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1,608,300

L. CARUSO

AUTOMATIC COUPLER FOR TOY TRAINS

Filed May 22, 1923

Fig. 1.

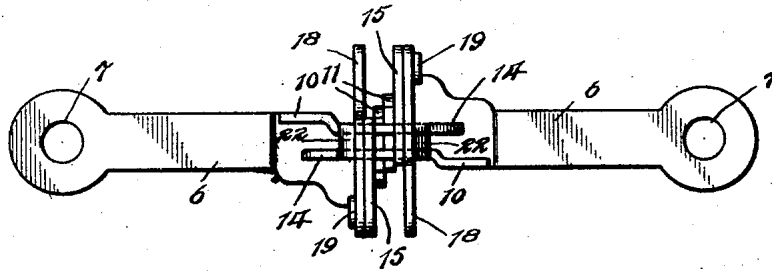


Fig. 2.

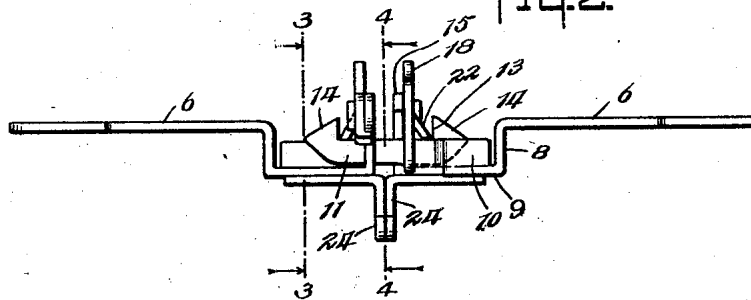


Fig. 3.

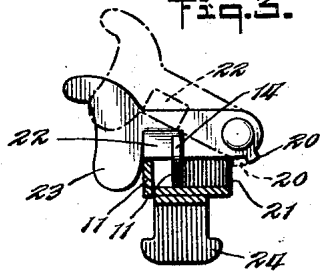


Fig. 4.

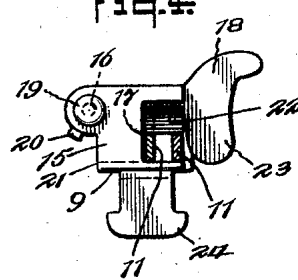
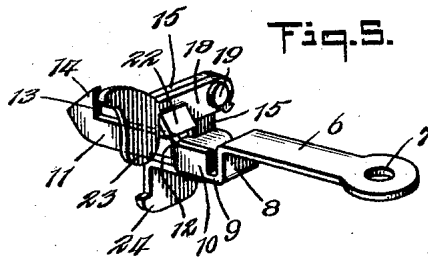


Fig. 5.



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AUTOMATIC COUPLER FOR TOY TRAINS.

Application filed May 22, 1923. Serial No. 640,669.

The present invention relates to an automatic coupler suitable for use with toy trains. Devices which have been heretofore provided for coupling toy trains have been more or less unsatisfactory because they did not always properly couple the cars and hold them together. The present invention is directed toward a form of coupler which has been found to be satisfactory for the purpose.

An object of the present invention is to provide an automatic coupler for toy trains which can be made up out of sheet metal by simple stamping operations.

Another object of the present invention is to provide an automatic coupler which will function to automatically couple cars together on their approach and which will provide for one car pulling the other or pushing the other as the case may be.

Another object of the invention is to provide a coupler of such a design that the pull from one car to the other takes place in practically a straight line.

The accompanying drawings show for the purposes of illustration one of the many possible embodiments in which the present invention may take form, it being understood that the drawings are intended to illustrate the invention rather than limit the same.

In these drawings:

Fig. 1 is a top plan view illustrating two couplers in coupled position,

Fig. 2 is a side elevation of the couplers shown in Fig. 1,

Fig. 3 is a section taken on the line 3—3 of Fig. 2 looking in the direction of the arrows,

Fig. 4 is a section taken on the line 4—4 of Fig. 2 looking in the direction of the arrows, and

Fig. 5 is a perspective view of one of the coupling devices.

Referring more particularly to Figures 3, 4 and 5 of the drawings, it will appear that each coupler is made up of suitable sheet metal stampings fastened together. The coupler has one sheet metal stamping which provides a draw-bar 6 having an aperture 7 whereby it may be pivotally fastened to the car or locomotive with which it is to be used. The stamping is provided with a downwardly bent portion 8 and with a portion 9 which is parallel with the portion 6 and spaced a short distance below it. A por-

tion of the sheet metal which is a lateral continuation of the depressed portion 9 is bent upwardly as shown at 10 and then continues to the left as shown at 11 where it is provided with a coupler hook. An offset portion 12 intermediate the portions 11 may be provided, if desired, to bring the portion 11 over on top of the portion 9 as indicated. The extreme end of the portion 11 is provided with a coupler hook having a shoulder 13 which faces toward the draw-bar 6 and with an oblique cam surface 14.

The sheet metal is also bent upwardly as shown at 15. This upwardly bent portion is provided with a hole 16 and with an open slot 17 for purposes to be described. A gravity controlled latch member 18, which may also be made of sheet metal, is pivoted on a pin 19 passing through the hole 16. This latch is provided with a projection which is adapted to engage with the edge of the upright portion 15 to limit the upward movement of the latch. The latch is also provided with an oblique cam member 22, which rests upon the portion 11, as is apparent in the drawings. The latch member is also shown as having a depending portion 23 which passes down alongside the outer surface of the member 11 and which prevents this member from being bent sideways. A buffer 24 in the form of an angular piece of sheet metal is fastened underneath the portion 9, either by riveting, soldering or welding as desired. This buffer, it will be noted, extends a short distance beyond the upright portion 15.

When two cars have been equipped with devices such as have been described, the cars may be coupled together as shown in Figs. 1 and 2. As the cars approach one another the oblique cam surface 14 on each of the couplers engages the oblique cam 22 on the latch of the other coupler. In this manner the latches on both couplers are lifted from the position shown in full lines in Fig. 3 to the position shown in dotted lines; whereupon the cam portions drop down back of the shoulders 13. The buffers 24 will limit the movement of the cars toward one another preventing lost motion, and the latches and shoulders will permit one car to pull the other.

In the arrangement shown in the drawings, it is obvious that the pull from one car to another is through substantially a straight

line. This comes about by depressing the central portions of the couplers so that the point of engagement of the shoulders and latches is approximately in a straight line with the under surfaces of the draw-bars. By this arrangement there is no tendency to pull the parts of the automatic coupler out of alignment. It is also obvious that, if desired, certain of the automatic features of the coupler can be dispensed with and other features retained so that the coupler would be non-automatic.

I claim:

1. Coupling means for toy trains comprising a pair of couplers carried by the ends of toy cars, each coupler including a draw-bar in the form of a sheet metal stamping one end of which has provisions for swingingly connecting it to a toy car, the other end having an upright shoulder facing the first mentioned end, the intermediate portion being upwardly bent to provide a support for a latch, and a latch pivotally mounted on said support, the latch on one coupler being engageable with the shoulder on the other.

2. Coupling means for toy trains comprising a pair of couplers carried by the ends of toy cars, each coupler including a draw-bar in the form of a sheet metal stamping one end of which has provisions for swingingly connecting it to a toy car, the other end having an upright shoulder facing the first mentioned end, the intermediate portion being upwardly bent to provide a support for a latch, and a latch pivotally mounted on said support, the latch on one coupler being engageable with the shoulder on the other, said coupler being further provided with means for moving the latches as the cars approach one another whereby the latches and shoulders may become interengaged.

3. Coupling means for toy trains comprising a pair of couplers carried by the ends of toy cars, each coupler including a draw-bar in the form of a sheet metal stamping one end of which has provisions for swingingly connecting it to a toy car, the other end having an upright shoulder facing the first mentioned end, the intermediate portion being upwardly bent to provide a support for a latch, and a gravity controlled latch pivotally mounted on said support, the latch on one coupler being engageable with the shoulder on the other.

4. Coupling means for toy trains comprising a pair of couplers carried by the ends of toy cars, each coupler including a draw-bar in the form of a sheet metal stamping one end of which has provisions for swingingly connecting it to a toy car, the other end having an upright shoulder facing the first mentioned end, the intermediate portion being upwardly bent to provide a support for a latch, and a latch pivotally mounted on said support, the latch on one coupler being en-

gageable with the shoulder on the other, said latches and shoulders when coupled being so disposed that one car may pull the other, each of said devices further including a buffer in the form of an angular piece of sheet metal fastened to the underside of the sheet metal stamping and so disposed that one car may push the other.

5. Coupling means for toy trains comprising a pair of couplers carried by the ends of toy cars, each coupler including a draw-bar in the form of a sheet metal stamping one end of which has provisions for swingingly connecting it to a toy car, the other end having an upright shoulder facing the first mentioned end, the intermediate portion being upwardly bent to provide a support for a latch, and a latch pivotally mounted on said support, the latch on one coupler being engageable with the shoulder on the other, said couplers being further provided with means for moving the latches as the cars approach one another whereby the latches and shoulders may become interengaged, and with a buffer in the form of an angular piece of sheet metal fastened to the underside of the sheet metal stamping and so disposed that it will engage the buffer on the other coupler whereby one car may push the other, said latches and shoulders when coupled being so disposed that one car may pull the other.

6. An automatic coupler for toy trains, comprising a pair of rigid symmetrical draw-bars facing one another, the opposite ends being thin and flat and disposed in a horizontal plane and the adjacent ends being twisted into parallel vertical planes extending past one another and having shoulders, the draw-bars each being provided with a movable catch which is automatically interengageable with the shoulder on the other draw-bar upon the approach of the draw-bars, said interengagement taking place in the plane of said opposite ends, whereby the tractive effort is exerted in one plane.

7. An automatic coupler for toy trains, comprising a pair of rigid symmetrical draw-bars facing one another, the opposite ends being thin and flat and disposed in a horizontal plane and the adjacent ends being twisted into parallel vertical planes extending past one another and having shoulders, the draw-bars being provided with offset portions, and a movable catch carried by each offset portion, said catches being automatically interengageable with the shoulder on the other draw-bar upon the approach of the draw-bars, said interengagement taking place in the plane of said opposite ends, whereby the tractive effort is exerted in one plane.

8. A coupling device for a toy car comprising a sheet metal draw-bar having a coupler hook provided with a vertical shoulder

and an oblique cam surface, a vertical support bent out of the sheet metal and disposed transversely, and a transverse gravity controlled latch mounted on said vertical support, said latch having an oblique cam surface sloping in a direction opposite to that of the cam surface on the coupler hook.

9. A coupling device for a toy car comprising a normally horizontal draw-bar having means for swingingly attaching one end to the car and having an oblique cam surface near the other end, the intermediate portion being twisted through an angle of 90° , a vertical shoulder adjacent the cam surface and facing the car attaching end, and a transverse gravity controlled latch supported on an upturned portion of the draw-bar and spaced from the shoulder.

10. A coupling device for a toy car comprising a normally horizontal draw-bar having means for swingingly attaching one end to the car and having an oblique cam surface near the other end, the intermediate portion being twisted through an angle of 90° , a vertical shoulder adjacent the cam surface and facing the car attaching end, and a transverse gravity controlled latch supported on an upturned portion of the draw-bar and spaced from the shoulder, said latch having an oblique cam surface sloping in a direction opposite to the first cam surface.

11. A sheet metal stamping for an automatic coupler for toy trains, said stamping having an upwardly bent portion providing a pivotal mounting for a transverse latch, a vertical shoulder extending beyond the mounting for engaging the latch of a mating coupler to lock the couplers together, and a cam surface beyond the shoulder, the thickness of the draw-bar and the upwardly bent portion and the width of the shoulder and cam being substantially equal.

12. A coupler for toy trains comprising a piece of sheet metal having a flat portion constituting a draw-bar, a depressed flat portion, an upwardly bent portion at the free end of the depressed flat portion, and a second upwardly bent portion at one side of the depressed portion, said second upwardly bent portion extending beyond and being

spaced from the first upwardly bent portion and being provided with a shoulder, and a latch pivoted on the first upwardly bent portion and resting on the second upwardly bent portion.

13. A coupler for toy trains comprising a piece of sheet metal having a flat portion constituting a draw-bar, a depressed flat portion, an upwardly bent portion at the free end of the depressed flat portion, and a second upwardly bent portion at one side of the depressed portion, said second upwardly bent portion extending beyond and being spaced from the first upwardly bent portion and being provided with a shoulder, a latch pivoted on the first upwardly bent portion and resting on the second upwardly bent portion, and a buffer fastened underneath the depressed portion and extending beyond the second upwardly bent portion.

14. In a coupler for toy trains, a piece of sheet metal having a flat portion constituting a draw-bar, a depressed flat portion, an upwardly bent portion at the free end of the depressed flat portion, and a transverse latch pivoted near the upper end of the upwardly bent portion.

15. In a coupler for toy trains, a piece of sheet metal having a flat portion constituting a draw-bar, a depressed flat portion, an upwardly bent portion at the free end of the depressed flat portion, a transverse latch pivoted near the upper end of the upwardly bent portion, and a finger carried by the latch and engageable with the upwardly bent portion for limiting the upward movement of the latch.

16. In an automatic coupler for toy trains, a sheet metal draw-bar having a pivotal mounting for a transverse latch, a shoulder extending beyond the mounting, and a cam surface beyond the shoulder, and a transverse gravity controlled latch mounted in said pivotal mounting, said latch resting against the top of the draw-bar and extending down alongside the draw-bar.

Signed at Irvington, in the county of Essex and State of New Jersey, this 10th day of May, 1923.

LOUIS CARUSO.