

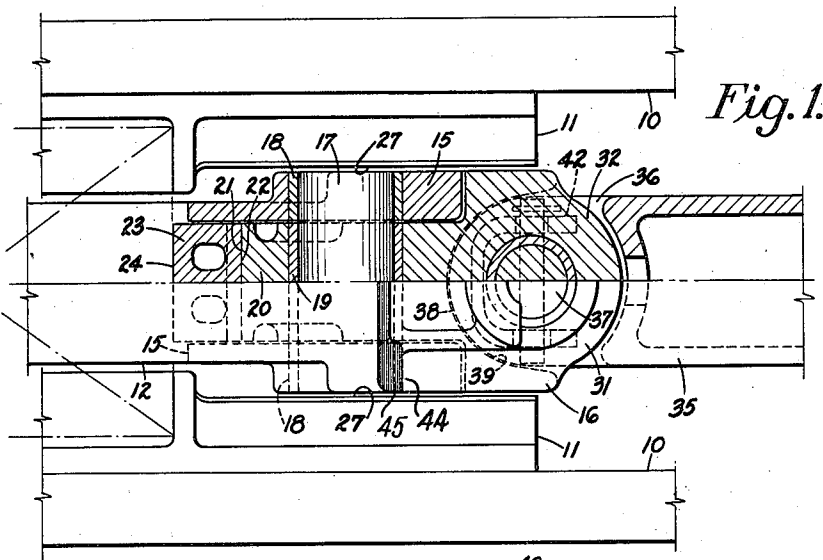
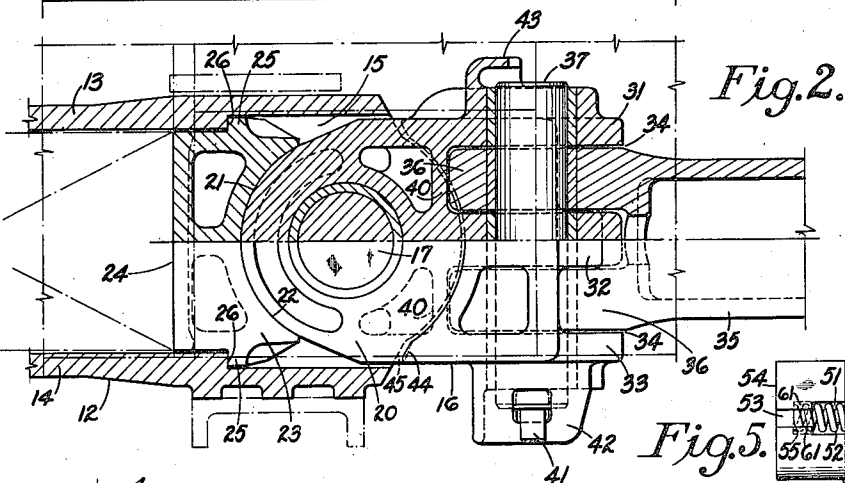
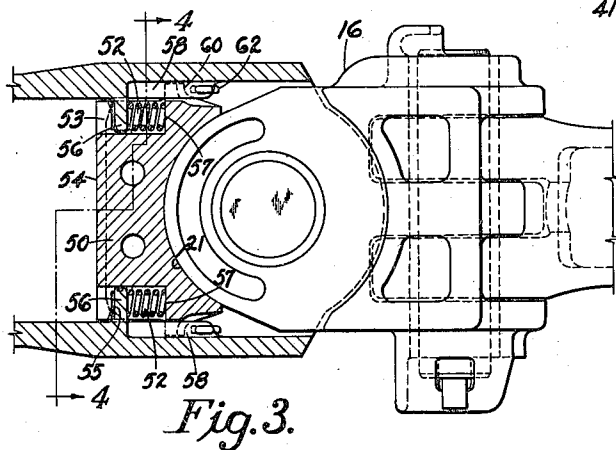
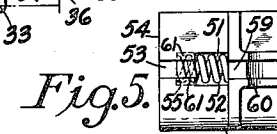
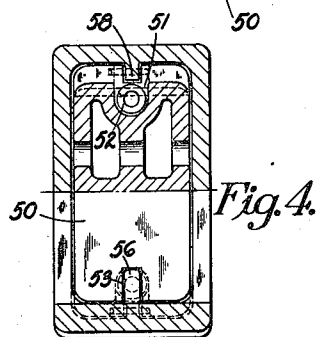
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COUPLER SHANK AND YOKE CONNECTION

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COUPLER SHANK AND YOKE CONNECTION

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9 Claims. (Cl. 213—72)

This invention relates to draft rigging for railway cars and more particularly to a coupler shank and yoke connection.

It is the object of my invention to provide simple and efficient means for connecting a coupler to a yoke whereby the coupler may be angled both horizontally and vertically relative to the yoke.

A more specific object of my invention is to provide a coupler-yoke connection in which there is an intermediate member connecting the coupler and yoke so as to permit universal movement of the coupler and which member relieves the yoke pin of all buffing forces.

Another object is to provide an intermediate member connecting a coupler and yoke to permit universal movement of the coupler, which member is provided with a rear butt surface coaxial with the axis of the pivot pin connecting said member to the yoke so that in all pivotal positions of said member the area of engagement thereof with an associated buffing member will remain constant.

A further object is to provide a coupler and yoke connection in which there is an intermediate member pivotally connected to the yoke having a rear butt surface coaxial with the axis of the yoke pin and which engages a correspondingly curved seat of an associated abutment member adapted to transmit buffing forces directly from said intermediate member to a cushioning device.

Another object is to provide a coupler-yoke connection in which there is an intermediate member pivotally connected to the yoke, said member having an abutment surface coaxial with the yoke pin, an abutment member having a seat in engagement with said abutment surface and being adapted to transmit buffing forces from said intermediate member to a draft gear, and resilient means for maintaining said members in engagement.

A further object is to provide an intermediate member connecting the yoke and coupler to permit universal movement of the coupler, which member is provided with means adapted to cooperate with the yoke to support the coupler in case of carrier iron failure.

Other objects and advantages of my invention will appear from the following description taken in conjunction with the drawing, in which:

Figure 1 is a plan view partly in section of a coupler and yoke connection embodying my invention.

Figure 2 is an elevational view partly in section of the device shown in Fig. 1.

Figure 3 is an elevational view partly in section, showing another embodiment of my invention.

Figure 4 is a transverse sectional view taken on line 4—4 of Fig. 3.

Figure 5 is a plan view of the abutment block of Fig. 3.

Referring particularly to Figs. 1 and 2, there are shown the usual railway car draft sills 10 to which are secured the draft lugs 11. Positioned between the draft lugs is the yoke 12 having an upper arm 13 and a lower arm 14. These arms are joined at the forward end of the yoke by the side walls 15, forming a box structure. Pivotally mounted within this box structure is an intermediate member 16 which is adapted to swing in a vertical plane about a horizontal pin 17 which extends into side walls 15. The pin receiving openings through side walls 15 and member 16 are provided with bushings 18 and 19 respectively, the purpose being to permit reconditioning of the connection by renewal of the pin or both pin and bushings when slack develops. Pin 17 is retained within the side walls of the yoke by the adjacent vertical side walls 27 of the draft lugs 11, thus simplifying the yoke construction and obviating any necessity for special pin retaining means.

The rear portion 20 of member 16 is provided with a buffing surface 21 coaxial with the axis of pin 17. In engagement with surface 21 is a correspondingly curved seat portion 22 of buffing block 23. This block is provided with an abutment wall 24 for engagement with the usual type of cushioning device (as shown by dot-dash lines) applied to draft rigging. It will be apparent therefore that all buffing forces from member 16 will be transmitted directly to block 23 and thence to the cushioning device, the pin 17 being entirely relieved of said forces. Block 23 is provided at its top and bottom with the transversely extending projections 25 which are adapted to engage shoulders 26 in the upper and lower arms of the yoke to limit rearward movement thereof with respect to said yoke and to maintain said block in a vertical position. While projections 25 are shown in engagement with shoulders 26, it is to be understood that this is not essential to the proper functioning of the block in relation to the yoke, as the transmission of buffing forces through the block to the cushioning device is the same whether or not there is clearance between said surfaces. It will be observed that in all po-

sitions of member 16 the buffing surface 21 remains in full contact with seat 22 of the block, thus affording buff transmitting surfaces which will wear evenly and will transmit stresses over the entire area of contact. Furthermore, with this construction no shimming is necessary in connection with block 23 since the cushioning mechanism will maintain the block in engagement with surface 21 of member 16. Sufficient clearance is provided between member 16 and the upper and lower arms of the yoke to permit the necessary amount of vertical angling.

The forward portion of member 16 is provided with top, intermediate, and bottom horizontal flanges 31, 32 and 33 respectively, forming therebetween the coupler shank receiving chambers 34. The coupler shank 35 has a bifurcated end forming lugs 36 which are received in chambers 34. The coupler is pivotally connected to member 16 for movement in a horizontal plane with respect thereto by the vertical pin 37. Pin 37 is inserted from the bottom of member 16 and is supported by the key 41 which is held in position by depending lugs 42, one on each side of member 16. Upward movement of the pin is limited by the overlapping flange 43. Each of flanges 31, 32 and 33 of member 16 and each of shank lugs 36 is provided with a bushing in its respective pin opening. These bushings as do those in the yoke and rear portion of member 16 prevent wear of said parts and provide for easy reconditioning of the connection when undue slack develops. Lugs 36 are provided with curved surfaces 38, and surfaces 39 of vertical walls 40 of chambers 34 are correspondingly curved. As viewed in the drawing, clearance is shown between these opposing surfaces so that buffing forces are transmitted from the coupler to member 16 entirely through pin 37. This clearance, however, may be eliminated, so that the buffing forces will be taken by both the pin and walls 40. Furthermore, by the provision of clearance between the bushings and pin 37 when surfaces 38 and 39 are in engagement, the buffing forces will be transmitted directly to walls 40, eliminating all buffing forces from the pin. When the coupler is subject to draft forces, such forces are transmitted to the yoke through pins 37 and 17.

Member 16 is provided with lateral extensions 44 which are adapted to engage portions 45 of the side walls 15 of the yoke in case of carrier iron failure to limit vertical angling of the coupler and prevent it from contacting the road-bed.

It will be apparent that a coupler and yoke connection constructed in accordance with my invention provides for horizontal and vertical angling of the coupler and provides bearing surfaces which remain in full contact during all positions of the coupler as encountered in service. In addition, coupler buffing forces are transmitted directly to a buffing block separate from the yoke, and thence to the cushioning device, relieving the yoke pin of all of said forces.

In the embodiment shown in Figs. 3, 4 and 5 I have provided a buffing block 50 which is maintained in constant engagement with the buffing surface 21 of the intermediate member 16 through the provision of resilient means. This block is provided with recesses 51 in its top and bottom portions for the reception of springs 52. Adjacent said recesses are vertical slots 53 which extend to the abutment face 54. Each slot is somewhat narrower than the diameter of the spring, thus providing a seating surface 55 for an end of the spring. Extending inwardly from the

upper and lower arms of the yoke are lugs 56 which are adapted to be received by the corresponding slots 53 and spring recesses 51. Each spring reacts between lug 56 and seat 57 of the block to maintain said block in constant engagement with member 16. The upper and lower arms of the yoke are formed with centrally disposed inwardly projecting longitudinal ribs 58 which extend into grooves 59 in the top and bottom of the block. At the end of each rib 58 there is provided suitable means such as a cotter 62 extending therethrough and which by virtue of its overlapping relation with projections 60 will prevent the block from being accidentally displaced when, during disassembly of the connection, intermediate member 16 is being removed from the yoke. It will be observed that a part of recess 51 is provided with portions 61 overlapping the springs which preclude the springs from dropping out during shipment of the block. With the block assembled in the yoke, the springs are maintained in position by ribs 58 and by portions 61.

The terms and expressions which I have employed are used as terms of description and not of limitation, and I have no intention, in the use of such terms and expressions, of excluding any equivalents of the features shown and described or portions thereof, but recognize that various modifications are possible within the scope of the invention claimed.

What I claim is:

1. In a draft rigging a yoke having a box structure at the forward end thereof, a member pivotally mounted within said structure for movement in a vertical plane, said member having a forwardly extending portion, a coupler pivotally connected to said forward portion for movement in a horizontal plane with respect thereto, said member being provided with a buff transmitting surface curved coaxially with respect to the axis of the pivotal connection between said yoke and member, and means within said yoke having a surface curved similarly to said curved surface on said member and in engagement therewith for transmitting buffing stresses from said member to a cushioning device.

2. In a draft rigging a yoke having a box structure at the forward end thereof, a member extending into said box structure having a forward and a rearward portion for pivotally connecting a coupler to said yoke for horizontal and vertical angling, said rearward portion being provided with a buff transmitting surface curved coaxially with respect to the axis about which said coupler angles vertically, and separable means within said yoke rearwardly of said member having a forward curved surface adapted to engage said buff transmitting surface for transmitting buffing stresses from said member to a cushioning device.

3. In a draft rigging a yoke having a box structure at the forward end thereof, a member having a rearward portion extending into said structure, a pin connecting said portion to said yoke for pivotal movement of said member in a vertical plane with respect thereto, said member having a forwardly extending portion, a coupler pivotally connected to said forwardly extending portion for movement in a horizontal plane, said rearward portion having a buffing surface curved coaxially with respect to the axis of said pin, and means within said yoke having a surface curved similarly to said curved surface on said member and in engagement therewith for trans-

mitting buffing stresses from said member to a cushioning device.

4. In a draft rigging a yoke having top, bottom and side walls at the forward end thereof, a coupler, a member positioned between said side walls pivotally connected at one end to the shank of said coupler by means of a vertical pin and pivotally connected to said side walls at its other end by means of a horizontal pin, said member being provided at said last named end with a buff transmitting surface curved coaxially with respect to the axis of said horizontal pin, and means within said yoke having a surface curved similarly to said curved surface on said member and in engagement therewith for transmitting buffing stresses from said member to a cushioning device.

5. In a draft rigging a yoke having a box structure at the forward end thereof, a coupler, a member for transmitting buffing forces from said coupler to a cushioning device, said member being pivotally connected at one end to said coupler and having its other end pivotally connected to said yoke within said structure, said connections providing for horizontal and vertical angling of said coupler with respect to said yoke, said member being provided with a buffing surface on said end within said structure curved coaxially with respect to the axis of the pivotal connection between said yoke and member, and means within said yoke having a surface curved similarly to said curved surface on said member and in engagement therewith for transmitting buffing stresses from said member to a cushioning device.

6. In a draft rigging a yoke having a box structure at the forward end thereof, a member pivotally mounted within said structure for movement in a vertical plane, said member having a forwardly extending portion, a coupler pivotally connected to said forward portion for movement in a horizontal plane with respect thereto, said member being provided with a buff transmitting surface curved coaxially with respect to the axis of the pivotal connection between said yoke and member, and a buffing block within said yoke having a seat on one side in engagement with said surface and an abutment face on its opposite side adapted to engage a cushioning device.

7. In a draft rigging a yoke having a box structure at the forward end thereof, a member pivotally mounted within said structure for movement in a vertical plane, said member having

a forwardly extending portion, a coupler pivotally connected to said forward portion for movement in a horizontal plane with respect thereto, said member being provided with a buff transmitting surface curved coaxially with respect to the axis of the pivotal connection between said yoke and member, a buffing block within said yoke having a seat on one side in engagement with said surface and an abutment face on its other side adapted to engage a cushioning device, and means on said block and yoke cooperating with each other to limit movement of said block in a direction away from said surface.

8. In a draft rigging a yoke having a box structure at the forward end thereof, a member pivotally mounted within said structure for movement in a vertical plane, said member having a forwardly extending portion, a coupler pivotally connected to said forward portion for movement in a horizontal plane with respect thereto, said member being provided with a buff transmitting surface curved coaxially with respect to the axis of the pivotal connection between said yoke and member, a buffing block within said yoke having a seat on one side in engagement with said surface and an abutment face on its opposite side adapted to engage a cushioning device, and spring means carried by said block and engaging said yoke for maintaining said block in engagement with said member.

9. In a draft rigging a yoke having a box structure at the forward end thereof, a member pivotally mounted within said structure for movement in a vertical plane, said member having a forwardly extending portion, a coupler pivotally connected to said forward portion for movement in a horizontal plane with respect thereto, said member being provided with a buff transmitting surface curved coaxially with respect to the axis of the pivotal connection between said yoke and member, a buffing block within said yoke having a seat on one side in engagement with said surface and an abutment face on its opposite side adapted to engage a cushioning device, spring means carried by said block and reacting against said yoke for maintaining said block in engagement with said member, and means carried by said yoke and cooperating with said block for limiting forward movement of said block when said member is removed during disassembly of the parts.

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