April 15, 1969 R. W. MILLER ET AL 3,438,513

UNCOUPLING ROD ARRANGEMENT

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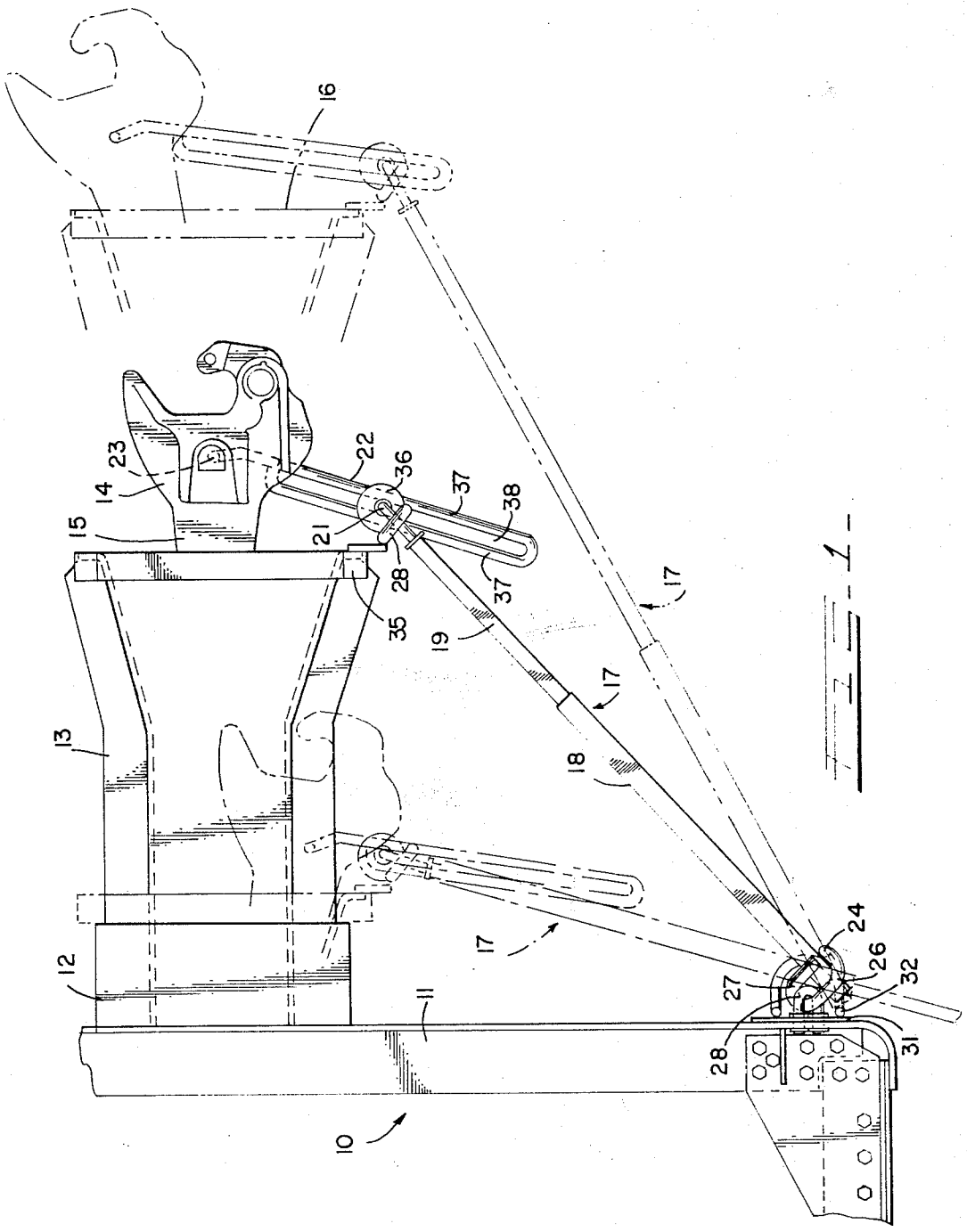


FIG. 1

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FIG. 2

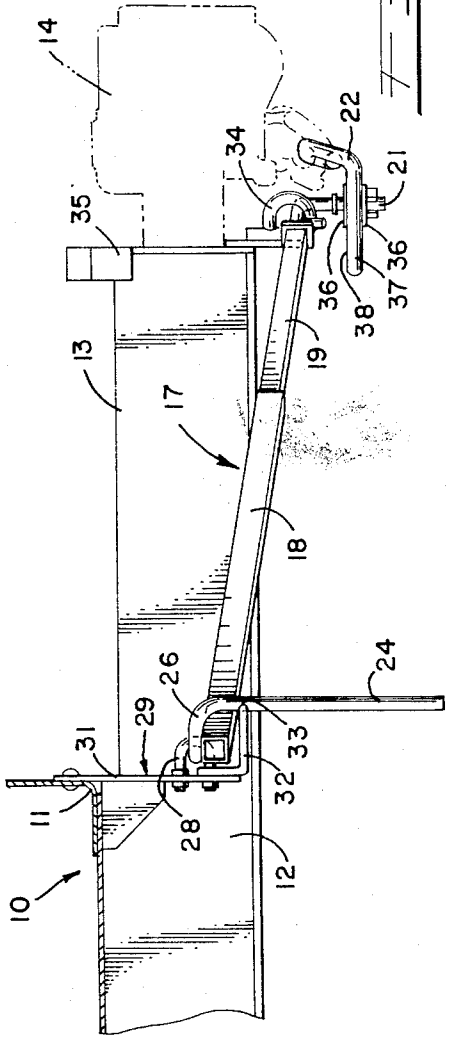
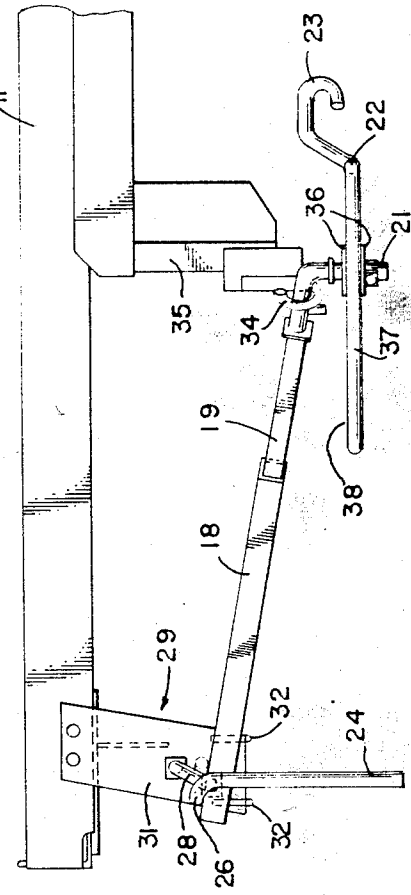


FIG. 3



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UNCOUPLING ROD ARRANGEMENT

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U.S. Cl. 213—166 9 Claims

ABSTRACT OF THE DISCLOSURE

An uncoupling arrangement for uncoupling the couplers mounted on the ends of a sliding sill of a long travel cushion underframe railway vehicle. The uncoupling arrangement includes an open ended sleeve-like member which is mounted for rotation on the end sill of the car. The sleeve-like member telescopingly receives a rod which is turnable therewith and has formed on one end a torque lever. The torque lever is slidably engageable and connected to a coupler operating rod which has a hooked end engageable with the uncoupling knuckle of the coupler. The lengths of the sleeve-like member, the rod and the coupler operating rod are proportioned so as to accommodate the full length of travel and swinging movements of the coupler and sliding sill.

Background of the invention

Cushioned underframe railway vehicles utilizing a sliding center sill are now being commonly used in various types of railway cars to absorb the buff and draft forces imposed through the car couplers mounted on the opposite ends of the sliding center sill. The cushion underframe design comprises basically a sliding sill which is telescopically disposed in a stationary center sill of the railway car. The sliding sill carries the couplers on opposite ends thereof. Disposed and in engagement between the stationary and sliding sill is a cushion unit which limits the travel of the sliding sill. Current practice is to permit relative travel of the stationary and sliding sill of about 20 to 40 inches.

Thus, the couplers mounted on the sliding sill move longitudinally relative to the car upon the imposition of impacts in draft and buff to the couplers. The cushioning arrangement generally includes means for returning the sliding sill to a neutral position after the force of impact has been dissipated. Accordingly, the coupler is movable from the neutral position toward and away from the end sill of the car. At the same time the coupler swings in a substantially horizontal plane about a pivot connection to the sliding sill.

Obviously any uncoupling device must be mounted and constructed so as to accommodate the longitudinal travel of the sill in both directions relative to the end sill and also to accommodate the swinging movement of the coupler. It is this particular problem which the upcoupling arrangement of the present invention overcomes by providing a simply constructed uncoupling mechanism which is capable of meeting all of the requirements.

Brief description of the drawings

FIG. 1 is a top plan view of an end portion of a railway car having a sliding sill and embodying the uncoupling arrangement of the present invention;

FIG. 2 is a side elevational view of FIG. 1; and

FIG. 3 is a fragmentary front elevational view of FIG. 1.

Description of the preferred embodiment

Referring now to the drawings, there is shown an end portion of a railway car **10** having an end sill **11** of more or less conventional construction. Extending longitudinally through the car is a stationary sill **12** of more or less standard construction. Slidably supported in the stationary sill for lengthwise movement thereof to the extent of travel of the cushion unit (not shown) is a sliding sill **13**. Mounted on the opposite ends of the sliding sill is a coupler **14** having a shank portion **15** which is mounted in the interior of the sliding sill and operatively connected to a draft gear (not shown) by means of a coupling pin (not shown) so as to be swingable in a substantially horizontal plane. The swinging movement is permitted by the construction of the usual bell mouth opening **16** of the sliding sill **13**.

The uncoupling device **17** of the present invention generally includes open ended sleeve-like or first telescope member **18** mounted at one end of the end sill **11** of the car for turning movement about its own longitudinal axis. The sleeve-like member **18** telescopingly receives a rod second telescope member **19** which is turnably supported at one end on the sliding sill. The rod member **19** is provided with a torque arm **21** which is slidably engageable with one end of a coupler operating rod **22** having a hook end which is engageable with the unlocking knuckle of the coupler.

As shown, the sleeve-like member **18** may be in the form of an open ended rectangular tube adjacent to one of which there is fixed a handle member **24**. The handle member **24** may be in the form of a circular rod having a right-angularly bent portion **26** extending transversely across the top of the rectangular tube and fixed thereto as by welding. Depending from the horizontal transversely extending portion of the circular rod is a looped portion **27** which enters a U-bolt **28** fixed to the end sill **11** of the railway vehicle **10**. The looped portion **27** engaging within the U-bolt **28** permits pivotal or turning movement of the sleeve **18** about its own longitudinal axis. Engaging the rod **24** so as to limit the turning movement of the rectangular tube **18** in the normal coupler locked position thereof is an angle assembly **29** having a vertical leg **31** fixed to the end sill **11** and horizontal legs **32** having terminal edges **34** engaging the handle rod **24**.

Inserted into the rectangular tube **18** is one end of the telescoping rod **19** which is preferably of rectangular section so as to be turnable therewith. To the other end of the telescoping rod **19** there is fixed a right angularly bent torque arm **21** which in the coupler locked or normal position of the rectangular tube **18** depends downwardly relative to the longitudinal axis of the coupler **14**, as shown in FIG. 2. The right-angularly bent arm **21** is supported in a closed loop strap **34** extending diagonally outwardly from a striker plate **35** on the bell mouth opening **16** of the sliding sill **13**. Thus, the rectangular rod **19** and right angularly bent torque arm **21** are rockable or turnable with the rectangular tube **18** upon turning thereof by way of the handle **24**.

Fixed to the end of the torque arm **21** are a pair of vertically spaced washers which provide transversely spaced slots **36—36**. Received within the slots **36** are the arms **37** and **37** of the looped end **38** of the coupler operating rod **22**. At its other end, operating rod **22** is formed with the substantially J-shaped hook **23**, engaging the coupler knuckle as shown for example in FIG. 2.

In operation, to unlock the coupler **14**, the handle **24** is turned counterclockwise as viewed in FIG. 3, causing the sleeve **18**, the rod **19** and torque arm **21** to be simultaneously turned. Whereupon, the torque arm **21** in engagement with the looped end **38** of the coupler operating rod **22** turns the hook **23** so that the knuckle is displaced to its released position.

It is to be noted that the uncoupling rod arrangement **17** remains operatively connected to the coupler **14** when the sliding sill **13** assumes the fully retracted position as shown in phantom line on FIG. 1. In this position the coupler is also shown in an angular position displaced

toward uncoupling arrangement **17**. When the sliding sill **13** and the coupler **14** are thus positioned, the uncoupling arrangement **17** is disposed so that the torque arm **21** is located in the right end of the loop portion **38** of the operating rod. At the same time the rectangular rod **19** extends outwardly of the open end of the sleeve member **18** at the U-bolt connection **28**.

When the sliding sill **13** and coupler **14** attached thereto are in the extended position as shown in FIG. 1, the coupler arrangement continues to be in operative engagement with the coupler operating rod loop portion **38** being engaged by the torque arm **21** adjacent the left end thereof and the rectangular rod **19** is extended outwardly relative to the sleeve **18**.

We claim:

1. In a sliding sill type railway vehicle wherein a longitudinal sliding sill is mounted for relative movement with respect to the remainder of the vehicle body in response to buff and draft forces, and a coupler mounted on the end of said sliding sill for lateral swinging movement relative thereto, an uncoupling device comprising an axially extensible rod assembly including a first telescope open ended member, means pivotally mounting one end of said first telescope member on said vehicle body for turning movement about the longitudinal axis thereof, a second telescope member being connected with the sliding sill and slidably received by said first telescope member and being turnable therewith, means mounting said second telescope member on said first telescope member for lengthwise movement therewith, a coupler operating rod means pivotally coupled at one end to a coupler lock operating means on said coupler and extending in generally a horizontal plane, means pivotally and slidably connecting said coupler operating rod means with one end of said second telescope member to accommodate greater angular swinging movement of said coupler in a generally horizontal plane during movement of the sliding sill, said second telescope member being of greater length than said first telescope member so that in one extreme lengthwise position of said sliding sill and extreme angular position of said coupler said other end of said second telescope member extends beyond said pivotally connected end of said first telescope member.

2. The invention as defined in claim **1** wherein said first telescope member comprises a tube, and said second telescope member comprises a rod shaped complementary to said tube.

3. The invention as defined in claim **1** wherein said second telescope member includes a torque arm extending substantially perpendicular to the longitudinal axis of said first telescope member.

4. The invention as defined in claim **3** wherein said coupler operating rod means includes a loop portion, and said torque arm is slidable with said loop portion.

5. In a sliding sill type railway vehicle wherein a longitudinal sliding sill is mounted for relative movement with respect to the remainder of the vehicle body in response to buff and draft forces, and a coupler mounted on the end of said sliding sill for lateral swinging movement relative thereto, said uncoupling device comprising an axially extensible rod assembly including an open ended tube, means pivotally mounting one end of said tube on said vehicle body for turning movement about the longitudinal

axis thereof, rod means slidably received by said tube and being turnable therewith, and being connected with said sliding sill, said rod means including a torque arm extending substantially perpendicular to said rod means, a coupler operating rod extending in generally a horizontal plane and pivotally coupled at one end to a coupler lock operating means on said coupler, means slidably and pivotally connecting said coupler operating rod with said torque arm to accommodate greater angular swinging movement of said coupler in generally a horizontal plane, said rod means being of greater length than said tube so that in one extreme lengthwise position of said sliding sill and extreme angular position of said coupler said other end of the rod means extends beyond said pivotally connected end of said tube.

6. The invention as defined in claim **5** wherein said means slidably and pivotally connecting said torque arm to said coupler operating rod comprises a closed loop portion.

7. The invention according to claim **5** and said means slidably and pivotally connecting said coupler operating rod with torque arm preventing rotation about a general horizontal axis of said coupler operating rod relative to said torque arm.

8. The invention according to claim **5** and said rod means being rigidly connected with said sliding sill.

9. An uncoupling device for a railroad vehicle having a coupler mounted in the end of a sliding sill for relative movement of the sill with respect to the vehicle in response to buff and draft forces, said uncoupling device comprising an axially extensible telescopic rod assembly including a first telescope member having an open end adapted to be pivotally mounted on said vehicle for a turning movement about the longitudinal axis thereof, a second telescope member slidably received by said first telescope member and having a free end adapted for connection with the sliding sill, a coupler operating rod means having one end adapted for pivotal coupling with the coupler and having the other end having a pivotal and sliding connection with said second telescope member to accommodate greater angular swinging movement of the coupler in a generally horizontal plane, said second telescope member being of greater length than said first telescope member so that in one extreme lengthwise position of the sliding sill and extreme angular position of the coupler the end of the second telescope member extends beyond the pivotal connection of the first telescope member.

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