Oct. 18, 1966 E. MOWATT-LARSSEN 3,279,623

UNCOUPLING MECHANISM FOR RAILWAY CARS

Filed Aug. 14, 1963 2 Sheets-Sheet 1

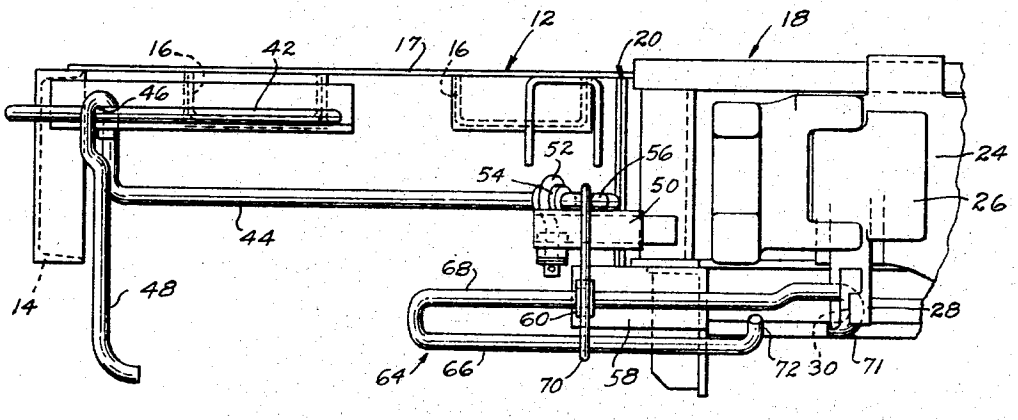


FIG. 1.

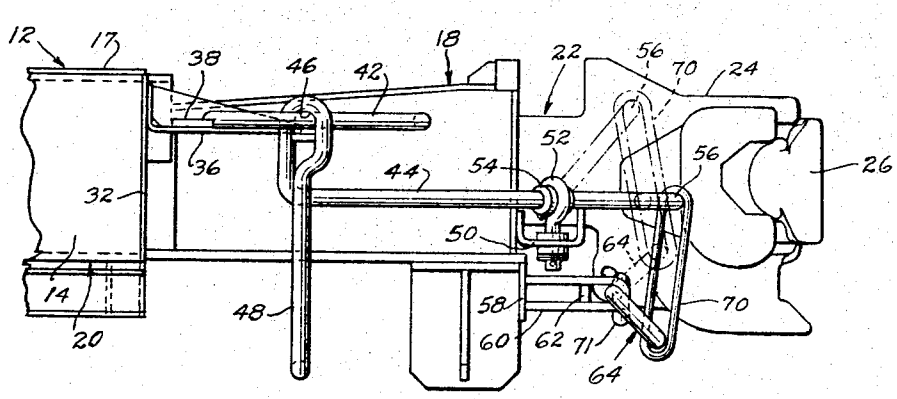


FIG. 3.

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2 Sheets-Sheet 2

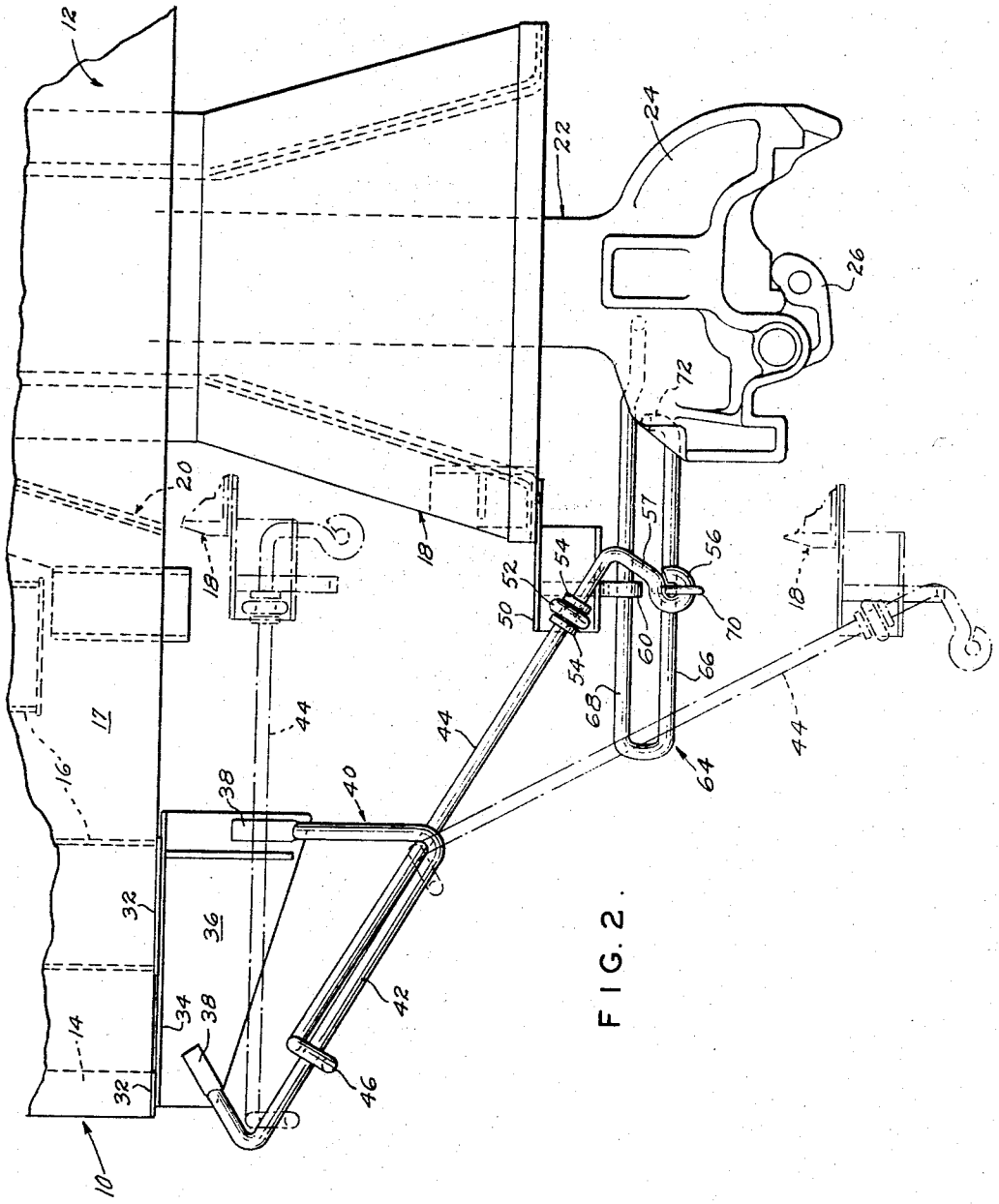


FIG. 2.

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UNCOUPLING MECHANISM FOR RAILWAY CARS

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7 Claims. (Cl. 213—166)

This invention relates to an uncoupling mechanism for railway car couplers and more particularly to an uncoupling mechanism for railway cars having cushioned underframes.

Railway cars having cushioned underframes, such as, for example, sliding center sills structures, are becoming in common usage as the damage to lading carried by such cars may be materially reduced with the use of such cushioned underframes. In cushioned underframes employing sliding center sill structures, the sliding center sill moves as much as thirty (30) inches in each direction relative to the fixed underframe of the railway car. As the draft gear and couplings are normally supported by the sliding center sill for movement therewith, the coupler at each end of the car likewise moves with the center sill as much as thirty (30) inches in each direction relative to the underframe. In addition, the draft gear and coupler structure is normally mounted within the sliding sill structure for relative lateral swinging movement and for relative longitudinal movement three or four inches in each direction. An uncoupling structure or mechanism normally has one end mounted on the railway car body and its opposite end operatively connected to the coupler for uncoupling. Thus, in order to prevent damage to the uncoupling mechanism upon sliding of the center sill and swinging of the coupler, the uncoupling mechanism must be capable of moving with the coupler as much as thirty (30) inches in either direction relative to its other end. Further, the uncoupling structure must swing laterally with the coupler relative to the sliding center sill and the car underframe.

It is an object of the present invention to provide an uncoupling mechanism for a cushioned underframe railway car having a coupler mounted on a slidable member which is adapted to operate properly upon maximum longitudinal movement of the coupler relative to the underframe of the railway car.

A further object of this invention is the provision of such an uncoupling mechanism in which the coupler is permitted to swing laterally relative to the fixed underframe or the railway car body and to move longitudinally relative to the underframe without damage to the uncoupling mechanism.

This invention comprises a coupler operating mechanism for a railway car having a cushioned underframe, the coupler operating mechanism including an uncoupling rod mounted for rotation adjacent one of its ends to the railway car underframe structure and mounted for rotation adjacent its opposite end to a slidable member, such as, for example, a sliding center sill. A linkage structure extends between and operatively connects the opposite end of the uncoupling rod to the coupler and operates the coupler upon rotation of the rod, the linkage structure being mounted for traverse movement with the coupler relative to the slidable member and the car underframe. Other objects of this invention may be in part apparent and in part pointed out hereinafter.

The invention accordingly comprises the constructions hereinafter described, the scope of the invention being indicated in the following claims.

In the accompanying drawings, in which one of several possible embodiments of the invention is illustrated,

FIGURE 1 is a front elevation of the uncoupling mechanism of the present invention on a railway car having a cushioned underframe;

FIGURE 2 is a top plan of the uncoupling mechanism shown in FIGURE 1; and

FIGURE 3 is a side elevation of the uncoupling mechanism illustrated in FIGURES 1 and 2.

Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings, a railway car is partially shown and generally designated **10** having an underframe shown partially at **12**. A side sill **14** on each side of car **10** and stringers **16** extend the length of underframe **12**. Extending between stringers **16** and opposite side sills **14** is a floor plate **17**. Receiving a sliding center sill **18** is a generally box-shaped center sill structure **20** of underframe **12**. Center sill **18** has a cushioned center portion (not shown) intermediate the ends of car **10** and moves longitudinally back and forth relative to underframe **12** and car **10** upon impact, buff, and draft forces being exerted.

Mounted within sliding center sill **18** is a conventional draft gear and coupler structure generally designated **22** which moves longitudinally with sliding center sill **18**. Coupler **24** may, for example, be an Association of American Railroads Standard F coupler. Engaging a knuckle **26** of coupler **24** is a lock actuated by a lock lifter **28** having an eye **30**. It is to be understood that coupler **24** may swing laterally relative to sliding center sill **18** around seventeen (17) degrees in each direction from the longitudinally center line of the car. In addition, structure **22** may move longitudinally relative to center sill **18** three or four inches in each direction from buff and draft forces.

Secured to underframe **12** are plates **32** on which an angle **34** is secured. Welded to horizontal leg **36** of angle **34** are flattened ends **38** of a circular bar **40**. A generally horizontally extending intermediate portion **42** of bar **40** extends in an angular direction of around thirty (30) degrees, for example, with respect to the transverse axis of the car.

Mounted for sliding back and forth movement along bar **40** on intermediate portion **42** is an uncoupling rod **44** having an eye **46** receiving intermediate portion **42** with a loose fit to allow rod **44** to move longitudinally with center sill **18**. A handle **48** extending below eye **46** may be gripped for rotating the uncoupling rod. Supporting the end of rod **44** opposite eye **46** is a support bracket **50** secured to sliding center sill **18**. A clevis or swivel **52** is secured to bracket **50**. Angular flanges **54** on rod **44** position the rod with respect to swivel **52** and prevent relative sliding movement of rod **44**. On the end of rod **44** adjacent swivel **52** is a bent portion **57** having an eye **56**.

Secured to a plate **58** on center sill **18** beneath bracket **50** is a generally U-shaped support **60**. A partition **62** extends between the legs of support **60**. Mounted for sliding movement on support **60** is a generally U-shaped actuating member or link **64** having legs **66** and **68**. A link **70** extends through eye **56** and receives leg **66** of rod **64**. A hook portion **71** on an end of leg **68** is adapted to be connected to eye **30** of lock lifter **28**. Bent portion **72** on leg **66** prevents actuating rod **64** from being detached from link **70**. Link **70** and actuating member **64** form a linkage structure operatively connecting the uncoupling rod to coupler **24**.

Operation is as follows:

Gripping of handle **48** and pulling in an upward direction rotates uncoupling rod **44** to lift link **70** and actuating rod **64** to the broken line position indicated in FIGURE 3. The rotation of leg **68** resulting from the move-

ment of rod **64** to its broken line position rotates hook portion **71** to lift lock lifter **28** thereby to unlock knuckle **26**. Upon lateral swinging movement of the draft gear and coupler structure **22** relative to sliding center sill **18**, actuating rod **64** slides laterally relative to center sill **18**, uncoupling rod **44** and link **70**. A slight tilting movement of rod **64** is normally effected upon the lateral sliding movement. Upon longitudinal movement of center sill **18** away from underframe **12**, uncoupling rod **44** slides along bar **40** to the forward broken line indication thereof in FIGURE 2. Longitudinal sliding movement of center sill **18** toward underframe **12** effects sliding of uncoupling rod **44** along bar **40** to the rearward broken line indication of uncoupling rod **44** in FIGURE 2. Longitudinal movement of coupler **24** relative to sliding center sill **18** results in actuating rod **64** pivoting or sliding relative to link **70** and uncoupling rod **44**. Since uncoupling rod **44** when in normal operating position, as illustrated in solid lines in FIGURE 2, extends in generally the same direction as intermediate portion **42**, uncoupling rod **44** may move a maximum distance in either direction relative to underframe **12**.

It is to be understood that the uncoupling mechanism of the present invention may be employed on all types of railway freight or passenger cars having a longitudinally slidable member on which the coupler is mounted for movement relative to the car body. While a sliding center sill has been illustrated in the drawings as supporting the coupler, other supports mounted for longitudinal movement relative to the car may be employed by supporting the coupler.

In view of the above it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As various changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. In a railway car having a sliding center sill and a coupler mounted on said sliding center sill, the improvement comprising an uncoupling structure having an uncoupling rod extending in a generally horizontal direction generally transversely of the longitudinal axis of the car, means fixed to the railway car rotatably mounting one end of the uncoupling rod, means secured to the sliding center sill rotatably mounting the opposite end of the uncoupling rod, a linkage operatively connecting said opposite end of the uncoupling rod to the coupler for operation of the coupler upon rotation of said rod in one direction, and means on said sliding sill mounting said linkage for movement relative to the uncoupling rod and said sliding sill in a direction generally perpendicular to the longitudinal axis of the car whereby movement of the coupler transversely of the car effects movement of the linkage relative to the uncoupling rod.

2. In a railway car as defined in claim **1**, said means fixed to the railway car comprising an elongate support on which the uncoupling rod is mounted for sliding movement.

3. In a railway car as defined in claim **2**, said elongate support for the uncoupling rod extending at an angle with respect to the transverse axis of the car whereby said uncoupling rod slides therealong at an angle to the transverse axis of the car upon movement of the center sill relative to the railway car.

4. In a railway car as set forth in claim **3**, said means mounting the opposite end of the uncoupling rod for rotation comprising a swivel secured to the center sill and supporting the uncoupling rod.

5. A coupler operating mechanism for a railway car having a sliding center sill and a coupler mounted on the center sill, said coupler operating mechanism comprising an uncoupling rod extending in a generally horizontal direction generally transversely of the lognitudinal axis of the car, means fixed to the railway car mounting one end of the uncoupling rod for rotation and for sliding movement relative to the railway car in a direction generally transverse of the car, means on said sliding sill mounting the opposite end of said rod for rotation, a linkage structure extending between and operatively connecting said opposite end of the uncoupling rod to the coupler for operation of the coupler upon rotation of said rod in one direction, and means on said sliding sill mounting the linkage structure for transverse movement with the coupler relative to the sliding sill and the uncoupling rod.

6. A coupler operating mechanism as set forth in claim **5** wherein said linkage structure comprises a generally U-shaped member forming a pair of generally parallel legs, one of said legs being supported on the sliding sill for sliding back and forth movement relative to the sill and the other leg being operatively connected to said opposite end of the uncoupling rod for sliding relative movement.

7. In a railway car comprising a car body, a sliding center sill extending the length of the car and mounted for movement generally parallel to the longitudinal axis of the car body, a coupler structure mounted on an end of the center sill for movement therewith and movable transversely of the car body relative to the sliding center sill, an uncoupling rod means extending in a generally horizontal direction generally transversely of said car body, means fixed to the end of the car body adjacent the coupler structure rotatably mounting one end of the uncoupling rod means, means secured to the sliding center sill rotatably mounting the opposite end of the uncoupling rod means, means permitting the opposite end of the uncoupling rod means to move with the sliding center sill in response to buff and draft forces, a linkage operatively connecting said opposite end of the uncoupling rod means to the coupler structure for operation of the coupler structure upon rotation of the uncoupling rod means in one direction, and means on said sliding sill mounting said linkage for movement relative to the uncoupling rod means and said sliding sill in a direction generally perpendicular to the longitudinal axis of the car whereby movement of the coupler structure transversely of the car effects movement of the linkage relative to the uncoupling rod means.

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