(No Model.) 3 Sheets—Sheet 1.

E. M. BOYNTON.

RAILWAY CAR FOR ELEVATED ROADS.

No. 394,092. Patented Dec. 4, 1888.

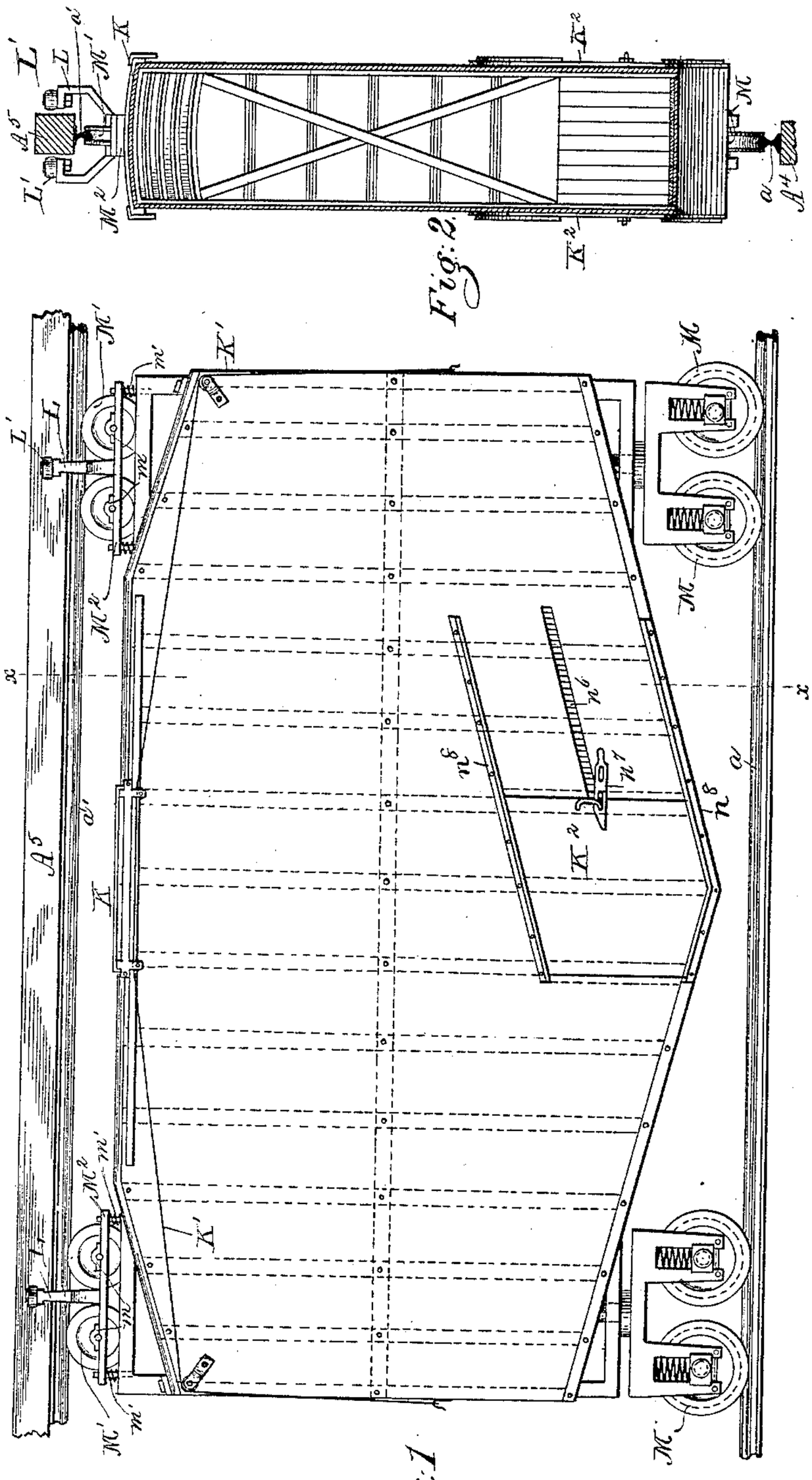

Fig. 2.

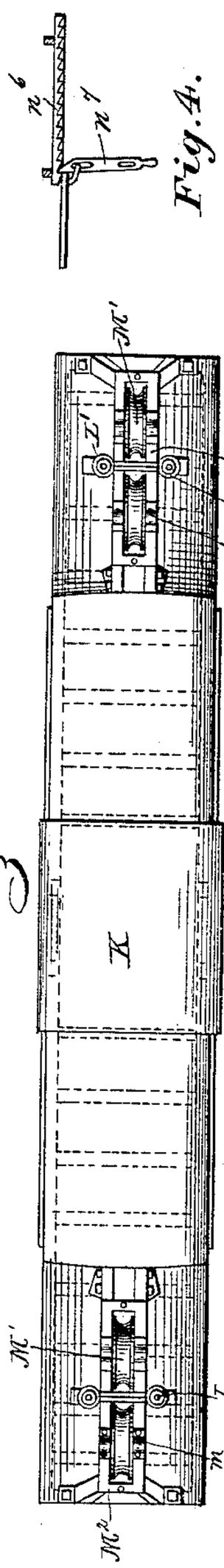

Fig. 3.

Fig. 4.

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(No Model.)

3 Sheets—Sheet 2.

E. M. BOYNTON.

RAILWAY CAR FOR ELEVATED ROADS.

No. 394,092. Patented Dec. 4, 1888.

Fig. 6.

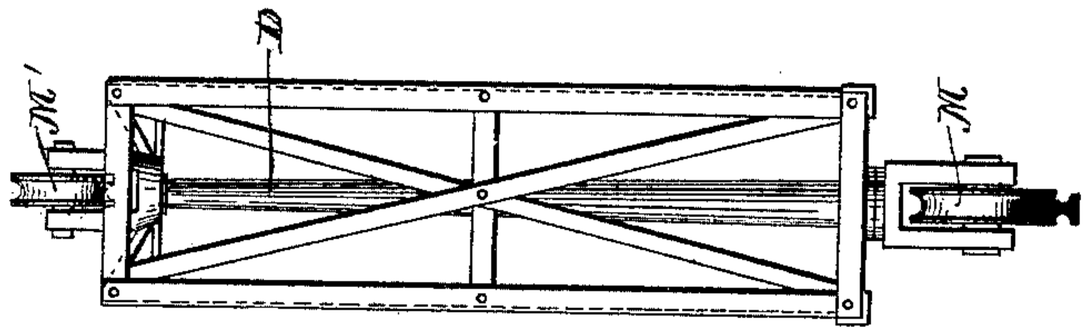
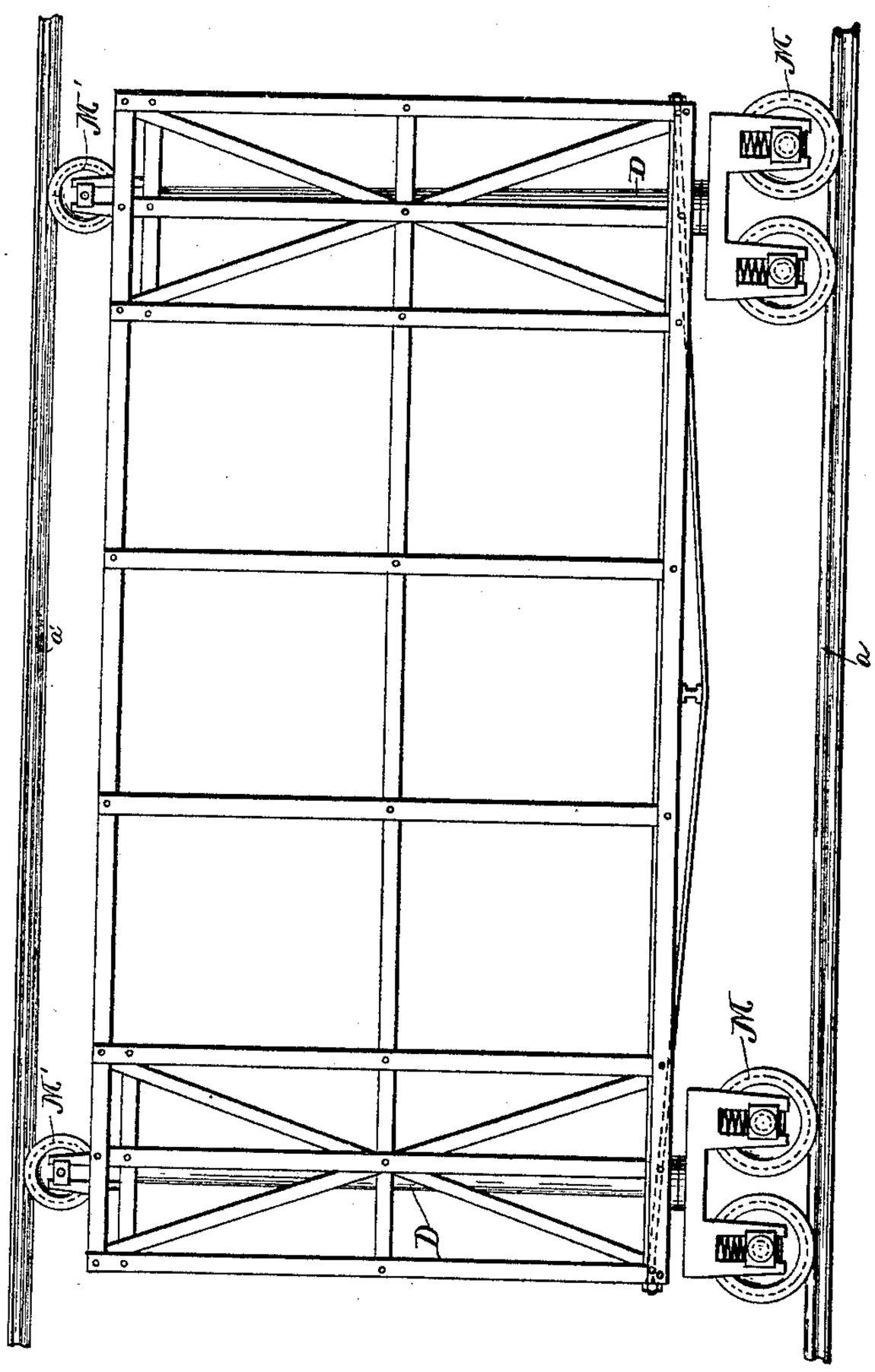


Fig. 5.



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(No Model.) 3 Sheets—Sheet 3.

E. M. BOYNTON.

RAILWAY CAR FOR ELEVATED ROADS.

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Fig. 8.

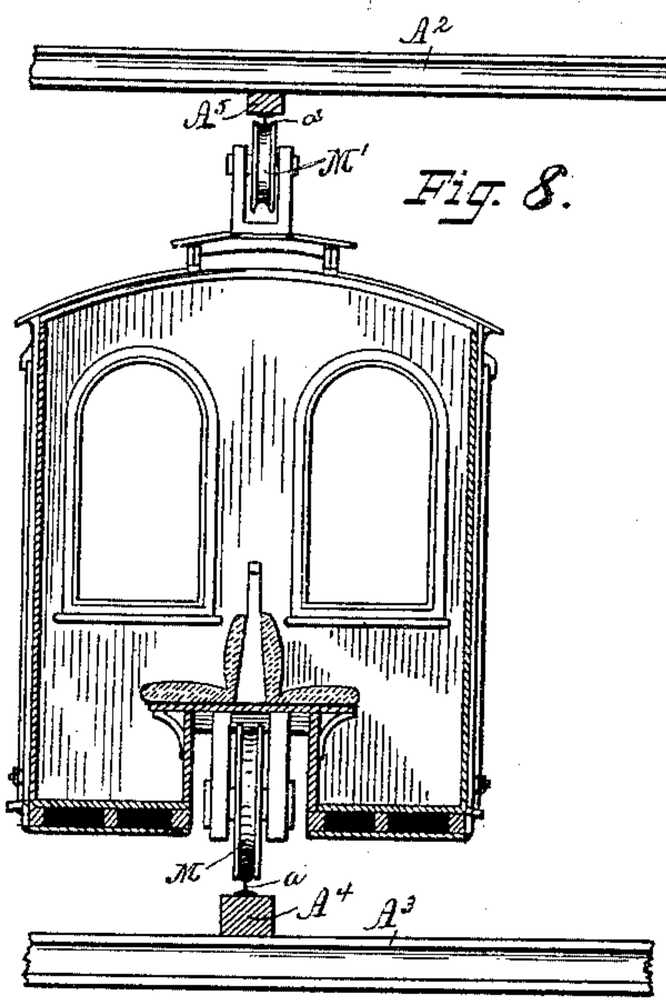


Fig. 9.

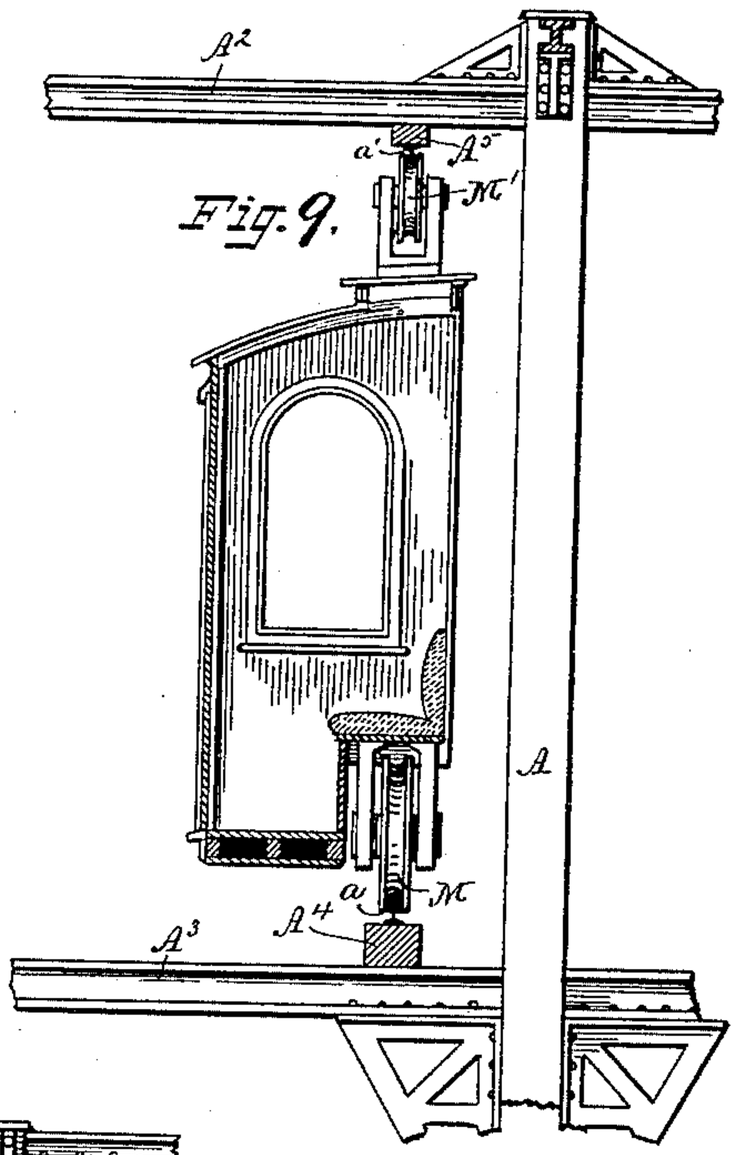
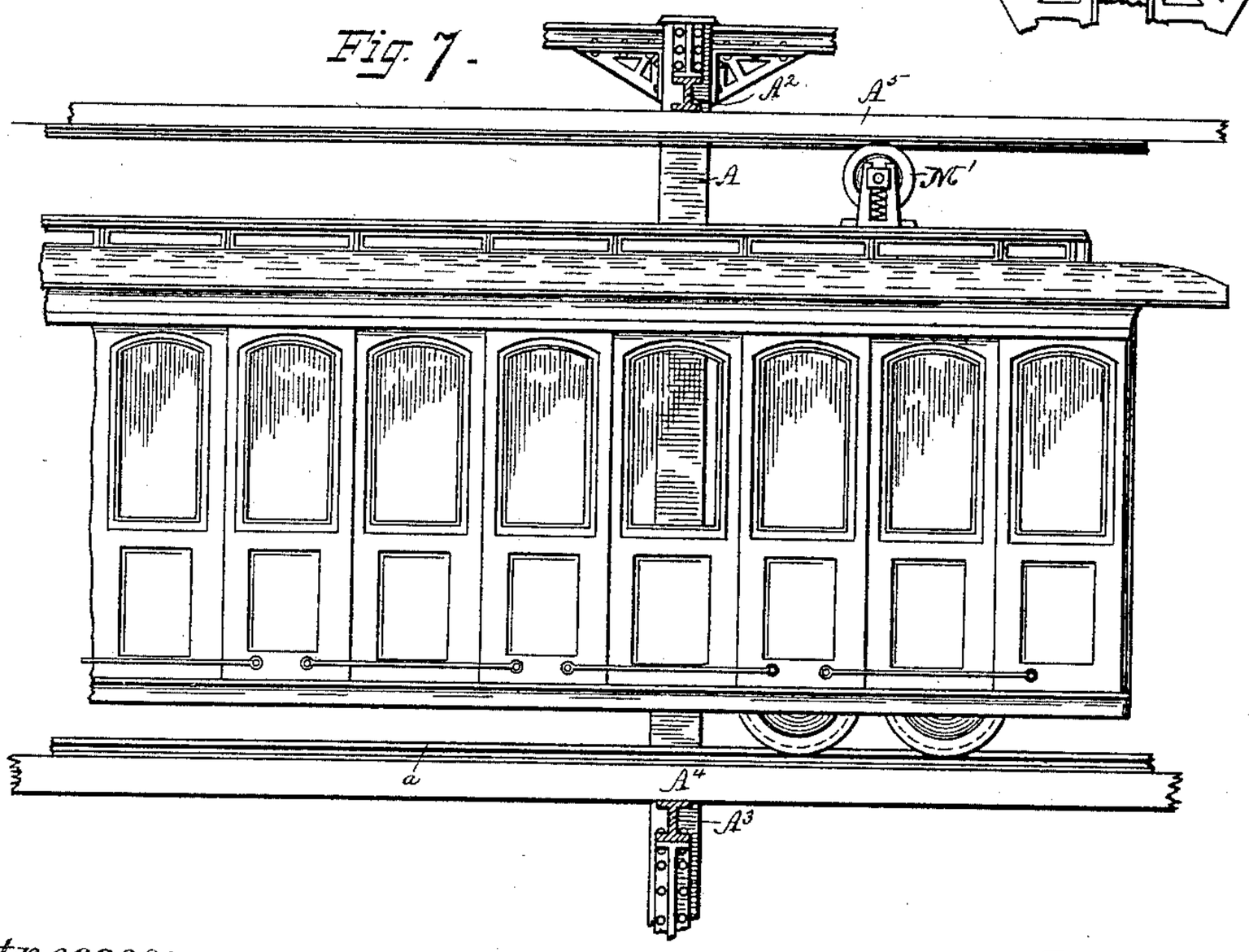


Fig. 7.



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UNITED STATES PATENT OFFICE.

EBEN MOODY BOYNTON, OF WEST NEWBURY, MASSACHUSETTS.

RAILWAY-CAR FOR ELEVATED ROADS.

SPECIFICATION forming part of Letters Patent No. 394,092, dated December 4, 1888.

Application filed March 28, 1887. Serial No. 232,647. (No model.) Patented in England March 8, 1887; in Spain June 2, 1887; in Belgium June 30, 1887; in France August 30, 1887; in Brazil October 13, 1887; in Austria-Hungary October 30, 1887; in Norway December 22, 1887; in New South Wales March 7, 1888; in Victoria March 7, 1888; in New Zealand March 7, 1888, and in India April 2, 1888.

To all whom it may concern:

Be it known that I, EBEN MOODY BOYNTON, a citizen of the United States, residing at West Newbury, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Railway-Cars for Elevated Roads, (patented in Great Britain March 8, 1887; Spain, June 2, 1887; Belgium, June 30, 1887; France, August 30, 1887; Brazil, October 13, 1887; Austria-Hungary, October 30, 1887; Norway, December 22, 1887; New South Wales, March 7, 1888; Victoria, March 7, 1888; India, April 2, 1888, and New Zealand, March 7, 1888;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The said invention relates to railway cars or carriages for the bicycle-railway system, the principle of which is a single line of supporting-rails below and a single line of guiding-rails overhead, the rolling stock being adapted to run on said upper and lower rails, the overhead guide-rail being employed to retain the cars in a vertical position upon the lower or supporting rails. The motive power for transporting cars in this system is clearly described and claimed in Letters Patent No. 359,008, dated March 8, 1887. Various designs may be employed in the construction of these cars, the style and design to be employed depending greatly upon the use for which the cars are intended. Cars may be constructed with two stories for different classes of passengers—as, for instance, a smoking compartment and general compartments—or, one story may be utilized for passengers and the other for baggage, or they may be divided into transverse compartments, so that they may be readily converted into sleeping-carriages. The rolling-stock is preferably constructed of such a width that when trains are running on the two parallel rails of an ordinary railway they can freely pass each other while going in either direction. The desired results are accomplished in my improved system by having the carriages and other rolling-stock supported upon central wheels, running upon a single supporting-track of ordinary or other suitable construction and retained in a vertical position by means of wheels arranged above the said carriages and other rolling-stock in position to engage with a rail or guide supported above the path of the train.

Certain preferred forms of carrying my present invention into effect are illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a self-dumping car especially designed for grain or coal and adapted to my system of railway. Fig. 2 is a cross-section on the line $x\,x$ in Fig. 1; Fig. 3, a plan view of the form of car shown in Fig. 1; Fig. 4, a detail view of the ratchet mechanism for closing and securing the door of said car; Fig. 5, a side elevation of a form of car more especially designed for live stock, lumber, &c., and, when covered, for a general freight or baggage car; Fig. 6, an end view of the same; Fig. 7, a side elevation of a portion of a passenger-car especially adapted fro short lines, as, for example, a bridge line; Fig. 8, a transverse section of a passenger-car of this class made double; and Fig. 9 is a transverse section of a passenger-car of the same class made single.

The construction of the frame-work for the system, as shown in the various figures, consists of post A, projecting arms A^2, cross-ties A^3, longitudinal stringers A^4, for the lower supporting-rail, and longitudinal stringers A^5, for the upper or guide rail. These parts are preferably made of wood, and the entire structure may rest on spiles or any other suitable foundation. The supporting and guiding rails a and a' are secured to the longitudinal stringers A^4 and A^5, respectively, in the usual manner, and are preferably of the shape shown. Many modifications of this structure can of course be made. The special structure, however, forms no portion of my present invention, and is, moreover, fully illustrated and described in an application filed November 14, 1887, as a division hereof, Serial No. 255,053.

Turning now to Figs. 5 and 6, it will be noticed that the form shown is a skeleton car,

more especially designed for live stock, lumber, &c., which, when covered, is suitable for a general freight or baggage car, a swinging or sliding door (not shown) being placed at the center. This car may be made two stories high for rolling or barrel freight or for live stock by placing a floor at the center. It will be noticed in Figs. 5 and 6 that in this form of car both upper and lower trucks are attached to a single spindle, D, which extends entirely through the car. This form may be used, if preferred, instead of the independent spindles, for upper and lower trucks, as shown in the other figures. The passage of this spindle from truck to truck entirely through the car greatly strengthens the parts thereof and prevents any lateral strain.

In the form shown in Figs. 1, 2, and 3 the body of the car is deepest at the center, so as to permit self-dumping at the door K^2 or through a sliding door in the bottom of the car, thus allowing the grain to be deposited in elevators or at any desired place. The grain is admitted through an aperture in the top of the car, covered by a sliding door, K, as shown in Fig. 3, which may be operated by a cord, K′, as shown in Fig. 1, the door being preferably arranged to slide on casters. The lower sliding door, K^2, is operated by a ratchet, n^6, arranged, as shown, midway between and parallel to the top and bottom slide-rails n^8 of said door. The hasp n^7 of the door is so formed as to serve also the purpose of a ratchet lever or handle, the point of which is suitably formed to engage with the ratchet n^6 for the purpose of opening and closing said door.

In the construction of the passenger-coaches many variations in form and style may be made, the exact construction depending, of course, upon the special use and quality of the coaches.

In Figs. 8 and 9 I have shown double and single styles of cars especially adapted for elevated roads, bridges, and various short lines, where the passengers remain seated but a few moments.

My improved cars are preferably provided each with four supporting-wheels, M, which travel over the supporting-rail a, and four guiding-wheels, M′, which travel under and engage the guide-rail a'. It is not essential that four wheels be employed, as single wheels may be used in place of double wheels on each spindle. These wheels are made with double flanges, forming a groove to fit and run upon the single line of rails. The two wheels shown at each end at the top of the car in Figs. 1 and 3 are journaled in suitable bearings, m, upon a yoke, M^2, resting upon spiral springs m', which cushion the yoke and yield sufficiently to compensate for irregularities in the supporting-rail and hold the guide-wheels in engagement with the guide-rails at all times.

In Figs. 1, 2, and 3 I have shown a safety device to be used in connection with the overhead or guiding wheels N′. This device is attached to the spindle which carries said wheels, and consists of a bracket, L, (see Fig. 2,) which partially encircles the guide-rail and stringer A^5, and is provided at its opposite ends with anti-friction wheels L′, which are adapted to engage the stringer A^5, should the guide-wheels become disengaged from the guide-rail. This device has no function except as a safety device in the event of derailment of the guide-wheels M′ or the sinking of the road-bed to such an extent as to drop the guide-wheels from their engagement with the guide-rail a'. Should either of these contingencies occur, the safety device will retain the train in its proper position by engagement with the stringer A^5 until the guide-wheels are again placed in engagement with the guide-rails. In any event there is no danger of derailment of the train.

The perfect equilibrium of the train is at all times preserved by the engagement of wheels M with the supporting-rail and wheels M′ with the guide-rail, said construction being supplemented and rendered perfectly safe by the addition of brackets L, carrying anti-friction rollers L′.

Having thus described my invention, I claim—

1. A car for single-track railways having a spindle extending entirely through said car, both upper and lower trucks being attached to said spindle.

2. In a single-track-railway system, the combination, with the guide-rails, of guiding-wheels M′ beneath said rails, yoke M^2, by which said wheels are carried, and springs m', supporting said yoke.

3. In a railway system having a single supporting-rail and a single guiding-rail, the combination, with the upper trucks of the cars and their guide-wheels below said guide-rail, of a safety device, L L′, adapted to engage the upper stringer should derailment of the upper trucks occur.

4. In a railway system having single stringers above and below and single supporting and guiding rails, the combination, with said rails, of upper and lower trucks carrying supporting and guiding wheels which engage said rails, respectively, upon the upper and under faces of the latter, whereby the cars are held in a vertical position, and brackets projecting upwardly at the sides of the guiding-rail and having rollers which are adapted to engage the upper stringer should the guide-wheels leave the track.

In testimony whereof I affix my signature in presence of two witnesses.

EBEN MOODY BOYNTON.

Witnesses:
WM. M. CAMEN,
H. CHAPPEL.