

C. F. JENKINS.
GRAVITY RAILWAY DEVICE.
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1,216,694.

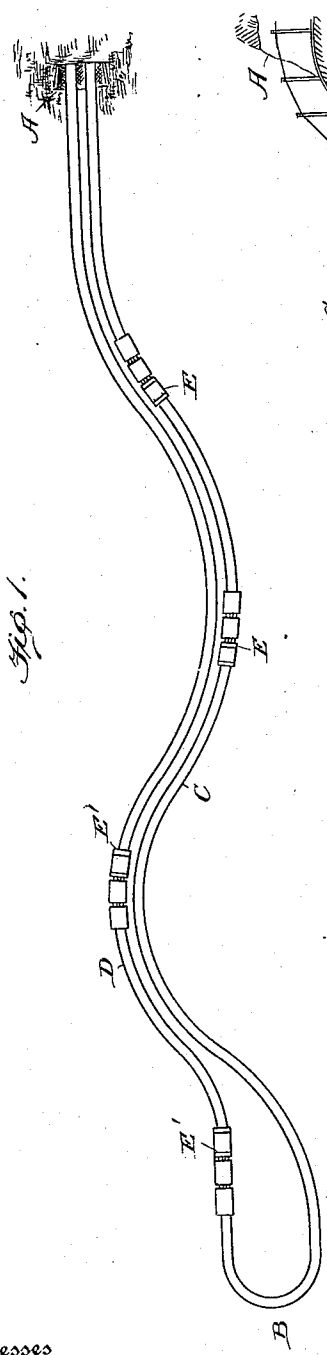


Fig. 1.

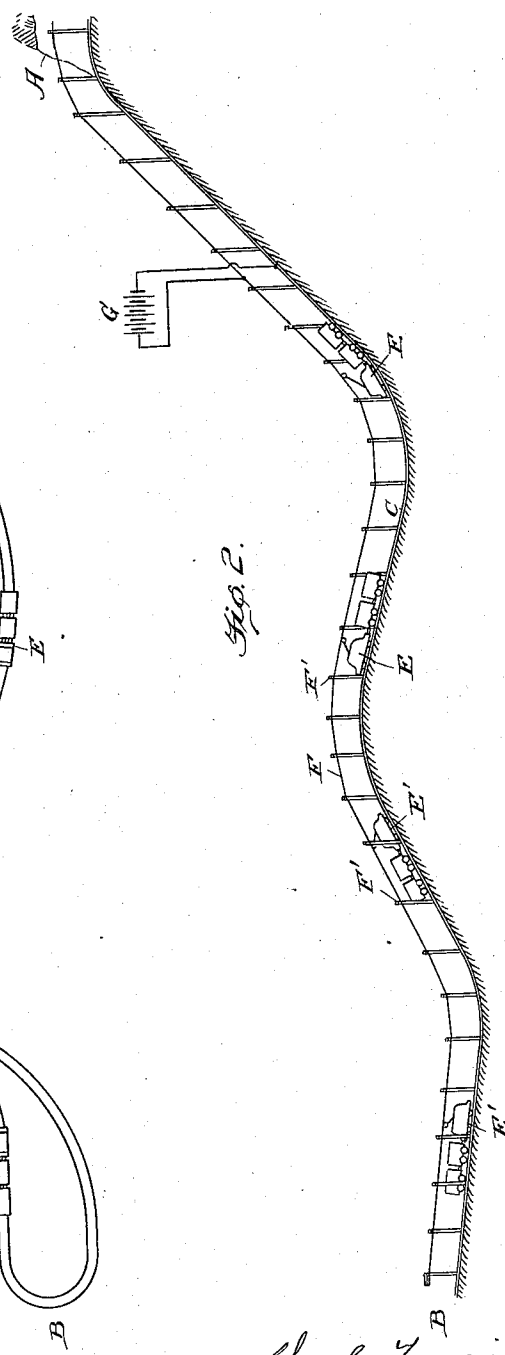


Fig. 2.

Witnesses

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CHARLES FRANCIS JENKINS, OF WASHINGTON, DISTRICT OF COLUMBIA.

GRAVITY-RAILWAY DEVICE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES FRANCIS JENKINS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Gravity-Railway Devices, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to railway systems for use where most of the material carried is moved in one direction from a higher to a lower level, for example where coal from a mine is carried from the mine to a lower and more or less distant point, and its object is to provide for generating power on down grades and applying such power to returning the cars, usually unloaded, to the mine and sometimes carrying loads over up-grade portions of the route taken by the coal-laden cars. In general terms, the invention provides for equipping the cars with a motor-generator, without novelty, adapted to act automatically as a generator on down grades and as a motor on other grades, so that the generator of a descending loaded car supplies current to a trolley circuit which in turn supplies it to the motor of other cars, and preferably, when there is a surplus of current, supplies it also to a comparatively small storage battery connected with the trolley circuit, so that in case of need a car may be returned to the mine although no load is descending, or may be aided in moving on any other part of the line when peculiar conditions make such aid desirable.

In the accompanying drawings,

Figure 1 is a diagrammatic plan view showing an embodiment of my system and method.

Fig. 2 is a diagrammatic view showing the same devices in side elevation.

In these figures, A represents the mouth of a mine, B a distant station at which coal is to be delivered, C a railway track leading downward from A to B, D a return track, E motor trains moving down the track C, E' cars, usually unloaded, returning on the track D, F a trolley wire suspended from poles F', and G a storage battery connected

with the trolley circuit. Each train carries a motor-generator, without novelty, arranged in a well known way, to change automatically from its generating function when gravity urges the descent of the car to its motor function when the car is not thus urged forward. Usually, the descending and ascending tracks are closely adjacent, follow any desirable course direct or otherwise, passing around hills or other obstructions, crossing bridges or the like, and in general following approximately the natural surface of the ground up grade and down grade as may happen, although since the most of the freight is on the whole carried from a higher to a materially lower level, it generates ample power to return empty cars, as indeed it would were an endless cable employed without recourse to electric devices. The advantages over such a cable system are, however, many and obvious. Under most conditions enough current is generated to afford a surplus and this is supplied to the storage battery, which is usually kept charged. It follows that within limits empty cars or those loaded with supplies may be carried upward to the mine although no loaded car be descending, and of course that the cars do not necessarily move at the same speed.

What I claim is:

1. The method of transporting loaded cars from a higher to a lower level and returning unloaded cars, which consists in providing a descending railway for loaded cars, an ascending railway for returning cars, a storage battery, a trolley circuit following the descending and ascending railways and including the battery, a series of independent trolley cars each provided with a motor generator in said circuit, and allowing the loaded cars to descend while their motor generators are in unbroken circuit through the battery; whereby energy developed by the descending loaded cars may be used to return cars to the high point without extraneous power, whether or not cars are at the moment descending.

2. In gravity railway devices, the combination with a track loop through points of maximum and minimum elevation, of a stor-

age battery, an electrical conductor following the loop, unconnected with extraneous source of power, and forming a circuit through the battery, and a series of car units each provided with an automatic motor generator and unconnected with its companions and each normally in the electric circuit; whereby cars are caused to ascend when de-

sired, solely by energy developed by descending cars.

In testimony whereof I affix my signature in presence of two witnesses:

CHARLES FRANCIS JENKINS.

Witnesses:

JAMES L. CRAWFORD,
ROBERT CRAIG GREENE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."