(No Model.)

W. H. BOYNTON.

RAILWAY SYSTEM.

No. 562,211. Patented June 16, 1896.

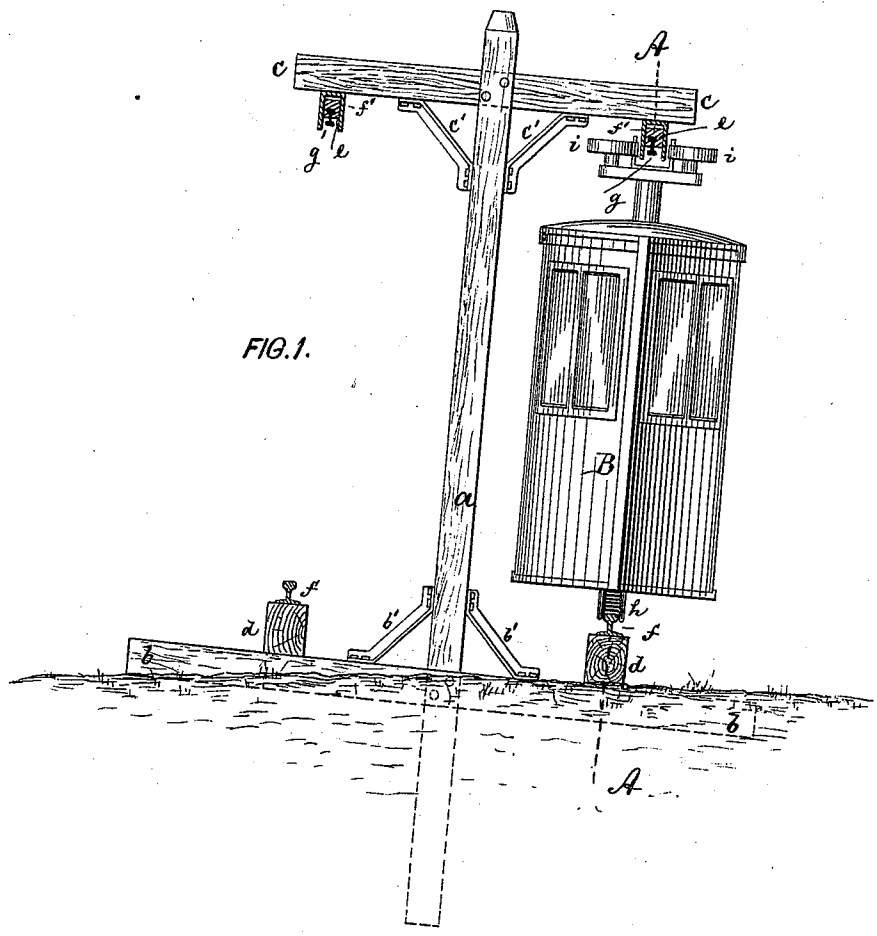
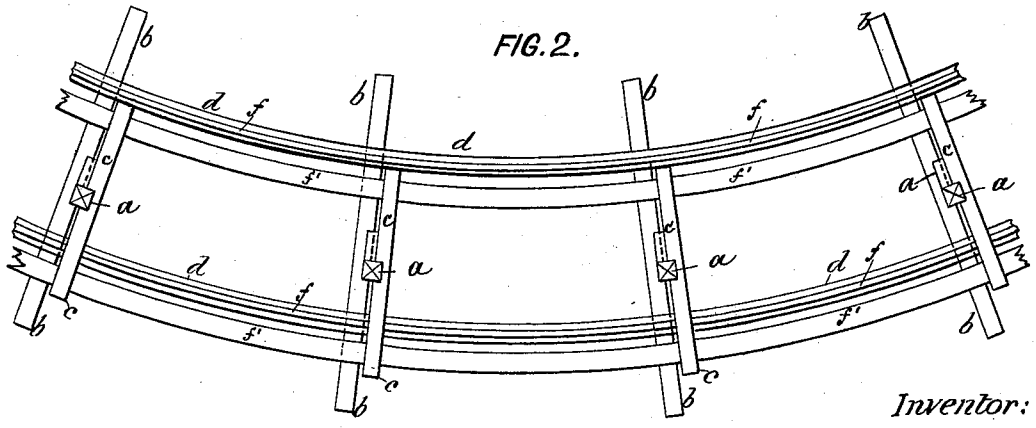


FIG. 1.

FIG. 2.



Witnesses:
John Becker.
Wm. G. Whiting.

Inventor:
William H. Boynton
by his attorneys
Roeder & Briesen

UNITED STATES PATENT OFFICE.

WILLIAM H. BOYNTON, OF MORRIS PARK, NEW YORK, ASSIGNOR TO EMILY M. DUNTON, OF HOLLIS, NEW YORK.

RAILWAY SYSTEM.

SPECIFICATION forming part of Letters Patent No. 562,211, dated June 16, 1896.

Application filed February 15, 1896. Serial No. 579,428. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BOYNTON, of Morris Park, Queens county, New York, have invented an Improved Railway System, of which the following is a specification.

This invention relates to a railway system of the class in which the cars engage a single lower rail and a single upper rail, and more particularly to the construction of the road at those points where the road-bed describes a curve.

As is well known, a train on rounding a curve must be tilted so that its equilibrium is maintained against its centrifugal force. If to produce this tilting the upper rail is simply shifted sidewise, the rails will be thrown out of line axially and consequently the wheels will friction against the rails and try to climb the same.

Now my invention consists in so constructing the road at the curves that the rails, though out of line vertically, will remain in line axially and therefore the car-wheels will attack the rails at the most perfect angle and any climbing action is prevented.

Briefly stated the invention consists in a railway system composed of a post, inclined parallel upper and lower sleepers secured thereto and inclined rails secured to the sleepers, such rails being out of line vertically but in line axially.

The invention also consists in the other features of improvement pointed out in the claims.

In the accompanying drawings, Figure 1 represents a vertical transverse section of my improved railway system. Fig. 2 is a plan of a portion thereof, showing a curve of the road-bed.

The letter *a* represents a post at the curve of a railway system, said post carrying the lower sleeper *b*, and the upper sleeper *c*. This post is not planted vertically, but is inclined toward the center of the curve to be described. The degree of inclination of the post depends of course upon the length of the curve's radius, *i. e.*, the greater the radius the less the inclination, or vice versa.

The sleepers *b c* are secured to the posts *a* at right angles and are consequently inclined horizontally at an angle that corresponds to the vertical tilt of the post. These sleepers project at equal distances toward both sides of the post to form a double-track road. They are attached to the post by suitable braces *b' c'*, and in addition thereto the bottom sleeper may of course be supported by the road-bed. At equal distances from the post *a* I secure to the sleepers *b c* the longitudinal stringers *d* and *e*, of which the lower stringer *d* carries the supporting-rail *f*, and the upper stringer *e* carries the guide-rail *f'*. As the stringer *d* is parallel to the post *a*, and is consequently inclined, it follows that the tread of the rail *f* is also inclined from side to side. The upper stringer *e* is surrounded by its guide-rail *f'*, which is preferably made of U shape and with its sides projecting below the lower side of the stringer to form a trough that protects the trolley-wire *g*.

It will be seen that by my invention the upper rail is thrown vertically out of line with the lower rail, as should be the case to counteract the centrifugal force of the train. At the same time both rails are shifted laterally from a common vertical plane to a like extent, and both rails are inclined to a like angle, from a horizontal direction. It is clear, therefore, that a vertical axis drawn through one rail will, when extended, constitute the vertical axis of the other rail. (See dotted line A A, Fig. 1.) In other words, the car B will be so tilted by the rails that it will remain in line axially with both of the rails. Consequently the flanges of the lower or traction wheel *h* will be placed at right angles to the tread of rail *f*, while the tread of the upper or guide wheels *i* will be placed at right angles to the sides of the rail *f'*. It is clear that, owing to this relative position of the parts, the train will take the curve in the most perfect form possible and that any climbing action of the wheels is entirely avoided. Moreover the curves can be constructed without difficulty and the inclination of the posts can be easily calculated to obtain a perfect result.

What I claim is—

1. A railroad system composed of a post, inclined parallel upper and lower sleepers secured thereto, and inclined rails secured to

the sleepers, such rails being out of line vertically, but in line axially, substantially as specified.

2. A railroad system composed of a series of posts inclined toward the center of the curve of the road-bed, parallel upper and lower sleepers secured thereto, stringers secured to the sleepers, and inclined rails secured to the stringers, such rails being out of line vertically, but in line axially, substantially as specified.

WILLIAM H. BOYNTON.

Witnesses:
F. v. BRIESEN,
WM. G. WHITING.