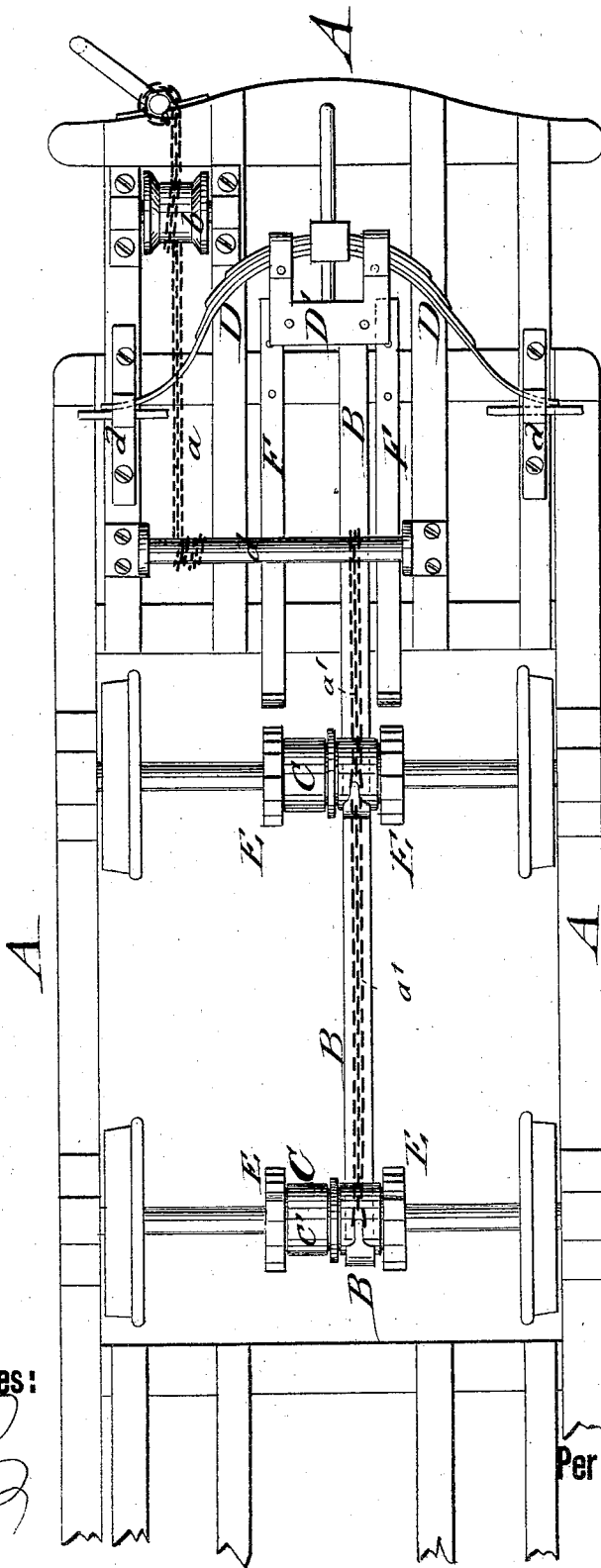


**W. GUILFOYLE.**  
**Car-Starters.**

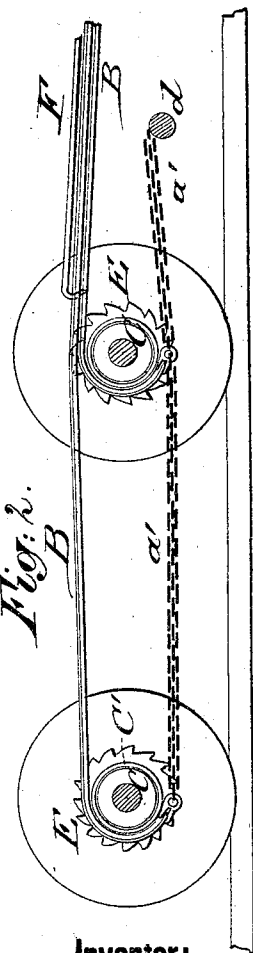
No. 149,392.

Patented April 7, 1874.

*Fig. 1.*



*Fig. 2.*



**Witnesses:**

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# UNITED STATES PATENT OFFICE.

WILLIAM GUILFOYLE, OF NEW YORK, N. Y.

## IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **149,392**, dated April 7, 1874; application filed February 14, 1874.

*To all whom it may concern:*

Be it known that I, WILLIAM GUILFOYLE, of the city, county, and State of New York, have invented a new and Improved Combined Car Brake and Starter, of which the following is a specification:

Figure 1 represents a bottom view of my improved car brake and starter attached to the bottom frame of a street-car; and Fig. 2 is a vertical longitudinal section of the same, showing the hook-shaped spring bars or pawls for engaging the ratchet-wheels on the car-wheel axles.

Similar letters of reference indicate corresponding parts.

The object of my invention is to furnish for street-railroads a combined brake and starter which is strong and durable in construction and very effective in action, as it assists the horses, to a considerable degree, in starting the car.

My invention consists of double drums with central or side ratchet-wheels, which are keyed to the axles of the car-wheels, and encircled by metallic springs or bands lined with leather, one end of said bands being connected to a heavy elliptic or other shaped spring, the other to a chain, which passes over a windlass-roller and pulley to the brake-shaft. Loose bands or shoes of the drums take off the friction and wear from the connecting-bands, and preserve the same thereby.

In the drawing, A represents the bottom frame of a street-car of the usual construction, which is provided at both ends with symmetrically-arranged brakes and starters. They are operated in the customary manner by the handles and ratchet-wheels at both platforms, and are connected, by chains *a a'*, to the ends of metallic springs or bands B, which pass around double drums C, keyed to the car-axles. Chain *a* passes from the brake-handle over a pulley or wheel, *b*, and then to a windlass bar or roller, *d*, around which it is wound by the action of the powerful elliptic or other shaped spring D, which is connected to the other ends of bands B. Chain *a'* is wound in opposite direction to chain *a* on roller *b*, and holds the bands B firmly stretched over drums C, so that they nearly encircle the same. Drums C are made double for the bands from the springs at both ends of the car, and provided with a central or two-side ratchet-wheel, E, also keyed to the axles. Loose

bands or shoes C' are placed around the surface of the drums C, and revolve with the same when not in use; but as soon as the brakes are applied they serve to take off the friction and consequent wear from the bands B, so that the whole wear is transferred to the shoes, which can be readily renewed from time to time, as required. The metallic bands or springs B are lined with leather or other suitable material, and pass from both drums C to a shoe, D', of spring D. The strong elliptic spring D is supported in side sockets or clips *d* below the platform, shoe D' being centrally attached to the same.

One or two spring bars or pawls, F, are riveted to shoe D', according as one or two drum-ratchets are used, and extended back far enough to engage the teeth of the ratchet-wheels when the brake is operated.

The operation of the combined brake and car-starter is as follows: When the brake is put on, it winds up the chains and tightens the bands on the drums, compressing also the mainspring. As soon as the brake is released, the hooks of the spring-pawls engage the ratchet-wheels, so as to turn, together with the pressure of the bands, the drums by the action of the mainspring, moving thereby the car-wheels and starting the car in forward direction.

The simplicity and strength of the various parts of this brake and starter, together with the use of an elliptic spring in place of the spiral springs hitherto employed, secure greater effect and durability, and assist thereby considerably the horses in starting the car.

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

1. The combination of the drums C and loose shoes C' with the frictional metallic bands B, mainspring D, and connecting brake-handle chains *a a'*, which pass over roller *d* and pulley *b*, for putting the brakes to the car, as set forth.

2. The combination of drums C and ratchets E, keyed fast on car-axles, and metallic bands B and chains *a a'* with the elliptic mainspring D and spring-pawls F, for the purpose of applying the brakes and starting the cars on the release of the same, as described.

Witnesses: WILLIAM GUILFOYLE.

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T. B. MOSHER.