No. 637,703. Patented Nov. 21, 1899.

M. BROCHET.

AERIAL RAILWAY.

Application filed July 26, 1899.

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

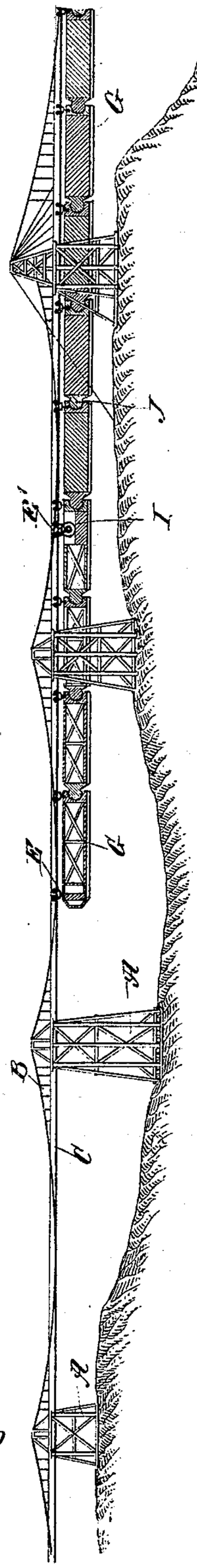

Fig. 2.

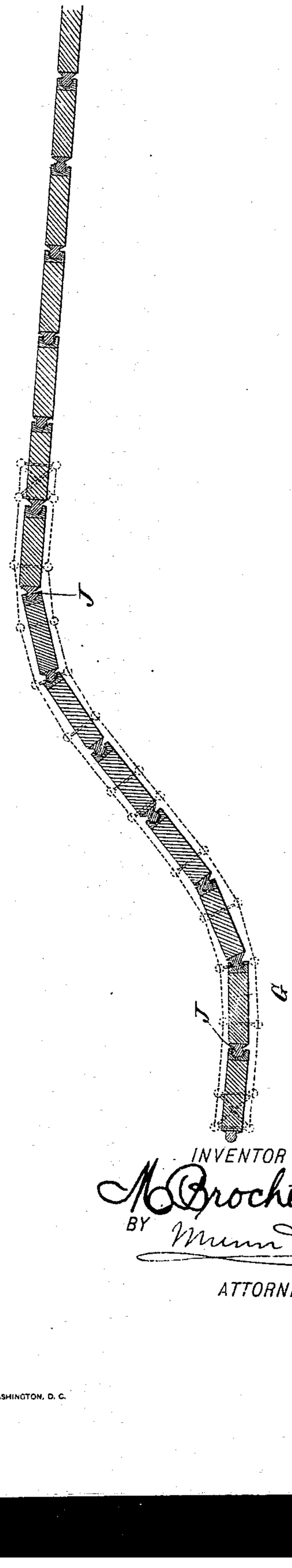

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Fig. 3.

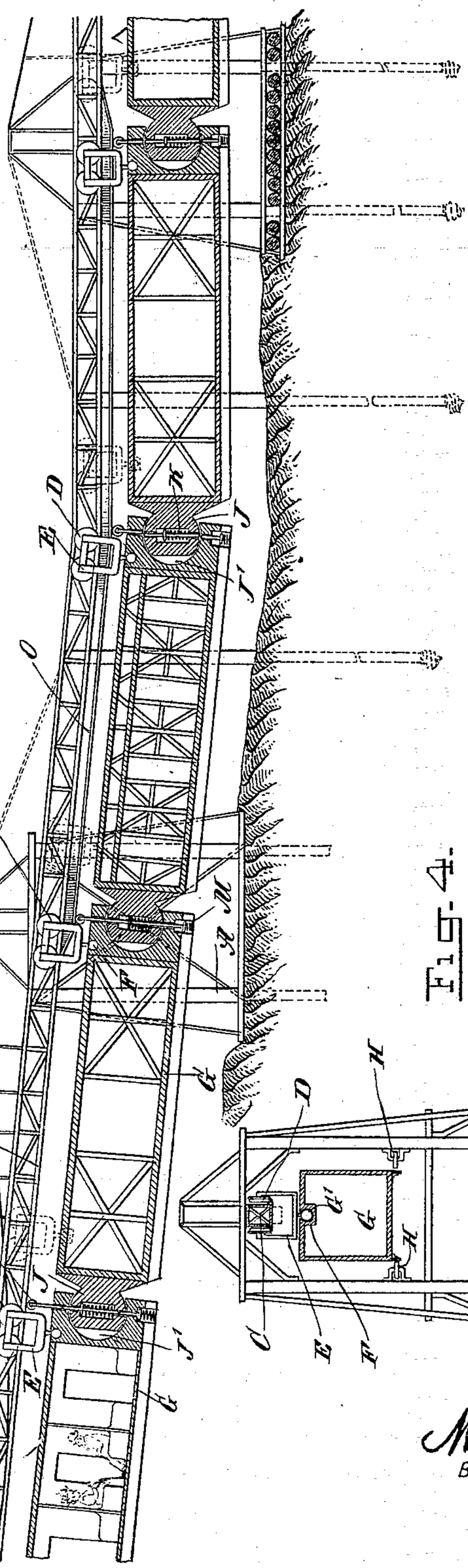

Fig. 4.

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(No Model.) 3 Sheets—Sheet 3.

Fig. 7.

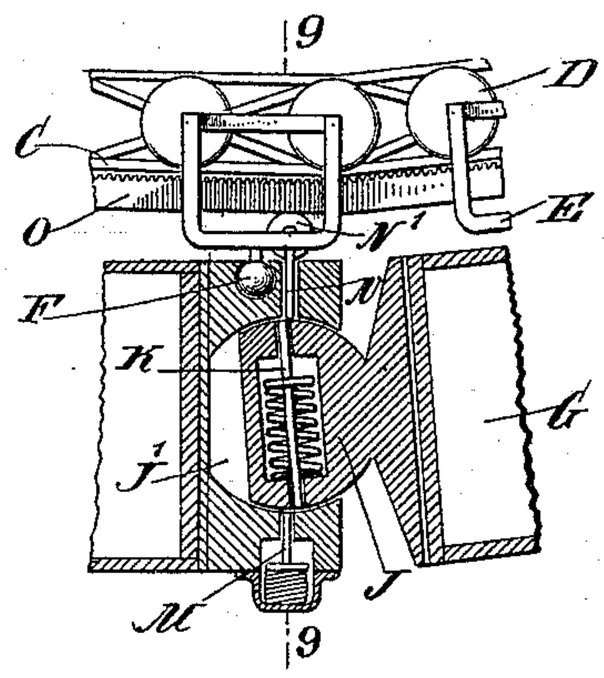


Fig. 8.

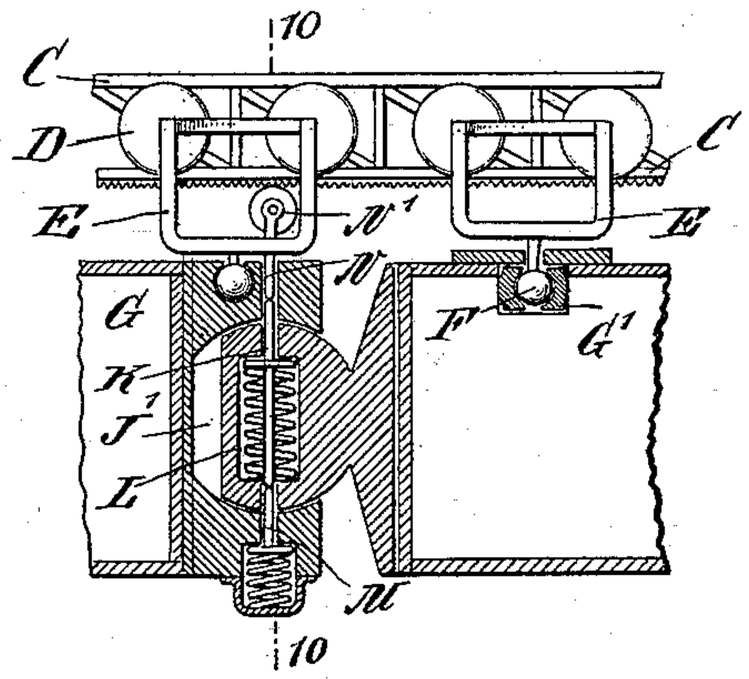


Fig. 9.

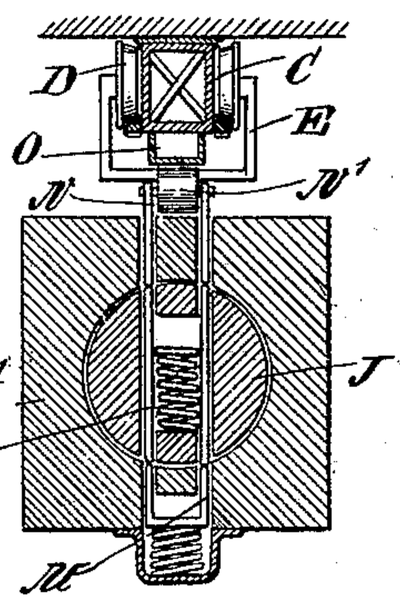


Fig. 10.

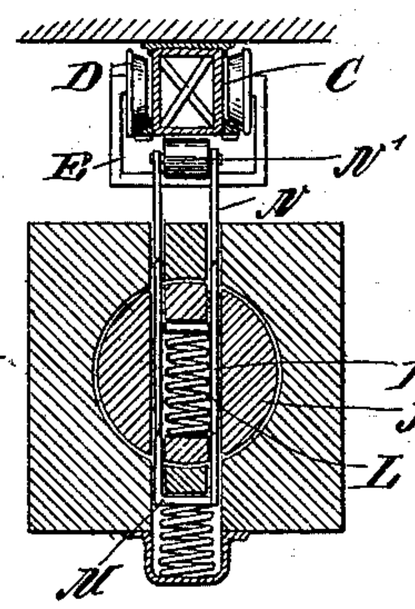


Fig. 11.

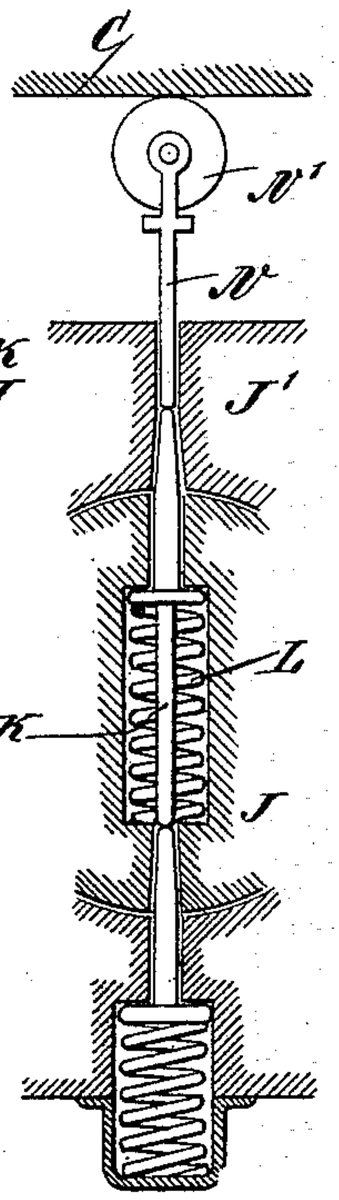


Fig. 12.

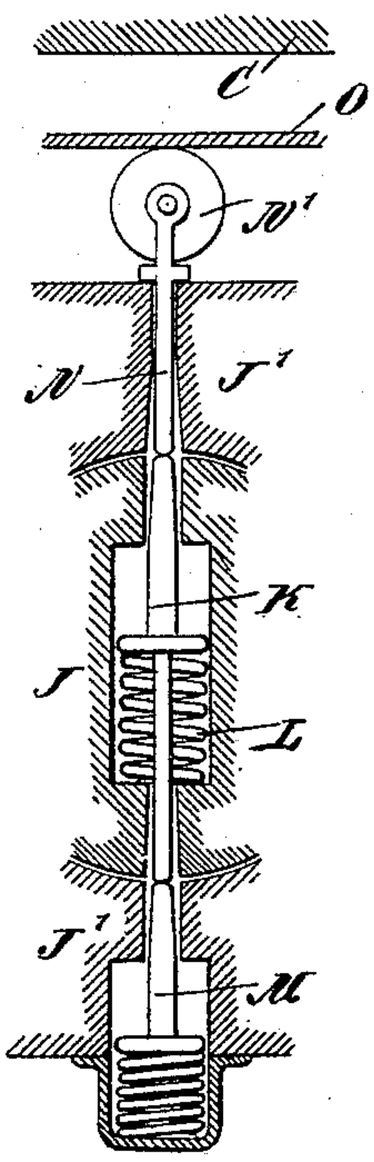
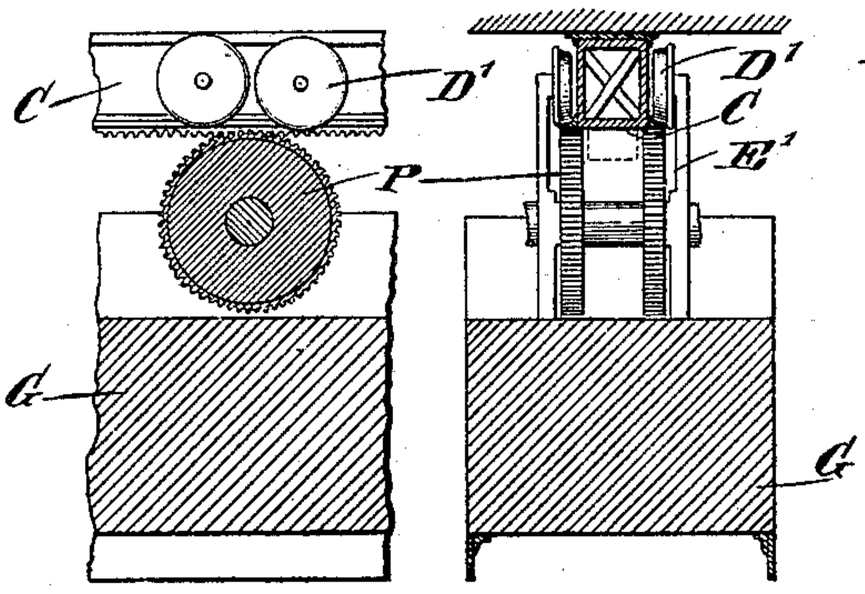


Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

MAURICE BROCHET, OF LEVALLOIS-PERRET, FRANCE.

AERIAL RAILWAY.

SPECIFICATION forming part of Letters Patent No. 637,703, dated November 21, 1899.

Application filed July 26, 1899. Serial No. 725,202. (No model.)

To all whom it may concern:

Be it known that I, MAURICE BROCHET, a citizen of the French Republic, and a resident of Levallois-Perret, near Paris, France, have invented new and useful Improvements in Aerial Railways, of which the following is a full, clear, and exact description.

My invention relates to aerial railways, and has for its object to provide a construction of great strength and lightness, the object being to cause a train of cars to travel overhead upon a structure supported by spaced pillars, and the train, according to my invention, is so constructed as to form practically a rigid self-supporting beam or girder, so that the stationary parts connecting the said pillars act mainly as guides for the train and in some cases as supports for electric wires, but are not necessary, strictly speaking, for supporting the train.

The invention also comprises means whereby the rigid connection between the cars will be temporarily suspended to enable the train to travel on curves or at points where the grade varies.

The invention will be fully described hereinafter and the features of novelty pointed out in the claims.

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 views.

Figure 1 is a side elevation of a railway constructed according to my invention with parts in section. Fig. 2 is a sectional plan of the train on such a railway. Fig. 3 is a side elevation of the railway and train, with parts in section, upon an enlarged scale. Fig. 4 is a transverse section of the structure. Figs. 5 and 6 are a side elevation and an end elevation, respectively, showing the location of the motors. Figs. 7 and 8 are longitudinal sections of adjacent ends of the cars, showing the mechanism for rigidly connecting such cars and for suspending such rigid connection. Figs. 9 and 10 are cross-sections on the lines 9 9 and 10 10 of Figs. 7 and 8, respectively; and Figs. 11 and 12 are further enlarged details of means for connecting the adjacent ends of the cars in positions corresponding to Figs. 8 and 7, respectively.

The railway comprises a series of spaced pillars A, supporting a structure which may be suspended by means of cables B or in any suitable way. This structure consists mainly of a beam C, which is adapted to act as a guide for the cars. (See Fig. 4.) The cars rest upon said guide C, with the full weight of the train only at the pillars A. The suspension of the cars is effected by means of trolley-wheels D, resting upon said guide-beam C and connected with a hanger E, which at its lower end has a ball F engaging a suitable socket G′ on the car G. To prevent lateral swaying of the cars, horizontally-rotating wheels H may be arranged upon the sides of the pillars A. (See Fig. 4.) The cars may be suspended at both ends or at one end only, and I prefer to make the train in three sections, in which the central section consists of the cars proper adapted to receive passengers and baggage, as indicated by shaded lines in Fig. 1, while the two end sections are made up of skeleton cars the only purpose of which is to form the ends of the rigid traveling girder formed by the train. Motors I are preferably arranged at each end of the central section; but it will be understood that I do not confine myself to such an arrangement.

The connection of the cars is effected by means of a ball-and-socket joint, as shown best in Figs. 3 and 7 to 12. J is the ball, and J′ is the corresponding socket. It will thus be seen that the connection allows the cars to move one relatively to the other upon curves and at points where the grade changes. (See Fig. 3.) Normally, however, it is intended to rigidly connect the cars, and this is effected by means of bolts K, which are located within the ball J and which are pressed outward by a spring L. The length of each bolt K is such as to allow said bolt to be withdrawn entirely into the ball J, as illustrated in Figs. 7 and 12. One end of each bolt K is adapted to engage a spring-pressed bolt M, located within a recess adjacent to the socket J′, and the other end of the bolt K is adapted to engage an arm N, carrying a trolley N′. This trolley normally travels upon the under side of the guide-beam C, and at every point where it is desired to suspend the rigid connection of the cars a downwardly-projecting rib O is formed upon the guide-beam C. Normally the springs will keep the bolts K and M and

the trolley-arm N in the position illustrated by Figs. 8, 10, and 11. In such position the bolts K and M connect the adjacent cars rigidly. The whole train then forms practically a girder, which rests only upon the pillars A and projects freely beyond the same without bearing, by its weight, upon the guide-beam C. The operation of the train is therefore similar to the cantaliver construction of a bridge, and the guide-beam C might be omitted altogether so far as its supporting action is concerned. It will be obvious, however, that upon curves the rigid connection between the cars must be temporarily suspended. This is effected by the action of the rib O upon the trolley N'. This forces the arm M inward, so as to depress the bolt K until it is contained entirely within the ball J. (See Figs. 7, 9, and 12.) The ball J is then no longer locked in the socket J' and can rotate therein freely, as shown best in Figs. 3 and 7.

Any suitable motor may be employed. In practice I should prefer an electric motor. In Figs. 5 and 6 the arrangement of the motor is shown in detail. A special trolley-frame E' with wheels D' is connected with the motor-wheels P, which engage a suitably roughened or toothed surface arranged at each side of the guide-beam C.

The suspension-points of the cars are preferably arranged as close as possible to the ball-and-socket joint which connects them. It will be seen that in my improved construction the connection between the pillars—that is, the guide-beam C—may be very light, inasmuch as such connection does not act as a support for a train, but only as a guide therefor.

I desire it to be understood that modifications as long as they remain within the scope of the appended claims constitute no departure from the spirit of my invention.

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

1. A railway consisting of a series of spaced pillars or supports and a train consisting of a series of rigidly-connected cars or sections so that the whole train forms a rigid beam capable of supporting itself between the pillars without any additional support, substantially as described.

2. A railway comprising a series of spaced pillars or supports and a train consisting of connected cars or sections and means for rigidly connecting said sections so as to transform a train into a rigid beam, substantially as and for the purpose set forth.

3. A railway consisting of a series of spaced pillars or supports and a train consisting of a series of cars or sections, means for rigidly connecting said cars or sections so that the train will form practically a rigid beam, and a releasing device whereby the rigid connection between the cars will be suspended to allow one car to move relatively to another, substantially as described.

4. A railway comprising a series of spaced pillars or supports and a train consisting of cars or sections pivotally connected with one another, connecting devices located within the pivotal connection of the cars to rigidly connect the cars with each other, and means for throwing said connecting devices out of action, substantially as described.

5. A railway comprising a series of spaced pillars or supports, and a train consisting of cars connected by ball-and-socket joints, a spring-pressed coupling-bolt located within the ball and adapted to be projected into the socket to lock them together, a trolley adapted to force said bolt back into the ball so as to release the ball, and a guide engaged by said trolley to time the release of the rigid connection, substantially as described.

6. A railway comprising a series of spaced pillars or supports, a guide-beam connecting said pillars and a train consisting of cars or sections provided with engaging devices for said guide-beam, and means for connecting the cars rigidly, substantially as described.

7. A railway comprising a series of spaced pillars or supports, a beam connecting said supports and a train consisting of cars or sections movably connected with one another, means for rigidly connecting the cars, a device for suspending said rigid connection, and driving-wheels engaging said beam, substantially as described.

MAURICE BROCHET.

Witnesses:
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