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ARTICULATED CAR STRUCTURE

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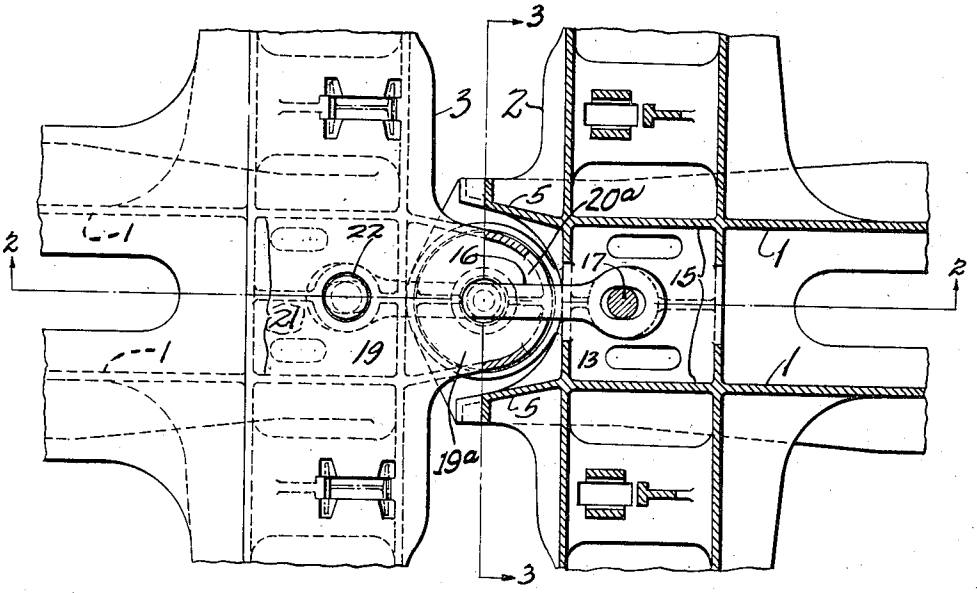

Fig-1-

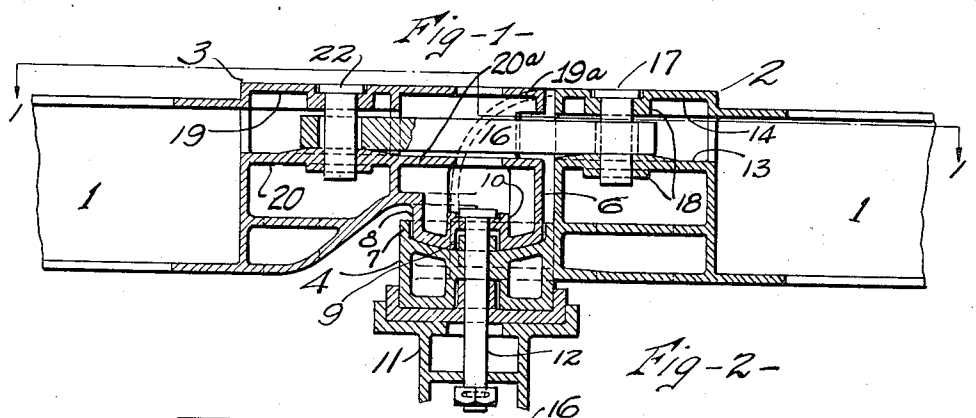

Fig-2-

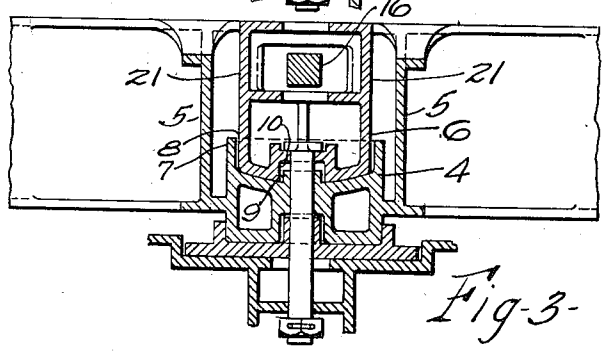

Fig-3-

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ARTICULATED CAR STRUCTURE

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11 Claims. (Cl. 105—4)

The invention relates to railway rolling stock and consists in a novel construction of articulated cars of the type where the adjacent ends of two car bodies are mounted upon a single swiveling truck.

The main object of the invention is to provide safety means securing the adjacent ends of the car bodies together so as to prevent their accidental separation in the event of the failure of the usual locking pin or other securing means heretofore used. Briefly, this object is attained by the provision of a safety bar or link housed in and interconnected with the opposing car end members so as to limit relative vertical, transverse, and longitudinal movement.

In the accompanying drawing illustrating a selected embodiment of the invention—

Figure 1 is in part a top view and in part a horizontal section through the opposing end structures of two cars of an articulated car unit, the same being taken on the line 1—1 of Figure 2.

Figure 2 is a longitudinal vertical section taken on the line 2—2 of Figure 1.

Figure 3 is a transverse vertical section taken on the line 3—3 of Figure 1.

Each of the car end structures embodies a platform or framing including longitudinal sill members 1 and transverse box-like end sills 2 and 3, respectively. Extending outwardly and downwardly from the end sill 2 of the right hand car is a center bearing plate 4 at the sides of which are upright webs 5 flanged at their forward edges and forming supporting brackets for the center bearing plate.

Projecting outwardly from the intermediate portion of end sill 3 on the left hand car is a cooperating center bearing plate 6. The concave upper face of plate 4 and the convex lower face of plate 6 form a universal joint connection between the two cars and the center plates are provided with interengaging vertically overlapping elements 7, 8, 9 and 10 whereby longitudinal and lateral forces are transmitted from one car end member to the other. The lower center bearing plate 4 is supported upon a truck bolster 11, a portion only of which is shown, and the two center plates and truck bolster are secured together by a center pin 12 of ordinary arrangement.

End member 2 includes horizontal webs 13 and 14 and upright webs 15 forming a pocket for receiving one end of a safety bar 16, the same being secured in position by a pin 17 seated in suitable bosses 18 in webs 13 and 14.

End member 3 is provided with similar horizontal webs 19 and 20 and side webs 21 forming a corresponding pocket for receiving the other end of bar 16 which is similarly secured in position by pin 22. The bottom web 20 of the pocket projects outwardly beyond the nominal end of member 3 as at 20a and forms the top wall of the center bearing plate 6 extending into close proximity to the outer edge of the bottom web 13 of the pocket in end member 2. The top web 19 of end member 3 similarly projects into close proximity to the outer face of member 2 as at 19a and forms, in effect, a platform projection on member 3.

Projecting webs 19a and 20a at their outer ends are rounded about the vertical axis of the center bearings 4 and 6 and are loosely received in the pocket formed by the vertical webs 5 and end sill 2. Webs 19, 19a, 20 and 20a cooperate to form substantially continuous platform structure between the cars.

One or both of the connections between bar 16 and end members 2 and 3 include provision for lost motion whereby the two cars may swivel freely about the axis of their center plates. It will be apparent that bar 16 acts directly through pins 17 and 22 to limit relative longitudinal movement of the car end members. Since the upper and lower faces of the bar are opposed substantially throughout the length of the latter by adjacent elements of the pocket structures, it is apparent that the bar holds the two end members against substantial relative vertical movement and thereby prevents disassembly of the vertically overlapping elements 7, 8, 9 and 10. This further limits relative longitudinal and vertical movement of the car end members and tends to prevent telescoping of the cars in the event of a collision or derailment of the train.

The location of the safety bar on the longitudinal centerline of the cars requires a minimum length of bar and pin slots therein. If safety bars were provided at the sides of the cars their length would be substantially increased due to the magnitude of the relative movement of the adjacent parts on curves and the slots in the bars would have to be very much longer than those in the single bar of the present invention.

The structure is simple, economical and effective for its intended purpose and not only eliminates the necessity for safety chains between the two car bodies but provides a security against relative movement which is not afforded by ordinary safety chains. If chains were used they would have to include considerable slack and the use of chains would not provide for locking of

the center plates or end sills against relative vertical movement.

It is obvious that the details of the structure may be varied without departing from the spirit of the invention and exclusive use of such modifications in construction as come within the scope of the claims is contemplated.

I claim:

1. In a car of the articulated unit type, a center plate member for connecting the car directly to an adjacent car center plate, and structure forming a pocket extending from a point at the rear of said member over the same to the outer end of the car and arranged to receive one end of a safety link for connecting said cars independently of the center plate connection.

2. In a car of the articulated unit type, an end member provided with a pocket for one end of a safety link and with a center bearing plate adjacent to said pocket and constructed to nest with a corresponding plate on an adjacent car to transmit buffing and pulling forces direct from car to car independently of a link in said pocket, said pocket overlying said center bearing plate and both extending substantially to the end of the car.

3. In a car of the articulated unit type, an end member, outwardly and downwardly extending spaced webs forming a bracket for a center bearing plate constructed to engage with an overlying center bearing plate on an adjacent car to transmit buffing and pulling forces direct from car to car, and elements at the rear of said webs forming a pocket for receiving and anchoring one end of a safety link extending over both of said bearing plates.

4. In combination, a plurality of railway cars forming an articulated car unit, said cars having cooperating center bearing plates, one overlying and seated in the other, a locking center pin therethrough, a safety bar connecting said cars independently of said pin, and end structure above the level of said bar substantially continuous from car to car.

5. In combination, a plurality of railway cars forming an articulated car unit, said cars having cooperating center bearing plates one overlying the other, a locking center pin therethrough, pocket structure at least in part overlying said center bearing plates, and means in said pocket structure independent of said pin for limiting relative longitudinal, vertical and transverse movements of the adjacent ends of said cars.

6. In an articulated railway car unit, opposing car end members, there being a center bearing plate projecting outwardly from the lower portion of one of said members and having a concave upper face, there being a center bearing plate projecting outwardly from the intermediate portion of the other of said members and having a convex lower face fitting in the upper face of said first mentioned bearing plate, there being vertical and horizontal webs in the upper portions of each of said members forming pocket structure in the latter extending over said center bearing plates, and a safety link extending over said center bearing plates and into said pockets and there secured to said end members.

7. A structure as specified in claim 6 in which the center plates have cooperating vertically overlapping elements for transmitting longitudinal forces between said end members and the safety link engages horizontally disposed elements of said end members to prevent relative vertical movement thereof sufficient to permit disassembly of said center plates.

8. In an articulated railway car unit, opposing car end members, there being a center bearing plate projecting outwardly from the lower portion of one of said members and having a concave upper face, there being a center bearing plate projecting outwardly from the intermediate portion of the other of said members and having a convex lower face fitting in the upper face of said first-mentioned bearing plate, there being vertical and horizontal webs in the upper portions of each of said members forming individual pockets in the latter, and a safety link extending over said center bearing plates and into said pockets and there secured to said end members, the bottom walls of said pockets and the top wall of the second-mentioned bearing plate being on the same level and forming an elongated surface for opposing vertical movement of said link.

9. In an articulated railway car unit, opposing car end members with cooperating interengaging center plates, a safety link overlying said center plates and having pivoted connections at its ends to said end members respectively, said connections being spaced longitudinally of the unit a substantial distance from said center plates and at least one of said connections providing for lost motion of said link and an end member, to accommodate articulation of said unit.

10. In an articulated railway car unit, opposing end sills, cooperating center bearing plates projecting from said sills substantially below the tops thereof one overlying the other, a safety link overlying said center bearing plates and anchored to said sills, and a horizontal top web projecting rigid with and from at least one of said sills and into close proximity to the other of said sills and overlying said link and center bearing plates.

11. In an articulated railway car unit, opposing car end platform structures including interengaging center bearing plates, the top member of one of the platform structures extending over said bearing plates and being rounded about the vertical axis of the latter, and the top member of the other platform being shaped to receive the outwardly extending rounded portion of the first-mentioned platform structure to form a substantially continuous platform structure from car to car.

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