





# UNITED STATES PATENT OFFICE.

JOHN BOND, OF TURLOCK, CALIFORNIA.

## AERIAL RAILWAY.

SPECIFICATION forming part of Letters Patent No. 619,536, dated February 14, 1899.

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*To all whom it may concern:*

Be it known that I, JOHN BOND, a citizen of the United States, residing at Turlock, in the county of Stanislaus and State of California, have invented a new and useful Aerial Railway, of which the following is a specification.

My invention relates to aerial navigation, and is in the nature of an aerial railway, and means whereby power may be supplied to an air-ship or balloon and the vehicle confined in its motion to the line of railway.

The object of my invention is to furnish an aerial railway consisting of a track to which the motion of the air-ship is to be confined, means for supporting trolley-line wires, and rolling devices attached to the track-rail to which the balloon or air-ship may be connected, a trolley attached to the air-ship being trailed along over the trolley-wire, whereby power may be communicated to mechanism contained in the air-ship for propelling the same.

With this object in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically pointed out in the appended claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view in side elevation illustrating the practical operation of my invention. Fig. 2 is a transverse vertical section through the parts shown in Fig. 1. Fig. 3 is a fragmentary detail top plan view illustrating the curved motor and gearing.

Like letters of reference mark the same parts wherever they occur in the different figures of the drawings.

Referring to the drawings by letters, A A indicate a series of poles, upon the upper end of which is mounted a cap B, secured thereto by means of bolts C.

D is a T-rail, the stem D' of which rests in a groove in the upper edge of the cap B and is securely held in position therein by bolts E.

F indicates the balloon or air-ship, which

may be made of any suitable material, shape, and proportionate size and be filled with any suitable buoyant gas to give it the requisite lightness to compensate for the weight of the other parts of the rolling-stock. It is provided with a lower metallic casing G, and flat wheels H are secured within the casing upon shafts H', journaled in the upper ends of bearing-plates I, secured to inward-turned flanges G' of the metallic casing by bolts G<sup>2</sup>. These plates extend downward below the casing and are outwardly inclined in opposite lateral directions in positions to extend below the T-rail and straddle the caps B on the poles. There are two or more sets of the bearing-plates I upon each car, and they are connected by longitudinal bars I', secured by bolts I<sup>2</sup>. Shafts J are mounted in the lower ends of the bearing-plates I, and on these shafts are journaled wheels J'. The flat wheels H rest upon the flat top of the T-rail D, and the wheels J', which, like their bearing-plates I, are inclined outward laterally, have their rims formed on the proper bevel to contact with the lower side of the top or head of the T-rail, so that the balloon or air-ship will be rigidly held against rising from or falling below the T-rail, the flat wheels H supporting the structure when heavy enough to cause downward pressure on the top of the head of the T-rail, and the beveled wheels J', having an upward bearing against the under side of the T-rail head, will prevent the structure from rising when inflated to a degree of lightness sufficient to give it an upward tendency.

One of the shafts H' is extended laterally, as at H<sup>2</sup>, and forms the driving-shaft of a motor K, driven by electricity by means of the current which passes through the wire L and a depneding trolley-rod M, secured to the under surface of the metallic casing G and carrying at its lower end a trolley-wheel M', which runs in contact with a line-wire N, supported upon the upper end of curved brackets O, extending laterally and upward from the sides of the pole A and secured thereto by means of bolts P.

The construction of my invention will be readily understood from the foregoing description, and its operation may be described as follows: The car being mounted upon the T-rail, inflated sufficiently to practically over-



come its weight, it will only be necessary to operate the motor K by the current collected by the trolley M' from the line-wire N to cause the wheel H to be rotated in contact with the flat head of the T-rail D, this wheel then becoming the driving-wheel and propelling the structure at high speed upon the rail, the speed being regulated by the size of the gear-wheels Q and R on the motor-shaft and driving-shaft H<sup>2</sup>.

It will be obvious from the foregoing description that my aerial railway may be constructed on level ground or upon the steepest grades, the buoyancy of the balloon or air-ship tending to always keep it elevated above the rail and the connections restricting its movement to such a position as will always preserve contact between the trolleys and line-wires. The balloon or air-ship will travel as readily up or down grade as upon a level surface. By reason of this the construction of the road will be extremely cheap and no tunneling, cutting, or bridging gullies, &c., being necessary and no grading required.

It will be further obvious that the speed of the balloon or air-ship will be limited only to the driving power of its mechanism, as current may be as readily supplied through the line-wires and trolleys as to the ordinary overhead-trolley-railway lines of the present day. The buoyancy of the car can be regulated so that but little strain upward or downward will be brought upon the rail, thereby reducing the wear to a minimum.

While I have illustrated and described what I now believe to be the best means for carrying out my invention, I do not wish to be un-

derstood as restricting myself to the exact details of construction shown and described, but hold that any slight changes or variations as might suggest themselves to the ordinary mechanic would properly fall within the limit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the poles, the vertically-slotted caps mounted on the top thereof, the T-rail supported with its stem in said slots, the metallic casing of the air-ship, the driving-wheels thereon resting upon the head of the rail, the downwardly and outwardly inclined brackets depending from the casing on each side of the caps of the poles, and the inclined rollers journaled in said brackets and bearing against the under surface of the head of the rail, substantially as described.

2. The combination with an elevated T-rail, of the carriage comprising the bearing-plates carrying a roller to bear upon the upper surface of the T-rail, and bevel-rollers to bear against the under surface of the T-rail, said plates inclining laterally and downward and straddling the tops of the poles, a balloon or air-ship supported upon the carriage and carrying a motor, curved brackets on the sides of the poles, a line-wire supported therefrom, and a trolley-pole depending from the carriage and carrying a trolley-wheel in contact with the wire, substantially as described.

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Witnesses:

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