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UNCOUPLING MECHANISM FOR CAR COUPLERS

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2 Sheets-Sheet 2

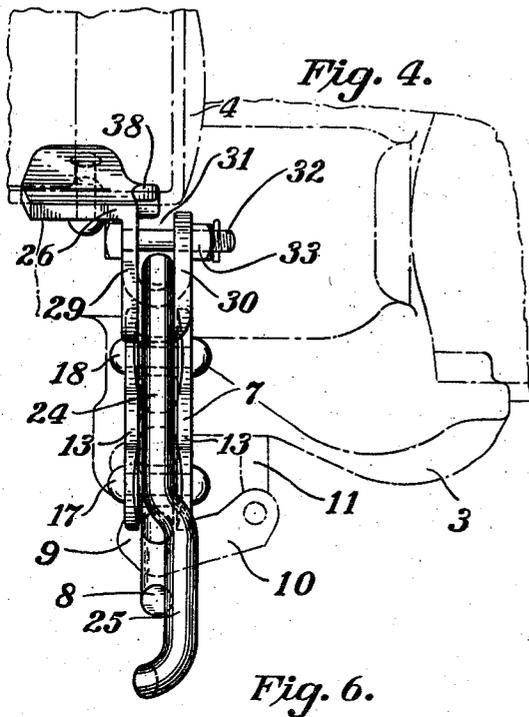


Fig. 4.

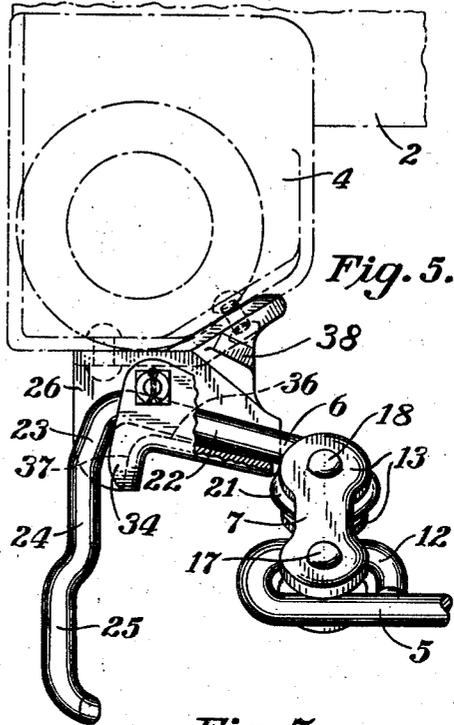


Fig. 5.

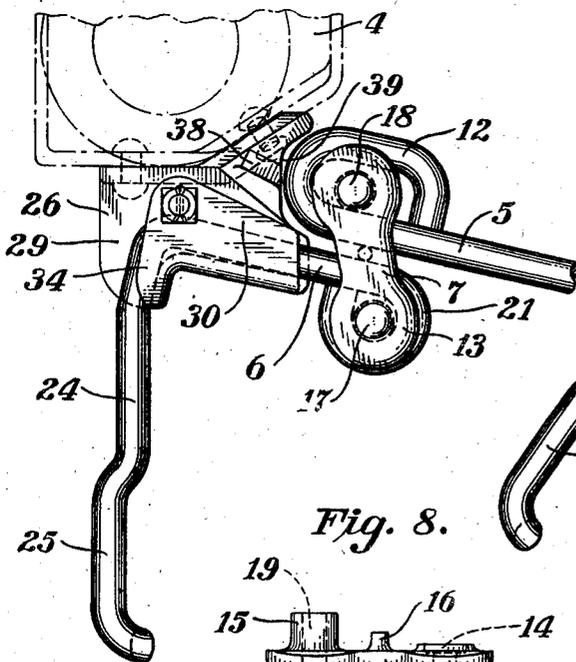


Fig. 6.

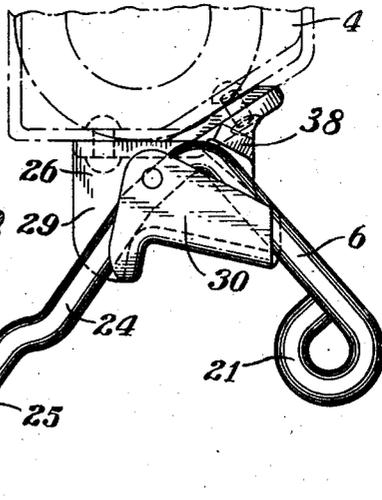


Fig. 7.

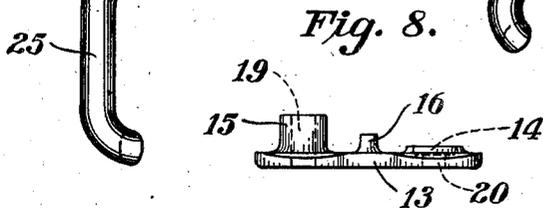


Fig. 8.

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UNCOUPLING MECHANISM FOR CAR COUPLERS

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16 Claims. (Cl. 213—168)

This invention relates to uncoupling mechanism for car couplers, particularly for rotary operation of couplers of standard type.

An object of the invention is to provide uncoupling mechanism of this character in which simple and effective means are provided to prevent undesired movement of the mechanism which would cause uncoupling. Another object is to assure operation of the uncoupling mechanism in cases where due to certain types of connection between the uncoupling rod and handle, the uncoupling rod may become displaced so as to be above the handle. Other objects and advantages of the invention will be in part apparent and in part pointed out in connection with the following description of a preferred embodiment of my invention.

In the accompanying drawings:

Figure 1 is a plan view of uncoupling mechanism in accordance with the invention, associated parts of the car frame and coupler being shown in outline.

Figure 2 is a front elevation of Figure 1, the left hand of which is shown looking in the direction of the arrow in Figure 1.

Figure 3 is a section taken on line 3—3 of Figure 2.

Figure 4 is a side elevation of the uncoupling mechanism in accordance with my invention.

Figure 5 is a front elevation, partly broken away, showing the mechanism in unlocked position.

Figure 6 is a front elevation showing the uncoupling rod in abnormal position.

Figure 7 is a view illustrating the assembly of a part of the uncoupling mechanism.

Figure 8 is a side elevation of one of the members used with my invention.

Referring now to the drawings, there is shown a conventional form of car structure including a front frame 2, having mounted thereon coupler 3. At the side of the car and mounted on frame 2 is a push pole pocket 4 of usual construction. The coupler may be of any suitable construction and is preferably mounted on the car frame through suitable draft gear and for swiveling action. That is to say, present standard car couplers are capable of longitudinal movement under buffing and pulling forces, and also of angling in the course of operation as in rounding curves. In constructing uncoupling mechanism, these considerations must be borne in mind. This invention concerns uncoupling mechanism for rotary bottom operation and any suitable locking mechanism may be provided

within the coupler head for holding the coupler knuckle in locked position and for throwing the same.

In Figs. 1 to 4 there is shown mechanism for effecting uncoupling, which mechanism preferably includes uncoupling rods 5 and 6 connected by member 7. One end of rod 5 may have a hook 8 for engaging an eye 9 in the pivotally mounted lever 10, which lever is connected to the lock through lock lifter 11, and the other end may be formed with an elongated loop 12 for sliding and pivotal movement with member 7. The member 7 may be in two similar halves 13, 13, one of which is shown in detail in Fig. 8. Each half is provided at one end with a recess 14 and at the other end with a stud 15; the stud of one part fitting into the recess of the other. Intermediate the ends of each half is a boss 16 which may project a sufficient amount that the ends of the two bosses will meet when the two halves are assembled. The member 7 may be held in assembled relation by rivets 17 and 18 which pass through holes 19 and 20 in the member. The rod 6 is formed at one end with an eye 21 which surrounds the upper stud in member 7 and serves to operatively connect the rod and member. Extending laterally and upwardly from the eye 21, rod 6 is formed with a supporting portion 22 and then bent downward substantially at right angles thereto as at 23 and again bent a slight amount to form the vertical portion 24 which is used as a handle for operating the mechanism.

The handle may be bent as shown to form a convenient grip 25, and is preferably formed so that a vertical plane passing through the grip is at an angle to the car, as is clearly shown in Figs. 1 and 3.

To support rod 6 on the side of the car I provide a bracket 26, which may comprise a pair of angularly disposed webs 27 and 28 adapted to be riveted or by other means fastened to a part of the car structure as the push-pole pocket 4. Extending from webs 27 and 28 are vertically disposed flanges 29 and 30 forming a U-shaped pocket 31 receiving and supporting rod 6. A bolt 32 passing through holes in flanges 29 and 30 serves to retain the rod in assembled relation, and is held in place by the usual nut 33.

To assemble the parts so far described, the halves of member 7 are placed so that the studs 15 pass through the loop 12 and eye 21 of rods 5 and 6 respectively, after which the rivets are applied to hold the parts together. Loop 8 of rod 5 may then be threaded through eye 9 of

lever 10, whereupon the rods 5 and 6 may be attached to the car by first passing the handle 25 between the flanges 29 and 30, as shown in Fig. 7, and thence seating the portion 22 in the bracket, after which bolt 32 and nut 33 may be applied to complete the assembly.

In order to unlock the coupler by actuation of the handle 25 it must be swung forwardly and upwardly, or in a counter-clockwise direction as viewed in Fig. 4. It will be appreciated that since rod 5 is supported below the pivotal point of rod 6, the former will assist in preventing undesired swinging of the handle such as would unlock the coupler as when a sudden shock is imparted to the car. I prefer, however, to positively prevent such undesired swinging.

My invention provides such means in the following manner. In the drawings the flange 30 is shown at 34 extending in front of portion 23 of rod 6.

Manual withdrawal of the handle from behind flange portion 34 is accomplished by providing clearance at 35 between the inner end of the bracket and eye 21. It will be seen from Fig. 3 that as the operator grasps the handle, the pull will be in the direction of the arrow, and the first movement of the rod will be laterally of the bracket 26 until the portion 23 is withdrawn from behind flange 34. Continued pull on the handle will swing it upwardly to unlock the coupler and throw the knuckle if desired. In Fig. 5 the handle is in the position it occupies when the coupler is unlocked, rod 6 being shown laterally displaced so as to take up clearance 35 and withdraw portion 23 from behind flange 34. It will be noted that the surface 36 on bracket 26 slopes downwardly and inwardly substantially on the same angle as the engaging portion 22 of rod 6. When the handle is released by the operator it drops to a vertical position and slides down the sloping surface 36 bringing portion 23 of rod 6 behind the flange 34. The weight of rod 5 and member 7 acts to pull rod 6 down the slope and thus assists in moving the handle into locked position.

This construction has a very marked advantage in that it permits longitudinal and lateral movement of the coupler without, in any way, affecting the position of rod 6 or tending to shift it from its locked position. Rod 6 is also free of any tendency to move laterally due to swaying of the car, the friction between the rod and bracket being sufficient to prevent this movement. Vibration and shocks to the car do not dislodge the handle but in fact urge it into its locked position.

I prefer to construct portion 22 of rod 6 substantially at a right angle to portion 23 and also to form the cooperating surfaces 36 and 37 respectively of bracket 26 at a similar angle. Other angles either greater or less than ninety degrees may of course be used but in such cases it would be necessary to adjust the clearance 35 to take care of any increase or decrease in the overlap between rod 6 and flange 34, occasioned by use of a different angle.

My invention also provides for operation of the uncoupling mechanism in cases where rod 5 is unintentionally or maliciously placed in a position above rod 6 as shown in Fig. 6. For this purpose I provide a stop or lug 38 that limits outward lateral movement of rod 5. Furthermore, the outline of bracket 26 is cut away as at 39 so that movement of loop 12 rearwardly is unobstructed. In operating the mechanism in

this position the handle is swung forwardly and upwardly in the usual manner after it has been released from flange 34 but rod 5 instead of moving forwardly and upwardly, as when the parts are in their normal positions, moves rearwardly and downwardly. Rod 6, of course, rotates in the same direction in each case, that is, counter-clockwise as viewed in Fig. 4, to unlock the coupler. The surface 36 may slope any desired amount so long as it is sufficient to assure return of rod 6 into locking relation to the bracket.

Thus it will be seen that I have provided uncoupling mechanism that is positively locked so as to prevent accidental or undesired unlocking of the coupler. Furthermore, the operator need not have special instructions to operate the device, since a pull on the handle in the usual manner will, due to the handle grip being positioned at an angle to the car, result in freeing the handle so as to permit upward swinging thereof to unlock the coupler.

The terms and expressions which I have employed are used as terms of description and not of limitation, and I have no intention, in the use of such terms and expressions, of excluding any equivalents of the features shown and described or portions thereof, but recognize that various modifications are possible within the scope of the invention claimed.

I claim:

1. In uncoupling mechanism for car couplers, a bracket, a member mounted in said bracket adapted to swing in a substantially vertical plane and having a bearing portion and a second portion substantially at right angles to said bearing portion, means comprising a surface on said bracket adapted to be engaged by said second portion for normally preventing such swinging movement, said member being bodily shiftable laterally in said bracket to a position free of said surface, said bracket being so constructed and arranged as to normally cause said member to assume a position with respect thereto such that swinging movement of said member will be prevented.

2. In uncoupling mechanism for car couplers, a bracket comprising a pair of substantially vertical walls, a downwardly and inwardly sloping bottom wall connecting said vertical walls, a member in said bracket adapted to swing in a substantially vertical plane, and means comprising a portion of one of said vertical walls normally preventing such movement, said member being adapted to slide along said bottom wall to maintain a portion thereof behind said one of said vertical walls.

3. In uncoupling mechanism for car couplers, a bracket comprising a pair of vertical walls and a connecting wall, said walls forming a pair of U-shaped troughs substantially at right angles to each other, a member mounted in said bracket having a portion adapted to swing in a substantially vertical plane and having portions entering each of said troughs, a wall of one of said troughs normally preventing such swinging movement, said member being shiftable laterally of said bracket to disengage one of said portions from its cooperating trough to permit swinging of said member.

4. In uncoupling mechanism for car couplers, a bracket mounted on the car structure, an uncoupling rod comprising a vertically swinging handle mounted in said bracket, a rod connected to said coupler for unlocking the same and a link pivotally connecting said handle and rod providing for lateral and longitudinal movement of said rod

with respect to said handle, means on said bracket adapted to engage said handle to normally prevent swinging thereof, said handle being shiftable laterally to a position free of said preventing means, said bracket being so constructed and arranged as to normally cause said handle to assume a position in which swinging thereof will be prevented.

5. In uncoupling mechanism for a car coupler, a bracket, an uncoupling rod for said coupler adapted to swing laterally and longitudinally with lateral and longitudinal movements of the coupler, a handle mounted for swinging movement in said bracket and having a pivotal connection with said rod, means on said bracket extending in front of said handle for normally preventing swinging movement thereof, said handle being shiftable laterally in said bracket to a position free of said means, said bracket being so constructed and arranged as to normally cause said handle to assume a position in which swinging thereof will be prevented.

6. In uncoupling mechanism for a car coupler, a bracket, an uncoupling rod for said coupler adapted to swing laterally and longitudinally with lateral and longitudinal movements of the coupler, said bracket having a downwardly and inwardly sloping bearing portion, a handle pivotally connected to said rod, mounted in said bracket and having a portion engaging said sloping bearing portion of said bracket for swinging movement, means on said bracket extending in front of said handle for normally preventing said swinging movement, said sloping bearing portion of said bracket being adapted to urge said handle in back of said preventing means.

7. In uncoupling mechanism for car couplers, a bracket, a vertically disposed handle mounted in said bracket for swinging movement, means extending in front of said handle, normally preventing said swinging movement, said handle having a grip portion bent forwardly and outwardly and arranged so that the central vertical plane of said portion is at an angle to the longitudinal axis of the car, said bracket and handle being constructed and arranged so that an outward pull on said handle in the plane of said grip portion moves said handle from behind said preventing means.

8. A handle for uncoupling mechanism for car couplers comprising a bearing portion and a second portion bent at an angle thereto, said portions lying in the same plane, said second portion having a part thereof bent to form a hand grip in such manner that the central vertical plane of said grip is at an obtuse angle to the central plane of said bearing and second portions.

9. In uncoupling mechanism for car couplers, a bracket, a two part uncoupling rod, a link pivotally connecting said parts, one of said parts being supported in said bracket and the other of said parts normally being positioned below said first-mentioned part and adapted to be operatively assembled above said first mentioned part, and means on said bracket limiting outward movement of said other part when the latter is in a position above the first-mentioned part.

10. A connecting link for a two part uncoupling rod, comprising a pair of similar elements each having an integral projection at one end thereof, and a recess at the other end adapted to receive the projection of the other element and means extending through both of said elements for holding them in assembled relation.

11. A connecting link for a two part uncoupling rod, comprising a pair of similar elements each having a projection at one end thereof, and a recess at the other end adapted to receive the projection of the other element, and a second projection on each element intermediate said first named projection and recess for limiting movement of the two parts of the uncoupling rod towards each other.

12. A connecting link for a two part uncoupling rod, comprising a pair of similar elements each having an integral projection at one end and a recess at the other end extending partially through the element and adapted to receive and position the projection of the other element and means for securing said elements together.

13. In uncoupling mechanism for car couplers, a bracket, a member mounted in said bracket and having a bearing portion and a second portion substantially at right angles to said bearing portion and adapted to swing in a substantially vertical plane, means comprising a surface on said bracket extending in front of said second portion when said member is in normal position and engageable by said second portion for preventing swinging movement of the latter to effect uncoupling, said member being bodily shiftable laterally in said bracket to a position free of said surface to permit uncoupling.

14. In uncoupling mechanism for car couplers, a bracket, an uncoupling rod comprising two elements, a link pivotally connecting said elements, said mechanism being normally operable when said elements are in a certain relative vertical position and being capable of operation when the vertical positions of said elements are reversed, said bracket being constructed and arranged to permit movement of said uncoupling rod relative thereto when said elements are in said reversed position.

15. In uncoupling mechanism for car couplers, a bracket, an uncoupling rod comprising two elements, a link pivotally connecting said elements, said mechanism being normally operable when said elements are in a certain relative vertical position and being capable of operation when the vertical positions of said elements are reversed, and means on said bracket limiting lateral movement of one of said elements in one direction when said elements are in said reversed position.

16. In uncoupling mechanism for car couplers, a bracket, a member mounted in said bracket and having a bearing portion and a second portion substantially at right angles to said bearing portion and adapted to swing in a substantially vertical plane, and means engageable by said second portion for preventing swinging movement of the latter to effect uncoupling, said member being bodily shiftable laterally in said bracket to a position free of said means to permit uncoupling.

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