G. E. NOYES.

DRIVING-GEAR FOR STREET-CARS.

No. 192,785. Patented July 3, 1877.

Fig. 1.

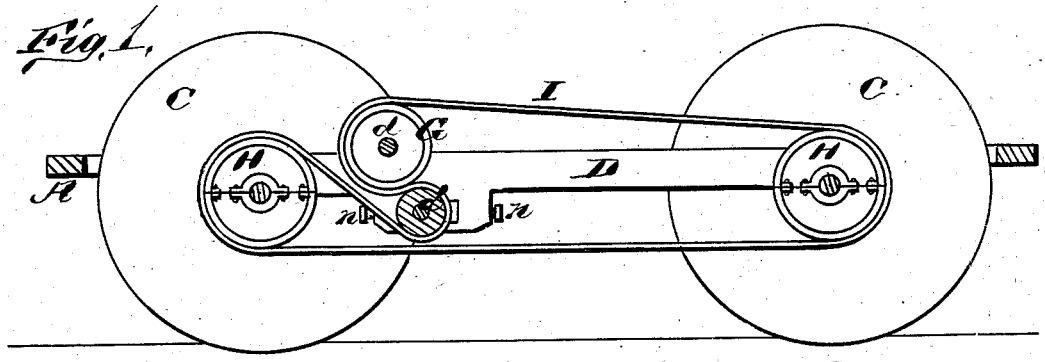
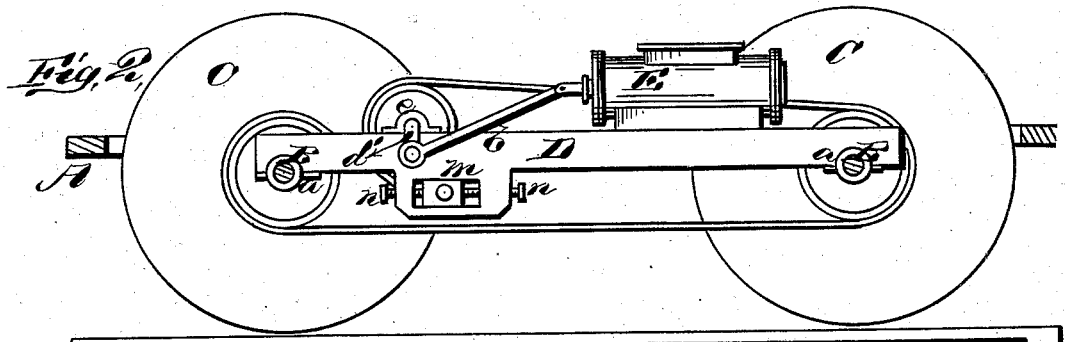


Fig. 2.



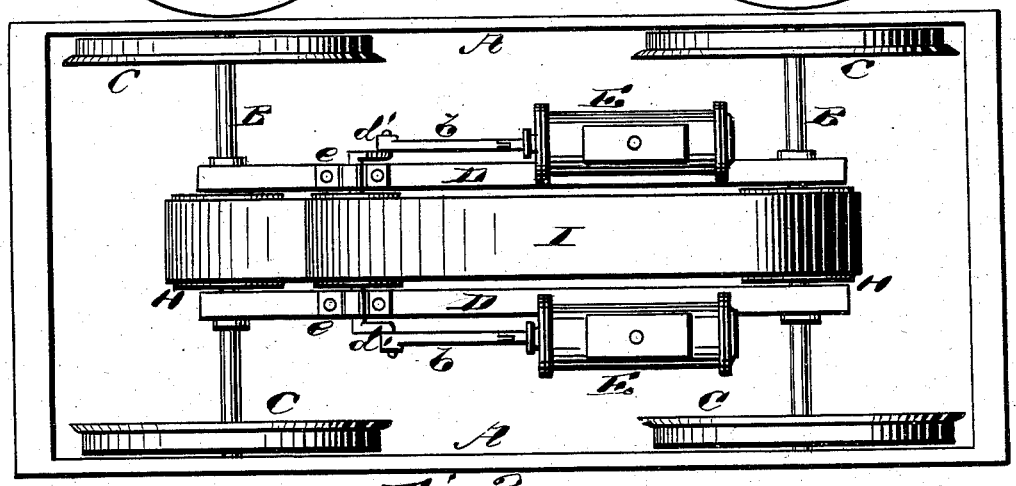


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE E. NOYES, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO EDWIN N. GRAY, OF SAME PLACE.

IMPROVEMENT IN DRIVING-GEAR FOR STREET-CARS.

Specification forming part of Letters Patent No. **192,785**, dated July 3, 1877; application filed June 9, 1877.

To all whom it may concern:

Be it known that I, GEORGE E. NOYES, of Washington, in the county of Washington and District of Columbia, have invented a new and valuable Improvement in Driving-Gear for Street-Cars; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of my driving-gear for street-cars. Fig. 2 is a side view, with motor attached, and Fig. 3 is a plan view of the same.

My invention relates to devices for operating street-cars by steam; and it consists in an engine-frame connected to both axles of the car, supporting the steam-cylinders, and provided with bisected pulleys secured on the car-axles, a drum, to which the power is applied, a belt-tightening cylinder or drum, and an endless belt passed around the drums and pulleys, all as hereinafter more fully set forth.

The annexed drawing, to which reference is made, fully illustrates my invention.

A represents a part of an ordinary street-car truck, having suitable boxes, in which the axles B B are placed, said axles having the wheels C C secured to the same.

Heretofore, when steam-power has been applied to street-car travel, it has been necessary to build street-cars expressly for the purpose, and this is one of the main causes deterring railroad companies from its general adoption, as a large amount of capital is invested in the present street-cars, and these cars would become useless.

With my invention I am enabled to use the ordinary street-cars, and can, with comparatively little expense, adapt them to be run by steam.

This I accomplish in the following manner:

D D represent two parallel beams, forming an engine-frame, provided, near their ends on the under sides, with suitable journal-boxes *a a*, which are placed around the axles B B of the car at the center; or, rather, the two beams at equal distances from the centers of the axles, the two beams being thus above and connecting the two axles. These two beams support two ordinary steam-cylinders, E E, the piston-rods of which are, by pitmen *b b*, connected with cranks *d' d'* formed upon the ends of a shaft, *d*, having its bearings in boxes *e e* on top of the beams D D. The cranks *d' d'* are set ninety degrees apart, so as to obviate dead-centers.

On the shaft *d*, between the beams D D, is secured a drum, G, to which a rotary motion is thus imparted by the pistons in the cylinders E E.

Upon each axle B, between the ends of the beams D D, is placed a wide pulley, H, which is made in two parts, each part having suitable flanges for the passage of bolts to firmly unite the two sections of the pulley on the axle, to which it may be still further secured by other suitable means.

By making these pulleys in sections they can easily be removed from the axles, and replaced, when necessary, without removing the axles from the car or the wheels from the axles. The beams D can also easily be removed by unscrewing the caps of the boxes *a*.

I is an endless belt passed around the pulleys H H and drum G, said belt, passing on top of the drum G, running under the same over and around a drum or cylinder, J, and then to the next pulley H, as shown in Fig. 1. The drum or cylinder J has its journal-bearings in boxes *m*, which are adjusted in hangers projecting downward from the beams D D, by means of set-screws *n n*, so as tighten the belt to the required tension.

The belt-tightening drum J is so arranged with relation to the driving-drum G that the belt I will pass in contact with said driving-drum for one-half, or more than one-half, of its periphery, and thus sufficient friction be obtained for the purposes intended.

The advantages of this device over others for the same purpose, heretofore known, are obvious. The endless belt makes no noise and clatter like chains and gear-wheels. The driving power is transmitted equally to both axles of the car; hence no danger of the wheels slipping on the rails.

The entire mechanism can easily be put on and taken off, and is adapted to be applied to the street-cars now in use.

What I claim as new, and desire to secure by Letters Patent, is—

In combination with the axles B B of a street-car, the beams D D, connecting the axles and supporting the engines E E, the pulleys H H, driving-drum G, belt-tightening drum J, and endless belt I, all constructed and arranged to operate substantially as and for the purposes set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEORGE E. NOYES.

Witnesses:

EUGENE W. JOHNSON,

C. H. MCEWEN.