July 29, 1941. O. V. BORUP 2,250,568

ADJUSTABLE JOURNAL BOX MOUNTING

Filed Nov. 14, 1939

Fig. 2.

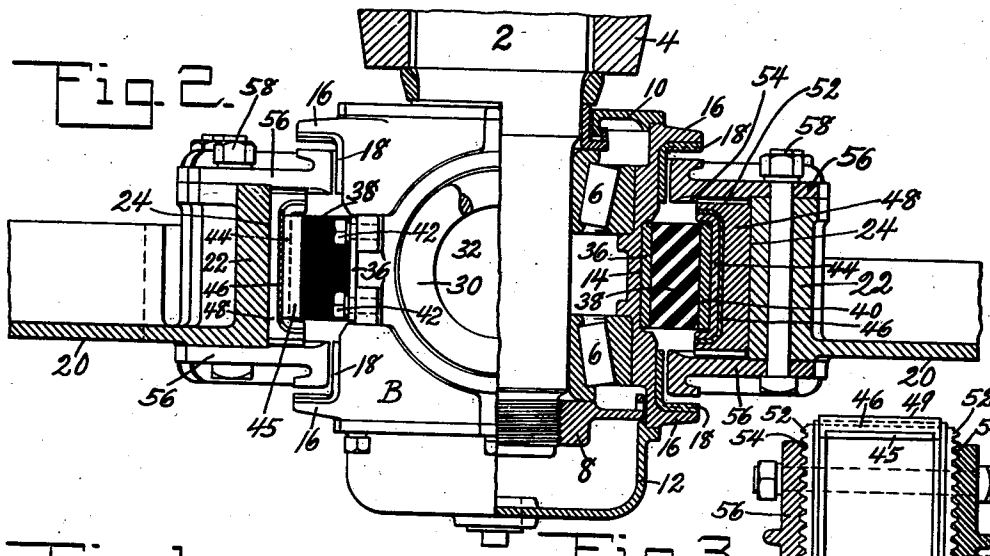


Fig. 3.

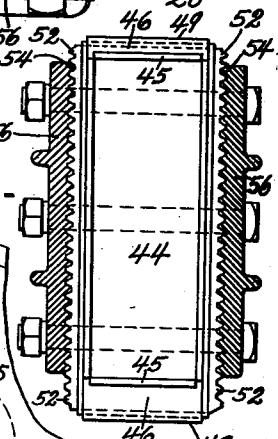
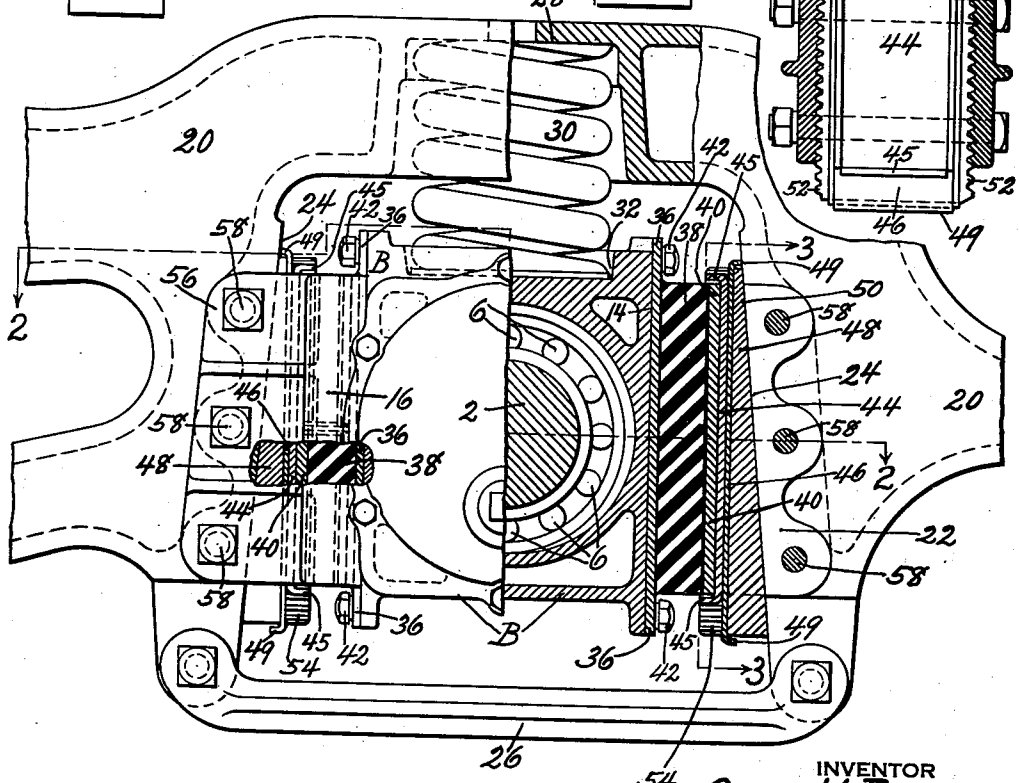


Fig. 1.



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ADJUSTABLE JOURNAL BOX MOUNTING

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9 Claims. (Cl. 105—224)

This invention relates to journal box mountings in general and in particular to such mountings for railway car use wherein an adjustment is provided between the truck and journal box.

In the past journal boxes have been mounted in the pedestal jaws without any means being provided to control the relative movements between the truck and journal box. As a result the side thrusts were transmitted directly to the side frame producing excessive noise and transmitting shock to the car body. Further, in these old constructions there was no positive means for returning the journal box to its proper position after it had received a side or lateral thrust from the wheel and axle assembly. It is an object, therefore, of the present invention to provide an improved journal box mounting with the parts so arranged as to constrain the journal box in its true position.

A further object of the invention is the provision of resilient units between the journal box and pedestal jaws, which units may be precompressed yet readily assembled in position without the necessity of special tools.

A still further object of the invention is the provision of resilient means positioned between the journal box and pedestal legs and which may be placed under varying degrees of precompression by an adjustable wedge member.

A yet further object of the invention is the provision of a resilient connection between the journal box and adjacent pedestal leg, which connection may move when heavily stressed to prevent an over stressing of the resilient unit.

These and other objects of the invention will be apparent to persons skilled in the art from a study of the following description and accompanying drawing, in which:

Figure 1 is an elevational view of the improved journal box mounting with portions being broken away in order to more clearly disclose the construction and arrangement of parts;

Fig. 2 is a sectional view taken substantially on line 2—2 of Figure 1, and

Fig. 3 is a sectional view taken substantially on line 3—3 of Figure 1.

Referring now to the drawing in detail, it will be seen that the axle 2 is supported by a wheel, the hub of which is shown at 4, and carries at its end a journal box B. This journal box may be of any desired construction but in the present instance it is of the tapered roller type, having spaced tapered rollers 6 held in place and adjustable by means of nut 8 threaded upon the axle. The entire bearing assembly is protected by inner and outer housings 10 and 12 respectively which prevent entrance of any foreign matter into the preassembled and adjusted bearings. The side portions of the journal box are provided with a central recessed portion 14 for a purpose later to be referred to, while the edges of the side portions are extended to provide ears or lugs 16 which will limit the permissible side motion of the journal box. These ears or lugs and parts of the side portions of the journal box are preferably protected from wear by means of hardened wear plates 18, all of which is more or less conventional construction.

The truck frame 20, a portion only of which is shown, is formed with pedestal legs 22 providing the pedestal jaw for reception of the journal box and these pedestal legs are tapered slightly from the vertical by having the inner faces 24 thereof converging inwardly and upwardly. The lower ends of the pedestal legs are connected together by any suitable form of pedestal tie bar 26, while the truck frame is provided above the axle position with a spring seat 28 in which the upper end of a coil spring 30 may be received. The lower end of the coil spring is adapted to rest in a spring cup 32 formed on the upper surface of the journal box.

In order to control the lateral movements of the journal box as well as its vertical and horizontal fore and aft movements a resilient unit is provided, which unit consists of an inner plate 36 vulcanized to one surface of a resilient block 38, the other surface of which is vulcanized to an outer plate 40. The inner plate rests in the recess 14 of the journal box and is securely fastened to the journal box in any suitable manner, such as by tap bolts 42, while the outer plate has secured thereto a bronze or other suitable bearing member 44. This bronze or other type of bearing member may be held in position upon the outer plate of the resilient unit by countersunk screws or by upper and lower flanges 45 as shown by Figure 1. The bronze or other bearing member 44 is preferably of channel shape in cross section as clearly shown in Fig. 2 and engages a hardened steel wear member 46 also a channel form secured to a wedge member 48 and connected by any suitable means, such as upper and lower flanges 49. The wedge member is formed with a substantially vertical inner face cut with a channel recess to receive the hardened steel wear member, while the back face is tapered as at 50 in conformity to the taper of the pedestal leg. The side edges of the tapered wedge member are formed with a plurality of teeth or

projections 52 and these teeth are adapted to mate with corresponding teeth or projections 54 formed on the inner surface of combined wedge retainers and pedestal leg side members 56 which are adapted to engage at their inner edges with the hardened wear members 18 of the journal box. The combined wedge retainers and pedestal leg side pieces are firmly held in position on the pedestal legs by means of through bolts 58 which extend through the side pieces and through the pedestal leg. It will be apparent that by loosening the bolts 58 the pedestal leg side pieces 56 may be moved outwardly, thus releasing the teeth or projections of the wedge member, after which this wedge member may be driven either upwardly or downwardly, thereby placing a greater or lesser amount of compression on the resiilent unit. In this way the precompression on the resilient unit may be adjusted at any time without necessitating any changes in the construction of the parts.

In assembling the journal box mounting it is only necessary to lower the side frames onto the preassembled wheel axle and journal box assemblies, after which the wedges may be driven upwardly into their proper or desired position and the pedestal leg side pieces clamped on to the tapered pedestal legs to retain the wedge member and provide limiting shoulders for the lateral movements of the journal box. With the resilient unit properly clamped in position the journal box may move fore and aft of the truck by increasing or decreasing the compression on the respective resilient unit. Lateral movements of the journal box are permitted by the resilient unit acting in shear, with the lateral movements limited by the clearance between the wear members 18 and the removable pedestal leg side pieces. Vertical movements of the journal box are restrained by the coil spring and the resilient unit acting in shear and in parallel with the coil spring. Any excessive strain cannot be imparted to the rubber unit due to the fact that the bronze or other bearing member may shift along the surface of the appended wear member carried by the wedge whenever the stress exceeds the vertical engagement between the bearing and the hardened wear member. It should be noted with the use of the wedges the journal box may be placed in its desired neutral position, that is, with the car body or some small predetermined load in place, after which the wedges will be driven into position and the desired amount of precompression placed on the resilient units and without imparting any vertical stress to the unit; such result being obtained by use of a small restraining block (not shown) inserted between the truck frame and the upper edge of plate 40 and used only during assembly.

It will be obvious that various modifications and rearrangements of parts may be made other than those shown and described but all such modifications and rearrangements of parts are contemplated which will fall within the scope of the appended claims defining my invention.

What is claimed is:

1. In combination with a journal box, a frame formed with spaced pedestal legs receiving said journal box therebetween and in spaced relation thereto, a resilient unit interposed in the space between a side of the journal box and the adjacent pedestal leg, a wedge member acting upon said unit to horizontally compress the same in the plane of the frame, and pedestal side members secured to said pedestal leg and retaining said wedge member in position against vertical and lateral movement.

2. In combination with a journal box, a frame formed with spaced pedestal legs receiving said journal box therebetween and in spaced relation thereto, resilient units secured to the side portions of said journal box and occupying at least a portion of the space between the journal box and adjacent pedestal leg, wedge members interposed between the pedestal legs and the adjacent resilient unit, said wedge members being vertically shiftable to a predetermined position to thereby horizontally compress said resilient units a predetermined amount, and pedestal side members carried by said pedestal leg and retaining said wedge members in said predetermined position against both vertical and lateral movement.

3. In combination with a journal box, a frame formed with spaced pedestal legs receiving said journal box therebetween and in spaced relation thereto, resilient units secured to the side portions of said journal box and occupying at least a portion of the space between the journal box and adjacent pedestal leg, wedge members interposed between the pedestal legs and the adjacent resilient unit, said wedge members being vertically shiftable to a predetermined position to thereby compress said resilient units a predetermined amount, and pedestal side members secured to said pedestal legs and overlapping said wedges, said side members and wedges having portions thereof serrated whereby said wedge members may be retained in any predetermined position.

4. In combination with a journal box, a frame formed with spaced pedestal legs receiving said journal box therebetween and in spaced relation thereto, resilient units interposed in the spaces between the journal box and the pedestal legs to resiliently control vertical and horizontal movements of the journal box, wedge members acting upon said units to compress the same in the plane of the frame, and pedestal side members secured to said pedestal legs and retaining said wedge members in position against both vertical and lateral movement.

5. In combination with a journal box, a frame formed with spaced pedestal legs receiving said journal box therebetween and in spaced relation thereto, resilient units interposed in the spaces between the journal box and the pedestal legs to resiliently control vertical and horizontal movements of the journal box, wedge members acting upon said units to compress the same in the plane of the frame, and pedestal side members secured to said pedestal legs and retaining said wedge members in position against both vertical and lateral movement, said pedestal side members overlapping said units and limiting the horizontal movements of said journal box.

6. In combination with a journal box, a frame receiving the same between spaced pedestal legs formed on the frame, resilient units interposed between the journal box and the pedestal legs, and wedge members acting upon said units to compress the same in the plane of the frame, said resilient units acting in shear to control the vertical movements of said journal box but being bodily movable relative to said wedge members to limit the shear stresses in said resilient units to a value substantially equal to the adhesion between the units and the wedge members.

7. As an article of manufacture, a journal box wedge member having a substantially vertical

face and a tapered back and serrated sides to be tightly gripped by pedestal side pieces.

8. As an article of manufacture, a pedestal side member having a substantially plane pedestal leg securing portion and a serrated wedge securing portion adjacent thereto.

9. As an article of manufacture, a pedestal side member having a substantially plane pedestal leg securing portion and a serrated wedge securing portion adjacent thereto and a journal box engaging surface located outwardly beyond the serrated wedge securing portion.

OSCAR V. BORUP.