

J. M. ROHLFING.
SIDE BEARING.

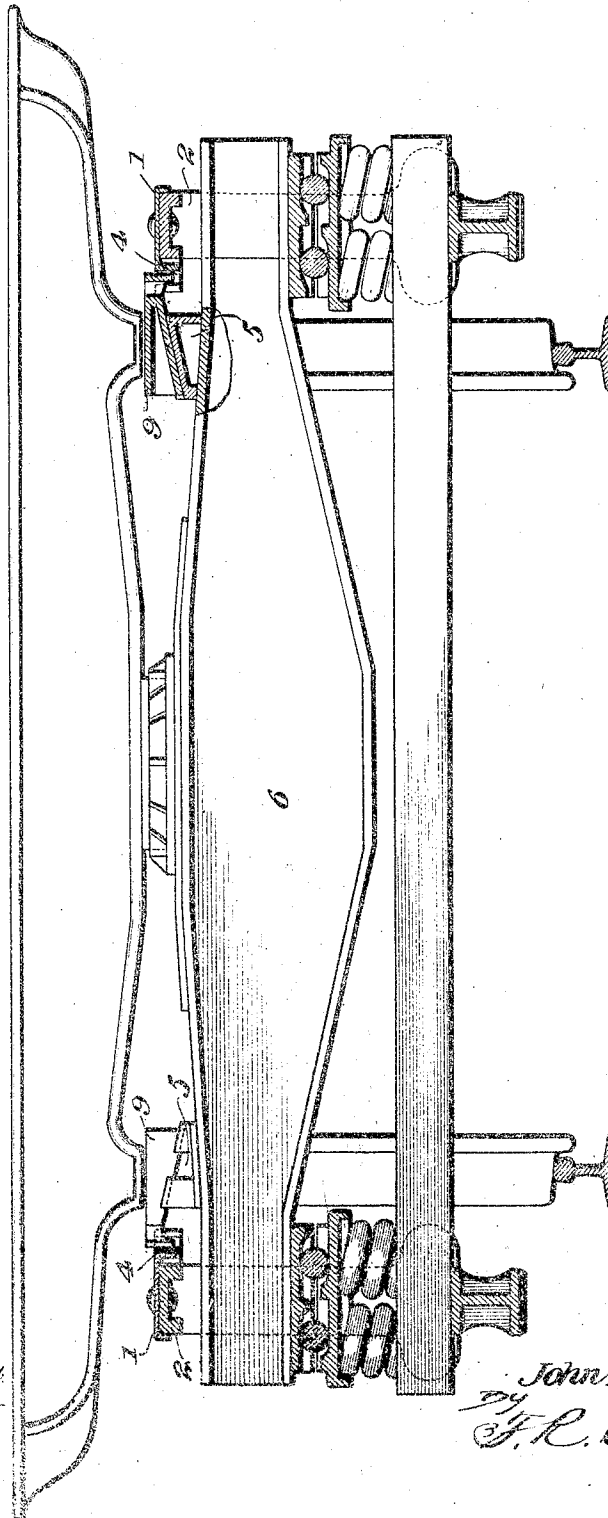
APPLICATION FILED SEPT. 26, 1912.

1,056,943.

Patented Mar. 25, 1913.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses;
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4 SHEETS--SHEET 2.

Fig. 2.

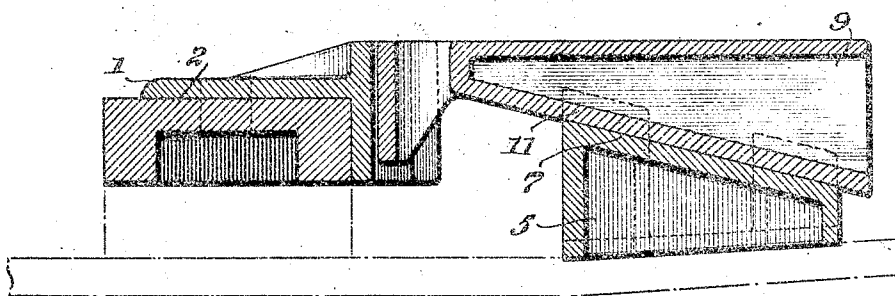
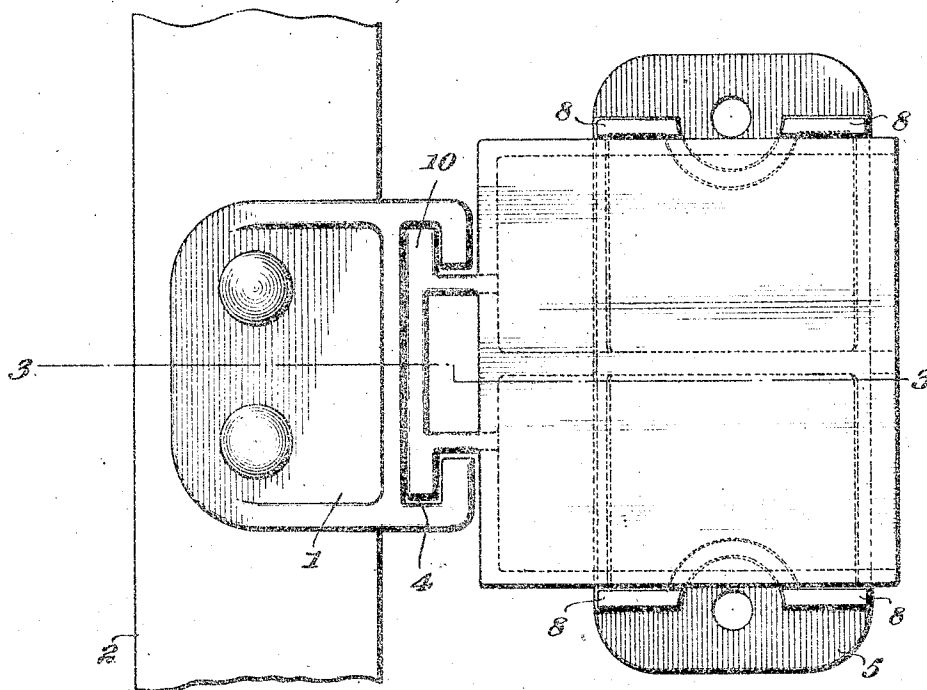


Fig. 3.

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4 SHEETS—SHEET 3.

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Fig. 6.

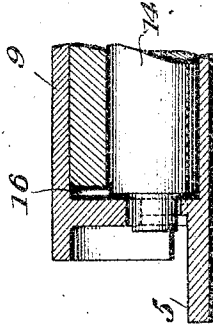
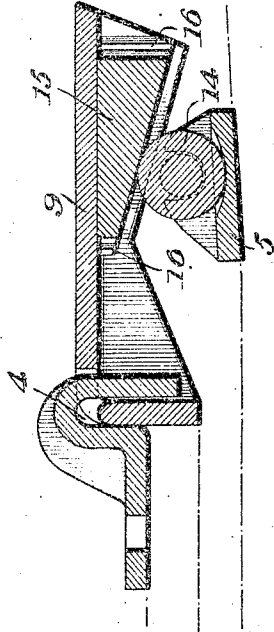


Fig. 7.

Fig. 4.

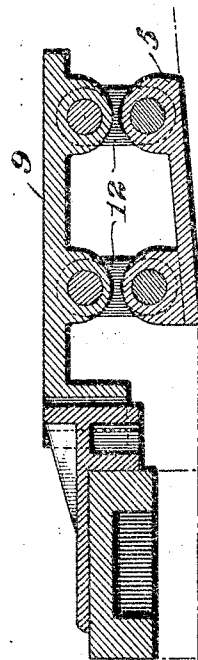
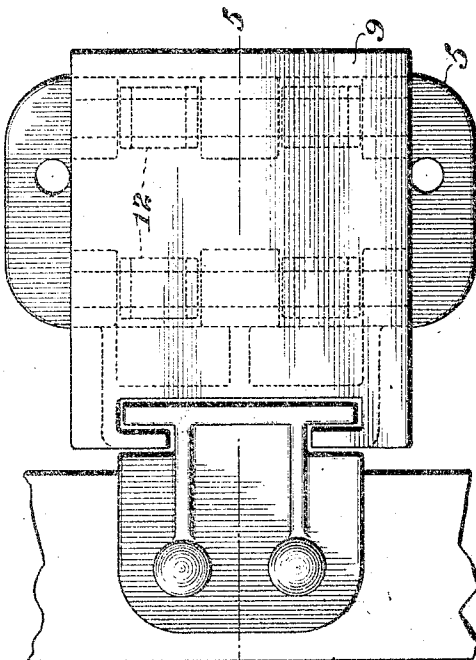


Fig. 5.

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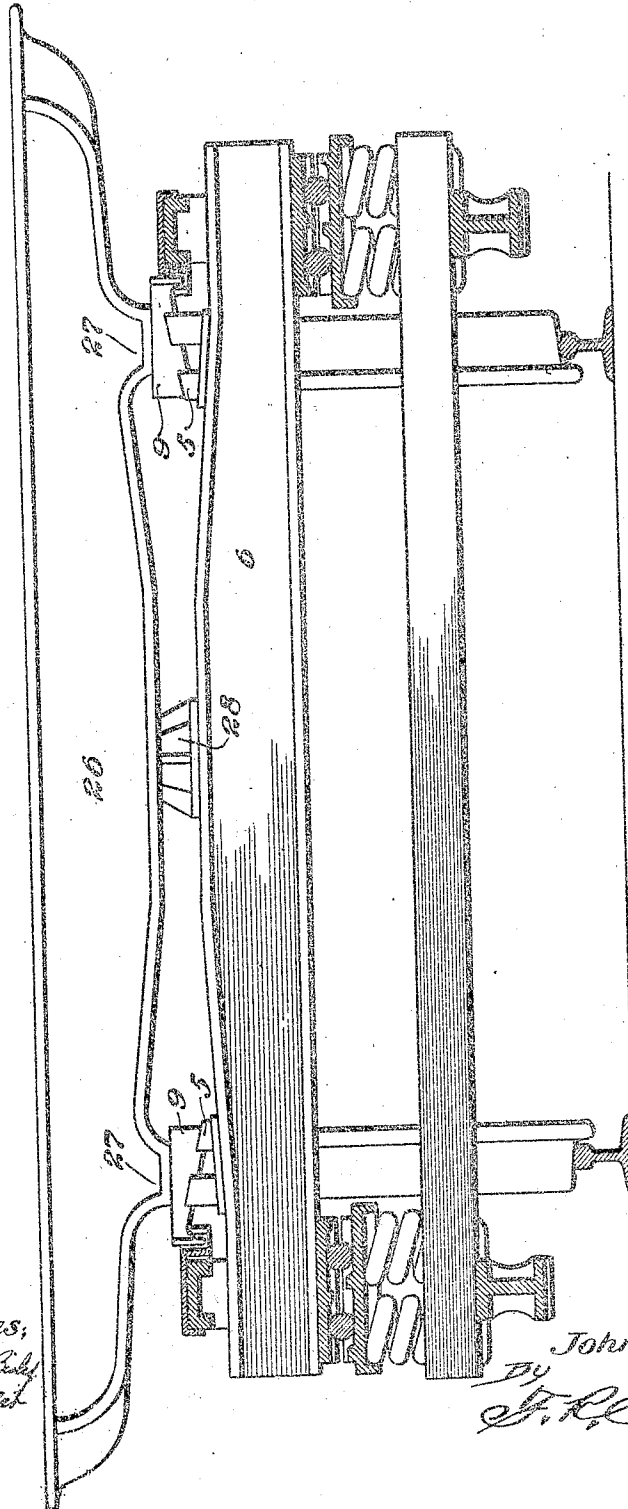
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SIDE BEARING.

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4 SHEETS--SHEET 4.

100



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UNITED STATES PATENT OFFICE.

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SIDE BEARING.

1,056,943.

Specification of Letters Patent.

Patented Mar. 25, 1913.

Application filed September 26, 1912. Serial No. 722,463.

To all whom it may concern:

Be it known that I, JOHN M. ROHLFING, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain
5 new and useful Improvement in Side Bearings, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it apper-
10 tains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation partly in section of a lateral motion truck showing the preferred form of my invention applied there-
15 to. Fig. 2 is a plan view of the preferred form of my invention. Fig. 3 is an elevation in section on line 3—3 of Fig. 2. Fig. 4 is a plan view of a modified form of my invention. Fig. 5 is an elevational section on line
20 5—5 of Fig. 4. Fig. 6 is a corresponding elevation in section of a second modification of my invention. Fig. 7 is a detail partly in section of the second modification. Fig.
25 8 is an elevation of a portion of car structure illustrating the use of my invention as a means for supporting the car on the trucks.

The principal object of my invention is to provide an automatically operating side
30 bearing which is adapted to be controlled by movements of the car body and the truck to so adjust itself to compensate for changes in elevation of the truck relative to the car body.

35 Another object of my invention is to provide such a device composed of the fewest number and simplest parts.

A further object of my invention is to provide such a device whereby the amount
40 of swing or lurching of the car body on straight track is materially reduced.

A still further object of my invention is to produce a device by means of which the car body may be supported on the trucks at
45 points on either side of the center, and by virtue of the nature of said supports be maintained horizontal, while permitting relative displacement of the opposite sides of the truck vertically.

50 Other objects of my invention will be obvious and others pointed out in the following specification, or illustrated in the drawings.

As is well understood, the function of side
55 bearings in car construction is to prevent

undue side swing or lurching of the car body relative to the trucks. Under normal conditions, none of the weight of the car is carried by the side bearings, but there is a clearance between the body side bearings and the truck side bearings which in present
60 prescribed construction amounts to $\frac{3}{8}$ " on either side. This construction permits of a swing of the car body of $\frac{3}{4}$ " at the body side bearings and an increasingly greater swing
65 at points higher in the body of the car. The purpose of this clearance between the side bearings is to permit a certain amount of vertical movement of the trucks relative to the car body, as when turning curves, etc.,
70 without the body and truck bearings binding.

Under present construction, the amount of clearance for the accommodation of add-
75 ed elevation of the trucks relative to the car body cannot be increased without at the same time increasing the amount of side swing of the car body on straight track. By virtue of my improved adjustable side
80 bearing, it is possible to reduce the amount of side swing on straight track and to increase the extent of elevational movement of the trucks relative to the car body.

As illustrated in Fig. 1, it will be seen that my invention is adapted for use on any
85 lateral motion truck, one form of which is illustrated in Fig. 1. As is well known, the feature of the lateral motion truck which gives it its name is the provision therein for
90 a certain amount of lateral movement or lateral swing of the truck bolster relative to the truck frame. Thus when turning a curve at other than a very low speed, the centrifugal force of the car body will cause
95 the truck bolster to have a certain amount of movement laterally of the truck frame and centrifugally of the curve.

The preferred form of my invention as illustrated in Figs. 1, 2 and 3 comprise an
100 anchor plate 1 which is adapted to be secured to the arch bar 2 or other portion of the truck frame, and is provided with a vertically slotted or apertured portion 4. A base member 5, which is adapted to be
105 mounted upon the truck bolster 6, is provided with an inclined bearing face 7 disposed with its highest portion toward the outer end of the bolster. At the ends of the inclined surface the base member is provided
110 with guiding flanges 8 which are adapted

to retain on the inclined surface between them the shiftable member 9. The shiftable member 9 has a connecting portion 10 which is adapted to be maintained in the slotted portion 4 of the anchor member 1 in such fashion as to permit vertical movement of the shiftable member 9 relative to the truck frame, but so as to retain said shiftable member 9 against movement transversely of the truck frame. The shiftable member 9 is provided with an inclined bearing portion 11 which is adapted to co-act with the bearing portion 7 of base member 5. The construction is such that when the base member 5 is moved inwardly of the truck frame, by virtue of the co-action of the sloping bearing portions of the base member and the shiftable member 9, the latter will be raised relative to the bolster, and as the base member is moved outwardly of the truck frame the shiftable member 9 will ride down the sloping portion 7 and be lowered relative to the bolster.

As illustrated in Fig. 1, it will be seen that this shifting of the base members 5 is accomplished by the lateral movement of the bolster 6 relative to the truck frame, and that during such movement of the bolster 6, the shiftable members 9 are retained against any lateral movement. As a result of this operation, when the car is rounding a curve at a considerable speed, and the bolster shifted laterally of the truck frame by the centrifugal force, the shiftable member of the bearing which is on the outside of the curve will be lowered relative to the bolster, while the opposite shiftable member will be raised, and by this means the superelevation of the outer rail on the curve will be compensated so as to maintain the car body in its normal horizontal position. By virtue of this improved side bearing constructed in the proportions illustrated, it is possible to dispose the truck and body bearings so that there is but $\frac{3}{4}$ " clearance between them as contrasted with the $\frac{3}{4}$ " obtaining under present constructions. By virtue of this disposal, it is readily apparent that the side swing of the car body on straight track at the side bearing is reduced from $\frac{3}{4}$ " to $\frac{1}{4}$ ". At the same time, the amount of clearance to compensate for difference in elevation of the rails is increased from $\frac{3}{4}$ " to $1\frac{1}{4}$ ".

In the modified form illustrated in Figs. 4 and 5, it will be seen that instead of employing sloping faces on the base and the shiftable members, the two are pivotally connected by links 12, by virtue of which construction lateral movement of the base member 5 operates to raise or lower the shiftable member 9 in the same fashion and under the same conditions as described with reference to the preferred form.

In the modification shown in Figs. 6 and 7, the base member 5 is provided with a

bearing roller 14 and the shiftable member 9 is provided with an adjustable wedge block 15 whose normal position in the shiftable member may be varied relative to the bearing roller 14. As illustrated in said figures, the wedge block 15 is removable through the lower portion of shiftable member 9, and is retained against lateral movement therein by inter-engaging serrations or teeth 16 formed on the inner walls of the shiftable member 9 and the ends of the wedge block 15. In this form, the bearing roller 14 rolls up and down the inclined face of the wedge block 15, thus operating to elevate or lower the shiftable member 9 in the same manner and under the same conditions as described with reference to the preferred form.

In the form illustrated in Figs. 8 and 9, the shiftable member 9^a is mounted upon the base member 5^a and is provided with the arcuate sloping bearing member 9^b. An extension spring 25 seated against a stop 24 tends to move the shiftable member 9^a up the incline of the base member 5^a. The bearing member of the car or body bolster is adapted to coöperate with the top of the bearing member 9^a and the body portion of the car also carries the bracket 21 in which is mounted the bearing roller 22. Roller 22 coöperates with the sloping arcuate face 9^b of the member 9^a in such manner that as the side of the truck is elevated toward the car body, the bearing member 9^a will be forced inward against the action of the spring 25 and down the sloping bearing member 5^a. In this manner, added clearance will be provided to compensate for the elevation of the side of the truck relative to the car body. Coincident with such operation, the corresponding bearing on the other side of the truck, which side of the truck it will be understood has been lowered relative to the car body, will have been pushed up the sloping base member 5^a by its spring 25 to compensate for the lowering of that side of the truck relative to the car body.

It will be obvious that on going into a curve the centrifugal force of the car body will tend to tip it toward the outside of the curve, even before the corresponding side of the truck has been raised by the elevation of the outside rail. This tipping of the car body will operate to lower the side bearing in the manner just described to provide a certain amount of clearance to accommodate the first elevation of the side of the truck.

It is obvious that because of the automatic operation of the structures above described, my invention is adapted to be used as a means for supporting the car body on the trucks at either side of the trucks. In Fig. 10 is illustrated such an application of my invention. The body bolster 26 is shown with its bearing members 27 resting directly upon the shiftable members 9 of my de-

vice, the entire weight of the car being supported near the ends of the truck bolster, and the member 28 corresponding to a center bearing acting merely as a pivot between the bolsters and not a supporting member. By virtue of this construction, it is possible to dispense with the heavy forms of truck bolsters now necessary, as the weight is supported near the ends of the truck and not in the center. With the car body thus supported directly on the shiftable members 9, it will be seen that the centrifugal force acting upon the car body will move the lateral motion member 6 toward the outer side of the curve. This movement of the lateral motion member will move the base members 5 so that the shiftable member 9 on the outside of the curve is lowered while that on the inside of the curve will be raised. In this fashion, the car body will be maintained at a constant level while the side of the truck is permitted to rise on the elevated rail.

I am aware that further modifications of my invention may be devised and that it may be disposed so that its operation is dependent upon portions of the car other than the truck bolster.

I am also aware that it is applicable to forms of truck in car construction other than that illustrated, and I, therefore, do not intend either that my invention shall be limited in scope to the specific forms or to the particular applications shown and described, but that it be construed to comprehend all obvious modifications and applications.

What I claim is:

1. In a car including a truck and a body portion, a side bearing having a shiftable member, and means operable by the lateral movement of the car for changing the elevation of said shiftable member to maintain the body portion in substantially a horizontal position when the relative elevations of the opposite sides of the truck are changed.

2. In combination with a truck having a relatively shiftable part, a side bearing cooperating with the car body and including a shiftable member and means operated by the shiftable part of the truck for adjusting the elevation of said shiftable member relative to the truck.

3. In a car, an adjustable side bearing on each side of the car, and means operated by the centrifugal movement of the car for effecting the adjustment of said bearings, simultaneously in opposite directions.

4. In a truck having a laterally shiftable member, a side bearing having a portion carried by said laterally shiftable member, and a member retained by another portion of the truck against lateral shifting movement.

5. In a truck having a truck frame and a

laterally movable bolster, a base member carried by the bolster, and a vertically movable member anchored to the truck frame.

6. In a truck having a truck frame and a laterally movable bolster, a side bearing having a base member carried by the bolster, a vertically movable member anchored in the truck frame, and means on the base member for retaining the vertically movable member thereon.

7. In a truck having a truck frame, an anchor member connected to the truck frame, a vertically movable member retained by said anchor member, and a movable member adapted to adjust the height of said vertically movable member relative to the truck.

8. In a truck oppositely disposed side bearings, and means for simultaneously adjusting one of said side bearings upward and the other downward relative to the truck frame.

9. In a car having oppositely disposed body side bearings, vertically adjustable members cooperating with said body side bearings, said vertically adjustable members being fixed against horizontal movement relative to the truck frame, and means operated by movement of the car body for simultaneously adjusting the height of said vertically adjustable members.

10. In a car having a body and a truck, a side bearing carried by the truck, and having a base portion which is adapted to be moved by the car body, and a shiftable member which is adapted to be moved by said base portion.

11. In a car construction, the combination of a body portion with a truck portion carrying means for supporting the body portion at its corners, said supporting means having portions which are vertically adjustable in opposite directions by transverse movement of the body portion.

12. In a car construction, the combination of a body portion with a truck portion, said truck portion including supporting members adapted to support the body portion at its corners and which are adjustable in opposite directions vertically with reference to the truck by movements of the body portion transversely of the truck.

13. In a car construction, the combination of a body portion, and trucks including supporting members adapted to support the car at its four corners, which supporting members are adapted to be adjusted vertically relative to the truck frame by lateral movement of the body portion so as to maintain the body portion in substantially a horizontal position.

14. In a car construction, the combination of a body portion, a truck portion, and means adapted to support said body portion on opposite sides of said truck portion,

which means is vertically adjustable in opposite directions on opposite sides of the truck by lateral movement of the body portion.

- 5 15. In a car construction, the combination of a body portion, a truck portion, and members carried at either side of said truck portion for supporting the body portion, said members including means rendering them
10 adjustable in opposite directions vertically by movements of the car body.

16. In a car construction, the combination of a body portion, a truck portion, a laterally movable bolster member, supporting
15 members carried at opposite extremities of the bolster member for supporting the body portion, said supporting members including means rendering them vertically adjustable relative to the truck frame by lateral move-
20 ment of the bolster member.

17. In a car construction, the combination of a body portion, a truck portion, a laterally movable member, vertically adjust-

able members adapted to support said body portion on the truck, means adjustable by 25 the lateral movement of said laterally movable member adapted to vary the elevation of said vertically adjustable members with reference to the truck.

18. In a car construction including a 30 truck and a body portion, a side bearing supported on the truck and having a part movable on a line perpendicular to the plane of the truck side frame, and means operable by movement of the car body adapted to 35 move said part of the side bearing on a line perpendicular to the plane of the truck side frame.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, 40 this 24th day of September, 1912.

JOHN M. ROHLFING.

Witnesses:

JAMES J. COOPER,
A. MENDEZ.