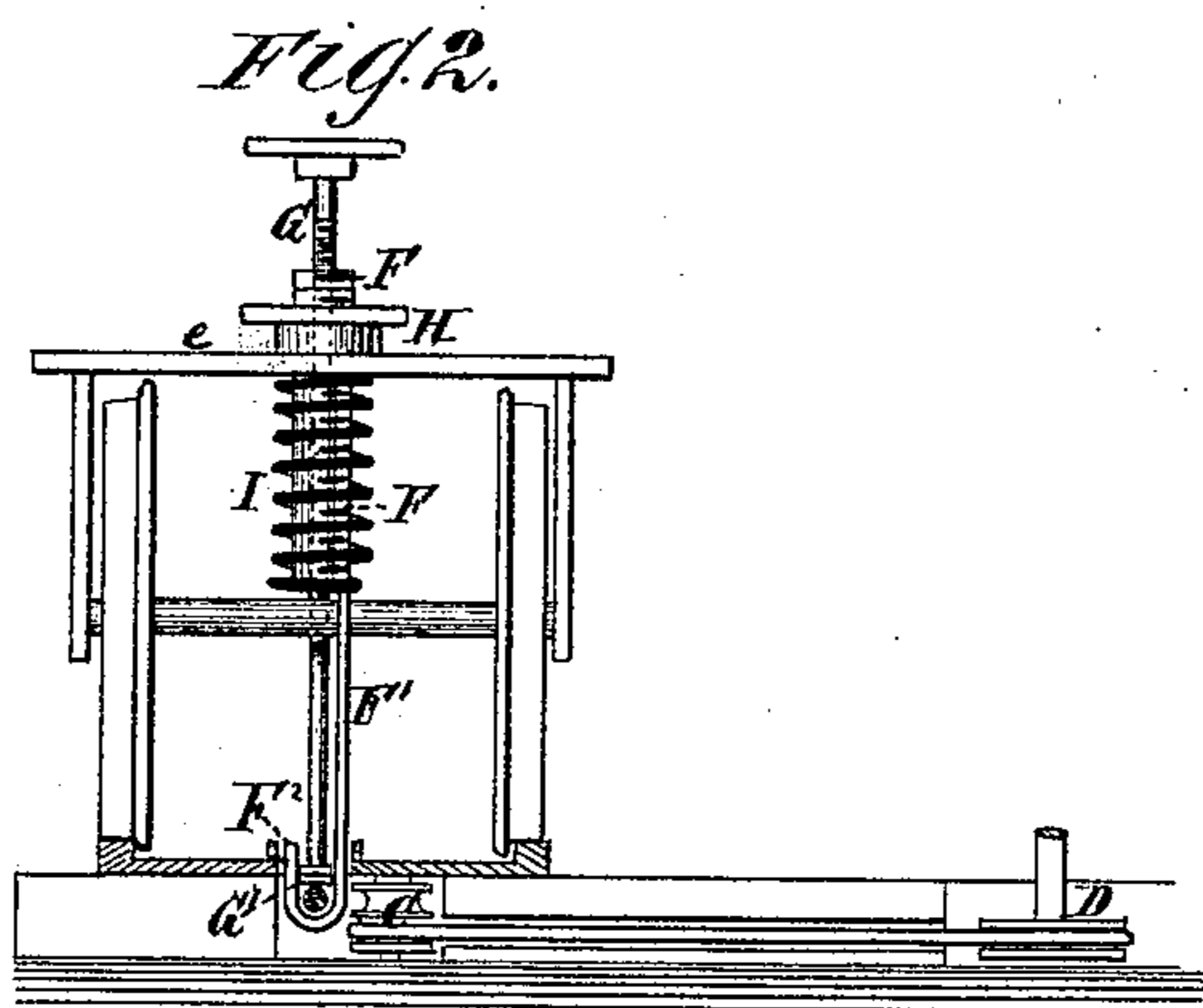
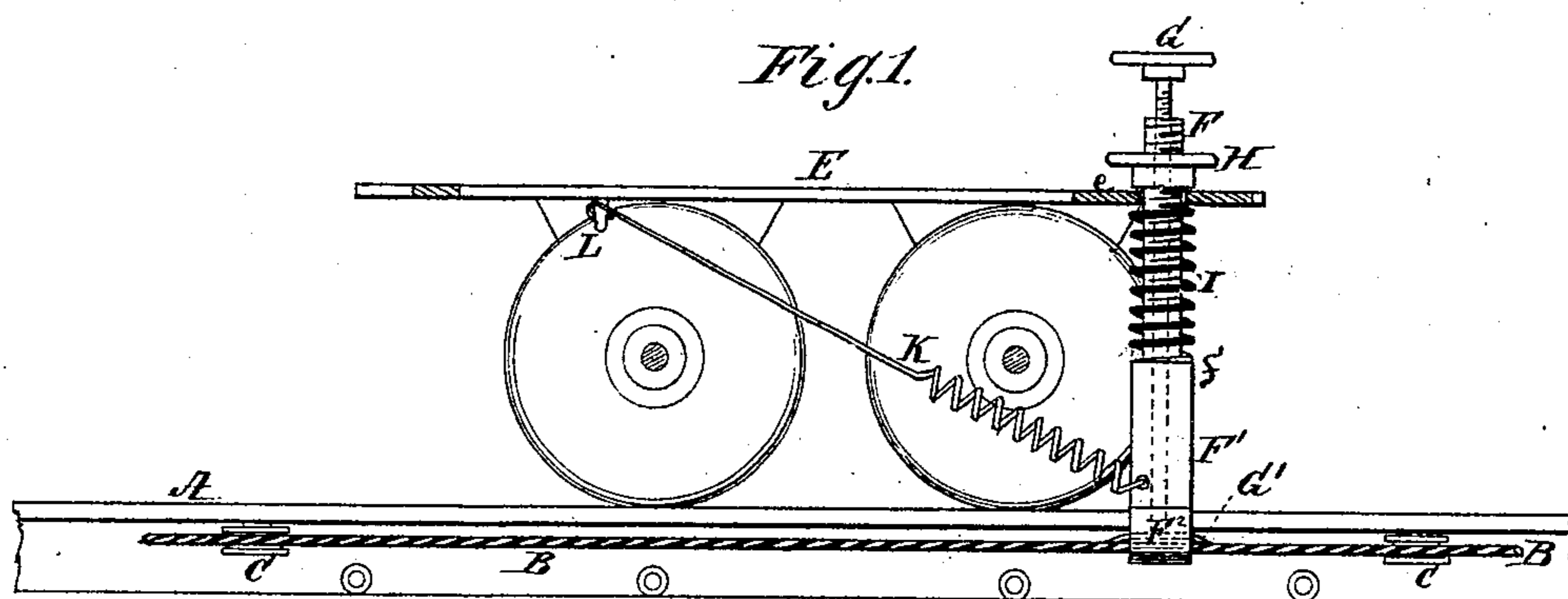


G. S. GRIER.  
Propelling Street-Cars.

No. 150,026.

Patented April 21, 1874.



WITNESSES:

G. Mathys.  
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INVENTOR:

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BY

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

GEORGE S. GRIER, OF MILFORD, DELAWARE.

## IMPROVEMENT IN PROPELLING STREET-CARS.

Specification forming part of Letters Patent No. **150,026**, dated April 21, 1874; application filed March 6, 1874.

*To all whom it may concern:*

Be it known that I, GEORGE S. GRIER, of Milford, in the county of Kent and State of Delaware, have invented a new and Improved Mode of Propelling Street-Cars; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a longitudinal, and Fig. 2 a transverse, section.

The invention relates to the well-known plan of propelling street-cars by means of an endless chain or rope placed below the cars or track, and actuated by friction-pulleys, sprocket-wheels, or spike-wheels, over which it is made to pass. These drive pulleys or wheels are themselves set in motion by steam or other power applied through ordinary connecting mechanism. My object is to render this mode of propulsion, which has heretofore been tried and deemed impracticable, easy of application and thoroughly effective.

The invention will first be fully described in connection with all that is necessary to a full understanding thereof, and then pointed out in the claims.

× A represents the tracks of a street-railroad, between which and below whose level is located an endless chain or rope, B, that runs on pulleys or wheels C, the latter being operated from a main drive-shaft, D. E is a street-car, through the end of whose platform loosely passes the socket F, threaded on the inside and outside, to receive, respectively, the screw G and graduating-nut H. This socket has the shoulder *f*, between which and the platform *e* of the car is located the encircling spiral spring I. Below the shoulder *f*, and in rigid connection with the socket F, is the pendent plate F<sup>1</sup>, turned up near the end to form a shoe, F<sup>2</sup>. In the latter works up and down the foot or pressure plate G<sup>1</sup>, attached fixedly to the end

of screw G, or so as to have a little end play. K is a spring, attached at one end to the lower part of socket-plate F<sup>1</sup>, stretching diagonally up and rearward, and attached to the staple or other connection L on bottom of car.

The operation is as follows: The rope or chain passes between the shoe F<sup>2</sup> and the foot G<sup>2</sup>, so that, when the latter is pressed down in and on the former, the shoe, foot, and rope are all fixedly conjoined, and must necessarily move together, as the steam or other power carries along the rope. In order to break the shock of a sudden connection of the stationary car with the moving carrier rope or chain, I apply the perpendicular spring I and diagonal spring K so as to overcome the inertia of the car, or body at rest, without abruptness, and in a gradual manner. ×

With my improvement this mode of propulsion is rendered most feasible and most economical, and can be readily and conveniently employed.

The projection above the opening in middle of the track is intended to keep the wheels of carriages from getting into the opening, and also to prevent the dirt, &c., from getting in. The lower part of the trough or channel will connect with sewers, to carry off water, dirt, &c.

Having thus described my invention, what I claim is—

1. The combination, with a street-car and an endless carrier, of the internally-threaded socket F, having the pendent plate with end shoe F<sup>2</sup>, and the screw G, having at the end a pressure-plate, G<sup>1</sup>, as and for the purpose described.

2. The combination, with socketed shoe-plate F F<sup>1</sup> F<sup>2</sup>, and screw-pressure plate G G<sup>1</sup>, of the springs I K, applied as and for the purpose specified.

Witnesses: GEORGE S. GRIER.

R. H. PHELPS,  
NATHAN PRATT.