(No Model.) 2 Sheets—Sheet 1.

IGNACIO MONTES DE OCA Y MELIAN.

AERIAL RAILWAY.

No. 569,468. Patented Oct. 13, 1896.

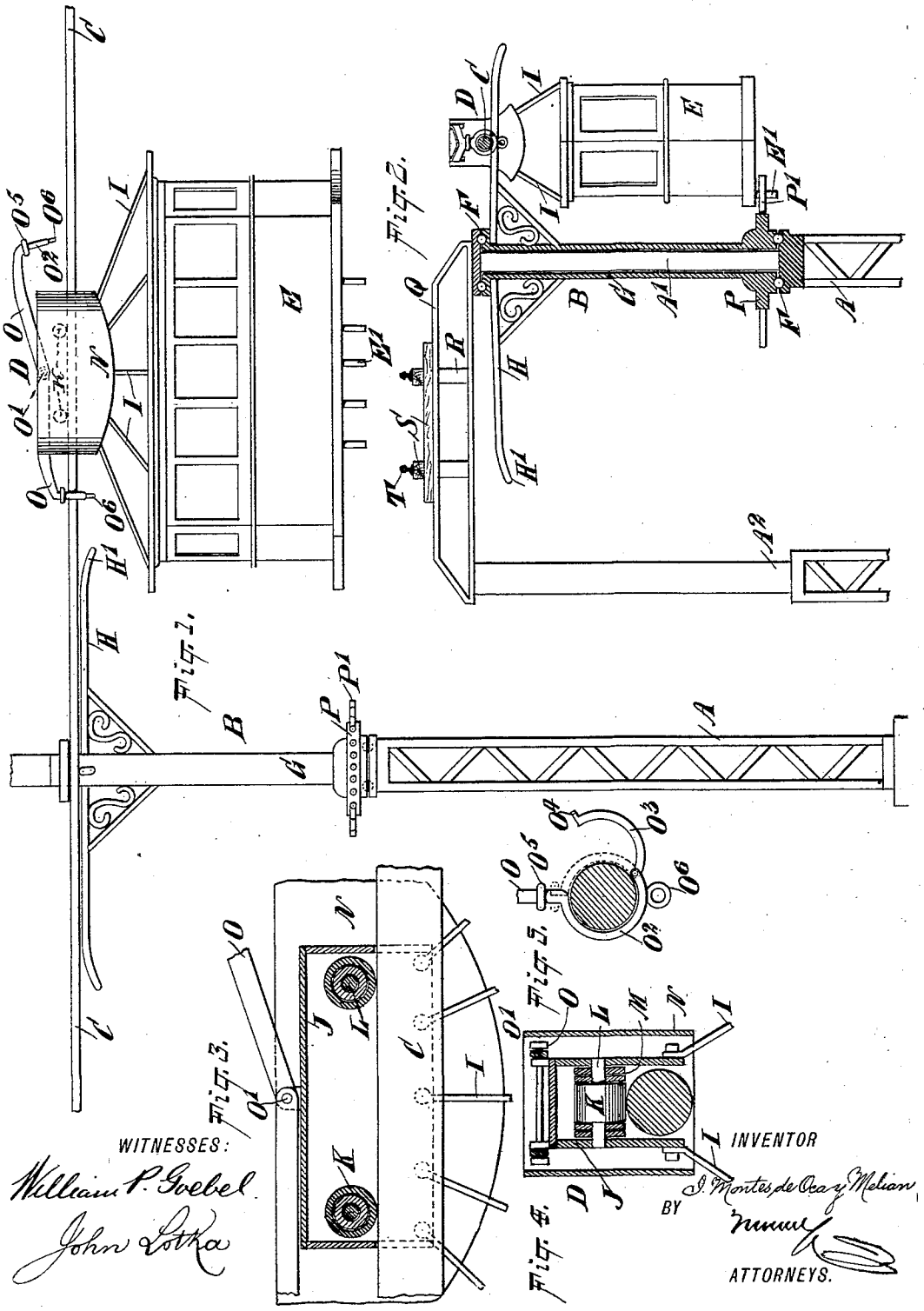

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Fig. 6.

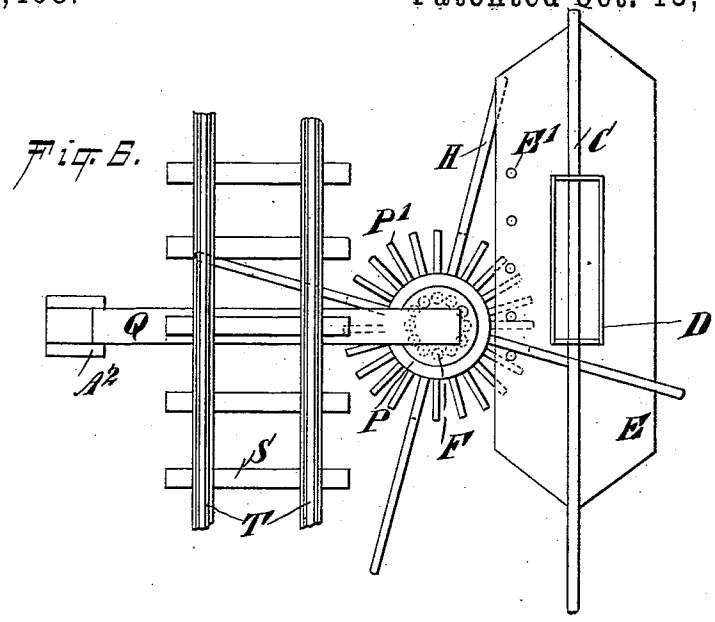
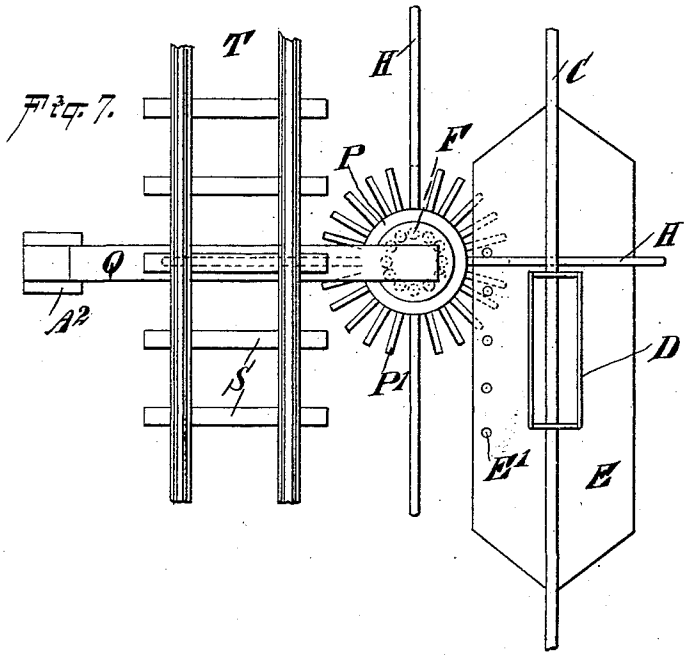


Fig. 7.



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UNITED STATES PATENT OFFICE.

IGNACIO MONTES DE OCA Y MELIAN, OF NEW YORK, N. Y.

AERIAL RAILWAY.

SPECIFICATION forming part of Letters Patent No. 569,468, dated October 13, 1896.

Application filed January 14, 1896. Serial No. 575,440. (No model.)

To all whom it may concern:

Be it known that I, IGNACIO MONTES DE OCA Y MELIAN, a subject of the King of Spain, temporarily a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Aerial Railways, of which the following is a full, clear, and exact description.

My invention relates to that class of aerial railways in which the cars are suspended from a cable, being provided with a trolley which runs on the cable. In ordinary construction of such aerial cable-railways the cable is held in stationary supports, and in consequence of this arrangement the hangers connecting the trolley to the car can extend on one side of the cable only, since otherwise they would collide with the supports of the cable. It will be obvious that a car connected to the trolley by double hangers, one at each side of the cable, presents a much higher degree of safety than the usual construction, since even in the event of the trolley running off the cable there would be no danger of the car falling from the elevated structure, as either of the hangers would in such an emergency come into supporting engagement with the cable.

The object of my invention is to provide an improved construction in railways of the above-indicated class whereby the application of double hangers will be rendered possible and the safety of the traffic increased accordingly.

To this end my invention consists in a peculiar construction of movable supports for the cable whereby the path will be cleared for the hangers as the car passes the supports, without, however, leaving the cable unsupported at any time.

The invention also consists in other novel features of construction relating to the means for operating the movable supports and to the trolley, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a broken side elevation of my improved railway, showing the cable with one of its movable supports and a car on the cable. Fig. 2 is a broken front or end elevation with parts in section. Fig. 3 is a broken longitudinal sectional elevation of the trolley on the cable. Fig. 4 is a broken cross-sectional elevation of the trolley. Fig. 5 is an end view of a guide for the cable, the latter being shown in section; and Figs. 6 and 7 are diagrammatic plans illustrating the operation of the improvement.

A are the columns which carry the supports B for the cable C, on which run the trolleys D of the cars E. Each column has a reduced cylindrical upper portion A′, at the ends whereof are located ball-bearings F, on which is held to turn a sleeve G, forming part of the cable-support B. This support comprises arms H, rigidly secured to the sleeve G and radiating therefrom, the arms being preferably inclined slightly downward toward their outer ends, and the extreme ends of the arms are preferably bent downward more abruptly, as shown at H′, for a purpose to be stated presently. The arms H are secured to the upper portion of the sleeve G, and the cable C rests on said arms, as illustrated by Figs. 1, 2, 6, and 7.

On the cable C is held to run the car E, the body of which may be given any approved formation. Said car is suspended by means of hangers I, extending at each side of the cable from a carriage or trolley D. The said trolley comprises a frame or casing J, which is open only at the bottom and at its front and rear walls to allow the cable to pass through them. As will be seen in Fig. 4, the side walls of the casing are spaced at a distance approximately equal to the diameter of the cable, and in case of any lateral oscillation of the trolley will engage the sides of the cable, so as to form a guide therefor. In the said side walls are journaled the transverse rollers K, preferably loosely mounted on fixed pivots L, and independent loose disks M are mounted on said pivots between the ends of the rollers K and the side walls of the casing J. These disks serve to take up the end thrust and reduce friction. The casing J is surrounded by a shield N, which extends downward far enough to prevent the ends H′ of the arm H from catching into the hangers I. The rollers, as shown in Fig. 3, may consist of several sleeves loose upon one another.

To further guide the cable C, I pivot to the casing J, as at O', an arm or yoke O, which extends beyond the end of the trolley D and has at its free end a guide or holder for the cable. Said guide consists of a hook-shaped end portion O^2 and a hinge member O^3, connected thereto and having its free end O^4 adapted to be locked to the arm O by means of a ring O^5, sliding thereon. (See Fig. 5.) There are two such arms or yokes O secured to the trolley D, each extending beyond one end thereof. Only one of the yokes, the one located at the forward end of the car, is in use at a time, the other yoke being raised out of engagement with the cable. (See Fig. 1.)

To each yoke, preferably at the hook O^2 thereof, is secured an eye O^6 or equivalent device adapted to receive the traction-cable by means of which the car is propelled. I do not, however, limit myself to any particular means of propulsion.

In order to turn the supports B so as to allow the trolley D and hangers I to pass the supports without colliding with them, I provide teeth or pins E' upon the bottom of the car E, and similar teeth or pins P' are formed upon a wheel P at the lower portion of the sleeve G. The teeth E' are preferably spaced at about double the distance of the teeth P', so as to insure proper engagement of the teeth notwithstanding the lateral swaying of the suspended car.

The operation of the railway will be obvious. The cable C normally rests on one of the arms H only, and at each passage of a car the sleeve G is given one-fourth of a revolution, (there being four arms in the construction shown.) During the turning of the sleeve the support of the cable is gradually shifted from one arm H to the next arm, the cable temporarily resting on two arms. The outer ends H' of the arms being given a decided downward bend, there is no danger of the cable getting below the arm instead of riding up the same when the next arm swings into position.

The columns A may form a part of the structure of an ordinary elevated railway, as shown in Figs. 2, 6, and 7. In this case another parallel series of columns A^2 is provided, which are connected by transverse beams or trusses Q, carrying the longitudinal beams R, on which rest ties S of the rails T. Some of the ties may rest directly on the transverse beams Q.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In an aerial railway, the combination of a cable on which cars are adapted to run, revoluble supporting-arms engaging the cable, and a wheel secured to the shaft of said arms, and adapted to be engaged and turned by the cars, substantially as described.

2. In an aerial railway, the combination of a cable on which cars are adapted to run, revoluble supporting-arms engaging the cable, and a wheel secured to the shaft of said arms and provided with pins or teeth adapted to be engaged and turned by projections on the cars, substantially as described.

3. A car for aerial railways of the class described, provided with a series of projections located in substantially the same horizontal plane and adapted to turn a wheel mounted to rotate about a stationary vertical axis, substantially as described.

4. The combination of the cable, the rotatable vertical sleeve or shaft having arms in supporting engagement with the cable, a wheel on said shaft, and a car adapted to run on the cable and provided with means for automatically turning the wheel during the passage of the car at the support, substantially as described.

5. A car for aerial railways, comprising a car proper or body, a carriage or trolley located above the body and adapted to run upon a cable, and hangers extending from each side of the trolley to the car-body, forming an inclosed space for the reception of the cable, to prevent the car from being thrown off the cable in case of the trolley leaving the cable, substantially as described.

6. A trolley for aerial railways, comprising a casing, and rollers journaled therein and adapted to engage the cable, the side walls of the casing projecting below the rollers to limit the lateral movement of the trolley, substantially as described.

7. The combination of the car-body, the hangers at the upper end thereof, the trolley connected to the hangers, and the shield surrounding the trolley and covering the upper ends of the hangers, as and for the purpose set forth.

8. A trolley for aerial railways, comprising a trolley proper adapted to run on a cable, and a yoke or arm pivoted to the trolley and having at its free end a guide adapted to receive the cable, substantially as described.

9. A trolley for aerial railways, comprising a trolley proper adapted to run on a cable, and a yoke or arm pivoted to the trolley and having its free end formed with a hook adapted to receive the cable, a hinged member for closing the opening of the hook, and means for locking the hinged member, substantially as described.

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