May 18, 1948. G. G. GILPIN 2,441,626

CAR COUPLER SUPPORT AND POSITIONING DEVICE

Original Filed Oct. 18, 1943

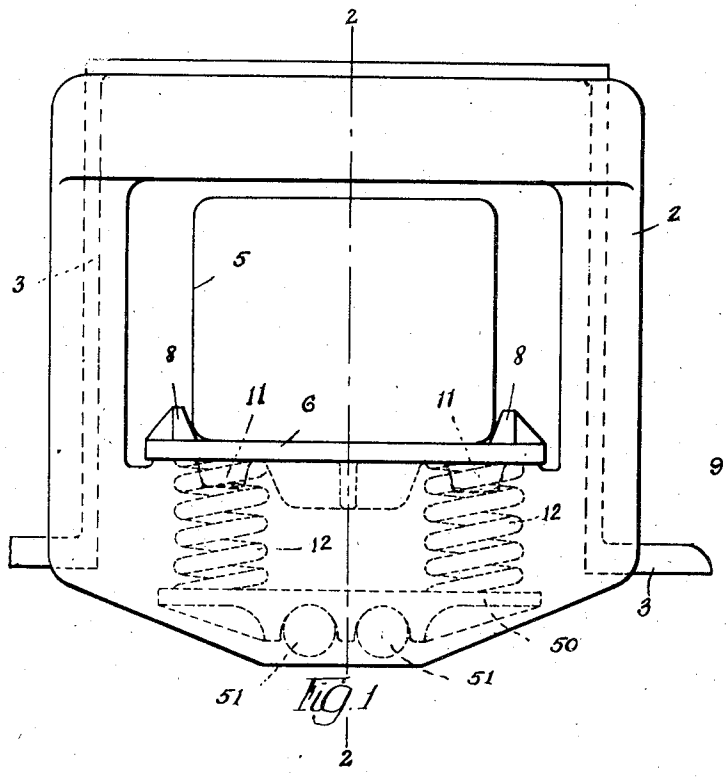


Fig. 1

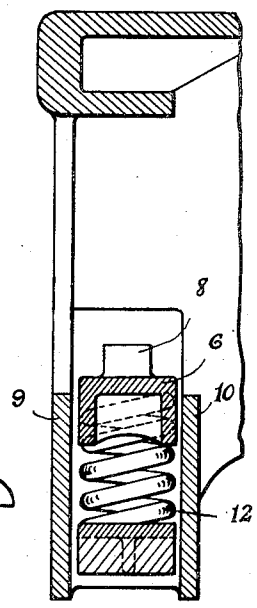


Fig. 2

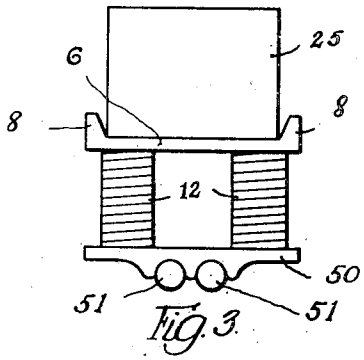


Fig. 3

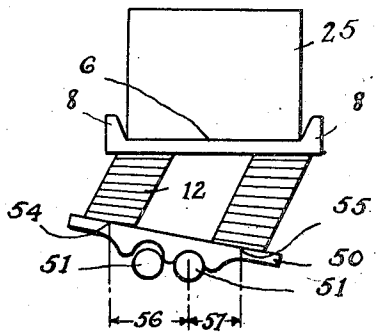


Fig. 4

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CAR COUPLER SUPPORT AND POSITIONING DEVICE

Garth G. Gilpin, deceased, late of Chicago, Ill., by Jessie B. Gilpin, executrix, Steubenville, Ohio; said Garth G. Gilpin assignor to Standard Railway Equipment Manufacturing Company, Chicago, Ill., a corporation of Delaware

Original application October 18, 1943, Serial No. 506,777. Divided and this application March 23, 1946, Serial No. 656,721

6 Claims. (Cl. 213—61)

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This invention relates to improvements in railway cars and more particularly to improvements in means for supporting the outer end of a railway car coupler adjacent its "head."

The present invention is an improvement over Patent No. 1,923,433 granted to said Garth G. Gilpin on August 22, 1933, and Patent No. 2,308,032 granted to James S. Swann on January 12, 1943, both of which patents are assigned to the same assignee to which this invention and application will be assigned.

One of the objects of the invention is to support a railway car coupler upon a device which permits the coupler to move horizontally and vertically with the coupler of another car when coupled thereto as the couplers adjust themselves to the curves and unevenness of the track, as well as causes the coupler to return to normal coupling range when free to do so; for instance, when a coupler supported by this device is uncoupled while the railway car is upon a curved track.

Another object of the invention is to provide a resilient means in a carrier for supporting the outer end of a coupler at a desired elevation during service movements of the car, but which means permits downward and/or lateral movement of the coupler when an additional live load is applied such as when two coupled cars are pulled over a track elevation, hump, vertical curve in the track, or around a curve, and wherein said carrier, when free to do so, will return the coupler to its normal height and simultaneously to a position at least adjacent the center of the car within coupling range.

Another object of the invention is to reduce the service stresses in the coupler by providing a resilient coupler carrier thereby permitting the outer end of the coupler to move vertically so that the center line of coupled couplers will be nearer a straight line, thus reducing the resultant force in the coupler shank. When the force ceases, as when the cars are uncoupled, the resilient carrier returns the coupler to its normal vertical position, which is an essential in accepted railroad operation when coupling railway cars.

Another object is to resiliently support the coupler by a pair of spaced apart springs and provide means below the coupler to increase the compression upon one spring and decrease the compression on the other spring upon lateral movement of the coupler so that the unequal compression on the springs urges the coupler toward normal central position when the coupler is free to be so moved; i. e., when the coupler is not coupled to another coupler. Another object

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is to position the springs and coupler so that when the coupler is in normal position; i. e., in the middle of the car, the weight thereof is equally distributed between the springs and to provide means to shift the weight of the coupler unequally between the springs as the coupler is moved laterally.

A further object of this improved resilient coupler support and coupler centering device is to prevent jar in the coupler, caused by uneven track and the movement of the coupler on the carrier, from being transmitted by the coupler to adjacent car parts, and furthermore, to reduce the friction and wear between the associated parts.

Another object is to provide a resilient means which cushions and centers the coupler by maintaining the carrier in adjustment with the coupler, and which may be readily and quickly assembled or taken apart; is very light in weight and economical to manufacture.

A still further object of the invention is the provision of an emergency coupler support which functions in the event of failure of any of the component parts of the cushioning or centering device.

Still another object is to provide a cushion carrier and centering device which will remain intact and in proper functioning position while the car is being unloaded upside down in, for example, an unloading machine so that it will be capable of functioning when the car is returned to normal upright position.

Still other objects and advantages of this invention will appear in the following description thereof.

Throughout the specification, wherever the term "coupler" is used, it is understood to mean a standard railway car coupler wherein no provision is made for the coupler to rotate around its longitudinal axis.

In the instant invention and the modifications thereof some of the elements roll, some rock and some do both simultaneously, therefore, applicant has used in the specification and claims the word rock (and the derivations thereof) with the understanding that, for the purpose of describing these inventions, the terms include a rocking and/or rolling action.

Referring now to the accompanying drawings forming part of this application and wherein like reference characters indicate like parts:

Figure 1 is a front elevation, illustrative of a typical application of the device to a railway car when the device is in normal position.

Figure 2 is a vertical section on the line 2—2 of Figure 1.

Figures 3 and 4 are diagrams illustrating movements and functions of the elements of the device.

In Figures 1 and 2 of the drawings the preferred form of the invention is shown applied to a railway car wherein the striking casting is shown generally at 2 and which is attached to the center sill 3 of the car as by rivets for holding the same to the underframe of the car. The car coupler, the shank of which is shown in outline at 5, rests upon the carrier 6 and is retained in central position thereon by he upstanding lugs 8 so as to move laterally with the coupler. The carrier is adapted to move between the spaced apart walls 9 and 10 of the striking casting 2 to restrict the movement of the carrier longitudinally of the car, but which walls, of course, permit movement of the carrier and coupler laterally of the car. These walls 9 and 10 also provide an emergency coupler support in case of breakage or loss of any of the parts of the device. Furthermore, if the coupler is forced excessively downwardly the coupler engages the walls 9 and 10 and relieves the springs 12 of all force except the small force required to compress the springs until the carrier engages these walls 9—10. The under surface of the carrier 6 is provided with a pair of spaced apart, downwardly tapering knobs 11—11 about which the upper ends of the correspondingly spaced helical springs 12—12 seat and are thus held in position against the under surface of the carrier to provide a cushioned support therefor. These spring seat knobs 11—11 may be formed on the bottom surface of the coupler shank itself and thus do away with the carrier, but since the device is designed for application to most any form of coupler and as an accessory thereto, it is not practical to have to weld or otherwise attach such knobs to the coupler to apply the device to a car.

Any desired means may be used to keep the ends of the blocks or springs in proper relationship with the carrier and rocker, respectively. Also any desired means may be used to prevent the rocker from slipping upon its support.

It is obvious that in lieu of springs, rubber blocks, or other resilient means, may be applied with like effect. Also experiments have shown that a device as illustrated and thus far described functions admirably even though one of the resilient means is longer than the other.

When a car to which the device is applied is coupled to another car it is immaterial whether the coupler 25 is centrally or otherwise disposed, but when the coupler 25 associated with the device is not coupled to another car, it is then desirable that the coupler 25 be returned to substantially the middle of the car or to within coupling range of another coupler.

The rocker 50 is mounted upon a pair of spaced pivots 51 fixed to the car and substantially equi-distant on opposite sides of the medial plane of the car. The springs, or other resilient means, 12, which support the coupler, (or carrier) are also substantially equi-distant on opposite sides of the medial plane of the car but are farther apart than the pivots. In other words, the springs are on opposite sides of both pivots.

When the coupler 25 and device is in normal central position the rocker 50 is stabilized upon both pivots 51—51, but when the coupler moves laterally, as for instance, to the right, the rocker

shifts to the right pivot 51 and the left or trailing spring is then under more compression than the right or leading spring, thus providing a pressure differential between the springs. The weight of the coupler 25 is then transmitted to the rocker 50 at points (54—55) unequally distant (56—57) on opposite sides of the right pivot providing unequal leverage or leverage differential which cooperates with the aforesaid pressure differential to provide a restoring moment to urge the device and coupler toward normal central position when the coupler is free to be so moved.

The accompanying drawings illustrate the preferred form of the invention, though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof, within the scope of the claims, will occur to persons skilled in the art.

This is a division of co-pending application Serial No. 506,777, filed October 18, 1943, which has matured into Patent No. 2,401,822, dated June 11, 1946.

What is desired to be secured by Letters Patent is:

1. A coupler supporting and positioning device for a laterally and vertically movable coupler for a railway car, which car is provided with spaced pivots substantially equi-distant on opposite sides of the medial plane of the car, said device comprising a rocker upon said pivots and adapted to rock in a plane transversely of the longitudinal axis of the car, and spaced parallel springs upon said rocker to support said coupler normally equi-distant on opposite sides of both of said pivots, the rocker being so shaped that when the coupler is moved in horizontal planes laterally of the car the rocker shifts to the one of said pivots providing the shorter lever arm so that the weight of the coupler is transmitted to said rocker at points unequi-distant on opposite sides of the last mentioned pivot providing a leverage differential and simultaneously compressing the trailing spring and relieving the leading spring, thus providing a pressure differential between said springs which cooperates with the leverage differential to provide a restoring moment to urge said rocker and said coupler to normal position when free to do so.

2. A coupler supporting and positioning device for a laterally and vertically movable coupler for a railway car, which car is provided with spaced pivots substantially equi-distant on opposite sides of the medial plane of the car, said device comprising a rocker upon said pivots and adapted to rock in a plane transversely of the longitudinal axis of the car, and spaced parallel springs upon said rocker to support said coupler normally equi-distant on opposite sides of both of said pivots, the rocker being so shaped that when the coupler is moved in horizontal planes laterally of the car the rocker shifts to the one of said pivots providing the shorter lever arm so that the weight of the coupler is transmitted to said rocker at points unequi-distant on opposite sides of the last mentioned pivot providing a leverage differential to provide a restoring moment to urge said rocker and said coupler to normal position when free to do so.

3. A coupler supporting and positioning device for a laterally and vertically movable coupler for a railway car, which car is provided with spaced pivots substantially equi-distant on opposite sides of the medial plane of the car, said device com-

prising a rocker upon said pivots and adapted to rock in a plane transversely of the longitudinal axis of the car, and spaced means upon said rocker to support said coupler normally equi-distant on opposite sides of both of said pivots, the rocker being so shaped that when the coupler is moved in horizontal planes laterally of the car the rocker shifts to the one of said pivots providing the shorter lever arm so that the weight of the coupler is transmitted to said rocker at points unequi-distant on opposite sides of the last mentioned pivot providing a leverage differential to provide a restoring moment to urge said rocker and said coupler to normal position when free to do so.

4. A coupler supporting and positioning device for a laterally and vertically movable coupler for a railway car, which car is provided with spaced pivots substantially equi-distant on opposite sides of the medial plane of the car, said device comprising a rocker upon said pivots and adapted to rock in a plane transversely of the longitudinal axis of the car, and spaced parallel resilient means upon said rocker to support said coupler normally equi-distant on opposite sides of both of said pivots, the rocker being so shaped that when the coupler is moved in horizontal planes laterally of the car the rocker shifts to the one of said pivots providing the shorter lever arm so that the weight of the coupler is transmitted to said rocker at points unequi-distant on opposite sides of the last mentioned pivot providing a leverage differential and simultaneously compressing the trailing resilient means and relieving the leading resilient means, thus providing a pressure differential between said means which cooperates with the leverage differential to provide a restoring moment to urge said rocker and said coupler to normal position when free to do so.

5. A coupler supporting and positioning device for a laterally and vertically movable coupler for a railway car, which car is provided with spaced pivots substantially equi-distant on opposite sides of the medial plane of the car, said device comprising a coupler carrier adapted to support said coupler and move laterally and vertically therewith, a rocker upon said pivots and adapted to rock in a plane transversely of the longitudinal axis of the car, and spaced parallel resilient means upon said rocker to support said carrier normally equi-distant on opposite sides of both of said pivots, the rocker being so shaped that when the coupler is moved in horizontal planes laterally of the car the rocker shifts to the one of said pivots providing the shorter lever arm so that the weight of the coupler is transmitted to said rocker at points unequi-distant on opposite sides of the last mentioned pivot providing a leverage differential to provide a restoring moment to urge said rocker, carrier and coupler to normal position when free to do so.

6. A coupler supporting and positioning device for a laterally and vertically movable coupler for a railway car, which car is provided with spaced pivots substantially equi-distant on opposite sides of the medial plane of the car, said device comprising a rocker upon said pivots and adapted to rock in a plane transversely of the longitudinal axis of the car, and spaced parallel resilient means upon said rocker to support said coupler normally equi-distant on opposite sides of both of said pivots, the rocker being so shaped that when the coupler is moved in horizontal planes laterally of the car the rocker shifts to the one of said pivots providing the shorter lever arm so that the weight of the coupler is transmitted to said rocker at points unequi-distant on opposite sides of the last mentioned pivot providing a leverage differential to provide a restoring moment to urge said rocker and said coupler to normal position when free to do so.

JESSIE B. GILPIN,
Executrix of Estate of Garth G. Gilpin, Deceased.

REFERENCES CITED

The following references are of record in the file of this patent:

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