

Feb. 24, 1942.

C. BREER

2,274,471

RAILWAY VEHICLE

Original Filed May 27, 1937

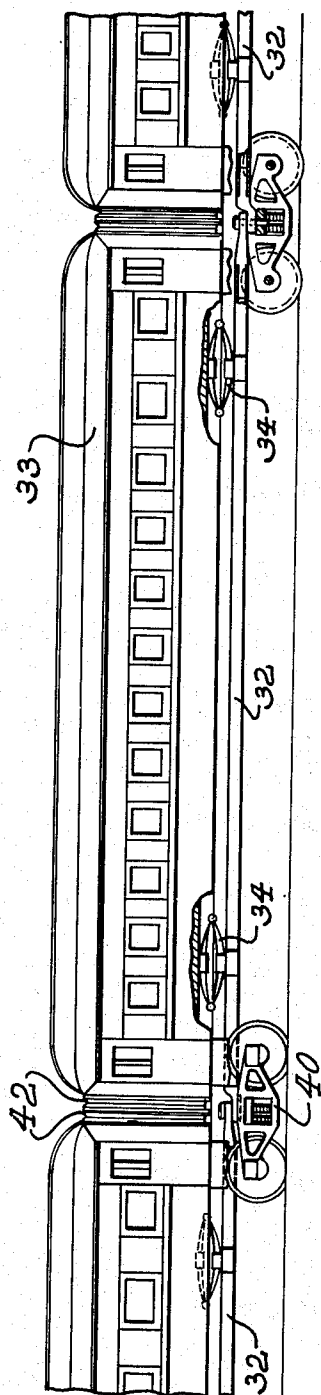


Fig. 1.

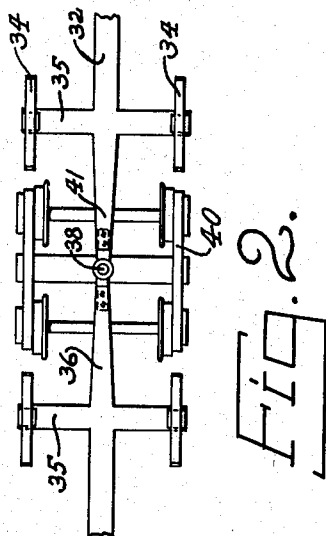


Fig. 2.

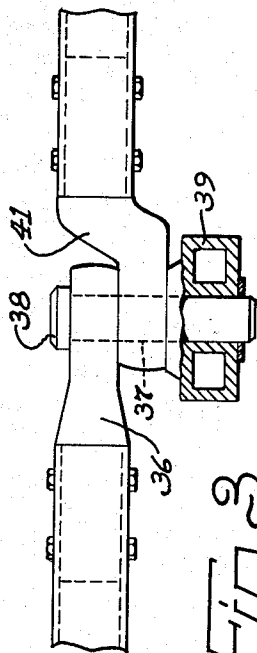


Fig. 3.

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UNITED STATES PATENT OFFICE

2,274,471

RAILWAY VEHICLE

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by mesne assignments, to Railroad Rolling
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Original application May 27, 1937, Serial No.
145,007, now Patent No. 2,208,627, dated July
23, 1940. Divided and this application October
20, 1938, Serial No. 235,942

2 Claims. (Cl. 105-4)

My invention relates generally to vehicles and it has particular relation to various types of railway vehicles in which a series of cars are drawn or propelled over rails or tracks, and which may be employed for the hauling of a load comprising passengers or merchandise.

This application is a division of my co-pending application, Serial No. 145,007, filed May 27, 1937, which has since matured into U. S. Patent No. 2,208,627, granted July 23, 1940.

One object of my invention consists in providing a railway vehicle of the articulated type in which all forces passing through each car to the remainder of the cars are confined to a chassis frame thereof, leaving the car body free to move with respect thereto at all times regardless of the stresses and strains to which the various parts of the train may be subjected.

Another object of my invention consists in providing a novel type of railway car construction of the articulated type in which the car body is mounted on a chassis frame at points so arranged as to subject the body to a minimum of shock and disturbance due to irregularities in the road bed and rails and which permits of operating the cars at higher speeds with less danger of derailment.

A further object of my invention comprises providing a novel method of mounting a railway car body on a chassis so that the car body may be uniformly mounted on the chassis regardless of whether or not that chassis constitutes a self-contained individual unit or is part of an articulated train.

For a better understanding of my invention reference may now be had to the accompanying drawing, in which:

Fig. 1 consists of a side elevational view of portions of several cars of an articulated type of railway train embodying my invention with portions of the cars omitted in the interest of clarity.

Fig. 2 is a detail plan view of the supporting structure of a portion of the mechanism illustrated in Fig. 1.

Fig. 3 is an enlarged detail side view partially in elevation and partially in section, of the car coupling mechanism employed in Fig. 1.

In the structure illustrated in Fig. 1 each car is provided with a chassis frame 32, substantially equal in length to the length of its cooperating car body 33, which is mounted thereon by means of sets of elliptical leaf springs 34, or other resilient means, which, in turn, are supported by lateral extensions 35, constituting portions of the

main chassis frames 32. One end of each of the chassis frames 32 is provided with an extension 36 having a circular opening 37 therein through which a king pin, or center bearing 38, extends, the lower end of the center bearing 38 extending through a bolster 39 constituting a part of a truck frame 40 disposed at the meeting point at the end of the chassis frames 32 of two adjacent cars. The chassis frame at the opposite end of each car is provided with an extension 41 which extends downwardly and forwardly, as shown in Fig. 3 so as to fit beneath the extension 36 of the adjoining car, this being necessary in order to have it pivotally secured to the same king pin or bearing 38, as the chassis frames of both cars are disposed at approximately the same horizontal level.

In this construction the weight of the car body is carried by the chassis frame 32, through the agency of the springs 34, and is transmitted through the ends 36 and 37 of the chassis frames 32 to the bolsters 39 of the truck frames 40 so that each truck carries one end of two adjacent cars, thus forming an articulated construction in which the weight carrying trucks are spaced a maximum distance from each other. At the same time the car bodies are supported in the vertical transverse planes of the centers of percussion of the car body with respect to axes of rotation in the vertical transverse planes of the centers of suspension at the opposite ends of the car bodies. This construction permits of operating the cars at a maximum speed over irregular tracks with a minimum danger of derailment due to irregularities and curves in the tracks and at the same time permits the car bodies to be supported in the vertical transverse planes of their respective centers of percussion, thus providing a maximum degree of comfort and a minimum amount of shock and disturbance being transmitted to the car body owing to irregularities in the rails.

The overall length of the chassis portion 36 and 41 is such that the ends of the car bodies cannot come into engagement with each other when the cars are passing around bends, or are being switched from one track to another, thus preventing any shock in any car body due to contact with an adjacent car body. The car bodies are each provided with collapsible bellows 42 which serve to provide a passenger passageway between the cars but will not transmit any laterally directed forces from one car body to another.

In each of the constructions described it will

be noted that all tension and compression forces exerted on the train, or being transmitted through one car to adjacent cars, are exerted on the chassis frame and none of them are exerted on the car body, and it is otherwise free to move on its suspension means entirely freely and independently of the other car bodies. This is particularly efficacious in eliminating disturbing forces when the train is entering a curve at which time its overall length is decreased or when emerging therefrom at which time its overall length is increased resulting in the generation of considerable forces between the cars. In addition, it will be apparent that the various collapsible bellows between cars will not be necessary where freight cars are employed.

Although I have illustrated but one form which my invention may assume it will be apparent to those skilled in the art that it is not so limited but that various modifications and changes may be incorporated therein without departing from the spirit of my invention or from the scope of the appended claims.

I claim:

1. An articulated train comprising a plurality of vehicles each including a car body adapted to carry a load to be transported, a relatively rigid chassis frame extending substantially the length of the car body, springs interposed between said car body and frame adjacent each end thereof for resiliently supporting the body on the frame at two spaced centers of suspension, said springs constituting the sole support of said car body and being adapted to permit movement of said car body with respect to said frame in all directions, said centers of suspension being so dis-

posed with respect to the distribution of weight of said body that each substantially coincides with a vertical transverse plane passing through a center of percussion of said body with respect to an axis of rotation disposed in the vertical transverse plane of the other center of suspension, and wheel trucks disposed at one end of each chassis frame and adapted to support it, said wheel truck being adapted to support an adjacent end of the chassis frame of the next adjacent vehicle.

2. An articulated train comprising a plurality of vehicles each including a car body adapted to carry the load to be transported, a relatively rigid chassis frame extending substantially the length of each car body; means interposed between the car body and frame adjacent each end thereof for resiliently supporting the body on the frame at the two centers of suspension for movement in all directions within predetermined limits with respect to the frame; said centers of suspension being spaced from one another and so disposed with respect to the length of the body that each substantially coincides with a vertical transverse plane passing through a center of percussion of said body with respect to an axis of rotation disposed in the vertical transverse plane of the other center of suspension; a wheel truck supporting the ends of the chassis frames of two adjacent vehicles; means for securing adjacent ends of said frames together in pivoted relationship whereby all of the draft forces will be transmitted through said frames independently of the car bodies; and flexible means providing a passageway interconnecting adjacent car bodies.

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