I. H. MILLIKEN AND W. J. REGAN.

UNCOUPLING MECHANISM.

APPLICATION FILED OCT. 6, 1921.

1,417,543.

Patented May 30, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

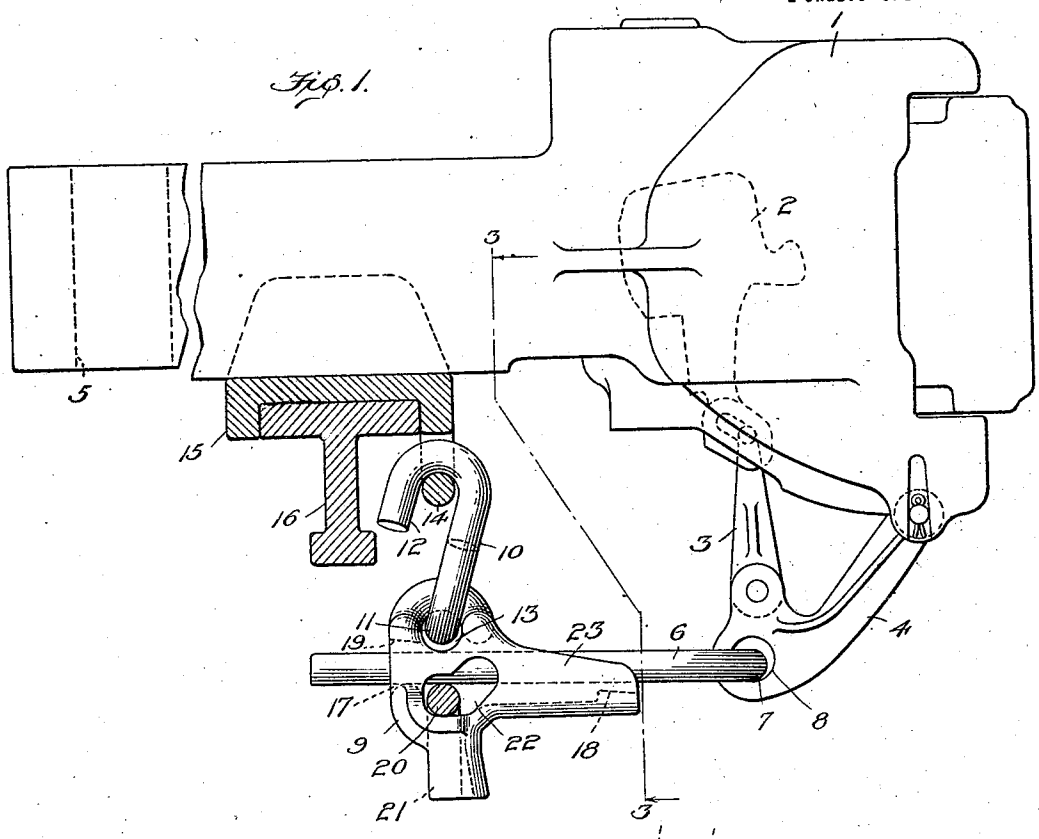

Fig. 2.

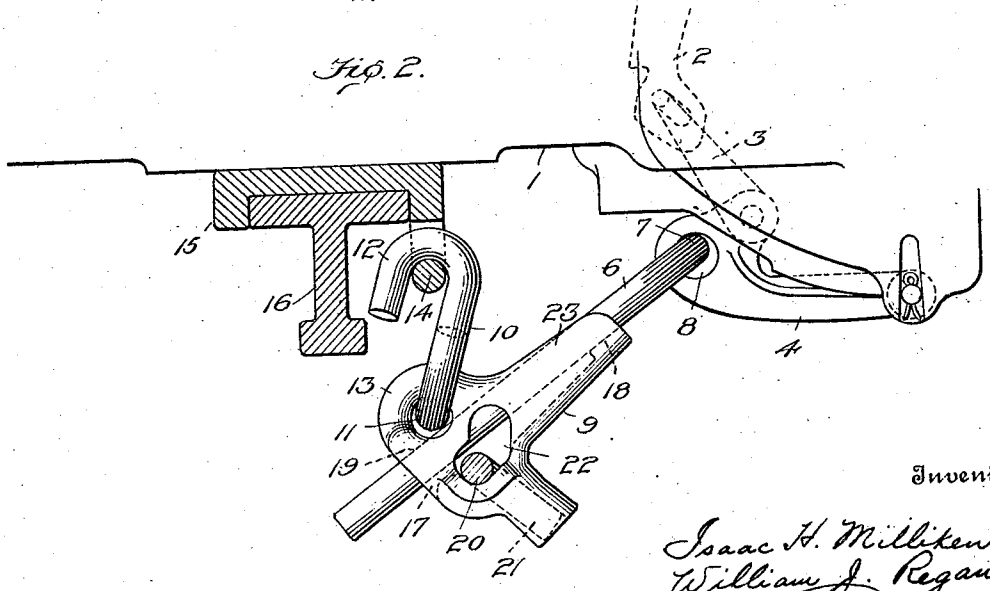

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Fig. 3.

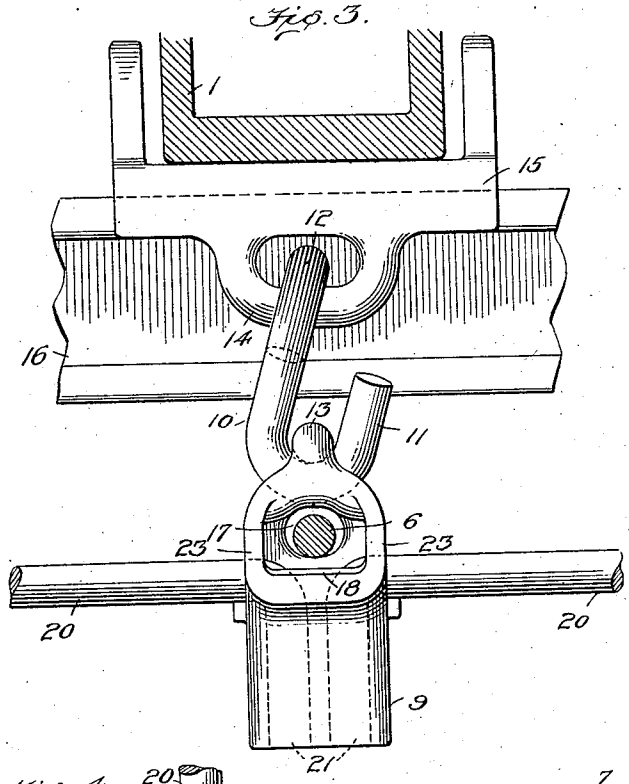


Fig. 4.

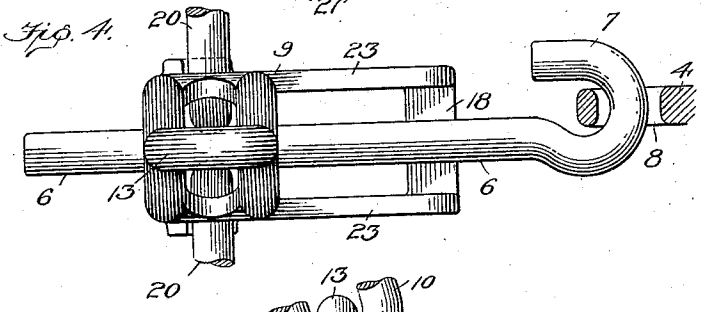
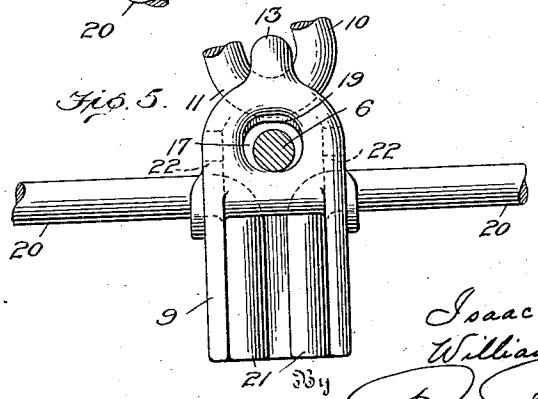


Fig. 5.



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UNITED STATES PATENT OFFICE.

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UNCOUPLING MECHANISM.

1,417,543. Specification of Letters Patent. Patented May 30, 1922.

Application filed October 6, 1921. Serial No. 505,690.

To all whom it may concern:

Be it known that we, ISAAC H. MILLIKEN and WILLIAM J. REGAN, citizens of the United States, residing, respectively, at Aspinwall, in the county of Allegheny and State of Pennsylvania, and Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Uncoupling Mechanism; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to uncoupling mechanism for actuating the lock of a car coupler. While it is especially designed to afford uncoupling means well suited for application to the Master Car Builders' standard D-type coupler employing a bottom operated lock, the invention may be embodied in uncoupling mechanism applicable to other forms of couplers as well.

The primary object of the invention is to provide efficient, reliable and easily operated uncoupling mechanism consisting of a few simple and compactly arranged parts.

The principal feature of the invention, generally stated, consists in actuating the lock of the coupler by means of a rotatable member which has a floating center of rotation and which slidably engages means for causing it to perform an unlocking rotation.

Another feature of the invention consists in moving the coupler lock to unlocked position by means of a rotatable member which is caused to perform an unlocking rotation by an actuating device pivotally connected to a swinging support at the center of rotation of said rotatable member.

As will hereinafter appear, there are further features of the invention residing in elemental details of construction and in particular combinations.

In the drawings illustrating the invention, the scope whereof is pointed out in the claims,—

Figure 1 is a view, partly in side elevation and partly in section, of an uncoupling mechanism embodying the invention, the car coupler shown being of the well known Master Car Builders' D-type.

Figure 2 is a view, partly in side elevation and partly in vertical section, of a portion of the construction illustrated in Fig. 1, the parts being shown in the positions they assume when the coupler lock has been caused to perform an extended unlocking movement.

Figure 3 is a detail sectional view on the line 3—3, Fig. 1, portions of the uncoupling levers and of the coupler and its carrier iron being broken away.

Figure 4 is a detail view, partly in plan and partly in horizontal section, of a portion of the mechanism, parts of the uncoupling levers being broken away.

Figure 5 is a detail view of the mechanism partly in vertical section and partly in rear end elevation, a portion of the swinging supporting means and portions of the uncoupling levers being broken away.

The car coupler 1 shown in the drawings is of the well known Master Car Builders' D-type. Its lock 2 is movably connected to a link 3 which extends downwardly through the coupler head and is pivotally connected at its lower end to a swinging lift lever 4 which is itself pivotally mounted upon the under side of the head of the coupler. The link 3 and pivoted lift lever 4 preferably are constructed in accordance with the standard practice of the bottom lock lift devices of the D-coupler.

If a wide range of lateral swinging movement of the coupler is to be provided for its shank may be formed near its rear end with a pivot pin opening 5 adapted to receive a tail pin (not shown) for pivotally connecting the coupler to the draft rigging in a well known manner.

The swinging lift lever 4 is adapted to be actuated to cause an unlocking movement of the lock 2 by means of a vertically rotatable member 6 which is preferably connected interlockingly to said lift lever by a hook and eye connection, the forward end of said rotatable member being for this purpose provided with a hook 7 which cooperates with the usual eye 8 at the rear end of the pivoted lift lever. The rotatable member 6 may be conveniently formed from a simple bar. It is adapted to be operated by a member 9 swingingly supported by a link 10 to which it is pivotally connected at the center of rotation of the rotatable member 6. This mode of supporting the member 9 permits

the rotatable member 6 to turn about a floating center, thus enabling its forward hooked end 7 to accommodate itself to the path of travel of the eye 8 of the pivoted lift lever 4 during an unlocking operation of the coupler lock 2.

The supporting means 10, which is adapted to swing lengthwise of the car and preferably also transversely thereof, may be formed with a plurality of hooks 11 and 12, respectively, the lower hook 11 being adapted to cooperate with an eye 13 formed in the actuating member 9, and the upper hook 12 being adapted to hook through a transversely elongated eye 14 formed on a coupler saddle 15 that is slidably supported on the coupler carrier iron 16 so as to be moved transversely of the car when the coupler 1 swings laterally. Where the coupler is intended to have a very wide range of lateral swing it may be advantageous to provide for the necessary lateral movement of the swinging support 10 by employing the transversely movable coupler saddle 15, as shown, rather than to support the link member 10 directly from the coupler carrier iron.

Rearwardly of the coupler lock 2 the vertically rotatable member 6 extends through an aperture 17 formed in the swinging member 9 by which said rotatable member is caused to perform an unlocking movement. The actuating member 9 and the rotatable member slidably engage each other so that the latter may shift back and forth in response to draft and buffing movements of the coupler. In advance of the point of pivotal connection of the actuating member 9 and the swinging support 10, which point is the common center of rotation of the members 6 and 9 during the uncoupling operation, the said member 9 is provided with a lug portion 18 extending under and adapted to engage the rotatable member 6, and to the rear of said center of rotation the member 9 is also provided with a portion 19 that extends over and is adapted to engage the opposite side of the rotatable member 6. When the swinging member 9 is actuated to effect an uncoupling operation its portions 18 and 19 simultaneously engage the member 6 so as to apply thereto oppositely directed forces compelling an unlocking rotation of the latter.

An unlocking movement of the swinging actuating member 9 is preferably effected from the sides of the car by means of a plurality of independently operating uncoupling levers 20. These levers may be of the well known form illustrated in the I. H. Milliken Patent No. 1,184,116, dated May 23, 1916, except it is preferred that the bent inner ends 21 of said levers shall extend downwardly instead of upwardly. The swinging actuating member 9 is formed on opposite sides with angular openings 22 permitting the entry of the downwardly extending ends 21 of the uncoupling levers. The opening 17 in the member 9 is of sufficient size and the side walls 23 of said member are spaced sufficiently far part to permit the rotatable member 6 to have an angling movement transversely of the car. By this means the swinging actuating member 9 is not required to move to so great an extent in order to permit compensation for the various angular positions which the rotatable member 6 may assume when the coupler swings laterally.

In assembling the mechanism the swinging link device 10 is turned laterally until it is at right angles to its normal position when its hook 12 may be hooked through the transversely elongated eye 14 of the coupler saddle 15. The member 10 is then dropped to ordinary position, thereby becoming interlocked with the coupler saddle and thus preventing accidental disassociation of these parts. The hook 7 of the rotatable member 6 is then engaged with the eye 8 of the lift lever 4 pivoted to the coupler head. The swinging actuating member 9 is associated with the rotatable member 6 and is suspended from the member 10 by threading its eye 13 over the hooked lower end 11 of the swinging support. The inner ends 21 of the uncoupling levers 20 are thereafter inserted in the respective openings 22 of the actuating member 9, their outer ends being movably supported in brackets at the sides of the car in the usual manner. As thus assembled the several parts of the mechanism are interlocked so that their accidental disassociation is prevented.

The rotatable member 6 may be caused to perform an unlocking operation by either of the uncoupling levers 20. When either of said levers is rotated in the proper direction its bent inner end 21 presses against the swinging actuating member 9 and causes the latter to rotate, thereby bringing its lug portions 18 and 19 into engagement with opposite sides of the rotatable member 6 and compelling the latter to perform an unlocking movement. During the unlocking rotation of the member 6 and its actuating means 9 the supporting link 10 swings lengthwise of the car as may be required to allow the forward end of the rotatable member 6 readily to conform to the movement of the lift lever 4 through the intermediacy of which the coupler lock 2 is actuated.

We claim:—

1. In an uncoupling mechanism, the combination with a car coupler and its lock, of means for moving said lock to unlocked position, said means involving a rotatable member operatively connected to said lock, means for actuating said rotatable member, an uncoupling lever for operating said actuating means, and swinging means pivotally

connected to said actuating means at the center of rotation of said rotatable member for supporting said actuating means.

2. In an uncoupling mechanism, the combination with a car coupler and its lock, of means for moving said lock to unlocked position, said means involving a vertically rotatable member operatively connected to said lock, swinging means for actuating said rotatable member, an uncoupling lever for actuating said swinging means, and swinging means supporting said last named means at the center of rotation of said rotatable member.

3. In an uncoupling mechanism, the combination with a car coupler and its lock, of means for moving said lock to unlocked position, said means involving a rotatable member operatively connected to said lock, swinging means for actuating said rotatable member, said swinging means being adapted simultaneously to engage opposite sides of said rotatable member, an uncoupling lever for actuating said swinging means and swinging means for supporting said first named swinging means.

4. In an uncoupling mechanism, the combination with a car coupler and its lock, of means for moving said lock to unlocked position, said means involving a rotatable member operatively connected to said lock, swinging means for actuating said rotatable member, an uncoupling lever for causing rotation of said swinging means, and swinging means for supporting said first named swinging means at the center of rotation of said rotatable member.

5. In an uncoupling mechanism, the combination with a car coupler and its lock, of means for moving said lock to unlocked position, said means involving a rotatable member operatively connected to said lock, an apertured member with which said rotatable member has slidable engagement and through which said rotatable member extends, an uncoupling lever adapted to actuate said apertured member, and swinging means engaging and supporting said apertured member.

6. In an uncoupling mechanism, the combination with a car coupler and its lock, of means for moving said lock to unlocked position, said means involving a member pivotally connected to said coupler, a link operatively interposed between said pivotally connected member and said lock, a vertically rotatable member movably engaging said pivotally connected member, an apertured member with which said rotatable member has slidable engagement and through which said rotatable member extends, an uncoupling lever adapted to actuate said apertured member, and swinging means engaging and supporting said apertured member.

7. In an uncoupling mechanism, the combination with a car coupler and its lock, of means for moving said lock to unlocked position, said means involving a rotatable member operatively connected to said lock, a swinging member adapted to actuate said rotatable member, an uncoupling lever adapted to actuate said swinging member, and swinging means for supporting said swinging member, said swinging means and said swinging member being movably connected at the center of rotation of said rotatable member, and said swinging member and said rotatable member having slidable engagement.

8. In an uncoupling mechanism, the combination with a car coupler and its lock, of means for moving said lock to unlocked position, said means involving a rotatable member operatively connected to said lock and extending rearwardly therefrom, rotatable means for actuating said rotatable member, said rotatable means having a floating center of rotation and operatively engaging opposite sides of said rotatable member, and an uncoupling lever movably connected to and adapted to actuate said rotatable means.

9. In an uncoupling mechanism, the combination with a car coupler and its lock, of means for moving said lock to unlocked position, said means involving a rotatable member operatively connected to said lock and extending rearwardly therefrom, rotatable means for actuating said rotatable member, and an uncoupling lever movably connected to and adapted to actuate said rotatable means, said rotatable member having sliding engagement with said rotatable means, and said rotatable means having a floating center of rotation and being apertured to receive a portion of said rotatable member.

10. In an uncoupling mechanism, the combination with a car coupler and its lock, of means for moving said lock to unlocked position, said means involving a rotatable member operatively connected to said lock and extending rearwardly therefrom, rotatable means for actuating said rotatable member, an uncoupling lever for actuating said rotatable means, and means adapted to swing lengthwise of the car for swingingly supporting said rotatable means, said rotatable means being adapted to actuate said rotatable member by engaging the latter both in advance and to the rear of the center of rotation of said rotatable means, and said uncoupling lever being supported at one end by said rotatable means.

11. In an uncoupling mechanism, the combination with a car coupler and its lock, of means for moving said lock to unlocked position, said means involving a rotatable member operatively connected to said lock and extending rearwardly therefrom, an apertured member through which said ro-

tatable member extends, means adapted to swing lengthwise of the car for movably supporting said apertured member, and an uncoupling lever for actuating said apertured member, said rotatable member having slidable engagement with said apertured member, and said uncoupling lever and said swinging means being interlockingly connected to said apertured member.

12. In an uncoupling mechanism, the combination with a car coupler, its lock and carrier iron, of means for moving said lock to unlocked position, said means involving a rotatable member operatively connected to said lock and extending rearwardly therefrom, means movable lengthwise of the car for supporting said rotatable member rearwardly of the lock and for actuating said rotatable member, an uncoupling lever adapted to actuate said supporting means, and swinging means engaging and movably connected to said supporting means and to said carrier iron.

13. In an uncoupling mechanism, the combination with a car coupler, its lock and carrier iron, of means for moving said lock to unlocked position, said means involving a member mounted on said carrier iron and slidable transversely of the car, swinging means interlockingly connected to said slidable member, a vertically rotatable member operatively connected to said lock and extending rearwardly therefrom, means slidably engaging said rotatable member for actuating the latter, and an uncoupling lever adapted to actuate said last named means, said last named means and said swinging means having a hook and eye connection.

14. In an uncoupling mechanism, the combination with a car coupler, its lock and carrier iron, of means for moving said lock to unlocked position, said means involving a rotatable member operatively connected to said lock and extending rearwardly therefrom, an apertured member through which said rotatable member extends and with respect to which it is slidable, an uncoupling lever adapted to actuate said apertured member, and means adapted to swing in a plurality of planes for movably connecting said apertured member to said carrier iron, and said apertured member affording support for said uncoupling lever.

In testimony whereof we affix our signatures.

ISAAC H. MILLIKEN.
WILLIAM J. REGAN.