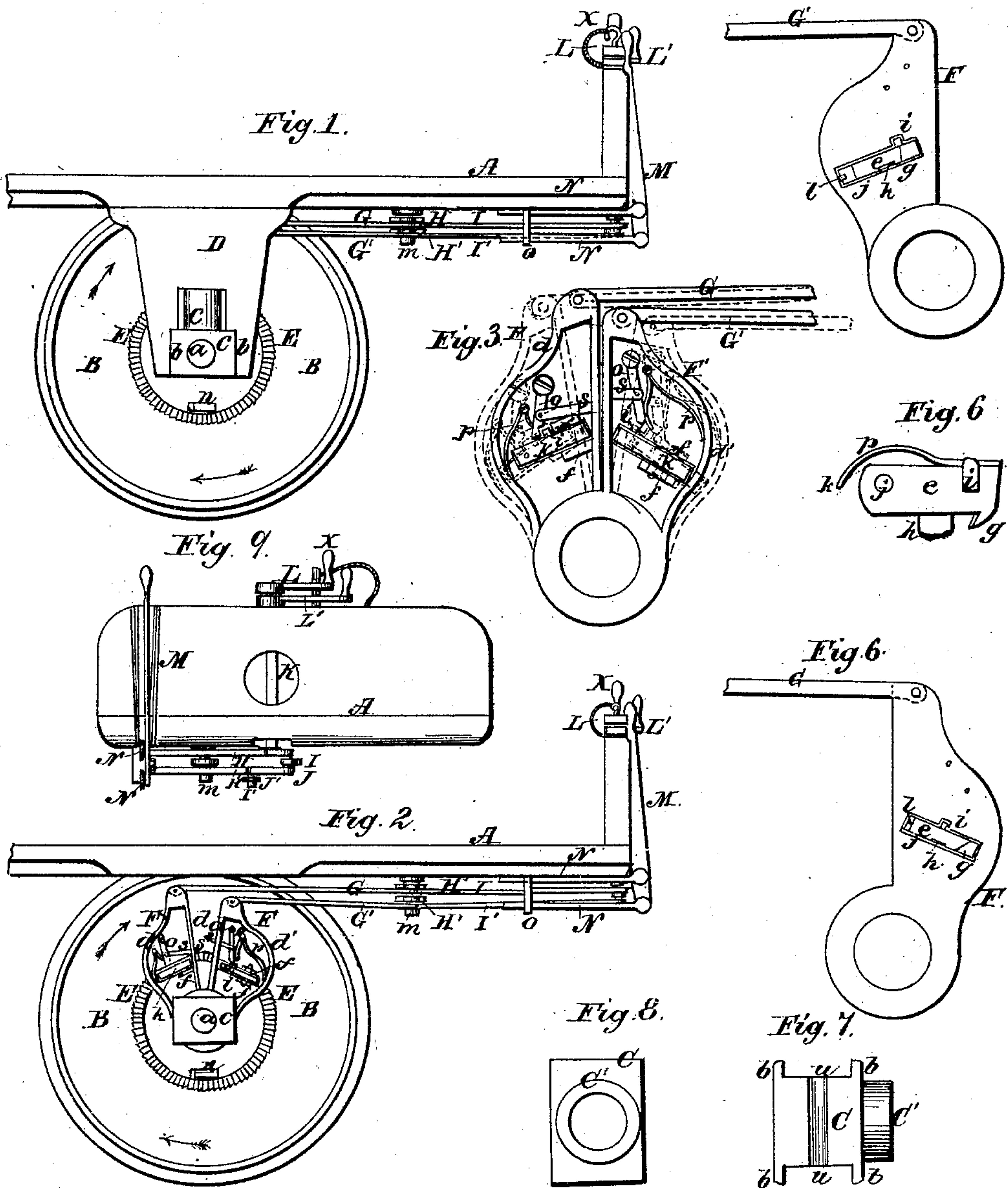


A. CARY.
Car Starter.

No. 34,199.

Patented Jan. 21, 1862.



Witnesses:
John P. Jacobs
J. H. Dodge

Inventor:
Hanson Cary
By his attorney
Thos. C. Dodge

UNITED STATES PATENT OFFICE.

ALANSON CARY, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN STARTING APPARATUS FOR HORSE-RAILROAD CARS.

Specification forming part of Letters Patent No. 34,199, dated January 21, 1862.

To all whom it may concern:

Be it known that I, ALANSON CARY, of Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Horse-Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a side view of my improvements applied to the front of a car. Fig. 2 represents a similar view with the hanger removed to show the parts more fully. Figs. 3, 4, 5, 6, 7, 8, and 9 represent detached parts on an enlarged scale, except Fig. 9, to illustrate more fully the character and operation of said improvements.

In the operation of cars by horses there has always been experienced a great difficulty in starting the cars readily, especially when heavily loaded and when horses are used that are at all inclined to be restless or fractious. The evils, annoyances, delays, and accidents resulting from the difficulty above referred to are so well understood that there is no necessity of referring to them in this connection, and therefore I will only add that the object of the present invention is to remedy and remove such difficulties and objections by so combining with each car a starting apparatus to be operated by the driver or other attendant, as to enable the horses to start off with the car with ease and celerity.

Only so much of a car is shown in the drawings as is necessary to illustrate my invention.

In the drawings, A represents the front bottom part of a car with a wheel B under each side and fastened on a common axle-tree, one of its ends being seen at *a* in Fig. 1 and 2, where it enters and passes through a box C, provided with flanges *b b* to slide up on the sides of the hanger D, which is fastened to the under side of the car and projects down, with its lower end slotted out for the reception of box C, as shown in the drawings. A rubber spring *c* is inserted between box C and the hanger D in the usual manner.

On the face or side of one of the wheels which supports the front of the car is cast or otherwise formed a ratchet-wheel E, while

the inner side of box C is cast or formed with a circular or round projection C' to receive and sustain the dog-levers F F', as indicated in the drawings. The lower hub ends of dog-levers F F' are finished off on their lower inner sides and fit together like a rule-joint, so that when brought together they are flush on their sides like the folded ends of a rule. These dog-levers have flanges *d d'* on their outer sides, as fully seen in the drawings, while between the flanges of each dog-lever is pivoted a dog *e*, the latter being pivoted between ears *f f*, cast on the outer sides of dog-levers. Each dog has a hook *g*, an inner projection *h*, and a side projection *i*. (See Fig. 6, which is a side view of one of the dogs.) These dogs are so hinged as to be free to work back and forth in slots cut entirely through the dog-levers. (See Figs. 4 and 5, which represent dog-levers F F', turned over and separated, with their respective dogs projecting through to the opposite side from that on which they are hinged, and where they are kept, when left free to turn on their pivoted ends *j*, by means of springs *k*, fastened at one end to said dogs and resting at the other end *k'* against a pin or projection *l* in the dog-levers F F'.)

The upper ends of dog-levers F F' are coupled with the rear ends of connecting-rods G G', whose front ends are hinged to the outer ends of two arms H H', which turn at their centers on a journal *m*, fastened to the bottom of the car, while their inner ends are connected by means of rods I I' to cranks J J' on the lower end of a spindle which passes up through a hollow tubular shaft K, supported in proper bearings in the front of the platform of the car. The upper end of this spindle is provided with a hand-crank L fastened thereto, while a similar hand-crank is fastened to the upper end of the tubular shaft K, so that either crank, together with its respective shaft, can be operated independently of the other.

It will now be observed that if the driver takes hold of the hand-crank L and turns it, a reciprocating motion will be imparted to the dog-levers F F', whose dogs *e e*, with their hooks *g g*, will slip over the ratchet-teeth on the side of wheel B as they move

back, but whose hooks *g g* will catch into said teeth as they move forward, and thus the wheel is moved or turned in the direction of the arrows in Figs. 1 and 2 of the accompanying drawings, whereby the car is started, so that all the driver has to do is to give the crank *L* a few turns just before or at the time of starting his horses or team in order to put the car in motion before the horses have time to exert their full strength on the car, thus avoiding their strength being exerted on a "dead-weight."

In order to avoid the constant clicking of the hooks or catches *g g* of the dogs *e e* on the ratchet-teeth on wheel *B* after the car has been put in full motion, a cam *n* is fastened to the side of wheel *B*, as fully seen in the drawings, which, as the wheel revolves, comes under the inner projections *h* on dogs *e e* and forces them back clear of the ratchet-teeth on wheel *B*, and so that the side projections *i i* will be forced out far enough to permit the lower ends of hinged stops *o o* to swing under them, and thus prevent them from being forced back against the ratchet-teeth by their springs *k* after cam *n* has passed. The stops *o o* are hinged at their ends to the dog-levers *F F'*, and are forced under projections *i i* whenever the latter are raised or forced out sufficiently by means of springs *p p*, fastened to the outer sides of the dog-levers, as indicated in the drawings. To insure the instant action of the dogs on the ratchet-teeth when desired, unlocking-pins *s s* are hinged or otherwise properly fastened to the hinged stops *o o* at one end, while their other ends project through the inner flanges on the dog-levers *F F'*, as seen in Fig. 2. Consequently, whenever the dog-levers are brought together, as seen in Fig. 3, (black lines,) by the action of cranks *J J'*, said unlocking-pins *s s* are forced back, together with the hinged stops *o o*, as seen in Fig. 3, thus allowing dogs *e e*, with the hooks or pawls *g g*, to come in contact with the ratchet-teeth on wheel *B* again. In Fig. 3 the dog-levers are shown in two positions, one in black lines and the other in red.

It will thus be seen that the device is automatic in many of its operations, and that in consequence thereof all noise, wear, and rattling of the parts when the car is in full motion is obviated, and yet the construction is such that whenever the driver takes hold of the hand-crank *L* and turns it a part of the way round all of the parts are brought into play. It will also be noticed that the dog-levers turn on the tubular projection *C'* of the box *C*. Consequently there is no friction of said levers on the axle to which the main supporting-wheels are fastened. The lower side of the box *C* is grooved out, as seen at *u*, to permit of the insertion of a pin through hanger *D* at the bottom and below box *C* to keep the parts in proper place.

The dog-levers *F F'* might be operated by a hand-lever hinged to the front of the car so as to have only a reciprocating motion, as

seen at *M*, in which case the rods *N N*, which pass through a guide *O*, might be extended so as to connect directly with the dog-levers *F F'*, the same as connecting-rod *G G'*. The action of the dogs on wheel *B* is alternate—that is, when one dog is moving the wheel the other is moving back to take a new hole.

The tubular shaft *K* is designed to be used to operate the brakes, any proper connection being formed with it and the latter, when the driver, by taking hold of its cranks *L'*, can wind up the brake-chain on the body of *K*, a hole being cut out of the guard for that purpose, as seen in Fig. 9, which is a front view of a portion of the car.

When the car is stopped on going up an incline, the dog-levers *F F'* may be operated and thus lock the wheels by letting dogs *e e* take into the ratchet-teeth on wheel *B*.

In order to prevent breaking of the parts when the car is going in an opposite direction, it is necessary that the hand-crank *L* should be fastened, and one mode of effecting this is shown in the drawings, and consists in passing a pin *X* through a hole in said crank-arm and then into the fender-board on the front of the platform, the pin being connected to said board by a chain or cord to prevent its being dropped or lost. In fastening crank *L* its position should be such as not to bring the dog-levers *F F'* close together, as seen in black lines, Fig. 3, but open, as seen in Fig. 2, in order to allow the hinged stops *o o* to catch under the projections *i i* on the dogs *e e*, as before explained.

Having described one mode of applying my said improvements to use, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with one of the wheels on the axle-tree of a rail-car of a ratchet-wheel *E* or its equivalent, and two dog-levers *F F'*, provided with dogs or moving pawls, substantially as and for the purposes set forth.

2. The combination of a ratchet wheel or device fast to one of the wheels of a rail-car, as set forth, and a suitable pawl device suspended so as to be free to vibrate or oscillate around the axis of said wheel, with suitable mechanism so constructed and combined with the body and platform of the car as to enable the driver to start the car while attending to his team at the front of the car, for the purposes set forth.

3. The peculiar construction and relative arrangement of dog-levers *F F'*, whereby the pawls and stop devices are well protected by their flanges *d d'*, and whereby one is made to fit and work against the other like a rule-joint and operating-levers *G G'* are brought one over the other, as shown.

4. Operating the dog-levers *F F'* by means of the hand-crank *L* at the front of the car, substantially as shown and described.

5. The mode of throwing the operating-dogs in and out of action with the ratchet-teeth, substantially as described.

6. Forming the operating-dogs *ee* in the peculiar manner set forth, and as shown in Fig. 6 of the accompanying drawings.

7. The combination of the dog-levers *F F'* with the tubular projection *C'* of box *C*, whereby all friction and wear of the parts when the starting device is not in operation is avoided, as described.

8. The combination of the tubular brake-shaft *K*, with its hand-crank *L'*, and hand-

crank *L*, with its central shaft, with the fender-board on front of the car, substantially as described.

In witness whereof I have hereunto subscribed my name.

ALANSON CARY.

In presence of—

W. A. WILLIAMS,
HENRY A. R. MOEN,
JONATHAN DAY.