

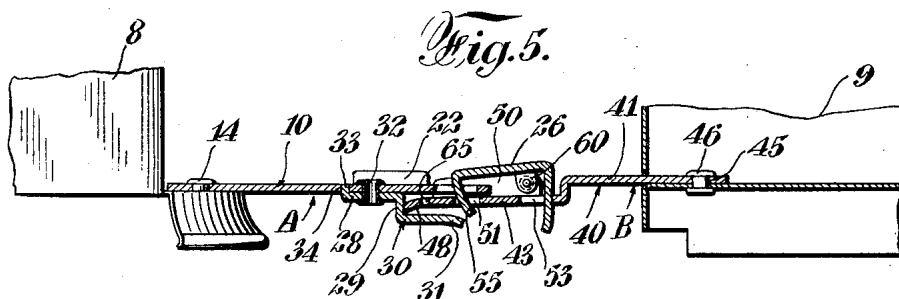
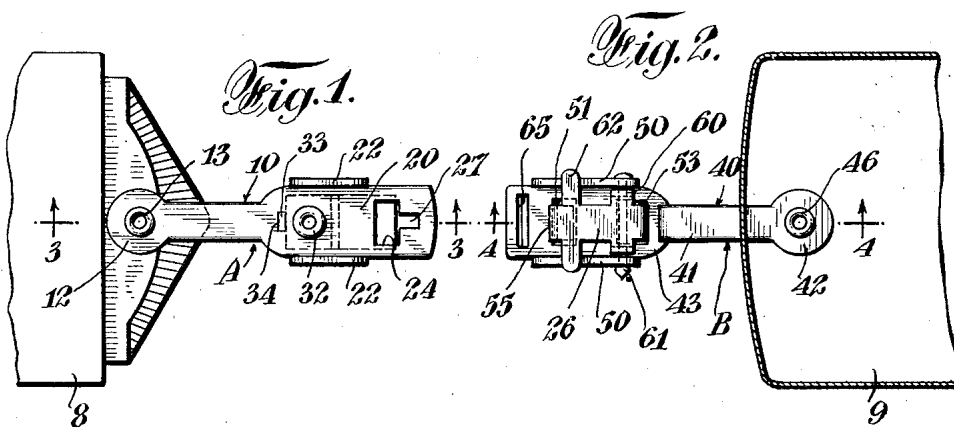
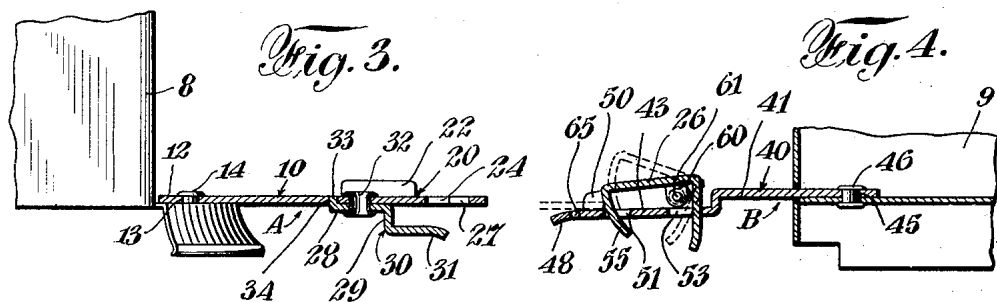
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CAR COUPLER

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# UNITED STATES PATENT OFFICE

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## CAR COUPLER

Application filed December 31, 1926. Serial No. 158,147.

This invention relates to car couplers, particularly to couplers for toy cars and other toy vehicles.

One object of my invention is to provide an improved coupler which will act to couple two cars automatically as they are moved together.

A further object is to provide in a coupling device of this character an improved manually operable means by the use of which the cars may be easily uncoupled whenever desired.

A further object is to provide an improved coupler which cannot become accidentally uncoupled.

The coupler constructed in accordance with my invention consists of two coupling members adapted for attachment to different cars and adapted to cooperate with one another to couple the cars together. Each of these coupling members is constructed so that it may also be used with coupling members of the types and forms now in common use.

Further objects of my invention include ease and economy of manufacture, simplicity of construction, and durability and efficiency in use.

Other objects of my invention will appear from the following description taken in connection with the accompanying drawing which shows one embodiment of my invention and wherein

Figure 1 is a top plan view of one of the two members of my improved coupler, the same being shown as attached to the end of a toy car.

Figure 2 is a top plan view of the other of the two coupling members.

Figure 3 is a section on a line 3—3 of Figure 1.

Figure 4 is a section on a line 4—4 of Figure 2, showing the coupling latch in full lines in its lower position, and in dotted lines in a position to which it has been raised by the coupling member shown in Figure 3.

Figure 5 is a central vertical sectional view through both of the members showing them coupled together.

The coupler shown in the drawing consists of member A shown in Figures 1 and 3 and

member B shown in Figures 2 and 4. Members A and B are shown as attached to the end of toy cars 8 and 9 respectively, and these members are adapted to engage one another to couple the cars 8 and 9 together as shown in Figure 5.

Member A consists of a body portion 10 preferably formed of sheet metal having a shank or draw bar at one end of which is an enlargement 12 perforated at 13 for the reception of a pin or screw 14 which secures the member A to the end of the car 8 in such a manner that it is free to swing laterally to accommodate itself to changing angular positions of the cars 8 and 9 as they move over curved portions of the track. The sheet metal body 10 at the end opposite to the enlargement 12 is formed with an enlarged flat portion 20 having at opposite sides upwardly extending strengthening lugs or flanges 22 formed by bending up or stamping the sheet metal of the body portion. Near the outer end of the portion 20 is a squared opening 24 which is adapted to receive the pivoted latch 26 on the member B when the cars are coupled together as will be more fully explained hereafter. When the car 8 is to be coupled to a car which has, instead of the member B a coupling member formed of a pivoted hook as is common in toy cars now in use, this hook is received in the central recess 27 formed in the edge of the squared opening 24.

Secured to the under side of the enlarged portion 20 is an angle member 30 formed of sheet metal having a rear or inner portion 28 secured to the body 10 by an eyelet 32, an intermediate portion 29 bent downwardly at right angles to the body 10 and an outwardly extending portion 31 spaced from the bottom of the body 10. The inner end of the portion 28 is bent upwardly at 33 and is held in the opening 34 in the body 10, as shown in Figures 1 and 3. The portion 31 is parallel with the body 10 except at its outer end where it is inclined away from the body portion.

The member B is formed of a body 40 of sheet metal comprising a shank or draw bar 41, having enlargements 42 and 43 at opposite ends. Enlargement 42 is formed with a central opening 45 adapted to receive a pin

or screw 46 for securing the member B to the end of the car 9, the shank 41 being shown as extending through an opening in the end of the car 9 and the pin 46 securing the enlargement 42 to the floor of the car 9. The enlargement 43 is offset somewhat from the plane of the shank 40 and is inclined along its length outwardly and downwardly from the plane of the shank 40 and the outer end of the enlarged portion 43 is curved downwardly as shown at 48. The sides of the enlarged portion 43 are provided with upwardly extending flanges 50, the upper edges of which incline downwardly and outwardly as shown in Figure 4. The enlarged portion 43 is formed with a central squared opening 51 located between and near the outer ends of the flanges 50 and with a similar opening 53 located between and near the inner ends of the flanges 50. Flanges 50 serve as a supporting means for a latch 26 which is formed of sheet metal bent downwardly at its forward end 55 so as to form a hook for engaging the member A, hook 55 being shown in full lines in Figure 4 as extending through opening 51. Latch 26, at its inner end is bent downwardly and extends through the opening 53 and forms an operating means adapted to be moved by hand to uncouple the cars. The metal of the latch 26 at opposite sides of the latch is bent downwardly at 60 to form bearing members that receive and are supported by a pin 61 carried by the flanges 50. The forward end of the latch when in the position shown in full lines in Figure 4 is supported on the tops of the flanges 50 by means of two lugs 62 extending outwardly from opposite sides of the latch.

The forward end of the enlarged portion 43 is formed with a squared opening 65 adapted to be engaged by a coupling hook in case the car 9 is to be coupled to car having such a hook instead of the member A.

In operation, assuming that the cars 8 and 9 are to be coupled together, these cars will be moved toward one another from the relative positions they are shown to occupy in Figures 3 and 4. The outer end of the portion 20 of the member A will ride up on the curved end 48 of the portion 43 of the member B and move along the top of the portion 43 until it passes between the outer ends of the flanges 50 and engages the outer face of the curved portion 55 of the latch 26. In case the members A and B are not in exact alinement the ends of flanges 50 will serve to guide the outer end of portion 20 so that it will pass between the flanges. Continued movement of the member A relative to the member B will then cause the latch 26 to be raised to the position shown in dotted lines in Figure 4 and further movement in the same direction will cause the lower end of the latch 26 to move up onto the top of the portion 20 of the member A and thence along the top until the opening 24 is

reached when the latch 26 will fall by gravity to the position shown in Figure 4, in which the end 55 of the latch extends through the opening 24 and serves to couple the members A and B together. When the opening 24 is in proper position to receive the end 55 of the latch 26 the outer end 48 of the portion 43 of the member B will have been brought into contact with the portion 29 of the angle member 30. This engagement of the end 48 with the portion 29 will prevent the portion 20 of the member A moving too far inwardly along the top of portion 43 of the member B and in this manner will provide a means for stopping the relative movement of the members A and B at a position in which the end 55 of the latch 26 will enter the opening 24 of the portion 20. The member 30 also has the function of preventing the uncoupling of the cars by accidental tilting movements of the members A and B relative to one another. In case the outer end of the members A and B are tilted upwardly the outer end 31 of the member 30 will engage the bottom of the enlarged portion 43 of the member B and the outer end 48 of the portion 43 will engage the bottom of the portion 20 of member A and serve to prevent further upward tilting movement which if continued would cause the outer end of the portion 20 to lift the latch 26 out of the opening 24. Similarly, if the outer ends of the members A and B be tilted downwardly the end 48 of the portion 43 will engage the top of the portion 31 of the member 30, and the outer end of the portion 20 will engage the top of the portion 43 and as a result further tilting of the outer ends of the members A and B will be prevented. The curved end or hook 55 of the latch is of such form that the pull or draft between the members A and B tends to maintain the latch in its lower or coupled position.

The upward movement of the latch 26 is limited by engagement of the downwardly projecting rear portion with the outer or forward edge of the opening 53.

When it is desired to uncouple the cars the lower end of the downwardly projecting portion is moved by the finger so as to move the latch 26 about its pivotal support in a clockwise direction, thereby raising the end 55 of the latch out of the opening 24.

Having now described my invention, what I claim and desire to secure by Letters Patent is:

1. In a coupling device a member having a sheet metal body portion adapted to be secured to a car and formed with flanges bent upwardly at opposite sides thereof and formed with an opening near its outer end, and said body portion being further formed with a second opening located back of said first named opening, an outwardly extending latch pivotally supported near its inner end by said flanges, said latch being formed at its

outer end with a curved hook normally positioned by gravity in said first named opening, said hook being so formed as to be raised by backward pressure exerted on its outer surface whereby said latch may be lifted automatically by engagement with a coupling member on an approaching car, and said latch being bent at its rear end to form a manual operating means which extends through said second named opening, and said latch having laterally projecting lugs extending over said flanges and supported thereon when said latch is in its lower position.

2. A coupling device comprising a member adapted to be attached to a car, and comprising a draw bar and a downwardly inclined flat portion extending outwardly therefrom and having an opening therein near its outer end, a latch pivoted to said member and having a downwardly curved end which normally extends into said opening, a second member adapted to be attached to another car and formed of a substantially flat body having an opening near its outer end and an angle member secured to its under side and having an outwardly extending portion spaced from and beneath said second named opening, said second named member being adapted to ride up on the said downwardly extending portion as said cars move toward one another and to engage and lift said latch and move beneath said latch until said second named opening registers with said latch and said latch drops into said second named opening.

Signed at New York in the county of New York and State of New York this 22nd day of December A. D. 1926.

MILTON FORCHHEIMER.

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