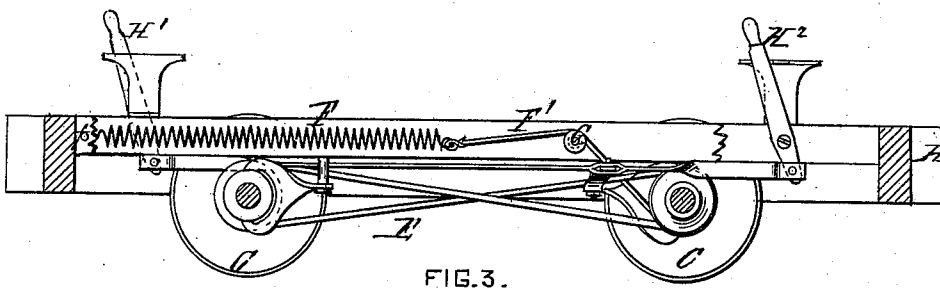
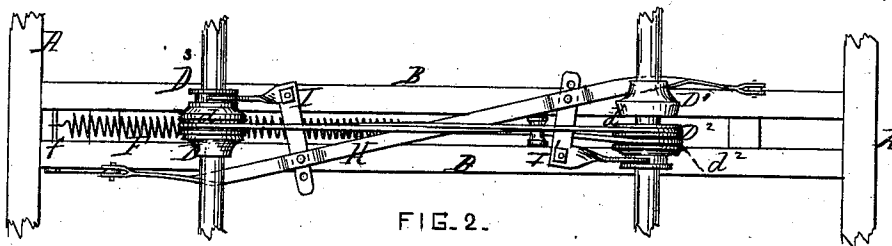
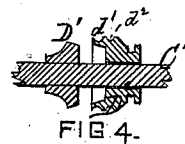
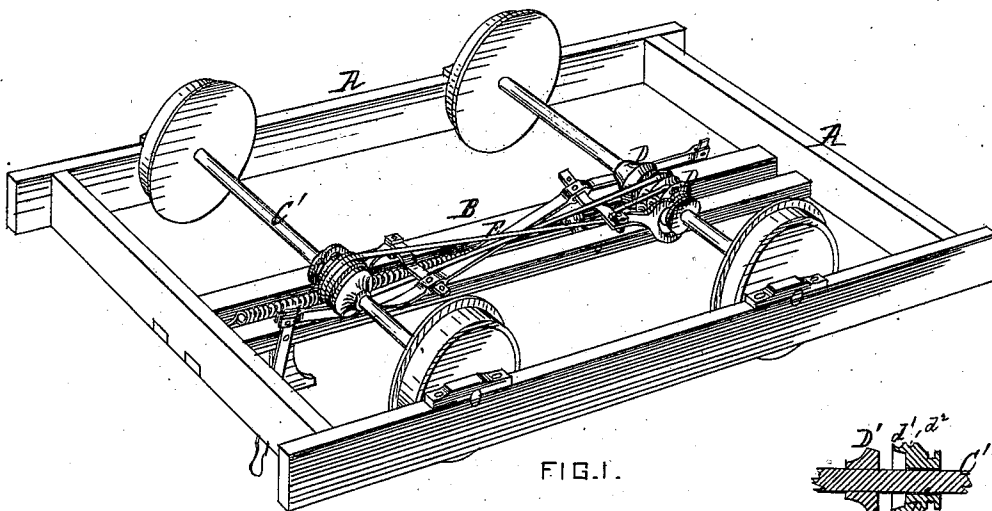


F. A. HULL.
CAR-STARTER.

No. 178,853.

Patented June 20, 1876.



WITNESSES.

Alex. Mahon
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UNITED STATES PATENT OFFICE.

FREDERICK A. HULL, OF BELVIDERE, ILLINOIS.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **178,853**, dated June 20, 1876; application filed June 21, 1875.

To all whom it may concern:

Be it known that I, FREDERICK A. HULL, of Belvidere, Boone county, State of Illinois, have invented certain new and useful Improvements in Car Brake and Starter, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, making part of this specification, in which—

Figure 1 is a perspective view of a car-truck, with my improved brake and starter applied. Fig. 2 is a bottom view of a portion of the frame. Fig. 3 is a longitudinal section of the car-truck, and Fig. 4 is a section of the friction-clutch, having the pulley connected, upon which the cord connected with the braking and starting spring is wound.

Similar letters of reference denote corresponding parts in all the figures.

The invention relates to a novel manner of combining the devices employed for starting a car with the devices for braking the same, whereby the action or movement of the brake in stopping the car is made to accumulate power for starting the same when the brakes are released, the details of construction for carrying the same into effect being herein-after explained.

In the accompanying drawing, A A' represent the side and end bars of the truck, and B B are girts placed midway of the width of the frame, and to which the devices for operating the brake and starter are connected. C are the wheels, and C' the axles. Upon each of these axles are mounted friction clutches or cones, the parts D D¹ thereof being rigidly secured to the axle, while the parts D² D³ are placed loosely thereon. The parts D² D³ are provided with grooves *d d'*, in which grooves an endless belt, E, runs, the one D² being also provided with a second groove or pulley, *d*², the purpose of which will be hereinafter explained. F is a coiled spring, which is connected at one end to a bolt or pin, *f*, at one end of the truck, said spring lying between the girts B B, and at its forward end has connected to it a cord or chain, F'. This cord passes over a pulley, G, and is connected to the part D² of the clutch in such manner as to wind in the groove or pulley *d*². The pulley G over which the cord

passes has its bearings in the girts B B. H is a rod, bent in such form as to pass across the girts, and is connected at each end with a lever, H¹ H², mounted upon opposite sides of the girts B B. I I' are clutch-shifters, which are connected to the rod H and engage with the loose part of the clutches for throwing said parts into and out of action with the stationary portion of the axle.

The shifters are connected to the rod H in such manner that only one clutch shall be thrown into action—that is, when one is thrown in the other is thrown out.

The levers H¹ H² may be provided with a suitable locking device, which should be so constructed that the movement of one lever unlocks the one at the opposite end.

The operation is as follows: When it is desired to stop the car, the operator moves one of the levers forward or back, it being immaterial which way, as either will throw one of the clutches into action, and said clutch, by means of the endless belt passing around the clutches, will cause the cord or chain to which the spring is connected to be wound around the pulley *d*², thus drawing upon the spring, which stops the car; then, when it is desired to start the car, the lever is thrown in the opposite direction, which brings the opposite clutch into action, and the part D² or D³ being released from frictional contact with the parts D or D¹ on the axle, the spring is contracted, which unwinds the chain and causes the part D² to turn on the axle, and, by means of the endless belt, motion is communicated to the opposite clutch, which has been thrown into engagement with the opposite axle, and, by its action, the wheels are caused to turn in the same direction as before, thus starting the car.

It will be seen that, by the construction above described, it is immaterial which end of the car is forward or which end the brake is operated from, as the cord is always wound on the pulley *d*² on the part D², in the direction in which the axle is rotated, the direction being reversed with the reversed movement of the car.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the clutches D D¹ D² D³, spring F, and cord F', of the endless belt E, all arranged and operating substantially as described.

2. The combination, with the clutch shifters I I', of the connecting-bar H and its actuating levers H¹ H², whereby either of the two friction-clutches D² D³, may be thrown into or

out of engagement with its axle from either end of the car, substantially as described.

This specification signed and witnessed this 5th day of June, 1875.

FREDERICK A. HULL.

Witnesses:

G. W. FORD,

CHARLES S. FORD.