

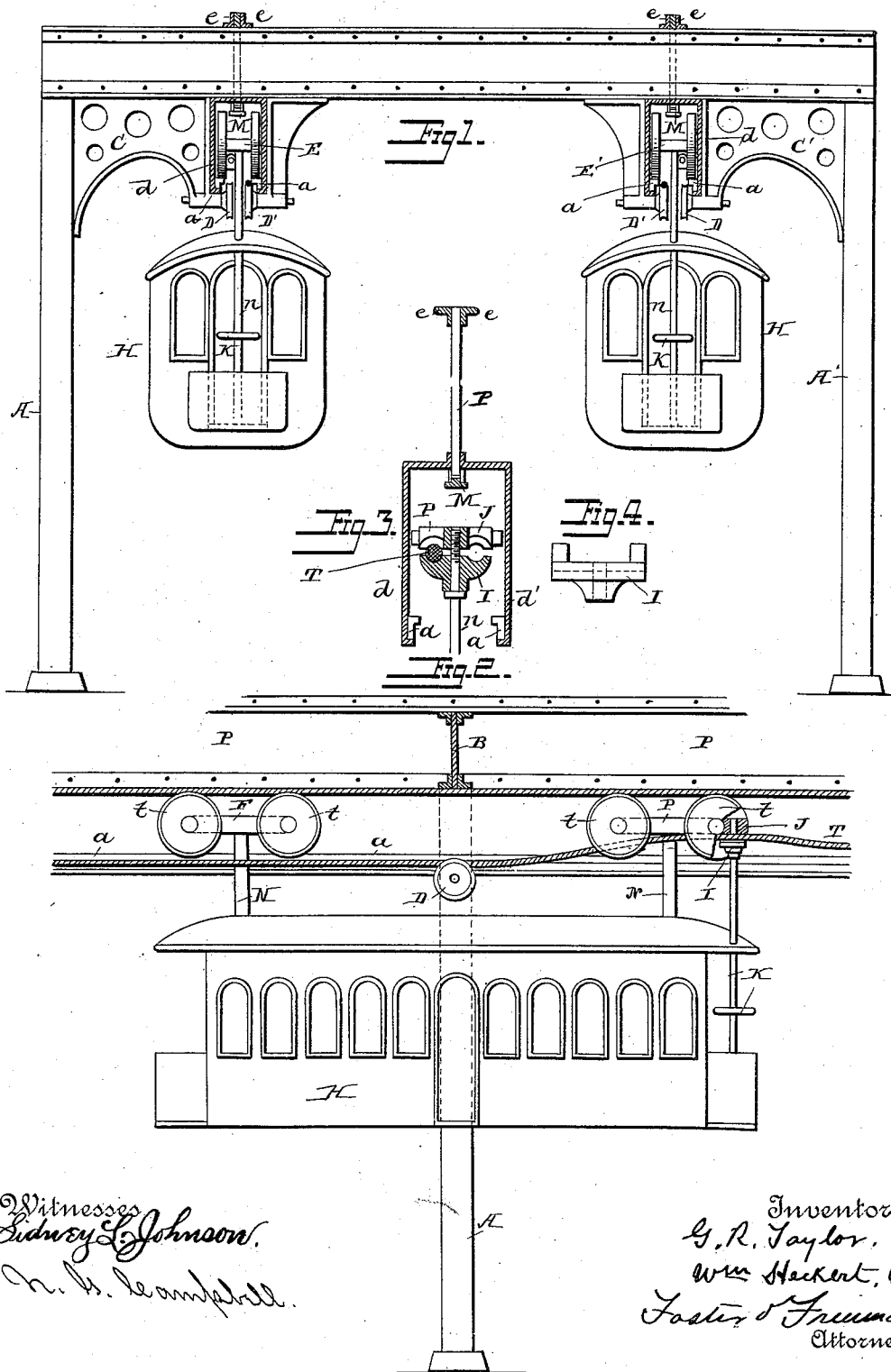
(No Model.)

G. R. TAYLOR & W. HECKERT.

SUSPENDED CABLE AND ELECTRIC RAILROAD.

No. 381,862.

Patented Apr. 24, 1888.



# UNITED STATES PATENT OFFICE.

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## SUSPENDED CABLE AND ELECTRIC RAILROAD.

SPECIFICATION forming part of Letters Patent No. 381,862, dated April 24, 1888.

Application filed December 2, 1885. Serial No. 184,490. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE R. TAYLOR, of Louisville, Jefferson county, Kentucky, and WILLIAM HECKERT, of Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Suspended Cable and Electric Railroads; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of our invention is to construct elevated railroads which shall present the least amount of obstruction to light or complication in the streets, being simple, neat, durable, and cheaper than elevated roads as now constructed, and at the same time present advantages in its use and economy in operation heretofore unattained.

The especial features and advantages of our invention are:

First. The tracks or tramway is suspended below the supporting structure and forms a part of the truss, extending the full length of the roadway, the tracks being inclosed and secured to the sides of a tunnel, which has a free opening from below throughout its entire length. The trucks for supporting car-bed and rails on which they run, with the cable or electric rail for moving cars, all being within said tunnel, are thereby protected from rain, snow, &c.

Second. The cars are suspended from under said trucks and tramway at any desired elevation from the ground, so as to run as surface-cars, taking passengers from the street, or run at an elevation above the traffic of the street and take passengers from elevated stations, such stations requiring less elevation than roads heretofore designed.

Third. The roadway requires but a single truss and is without the usual ties and other complications which are so objectionable in present elevated roads.

Fourth. With all the advantages of surface roads, we do not obstruct the streets with tracks, as present surface horse and cable roads do. With all advantages of cables and electric motors, we avoid the action of frost and

snows, so detrimental to present systems of railroads.

Figure 1 is an end elevation of our improved road; Fig. 2, a side elevation of the same, with one side of the tunnel in section or removed, disclosing the trucks, cable, and grip. Fig. 3 is an enlarged end view of the tunnel, with a portion of the truck-frame and lower jaw of grip in section. Fig. 4 is a side view of the lower grip-jaw.

In Figs. 1 and 2, A A' represent the posts placed along the sides of the streets, and B a girt or truss connecting the upper ends of posts over the street, to which truss are connected at right angles the suspended tramway and longitudinal truss P P, which extends the full length of the road and constitutes a tunnel in which the car-trucks F F run, and the cable T and electric rail M are supported within said tunnel.

P is the truss, consisting of a plate extending the length of road, having flange-irons *ee* secured to its upper edge and the side plates, *d d*, near its lower edge, as seen in Fig. 3. To said side plates rails *a a* are secured, on which the car-wheels run.

M is an electric rail suspended from the center of the tunnel, from which power may be taken by any of the well-known electric motors for driving cars, if properly applied.

F represents a car-truck having the upper jaws of a cable-grip formed on its lower side, I being the lower movable jaw, through which the shaft *n* passes freely, and having its threaded end extending and operating in a nut, J, formed in the truck-frame F, as seen in Fig. 3. The shaft *n* is provided with the usual car-brake wheel, *k*, by which the shaft *n* is rotated, closing or opening the jaws of grip on the cable T, to which cable power may be applied, or power may be furnished in the usual way by stationary engines.

*t t* in Fig. 2 are car-wheels on the truck-frame F, to which frame the suspending-rods N N have their upper ends secured, the car-bed H being secured to or suspended on the lower ends of said rods. When it is desired to run the cars close to the ground to receive passengers from the street, the rods N N are made longer than represented in the several figures.

It is evident that some cars may be run close to and take their passengers from the ground, while others on the same line of road or on other lines supported by the same general structure take their passengers from elevated stations and move over the street-traffic at an elevation corresponding to the lowest part of the supporting-trusses on present elevated roads, thereby greatly reducing the height and labor to reach the elevated platform.

In Fig. 1, C C' are brackets secured to the posts A A and truss B, forming a substantial brace to the side plates, *d d*, and forming a bearing for the cable-supporting sheaves D D', and in like manner brackets E E' support the side plates, *d d*, and cable-sheaves for a second cable, which may be run at higher speed, or retained for service only when the first fails from any cause.

It will be noticed in Fig. 3 that the side plates, *d d*, are so formed and their upper edges secured to the truss-plate P as to form a square tunnel with its top and sides closed, leaving a free opening along the lower side, through which free access may be had to all working parts, and at the same time they are entirely protected from wet, snow, dust, and frost—the sources from which previous systems suffer constant trouble and large expenses.

It will thus be seen that we combine in a single structure means whereby trains or cars may be run from various sources of power over the same line of tracks without interference and at a cost of construction of the way but little above the cost for the use of any one system of power.

We are aware that telegraph and telephone wires have been supported in underground cable-tubes. We are also aware that conduits of various sorts adapted either for electric conductors or cables are old; but we do not believe that a traveling cable and an electric conductor have ever been both arranged in a

single conductor, so as not to interfere with each other, and at the same time both be suitably situated for connection with the proper devices carried by the car, so that cars propelled by both sources of power may move over the same track.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the elevated tunnel having a track within the tunnel upon which the cars travel, of the cable-supporting sheaves over which a cable passes, also arranged within the tunnel, substantially as described.

2. The combination, with an elevated tunnel open at its bottom and having a track upon which the cars travel, of a bracing-bracket to the side of said tunnel, and cable-supporting sheaves arranged within the tunnel and carried by said bracket, substantially as described.

3. The combination, in an elevated road, of a tramway-tunnel having inclosed top and sides, rails secured to the sides within the tunnel, sheaves supporting a traveling cable, a truck-frame carrying a gripper composed of stationary and movable jaws, and a hand-wheel controlling the movable jaw, substantially as described.

4. The combination, in an elevated road, of a tramway-tunnel having inclosed top and sides, rails secured to the sides, sheaves supporting a traveling cable in the tunnel, a truck traveling on the rails and supporting a car, and a grip carried by the truck and operated from the car to grasp the cable, substantially as described.

Witness our hands this 26th day of November, 1885.

GEORGE R. TAYLOR.  
WM. HECKERT.

Witnesses:

E. M. HOYT,  
ALLEN TAYLOR.