Oct. 21, 1930. J. F. O'CONNOR 1,779,140

CAR CONSTRUCTION

Filed Jan. 30, 1930

Fig. 1

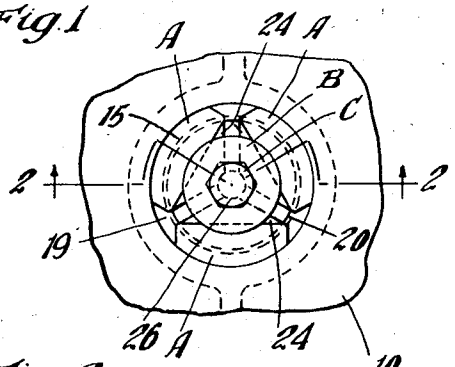


Fig. 4

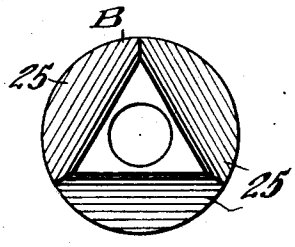


Fig. 2

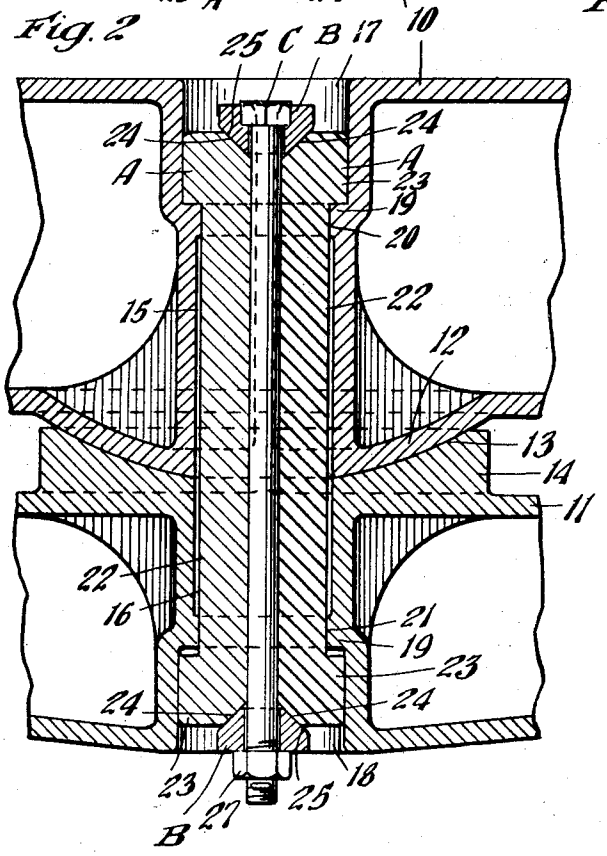
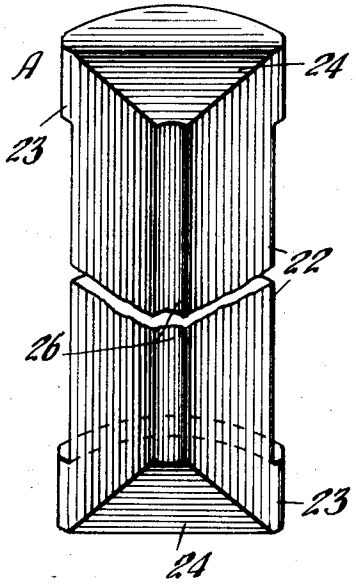


Fig. 3



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UNITED STATES PATENT OFFICE

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CAR CONSTRUCTION

Application filed January 30, 1930. Serial No. 424,477.

This invention relates to improvements in car construction, and particularly to means for connecting the body and truck bolsters thereof.

The main object of the invention is to provide a combined locking center pin means for connecting the body and truck bolsters of railway cars, which is adjustable in cross sectional size to fit the center pin receiving openings regardless of slight variations in size thereof, thereby compensating for lack of uniformity in size of such openings of the bolsters due to unavoidable manufacturing conditions.

Another object of the invention is to provide a center pin for connecting the body and truck bolsters of railway cars, which is adjustable in diameter to fit the same to the center pin openings of the bolsters, the pin being of sectional form to provide the adjustability and the sections being forced apart by wedge acting means to expand the pin to fit the particular openings with which it cooperates.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawing, forming a part of this specification, Figure 1 is a top plan view of a portion of the body bolster of a railway car, illustrating my improvements in connection therewith. Figure 2 is a vertical, sectional view through the body and truck bolsters of a car, corresponding substantially to the line 2—2 of Figure 1. Figure 3 is an enlarged, detailed perspective view of one of the sections of my improved center pin, the view being partly broken so as to accommodate the same to the sheet of the drawing. And Figure 4 is an inner end view of a wedge member employed in connection with my improved center pin.

In said drawings, 10 designates the body bolster and 11 the truck bolster of a railway car. As shown, the body bolster 10 is provided with the usual depending bearing projection 12 which cooperates with a bearing seat 13 on the top of the truck bolster. In the present instance, the bearing seat 13 is shown as formed in a projecting block-like portion 14, which is integral with the truck bolster structure. The two bolsters are provided with alined center pin receiving openings of substantially the same diameter, the center pin receiving opening of the body bolster 10 being designated by 15 and the cooperating opening of the truck bolster 11 being designated by 16. The body bolster is provided with a head receiving pocket 17 at the outer end of the opening thereof and the truck bolster is provided with a similar pocket 18 at the outer end of its opening. As will be evident, the pockets 17 and 18, which are of larger diameter than the corresponding pin receiving openings, provide anular retaining shoulders 19—19 at the inner end of each pocket, surrounding the outer end of the corresponding center pin receiving opening. Each opening of each bolster is preferably of slightly smaller diameter at the outer end thereof, as clearly shown in Figure 2, the section of smaller diameter of the opening 15 being indicated by 20 and that of the opening 16 being indicated by 21.

My improved center pin construction comprises broadly three sections A—A—A; a pair of wedge blocks B—B and a connecting retaining bolt C.

The three sections A—A—A of the pin are of similar design, each section having a shank portion 22 extending through the center pin receiving openings, and enlargements 23—23 at opposite ends thereof which are accommodated within the pockets 17 and 18 of the two bolsters respectively. The head portions 23—23 of the three sections A—A—A together form the complete head members at opposite ends of the pin, the portions 23 having curved outer faces to fit the side wall portions of the corresponding pockets. The shank portion 22 of each pin is of sector shape cross section, and has a curved outer surface substantially fitting the corresponding wall portions of the center pin receiving openings of the two bolsters. The head members 23 at the opposite ends of the sections of the pin are of such a size that when the sections are in contracted condition, the head members will pass freely through the pin receiving openings of the bolsters. The

size of the head members 23 is preferably such that the same will pass through the pin receiving openings of the bolsters when said sections are inserted successively, the section previously inserted being displaced laterally so as to bring the shouldered portion thereof into engagement with the shoulders of the two bolsters, at the same time increasing the clearance between said section and the opposed wall portions of the pin receiving openings to accommodate the section being applied. Each section A is also provided with a wedge face 24 at each end thereof. The wedge faces 24 of the sections A—A—A are at the inner sides of these sections and are arranged symmetrically about the central vertical axis of the pin, as clearly shown in Figures 1, 2 and 3.

The two wedge blocks B—B are of similar design, each having three flat wedge faces 25—25 at the inner end thereof, the wedge faces being arranged symmetrically about the vertical axis of the wedge block and cooperating respectively with the three wedge faces 24—24 of the sections A—A—A. The cooperating wedge faces 24 and 25 of the sections of the pin and the wedge blocks B are preferably disposed at relatively blunt angles so that when the sections A—A of the pin are expanded by forcing the wedge blocks B—B toward each other, only sufficient wedging force will be exerted to fit the sections of the pin to the pin receiving openings of the bolsters without any binding of the sections in said openings.

The two wedge blocks B—B are connected by the bolt C which extends through alined openings in said blocks and between the sections A—A—A of the pin, the latter being vertically grooved on the inner side, as indicated at 26—26 to accommodate the shank of the bolt. The head of the bolt is preferably seated in a pocket provided at the top of the wedge block B associated with the body bolster. The nut 27 of the bolt, which has threaded engagement with the lower end thereof, bears on the wedge block B at the bottom end of the pin.

In applying my improved center pin to the body and truck bolsters of a railway car, the three sections A—A—A thereof may be applied by inserting the same either upwardly through the pocket of the truck bolster or downwardly through the pocket of the body bolster, the head sections 23 being passed through the pin receiving openings. The sections A are preferably assembled one at a time. After the first section has been inserted through the pin receiving openings of the bolsters and the head portions 23—23 thereof brought into alinement with the shoulders of the two bolsters, said section is displaced laterally outwardly to engage the head portions thereof over the retaining shoulders of the body and truck bolsters. Displacing of this section provides sufficient clearance for the insertion of the second section A and passage of the head portions 23 thereof through the pin receiving openings. After the second section A has been inserted, the same is displaced laterally outwardly so as to engage the heads thereof with the shoulders of the bolsters. The third section A of the pin is then inserted and applied in a similar manner. The wedge block B at the upper end of the pin is then placed in position and the bolt C inserted through said wedge block and passed downwardly between the three sections A—A—A of the pin. The lower wedge block B is then placed on the bolt in engagement with the lower ends of the three sections of the pin, and the nut 27 is applied to the bolt. The nut 27 is tightened to such an extent that the wedge blocks B—B will force the sections of the pin apart so as to lightly bear on the wall portions 20—21 of the pin receiving openings and bring the head portions 23—23 thereof into light bearing engagement with the side walls of the pockets of the two bolsters. Although the pin receiving openings are shown slightly enlarged at their inner ends, it will be evident that the same may be made of the same size throughout so as to have engagement throughout the length of the shank of the center pin member. The enlarged portions of the openings are provided in order to reduce the area of contact between the walls of the openings and the sections of the center pin, thus assuring free turning of the center pin in the pin openings by eliminating friction.

In separating the bolsters of the car, the center pin is removed by first disengaging and removing the bolt C and then withdrawing the sections A—A—A, one at a time, either through the pocket of the body or truck bolster, each section being displaced inwardly before removal to disengage the head portion thereof from the shoulders of the bolsters.

From the preceding description taken in connection with the drawings, it will be evident that I have provided an exceedingly simple and efficient adjustable center pin member for connecting the body and truck bolsters of railway cars, wherein the pin member is expandable so as to properly fit the pin receiving openings of the bolsters regardless of slight variations in size of the same. Variations in the sizes of the openings of body and truck bolsters of railway cars are unavoidable due to manufacturing conditions, steel castings used in the manufacture of body and truck bolsters being subject to variable shrinkage, thereby causing variations in the sizes of the pin receiving openings. Further, variations in sizes of the pin receiving openings of the bolsters are also due to unavoidable inaccuracies caused by the cores employed in the foundry operations.

By providing the adjustable construction of center pin hereinbefore described, the pin at all times fully and completely fills the openings in the bolsters, thereby preventing looseness of the parts. A further advantage of the expandable pin is that the head portions thereof are held in full shouldered engagement with the shoulders of the bolsters.

I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In car construction, the combination with body and truck bolsters having alined center pin receiving openings approximating a pre-determined size; of an expandable sectional center pin member extending through said openings for connecting the bolsters, said pin being, when contracted, of smaller size than said openings; and adjustable means for spreading apart the sections of the pin to conform with the size of said openings and fit the same, the adjustment of said means for effecting spreading action thereof being limited by engagement of said sections of the pin with the walls of said pin receiving openings.

2. In car construction, the combination with body and truck bolsters having alined center pin receiving openings; of a sectional center pin extending through said openings for connecting the bolsters; and adjustable means for expanding the sectional pin to conform with the size of said openings and fit the same, the adjustment of said means for effecting expansion of the pin being limited through contact of said sections with the walls of said openings.

3. In car construction, the combination with body and truck bolsters having alined center pin receiving openings; of a center pin extending through said openings of the bolsters, said pin including a plurality of sections; and means for wedging said sections apart to expand the pin to fit said openings.

4. In car construction, the combination with body and truck bolsters having alined center pin receiving openings; of a center pin member extending through said openings, said pin member being composed of a plurality of sections; and wedge means for forcing said sections apart to expand the pin to fit said openings, the spreading action of said wedge means being limited by said pin being expanded to the size of said openings.

5. In car construction, the combination with body and truck bolsters having alined center pin receiving openings; of an expandable center pin member extending through said bolsters, said member being expandable to an extent to be oversize for said openings, said means including a plurality of sections, each section having shouldered engagement at opposite ends with said bolsters respectively; and wedge means for forcing said sections apart and adapted to expand the same to said over size, the spreading action of said means being limited by the sections filling said openings, whereby said pin is fitted to the openings regardless of unavoidable variations in size of said openings due to manufacturing conditions.

6. In car construction, the combination with body and truck bolsters having alined center pin receiving openings; of a center pin member including a plurality of sections, each of said sections being headed at opposite ends and said headed portions having shouldered engagement with said bolsters respectively; wedge means cooperating with the opposite ends of said sections to force the same apart and adjust the pin to fit said openings; and means for forcing said wedge members toward each other and holding the same adjusted.

7. In car construction, the combination with body and truck bolsters having alined center pin receiving openings; of a center pin member including a plurality of sections, each of said sections being headed at opposite ends and said headed portions having shouldered engagement with said bolsters respectively; wedge means cooperating with the opposite ends of said sections to force the same apart and adjust the pin to fit said openings; and adjustable means connecting said wedge means for drawing the same together to wedge said sections apart.

8. In car construction, the combination with body and truck bolsters having alined center pin receiving openings, each bolster having a shoulder adjacent the outer end of its opening; of a sectional center pin member extending through said openings, said pin comprising three sections, each section being headed at opposite ends, said heads having engagement with the shoulders of said bolsters respectively; wedge members at opposite ends of the pin having wedging engagement with the sections thereof to expand the pin to fit said openings; and a bolt member connecting said wedge members for drawing the same together and maintaining adjustment thereof.

9. In car construction, the combination with body and truck bolsters having alined center pin openings which may be slightly off size, each bolster having a head receiving pocket at the outer end of its opening and a retaining shoulder at the inner end of each pocket; of a sectional center pin, each section of the pin being headed at opposite ends, said sectional pin when contracted being of smaller size than said openings and being expandable to a maximum size greater than the size of said openings; and means for spreading

and adjusting said sections to expand the pin to said maximum size unless limited by said spreading action being arrested, thereby adjusting the shank portions thereof until limited by the size of said openings, thereby fitting the pin to said openings and engaging the heads thereof over said shoulders, and said means holding said sections in said adjusted position.

In witness that I claim the foregoing I have hereunto subscribed my name this 28th day of January, 1930.

JOHN F. O'CONNOR.