2 Sheets--Sheet 1.

R. STONE.
Car for Elevated Railway.

No. 162,323. Patented April 20, 1875.

Fig. 1.

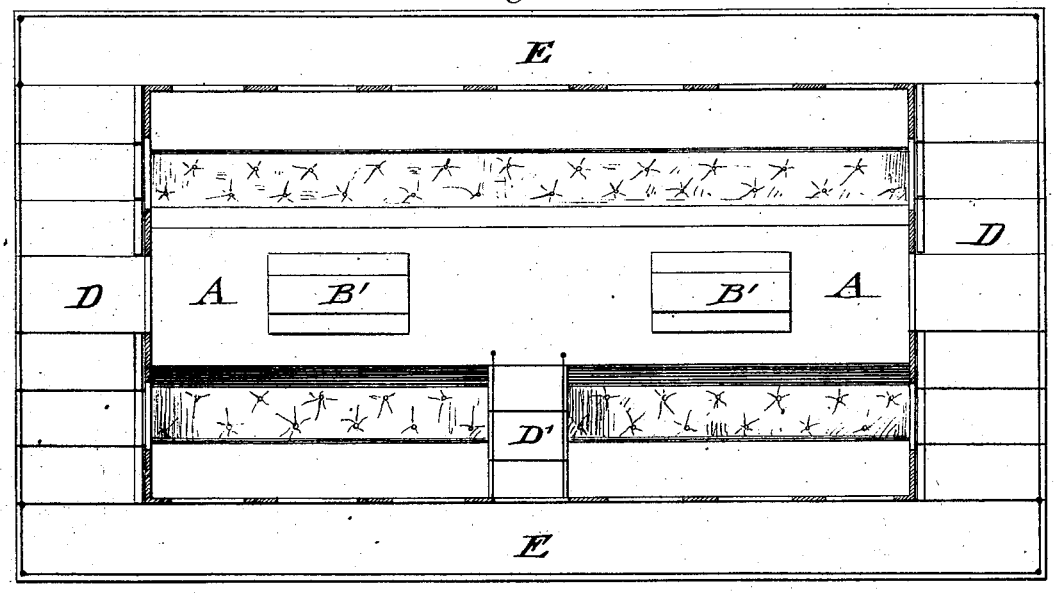
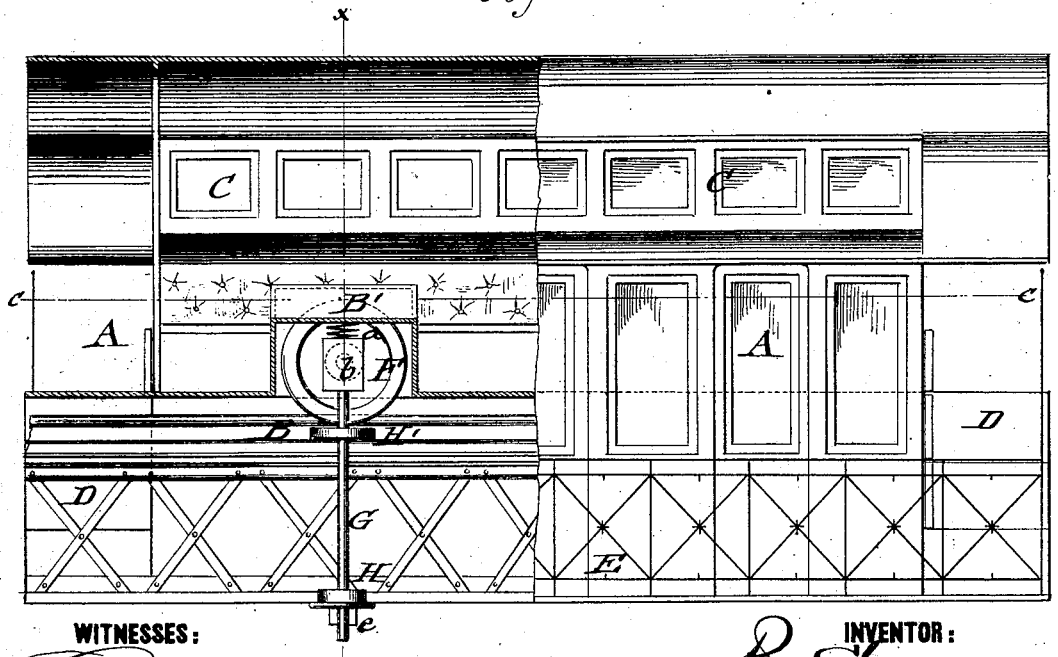


Fig. 2.



WITNESSES:

Gustave Lüttich

A. F. Terry

INVENTOR:

R. Stone

BY

ATTORNEYS.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

R. STONE.

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Fig. 4.

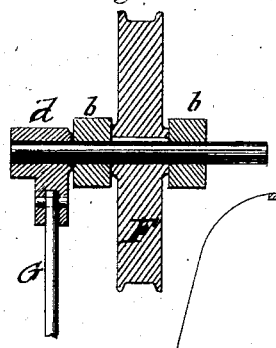

Fig. 5.

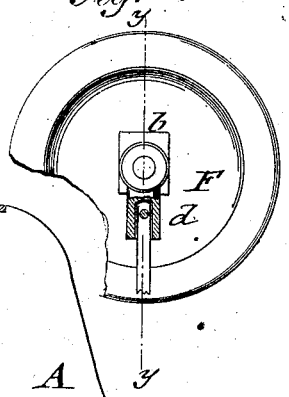

Fig. 3.

WITNESSES:

Gustave Dieterich

A. F. Terry

INVENTOR:

R. Stone

BY

ATTORNEYS.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

ROY STONE, OF VANDALIA, NEW YORK.

IMPROVEMENT IN CARS FOR ELEVATED RAILWAYS.

Specification forming part of Letters Patent No. **162,323**, dated April 20, 1875; application filed March 20, 1875.

To all whom it may concern:

Be it known that I, ROY STONE, of Vandalia, in the county of Cattaraugus and State of New York, have invented a new and Improved Car for Elevated Railway, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a horizontal section of my improved car for elevated railway, on the line *c c*, Fig. 2; Fig. 2, a side elevation, partly in section; Fig. 3, a vertical transverse section on the line *x x*, Fig. 2, of the car; and Figs. 4 and 5, respectively, vertical transverse section on line *y y*, Fig. 5, and side view of one of the top bearing-wheels of the car.

Similar letters of reference indicate corresponding parts.

My invention relates to an improved car for that class of elevated railways which are constructed on the single-rail plan, or, better, on three rails (a top bearing and side guiding rails) supported on a longitudinal girder stretched from column to column, the car being placed thereon in the nature of a saddle-bag, with symmetrical parts at both sides of the girder.

The invention consists of a car constructed in saddle-bag fashion at both sides of the railway, with a double tier of seats arranged one above the other, and near the center of car, so that the weight is brought as much as possible on the top bearing-wheels, which are inclosed in suitable casings of the upper part of the car. The axles of the top bearing-wheels turn in journal-boxes, on which the casings rest by suitable springs, the axles of the lower side and guard wheels being hung to the journal-boxes, or to separate boxes, with the lower part of the car-frame sliding by spring-cushioned bearings thereon. The car is surrounded by platforms, and provided with end and central staircases, to give ready access to all the seats of the car.

In the drawings illustrating my invention, A represents my improved car for single-rail or saddle-bags roads, which is constructed in symmetrical parts at both sides of the supporting-girder, and placed on two or more separate trucks, B, arranged in the central hollow part of the car, and in extension-casings B′ for the top bearing-wheels. The central hollow part conforms in size to that of the girder, being somewhat larger to allow for the width of the trucks. The car is arranged on the double-tier plan, the lower tiers with seats facing toward the outside, and the upper tiers with seats facing each other, the upper seats being vertically above the lower ones, at such height that the passengers are not in the least interfered with when rising and sitting down, and that the weight of all the passengers is brought near the center of the car. The upper tiers are protected by an omnibus-shaped extension, C, with side and end windows and doors, and are reached conveniently by end staircases D, connecting the platforms E at both sides of the car, and by a central door and stairway, D′, at the station side. The end stairways serve to give access to the seats outside of the casings of the bearing-wheels, while the central seats between the casings are reached by the middle stairway. The seats of the lower tiers are reached by sliding doors from the platforms, which communicate by the end stairways, both ends of the car on the stairs being also made available by automatically-folding spring-seats, or other suitable devices, which would be used by smokers and others who prefer to ride outside. The upper seats are to have the same space as those in an omnibus, and are to be in all respects as comfortable as those in the lower tiers, furnishing, in addition to the outside seats, convenient accommodation for a large number of passengers. The platforms are provided with suitable railings, and hinged communicating end doors, by which the guards may pass along the whole length of the train. The casing B′ of the car rests on strong supporting-springs *a*, placed on the journal-boxes *b* of the upper bearing-wheels F of the trucks B. The top bearing-wheels F run by double flanges on the top rail of the girder, the axles G of the lower guiding-wheels H being either hung to the journal-boxes *b* or to separate boxes *d*, placed outside of the same on the shafts of the bearing-wheels, as shown in Figs. 4 and 5. The axles G are bent in the middle part in outwardly-inclined direction to adjust themselves to the shape of the girder, and carry at their upper vertical parts the guard-wheels H′, and at their vertical lower ends the guiding-wheels H, which are so connected with the bearing-wheels that

a constant position with relation to the bottom rails is retained, however much the car may rise or fall on its springs, their guard-flanges coming only in exceptional cases in actual contact with the side rails. The lower part of the car bears by semicircular spring-cushioned bearings or supports *e* above and below the guiding-wheels H on the axles *g*, so as to allow the car to slide thereon independently of the motion of the trucks on the rails. The guard-wheels H′ bear on the top rail below the bearing-wheel whenever the car, by overloading on one side, tends to incline in that direction, so that it is not important to preserve an equilibrium of the car, as the guard-wheels, in addition to the guiding-wheels at the bottom, hold the car level, while the girder, from its form and construction, is sufficiently strong to resist the twisting strain which results therefrom without causing too great friction thereon. The axles of the bearing-wheels are short, and free to move forward and back at either end as far as the car-connecting springs will permit, which allows the bearing-wheels of the trucks to turn, so as to adjust themselves to any curve of the rail independently of each other and of the body of the car, thus avoiding all friction of flanges, or danger of climbing the rails. The pendent axles of the guiding-wheels are hung to the boxes of the bearing-wheels in such a manner as to freely admit the adjustment of the latter, while preserving the rigidity of the trucks in lateral direction and the upright position of the bearing-wheels.

The locomotives are built in the same way as the cars by bringing the center of gravity below the rail, and having guide-wheels in the same manner.

For heavy trains or steep grades horizontal driving-wheels and vertical guiding-wheels may be used, the tractive force being increased at pleasure, as this form of lateral railways is specially adapted for such an arrangement.

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

1. In a car for elevated single-rail road, the combination of a lower tier or tiers of seats, near its center, with a similar tier or tiers vertically above the lower tier or tiers, substantially as and for the purpose set forth.

2. In a car for elevated single-rail ways, the combination of side platforms, communicating end stairways, and a central stairway at station side, for giving ready access to the upper and lower tiers of seats, as set forth.

3. A saddle-car having two wheel-casings and cushioned base-supports, in combination with spring-supporting trucks, substantially as and for the purpose set forth.

4. In the car-supporting truck adapted to shape of girder, the combination of top wheel, having flexible bearings, with upper guard and lower guiding wheels, substantially as and for the purpose set forth.

ROY STONE.

Witnesses:
EDWARD D. LOVERIDGE,
GEORGE U. LOVERIDGE.