

J. G. THOMPSON.

Car-Starters.

No. 145,600.

Patented Dec. 16 1873.

Fig. 1.

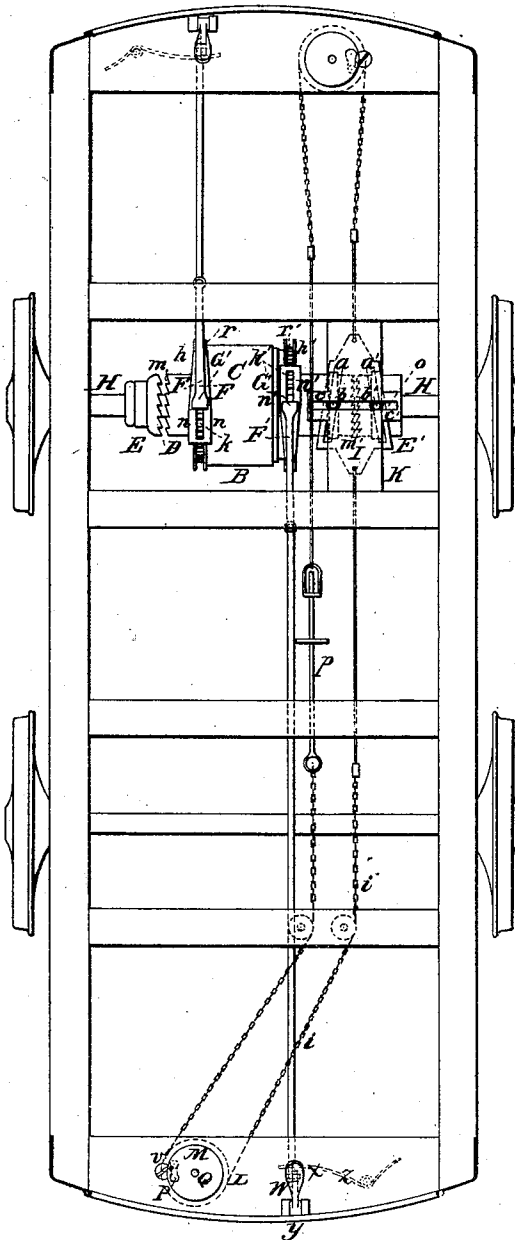


Fig. 2.

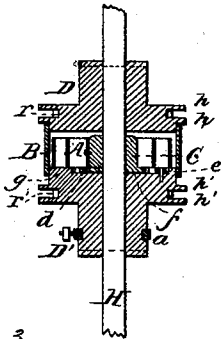


Fig. 3.

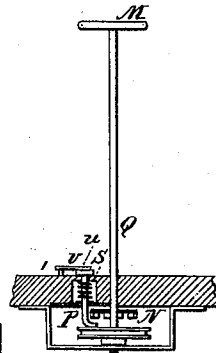


Fig. 4.

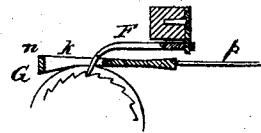


Fig. 5.

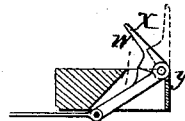
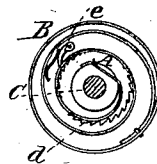


Fig. 6.



Witnesses.

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Inventor.

Justin G. Thompson

UNITED STATES PATENT OFFICE.

JUSTIN G. THOMPSON, OF STOCKTON, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO FREDERICK M. BRIGGS, OF SAME PLACE.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **145,600**, dated December 16, 1873; application filed May 20, 1873.

To all whom it may concern:

Be it known that I, JUSTIN G. THOMPSON, of Stockton, in the county of Chautauqua and State of New York, have invented certain Improvements in Car Brakes and Starters, of which the following is a specification:

The first part of my invention relates to the combination of a coil spring with cylinders and barrel or other similar device, in such a manner that rotary motion is imparted, as desired, first, by the uncoiling of the spring in the same direction as the power moves which coils it, by causing the spring to uncoil from the opposite end from that by which it is coiled, or, second, in the opposite direction from that in which the power moves which coils the spring, by causing the spring to uncoil from the end by which it is coiled. The second part of my invention relates to the combination, with the coil-spring and hollow cylinders and barrel, of the axle and body of a street or railroad car, in such a manner as to act as a brake and starter, to use the power stored up in braking to operate in starting the car.

Figure 1 is a perspective view of the upper side of a car embodying my invention. Fig. 2 is a sectional view of the barrel, inner end of the coil-spring, smaller cylinder with its ratchet and dog, and larger cylinders with their clutches and ratchet-wheels, out-projecting flanges, and their relation to the axle. Fig. 3 is a view of the pulley, crown-wheel, dog, spiral spring, disk, and button, used for moving and retaining the double-slotted wedge. Fig. 4 is a view of the slotted wedge and the pawl upon which it operates, showing their relation to each other. Fig. 5 is a vertical section of the step and lever used in moving the slotted wedge. Fig. 6 is a vertical transverse section of the barrel-spring and smaller hollow cylinders.

A is a coil-spring, fastened at its inner end to the hollow cylinder C, and at its outer end to the barrel B. The barrel B is securely attached to the ratchet-wheel *r* at one end, and at the other end is a flange projecting inward, so as to clasp the flange *g* upon the hollow cylinder D', in such a manner as to move the hollow cylinder D, with the hollow cylinder D', longitudinally upon the axle H, but to allow the hollow cylinders D and D' to revolve upon

the axle H independently of each other. The hollow cylinder C, upon which the coil-spring A is wound, is provided with a ratchet, *d*, which receives the dog *e*, in such a manner as to cause the hollow cylinder C to revolve upon the axle H with the hollow cylinder D', when the coil-spring A is being wound up, but allows the hollow cylinder C to move in the opposite direction independent of the movement of the hollow cylinder D'; thus avoiding the danger of breaking the inner end of the coil-spring A by the recoil following its rapid uncoiling. The hollow cylinders D and D' are provided at the inner end of each, respectively, with ratchets *r* and *r'*, each ratchet-wheel having flanges *h h* and *h' h'*, respectively, projecting sufficiently to allow the points of the pawls F and F' to work freely between them. At the inner end of the hollow cylinder D' is a depression, *f*, sufficiently deep for the reception of the ratchet *d* and the dog *e*. Upon the outer ends of the hollow cylinders D and D' are clutches, which match with corresponding clutches E and E', which are securely fastened to the axle H. *a* and *a'* are movable collars upon the hollow cylinder D' and the clutch E', respectively. From each of the collars *a* and *a'*, pins *b* and *b'* project upward, which receive the friction-rollers *c* and *c'*, and are supported at the upper end, in the slot *o*, by the slotted projection K from the under side of the car. I is a double-slotted wedge operating upon the friction-rollers *c* and *c'*, in such a manner as to move the hollow cylinders D and D' longitudinally upon the axle H, thus throwing them in and out of gear with, or holding them midway between, the clutches E and E', as desired. G and G' are slotted wedges operating upon the flanges *h h* and *h' h'*, respectively, and beneath the lips *n n* and *n' n'* of the pawls F and F', respectively, in such a manner as to detach the points of pawls F and F' from the ratchets *r* and *r'*, respectively, or allow them to fall in position, as desired. The points of the pawls F and F' pass through the slots *k* and *k'*, and between the flanges *h h* and *h' h'*, respectively, in such a manner that they are moved sidewise by the flanges in the movement of the hollow cylinders D and D' longitudinally upon the axle H, thus maintaining their relative position with the ratchets *r* and *r'*.

The devices at the two ends of the car are substantially alike; hence a description of one suffices for both.

The double-slotted wedge I is operated by the chain *i*, attached to the pulley L upon the shaft Q, so as to be operated by the driver or brakeman. N is a crown or ratchet wheel upon the shaft Q, with ratchets upon the under side to receive the arm of the dog P. The dog P is thrown into the ratchets by the spiral spring *s*, and, when not required to be used, is thrown down and held by the button *v* over the disk *u*. X is a lever for working the slotted wedge G by means of the connecting-rod *p*. This lever is moved forward by the step W, which articulates with it by a hinge-joint, in such a manner that, when the lever is thrown forward, the step rests upon the platform of the car, and, when not in use, the step is raised against the dash-board, so as to be out of the way while the device is being operated from the other end of the car. The lever X is thrown backward by the spring *z*.

My invention is operated by the driver or brakeman from the forward end of the car, the dog P at the rear of the car being depressed and secured by the button *v*.

When it is required to stop the car, the double-slotted wedge I is moved by the pulley L and chain *i*, in such a manner as to throw the hollow cylinder, D or D', in gear to the right-hand clutch, thus allowing the coil-spring A to wind up by the rotation of the axle H, the pawls F and F' retaining the coil.

When it is required to start the car, the hollow cylinder, D or D', is thrown in gear to the left-hand clutch by means of the double-slotted wedge I, and by pressing the foot upon the step W the point of the pawl F' is detached from the ratchet *r'*, thus allowing the coil-

spring A to uncoil, imparting forward rotary motion to the axle H and car-wheels.

My invention is operated alike from either end of the car, and works equally well in either direction.

I claim as my invention—

1. The combination of the coil-spring A, barrel B, hollow cylinder C, hollow cylinders D and D', and the axle H, substantially as and for the purpose set forth.

2. The combination of the coil-spring A, the hollow cylinder C with its ratchet *d*, the hollow cylinder D', and the dog *e*, substantially as and for the purpose set forth.

3. The combination of the double-slotted wedge I, collars *a* and *a'*, pins *b* and *b'*, and friction-rollers *c* and *c'*, substantially as and for the purpose set forth.

4. The combination, with the coil-spring A, barrel B, hollow cylinder C, and the hollow cylinders D and D', of the clutches *m* and *m'* and E and E', substantially as and for the purpose set forth.

5. The combination of the slotted wedges G and G', pawls F and F', ratchets *r* and *r'*, and the flanges *h h* and *h' h'*, substantially as and for the purposes set forth.

6. The combination, with the double-slotted wedge I, of the chain *i*, pulley L, crown-wheel M, dog P, spiral spring *s*, button *v*, and shaft Q, substantially as and for the purpose set forth.

7. The combination of the lever X, step W, spring *z*, and the slotted wedge G, substantially as and for the purpose set forth.

JUSTIN G. THOMPSON.

Witnesses:

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