April 30, 1946. E. E. SCHLESINGER 2,399,263

CAR COUPLER MECHANISM

Filed Jan. 10, 1944 3 Sheets-Sheet 1

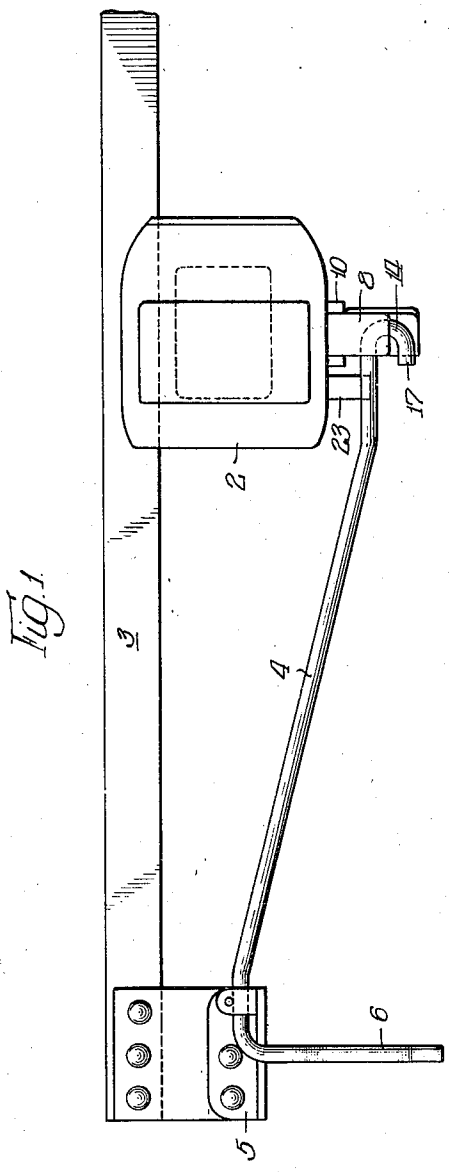


Fig. 1.

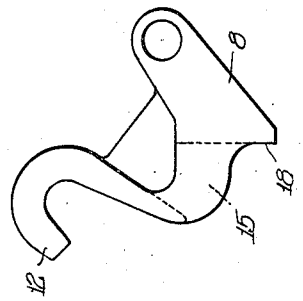


Fig. 7.

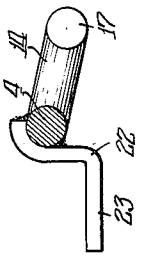


Fig. 6.

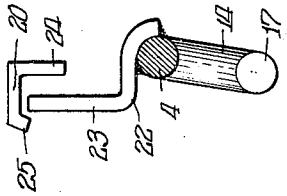


Fig. 5.

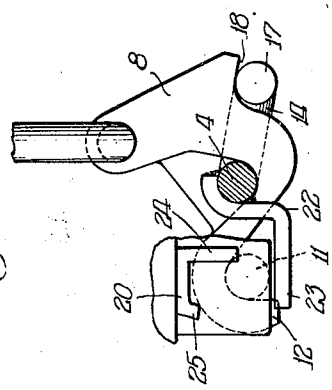


Fig. 4.

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CAR COUPLER MECHANISM

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Fig. 2.

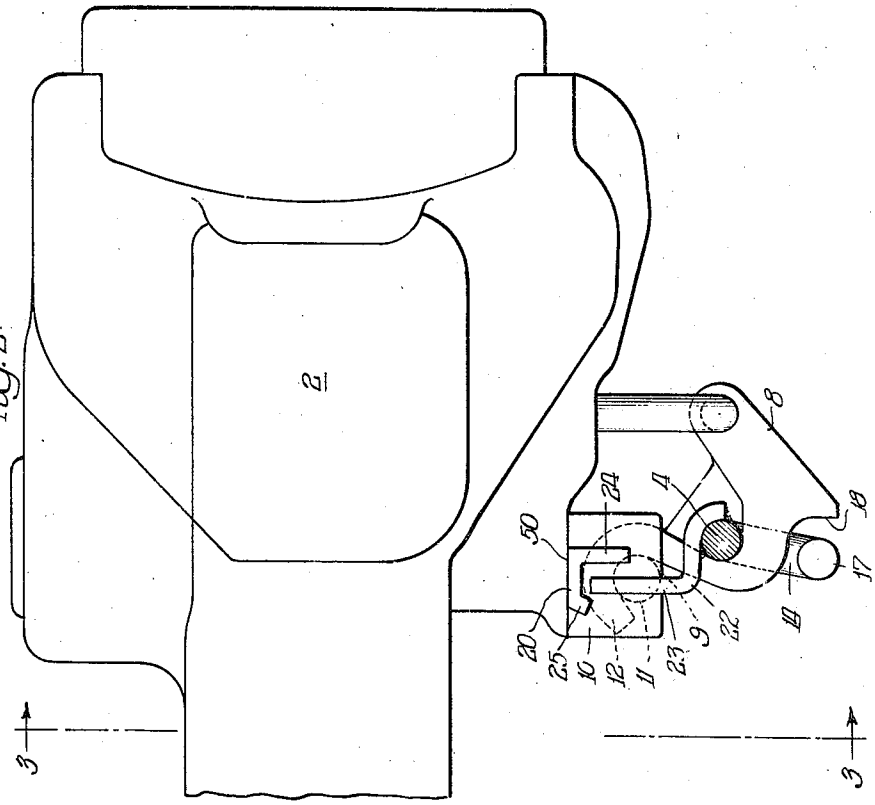
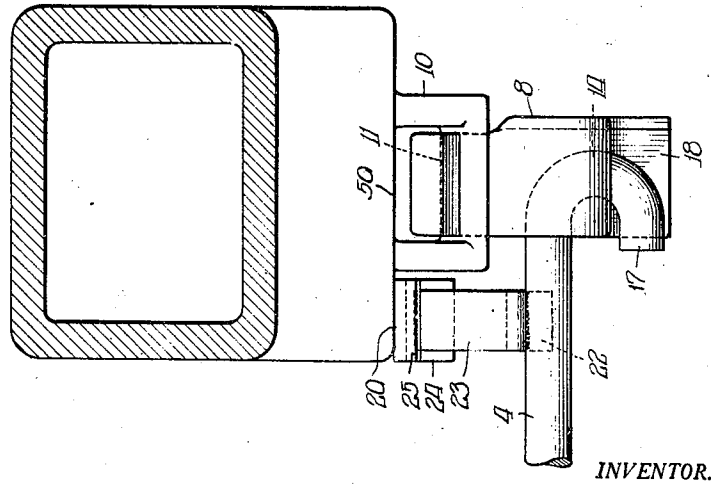


Fig. 3



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CAR COUPLER MECHANISM

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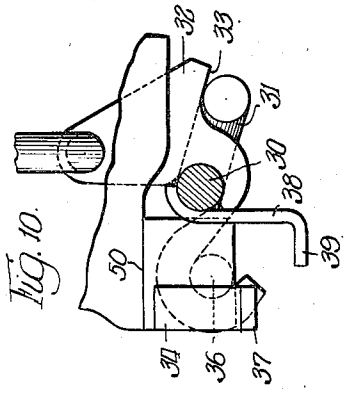


Fig. 10.

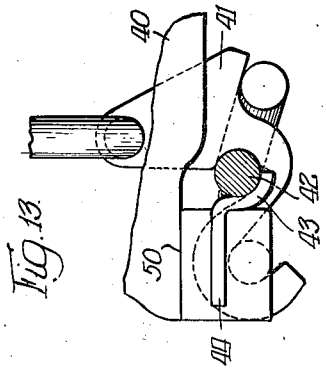


Fig. 13.

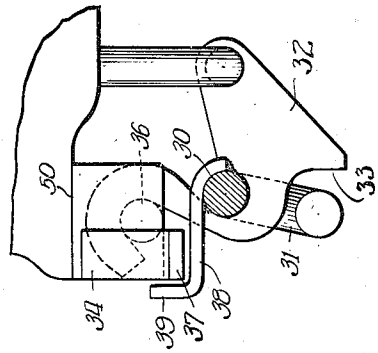


Fig. 9.

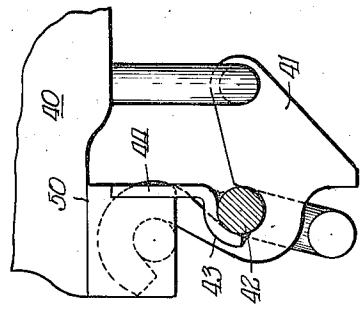


Fig. 12.

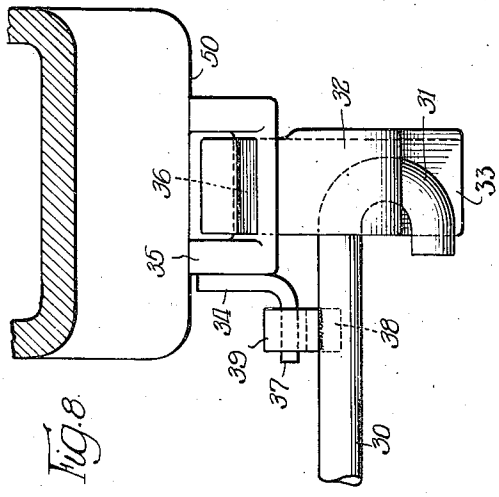


Fig. 8.

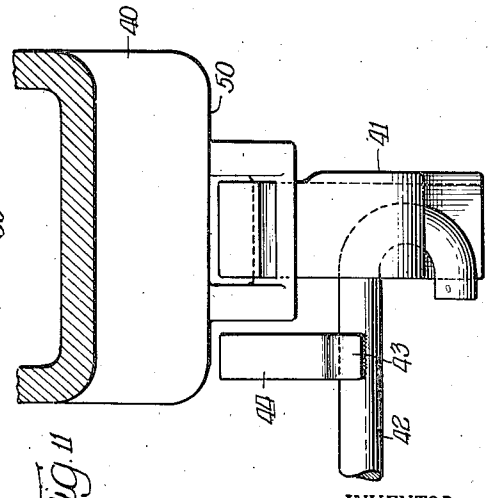


Fig. 11.

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UNITED STATES PATENT OFFICE

2,399,263

CAR COUPLER MECHANISM

Edgar E. Schlesinger, Chicago, Ill., assignor to Standard Railway Equipment Manufacturing Company, Chicago, Ill., a corporation of Delaware

Application January 10, 1944, Serial No. 517,748

19 Claims. (Cl. 213—170)

The invention relates to mechanisms to couple railway cars and specifically to means to prevent the accidental unlocking of a car coupler due to the oscillations of the car due to fast movement of the car, particularly over rough track or fast coupling, and is an improvement over the mechanism illustrated in the Kinne Patent No. 1,985,036 of December 18, 1934.

The modern coupler, known as the Janney type, comprises a knuckle held in place by a lock which is unlocked by raising the lock upwardly. A lock lifter is pivotally mounted upon the coupler so as to move therewith in service and the forward end of the lock lifter is operatively connected to the lock. An operating rod is rotatively supported at its outer end adjacent the side of the car and the inner end of the operating rod is operatively connected to the lock lifter so that rotation of the operating rod about its longitudinal axis swings the lock about its pivot which raises the inner end of the rod as well as the lock lifter and unlocks the coupler.

One of the objects of the invention is to provide means to prevent sufficient upward movement of the operating rod adjacent the coupler to allow the coupler to be unlocked by jolting of the car and to form and associate such means with the coupler that it will not interfere with the operation of the operating rod and lock lifter.

A further object is to provide the aforesaid means with means to prevent the inner end of the operating rod from moving forward (that is, away from the car) as such movement would swing the lock lifter and tend to unlock the coupler.

In the drawings:

Fig. 1 shows a typical application of a car coupler mechanism to a railway car incorporating my device.

Fig. 2 shows a coupler head with the coupler lock operating mechanism and my device all in normal position.

Fig. 3 is a section on line 3—3 of Fig. 2 looking in the direction of the arrows.

Fig. 4 is similar to Fig. 2 without the coupler head but with the lock lifter raised to unlocked position.

Fig. 5 shows the operating rod and my device by themselves when in the position shown in Fig. 2.

Fig. 6 shows the operating rod and my device by themselves when in the position shown in Fig. 4.

Fig. 7 shows the lock lifter by itself.

Fig. 8 is a view, similar to Fig. 3, of a modified form of the invention.

Fig. 9 is a view at right angles to Fig. 8 showing the parts in normal position.

Fig. 10 is a view showing the parts rotated so that the lock lifter is in unlocked position.

Fig. 11 is a view similar to Fig. 3 of a further modified form of the invention.

Fig. 12 shows the parts at right angles to Fig. 11 and while in normal position.

Fig. 13 is a view similar to Fig. 12 showing the parts rotated and with the lock lifter in unlocked position.

Fig. 1 shows a typical application of a coupler mechanism applied to a railway car, wherein the coupler 2 is mounted upon the end wall 3 of the car. The coupler is operated by the operating rod 4 which is rotatively mounted in the bracket 5 adjacent the car side. The operating rod 4 is provided with a handle 6 for rotation of the rod about its longitudinal axis.

Figs. 2 and 3 shows the coupler 2 and associated parts when the mechanism is in normal position; that is, when the coupler is in locked position.

The lock lifter 8 is pivotally mounted at 9 upon the coupler by means of the bracket 10 (which may or may not be integral with the coupler) having a trunnion 11, which trunnion 11 is swingably engaged by the hook 12 of the lock lifter 8. The operating rod 4 is provided with a hook 14 which passes through an aperture 15 in the lock lifter 8 so that upon rotation of the operating rod 4 the lower part 17 of the hook 14 engages the shelf 18 of the lock lifter 8 and swings the lock lifter 8 about the trunnion 11 and also raises the inner end of the operating rod 4 upwardly, as shown in Fig. 4.

I do not claim the coupler 2, lock lifter 8 nor operating rod 4, nor the cooperative relation therebetween, to be new. My improvement comprises a part 20 secured to the coupler 2 (or formed integral therewith) and a member 22 welded or otherwise secured to the operating rod 4 and having a portion 23 which when the coupler mechanism is in normal position, as shown in Fig. 2, is engageable with the coupler 2 (or the said part 20) upon slight upward movement of said rod to restrict the upward movement of the operating rod 4 and lock lifter 8, which movement would tend to swing the lock lifter 8 and unlock the coupler.

The part 20 is preferably provided with depending walls 24 and 25 between which the portion 23 of the member 22 is positioned when the coupler mechanism is in normal position so as

to restrict the forward or backward movement of the operating rod upon slight jumping thereof which movements would tend to swing the lock lifter 8 and unlock the coupler.

The vertical depth of the depending wall 25 is such as to permit the portion 23 of the member 22 to be manually swung from the position shown in Fig. 2 to that shown in Fig. 4. Furthermore, the forward face of the depending wall 25 forms an inclined surface to guide the portion 23 between the depending walls 24 and 25 as the rod 4 and member 22 jump upwardly due to service movements of the car. When the portion 23 has jumped upwardly the wall 25 prevents the portion 23 from swinging backwardly and thereby prevents the lock lifter 8 from swinging forwardly.

The part 20 on the coupler and the member 22 on the operating rod are associated and arranged so that when the number 22 is down, or in normal position, it will not interfere with the manual rotation of the operating rod for swinging the lock lifter and unlocking the coupler. This is shown by comparing Figs. 2 and 4.

In the modification illustrated in Figs. 8 to 10 the operating rod is shown at 30 having a hooked end 31 which is passed through an opening in the lock lifter 32 so that upon rotation of the operating rod 4 the end 31 thereof engages the shelf 33 and raises the lifter to the position shown in Fig. 10; all of which is similar to the previously described modification. The means to prevent rotation of the rod in this modification, however, comprises an L-shaped section 34 of flat bar material having one leg thereof disposed vertically and welded to one of the depending arms 35 of the bracket, which bracket supports the trunnion 36 upon which the lock lifter is pivotally mounted. The horizontal leg 37 of the L-shaped section 34 extends laterally therefrom and normally in the path of a member 38 which is welded or otherwise secured to the operating rod so that should the rod jump during service movements of the car it could only move upwardly until the member 38 contacted the member 34 which would effectively prevent any upward throw of the rod which otherwise might be sufficient to also lift the lock lifter to coupler unlocking position. The member 38 is provided at its outer end with a normally upstanding flange 39 which extends upwardly behind the lug 37 of the member 34 and thus prevents any forward movement of the lock lifter 32, consequently it cannot rotate to unlocked position accidentally.

Another means of accomplishing the purpose of the invention is illustrated in Figs. 11 to 13 in which the coupler is shown at 40, the lock lifter at 41 and the operating rod at 42. This modification includes only an L-shaped member 43 mounted on the operating rod 42 in such a manner that the upwardly extending leg 44 thereof extends almost to the bottom surface of the coupler and at a point which is inside of the axis of rotation of the operating rod. Therefore, if the rod, during service movements of the car, should begin to whip, or bounce upwardly, the upper end of the member 44 would bump the coupler "off center" and any rotation of the rod due to such bumps would necessarily be in a direction opposite to that which is required to lift the lock lifter. Thus no matter how hard the rod were thrown upwardly it could not by that movement alone unlock the coupler. The bottom of the coupler is indicated at 50 in all views of the drawings. See Fig. 2.

It will thus be apparent that in all modifications the coupler or either the parts 20 or member 34 would present a stop surface to prevent either of the members 23, 38 or 44 from jumping upwardly sufficiently to move the lock lifter and thereby accidentally unlock the coupler.

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.

I claim:

1. Means to prevent the accidental unlocking of a car coupler in a car coupler mechanism comprising a coupler having a lock, a lock lifter pivotally mounted upon the coupler and operatively connected to said lock, and an operating rod rotatively supported adjacent the outer end thereof upon the car with the inner end of the rod operatively connected to and supported solely by said lock lifter between its places of support so that part of the weight of the rod tends to prevent the lock lifter from swinging and whereby the rotation of said rod about its longitudinal axis swings said lock lifter about its pivotal connection to the coupler so that the lock lifter and the inner end of the operating rod are raised upwardly and the coupler is unlocked, said means comprising a member on the operating rod engageable with a stop surface on said coupler to limit the upward movement of the operating rod in its normal angular position, said member being positioned so as not to interfere with the normal rotation of the operating rod.

2. Means to prevent the accidental unlocking of a car coupler in a car coupler mechanism comprising a coupler having a lock, a lock lifter pivotally mounted upon the coupler and operatively connected to said lock, and an operating rod rotatively supported adjacent the outer end thereof upon the car with the inner end of the rod operatively connected to and supported solely by said lock lifter between its places of support so that part of the weight of the rod tends to prevent the lock lifter from swinging and whereby the rotation of said rod about its longitudinal axis swings said lock lifter about its pivotal connection to the coupler so that the lock lifter and the inner end of the operating rod are raised upwardly and the coupler is unlocked, said means comprising a member on the operating rod engageable with a stop surface on said coupler when said rod has moved upwardly without substantial rotation thereof to prevent accidental rotation of said rod in a direction to unlock the coupler, said member being positioned so as not to interfere with the normal rotation of the operating rod.

3. Means to prevent the accidental unlocking of a car coupler in a car coupler mechanism comprising a coupler having a lock, a lifter arm pivotally mounted upon the coupler and operatively connected to said lock, and an operating rod rotatively supported adjacent the outer end thereof upon the car with the inner end of the rod operatively connected to said lock lifter between its places of support so that rotation of said rod about its longitudinal axis swings said lock lifter about its pivotal connection to the coupler so that the lock lifter and the inner end of the operating rod are raised upwardly and the

coupler is unlocked, said means comprising a part secured to the coupler having a depending wall, and a member on the operating rod having a portion which is engageable with the coupler to restrict the upward movement of the operating rod and which is engageable with said depending wall to restrict the rotation of the operating rod when said rod has moved upwardly without substantial rotation thereof, said member being positioned so as not to interfere with the normal rotation of the operating rod.

4. Means to prevent the accidental unlocking of a car coupler in a car coupler mechanism comprising a coupler having a lock, a lifter arm pivotally mounted upon the coupler and operatively connected to said lock, and an operating rod rotatively supported adjacent the outer end thereof upon the car with the inner end of the rod operatively connected to said lock lifter between its places of support so that rotation of said rod about its longitudinal axis swings said lock lifter about its pivotal connection to the coupler so that the lock lifter and the inner end of the operating rod are raised upwardly and the coupler is unlocked, said means comprising a part secured to the coupler having spaced depending walls, and a member on the operating rod having a portion which is engageable with the coupler to restrict the upward movement of the operating rod and which is positioned between said depending walls to restrict the rotation of the operating rod when said rod has moved upwardly without substantial rotation thereof, said member being positioned so as not to interfere with the normal rotation of the operating rod.

5. Means to prevent the accidental unlocking of a car coupler in a car coupler mechanism comprising a coupler having a lock, a lifter arm pivotally mounted upon the coupler and operatively connected to said lock, and an operating rod rotatively supported adjacent the outer end thereof upon the car with the inner end of the rod operatively connected to said lock lifter between its places of support so that rotation of said rod about its longitudinal axis swings said lock lifter about its pivotal connection to the coupler so that the lock lifter and the inner end of the operating rod are raised upwardly and the coupler is unlocked, said means comprising a member on the operating rod engageable with the coupler forwardly of the axis of rotation of the operating rod to prevent accidental rotation of said rod in a direction to unlock the coupler.

6. An operating rod for a car coupler operating mechanism, said rod comprising a body portion having a journal formed adjacent one end thereof adapted to be rotatively held in a bearing attached to a car end, a handle portion adjacent said journal for rotating said rod on its axis of rotation, a portion at the other end of said rod adapted to be supported by a swingable coupler lock lifter intermediate its ends and to operate said lifter upon rotation of said rod, and means fixed to said rod and engageable with a stop surface on said car coupler upon accidental upward movement of said rod without substantial rotation thereof to prevent said lock lifter from being swung sufficiently by said upward movement to unlock said coupler during service movements of said car.

7. An operating rod for a car coupler operating mechanism, said rod comprising a handle portion adjacent one end thereof for rotating said rod on its axis of rotation, a portion at the other end of said rod adapted to be supported by a swingable coupler lock lifter intermediate its ends and to operate said lifter upon rotation of said rod, and means fixed to said rod adjacent said last mentioned portion and having a laterally extending part engageable with a stop surface on said car coupler upon accidental upward movement of said rod without substantial rotation thereof to prevent said rod from being accidentally rotated sufficiently by said upward movement to unlock said coupler during service movements of said car.

8. An operating rod for a car coupler operating mechanism, said rod comprising a handle portion adjacent one end thereof for rotating said rod on its axis of rotation, a portion at the other end of said rod adapted to be supported by a swingable coupler lock lifter intermediate its ends and to operate said lifter upon rotation of said rod, and means projecting from said rod and engageable with a stop surface on said car coupler upon accidental upward movement of said rod without substantial rotation thereof to prevent said lock lifter from being swung sufficiently by said upward movement to unlock said coupler during service movements of said car.

9. An operating rod for a car coupler operating mechanism, said rod comprising a handle portion adjacent one end thereof for rotating said rod on its axis of rotation, a portion at the other end of said rod adapted to be supported by a swingable coupler lock lifter intermediate its ends and to operate said lifter upon rotation of said rod in one direction, and means projecting from said rod and engageable with a stop surface on said car coupler upon accidental upward movement of said rod without substantial rotation thereof to prevent said rod from being accidentally rotated in said direction sufficiently by said upward movement to unlock said coupler.

10. An operating rod for a car coupler operating mechanism, said rod comprising a handle portion adjacent one end thereof for rotating said rod on its axis of rotation, a portion at the other end of said rod adapted to be loosely supported by a swingable coupler lock lifter intermediate its ends and to operate said lifter upon rotation of said rod in one direction, and means projecting from said rod and engageable with a stop surface on said car coupler upon accidental upward movement of said rod without substantial rotation thereof to prevent said rod from being accidentally rotated in said direction by said upward movement.

11. An operating rod for a car coupler operating mechanism, said rod comprising a handle portion at one end thereof for rotating said rod on its axis of rotation, a portion at the other end of said rod adapted to be solely supported by a swingable coupler lock lifter intermediate its ends and to operate said lifter upon rotation of said rod in one direction, and a member adjacent said last mentioned portion projecting from said rod and engageable with a car coupler forwardly of the axis of rotation of said rod upon accidental upward movement of said rod without substantial rotation thereof to prevent said lock lifter from being swung in said direction sufficiently by said upward movement to unlock said coupler during service movements of said car.

12. An operating rod for a car coupler operating mechanism, said rod comprising a handle portion at one end thereof for rotating said rod on its axis of rotation, a portion at the other end of said rod adapted to be solely supported by an

outwardly swingable coupler lock lifter intermediate its ends and to swing said lifter outwardly upon rotation of said rod in one direction, and a member adjacent said last mentioned portion projecting from said rod and engageable with a stop surface on said car coupler upon accidental upward movement of said rod without substantial rotation thereof to prevent said lock lifter from being swung outwardly sufficiently by said upward movement to unlock said coupler during service movements of said car.

13. An operating rod for a car coupler operating mechanism, said rod comprising a handle portion at one end thereof for rotating said rod on its axis of rotation, a portion at the other end of said rod adapted to be solely supported by an outwardly and upwardly swingable coupler lock lifter intermediate its ends and to swing said lifter outwardly and upwardly upon rotation of said rod in one direction, and a member adjacent said last mentioned portion projecting from said rod and engageable with a stop surface on said car coupler upon accidental upward movement of said rod without substantial rotation thereof to prevent said lock lifter from being swung outwardly and upwardly sufficiently by said upward movement to unlock said coupler during service movements of said car.

14. An operating rod for a car coupler operating mechanism, said rod comprising a handle portion at one end thereof for rotating said rod on its axis of rotation, a portion at the other end of said rod adapted to be solely supported by a swingable coupler lock lifter intermediate its ends and to operate said lifter upon rotation of said rod in one direction, and means adjacent said last mentioned portion projecting from said rod and engageable with a car coupler forwardly of the axis of rotation of said rod upon accidental movement of said rod without substantial rotation thereof to prevent said rod from being accidentally rotated in said direction sufficiently by said upward movement to unlock said coupler during service movements of said car.

15. In an operating rod for operating the lock lifter of a car coupler upon rotation of said rod, means fixed to said rod engageable with a stop surface on said car coupler upon accidental upward movement of said rod in its normal angular position to prevent said rod from being accidentally rotated to operate said lock lifter sufficiently by said upward movement to unlock said coupler during service movements of said car.

16. Means to prevent a rotatable operating rod for a car coupler from accidentally rotating during service movements of a car; said means comprising a member projecting from said rod so as to be engageable with a stop surface on said car coupler upon accidental upward movement of said rod in its normal angular position to prevent said rod from being accidentally rotated sufficiently to operate said coupler by said upward movement during service movements of said car.

17. The combination with an operating rod for a car coupler operating mechanism, said rod comprising a handle portion at one end thereof for rotating said rod on its axis of rotation, a portion at the other end thereof adapted to be solely supported by a swingable coupler lock lifter intermediate its ends and to swing said lifter upon rotation of said rod; of means extending from said rod, engageable with a stop surface on said car coupler upon accidental upward movement of said rod without substantial rotation thereof to prevent said accidental upward movement of said rod due to service movements of said car from swinging said lock lifter sufficiently to unlock said lock.

18. The combination with a rotatable operating rod for a car coupler operating mechanism, said rod comprising a handle portion at one end thereof for rotating said rod on its axis of rotation, a portion at the other end thereof adapted to be solely supported by a swingable coupler lock lifter intermediate its ends and to swing said lifter upon rotation of said rod; of a projection on said rod and means on said coupler in the path of upward movement of said projection so as to prevent accidental upward movement of said rod without substantial rotation thereof due to service movements of said car from swinging said lock lifter sufficiently to operate said lock without interfering with the normal operation of said rod.

19. In an operating rod for operating the lock lifter of a car coupler upon rotation of said rod, a projection extending from said rod engageable with a stop surface on said car coupler upon accidental upward movement of said rod without substantial rotation thereof, to prevent said lock lifter from being raised sufficiently, by said accidental upward movement, to unlock said coupler.

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