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3,180,497

LONG TRAVEL COUPLER CARRIER

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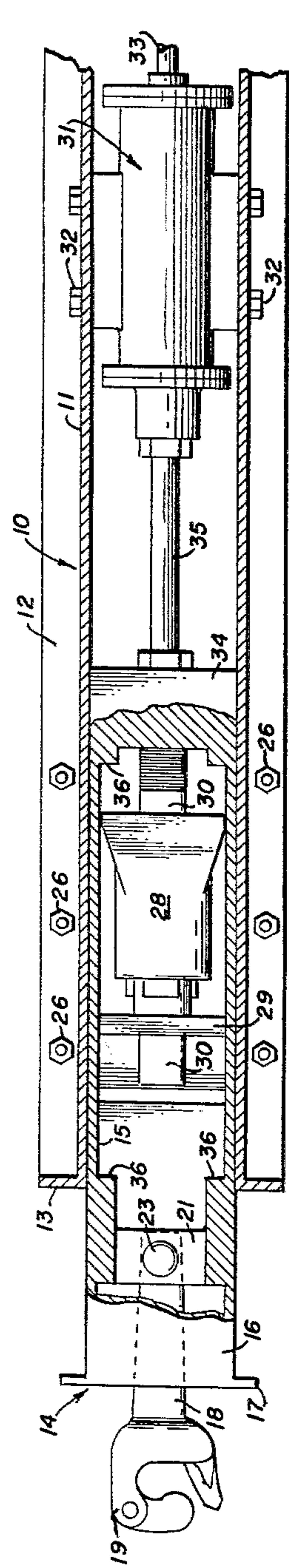


FIG. 1.

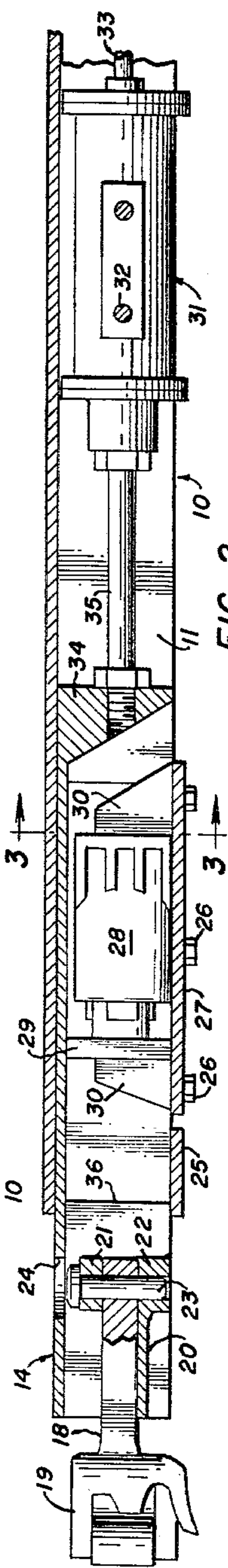


FIG. 2.

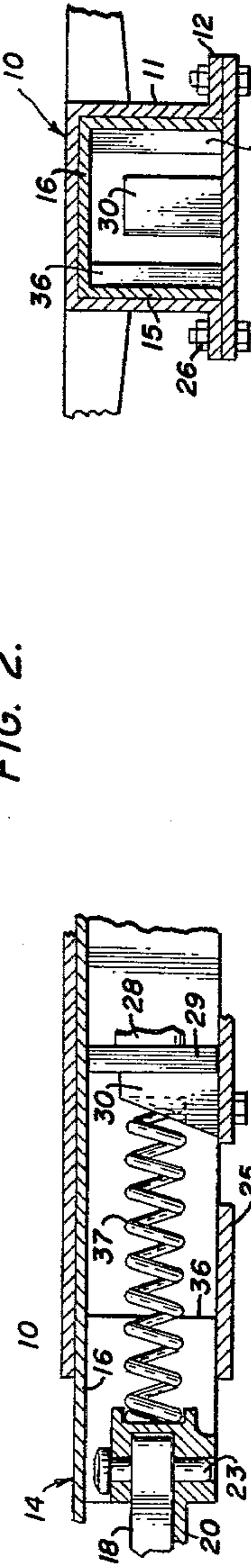


FIG. 3.

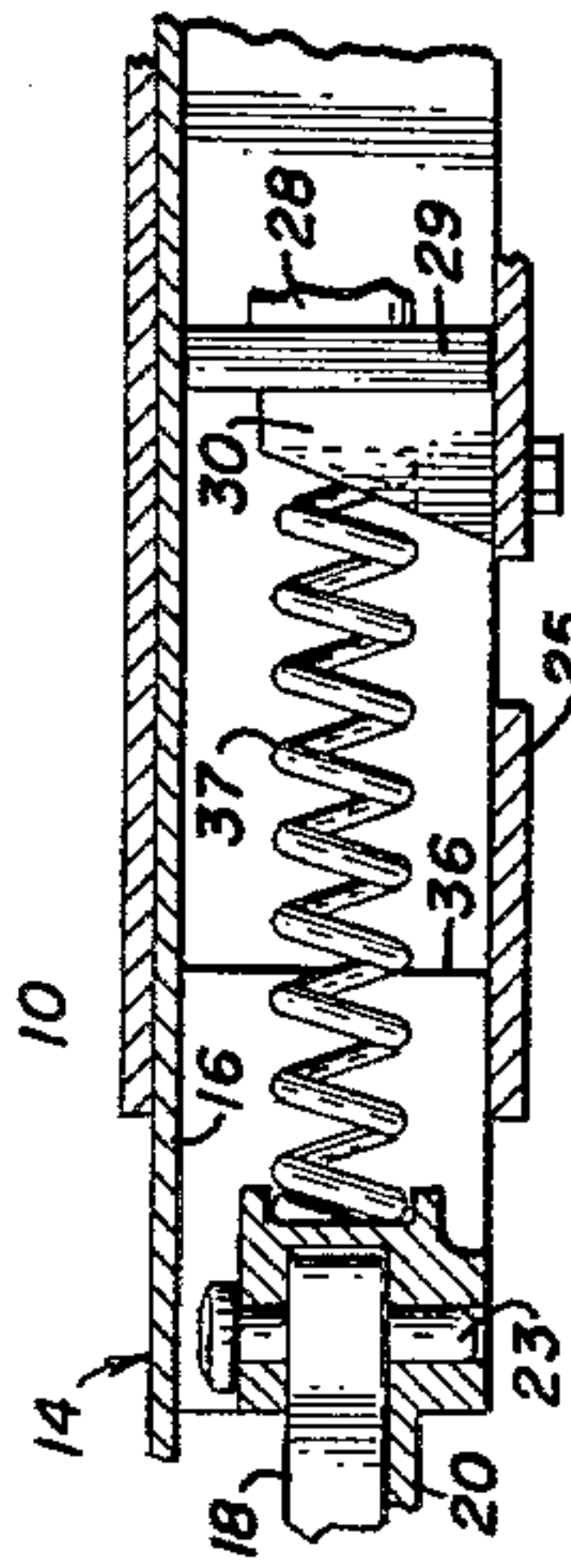


FIG. 4.

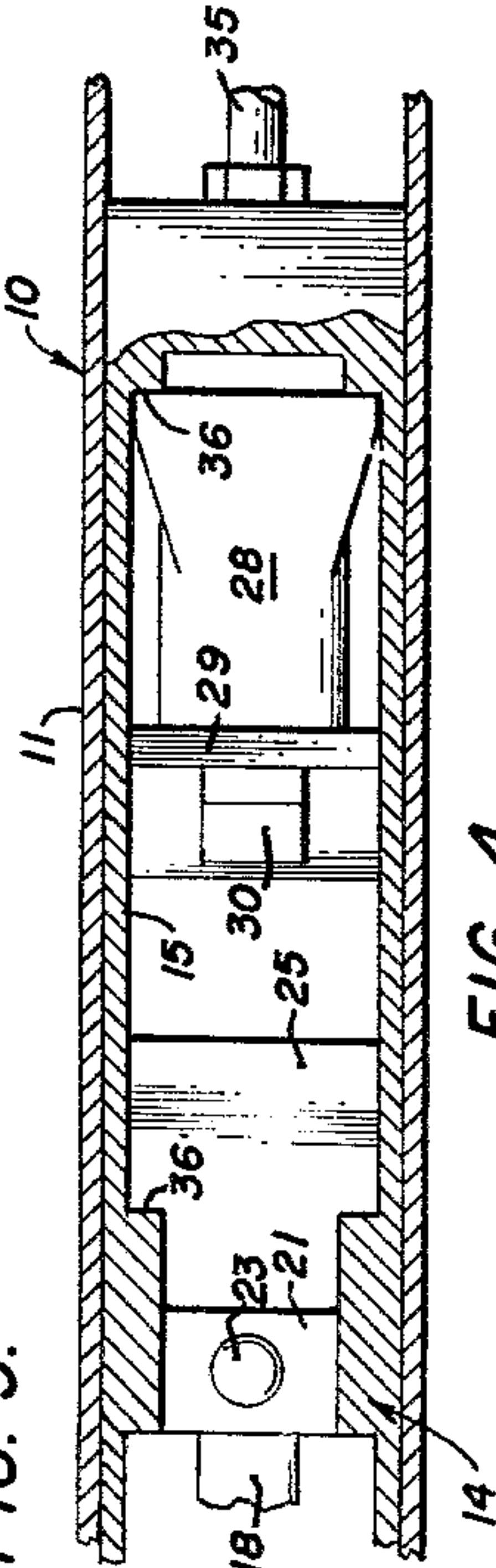


FIG. 5.

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3,180,497

LONG TRAVEL COUPLER CARRIER

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3 Claims. (Cl. 213—21)

This invention relates to long travel coupler carriers for railway cars and is a continuation-in-part of my copending application, Serial No. 844,293, filed October 5, 1959, now Patent No. 3,159,282, dated December 1, 1964.

My copending application is directed to a construction including a stub sill or coupler carrier movably mounted in the end of a railway car center sill and combines the action of a conventional draft gear with a fluid type shock absorbing mechanism. In the prior construction, the draft gear is mounted to move with the coupler carrier with the result that simultaneous action of both draft gear and shock absorbing mechanism is not assured at the end of travel. If the resistance in the fluid shock absorber is high, the draft gear operates first and its action is spent before the fluid shock absorber takes over. Conversely, if the resistance in the fluid shock absorber is less than the resistance of the draft gear, then the draft gear does not operate until the fluid shock absorber has reached its limit of travel.

The primary object of the invention is to provide a combined conventional draft gear and fluid type shock absorber wherein both the draft gear and fluid shock absorber operate during the last several inches of coupler travel, either in buff or in draft.

Another object of the invention is to provide a slidable coupler carrier including a conventional draft gear and fluid shock absorber and wherein the slidable carrier is under fluid control at all times.

Another object of the invention is to eliminate the usual yoke for mounting a draft gear, which yoke lends to free slack in coupler mounting assemblies.

A further object is to provide a combined draft gear and fluid type shock absorber which may be installed in a standard railway car center sill with a minimum of modification in the latter.

These and other objects of the invention will become apparent from the following description and the accompanying drawing, wherein:

FIGURE 1 is a broken top plan view of an end of a center sill, shown partly in fragmentary section, and showing an exemplary form of the invention installed therein.

FIGURE 2 is a vertical longitudinal sectional view of FIGURE 1 and showing parts received in the center sill in elevation and partly in section.

FIGURE 3 is a transverse sectional view taken on line 3—3 of FIGURE 2.

FIGURE 4 is a top plan and sectional view showing the coupler carrier in its fully extended draft position.

FIGURE 5 is a fragmentary vertical sectional view of a modified form of the invention including a compression spring for normally extending the coupler.

In the drawing, the numeral 10 designates a standard railway car sill having the usual spaced parallel side walls 11 and outwardly directed horizontal flanges 12 along the lower edges. Striker plates 13 are provided at the ends of the sill 10. Although only one end of the sill 10 is shown, it is to be understood that the present invention applies to both ends.

The present invention includes an elongate coupler carrier 14 having sides 15 and a top plate 16, and which coupler carrier is slidably received in the end of the center sill 10. The outer end of the coupler carrier 14 is outwardly flanged, at 17, for engagement with the striker plate 13 at the end of buff travel. The outer end

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of the coupler carrier 14 is open and receives the shank 18 of a coupler 19. As best shown in FIGURE 2 there is a horizontal shank support 20 connected between the sides 15 of the carrier, and immediately inwardly of the inner end of the support there are upper and lower heavy frame members 21 and 22 receiving the end of the coupler shank 18. A vertical pin 23 extends through the frame members 21 and 22 and the shank 18 to permit limited pivotal movement of the coupler 19 in a horizontal plane. An access hole 24 is provided in the top 16 of the carrier 14 for installing and removing the pin 23. A transverse plate 25 is welded or otherwise secured to the flanges 12 at the end of the sill 10 for supporting, in part, the coupler carrier 14.

Inwardly of the last referred to plate, and detachably secured to the sill flanges 12 by bolts 26, there is an additional and somewhat longer plate, herein referred to as the draft gear support plate 27. In addition to supporting a conventional draft gear 28 including a follower 29, this plate 27 also slidably supports the carrier 14. The draft gear 28, in its expanded position, is nested between two stops 30 on the upper surface of the draft gear support plate 27. The follower 29 and the end of the draft gear 28 opposite the follower are rectangular and the sides 15 of the carrier make sliding contact therewith.

Mounted between the sides 11 of the center sill 10 and inwardly of the carrier 14 there is a cylindrical fluid cushioning device 31 which is secured in place by bolts 32. The cushioning device 31 may be hydraulic or pneumatic or a combination of both, which fluid may be supplied through a fitting 33 in the end of the device as required.

The inner end of the carrier 14 is closed, at 34, and a piston rod 35 from the cushioning device 31 is threadedly connected therewith.

The inner surfaces of the walls 15 of the carrier 14 have opposing abutments 36 positioned to engage the follower 29 and the opposite end of the draft gear 28. The opposing abutments 36 are spaced from each other a distance equal to the stroke of the piston rod 35, plus the length of the draft gear 28, less the operating distance of the draft gear 28.

In operation, in buff, the coupler 19 and carrier 14 move inwardly, which movement is cushioned at all times by the cushioning device 31. The draft gear 28, which is stationarily supported between the stops 30, is not acted upon until the center abutments 36 contact the follower 29, after which both the draft gear and the device 31 cushion the impact load. In draft, the operation is exactly opposite except the inner abutments 36 engage the end of the draft gear 28 near the end of travel. In the modified form of the invention illustrated in FIGURE 5 there is a compression spring 37 between the outer stop 30 and the inner end of the coupler shank 18 to normally maintain the coupler 19 in an extended position.

The invention is not limited to the exemplary constructions herein shown and described, but may be made in various ways within the scope of the appended claims.

What is claimed is:

1. In combination with a railroad car sill having spaced side walls, a longitudinally movable coupler carrier mounted in each end of said railroad car sill between said spaced side walls, each said carrier being rectangular in cross section and in sliding contact with opposing vertical surfaces of said side walls, a fluid type shock absorber carried by said car sill inwardly of each said carrier and in parallel longitudinal alignment therewith, each said shock absorber including a piston rod extending to and connected with said coupler carrier, a draft gear

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stationarily supported by said railway car sill and received within said carrier, and opposing abutments rigid with the inner surface of said carrier, said abutments being spaced from and positioned to engage the ends of said draft gear.

2. The combination defined in claim 1, and wherein said draft gear is nested between vertical stops on a plate secured to the bottom of said railroad car sill.

3. The combination defined in claim 1, and wherein said opposing abutments are spaced a distance equal to

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the stroke of said piston rod, plus the length of the draft gear less the operating distance of said draft gear.

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