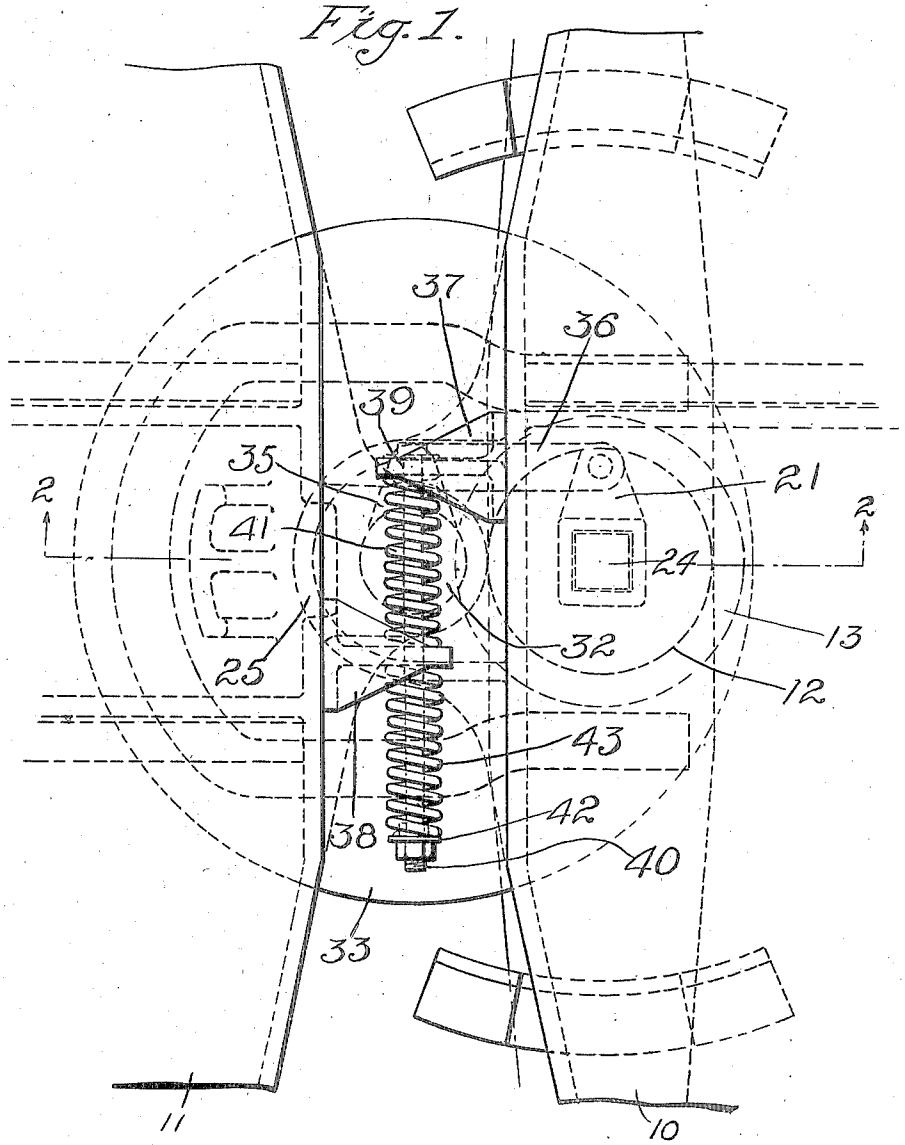
April 8, 1930. E. LATSHAW 1,754,111

ARTICULATED CAR

Filed Sept. 12, 1929 3 Sheets-Sheet 1

Fig. 1.



Inventor:—

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by his Attorneys

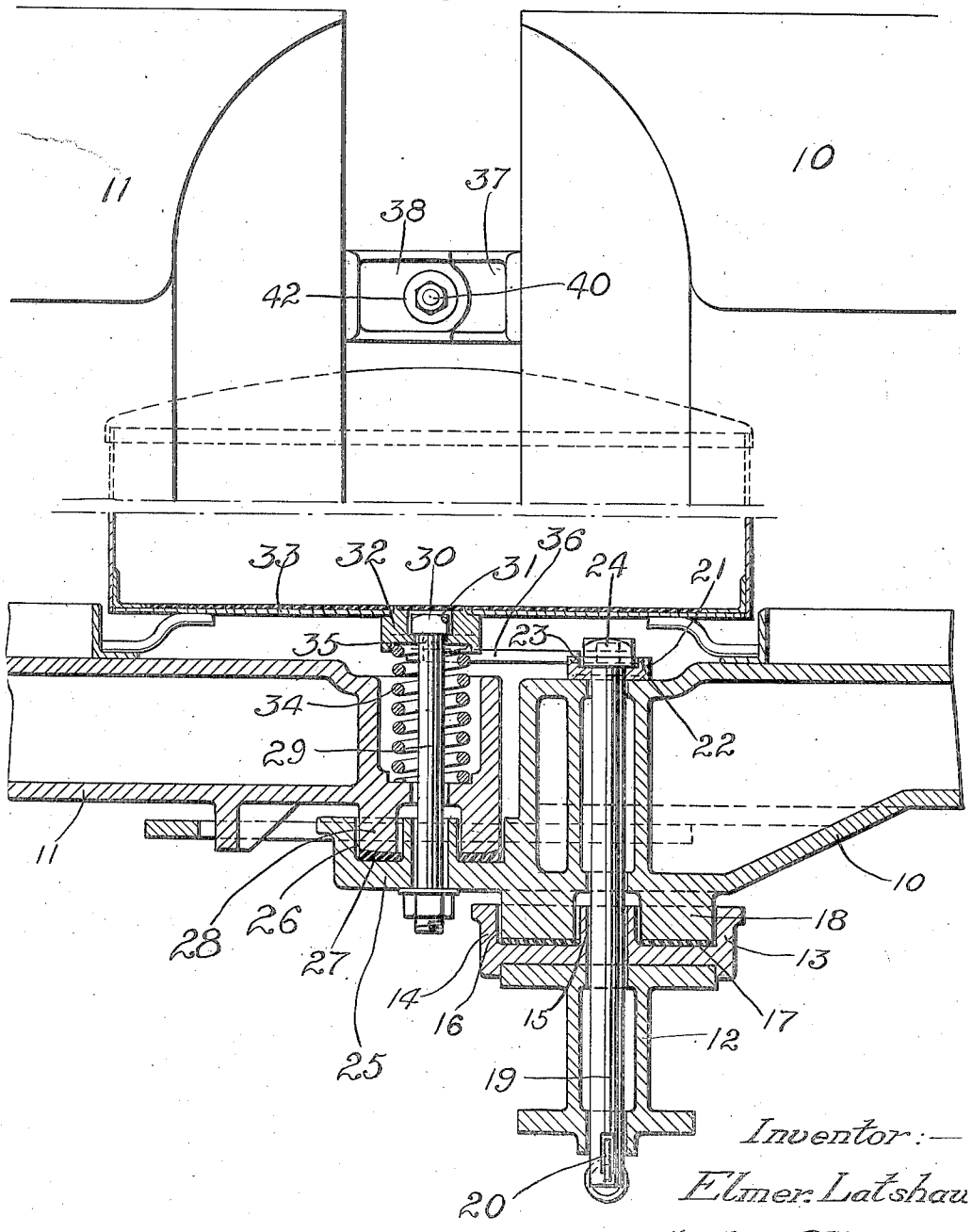
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ARTICULATED CAR

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Fig. 2



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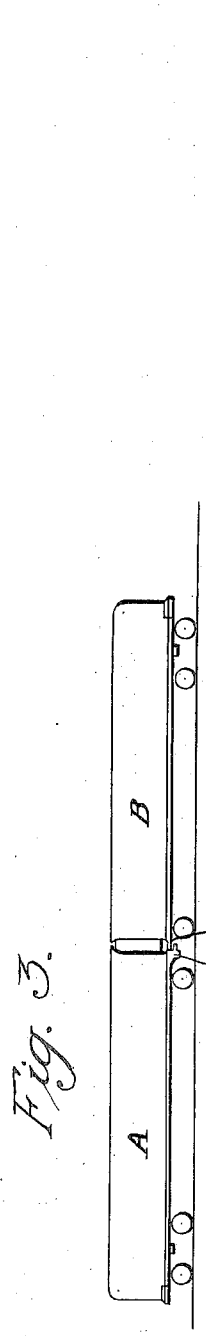


Fig. 3.

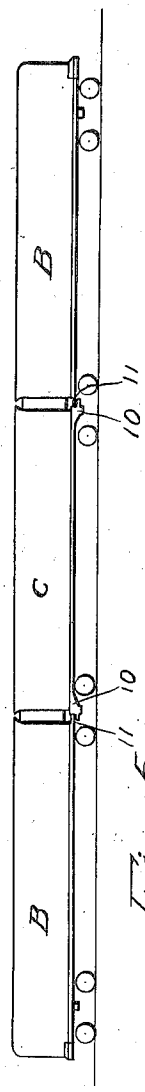


Fig. 4.

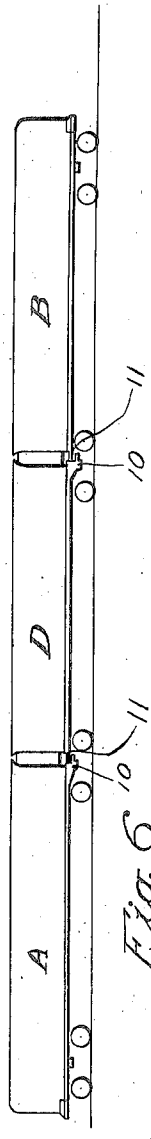


Fig. 5

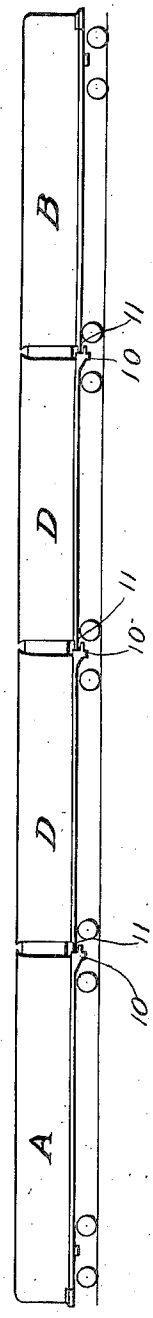


Fig. 6

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Patented Apr. 8, 1930 1,754,111

UNITED STATES PATENT OFFICE

ELMER LATSHAW, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE J. G. BRILL COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

ARTICULATED CAR

Application filed September 12, 1929. Serial No. 392,176.

This invention relates to articulated car structures and more particularly to a novel and improved method of connecting the cars and supporting a vestibule providing communication between the cars.

An important object of the invention is to provide a construction of this character permitting the vestibule to be associated with one, and the truck with another of adjacent car ends while at the same time so locating the connections between the cars and between the cars and vestibule that a proper angular relation between the same may be maintained at all times.

A further and more specific object of the invention is to provide a structure of this character which permits the car-connecting pivot to be arranged in very close proximity to the king bolt forming the pivot for the supporting truck thereby insuring a reduced throw of the truck-supported car and providing an arrangement in which the normal angular deflection of the cars and vestibule varies but slightly.

These and other objects I attain by the construction shown in the accompanying drawings wherein, for the purpose of illustration, I have shown a preferred embodiment of my invention and wherein:

Fig. 1 is a plan view of an articulated car connection constructed in accordance with my invention;

Fig. 2 is a view partially in elevation and partially in vertical section through the connection; and

Figs. 3, 4, 5, and 6 are diagrammatic views illustrating various types of cars and the method of employing the same.

Referring now more particularly to the drawings, the numerals 10 and 11 indicate adjacent car ends which may hereinafter be referred to as the supporting and supported car ends respectively.

The supporting car end has associated therewith a truck 12 having a flanged pivot disc 13 having side and hub flanges 14 and 15 defining an annular track 16. The annular track 16, which may be suitably floored with a wear or bearing plate 17, receives an annular pivot flange 18 projecting downwardly from the central frame member of the car. Through this frame member and the truck bolster 12 projects a king bolt 19 which is keyed as at 20 to prevent its rotation with relation to the truck and has at its upper end a transversely-extending arm 21 operating over the upper surface of the frame member of the supporting car end. This arm may be directly secured to the king bolt but is at present illustrated as having a hub portion 22 formed in its upper surface with a squared socket 23 to receive the head 24 of the bolt.

The central frame member of the supporting car has a projection 25, provided in its upper surface with an annular bearing channel 26 floored with a bearing or wear plate 27, the upper surface of which is slightly arcuated so that it may provide a semi-universal support for an annular bearing flange 28 formed upon the lower surface of the frame member of the supported car end. The projection 25 and the frame member of the supported car are apertured to loosely receive a short king bolt 29, the upper end of which is provided with a head 30 seating in a socket 31 formed in a casting 32 rigid to the bottom 33 of the vestibule. Between the casting 32 and the bottom of a recess formed in the upper surface of the frame member of the supported car through which the king bolt extends, the king bolt is surrounded by a spring 34 which in installation is compressed to support the weight of the drum vestibule and possible passenger load. Casting 32 has a radial arm 35 connected with arm 21 of king bolt 19 by a link 36.

It will be obvious that a construction such as hereinbefore described will permit the necessary transverse and longitudinal oscillatory movements between the car ends 10 and 11 and it will of course be obvious that the spring 34 will act to maintain the drum in a substantially vertical position with respect to the car end 11 and to at all times resist its movement from such position. In order that transverse oscillation of the cars may not become excessive at the upper portions of the cars and thus cause too great a swaying action and a resultant binding of the drum

against the usual drum guide, I mount at the upper end of the car end 10 a bracket 37 and at the upper end of the car end 11 a bracket 38. Each bracket 37 and 38 is apertured as at 39 for loose passage of a bolt 40, the head of this bolt abutting the outer face of bracket 37 and the bolt being of sufficient length to project well through bracket 38. About the bolt, between brackets 37 and 38, a spring 41 is disposed and about the bolt between bracket 38 and a seat 42 carried by the threaded end of the bolt a second spring 43 is disposed. Springs 41 and 43 act to resist transverse oscillation of the upper portions of the car ends with relation to one another and to restore these car ends to their proper position in event of any displacement thereof. The loose mounting of the bolts in the brackets permits the necessary longitudinal angular movements.

Employing car mountings of this character, cars may be conveniently constructed in four different types which are readily combined to produce a train. Such types I have indicated by characters "A", "B", "C" and "D" in the semi-diagrammatic views of Figs. 3 to 6. Car "A" has one plain end and a supporting end 10, while car "B" has one plain end and a supported end 11. Car "C", which is intended for use between cars of the type "B", has two supporting ends 10 for the reception of the supported ends 11 of the type "B" cars. The type "D" car is provided with both supported and supporting ends and may be employed between cars of type "A" and "B" or may be employed in multiple between such cars.

It will be noted that by the construction above described an arrangement is provided wherein the vestibule may be supported by one car which is in turn supported from another truck-supported car and at the same time the supporting truck and the support of the vestibule-carrying car may be arranged in such close proximity that the angular displacement in rounding curves will not be sufficient to cause any binding of the vestibule. Thus a structure of this character embodies the advantages of those structures wherein both cars are supported from a common truck and further, the advantages of that type where one of the car ends is made independent and self-supporting.

Since the structure illustrated is capable of a certain range of change and modification, without in any manner departing from the spirit of my invention, I do not wish to be understood as limiting myself thereto except as hereinafter claimed.

I claim:

1. In combination with adjacent ends of cars, a truck supporting one thereof, a pivotal connection between the car ends disengageable by relative vertical movement thereof, a vestibule for connecting the cars disposed above said pivotal connection and resilient means supporting the vestibule and resisting relative vertical movement of the car ends.

2. In combination with adjacent ends of cars, a truck supporting one thereof, a pivotal connection between the car ends disengageable by relative vertical movement thereof, a vestibule for connecting the cars disposed above said pivotal connection, resilient means supporting the vestibule and resisting relative vertical movement of the car ends, and means positively limiting separation of the vestibule and the first-named car end.

3. In combination with adjacent ends of cars, a truck supporting one thereof, a pivotal connection between the car ends disengageable by relative vertical movement thereof, a vestibule for connecting the cars disposed above said pivotal connection, resilient means supporting the vestibule and resisting relative vertical movement of the car ends, and means extending through said pivotal connection for limiting separation of the vestibule and the first-named car end.

4. In combination with adjacent ends of cars, a truck supporting one thereof, a pivotal connection between the car ends disengageable by relative vertical movement thereof, a vestibule for connecting the cars above said pivotal connection and a single spring supporting the vestibule and resisting relative vertical movement of the car ends.

5. In combination with adjacent ends of cars, a truck supporting one thereof, a pivotal connection between the car ends disengageable by relative vertical movement thereof, a vestibule for connecting the cars above said pivotal connection, a single spring supporting the vestibule and resisting relative vertical movement of the car ends, and means limiting separation of the vestibule and the first-named car end.

6. In combination with adjacent ends of cars, a truck supporting one thereof, a pivotal connection between the car ends disengageable by relative vertical movement thereof, a vestibule for connecting the cars above said pivotal connection, a single spring supporting the vestibule and resisting relative vertical movement of the car ends, and means limiting separation of the vestibule and the first-named car end, said means extending through said pivotal connection.

7. In combination with adjacent ends of cars, a truck supporting one thereof, a pivotal connection between the car ends disengageable by relative vertical movement thereof, a vestibule for connecting the cars disposed above said pivotal connection and resilient means supporting the vestibule and resisting relative vertical movement of the car ends while permitting rotation of the vestibule about the axis of said connection and a connection between the truck and vestibule for

rotating the vestibule upon angular deflection of the truck with relation to the first-named car end.

8. In combination with adjacent ends of cars, a truck supporting one thereof, a pivotal connection between the car ends disengageable by relative vertical movement thereof, a vestibule for connecting the cars disposed above said pivotal connection and resilient means supporting the vestibule and resisting relative vertical movement of the car ends while permitting rotation of the vestibule about the axis of said pivotal connection, a king bolt extending through the first-named car end and the truck and held against rotation with relation to the truck, said king bolt having an arm and a link connection between said arm and the vestibule.

9. In combination with adjacent ends of cars, a truck supporting one thereof, an extension upon said car end and affording a socket bearing, a bearing element upon the other car end for engagement in said bearing, a vestibule arranged above the last-named car end, a king bolt extending axially through said socket bearing and the last-named car end and engaging said vestibule axially thereof and a spring surrounding said king bolt between the last-named car end and the vestibule.

10. In combination with adjacent ends of cars, a truck supporting one thereof, an extension upon said car end and affording a socket bearing, a bearing element upon the other car end for engagement in said bearing, a vestibule arranged above the last-named car end, a king bolt extending axially through said socket bearing and the last-named car end and engaging said vestibule axially thereof and a spring surrounding said king bolt between the last-named car end and the vestibule, the last-named car end having a socket in its upper surface for the reception of the lower end of said spring.

11. In combination with adjacent ends of cars, a truck supporting one thereof, an extension upon said car end and affording a socket bearing, a bearing element upon the other car end for engagement in said bearing, a vestibule arranged above the last-named car end, a king bolt extending axially through said socket bearing and the last-named car end and engaging said vestibule axially thereof, a spring surrounding said king bolt between the last-named car end and the vestibule, a second king bolt extending through said truck and the first-named car end and held against rotation with relation to the truck, said king bolt having an arm and a link connection between said arm and the vestibule.

12. The combination with adjacent ends of cars, a pivoted truck supporting the end of one car, an extension upon said car projecting beyond the truck pivot, and a bearing element upon the end of the other car for engagement with said extension.

13. The combination of two cars, a truck supporting the end of one car, an extension on said car end beyond the truck support forming a bearing, and an adjoining car body pivotally mounted on the extension.

14. The combination of two cars, a truck supporting the end of one car, an extension on said car end beyond the truck support forming a bearing, an adjoining car body pivotally mounted on the extension, and a vestibule for connecting the cars disposed above said pivotal connection, the centre of rotation of the vestibule being the centre of the pivot connecting the two car bodies.

15. The combination of two car bodies, trucks supporting the outer ends of each car body, a single truck for supporting the adjoining ends of the two car bodies, a pivot for the truck on one body only, said body having an extension beyond the truck pivot, the other car body having a bearing element pivotally connected to the extension, and a vestibule for connecting the two car bodies disposed above the pivotal connection.

ELMER LATSHAW.