(No Model.)

2 Sheets—Sheet 1.

L. J. WING.

ELEVATED RAILWAY.

No. 262,633. Patented Aug. 15, 1882.

FIG. 1.

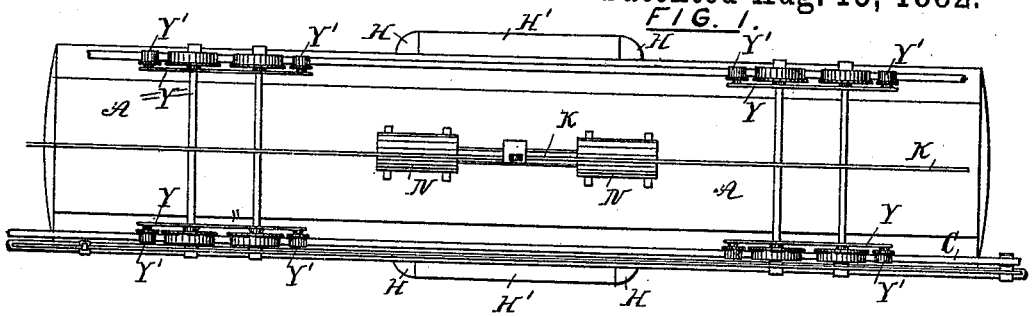


FIG. 2.

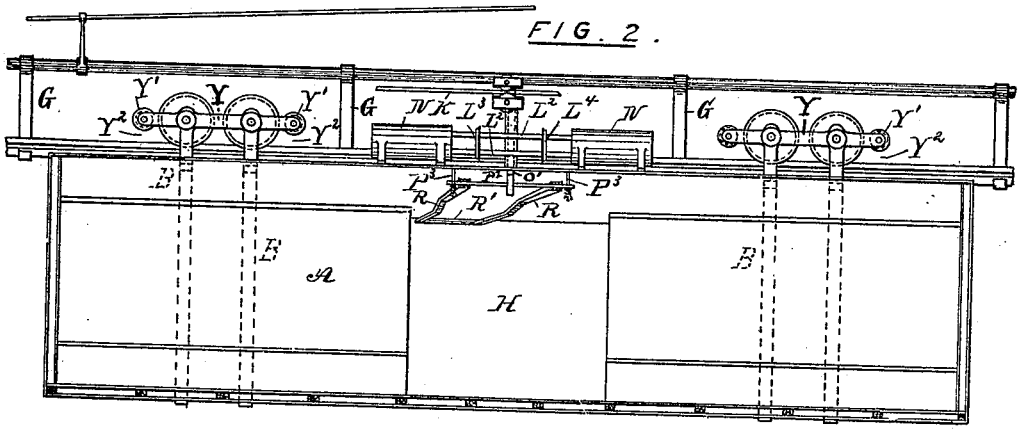
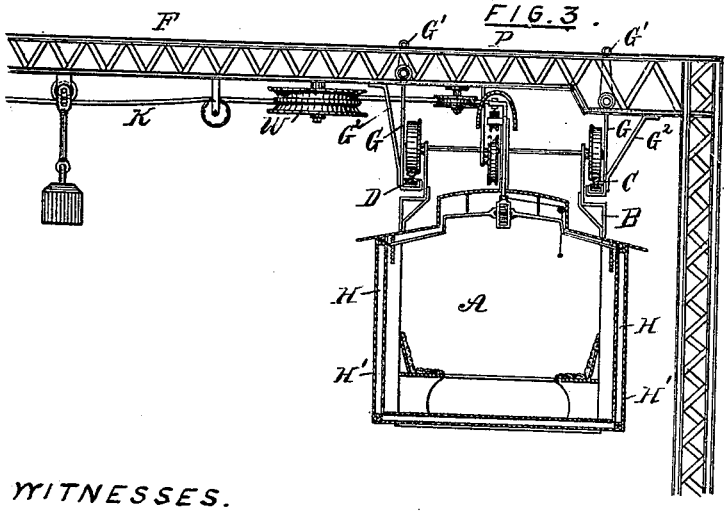


FIG. 3.



WITNESSES.

C. C. Perkins.
Boyd Eliot

INVENTOR.

Levi J. Wing

(No Model.) 2 Sheets—Sheet 2.

L. J. WING.

ELEVATED RAILWAY.

No. 262,633. Patented Aug. 15, 1882.

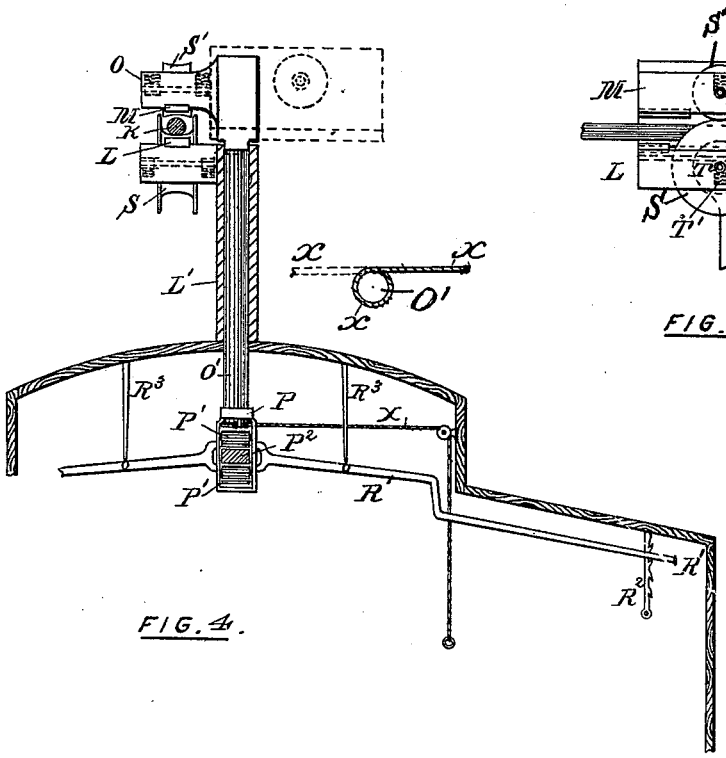


FIG. 4.

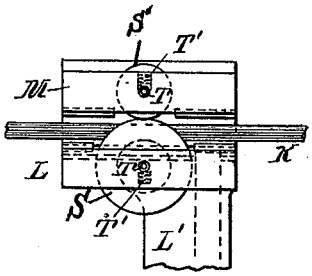


FIG. 5.

WITNESSES.

E. C. Perkins.

Boyd Eliot

INVENTOR.

Levi J. Wing

UNITED STATES PATENT OFFICE.

LEVI J. WING, OF NEW YORK, N. Y.

ELEVATED RAILWAY.

SPECIFICATION forming part of Letters Patent No. 262,633, dated August 15, 1882.

Application filed April 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, LEVI J. WING, of the city, county, and State of New York, have invented new and useful Improvements in Elevated Railways, of which the following is a specification.

This invention pertains to certain improvements in the construction and operation of elevated railways for cities, in which system the invention consists of an elevated structure extending along the street and trussed arches extending from post to post across the street, said trussed arches being so constructed as to support certain hangers or pendants, and longitudinal channel bars and rails for the cars that are suspended on the said railway, as will hereinafter appear.

The invention also consists in certain novel and peculiar devices for connecting the cars so suspended to a cable or wire rope, by which they are moved to and fro along the railway, as will hereinafter appear.

The invention further consists in the combination of devices for passing the cars from one section of the wire rope to another without stopping the cars or the rope, as will hereinafter appear.

In the drawings, Figure 1 is a plan of a car as seen from above it and suspended on the trucks. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse section of a car made at its center, and shows, also, a column and a transverse truss for supporting the hangers and the rails. Figs. 4 and 5 are enlarged views of the clamping devices for connecting the cars to the cable.

At A is represented a car suspended by hangers, as at B, from the axles of trucks having the ordinary form of wheels upon a T-rail, as at C, the base of which rests in a channel rail or trough, as at D. Said troughs and rails are suspended from the trussed frame-work F by hangers, as at G, which are suspended from links, as at G′, that form yokes over the top of the truss-beams, and they have also lateral braces, as at G^2, that bear against the under side of the truss to prevent the track from spreading. These trusses and their posts may be of any of the well known or suitable forms for such structures.

The cars in general form and structure resemble the ordinary car. The body of the car may be constructed in the lightest possible manner, and they are suspended in their hangers, as at B, which extend completely around the car, as indicated by the dotted lines at Fig. 2. In the said straps or hangers springs may be placed for the car to rest upon; or the straps may be suspended from bolsters of the ordinary car-truck, and in such a case the ordinary springs may be used; but owing to the rails being placed in a continuous line of channel-bars and embedded in sand the springs may be properly dispensed with.

Upon the upper and central portion of the car are mounted the devices for connecting the car to the cable or wire rope, (shown at K,) which rope is of the well-known form of such devices, and is supported in sheaves and operated by a stationary engine in the usual manner of driving such cables.

The clamping or clutching devices for grasping the cable are shown at L and M, both made of sufficient length to grasp the cable firmly, and they are faced with a soft alloy, as of lead or some such substance, to give great friction, but without tearing the strands of the wire. The lower jaw of the clamp, at L, is supported on a bracket-arm projecting from or forming part of a vertical post or column, which is connected to the rods L^2, that connect the pistons. Said pistons are arranged to work in cylinders, as at N, that are fastened upon the top of the car in a very firm manner, as these are, in fact, the devices that form the connections between the car and the cable; but the air trapped in the said cylinders serves as a cushion to the clamping-jaws when they grasp the rope or cable, and therefore a considerable space is left between the cylinders to permit the action of the pistons. Upon the rods which connect the pistons are two disks, L^3 L^4, firmly fastened at proper distances relatively to the ends of the cylinders, so that they serve as stops upon the ends, of the cylinders to close the open ends, and thereby cause a vacuum back of the pistons to assist in holding the pistons from striking the ends of the air-cylinders. The upper jaw of the clamp, as at M, is mounted on an arm, as at O, that extends out from a shaft at O′, that extends down the interior of the column that supports the lower

jaw, and its lower end projects into the car and is attached to a yoke at P, provided with rollers at P′, which work upon a horizontal bar at P^2, that is held upon studs at P^3, that are attached to the under side of the roof. To said bar P^2 are attached arms, as at R, which extend out to the recess, and which are supported by pivots upon brackets or supports depending from the roof, as at R^3, and said arms R are extended to form the rod at R′, that serves as a handle for the manager of the car to draw the clamping-jaws together, and after the car is started the jaws may be held clamped upon the cable by locking one of the arms upon a rock-bar, as at R^2.

In the center of the clamping-jaws are mounted sheaves or carrying and guiding wheels, as at S and S′, to support the cable in proper position when the jaws are not clamping it or when the car is stopped, and said sheaves are mounted in bearings, as at T, that are supported by springs T′, so that the sheaves may work out of the way when the jaws are brought together.

The upper jaw, M, being mounted on an axis, can be turned out to one side, as shown in dotted lines at Fig. 4, so that the cable may be lifted from the sheave in the lower jaw, and this is done when the car is approaching the end of a cable-circuit, and must then connect with another. In such a case the portion of the cable toward its termination is raised by its sheaves, as shown at W, Fig. 3, so that if the upper jaw be swung around as shown at Fig. 4, then the cable will be lifted entirely clear of any contact with the car, and the momentum of the car will carry it on to the next section of cable, when the upper jaw may be again returned to its place over the fixed one and clamped, as already described. The same operation may be performed at switches or when a car is to be run on or off the track or into depots. The turning of the said jaw is effected by a cord around the lower end of the shaft O′, as at X, the other end being carried out toward the doors or recess, where the manager or driver of the car stands, or the center of the cord may be attached around the shaft, and the driver can draw on either end to operate the jaw; and a spring or other equivalent reacting device may be used to reverse the jaw and return it to its working position after being rotated by the cord.

The cable has a shield or cover like an inverted trough placed over it to protect it from rain and snow. This is shown in section at Fig. 3 over the jaws L and M.

The truck-wheels have bars at Y to keep them in proper position as in the ordinary trucks, and their ends project to the front and rear sufficiently far to support rollers, as at Y′, that are only a short distance above the rail, as at Y^2, so that in case a wheel breaks the rollers will catch the weight and support the car to prevent its dropping to the street or being wrecked.

It is evident that various modifications or changes in the forms of the devices may be made without departing from the nature of my invention, and therefore

I desire to claim—

1. The combination, in an elevated railway, of trussed arches across the street, supported on posts at each end, pendants or hangers supporting longitudinal channel-bars, and the rails supported in said channel-bars, substantially as hereinbefore set forth.

2. The combination of a suspended car with an overhanging track, a cable, and clamping-jaws operated by levers on the inside of the car, as hereinbefore set forth.

3. The combination of the cable and clamping-jaws with the cylinders, mounted on and firmly fastened to the car, and their pistons, whereby the car is propelled, as hereinbefore set forth.

4. The clamping-jaws, yielding carrying-rolls, and pivotal axis for the upper jaw, combined as and for the purposes hereinbefore set forth.

5. The clamping-jaw M, mounted on a pivotal axis and operated by a cord, spring, and lever, as and for the purposes hereinbefore set forth.

6. In an elevated railway, the combination of a cover or shield with the cable, for protecting it from the weather, as hereinbefore set forth.

In witness whereof I have hereunto set my hand and affixed my seal in the presence of two subscribing witnesses.

LEVI J. WING. [L. S.]

Witnesses:
EUGENE N. ELIOT,
BOYD ELIOT.