Jan. 1, 1957 E. H. BLATTNER 2,776,057

CUSHIONING MECHANISM

Filed Feb. 20, 1951 2 Sheets-Sheet 1

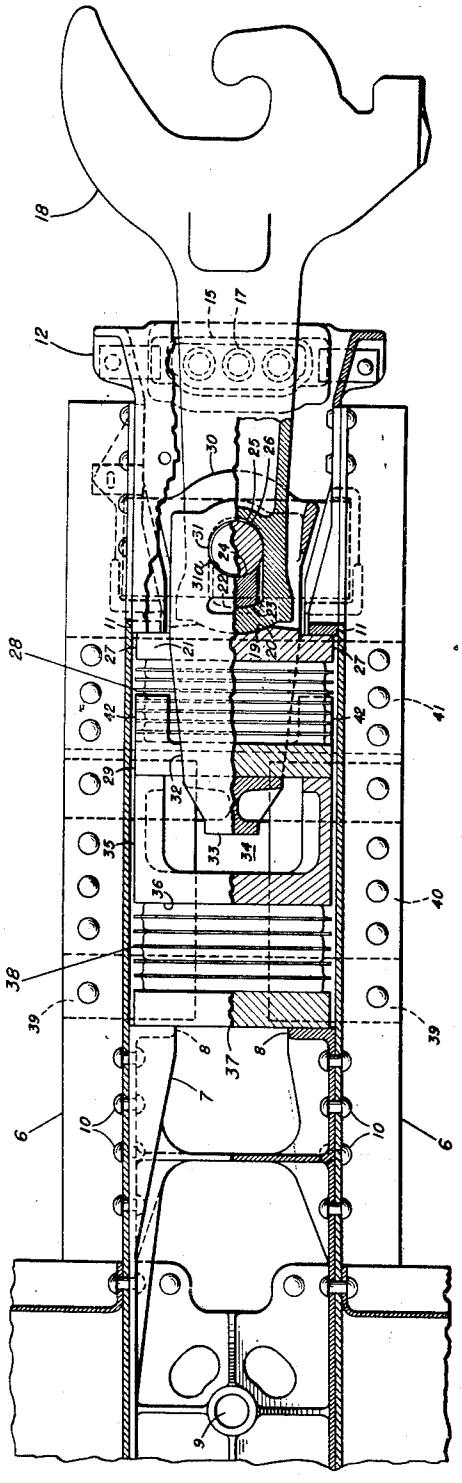


FIG. 1

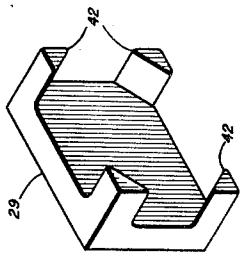


FIG. 6

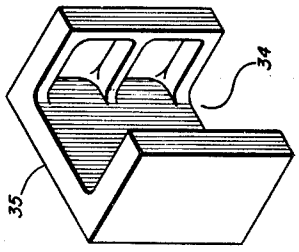


FIG. 5

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CUSHIONING MECHANISM

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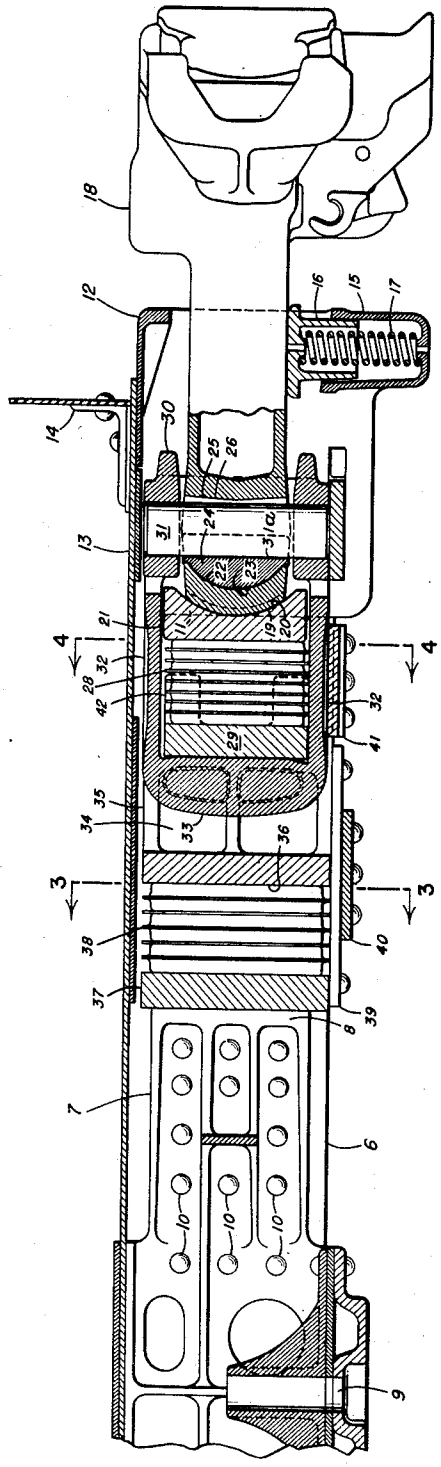


FIG. 2

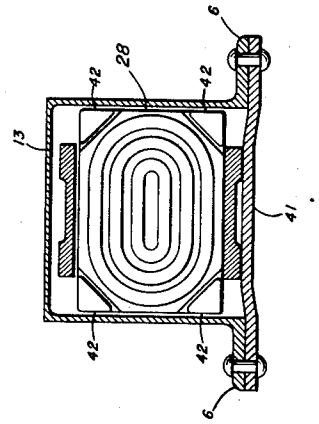


FIG. 4

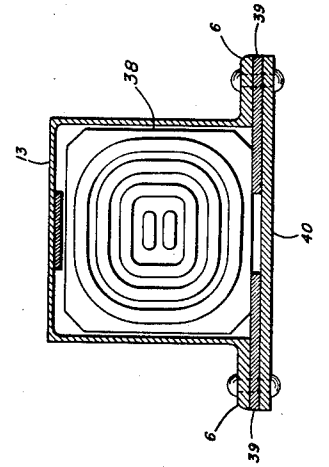


FIG. 3

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CUSHIONING MECHANISM

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12 Claims. (Cl. 213—46)

This invention relates to draft rigging for railway cars and more particularly to draft rigging designed for use with the so-called type "F" coupler.

The primary object of the invention, generally stated, is to provide a cushioning mechanism particularly adapted for the sandwiched rubber or so-called "Waugh-mat" cushioning means.

The principal feature of the invention is to provide center sills having stop members connected to the inner faces thereof and spaced a predetermined distance apart, a floating stop member, a yoke (the rear end of which is positioned within a suitable recess provided in the floating stop member), and cushioning mechanism within and without the said yoke, both of said cushioning mechanisms being adapted to cooperate to resist buffing forces and only one of said cushioning mechanisms operating to resist draft forces.

Another feature of the invention is to provide in the type of mechanism above described cushioning means which are assembled under predetermined compression for maintaining followers employed therewith in abutting engagement with their respective stop members so as to eliminate slack.

Other features of the invention will be pointed out in connection with the detailed description thereof, reference being had to the accompanying drawings, in which:

Figure 1 represents a horizontal longitudinal section, partially in plan, of a car center sill showing the associated cushioning mechanism, coupler, carrier, yoke and stop members.

Figure 2 is a longitudinal vertical sectional view of Figure 1, the coupler head and portions of the stem thereof being in full lines.

Figure 3 is a cross-sectional view taken on line 3—3 of Figure 2, looking in the direction indicated by the arrows.

Figure 4 is a cross-sectional view taken on line 4—4 of Figure 2, also looking in the direction indicated by the arrows adjacent the ends of the section line.

Figure 5 is an isometric perspective view of the rear yoke follower; and

Figure 6 is a similar view of the floating stop member.

Throughout the specification and drawings like parts are designated by like reference characters.

In the drawings, the fragmentary end portions of the car center sill are designated as 6—6. A rear stop member 7, having inturned stop lugs 8, extends rearwardly so as to form the usual center bearing 9, only a portion of which is illustrated. The stop member is preferably connected to the adjacent portions of the center sill 6 by rivets 10. Spaced forwardly of the rear stop lugs 8 are the front stop lugs 11 which form a part of the end casting 12 which underlies the cover plate 13 and extends outwardly of the end sill 14. The end casting 12 in the present embodiment is provided with a recess portion 15 in which is seated a coupler carrier 16 and coupler-supporting springs 17. The rear portion of the stem of the coupler 18 is provided with a convex portion 19 engaging and corresponding to the concave recess 20 in the front yoke follower 21. Forwardly of the surface 19 the coupler is provided with a concave surface 22 against which seats the convex face 23 of a

shim 24. The forward end of the recess 25 in the coupler provides clearance 26 to enable the coupler to pivot vertically about the center from which the curved face 23 of the shim 24 is struck. The follower 21 has lateral projections 27 which normally engage the rear faces of the stop lugs 11.

Positioned in the rear of the follower 21 is a cushioning mechanism 28 which, as illustrated, comprises the so-called "Waugh-mat" draft gear, cushion or cushioning unit, consisting of a plurality of rubber mats or rings sandwiched between dividing separating plates. Engaging the rear face of the cushioning mechanism 28 is a rear follower 29 and surrounding the followers 21 and 29 and the cushioning mechanism 28 is a hooded yoke member 30 which is connected to the coupler by a vertical pin 31; the latter normally seats against a circular end 31*a* of the correspondingly formed face of the shim 24. The arms 32 of the hood yoke extend above and below the followers and cushioning mechanism and are connected by a portion 33 which is normally adapted to extend into the recess 34 of the floating stop member 35. Interposed between the rear face 36 of the stop member 35 and a second follower 37, the latter normally engaging the stop lugs 8, is a second cushioning mechanism 38 substantially identical except in capacity with the cushioning mechanism 28 previously described. Carrier plates 39, 40 and 41 are connected to the lower flanges of the center sill 6 and form supports for the yoke, followers, cushioning mechanism, floating stop member, the second follower 37 and the associated cushioning mechanism 38.

The operation of the device is as follows. The cushioning mechanism 28 is preferably of lesser capacity than the cushioning mechanism 38, the former cushioning mechanism being operable under buffing and draft loads, but providing the sole resilient connection between the associated coupler and the car under draft loads. While the capacity of the front cushioning mechanism 28 is preferably less than that of the cushioning mechanism 38, the cushioning mechanisms are so adjusted and assembled that the initial precompressed resistance of the cushioning mechanism 28 is greater than the initial precompressed resistance of the rear cushioning mechanism 38. Since the follower 29 is in engagement with the lugs of the floating stop member 35 it will be obvious that under buffing, since the initial precompressed resistance of the cushioning mechanism 28 is in excess of that of the cushioning mechanism 38, the yoke followers 21 and 29, the floating stop member 35 and the cushioning mechanism 28 are movable rearwardly until the increased resistance of the cushioning mechanism 38 will equal the initial resistance of the cushioning mechanism 28. At this point both cushioning mechanisms will operate in series until the follower 21 engages with the limiting lugs 42 of the rear follower 29. Further compression of the cushioning mechanism 28 is thus prevented and any further movement of the coupler would be by reason of the further compression of the cushioning mechanism 38.

Under draft forces the cushioning mechanism 38 will expand as the rear end 33 of the yoke moves the follower 29 forwardly, and the movement of the cushioning mechanism 28 will continue until the limiting lugs 42 of the rear follower 29 engage the rear face of the front follower 21.

It is to be pointed out that various changes and alterations may be made in the illustrated and described embodiment of the invention without departing from the spirit of the invention or the scope of the appended claims.

Having described my invention, I claim:

1. In a draft rigging, the combination with center sills,

spaced pairs of stop lugs connected thereto, a coupler and a yoke pivotally connected to said coupler, of a floating stop member positioned intermediate said pairs of lugs, followers within said yoke, one of said followers normally engaging one pair of said stop lugs, the other follower engaging said floating stop member, a cushioning mechanism between said followers, an additional follower engaging said rear stop lugs, and a cushioning mechanism interposed between said last named follower and said stop member, said cushioning mechanisms being assembled under predetermined compression and cooperating under buffing load through said floating stop member.

2. In a draft rigging, the combination with a center sill, spaced pairs of stop lugs connected thereto, a coupler and a yoke pivotally connected to said coupler, of a floating stop member positioned between said front and rear pairs of lugs, a pair of followers within said yoke, one of said followers engaging said floating stop member, a cushioning mechanism carried by said yoke and interposed between said followers, a follower without the yoke and a cushioning mechanism interposed between said last named follower and the adjacent portion of said floating stop member, and means carried by one of said yoke followers for limiting the compression of said cushioning mechanism carried by said yoke.

3. In a draft rigging, the combination with a center sill, front and rear pairs of stop lugs connected to the inner faces thereof, a coupler and a yoke pivotally connected to said coupler, of a floating stop member positioned between said pairs of lugs, cushioning mechanism positioned within said yoke and a second cushioning mechanism positioned without said yoke, and means for limiting movement of said yoke from normal position, said means being adapted to transmit buffing forces from said coupler to said cushioning mechanisms.

4. In a draft rigging, the combination with spaced center sills, front and rear pairs of stop lugs connected to the inner faces thereof, a coupler and a yoke pivotally connected to said coupler, of a floating stop member positioned between said pairs of lugs, cushioning mechanism positioned within said yoke, followers cooperating with said cushioning mechanism, a second cushioning mechanism positioned to the rear of said yoke, the cushioning mechanism within said yoke having a greater initial precompressed resistance than the rear cushioning mechanism, and movable means between said mechanisms for limiting movement of said yoke from normal position, said means being adapted to transmit buffing forces from said coupler to said cushioning mechanisms.

5. In a draft rigging, the combination with spaced center sills, front and rear pairs of stop lugs connected to the inner faces thereof, a coupler and a yoke pivotally connected to said coupler, of a floating stop member positioned between said pairs of lugs, a cushioning mechanism including front and rear followers positioned within said yoke, a second cushioning mechanism positioned in rear of said yoke and compressible in buff thereby, and a stop member positioned between said lugs for limiting movement of said rear follower with said yoke, each of said cushioning mechanisms being assembled under a predetermined resistance, the initial resistance of said cushioning mechanism within said yoke being in excess of the initial predetermined resistance of said other cushioning mechanism, and means for limiting the compression of said yoke cushioning mechanism.

6. In a draft rigging, the combination with a center sill, spaced pairs of stop lugs connected thereto, a coupler and a yoke pivotally connected to said coupler, of a pair of cushioning mechanisms positioned between said stop lugs, one within and the other without said yoke, and means normally spaced from said yoke and connecting said mechanisms, said mechanism within said yoke acting in buff and draft, and said mechanisms cooperating in buff through said connecting means.

7. In a draft rigging, the combination with a center sill, spaced pairs of stop lugs connected thereto, a coupler and a yoke pivotally connected to said coupler, of a pair of cushioning mechanisms positioned between said stop lugs and spaced longitudinally of said center sill, one within and the other without said yoke, means interposed between and connecting said cushioning mechanisms for cooperation thereof in buff, and means for limiting compression of said cushioning mechanism within said yoke.

8. In a draft rigging, the combination with a center sill, spaced pairs of stop lugs connected thereto and a coupler, of a yoke within said sill and pivotally connected to said coupler, said yoke tapering rearwardly transversely of said sill, a cushioning mechanism within said yoke, a second cushioning mechanism without said yoke, said cushioning mechanisms being positioned between said stop lugs, and a floating member interposed between and connecting said mechanisms, said floating member straddling and normally being spaced from a rear end of said yoke and transmitting buff to said second mechanism through said first named mechanism.

9. In a draft rigging, the combination with a center sill, spaced pairs of stop lugs connected thereto and a coupler, of a yoke within said sill and pivotally connected to said coupler, a pair of cushioning mechanisms positioned between said stop lugs, one within and the other without said yoke, and a floating stop member interposed between and connecting said mechanisms for cooperation thereof in buff, said floating stop member straddling and normally being spaced from a rear end of said yoke for permitting relative movement therebetween.

10. In a draft rigging, the combination with a center sill and spaced front and rear stop lugs connected thereto, of a yoke within said sill, a pair of cushioning mechanisms positioned between said stop lugs, one within and the other without said yoke, and a floating stop member interposed between and connecting said mechanisms for cooperation thereof in buff, said floating stop member straddling and normally being spaced from a rear end of said yoke for permitting relative movement therebetween.

11. In a draft rigging, the combination with a center sill, spaced front and rear stop lugs connected thereto and a yoke within said sill, of a pair of cushioning mechanisms positioned in longitudinal alignment between and reacting against said stop lugs, the forward of said mechanisms being encircled by said yoke, and a member interposed between and connecting said mechanisms for cooperation thereof in buff, said member straddling and normally being spaced from a rear end of said yoke for permitting relative movement therebetween.

12. In a draft rigging, the combination with a center sill and spaced front and rear stop lugs connected thereto, of a pair of cushioning mechanisms positioned in longitudinal alignment between said stop lugs, a yoke encircling the forward of said mechanisms, and a member interposed between and connecting said mechanisms for cooperation thereof in buff, said member straddling and normally being spaced from a rear end of said yoke for permitting relative movement therebetween, the rearward of said mechanisms being assembled under predetermined initial compression to urge said units into tight engagement with said stop lugs, and the forward of said mechanisms being assembled under a greater amount of initial compression than that applied to said rearward unit to assure tight engagement between said forward unit and said yoke.

References Cited in the file of this patent

UNITED STATES PATENTS

1,251,094	Patch	Dec. 25, 1917
1,284,722	Lewis	Nov. 12, 1918
2,186,267	Page	Jan. 9, 1940
2,208,338	Munro	July 16, 1940
2,282,146	Mealing et al.	May 5, 1942