June 28, 1966 L. F. MANYEK 3,258,131

LEAF SPRING MANUAL RELEASE CENTERING DEVICE

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Fig. 1

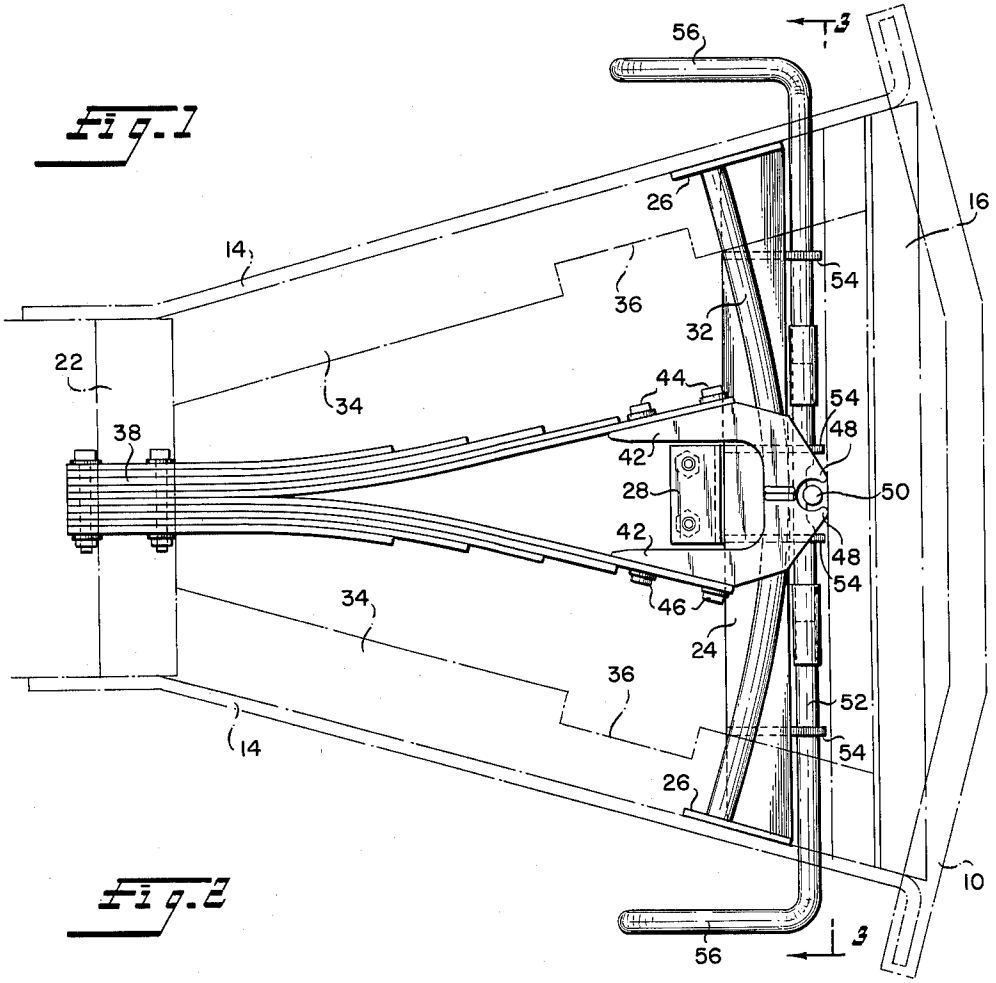
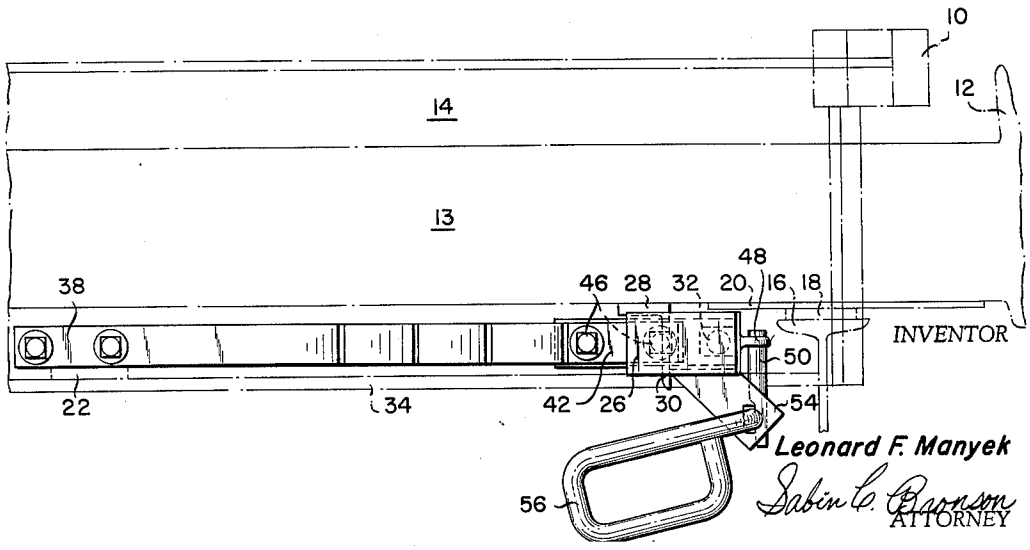


Fig. 2



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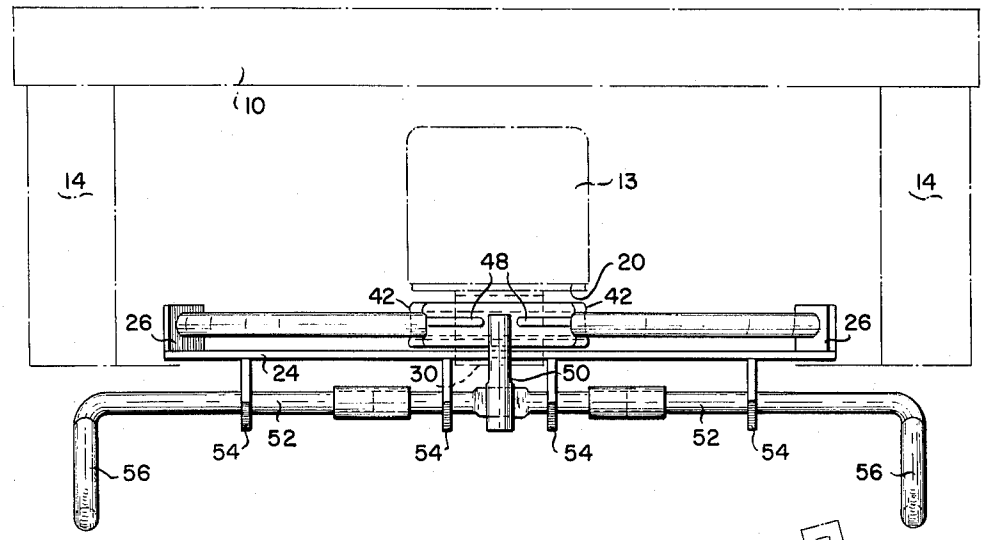


Fig. 3

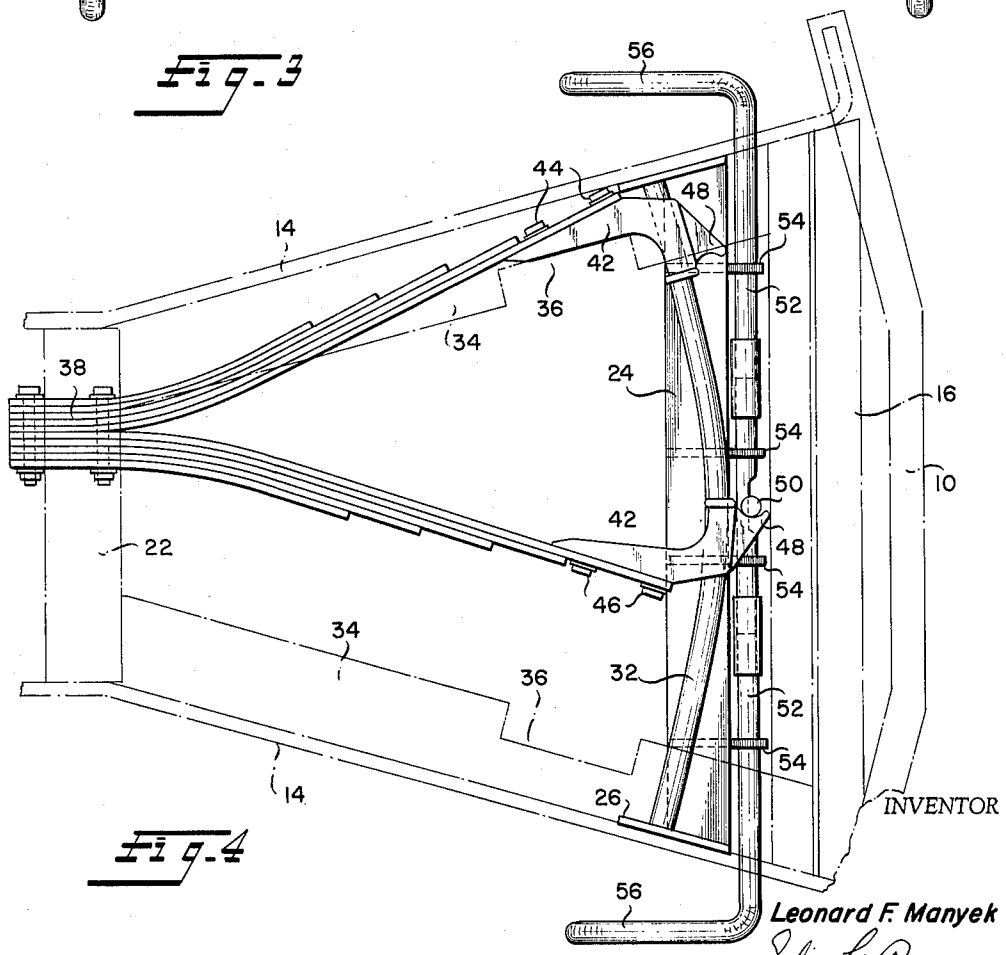


Fig. 4

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Fig. 5

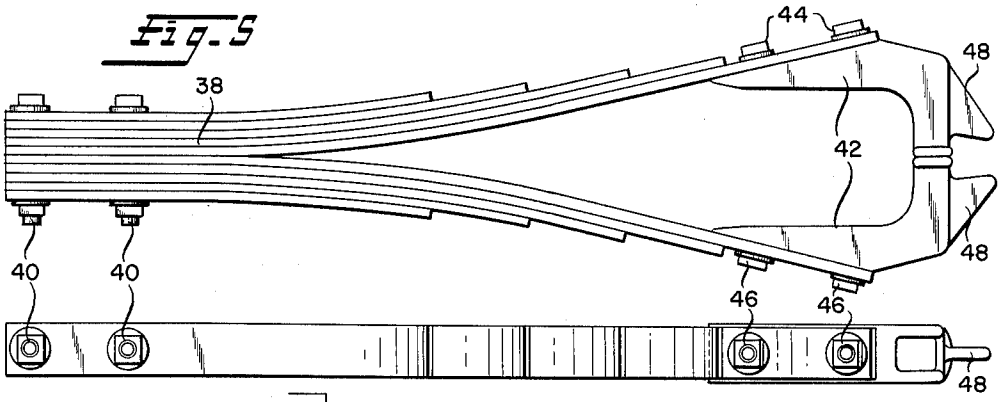


Fig. 6

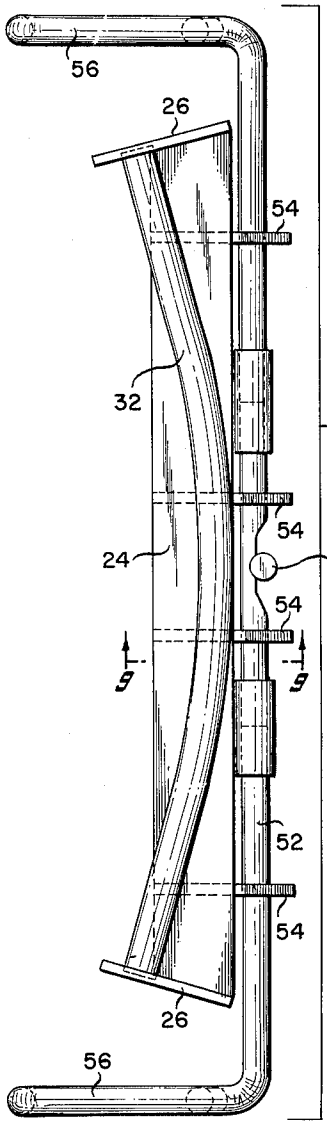


Fig. 8

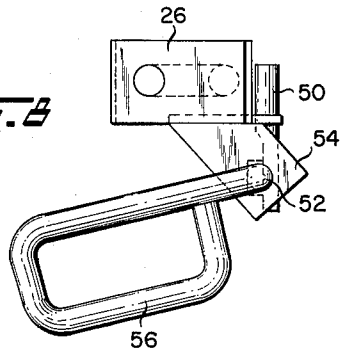
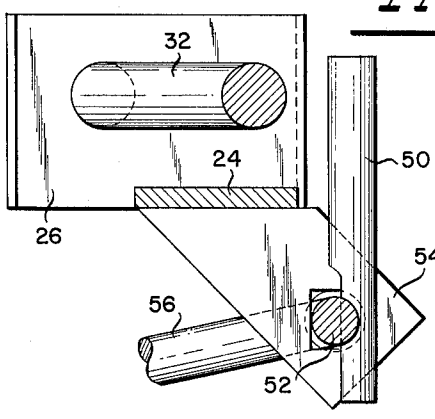


Fig. 7

Fig. 9



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3,258,131

LEAF SPRING MANUAL RELEASE CENTERING DEVICE

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9 Claims. (Cl. 213—19)

This invention relates to improvements in devices for association with railroad car couplers to assure that couplers will always be within coupling range when cars are moved together to engage the couplers on relatively straight track. The function of such a device is to maintain a free coupler substantially in line with the longitudinal center of the car or at least within coupling range.

Longer and longer railroad cars are coming into frequent use, and the resulting increase in the lateral movement of couplers has caused an increase in the number of uncoupling rods and other car parts damaged by passing couplers. The need for a device which would help prevent this condition was readily apparent. Any device to accomplish this purpose must, among other things:

A. Move the coupler to some predetermined location when not coupled to another car.

B. Not restrict the movement of the coupler during normal use.

C. Allow easy movement of the coupler by hand, whenever necessary, in order to mate with other couplers.

In longer cars or cars equipped with cushion underframes, there is greater overhang from truck centers to couplers and therefore the coupler striker must have larger openings to permit greater side travel at the coupler to negotiate standard established A.A.R. railroad curves. Couplers are now provided with shanks varying in length from about 21" to about 60". Obviously a 15° swing of a coupler with a 60" shank would be a greater distance than a 15° lateral swing of a coupler with a 21" shank.

The object of the invention, therefore, is to provide a coupler centering device which will meet the above discussed varying conditions and keep the head of a free coupler within coupling range, but which device is releasable so that the coupler may be manually moved whenever necessary, as for example when coupling to another car on a curve.

Another object is for the centering device to automatically reengage after coupling to a train after the device has been released by manual operation.

Specifically the object of the invention is to provide a group of leaf springs which acts upon movement of the coupler and urges it back to its normal coupling range, and also to provide a manual release means so that the coupler may then be moved manually.

Further objects and advantages of the invention will appear in the following description thereof, taken in connection with the accompanying drawings wherein like reference characters indicate like parts, and wherein:

FIGURE 1 is a top plan view of the coupler centering device embodying the invention;

FIGURE 2 is a side elevation of FIGURE 1;

FIGURE 3 is a sectional view on line 3—3 of FIGURE 1;

FIGURE 4 is a view similar to FIGURE 1 showing the spring action with coupler at extreme right side travel;

FIGURE 5 is a top plan view of the spring assembly of the device;

FIGURE 6 is a side elevation of FIGURE 5;

FIGURE 7 is a top plan view of the spring guide and release lever assembly of the device;

FIGURE 8 is an end elevation of FIGURE 7; and

FIGURE 9 is a section on the line 9—9 of FIGURE 7 somewhat enlarged.

Referring now in detail to the accompanying drawings,

the numeral 10 indicates the car striker wherein the coupler 12 is reciprocably and swingably mounted. The striker is attached to the center sill of the car and projects outwardly therefrom. The side walls 14—14 flare outwardly, forming a wide opening at the face of the striker as seen in FIG. 3. This permits the coupler to have a lateral swing of about 15° or more. The coupler carrier in this instance comprises an I-beam 16 which extends between the side walls 14 and forms the bottom margin of the striker opening through which the coupler shank extends, as indicated in FIG. 2. A stainless steel bar or the like 18 is welded to the upper surface of the beam 16, said bar being slightly less in width than the upper flange of said beam and substantially the length thereof so that as the coupler shank 13 moves from side to side the shank will always be on a smooth and substantially friction free surface. To further aid in the anti-friction movement of the coupler shank over its support, the bottom of the shank is provided with a Teflon pad 20 which rides on the steel bar 18.

At the inner end of the striker, where the converging side walls 14—14 overlap the center sill, is a transverse bar 22 which extends between and is secured at its ends to the side walls 14—14 as seen in FIGS. 1, 2 and 4. Spaced inwardly a slight distance from the beam 16 at the outer margin of the striker is another bar 24 which also extends between the side walls 14—14 where it terminates in upstanding flanges 26—26 welded thereto or formed integrally therewith and extending normal thereto, as best seen in FIG. 3, and which flanges 26—26 are in turn welded to the inside surface of the striker walls 14—14.

To the bottom surface of the coupler shank 13 at the longitudinal center thereof is welded flatwise thereagainst a short flat bar 28. This bar 28 is positioned at the rear of the Teflon pad 20. To this bar 28 is bolted flatwise thereagainst one flange of an angle 30, the other flange depending therefrom, with the outer surface thereof being in vertical plane with the outer edge of the bar 28. This bar and angle therefore move laterally with the coupler when it is swung laterally as when the car is rounding a curve. The bottom striker plates 34—34 extend inwardly somewhat and are notched as at 36—36 for purposes hereinafter described.

Extending between the flanges 26 slightly above the bar 24 is an arcuately shaped round rod 32, the ends of which rod are welded or otherwise secured to the flanges 26—26.

A leaf spring assembly is shown in FIGS. 5 and 6 to provide an actuating force to assist in moving the coupler back toward coupling range, for example, if the coupler is uncoupled from its mating coupler while off center.

This spring assembly comprises a set of spring leaves 38 graduated in length as shown, bolted together at one end as at 40, and provided at the other end of the longest center leaves with a pair of identical spring holders 42—42, which are angularly shaped in side elevation and are about the same width as the spring leaves. The two center leaves are the longest and there is one holder attached to one center leaf as at 44 and another holder attached to the other center leaf as at 46. The spring holders are channel shaped in section and face each other when installed, as shown in FIGURES 1, 3 and 5. Projecting outwardly from each holder is a triangularly shaped wing 48, the opposed sides of which are arcuate in plan view and face each other so that when together they form about two-thirds of a circle. These spring holders hold the two halves of the spring leaves separated as shown and thus pre-tensioned to that extent.

As will be seen in FIGURE 2, the coupler shank rides on the I-beam 16, and when the cars are rounding curves, moves laterally thereon. The depending flange of angle 30, which is carried by the coupler shank, extends down-

wardly between the spring holders **42** so that when the coupler moves laterally, the spring actuator or angle **30** will move the spring assembly laterally with its as shown in FIGURE 4. As seen in FIG. 2, the spring assembly is installed between the bottom surface of the coupler shank and the plate **22**.

As can be seen in the dotted line showing of the spring holders **42** (FIG. 2), said spring holders are jaw shaped at their outer ends and receive the arcuate rod **32** therein, and which forms a sliding support for the forward end of the spring assembly as it is moved along the arcuate rod in response to sidewise movements of the coupler.

As seen in FIG. 1, the wings of the spring holders embrace an upwardly extending pin **50** on opposite sides thereof. This pin is fixed perpendicularly to a shaft **52** extending from side to side of the striker and rotatably supported in alined openings in plates **54** welded on edge to bottom of plate **24** in spaced relation therealong so as to depend therefrom as shown in FIGS. 8 and 9. Thus when the coupler moves laterally from its ordinary position as shown in FIG. 3, the spring actuator angle **30** will force one-half of the spring assembly laterally, while the pin **50** holds the other half stationary, as shown in FIG. 4. It should be noted that the other end of the spring assembly is not fastened to any part and thus floats or slides on the bar **22** in response to any sidewise movements of the coupler. If the coupler pulls the spring assembly laterally as shown in FIGURE 4 and the coupler is then uncoupled, the stressed spring assembly will exert a force tending to move the coupler back to coupling range, the spring assembly then being again as shown in FIG. 1.

There are instances where it is desired that the spring assembly be ineffective in exerting a force to return the coupler to coupling range. To accomplish this release of the effect of the spring assembly, the ends of the rod **52** are turned normal to the axis of the rod and looped forming handles **56—56**, one at each end of the rod, whereby a handle may be grasped from either side of the striker. By turning the handle **52** clockwise as viewed in FIGS. 2 and 8, it will rotate the rod **52** on its axis which will move the pin **50** outwardly from between the wings. In this position, when the coupler moves laterally, the whole spring assembly will simply move with the coupler, and there will be no stressing of the spring whatever and of course no force to tend to return the coupler, when uncoupled, to coupling range. This will then have to be done manually. When the handle **52** is released, the overbalancing weight thereof will return the pin **50** to its upright position so that when the coupler moves back toward central position, the pin will be engaged by the inclined side of a wing **48** and ride thereon until it moves into the space between the wings.

The coupler will automatically return to center position after disengagement when the train is moved to a straight track, at which time the pin **50** will fall into locking engagement with lugs **48** of the centering device. This will automatically place the device into regular centering operation.

From the foregoing it should be apparent to one versed in this art how the device operates. Any centering device for railway car couplers must be equipped with means to return the coupler to coupling range when the coupler is uncoupled while in a laterally moved position. In this case that function is performed by the leaf spring assembly **38** as before described. It is desired too that the automatic functioning of the spring be releasable so that the coupler then would have no means automatically tending to return the same to coupling range, and this is provided by the pin **50** on shaft **52**, operated by handles **56** to control the position of the pin.

It is thus apparent that I have devised an exceptionally efficient means for automatically urging a free coupler back to coupling range, which means is releasable so as to be ineffective when desired.

I claim:

1. In a railroad car having a longitudinally and laterally movable coupler mounted in a sliding center sill with cushioning medium, and a striker attached to said center sill, having an opening through which the coupler projects, said striker having a horizontal part forming the lower edge of said opening upon which part said coupler is longitudinally and laterally slidable, and a bottom striker plate, a device for providing resilient lateral positioning of said coupler relative to the center line of said center sill, comprising spring actuating means depending from the coupler shank, and spring means mounted under the coupler shank and extending on opposite sides of and in the path of movement of said spring actuating means, whereby lateral movement of said coupler will carry the spring actuating means therewith and correspondingly move said spring actuating means and that portion of the spring means in the direction of travel of the spring actuating means, producing a force therein to urge the coupler to return to normal coupling range.

2. In a railroad car having a longitudinally and laterally movable coupler mounted in a sliding center sill with cushioning medium, a device for providing resilient lateral positioning of said coupler relative to the center line of said center sill, comprising spring actuating means depending from the coupler shank, and leaf spring means mounted under the coupler shank and extending on opposite sides of and in the path of movement of said spring actuating means, whereby lateral movement of said coupler will carry the spring actuating means therewith and correspondingly move said spring actuating means and that portion of the spring means in the direction of travel of the spring actuating means, producing a force therein to urge the coupler to return to normal coupling range.

3. In a railroad car having a longitudinally and laterally movable coupler mounted in a sliding center sill with cushioning medium, a device for providing resilient lateral positioning of said coupler, comprising spring actuating means projecting downwardly from the coupler shank, leaf spring means mounted in a position under the coupler shank and extending on opposite sides of and in the path of said spring actuating means, whereby lateral movement of the coupler will correspondingly move said spring actuating means and that portion of the spring means in the direction of travel of the spring actuating means, producing a force therein to urge the coupler to return to normal coupling range.

4. The structure set forth in claim **3** and means extending upwardly in the path of and engaging said spring means to hold part of said spring means stationary while the other part is being moved by said spring actuating means.

5. The structure set forth in claim **4**, said upwardly extending means being manually releasable so as not to engage the spring means when moved by said spring actuating means.

6. The structure set forth in claim **4**, said upwardly extending means being automatically reengageable when manual force is released from said means.

7. In a railroad car having a longitudinally and laterally movable coupler mounted in a sliding center sill with cushioning medium, a device for providing resilient lateral positioning of said coupler relative to the center line of said center sill, said device comprising spring actuating means depending from the coupler shank, a pair of leaf springs grouped together and mounted under the coupler shank, said spring actuating means extending between the pair of leaf springs to primarily actuate one or the other of said leaf springs upon lateral movement of the coupler, and produce a force in said springs to urge the coupler to return to normal coupling range, and means to manually release said positioning device.

8. In a railroad car having a longitudinally and laterally movable coupler, a device for providing resilient lateral positioning of said coupler, comprising spring actuating

means projecting downwardly from the coupler shank, leaf spring means mounted in a position under the coupler shank and extending on opposite sides of and in the path of said spring actuating means, whereby lateral movement of the coupler will carry the spring actuating means therewith and correspondingly move said spring actuating means and that portion of the spring means in the direction of travel of the spring actuating means producing a force therein to urge the coupler to return to normal coupling range, and means for releasing the effectiveness of said spring actuating means.

9. In a railroad car having a center sill, a striker attached to the center sill having a horizontal part forming the lower edge of an opening in said striker, a longitudinally and laterally movable coupler mounted in said center sill and projecting through said striker opening, the shank of said coupler slidable upon said horizontal part, Teflon means between said coupler shank and horizontal part to provide an anti-friction surface therefor, a pair of leaf spring means mounted under the coupler shank and extending on opposite sides of the hereinafter mentioned spring actuating means for providing resilient

lateral movement of the coupler relative to the center sill, spring actuating means depending from the coupler shank and extending between said spring means to actuate same upon lateral movement of said coupler and produce a force in said spring means to urge said coupler to return to normal coupling range.

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