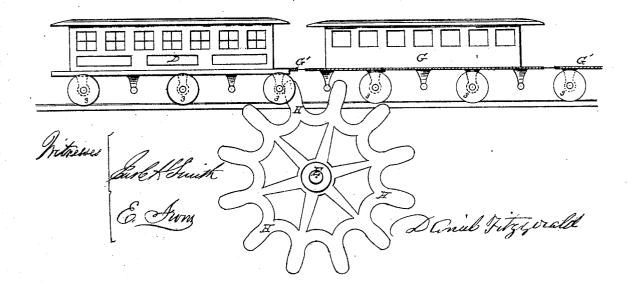


Fig.L.

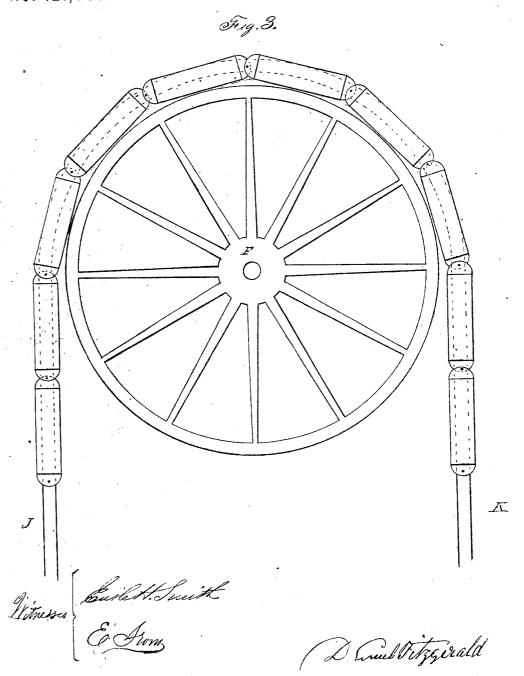


FITZGERALDS

Belt and Ermsit Railwar .

No. 121,605.

Patented Dec. 5, 1871.



UNITED STATES PATENT OFFICE.

DANIEL FITZGERALD, OF NEW YORK, N. Y.

IMPROVEMENT IN RAILWAYS.

Specification forming part of Letters Patent No. 121,605, dated December 5, 1871.

To all whom it may concern:

Be it known that I, DANIEL FITZGERALD, of the city, county, and State of New York, have invented an Improvement in Railways, of which the following is a specification, reference being

had to the accompanying drawing.

The object of this invention is to establish a system of railway, chiefly for the transportation of passengers in cities and elsewhere, capable of combining two trains or lines of cars, one for fast and the other for slower travel, and the motion of one train or line of cars to give motion to and operate the other; and the plan also contemplates a continuous line, which shall traverse up and down the opposite sides of a street, respectively, or up one street and down an adjacent one. With this object in view I construct a continuous line of cars or car-trucks. These are mounted in suitable tracks or rails supported by competent means, which means will vary with the The system is intended principally for elevated city railways, and when adapted thereto the tracks are elevated above the streets and sidewalks the required height.

To enable others skilled in the art to make and use my invention, I will describe the same as applied to an elevated railway in a single street.

In the drawing annexed, Figure 1 shows a section of a street, on each side of which standards A are erected. These are surmounted by crossties B, extending entirely across the street and sidewalks, and properly braced and secured so as to hold the standards as firmly at the top as at the bottom. The rails are laid on these crossties and made fast thereto. The track is made wider than usual, and the car-axles have each three wheels, 1 2 3. Of these the two outer ones only need rails, but for heavy loads a center rail is sometimes used. G G', Fig. 1, represent cars of the continuous line, termed the "belt," the greater part of which is comprised of platform-cars or car-trucks G'. They may be disconnected, but are usually coupled together, forming an uninterrupted line, the continuity of the line remaining substantially unbroken but passing around a curve or curves at the terminus of the railway and coming back as the return train, the tracks J and K being united at the ends of the route, as illustrated in Fig. 3. To assist in turning short curves and to reduce the friction I introduce, where necessary, a horizontally-re-

volving drum, F, Fig. 3, which will take the lateral pressure of the train, urge it around the curve, and relieve the strain against the sides of the rails. On each side of the track, in close proximity to the cars, platforms C are built, forming an elevated sidewalk extending throughout the length of the railway, and leaving a channel in which the cars run, and which also serves to retain them in place when in motion and in case of accident. Such platform in some instances will entirely cover the street below, and provision is made for admitting light through the platform or walk by lenses d or otherwise. The belt line is propelled by any power or machinery adapted thereto. In Fig. 2, I have shown a large revolving wheel, E, representing one of a number placed at intervals along the line. Such wheels have projections H to engage in some part of each car of the line and drive them forward, the wheels to be turned by any motivepower. Their location is indicated in Fig. 1 by the dotted lines I. But the cars may be driven by various other means.

The above description embraces the chief features of one of the lines of cars of which my railway system is composed. Said line receives a continuous movement at a speed which will admit of passengers stepping from either of the platforms or sidewalks C to or from the cars

while they are in motion.

To add a line of cars to run at a higher rate of speed than those before described and have them propelled without a separate power the cars of the first line are placed at one side of their trucks and of the center wheel before referred to. The car-trucks are so constructed as to expose the upper portion of the periphery of two of the wheels, and upon these exposed and projecting peripheries of the said wheels I place the transit or independent cars D. The portions of these cars which rest on the wheels aforesaid may be shod with rails to receive the friction, and the flanges of the wheels guide and hold the cars thereon. When motion is given to the belt line of cars the independent or transit cars are carried forward with the augmented speed which is due to the difference between the forward movement through space of the top of the wheel over the corresponding movement of the axis of the wheel as it advances, so that the speed of the transit cars will be about double that of the belt line. It is also practicable to have the transit cars to ride on wheels or cylinders other than those which roll on the rails, said wheels or cylinders to be on the same axle but of larger diameter. In such case the speed of the transit cars will be further increased in proportion to the enlarged size of the wheels that impel them

The intention being to keep the belt line in constant motion, when it is required to enter one of the transit cars, the passenger having first got on one of the platform-cars G', the independent car D is brought to rest on the belt line by removing its bearings from the periphery of the wheels. Afterward the bearing of the transit car is replaced on the periphery of the wheels, when it again goes forward with its accustomed speed. In effecting these transfers to and from the peripheries of the car-wheels suitable brakes are employed to act on some part of the cars of the belt line. In the invention it is also contemplated to completely inclose the line of travel by a roofing, J, above, and by sashes and blinds at the crossing of intersecting streets, to protect the entire route from rough weather and storms. Such roof is to be chiefly sash and glass, with proper openings for ventilation. And to render the whole route comfortable and pleasant in all weather provision may be made for warming by steam, or hot air, or other means in winter, and for cooling by fans and cool air or otherwise in summer. In the above invention I do not confine myself to precise forms or minute details, but shall vary the same as circumstances and occasion may require.

1. The combination, with the wheels of the continuous line of car-trucks, of the rapid-moving or transit cars propelled by frictional contact with the peripheries of said wheels, substan-

tially as described.
2. The construction and arrangement of the main line of cars as connected with the continuous line of trucks, as described, in combination with the transit cars propelled by the peripheries of the wheels of such trucks, as aforesaid, whereby the same trucks are employed for separate lines of cars traveling at different rates of speed, substantially as described and represented.

3. In combination with the rapid or transit cars propelled as aforesaid, the traveling plattorms or platform-ears forming part of the continuous line of trucks, to enable passengers to reach the cars of either line while the main line

is under way, as herein described.

4. Propelling the main line of cars or trucks by means of driving-wheels E, arranged and operating substantially as set forth.

ĎANIEL FITZGERALD.

Witnesses:

E. FRONT,

E. D. SEAMAN.

(120)