Aug. 19, 1941. A. H. PAGENKEMPER 2,252,944

RAILWAY AXLE BOX PEDESTAL STRUCTURE

Filed June 12, 1939 2 Sheets-Sheet 1

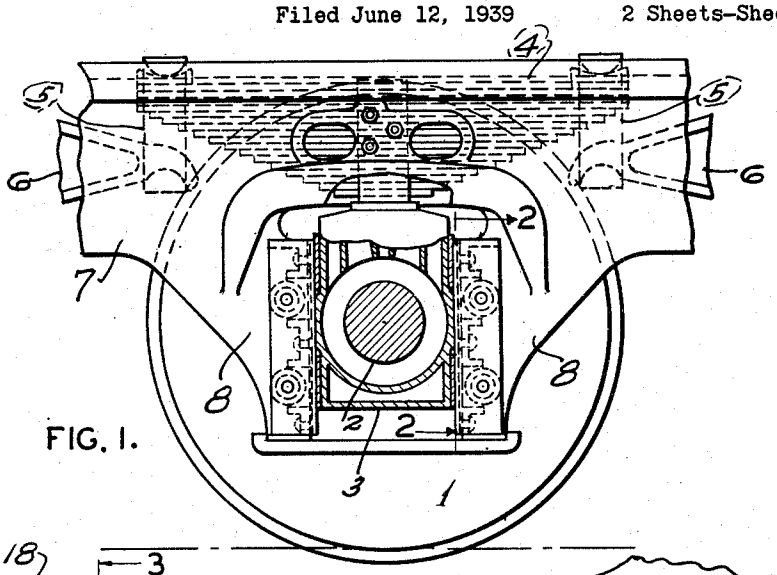


FIG. 1.

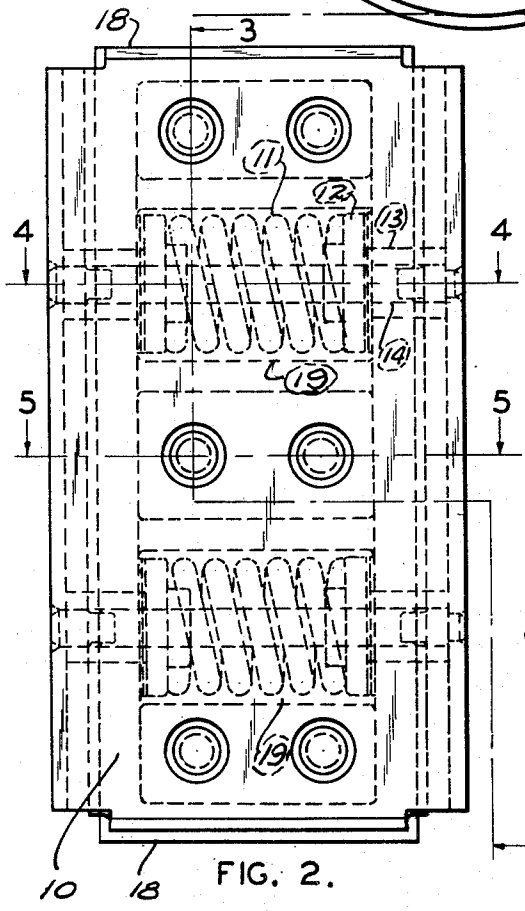


FIG. 2.

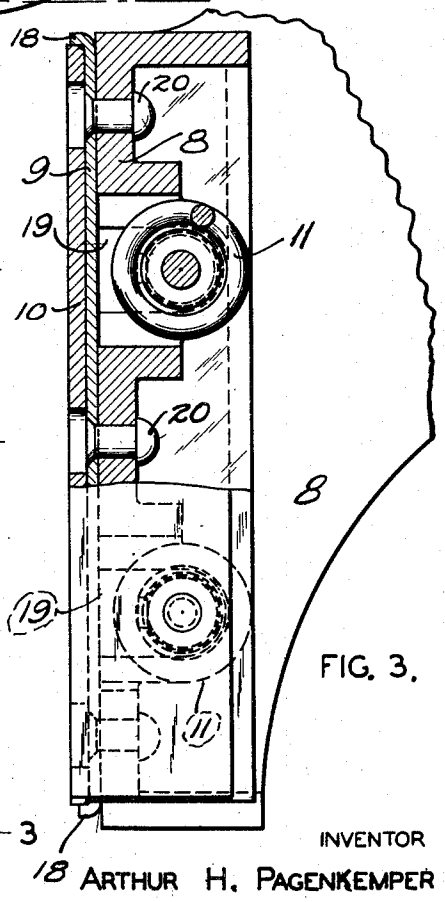


FIG. 3.

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RAILWAY AXLE BOX PEDESTAL STRUCTURE

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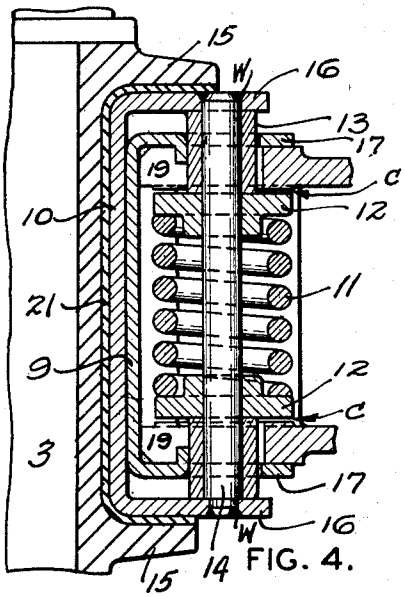


FIG. 4.

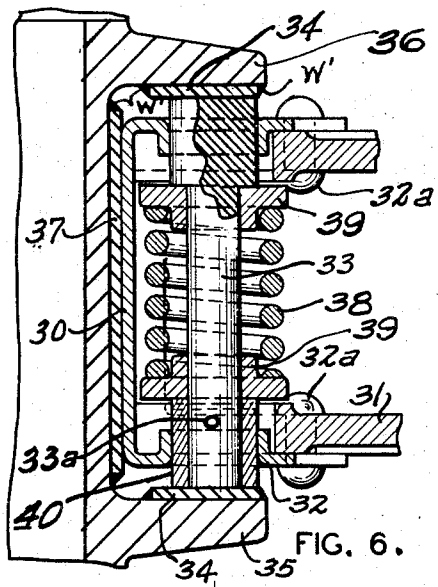


FIG. 6.

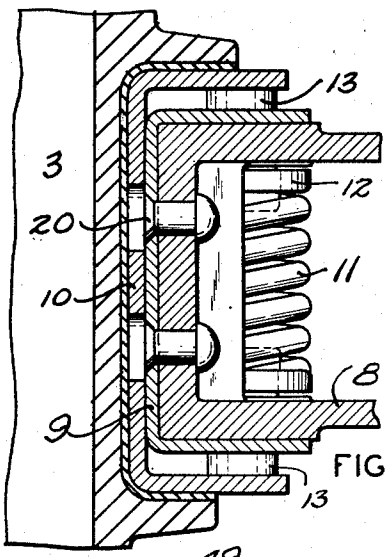


FIG. 5.

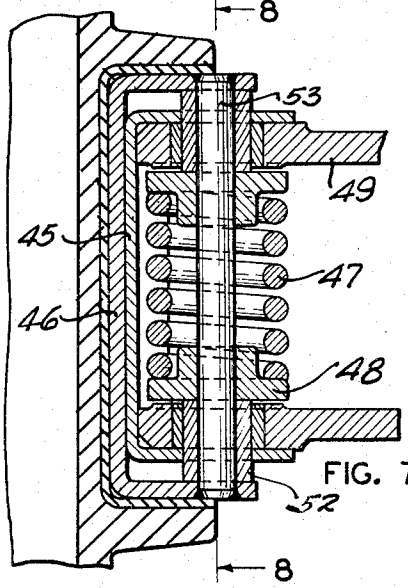


FIG. 7.

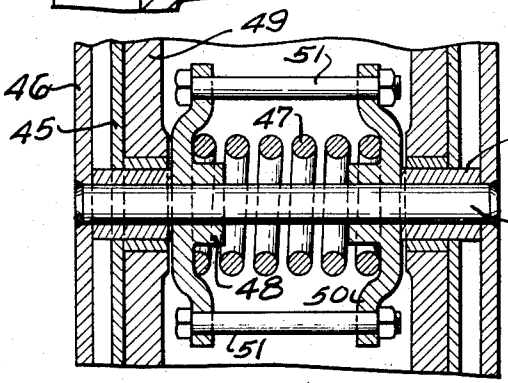


FIG. 8.

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RAILWAY AXLE BOX PEDESTAL STRUCTURE

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Application June 12, 1939, Serial No. 278,612

14 Claims. (Cl. 105—222)

The invention relates to railway rolling stock and consists in a device applicable between an axle box and pedestal therefor, arranged to accommodate relative lateral movement between the box and pedestal and at the same time to prevent unnecessary relative movement and loose play between these parts. One object of the invention is to improve the riding qualities of a railway vehicle by accommodating relative lateral movement between the pedestals and the wheels and axles to accommodate track irregularities and the play across the track of the wheels and axles and by cushioning the shocks resulting from such irregularities and play which would otherwise be transmitted to the vehicle pedestals and to the vehicle body.

Another object of the invention is to reduce the wear on the wheel flanges, journals, bearings and other parts which result from a too rigid mounting of the boxes in the pedestals.

Another object of the invention is to facilitate the travel of plural-axle assemblies on curved track by facilitating the movement of the axles relative to each other and transversely of the track. These and other detailed objects of the invention as will appear from the following description are attained by the structures illustrated in the accompanying drawings in which

Figure 1 is a side elevation of a railway truck pedestal and associated parts, the journal and axle box being sectioned to more clearly illustrate the construction.

Figure 2 is an elevation of the pedestal liner structure taken approximately on the line 2—2 of Figure 1 and drawn to an enlarged scale.

Figure 3 is a vertical section and elevation taken on the line 3—3 of Figure 2.

Figures 4 and 5 are horizontal sections taken on the corresponding section lines of Figure 2.

Figures 6 and 7 correspond to Figure 4 but illustrate other forms of the invention.

Figure 8 is a detail vertical section taken on line 8—8 of Figure 7.

Figure 1 indicates the usual wheel 1, axle 2, a typical journal box 3 mounted on the axle journal and supporting the leaf spring 4 from the ends of which are suspended hangers 5 supporting equalizers 6 which are pivoted to the truck frame 7 by pins (not shown) in the usual manner to support the frame. Pedestal legs 8 depend from frame 7 and, preferably, are of channel section as best indicated in Figure 5. All of the above mentioned elements are in accordance with familiar construction, except as hereinafter described.

The main members of the lateral motion device comprise an inner liner 9, an outer liner 10 and a yielding buffing structure including a spring 11, followers 12, sleeves 13 and an assembly pin 14. Inner liner 9 is constructed and arranged to fit around and be secured to pedestal leg 8. Outer liner 10 is arranged to be received between the front and rear flanges 15 of axle box 3, the corresponding flanges 16 of liner 10 being spaced substantially from the opposing flanges 17 of liner 9 so as to provide for the desired amount of relative lateral movement between the journal box and pedestal. The upper and lower edges 18 of liner 9 are bent over the upper and lower edges of liner 10 and hold these liners against relative vertical movement but permit liner 10 to slide transversely of the vehicle relative to liner 9.

Spring 11 thrusts followers 12 apart until sleeves 13 abut flanges 16 of the outer liner and pin 14, passing through all of the other parts of the device and welded at W to flanges 16, holds the parts assembled as a unit.

By recessing the outer face of pedestal leg 8, as indicated at 19, the unit may be applied to the pedestal (when box 3 is not in place), and inner liner 9 riveted at 20 to the pedestal wall, suitable openings being provided in outer liner 10 for access to the rivets.

With this construction it is obvious that box 3 may play vertically in the pedestal but that any lateral movement of the box relative to the pedestal exceeding the slight clearance C provided between followers 12 and the inner sides of the pedestal walls will be resisted by springs 11 which will serve also as centering devices tending to return the box and pedestal to normal relative position.

Preferably, but not necessarily, box 3 is fitted with a renewable wear plate 21 for contacting with the outer liner 10.

The buffer unit illustrated in Figure 6 includes a liner 30 arranged for application to the pedestal 31 and having its flanges 32 extending sufficiently to provide for the riveting of the same at 32a to the front and rear walls of the pedestal. The ends of the center pin 33 abut liner strips 34 applied to the box flanges 35 and 36. Liner 30 engages a liner strip 37 applied directly to the face of the box. Strips 34 and 37 are secured to the box by welds W'. Spring 38, followers 39 and sleeve 40 correspond to the springs, followers and sleeves in the form previously described except that the outer end of sleeve 40 is flush with the outer end of pin 33 and also abuts the corresponding liner strip 34 on the box. The sleeve

40 is positioned on the pin 33 by means of a pin 33a. The device may be completely assembled independently of the pedestal and applied to the pedestal as a unit.

Figures 7 and 8 illustrate a form of the invention corresponding to that first described, including inner and outer liners 45 and 46 respectively, but is so constructed that the spring 47 and followers 48 may be assembled as a unit and inserted within the pedestal 49 from the open side of the latter and independently of liner 45 which is separately applied to the pedestal. To this end followers 48 are provided with arms 50 and bolts 51 may be passed through arms 50 and tightened to compress spring 47 and facilitate its insertion into the pedestal.

Thereafter sleeves 52 and outer liner 46 may be applied and the assembly completed by welding pin 53 to liner 46.

With this construction it is unnecessary to recess the pedestal leg to accommodate the application and removal of the above structure. Accordingly this form of the invention may be preferred at times. In all forms of the invention the pedestal leg includes a buffing structure or lateral motion device which provides for a definite amount of lateral movement between pedestal and box and which yieldingly resists such movement and tends to return the box, journal, axle and wheels to a normal position relative to the frame or, conversely, to move the frame into a normal position relative to the wheels and axles.

One axle and its wheels are free to move in one direction transversely of the track while another axle or other axles and the corresponding wheels may move in the opposite direction.

It will be understood that the device may be applied to pedestals of railway locomotive driving wheel boxes as well as to the pedestal of truck axle boxes, and the term pedestals, as used in the specification and claims, contemplates any type of framing structure with which the boxes are movably assembled.

The construction may be varied in other ways than those illustrated without departing from the spirit of the invention and the exclusive use of such modifications of the structure as come within the scope of the claims is contemplated.

What is claimed is:

1. A railway vehicle axle box and pedestal lateral motion device comprising a liner arranged for fixed application to the pedestal receiving the box, and a coil spring and follower structure mounted on said liner and forming therewith a self-contained unit constructed and arranged to yieldingly oppose relative movement of said box and pedestal in opposite directions transversely of the vehicle.

2. A railway vehicle axle box and pedestal lateral motion device comprising a liner having a channel shaped contour arranged to fit over the pedestal receiving the box, and a spring housed in said liner and having follower structure projecting beyond said liner and constructed and arranged to yieldingly oppose relative movement of said box and pedestal in opposite directions transversely of the vehicle.

3. In a railway vehicle axle box and pedestal lateral motion structure, a liner constructed and arranged for fixed application to a vehicle pedestal, a spring housed in said liner, followers seated on said spring and having parts opposing a pedestal wall facing longitudinally of the box axis and having parts extending longitudinally of the box axis beyond said wall and the adjacent portion of said liner towards an opposing element on the vehicle axle box, whereby said spring may yieldingly resist relative movement of the pedestal and box transversely of the vehicle.

4. In a railway vehicle axle box and pedestal lateral motion structure, a liner constructed and arranged for fixed application to a vehicle pedestal, a spring housed in said liner, followers seated on said spring and having parts extending towards a pedestal wall facing longitudinally of the box axis and having parts projecting longitudinally of the box axis beyond said wall and the adjacent portion of said liner, and outer liner structure constructed and arranged for application to the vehicle axle box and including elements opposing the outer ends of said follower projecting parts, whereby said spring yieldingly resists relative movement of said liners transversely of the vehicle.

5. A railway vehicle axle box and pedestal lateral motion structure comprising channel shaped inner and outer liners arranged to engage a pedestal and a box respectively, said liners having their webs slidable on each other transversely of the pedestal and having their adjacent flanges spaced from each other, a spring compressed between the flanges of said inner liner and provided with followers for engaging pedestal elements to yieldingly resist relative lateral movement of the outer liner and pedestal, a member extending through said spring, followers, pedestal, and the flanges of the inner liner and connected to the flanges of the outer liner, and means on said member between said followers and the flanges of the outer liner to normally hold said followers in spaced relation on said member.

6. A railway vehicle axle box and pedestal lateral motion structure comprising channel shaped inner and outer liners with the ends of one liner spaced from the adjacent ends of the other liner, a carrier extending between and supported by the ends of said inner liner, and a spring and follower structure mounted on said carrier and seating against the ends of said outer liner and disposed to engage the sides of the pedestal to resist the relative movement of said liners transversely of the vehicle.

7. In combination, a railway vehicle pedestal, an axle box slidable therein, a liner for said box, a liner for said pedestal, said box liner having elements opposing and spaced from the front and rear faces of said pedestal liner, and a spring device extending through said pedestal and pedestal liner and opposing said elements and portions of said pedestal to yieldingly resist movement of said box liner and box transversely of the pedestal, said pedestal being recessed inwardly opposite to said box, and detachable means for securing said pedestal liner to said pedestal whereby said device is applicable to and removable from said pedestal as a unit.

8. A self contained unit comprising a lateral motion centering device for railway vehicle axle box and pedestal assembly and including inner and outer liners constructed and arranged to fit respectively around the leg of a vehicle pedestal and between the flanges of an axle box associated therewith, said liners being of channel section and one nested within the other, a pin extending through the flanges of the inner liner and secured to the flanges of the outer liner, a coil spring surrounding said pin, followers seated on said spring and extending radially of said pin to oppose inwardly facing walls on the pedestal, and

sleeves surrounding said pin and seated on said followers and spacing the same from the flanges of said inner liner to receive the pedestal walls between said flanges and said followers.

9. In combination, a railway vehicle pedestal, an axle box slidable vertically therein, said pedestal including a leg having a face opposing said box, said leg having a recess extending inwardly from said face, a spring buffer unit received in said recess and including structure projecting forwardly and rearwardly of said leg in a direction parallel to said face, there being elements on said box opposing the face of said structure, whereby relative movement of said box and pedestal transversely of the vehicle is yieldingly resisted, and there being a channel-shaped liner extending around the pedestal leg and having its web covering the open side of said recess and having its flanges apertured and slidably mounting said unit with the ends of the latter projecting beyond said flanges to oppose the corresponding elements of the box.

10. In combination, a railway vehicle pedestal having inner and outer walls facing transversely of the vehicle, a spring disposed transversely of the vehicle and housed between said walls, follower structures at the opposite ends of said spring arranged to engage the portions of said walls facing inwardly of the pedestal and including portions projecting transversely of the vehicle beyond said pedestal walls to yieldingly oppose relative movement of an axle box mounted in the pedestal, and a member extending through said spring and limiting the movement of said follower structures away from each other.

11. A railway vehicle axle box and pedestal lateral motion device comprising a liner having a channel-shaped contour arranged to fit over the pedestal receiving the box and to be secured to said pedestal, and a spring housed in said liner and having follower structure at its ends projecting through the flanges of said liner to oppose elements on the box and movable relative to the liner flanges in opposite directions to yieldingly resist relative movement of the box and pedestal transversely of the vehicle.

12. A railway vehicle axle box and pedestal lateral motion structure comprising inner and outer liners arranged for application to the pedestal and box respectively, said pedestal having transversely spaced walls and said box having spaced flanges opposing said walls, each flange being spaced outwardly from the corresponding wall, opposing liner elements facing longitudinally of the vehicle being slidable on each other transversely of the vehicle, opposing liner elements facing transversely of the vehicle being spaced apart, a spring compressed transversely of the vehicle between said pedestal walls and provided with followers opposing said walls, a member extending through said spring, followers, pedestal walls, and inner liner elements facing transversely of the vehicle and abutting the opposing outer liner elements facing transversely of the vehicle and including means between the latter elements and said followers limiting the movement of said followers away from each other, said pedestal being slotted inwardly from its face to receive said spring, followers and member whereby the spring, followers, member and associated inner liner elements may be applied as a unit to the pedestal.

13. In combination, a railway vehicle pedestal, an axle box slidable vertically therein, said pedestal including a leg having a face opposing said box, said leg having a recess extending inwardly from said face, a spring buffer unit received in said recess and including structure projecting forwardly and rearwardly of said leg in a direction parallel to said face, there being elements on said box opposing the face of said structure, whereby relative movement of said box and pedestal transversely of the vehicle is yieldingly resisted, there being a liner extending around the pedestal leg and covering the open side of said recess and having its side portions slidably mounting said unit, elements securing said liner to said pedestal leg, and an outer liner with flanges secured to the ends of said unit and movable therewith relative to said pedestal and inner liner, there being openings in said outer liner adjacent to said securing elements.

14. In combination, a railway vehicle pedestal, an axle box slidable vertically therein, said pedestal including a leg having a face opposing said box, said leg having a recess extending inwardly from said face, a spring buffer unit received in said recess and including structure projecting forwardly and rearwardly of said leg in a direction parallel to said face, there being elements on said box opposing the face of said structure, whereby relative movement of said box and pedestal transversely of the vehicle is yieldingly resisted, there being a channel-shaped inner liner extending around the pedestal leg and having its web covering the open side of said recess and having its flanges apertured and slidably mounting said unit with the end of the latter projecting beyond said inner flanges towards the corresponding box elements, there being an outer liner of channel-shaped section with its web engaging the web of the inner liner and with its flanges spaced from the flanges of the inner liner to oppose the ends of said unit.

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