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DRAFT RIGGING SHOCK ABSORBER

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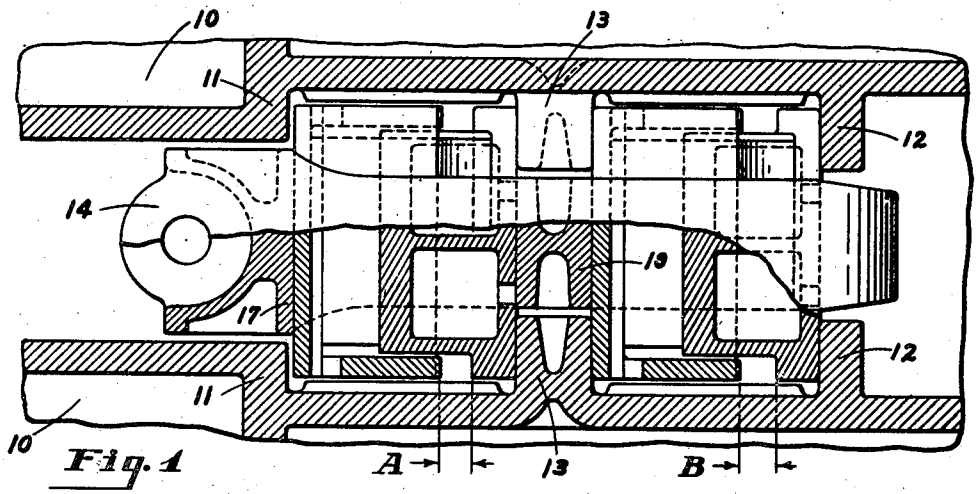


Fig. 1

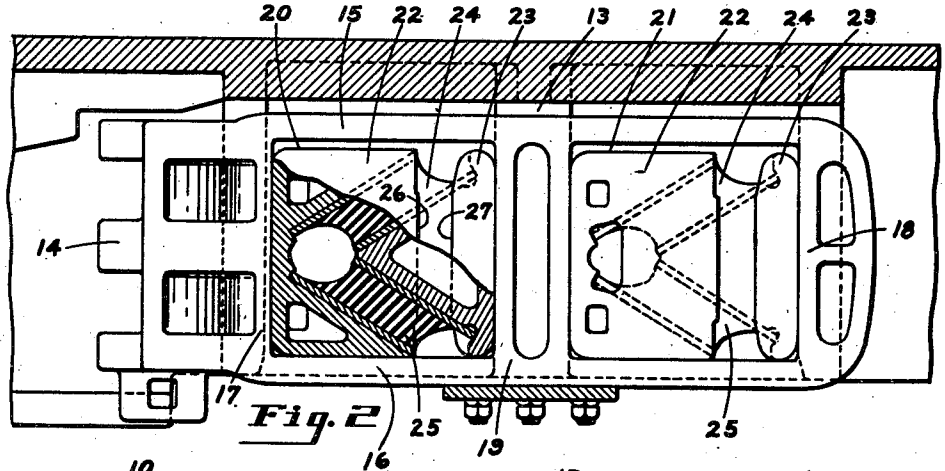


Fig. 2

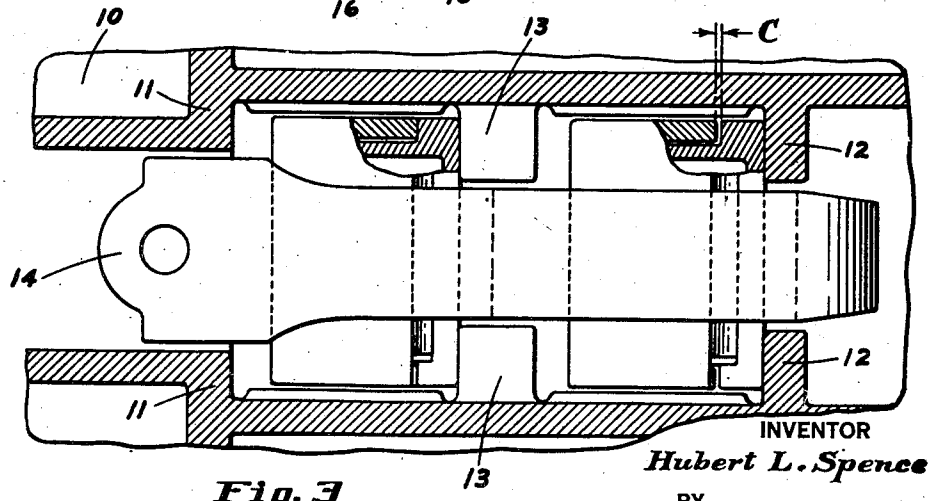


Fig. 3

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DRAFT RIGGING SHOCK ABSORBER

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This invention relates to railway draft rigging and more particularly to a tandem yoke type of rigging, wherein the parts are arranged so that over-solid buffing blows on the associate coupler are transmitted to the car structure through the front draft gear only.

More particularly, the invention includes a tandem yoke and draft gear combination in which the stop lugs in the draft gear pocket and the stop surfaces on the yoke are located in a definite relation so that the front draft gear is completely compressed in buff when the rear draft gear is still a short distance from being solid. By this arrangement, over-solid buffing blows are transmitted from the coupler through the front wall of the yoke and through the front draft gear to the car structure, thereby relieving the arms of the yoke of any buffing load in excess of the normal capacity of the rear draft gear. Moreover, the relation between the stop lugs and the stop surfaces on the yoke is such that the likelihood of having free or unresisted movement between the various members is substantially eliminated.

A more comprehensive understanding of this invention is obtained by reference to the accompanying drawings, in which:

Fig. 1 is a horizontal sectional view through the draft gear pocket, showing the draft gears partly in full and partly broken away, with the members in normal position.

Fig. 2 is a vertical sectional view through the draft gear pocket, with the front draft gear partly broken away; and

Fig. 3 is a view similar to Fig. 1, showing the members in fully compressed position in buff.

In the drawings, the draft gear pocket 10 is formed with a pair of front draft lugs 11, a pair of rear draft lugs 12 and a pair of intermediate lugs 13. A yoke 14 comprises a pair of horizontal arms 15 and 16, front wall 17, rear wall 18 and intermediate wall 19. The yoke 14 is attached to a coupler, not shown, in any convenient manner. Front and rear draft gears 20 and 21 respectively, may be identical, and for purposes of illustration the draft gears shown each comprise a pair of members 22 and 23 with rubber units 24 and 25 therebetween. Other types of draft gears may be employed such as spring or spring and friction type. The sloping surfaces on members 22 and 23 engaging the rubber units cause the rubber to be placed under combined compression and shear to resist movement of the members toward each other. The cushioning means is relieved of over-solid blows

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by contact between end wall 26 on member 22 and stop surface 27 on member 23. An over-solid blow is a force applied to the coupler in excess of that required to close the draft gear to its solid point and may be greatly in excess of that required to close the gear.

When in normal position the rear draft gear engages rear stop lugs 12 and the rear surfaces of intermediate lugs 13. The rear draft gear is also in engagement with the rear and intermediate walls 18 and 19, respectively, of the yoke. Movement of the yoke in either direction compresses the rear draft gear and as a consequence there is no free or unrestricted movement of the yoke relative to the car. When the parts are in normal position, as shown in Fig. 1, front wall 17 of the yoke is spaced rearwardly of front draft lugs 11 in order to compress slightly the front draft gear and decrease the distance A between end wall 26 and stop surface 27. Distance A on the front draft gear is accordingly less than the distance B between the corresponding surfaces on the rear draft gear. In order to obtain the result of this invention, the difference between B and A may be made relatively small. A difference of ⅛" has been found satisfactory. When the yoke is moved rearwardly until the front draft gear is solid, surfaces 26 and 27 on the front draft gear engage, and the corresponding surfaces on the rear draft gear are spaced apart to the extent of distance C, as shown in Fig. 3. Therefore, over-solid buffing blows are transmitted from the coupler through front wall 17 of the yoke and through the solid front draft gear to intermediate stop lugs 13. The only stress placed on horizontal arms 15 and 16, under these conditions, is that required to compress the rear draft gear which is much less than would be occasioned by an over-solid blow.

Identical draft gears may be used in accordance with this invention and the distribution of any over-solid blows is accompanied by the proper spacing of the draft gears engaging surfaces on the yoke and car structure. Since identical draft gears are employed in both front and rear compartments of the yoke, there is no chance of confusion. Consequently, there is no need for special care in the installation of the draft gears.

While preferred embodiments of this invention have been illustrated and described, various modifications may be made without departing from the scope of the appended claims.

What is claimed is:

1. In a railway draft rigging, equally spaced pairs of front and rear draft lugs, a tandem yoke

having a pair of horizontal arms and front, rear and intermediate walls joining said arms, stop surfaces on said walls, the stop surface on said rear wall being spaced from the facing stop surface on said intermediate wall the same longitudinal distance as said rear draft lugs, and the stop surface on said front wall being spaced from the facing stop surface on said intermediate wall a lesser longitudinal distance than said front draft lugs, front and rear draft gears in said yoke normally engaging said stop surfaces, said front draft lugs and said rear draft lugs being adjacent respectively said front draft gear and said rear draft gear and limiting the longitudinal movement of their respectively associated draft gears, said front draft gear being compressed between said front and intermediate walls to an extent greater than said rear draft gear so that over-solid buffing blows are transmitted through said front draft gear only.

2. A railway car draft rigging comprising a forward draft gear and a rearward draft gear, stop means on said car cooperating with each of said gears in draft and buff, and a yoke surrounding said gears and engaging each gear independently, the effective length of the part of the yoke engaging said forward gear being less than the effective length thereof engaging said rear gear whereby over-solid buffing stresses are transmitted only by said front gear.

3. In a railway car draft rigging, a yoke, a front draft gear and a rear draft gear engaged with said yoke, a resilient means associated with each of said draft gears for effecting a resilient resistance to the application of a buffing force to said yoke, the resilient means associated with said rear draft gear being completely expanded to its normal limit when in a neutral position, said rear draft gear being so disposed with respect to said yoke that upon the complete compression of the resilient means of said front draft gear, the resilient means of said rear draft gear is not completely compressed.

4. In a railway draft rigging, a tandem yoke having front and rear compartments, a front draft gear in said front compartment, a rear draft gear in said rear compartment, said front draft gear being compressed when in the neutral position and said rear draft gear being completely expanded to its normal length in the neutral position, and stop means on the car associated with said front and rear draft gears, said stop means being so positioned that in buff said front draft gear is completely compressed the full extent of its travel while said rear draft gear is compressed short of its total travel.

5. In a railway draft rigging equally spaced pairs of front, intermediate and rear draft lugs, a tandem yoke having front, intermediate and rear stopping surfaces, said rear stopping surfaces being spaced from the facing surface of said intermediate stopping surface the same longitudinal distance as that between said rear draft lugs and the facing surface of said intermediate draft lugs, and said front stopping surface being spaced from the facing surface of said intermediate stopping surface a lesser longitudinal distance than that between said front draft lugs and the facing surface of said intermediate draft lugs, front and rear gears engaging said front, intermediate and rear stopping surfaces, said front draft gear being compressed between said front and intermediate stopping surfaces to an extent greater than said rear draft gear, whereby over-solid buffing blows are transmitted through said front draft gear only.

6. In a railway draft rigging a front draft gear and a rear draft gear, stationary means adjacent each end of said draft gears for limiting the longitudinal movement of its respectively adjacent draft gear, a tandem yoke having stopping surfaces thereon engaging each of said draft gears, said rear draft gear being at its maximum expansion when said yoke is in the neutral position, said stationary means and said stopping surfaces being so constructed and arranged as to effect a resiliency in said rear draft gear when said front draft gear is completely compressed as a result of over-solid buffing blows.

7. In a railway draft rigging, a front draft gear and a rear draft gear, stationary means adjacent each end of said draft gears for limiting the longitudinal movement of its respectively adjacent draft gear, a tandem yoke having stopping surfaces thereon engaging each of said draft gears, said rear draft gear being at its maximum expansion when said yoke is in the neutral position, and said front draft gear when in a neutral position being partially compressed.

8. A tandem draft gear yoke having forward and rear yoke compartments adapted to receive draft gears of substantially identical travel characteristics, said forward yoke compartment being of slightly less longitudinal dimension than said rear yoke compartment, said forward yoke compartment and said rear yoke compartment being adapted for association respectively with forward and rear stationary compartments having substantially the same longitudinal dimensions so positioned that in buff the draft gear in said front yoke compartment is compressed solid and the draft gear in said rear yoke compartment is incompletely compressed.

9. A tandem draft gear yoke having front, intermediate and rear stopping surfaces forming compartments for the reception of draft gears of substantially identical travel characteristics, the longitudinal distance between said front stopping surface and the facing surface of said intermediate stopping surface being slightly less than the longitudinal distance between said rear stopping surface and the facing surface of said intermediate stopping surface, said yoke being adapted for association with forward and rear pairs of stop means so positioned that in buff a draft gear in said front compartment is adapted to be compressed solid while a draft gear in said rear compartment is incompletely compressed.

10. A draft rigging comprising a tandem draft gear yoke, having front and rear yoke draft gear receiving compartments spaced longitudinally fron each other, a stationary pocket comprising front and rear stationary draft gear receiving compartments spaced longitudinally from each other, the longitudinal distance between said yoke draft gear compartments and said stationary draft gear compartments being substantially the same and said front yoke draft gear compartment being of a lesser longitudinal dimension than said rear yoke draft gear compartment, draft gears having similar travel characteristics in said yoke draft gear compartments, the draft gear in said front yoke compartment being completely compressed the full extent of its travel when in buff, while the draft gear in said rear yoke compartment is compressed short of its total travel.

11. In a railway draft rigging, a tandem yoke

having front, intermediate and rear stop means forming two compartments, a front draft gear in said compartment between said front stop means and said intermediate means, a rear draft gear in said compartment between said intermediate stop means and said rear stop means, front, intermediate and rear stop lugs, the distance between said front stop lug and said intermediate stop lug being the same as the distance between said intermediate stop lug and said rear stop lug, and, when said yoke is in a neutral position, said intermediate stop means and said rear stop means being substantially aligned respectively with said intermediate stop lug and said rear stop lug and said front stop means being spaced longitudinally a lesser distance from said intermediate stop means than the longitudinal distance from said front stop lug to said

intermediate stop lug whereby, in neutral position, said front draft gear is compressed and said rear draft gear is completely expanded to its normal length.

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