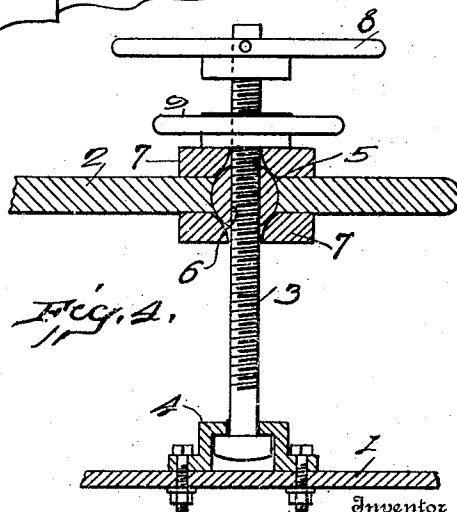
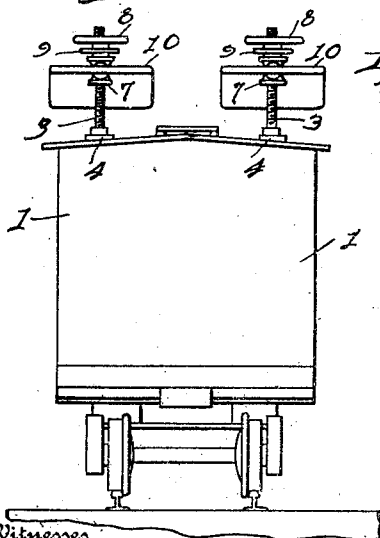
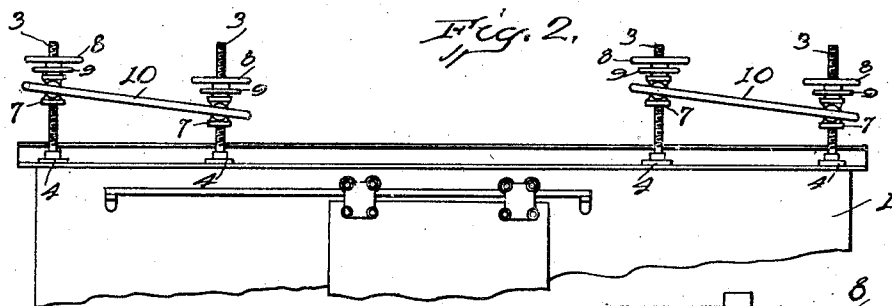
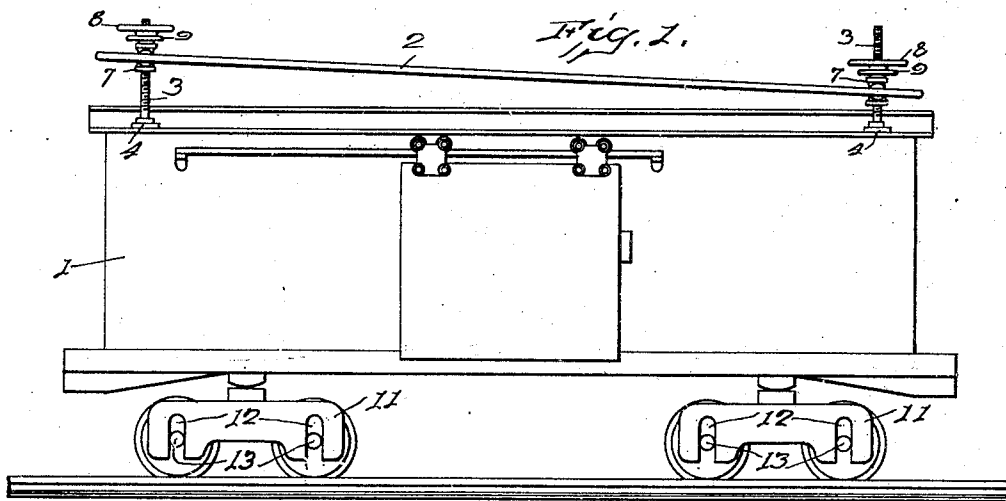


954,166.

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RAILWAY CAR.
APPLICATION FILED DEC. 4, 1909.

Patented Apr. 5, 1910.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

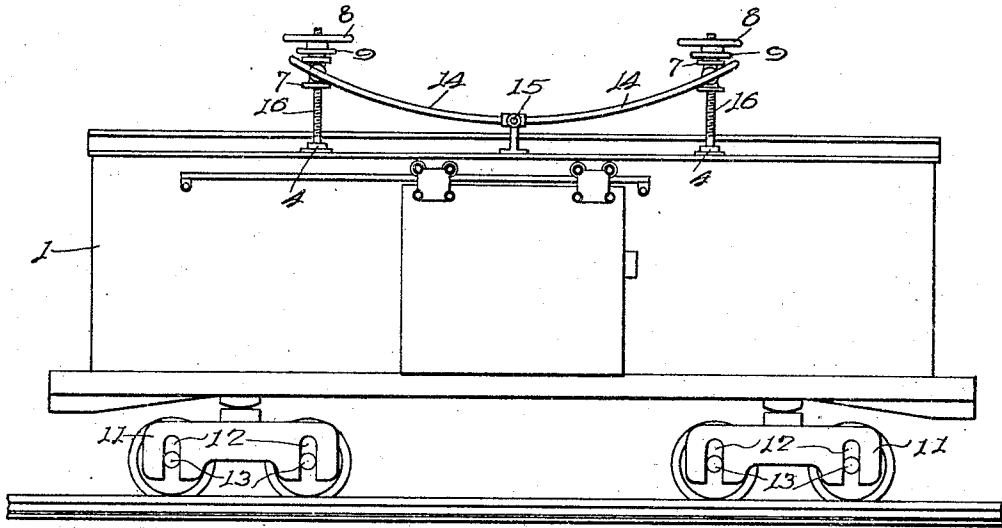
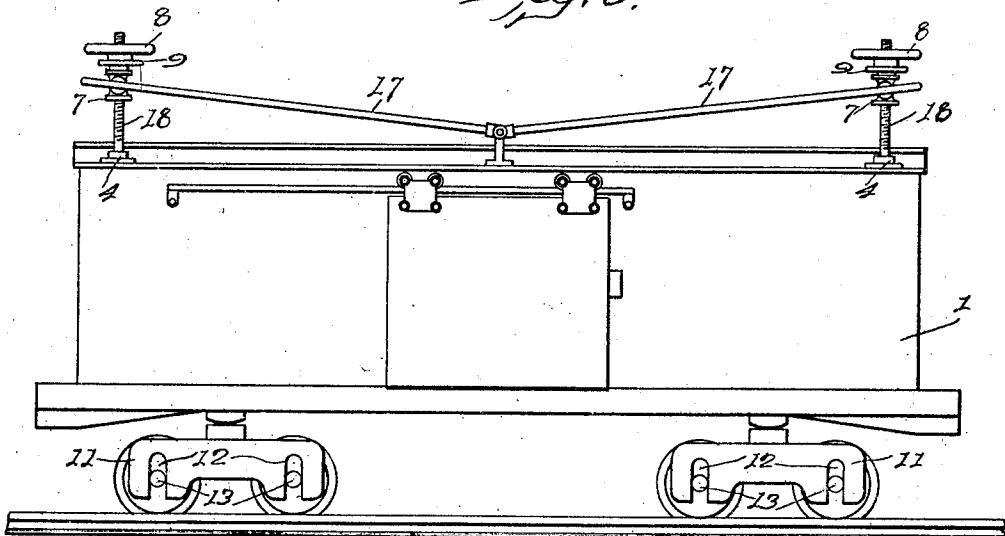


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN BRYAN, OF YELLOW SPRINGS, OHIO.

RAILWAY-CAR.

954,166.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed December 4, 1909. Serial No. 531,290.

To all whom it may concern:

Be it known that I, JOHN BRYAN, a citizen of the United States, residing at Yellow Springs, in the county of Greene and State of Ohio, have invented certain new and useful Improvements in Railway-Cars, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to railway cars, motor cars, boats and vehicles of all kinds, propelled in any manner whatever, whether on land or water.

15 The object of the invention is to provide means for relieving those parts of such vehicles which bear the load, such as the truck of a railway car, of all or a portion of the weight of the load while the vehicle is in motion.

20 To this end it is a further object of the invention to connect to the vehicle an inclined surface which is so arranged as to be subjected to an air pressure when the vehicle is in motion, which pressure will tend to lift the weight of the load off the load-bearing part or parts of the vehicle. Further, it is an object of the invention to provide means for adjusting the angle of inclination of said surface and for completely reversing the inclination of said surface.

25 In the accompanying drawings, Figure 1 is a side elevation of a car equipped with my invention; Fig. 2 is a side elevation of a car equipped with a slightly modified form of the invention; Fig. 3 is an end elevation of the car shown in Fig. 2; Fig. 4 is a detail view of one of the adjustable supporting devices; and Figs. 5 and 6 are side elevations of modified forms of the invention.

30 To illustrate my invention I have mounted at a distance from the car roof a frame or platform having its lower surface arranged at an inclination to the line of movement of the car and constituting an aeroplane. 35 The direction of inclination is rearward and downward, and, when the car is moving forward at any considerable rate of speed, this inclined surface will be subjected to an air pressure, varying with the speed of the car and the degree of inclination of the surface. 40 The car being moved positively forward against the pressure of the air upon the inclined surface of the aeroplane causes this pressure to exert an upward lift on the car. 45 Suitable means are provided for controlling the degree of inclination of the aeroplane to

50 permit the same to be adjusted relatively to the speed of the car and also relatively to the weight of the load carried thereby, and in this way enable the lifting force exerted upon the load to be controlled. Further, this aeroplane is so mounted that it is reversible, to enable it to be adjusted to an operative position when the car is moving in either direction. 55

60 In the accompanying drawings I have illustrated the invention as applied to a freight car of ordinary construction, but it will be obvious that it can be readily adapted for application to cars and vehicles of other types. As shown in Fig. 1 a freight car 1 has an aeroplane 2 adjustably supported above the same by means of a series of upright supports 3, upon which the aeroplane is adjustably mounted. The character of the supports and the manner of adjusting the aeroplane may be of any suitable description, but, for the purpose of illustration, I have here shown the supporting means as consisting of the upright standards 3, shown in detail in Fig. 4 and preferably comprising screw-threaded rods or bolts having their lower ends securely connected to the roof of the car 1, but rotatable relatively thereto, and, to this end, I have here shown the head of the bolt 2 as swiveled in a socket 4 which is rigidly secured to the roof of the car. The screw-threaded portion of the bolt or upright extends through the aeroplane, which has a part provided with a screw-threaded aperture to receive said bolt. In order that the inclination of the aeroplane relatively to the upright member 3 may be varied without causing the two members to bind I have here shown the screw-threaded part of the aeroplane as comprising a substantially spherical member 5 in which is formed a screw-threaded aperture 6 to receive the screw-threaded portion of the upright member 3. This spherical member is mounted in a suitable socket carried by the aeroplane and here shown as comprising two plates 7 secured to the opposite sides of the aeroplane and having inwardly flared openings which cooperate with an opening in the aeroplane to form a spherical socket within which the spherical member 5 is mounted. The upper end of the bolt is preferably provided with a hand wheel 8, or other suitable means, for rotating the same and thus varying the height of that portion of the aeroplane through which it

extends. A jam nut 9 is also mounted on the screw-threaded portion between the hand wheel 8 and the socket plate 7 to lock the aeroplane in its adjusted position.

5 In Fig. 2 of the drawings I have shown aeroplanes 10 of comparatively short length arranged near each end of the car. With the exception of the length of the aeroplanes they are substantially the same as that
10 shown in Fig. 1, being mounted in substantially the same manner. If desirable, each aeroplane may be formed in two portions, as shown in Fig. 3, to form a passageway along the top of the car to permit the
15 train crew to pass along the top of the same. It will be obvious that the form of support here shown will not only enable the inclination of the aeroplane to be adjusted, but will also enable the same to be completely reversed to render the same operative when the
20 car is moving in the opposite direction. It is also desirable that means should be provided to prevent the wheels from being lifted clear of the rails as the car body is raised. To this end I have, in the present
25 instance, shown the journal boxes 11 as having elongated bearing openings 12 to receive the journals 13 on the wheels. Consequently, the car body and the load carried
30 thereby can be lifted a distance sufficient to relieve the trucks of all weight without lifting the wheels out of engagement with the rails.

In Fig. 5 I have illustrated a further
35 modification of the invention and have shown the car as equipped with two aeroplanes 14 inclined in opposite directions so that the car may be moved in either direction without the necessity of reversing the
40 aeroplanes. These aeroplanes are, however, adjustable, and, to this end, are pivotally connected to a support 15 extending from the roof of the car and have their outer ends adjustably mounted on supports 16 which
45 may be of any suitable character, but are here shown as substantially the same as the support shown in Fig. 4. As shown in Fig. 5 the aeroplanes are of comparatively short lengths and terminate at a considerable distance from the car, while, in Fig. 6, I have
50 shown a similar construction in which the car has two aeroplanes 17 mounted thereon in substantially the same manner as the aeroplanes 14 are mounted on the car shown
55 in Fig. 5, but extending to points near the respective ends of the car, where they are adjustably mounted on supports 18.

While I have shown and described several forms of my invention it will be understood
60 that these are shown for the purpose of illustration only and that the principle underlying the same can be applied to cars and vehicles of various types in a variety of ways; and that, while I have here shown a
65 hand-operated mechanism for independently

controlling the aeroplanes on each car, this controlling mechanism may be of any suitable character, it being obvious that the manner of connecting the aeroplane to the vehicle, the manner of controlling the adjustment thereof and the location of the controlling mechanism will be varied to meet the conditions existing in each particular type of vehicle to which the invention may be applied. I, therefore, do not wish to be
70 understood as limiting myself to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

Having thus fully described by invention, 80 what I claim as new and desire to secure by Letters Patent, is:—

1. The combination, with a car comprising a body and wheels supporting said body and having loose connections between said
85 body and said wheels, whereby said body can move vertically relatively to said wheels, of an aeroplane operatively connected to said body.

2. The combination, with a car comprising a body, elongated bearings carried by said body, an axle mounted in said elongated bearings, and wheels carried by said axle, of an aeroplane operatively connected to
90 said body.

3. The combination, with a car, of an aeroplane arranged above the same, a plurality of supporting members secured to said car and connected to said aeroplane, and means for independently actuating each of
100 said supporting members to adjust said aeroplane to different angles of incidence.

4. The combination, with a car, of an aeroplane arranged above the same, a plurality of supporting members secured to said
105 car and held against vertical movement relatively thereto, and means for adjustably connecting said aeroplane to said supporting members.

5. The combination, with a car, an aeroplane arranged above the same, and a part carried by said aeroplane and having a screw-threaded aperture therein, of a screw-threaded member rotatively mounted on
110 said car and adapted to extend through said screw-threaded aperture in the part carried by said aeroplane.

6. The combination, with a car, and an aeroplane arranged above the same, of a part adjustably mounted on said aeroplane
120 and having a screw-threaded aperture, and a bolt rotatably mounted on said car and extending through said screw-threaded aperture.

In testimony whereof, I affix my signature 125 in presence of two witnesses.

JOHN BRYAN.

Witnesses:

E. O. HAGAN,
EDWARD REED.