United States Patent

[11] 3,568,858

[72] Inventor **Leonard F. Manyek**
Lansing, Ill.

[21] Appl. No. **790,062**
[22] Filed **Jan. 9, 1969**
[45] Patented **Mar. 9, 1971**

[73] Assignee **Stanray Corporation**
Chicago, Ill.

[54] **UNCOUPLING ROD ASSEMBLY**
4 Claims, 5 Drawing Figs.

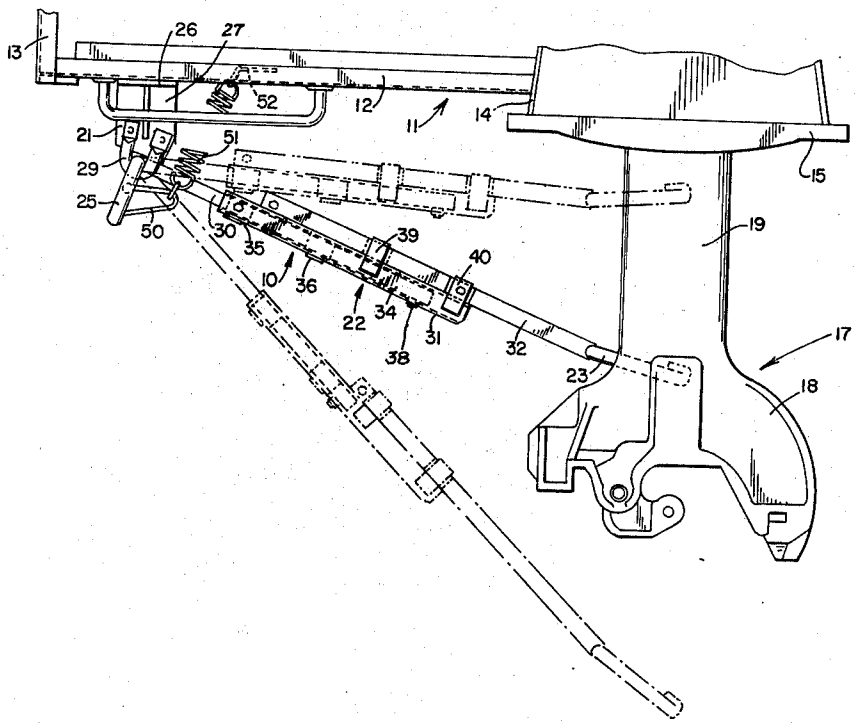
[52] **U.S. Cl.** **213/166,** 213/219
[51] **Int. Cl.** **B61g 3/08**
[50] **Field of Search** 213/166-171, 219, 211

[56] **References Cited**
UNITED STATES PATENTS

3,239,074	3/1966	Boon et al.	213/211
3,409,146	11/1968	Taylor	213/166

Primary Examiner—Drayton E. Hoffman
Attorney—Sabin C. Bronson

ABSTRACT: An uncoupling rod assembly for railway vehicles having cushioning incorporated therein. The assembly includes telescoping members to accommodate the length of travel and swinging movement of the couplers. The telescoping members are formed from relatively thin stock to reduce the weight of the uncoupling rod assembly.



PATENTED MAR 9 1971

3,568,858

SHEET 1 OF 2

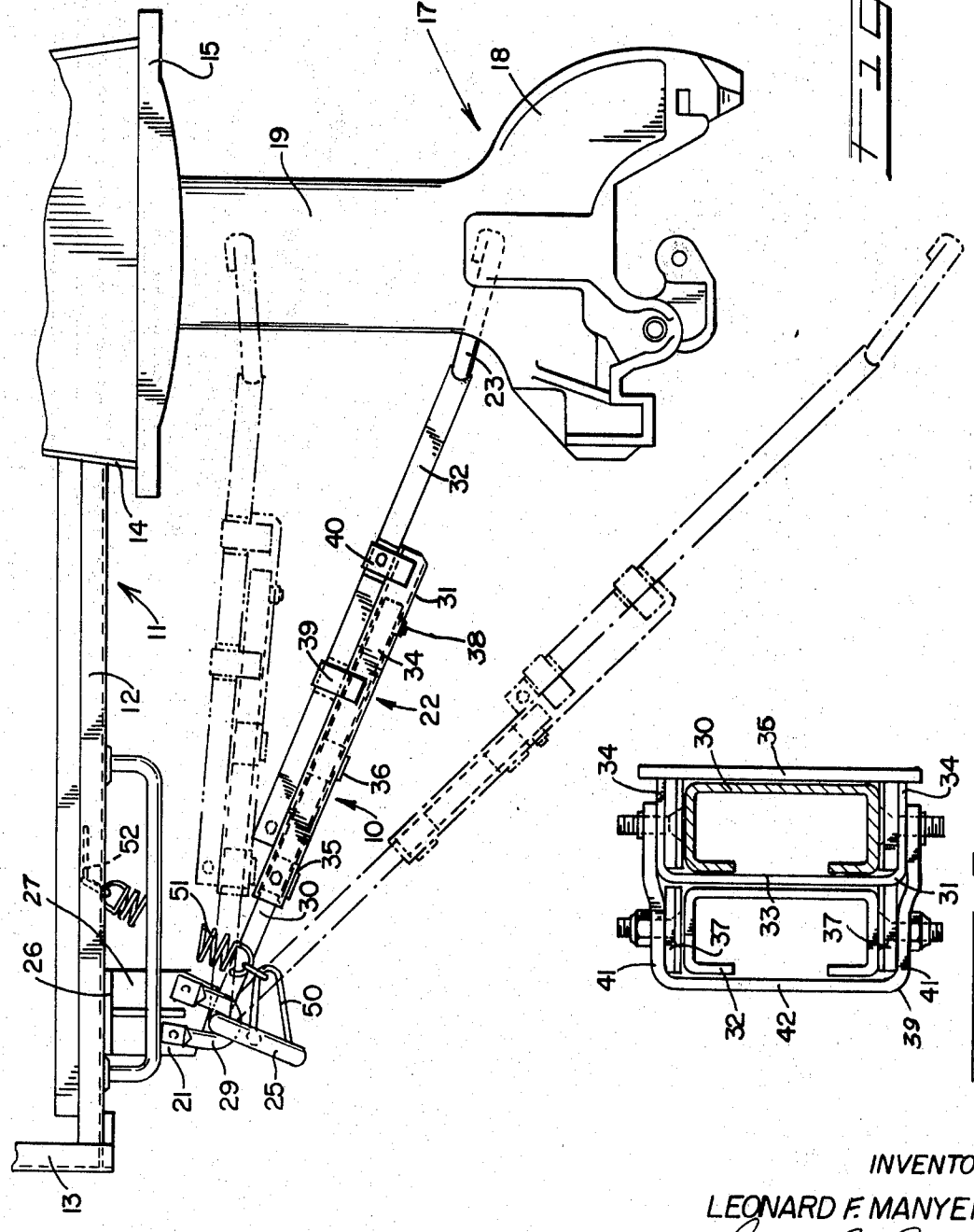


FIG-1-

FIG-5-

INVENTOR
LEONARD F. MANYEK

BY Sabin C. Brownson
ATT'Y.

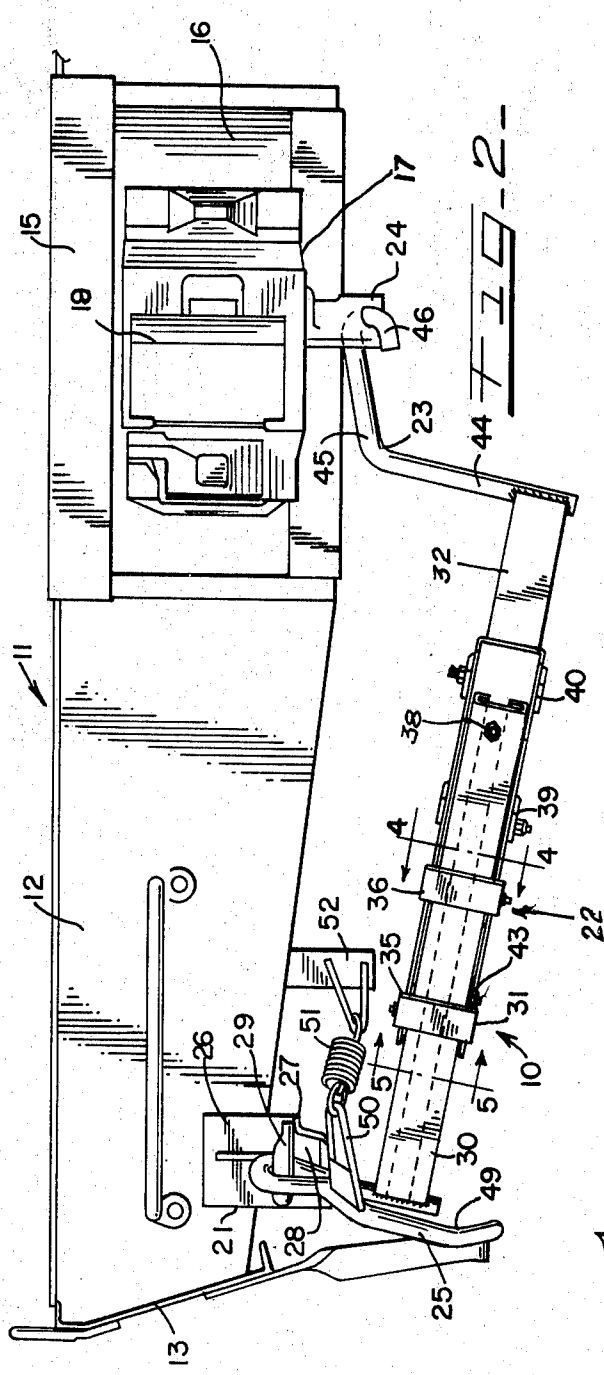


FIG-2-

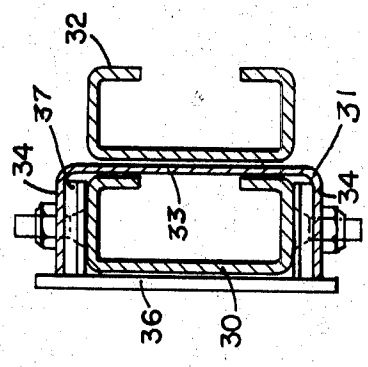


FIG-4-

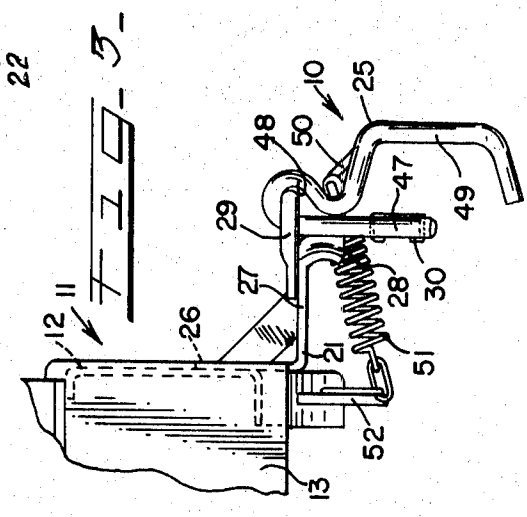


FIG-3-

INVENTOR
LEONARD F. MANYEK
BY Sabin C. Bronson
ATT'Y.

UNCOUPLING ROD ASSEMBLY

BACKGROUND - SUMMARY - DRAWINGS

The present invention relates to railway vehicle uncoupling rod assemblies and more particularly to a new and improved uncoupling rod assembly particularly adapted for use with railway vehicles of the cushion underframe or end-of-car cushioning type.

In both the cushion underframe railway vehicle and those using end-of-car cushioning, the coupler not only swings laterally but also travels lengthwise. The coupler may travel from between 10 to 30 inches inwardly or outwardly of the coupler housing upon impact, depending upon the length of cushion travel incorporated in the vehicle. The lateral swinging and lengthwise travel of the coupler requires an uncoupling rod assembly constructed so as to remain engaged with the coupler during the swinging and lengthwise movement thereof.

This has been accomplished heretofore by constructing the uncoupling rod assembly from a plurality of telescoping members of which at least the lock lifter hook engageable with the coupler is attached to one of the members. These prior uncoupling assemblies have been made from solid bar or rod stock so that the assemblies are of considerably more weight than those used in the conventionally mounted couplers.

Moreover, railway vehicles on which these uncoupling rod assemblies are applied range in length up to about a nominal length of 90 feet. In railway vehicles of these lengths the problem of passed couplers during coupling of the railway vehicle is quite prevalent, particularly when the coupling occurs on a curved track. "Passed" couplers is the condition that occurs when the couplers move angularly past each other and lie in side-by-side relationship rather than engaging at the coupler knuckles during the coupling operation.

To avoid damage or destruction to the uncoupling rod assemblies when the passed coupler condition occurs, the uncoupling rod assemblies have been constructed to lie below the path of movement of the coupler. When thus constructed, the major portion of the assembly and the center of gravity of the mass is disposed below the axis of rotation thereof. This construction requires a greater torque and a correspondingly greater force to rotate the uncoupling rod assembly.

From the foregoing, it should be readily apparent that the increased weight of the solid mass construction of the prior uncoupling rod assemblies and the relationship of the axis of rotation and the center of gravity have increased the force requirements for operation of the assemblies. These force requirements have been such that a single man frequently could not exert sufficient strength to apply the operating force, and required assistance of another to unlock the coupler.

By the present invention it is proposed to provide a new and improved uncoupling rod assembly which is constructed and arranged so as to be of minimum weight and thereby to minimize the manual force required to operate the same.

This is accomplished generally by constructing an uncoupling rod assembly having the major portions thereof made from sheet metal and plate stock. The sheet metal and plate portions are shaped so as to impart rigidity and strength thereto and are arranged in telescoping relationship to accommodate the travel and angular swinging of the coupler. An uncoupling rod is fixed to and projects upwardly from one end of the telescoping parts. The upper end of the uncoupling rod is bent laterally and terminates in a hook engageable with the coupler lock lifter. A handle is fixed to the other end of the telescoping parts and is rotatably supported on the frame of the railway vehicle so that the uncoupling rod assembly is rotatable to unlock the coupler.

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

FIG. 1 is a fragmentary top plan view of one end of a railway vehicle having the uncoupling rod assembly of the present invention mounted thereon.

FIG. 2 is a fragmentary end view of FIG. 1.

FIG. 3 is a fragmentary side elevation showing in particular the manner in which the uncoupling rod assembly is mounted on the end sill.

FIG. 4 is a cross-sectional view taken generally along the lines 4–4 of FIG. 2.

FIG. 5 is a cross-sectional view taken generally along the lines 5–5 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, in particular FIGS. 1—3, there is shown an uncoupling rod assembly **10** embodying the structure of the present invention and mounted on a railway vehicle **11**. The railway vehicle **11** includes an end sill **12**, a side sill **13**, and a center sill **14**, terminating in a bell mouth opening **16**. Supported in the center sill **14** by draft gear (not shown) is a coupler **17** having a coupler head **18** and a coupler shank **19**. The draft gear with which the coupler **17** is associated may be of the end-of-car cushioning type having a travel from the normal draft position shown in full lines to a buff and draft position as shown in phantom lines.

The uncoupling rod assembly **10** comprises generally a mounting bracket **21** fixed to the end sill **12** and turnably or rotatably supporting one end of a telescoping subassembly **22** having attached thereto an uncoupling rod **23** engageable with a coupler lock lifter **24** on coupler **17**. Upon rotation of a handle **25** fixed to the telescoping subassembly **22**, the uncoupling rod **23** is operative to release the lock lifter **24** and thereby permit release of the coupler **17** from an adjacent coupler with which it is lockingly engaged in the well known manner.

The bracket **21** shown in FIGS. 1—3 is in the form of an angle iron having a vertical web **26** which is fixed as by riveting to the end sill **12**. A horizontal web **27** projects outwardly and below the end sill **12** and terminates in a downwardly depending lip **28** which serves as a stop for the handle **25** to prevent clockwise rotation thereof when the normal position thereon as shown in FIG. 3. Fixed to the horizontal web **27** is a U-bolt **29** which accommodates and turnably supports the handle **25**.

The telescoping subassembly **22** includes a first member **30** which is telescopingly supported on a second member **31** for lengthwise movement relative thereto.

Telescopingly supported on the other side of the second member **31** is a third member **32** to which the uncoupling rod **23** is attached.

To maintain the weight of the telescoping subassembly, and thereby the overall weight of the uncoupling rod assembly **10** at a minimum, the first and third members **30** and **32** are each made from sheet metal, as for example a 12-guage galvanized sheet. To impart the necessary rigidity and strength to withstand the stresses to which the uncoupling rod may be subjected, the first and third members **30** and **32** are each formed of substantially C-shaped or rectilinear cross section.

The second member **31** is made from plate stock of about one-eighth inch thickness and is formed with a substantially U-shaped cross section including a vertical web **33** from which there extends a pair of horizontal legs **34–34**.

Retaining the first member **30** telescopingly and slidingly disposed within the confines of the legs **34–34** and the vertical web **33** are a pair of lengthwise spaced vertical straps **35** and **36**. The straps **35** and **36** are fixed to the legs **34–34** as by welding. To facilitate the telescoping movement lengthwise, a pair of wear pads **37** may be attached to the upper and lower legs **34–34**.

Fastened in the vertical web of the right end of the first member **30** is a nut and bolt assembly **38** which projects outwardly so as to be engageable with the vertical strap **36** to serve as a stop, limiting outward movement of the member **30** relative to the second member **31**.

Providing a telescoping support for the third member 32 are lengthwise spaced U-shaped straps 39 and 40 each having legs 41 41–41 and a vertical bight portion 42 which is laterally spaced from the outer face the vertical web 33 of the second member 31. To limit outward movement of the third member 32 there is a nut and bolt assembly 43 which is engageable with the lower leg 41 of strap 39 so as to prevent separation from the second member 31 upon extension of the telescoping subassembly 22. Wear pads 37 may also be provided on the strap legs 41–41 to facilitate sliding movement.

In connection with the nut and bolt assemblies 38 and 43, it is to be noted that this structure facilitates the assembly and disassembly of the uncoupling rod assembly 10. The nut and bolt assemblies 38 and 43 are easily applied after the first and third members 30 and 32 are slidably positioned in the respective supports on the second member 31. This is in contrast to the assembly methods required in the prior coupling rod assemblies using rod structures. In these prior structures it was necessary to bend and twist the members in a manner requiring some mechanical skills. The present construction may be assembled by any person whether unskilled or skilled.

As shown in FIG. 2, the telescoping subassembly 22 is inclined downwardly so that the end of the third member is disposed below the underside of the coupler. The inclination is such that a passed coupler, as heretofore described, clears the uncoupling rod assembly 12 and thereby eliminates damage thereto.

Extending upwardly from the terminal end and at an angle substantially perpendicular to the longitudinal axis of the telescoping third member 32 is a shank 44 of the uncoupling rod 23. The uncoupling rod 23 is formed with a laterally bent portion 45 which terminates in a hooked end 46 engaging the lock lifter 24 of the coupler 17.

The handle 25 is formed to facilitate the rotation of the assembly 10 to release the coupler 17 and is made from round bar stock. The bar is bent to provide an attachment shank 47 fixed to the end of the first telescoping member 30 as by welding. The upper end of the attachment shank 47 is bent into a closed loop which embraces the U-bolt 29 so as to permit rotation of the uncoupling rod assembly. The downwardly depending end of the rod is bent to provide a recessed hand grip portion 49.

Extending inboard from the handle grip portion 49 and fixed thereto is a spring bracket 50. Attached to the bracket 50 is one end of a compression spring 51 of which the other end is attached to a second spring bracket 52 depending from the underside of the end sill 12. The spring 51 biases the handle shank 47 against the stop lip 28 and exerts a sufficient force to prevent counterclockwise rotation as viewed in FIG. 3 during normal train operation. In this manner inadvertent unlocking of the coupler is eliminated.

From the foregoing it should be readily apparent that to unlock the coupler 17 it is merely necessary to grasp the handle 25 at the recessed hand grip portion 49 and rotate the assembly counterclockwise. Such rotation causes the lock lifter hook 46 to be turned and thereby releases the lock lifter 24 so that the coupler may be released.

I claim:

1. An uncoupling rod assembly adapted to be mounted on the end sill of a railway vehicle having a coupler extending therefrom, said uncoupling rod assembly comprising a first member of substantially C-shaped cross section, means fixed to one end of said first member for mounting said uncoupling rod assembly for rotation on said end sill, a second member of substantially U-shaped cross section, means telescopingly supporting the other end of said first member with said U-shaped cross section of said second member, a third member of substantially U-shaped cross section, U-shaped strap means having one end telescopingly mounting said third member on the exterior of the bight of said second member, and an uncoupling rod having a shank projecting upwardly at an angle substantially perpendicular to the telescoping axis of said members and fixed to the other end of said third member, and having a laterally bent portion at the upper end of said shank terminating a hook engageable with the lock lifter of the coupler.

2. An uncoupling rod assembly adapted to be mounted on the end sill of a railway vehicle having a coupler supported for lengthwise and swinging movement, said uncoupling rod assembly comprising a first member of substantially C-shaped cross section, a second member of substantially U-shaped cross section, means extending across the ends of the legs of said U-shaped second member for telescopingly supporting said first member within said U-shaped cross section, a third member of C-shaped cross section, and U-shaped strap means fixed to said second member for telescopingly supporting said third member on the exterior face of the bight portion of said second member, and an uncoupling rod having an upstanding shank fixed to the projecting end of said third member, said uncoupling rod having a portion bent laterally to said upstanding shank and terminating in a hook engageable with a lock lifter of said coupler.

3. The invention as defined in claim 2 wherein a handle is filed to the projection end of said first member, and means is provided for rotatably mounting said handle on said end sill.

4. The invention as defined in claim 3 wherein biasing spring means is attached between the handle and said end sill, and wherein stop means are provided on said handle mounting means against which said biasing spring restrains said uncoupling rod assembly.