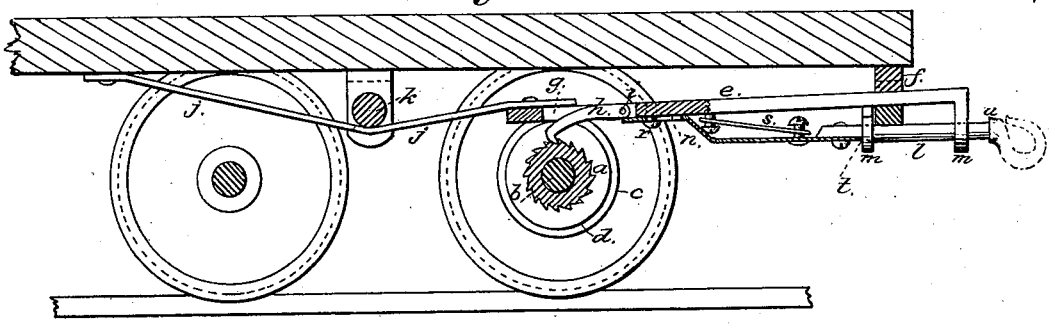


Fig. 4.

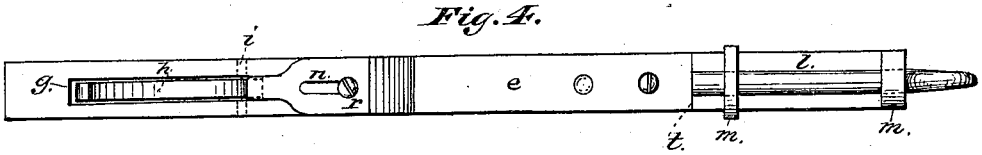
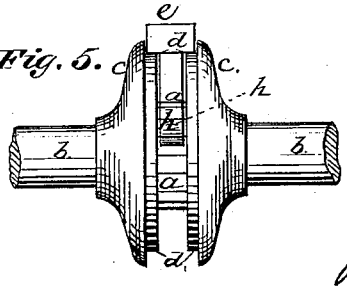


Fig. 5.



Witnesses:

Floyd Norris.

R. S. Grant.

Inventor:

Wilhelm Jasper.

by his Attys

Johnson and Johnson

UNITED STATES PATENT OFFICE.

WILHELM JASPER, OF MORRISANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN C. KELLEY, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **189,227**, dated April 3, 1877; application filed March 8, 1877.

To all whom it may concern:

Be it known that I, WILHELM JASPER, of Morrisania, in the county of New York and State of New York, have invented certain new and useful Improvements in Car-Starters, which improvements are fully set forth in the following specification and accompanying drawings.

My object is to produce an effective, simple, and durable device for starting street-railroad cars, and thereby relieve the heavy strain upon the horses in starting the cars at the frequent stoppings. Many plans have been devised in which ratchet-wheels and pawls have been employed under different arrangements, and operated to turn the car-wheels by the draft of the horses; but, so far as I know, my invention differs from all others in the particulars of the employment of a slide-bar having a pivoted hook, and adapted to ride, upon annular shoulders formed upon disks fixed on the axles of the car, in a manner to bring the hook into action with an upward and forward pull upon a ratchet-wheel, also fixed upon said axles, between the disks, and start the car upon the forward movement of the slide-bar, which is effected by the pull of the horses.

The hook is hung so as to fall in position for action by its weight the moment the draft-bar is moved forward. The draft-bar is combined with the slide-bar and the pivoted hook in such manner as to act upon the pivoted end of the hook, and elevate its hook end when the car is at rest, and maintain it in position to drop down and catch into the ratchet-wheel when the horses are started.

For this purpose the acting end of the hook has a considerable downward curve with a hook end, so as to reach down and take into the ratchet-wheel at a point in line, or nearly so, with the axis of said wheel, so as to allow said hook to have an upward force, and close within the slot of the slide-bar when the latter has reached its full forward movement, to bring the hook end at the top of the ratchet-wheel. A spring connecting the draft-bar with the slide-bar operates to draw the former back to hold up the hook in working position when the car stops, while the slide-bar is drawn back at the same time by a spring connecting it with the bottom of the car, and which acts to hold the inner end of the slide-bar in place upon the shoulders of the revolving disks.

Referring to the drawing, Figure 1 represents a vertical longitudinal section of so much of the truck of a street-railroad car as illustrates the application of my invention, the starting devices being in the positions they occupy when the car is at rest; Fig. 2, a similar section, the hook and draft-bar being in the positions they occupy at the moment of starting the car; Fig. 3, a similar section, the starting and draft devices being in the positions they occupy when the car is under way; Fig. 4, a bottom view of the hook end of the slide-bar; and Fig. 5, a rear view of the starting device.

A ratchet-wheel, *a*, is secured fast upon the middle of each axle *b*, between two disks, *c c*, of suitable diameter, which are also fast thereon, and having on their interior faces annular shoulders *d d*, near their circumference, and upon which the inner end of a horizontal slide-bar, *e*, rests, and moves back and forth between the disks, which, for this purpose, are of considerable greater diameter than the ratchet-wheel.

The front end of the slide-bar *e* is held in a guide-bracket, *f*, secured to the under side of the end of the platform, while the rear end of said slide-bar has a longitudinal slot, *g*, within which is pivoted a hook or pawl, *h*, its pivot *i* being at or near its front end, and its hook being at its rear end, and having a considerable downward curve terminating in said hook. The hook is free to rise and fall upon its pivot in the slot, and it is of a length to adapt it, when down, to bring its hook end over and behind the ratchet between the disks, at a point nearly on a line with the axis of the axle, so that the force of the hook, when engaged with the teeth of the ratchet, will be upward and forward, to turn the wheels as the slide-bar is drawn forward. In such movement the hook rises in its slot as the ratchet is turned by it.

The slide-bar is connected at its rear end to the car-bottom by a spring, *j*, which constantly tends to draw said bar backward, and

the spring, by passing beneath a roller, *k*, holds the bar down upon the disk-shoulders *d*, and between the disks *c c*, which form a guide-way for said slide-bar.

The draft-bar *l* is carried by the slide-bar, being fitted in downward projecting lugs *m m* so as to have a sliding movement therein.

The rear end of the draft-bar is reduced in thickness by a riveted plate, or otherwise, and has a short lengthwise slot, *n*, through which a pin, *r*, passes to hold it in place. This end of the draft-bar passes under, and in contact with, the front or pivoted end of the hook, and its function is to elevate said hook, and maintain it in such position when the car is at rest, and allow it to drop down into action, when the draft-bar is drawn forward by the horses, as shown in Fig. 2. For this purpose the draft-bar has sufficient movement to pass under and raise the hook, and to be withdrawn therefrom to let the hook down. In the former position the car is at rest, and the draft-bar is drawn back by a spring, *s*, connecting it with the slide-bar. This movement of the draft-bar is independent of the slide-bar, and is simply to put the hook in position for acting upon the ratchet-wheel, and to hold it out of such position. A shoulder, *t*, on the draft-bar, when the horses draw it forward, strikes against the inner projecting lug *m* of the slide-bar, and both bars are drawn forward with the hook *h*, causing it to pull upward and forward upon the ratchet-wheel, and thus turn the car-wheels, and give the car a movement before the lug *m* strikes the guide-bracket *f*, by which the car is drawn by the direct pull of the horses, which are attached to the draft-bar.

The slot *n*, or a shoulder, *u*, on the front end of the draft-bar, limits its backward movement, while the front lug *m*, striking said guide-bracket *f*, limits the backward movements of the slide-bar and of the draft-bar which it carries.

The disks may be made fast to the ratchet-wheel, and secured to the axle by flanges, in any proper way. In fitting the device to new cars, these parts may be keyed fast to the axle; but in applying the device to old cars, the disks are made in two parts, with flanges, and then brought together and secured by bolts, and keyed fast to the axle.

Both ends of the car are provided alike with the starting device.

I claim—

1. The combination, with the ratchet-wheel *a* and the slide-bar *e*, having a pivoted hook, *h*, adapted for operation with said ratchet-wheel, as described, of the axle, disks *c c*, and their annular shoulders *d d*, whereby to form a support and guideway for the inner end of said slide-bar.

2. The combination, with the ratchet-wheel *a*, the slide-bar *e*, and its pivoted hook *h*, of the draft-bar *l*, having a movement independent of the slide-bar, and an extension to pass under and elevate the hook, as herein set forth.

3. The combination, with the slide-bar, its hook, and the ratchet-wheel disks, of the spring *j* and the roller *k*, as and for the purpose described.

4. The combination, with the slide-bar and its pivoted hook, arranged to operate in relation to the ratchet-wheel as described, of a draft-bar having a movement independent of the slide-bar, and the spring *s*, as and for the purpose herein set forth.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

WILHELM JASPER.

Witnesses:

HENRY BERGE,

FRANK VINTEN.