

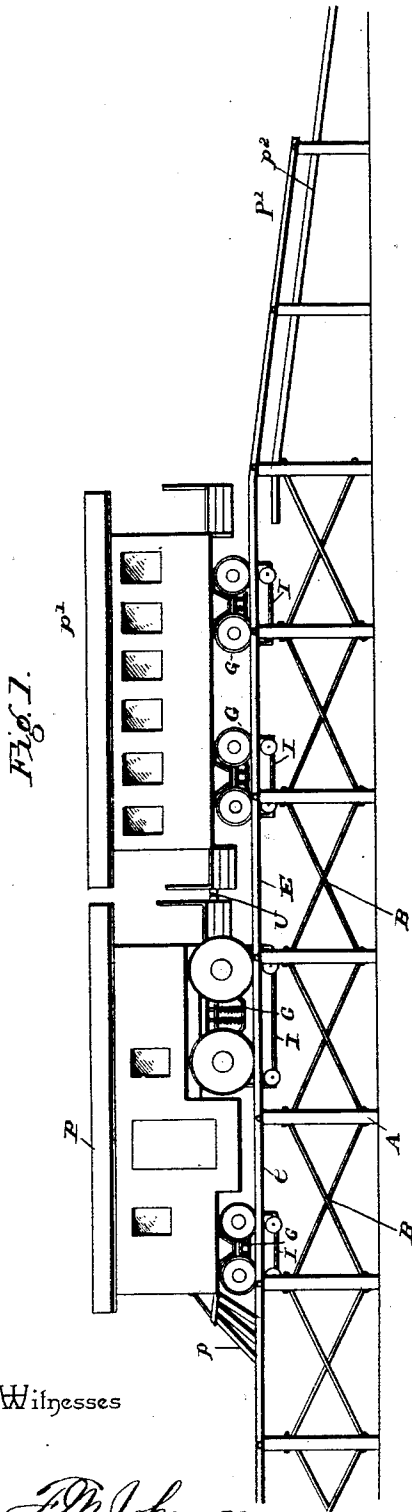
(No Model.)

2 Sheets—Sheet 1.

F. J. KORFF.
ELEVATED RAILWAY.

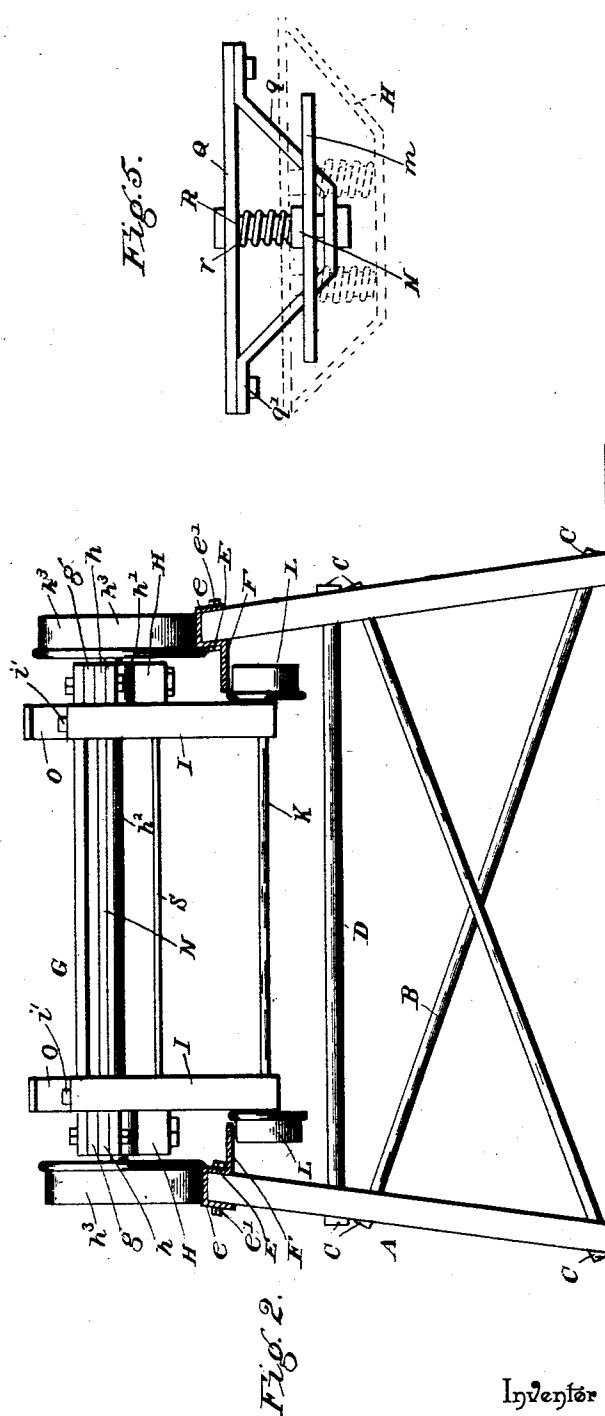
No. 520,163.

Patented May 22, 1894.



Witnesses

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S. P. Walchaupt



Inventor

Francis J. Korff

By his Attorneys,

C. A. Snow & Co.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3

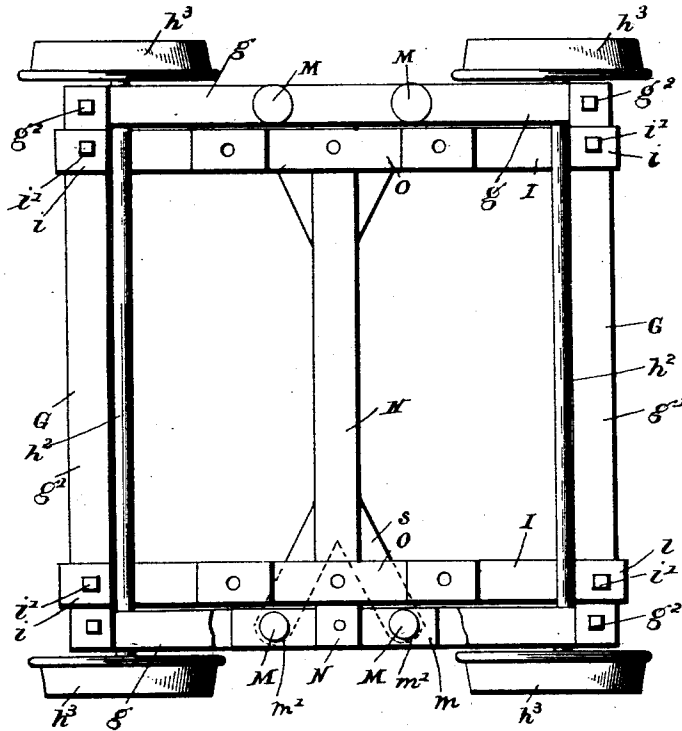


Fig. 4.

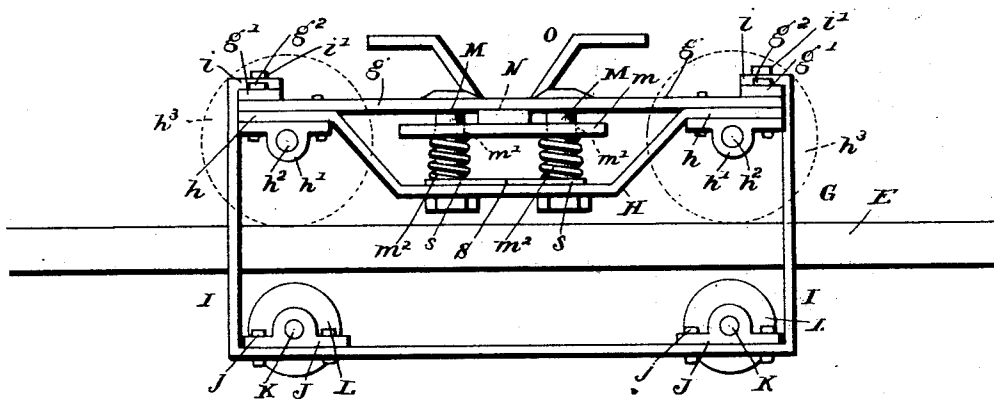
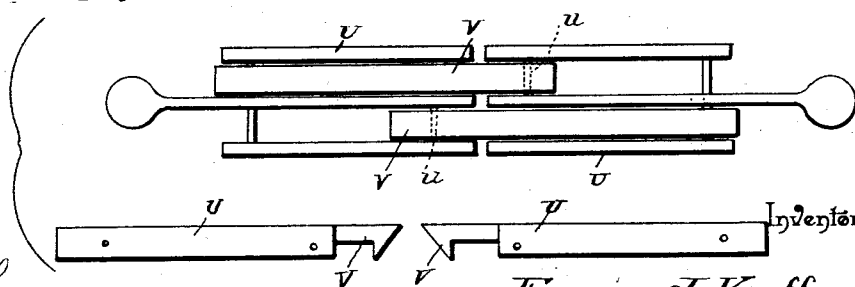


Fig. 6.



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UNITED STATES PATENT OFFICE.

FRANCIS J. KORFF, OF ST. JOHN'S, MICHIGAN.

ELEVATED RAILWAY.

SPECIFICATION forming part of Letters Patent No. 520,163, dated May 22, 1894.

Application filed March 3, 1893. Serial No. 464,519. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS J. KORFF, a citizen of the United States, residing at St. John's, in the county of Clinton and State of Michigan, have invented a new and useful Elevated Railway, of which the following is a specification.

This invention relates to elevated railways; and it has for its object to provide certain improvements in elevated railways which will dispense with the necessity of grading road beds, while at the same time providing a construction which permits of a very rapid transit with perfect safety.

To this end the main and primary object of the invention is to provide an improved elevated railway, together with the appurtenances thereof which shall combine to insure a practical and useful system.

With these and many other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts, hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a side elevation of an elevated railway constructed in accordance with this invention. Fig. 2 is a central vertical sectional view thereof in front of one of the car trucks. Fig. 3 is a top plan view of one of the car trucks. Fig. 4 is an enlarged side elevation of the same. Fig. 5 is a detail elevation showing the added spring support preferably employed in supporting a passenger car body on the truck. Fig. 6 is a detail plan view and side elevation of the car coupling employed by me.

Referring to the accompanying drawings, A represents the opposite upright supporting pillars securely braced in position by the longitudinal and transverse pairs of diagonal bracing rods B, having bolt ends C, passing through and bolted to each successive pillar and the transverse pairs thereof, each transverse pair of supporting pillars being additionally braced by the horizontal braces D, also having both ends connecting the pillars. By a construction of this type, road grading is avoided, and the track properly supported

in position out of the way of moving objects &c., so as to render rapid transit less dangerous. Directly to the upper ends of the opposite supporting pillars A, or to suitable stringers arranged thereon, are the opposite track rails E. The opposite track rails E, are provided with U-shaped rail portions e, embracing the upper ends of the pillars A, and securely bolted thereto on the rail bolts e', and said rails are further provided with the integral inwardly extended horizontal supplemental rail portions F, the function of which will presently appear.

Arranged to travel upon the track formed by the rails described, and to support and carry the cars, are the car trucks G. The truck frames of the car trucks G, comprise the opposite metallic side bars g, connected at their ends by the transverse end bars g', overlapping the side bars and suitably bolted thereto on the bolts g², which also bolt in position the opposite depending side frames H, extended below the side bars g, so as to leave a space thereunder, and having the flanged ends h, resting under the opposite ends of said side bars. Securely bolted in position to the flanges h, of the depending frames H, are the opposite pairs of bearing boxes h', which receive the car axles h², which carry at the opposite ends thereof the ordinary flanged car wheels h³, that are adapted to travel upon the main portions of the rails E.

Bolted in position to opposite sides of the truck frames are the opposite side U-shaped bearing frames I. The opposite side U-shaped bearing frames I, have upper flanged ends i, which are bolted on the bolts i', to the opposite end bars g', as clearly seen in the drawings, and the lower closed portions of said bearing frames are extended below the plane of the inwardly extended rail portions F and carry the opposite pairs of bearing boxes J, bolted thereto on bolts j, and receiving the journal ends of the safety-wheel axles K. Securely mounted on the opposite ends of the safety-wheel axles K, outside of the frames I, are the flanged safety-wheels L, which are adapted to travel under the inwardly extended rail portions F, of the track rails E, so as to firmly and securely retain the

truck in position on the track when traveling at a high rate of speed, or in rounding curves. These safety wheels also serve to assist in switching the trucks in a manner to be hereinafter referred to.

Arranged between and bolted to the frame side bars G, and the depending portions of the frames H, directly below the same, are the vertical guide bolts or rods M, on which are mounted to slide the spring supported end pieces *m*. The spring supported end pieces *m*, are provided with perforations *m'*, in their ends, which embrace the vertical guide bolts M, and directly under such end portions are arranged the supporting springs *m''*, coiled on the guide bolts. The spring supported end pieces *m*, are connected by the transverse cross bar N, to which are securely bolted near its ends the flanged car rests O, of an approximately U-shape, and which are designed to be bolted to the bottom of the car body supported on the truck. The car rests just described are preferably used in connection with the motor or drive car, which does not need an auxiliary spring rest of the character which is employed in connection with the rests for passenger coaches as will be hereinafter described, and such rests are of course interchangeable on the trucks as may be required.

The car truck just described is placed in the usual position occupied by ordinary car trucks, and as illustrated in Fig. 1 of the drawings certain of such trucks are designed to support a motor car P, preferably of the form shown and which may be propelled by any suitable motive power, motion being communicated by means of suitable gearing to the wheels of the drive truck, which, as illustrated, carries larger wheels, and the truck frame carrying the larger drive wheels, is of the same specific construction as the trucks described being necessarily enlarged and carrying longer supporting springs for the car rests. The motor car P, carries a front guard *p*, adapted to travel between the track rails and slightly below the plane thereof to insure the removal of any obstacle from the track. The passenger coaches *p'*, are also supported upon trucks of the specific construction herein set forth, but in lieu of the car rests O, a spring rest, as clearly shown in Fig. 5 of the drawings is employed. In the construction shown in Fig. 5 an attachment plate Q, is adapted to be attached to the bottom of the car body and carries the U-shaped frame *q*, having flanged ends *q'*, bolted thereto. A guide bolt or rod R, connects the attachment plate and the U-shaped frame *q*, depending therefrom. The said guide bolt passes through the cross bar N, and accommodates the spring *r*, bearing on top of said cross bar. By reason of this construction, a perfect spring support is provided for the car so as to insure the easy traveling thereof over the rails.

The drive wheel truck frame, and the other truck frames if found necessary, are securely braced transversely by the transverse braces S, having forked ends *s*, which are perforated to receive one end of the guide bolts M, by means of which the ends of said transverse plate are securely bolted to the frames H.

As is shown in Fig. 1 of the drawings, the track rails E, are inclined toward the ground as at P', and are met by the ground rails *p''*. When it is desired to switch the train from one track to another by the means of the ordinary yard engine, the same is carried onto the inclined drop portion of the track, so that as the main car wheels leave the track rails, the safety wheels ride onto the ground rails, and allow the train to be shifted from track to track where a series of tracks intersect.

In connection with my improved elevated railway system herein described, I preferably employ a car coupling of the character illustrated in Fig. 6 of the drawings. In this figure U represents the coupling boxes attached to the cars in the ordinary manner, and each of said boxes carry the catch coupling pins *u*, and the gravity hook catches V, which, when the cars come together, are adapted to automatically ride over and drop into engagement with the catch pin of the opposite coupling box.

Changes in the form, proportion and the minor details of construction as embraced within the scope of the appended claims, may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a railway, the combination of an opposite series of upright supporting pillars, longitudinal and transverse pairs of diagonal bracing rods bolted to and connecting each successive pillar and the transverse pairs thereof, horizontal braces connecting each transverse pair, and the track rails bolted to the upper ends of the opposite series of supporting pillars, substantially as set forth.

2. In an elevated railway, the combination of the opposite supporting pillars, U-shaped track rails embracing and fitting over the upper ends of said pillars, said U-shaped rails having integral inwardly extended supplemental rail portions projected from one side thereof, and the wheeled car truck frames having the main wheels thereof sliding over the main U-shaped portions of the rails directly on top of the pillars, and safety wheels supported below the truck between the opposite pillars and adapted to travel under the inwardly extended rail portions, substantially as set forth.

3. In an elevated railway, the combination of the elevated rails having inclined portions,

ground rails meeting said inclined portions
of the elevated rails, and the car truck adapt-
ed to travel over said elevated rails and hav-
ing safety wheels adapted to move under the
5 elevated rails and to ride onto the ground
rails at the end of the inclined portions of
said elevated rails, substantially as set forth.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
the presence of two witnesses.

FRANCIS J. KORFF.

Witnesses:

CHARLES M. MERRILL,
GEO. H. MARSHALL.